

Do we have the energy to address climate change?

May 4, 2021

Climate change is a problem that is too far removed from our lives and too difficult to solve, while at the same time touching on every aspect of our lives. This paradox explains why it has taken the world some time to reach an agreement on how to address it.

Following years of debate, in 2015 the Paris Agreement set targets on greenhouse gas emissions to ensure that the world does not cause irreversible climate change. Most countries, including New Zealand, have since ratified this Agreement and in 2019, New Zealand adopted domestic targets to meet its commitments.

Meeting domestic targets through emissions budgets

Achieving these targets will involve actually reducing greenhouse gas emissions in all areas of activity, as well as creating some carbon sinks through forest planting.

The legislative framework requires the Government to set 5-yearly emissions budgets between now and 2050, a self-imposed timeline. This would allow the New Zealand economy to gradually reduce its greenhouse gas emissions while providing businesses more certainty.

The Climate Change Commission (Commission) prepared draft advice¹ in January 2021 with its recommendations for emissions budgets, and the options it sees for individual sectors of activity to meet these commitments (see our analysis here).

Economy to shift to renewable electricity

The common thread throughout the Commission's draft advice is the need to decarbonise the New Zealand economy by moving New Zealand away from fossil-fuel-based energy sources and on to using mainly renewable electricity. This would include greater use of electricity over other energy sources for transport and domestic needs.

More renewable electricity infrastructure

To make decarbonisation a reality, the existing infrastructure for generation, transmission and distribution of electricity would need to be expanded, at the same time as energy efficiency improves and demand is managed.

In 2019, most renewable electricity generation in New Zealand came from geothermal (64.47%), hydro (31.85%), wind (2.8%), biogas (0.85%) and solar (0.15%). While there have been, in the past, attempts to build tidal plants, no

large scale projects have been completed to date. Similarly, New Zealand is yet to see any large scale solar generation development.

Renewable electricity generation² accounted for over 80% of electricity generation in NZ that year. The government is considering adopting a renewable energy target of 100% of the electricity New Zealand needs by 2030.

However, such an increase in capacity may not be sufficient in the long term. As the economy electrifies, demand for electricity is projected to double by 2050³. Capacity for renewable electricity generation would need to increase in time to keep up with demand.

Challenges to expanding capacity

Efforts to expand the capacity of New Zealand's renewable energy infrastructure will face a number of challenges.

One challenge results from uncertainty around the short-term energy needs of New Zealand, in the context of the upcoming closure of the Tiwai Point Smelter (scheduled for 2024). The Smelter is one of NZ's largest consumers of electricity, using around 13% of New Zealand's annual production of electricity. The closure may free up a significant percentage of electricity that can be used elsewhere, causing some uncertainty which may affect short term investment decisions to increase renewable electricity generation capacity.

Another challenge is ensuring that New Zealand's electricity can be generated during dry years, when low hydro lake levels would impact the ability to generate electricity using hydroelectric power plants⁴. At the moment, during dry years fossil-fuelled power plants are used to make up any shortfall in electricity needed. Additional options would need to be put in place to manage this, such as the pumped hydro plant currently being considered for Lake Onslow.

Another challenge, is the need to secure resource consents for new, or to re-consent existing, generation and transmission infrastructure.

Past hurdles when consenting renewables

In 2011, the National Policy Statement for Renewable Electricity Generation (NPS REG)⁵ was issued at a time when climate change was a less pressing concern for the public and the government of the day than it is now.

The language of the NPS REG has done little to assist with the consenting process for renewable electricity generation. It required councils to make provision for renewable electricity generation in their plans, but offered little direction on how to deal with competing requirements within the Resource Management Act (RMA) framework so as to enable these projects.

Renewable electricity generation projects have faced some recurring consenting hurdles. Key hurdles have included:

- Concerns that water takes for hydro-generation purposes would detrimentally affect flora and fauna, and the recreational values of water bodies;
- Concerns about the landscape and noise effects of wind farms; and
- In relation to geothermal generation, fears that proposals might impact existing users of the geothermal resource, or impact groundwater.

Time to co-ordinate climate change response

actions

Both the Commission's draft advice to increase reliance on electricity, and the government's desire to set a 100% renewable energy target by 2030, would result in New Zealand needing to substantially increase its renewable electricity generation capacity over the next 8+ years.

This may not be as straightforward as everyone hopes.

The NPS REG does not prioritise renewable electricity generation plants (whether they are new projects or any existing plants requiring re-consenting) over other aspects of the environment. The national directions on freshwater and biodiversity are likely to have as much of an impact on these projects at consenting stage as the NPS REG, if not more. This is partly because of the stronger, more prescriptive, language used in the more recent freshwater NPS, for example, compared to the softer, less prescriptive language of the NPS REG.

Consideration should be given to address this balance. The current debates around limiting climate change and reforming the RMA present an opportunity for decisions to be made at the national level to co-ordinate competing requirements to protect elements of the environment.

Amending the NPS REG could help the co-ordination. A revised NPS REG could:

- **Be a platform to integrate** requirements from various RMA instruments (including national directions) that are relevant to renewable electricity generation.
We must use all available levers to increase renewable generation, rather than consider and regulate aspects of the solution in isolation.
Focusing national direction documents on one aspect of the environment, while ignoring their interaction with others, is counterproductive and leads to uncertainty. This was the case with the draft indigenous biodiversity NPS, which was criticised for considering climate change response only from the perspective of biodiversity, without taking into account other activities that would assist the task, such as renewable electricity generation.
- **Clarify the hierarchy** of the various protections afforded to elements of the environment by the national direction instruments currently in place. If provisions in the Freshwater NPS and NPS REG are inconsistent, decide which one should prevail.
Such steps would provide a more uniform approach for consent authorities, removing some of the difficult decisions around balancing competing interests. It will also provide applicants with more certainty about the issues they are required to address to successfully consent a project.
- Even go a step further, and include provisions to **prioritise renewable electricity generation** projects (both new and existing) over certain other elements of the environment.
The NPS Freshwater Management allows for the application of less stringent requirements to nominated hydro-electricity generation schemes.
That goes some way to address the difficulty of re-consenting water takes for those schemes. However, it does not include all the hydro-electric power plants in New Zealand, and would not apply to new renewable electricity generation projects, which would be subject to the more onerous provisions.

Amending the NPS-REG is not a total solution. Given the scale of renewable energy projects and the lack of national direction around their consenting and activity status, many proposed renewable electricity generation projects are classified as "non-complying activities". This means that they must pass additional consenting hurdles which focus on the adverse effects of the project, rather than the benefits such projects can have in addressing climate change. The

NPS-REG does not directly impact activity status, and any changes to the NPS-REG will take some time to flow through into district plans. If New Zealand is to meet its climate change goals, then regulations or special legislation may be required.

Cause for optimism

As the public is more alert to the impacts of climate change and the enormity of the task, there is cause for optimism that the New Zealand government is taking action to combat irreversible climate change.

Successive governments took steps to this end, even if they have not been sufficient. New Zealand has had an emissions trading scheme for the past 10 years. It has recently been strengthened through a 2020 amendment, with participant emissions now capped. There is still room for improvement, by expanding the activities the scheme applies to.

The RMA has been amended so that, from the end of 2021, regional councils will no longer be prevented from considering the effects of greenhouse gas emissions on climate change when making discharge rules and considering consent applications.

The Ministry for the Environment is currently consulting on how best to support decision-making on greenhouse gas emissions discharges or on climate change mitigation more generally, by issuing national directions on industrial greenhouse gas emissions.⁶

While the consultation draft's title refers only to Phasing out fossil fuels for process heat, the consultation is broader. It includes questions around how best to implement the RMA requirement to take into account greenhouse gas emissions and their effects on climate change. Submissions close on **20 May 2021** and we encourage people to take part.

Any subsequent changes may assist consents for renewable electricity generation, but in the current framework they would be one of many matters that consent authorities weigh in reaching a decision. In our opinion, this is not enough.

Environmental stewardship is about managing the resources we have today, so they can be enjoyed by future generations. However, future generations will not thank us if our environmental legislation and policy prioritises the views and amenity of today's citizens at the expense of tomorrow's.

Climate change has the potential to irreversibly impact our biodiversity, landscapes, and way of life. Doing nothing to address it means that we are slipping behind and the task becomes exponentially more difficult over time.

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1. Draft advice by Climate Change Commission.
 2. Renewable energy in the form of hydro, wind, solar and geothermal generation, supplied around 39.5% of total primary energy in 2019.
 3. Transpower, Te Mauri Hiko – Energy futures: White Paper (2018) at 5.
 4. Hydro accounts for a large proportion of the total primary energy supply of New Zealand.
 5. NPS Renewable Energy Generation (2011) is currently under review (see MfE, Phasing out fossil fuels in process heat (2021) at 19).
 6. Ministry for the Environment, Phasing out fossil fuels in process heat (Apr 2021).

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