Developments in Renewable Energy Law and Policy in New Zealand

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Introduction

Renewable energy uptake has experienced a dramatic increase in the last decade. The Ren21 *Renewables 2013 Global Status Report* indicates that by the end of 2011 19% of global final energy consumption was provided by renewables. By the end of 2012 renewables comprised more than 26% of global electric generating capacity, and supplied around 21.7% of electricity generated. While the majority source was from hydropower, other renewables such as wind, solar and PV and solar thermal have showed strong growth and, in countries such as the US, Germany, Spain, Italy, India, and China, account for the majority of generation growth.¹

Renewable technology is also developing rapidly, with the efficiency of wind, solar PV and thermal, and other renewable sources increasing, and the cost of components such as solar panels and thermal water heating units dropping steadily. So the technology is here and available, with costs falling and some systems approaching parity with traditional electricity generation such as coal, oil and gas. In New Zealand, for example, wind energy is cheap and abundant, and wind farms are economically competitive – without subsidisation – with other forms of electricity generation.² If subsidies to traditional hydrocarbon-based energy sources were removed it is likely many renewable energy technologies would be even more competitive.

The New Zealand government has set a number of energy and greenhouse gas (GHG) emission targets including: 90% of electricity from renewable technologies by 2025, a 10-20% net reduction of GHG from 1990 levels by 2020, and a 50% reduction by 2050.³ Already around 70% of electricity is produced from renewable sources, and New Zealand came close to achieving its Kyoto commitments in the 2008-12 first commitment period. However, achieving these more ambitious targets will be difficult. New Zealand is unique in that 50% of its GHG emissions comes from agricultural activities upon which the economy depends. The Energy Efficiency and Conservation Authority has a statutory mandate to

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promote renewable energy policies and use. The electricity market is subject to regulation through the Electricity Authority.

This paper will examine how law and policy can assist in increasing the uptake of renewable energy focusing primarily on the New Zealand experience. New Zealand has undergone considerable environmental and energy reforms. These have included central government and local government restructuring, legislative reform of planning and environmental laws, the introduction of focused policy encouraging greater uptake of renewable energy, and decisions of the courts that have applied principles of sustainability in renewable energy developments.

New Zealand Energy Strategy

The New Zealand Energy Strategy 2011 – 2021 states “The Government’s approach to making the most of our energy potential is to ensure energy markets are effective and efficient. This approach will encourage efficient energy use, the development of resources where it is economic to do so, the minimisation of the environmental impacts of energy supply and use, and the meeting of our international responsibilities on addressing greenhouse gas emissions”.

The Strategy states that the government retains the target that 90% of electricity generation should be from renewable sources by 2025 (in an average hydrological year) provided this does not affect security of supply. The Strategy continues that New Zealand has an abundance of renewable resources for electricity generation. In 2010, geothermal and wind generated 17% of electricity, and renewable sources contributed 74% of electricity generation. The Strategy emphasises the need for competitive energy markets with access to the markets by large and small generators. It notes that smart grid infrastructure offers more intelligent network management that could enable higher levels of distributed generation and smaller scale generation to integrate into the system. Smart metering can provide greater levels of consumer information, influencing electricity use and potentially being a powerful force for promoting electricity conservation. The policy is to be applied to support the implementation of the National Policy Statement for Renewable Electricity Generation, and to incorporate the cost of greenhouse gas emissions into electricity investment decisions through the New Zealand Emissions Trading Scheme. The Electricity Industry Act 2010

8 At 6, 9.
9 At 25.
establishes an electricity authority to supervise options relating to distribution and feed-in tariffs.\textsuperscript{10}

The New Zealand Energy Data file, produced annually, contains the statistics regarding sources of energy, including both fossil fuel and renewable sources. The sources of renewable primary energy supply in 2011 comprised geothermal 50\%, hydro 28\%, bioenergy and solar 20\%, and wind 2\%.\textsuperscript{11}

**Resource Management Act purpose**

The Resource Management Act 1991 (RMA) is the major reform Act in New Zealand regulating the use of land, air, and water resources. The governance structure provides for integrated management through central government input (national environmental standards and national policy statements), region and district (or unitary) council policy and plans, consent procedures, and local enforcement. The paramount purpose of the Act is to “promote the sustainable management of natural and physical resources”.\textsuperscript{12} “Sustainable management” is defined to mean “managing the use, development, and protection of natural and physical resources in a way or at a rate that enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while – (a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and (b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and (c) avoiding, remedying, or mitigating any adverse effects of activities on the environment”.\textsuperscript{13}

Further, in achieving the purpose of the Act, all persons exercising functions and powers are to have particular regard to… “(ba) the efficiency of the end use of energy: … (i) the effects of climate change; (j) the benefits to be derived from the use and development of renewable energy.”\textsuperscript{14} The identification of the matters relating to the efficiency of the end use of electricity, effects of climate change, and the benefits to be derived from the use and development of renewable energy, have influenced the policy and plan content, and assessment of consents for developments which utilise renewable energy (considered in the cases to follow). These provisions were inserted in 2004, to complement the implementation of the emissions trading scheme.\textsuperscript{15}

\textsuperscript{10} At 26. The emissions trading scheme is established under the Climate Change Response Act 2002 (as amended). For details see www.climatechange.govt.nz. See also Nolan, above n 6, ch 17.


\textsuperscript{12} Resource Management Act 1991, s 5(1).

\textsuperscript{13} Section 5(2). The purpose has been interpreted to allow for the application of policy in a general way, and for an overall broad judgment: New Zealand Rail Ltd v Marlborough District Council [1994] NZRMA 70 (HC); North Shore City Council v Auckland Regional Council [1996] NZRMA 59.

\textsuperscript{14} Section 7 (ba), (i), (j). Under government reform proposals in 2013, the relevant sections will become s 6(j), (k): Resource Management Summary of Reform Proposals 2013 (MiE Wellington: ME 1119) 13.

\textsuperscript{15} See Climate Change Act 2002 (as amended); Resource Management (Energy and Climate Change) Amendment Act 2004.
In addition, to give greater focus on the implementation of the purposes of the RMA, the Act provides for issue of national policy statements through the Minister for the Environment. If the Minister decides to issue a national policy statement, the procedures require a proposed policy statement to be published, with provision for public participation and input, a hearing before a Board of Inquiry, and a report back to the Minister.\(^\text{16}\)

**National Policy Statement for Renewable Electricity Generation**

The National Policy Statement for Renewable Electricity Generation 2011 (NPS) has been issued following the notification procedure.\(^\text{17}\) Every local authority at the regional or district level, must give effect to the statement, and amend a regional, district or unitary plan as necessary.\(^\text{18}\) The preamble of the policy statement reaffirms the strategic target that 90% of electricity generated in New Zealand should be derived from renewable energy by 2025. The focus is on electricity generation. The term “renewable electricity generation” is defined to mean “generation of electricity from solar, wind, hydro-electricity, geothermal, biomass, tidal, wave, or ocean current energy sources”.\(^\text{19}\) This recognition of renewable electricity generation is consistent with categories and standards accepted internationally.\(^\text{20}\)

The NPS requires recognition of the benefits of renewable electricity generation activities, and encourages decision-makers to implement the benefits.\(^\text{21}\) To this end, the policy acknowledges that decision-makers should have particular regard to the need to locate the renewable electricity generation activity where the resource is available; logistical and technical practicalities associated with a particular development; location of existing structures and infrastructure which may be required to service the development, including the access to the national grid; designing measures which allow operational requirements to complement and provide for mitigation opportunities; and adaptive management measures.\(^\text{22}\)

Further, regarding adverse environmental effects or mitigation, where activities cannot be avoided, remedied or mitigated as to environmental effects, the decision-makers should have regard to offsetting measures or environmental compensation, including measures of compensation which benefit the local environment and community affected.\(^\text{23}\) In a subsequent decision approving the Hauauru Wind Farm (2011), the implementation of a range of offsetting measures is assessed.\(^\text{24}\) Another policy requires decision-makers to manage activities, to the extent reasonably possible to avoid reverse sensitivity effects on

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\(^{21}\) National Policy Statement for Renewable Electricity Generation 2011, Policy A.

\(^{22}\) NPS, above, policy C1.

\(^{23}\) NPS, above, policy C2.

\(^{24}\) Final Report and Decision of the Board of Inquiry into the Haunauru ma Raki Wind Farm and Infrastructure Connection to Grid (13 May 2011). See further below.
consented and existing renewable energy generation activities. This policy could allow for an assessment of any interference with wind-flow and acknowledgment of economic activity impacts. Otherwise the RMA states that in the consenting processes, no regard should be had to trade competitors.\textsuperscript{25}

The policy statement directs regional plans and district plans to include objectives, policies, and methods to provide for the development of the respective resources.\textsuperscript{26} In relation to wind resources, potentially the documents could provide for areas which could be suitable for the installations, and areas which would not be seen to be suitable. This forward planning or identification of appropriate landscapes could assist the efficient progression of wind farm developments, and avoid the situation that has arisen in past cases where developments have been declined on location or other amenity grounds. Councils are directed to put into effect the substance of the policy statement within a two year period of 2011.\textsuperscript{27}

Two other national policy documents may assist the implementation of renewable energy. The National Policy Statement on Electricity Transmission 2008 requires acknowledgment of the significance of the national grid and the benefits of security of supply. This statement has enabled strengthening of transmission lines, and duplication of the national grid.\textsuperscript{28} Secondly the Resource Management (National Environmental Standard for Electricity Transmission Activities) Regulations 2009, provides for rights of utility providers to maintain power lines, carry out minor upgrades, enter properties for maintenance, trim encroaching trees, carry out earthworks as needed, and gives guidance as to acceptable electrical field strength and flux densities, in relation to location.\textsuperscript{29}

To the extent that non-renewable fossil fuels are likely to involve assessment under the emissions trading scheme, as a disincentive to further fossil fuel use, electricity generated from coal fired power sources in New Zealand, is limited to one remaining major power station.\textsuperscript{30} Under the RMA, following amendment in 2004, regional councils, in preparing policy and air management plans, and in considering consents to the emission of greenhouse gases, are to disregard the effects of such discharge on climate change on the basis that central government will manage this area through the emissions trading scheme or through national environmental standards.\textsuperscript{31} This interpretation has been confirmed in the Supreme

\textsuperscript{25} NPS, above, policy D, RMA, ss 74(3), 104(3)(a) (trade competition to be disregarded). A proposed wind farm should not impede an existing wind flow to an existing installation: \textit{Unison Networks Ltd v Hawkes Bay Wind Farm Ltd [2007] NZRMA 340 (HC)}.

\textsuperscript{26} NPS, above, policy E3.

\textsuperscript{27} In Wales (UK), councils may identify sites suitable for wind farms: Marcus Trinick “Green on Green: Planning for Wind Energy” (2006) 34 Journal of Planning & Environmental Law, Occasional papers 89-113. See discussion of Project Hayes case (NZ) below.


\textsuperscript{30} The Huntly Power Station which uses both coal and natural gas co-generation.

\textsuperscript{31} Resource Management Act 1991, ss 70A, 70B, 104E, 104F.
Court. Further, the end use of coal produced in New Zealand and exported, is not a relevant factor in assessing an application for a coal mine where the end use may be determined by the overseas country.

The growth in renewable resources for electricity production is now assessed through a study of selected applications and decisions.

**Hydro-Electricity**

Hydro-electricity is the historic source of major electricity generation for public use. Hydro generation was established on a small scale in the 19th century to assist gold field and local municipal electricity use. In the 1960s, the Ministry of Works and Development managed major hydro dam construction on the Clutha River and the Waitaki River in the South Island. These constructions were of a visionary scope. The power provides potentially up to 55% of the country’s consumption of electricity. An underground hydro station was established at Lake Manapouri to supply power to the one major aluminium smelter located at Bluff in the South Island. A cable was constructed across Cook Strait in 1965 between the North and South Islands, to enable electricity to be reticulated to the growing populations in the North Island. At the same time as the South Island projects were undertaken, further major hydro dams were constructed on the Waikato River in the North Island.

After a lull in construction, in 2001, Meridian Energy announced a proposal to establish canal and dam structures known as Project Aqua on the lower Waitaki which would take 73% of the water flow through six power stations. This application gave rise to public concern as to the substantial effect on the water flow, and caused the government to pass special legislation to set up a Board of Inquiry to determine the proper priorities for the use of the freshwater resource. The Board of Inquiry determined a sustainable form of allocation between competing bodies, including local communities, agricultural users, recreational users, enabling a smaller balance water quantity to be available for hydro use. That finding informed the more recent National Policy Statement on Freshwater 2011.

In relation to renewal of water consents applying to hydro generation, the participation process has allowed for the indigenous people (Maori) to assert claims of ownership or customary rights over the use of water for commercial purposes. With reference to the **Tongariro Power Development Scheme**, the Environment Court first declined to grant to

33 Royal Forest and Bird Protection Society v Buller Coal Ltd [2012] NZHC 2156, [2012] NZRMA 552 (on appeal to the Supreme Court).
Genesis Energy a renewal for a 35 year term and reduced it to 10 years, to enable a potential “meeting of minds” between the operator and local Maori who were opposed to the renewal on cultural and economic grounds. That decision was held to be inappropriate, as an invalid ground for refusing renewal of the water right for a longer term.³⁷

Most recently, Maori have asserted further claims to ownership, through an endeavour to prevent privatisation of Crown shares in Mighty River Power Co, which operates hydro dams on the Waikato river.³⁸ The claim was supported by a report from the Waitangi Tribunal which asserted a customary right held by Maori (iwi) in the water, despite common law principles that the ownership of flowing water was not subject to private rights. Claims by iwi for a share of rental or royalty to water use, continue to be an issue faced by the government, and yet to be resolved as a policy matter. Granting a legal interest in water to the indigenous people may increase the price of water for hydro generation, and increase the cost of fresh water to the consumer.³⁹

In the longer term, the potential for further large hydro generation is limited. A number of water conservation orders, under the RMA, have been established on major rivers which prevent further damming or diversion of the waters.⁴⁰ Smaller hydro establishments (below 10 MW capacity) may be more commonly authorised where found to be economic. Presently there is over 160MW collectively of small hydro schemes, and significant potential for further capacity.⁴¹

Further, water, being recognised as a scarce resource, is being made available for rural farm irrigation, as a higher priority, than hydro generation.⁴² The grant of a water right, especially for hydro power generation, may confer a priority on the user, which cannot be derogated from by a subsequent water permit to another user.⁴³ Where competing applications are made for water rights, the first in time obtains priority of hearing, but the consent authority may determine on the merits that the water resource should be available for other relevant applications. This allocation issue is subject to any water policy and rules in a regional plan.⁴⁴

Geothermal Energy

³⁸ New Zealand Maori Council v Attorney-General [2013] NZSC 6. The claim to prevent the sale of shares was not successful. The preceding Waikato-Tainui Raupatu Claims Settlement Act 2010, s 64 acknowledges outstanding differences between the Crown and iwi claimants over proprietary rights to water.
⁴¹ Energy Efficiency and Conservation Authority information Hydro energy (accessible www.eeca.govt.nz)
Geothermal energy provides a significant proportion of generated electricity, and as a steady source is able to complement variations in hydro generation in times of river water shortage. The former Ministry of Works and Development undertook the first large-scale project in the 1950s with the development of a major power station at Wairakei, north of Taupo. This 160MW power station utilised the Wairakei-Tauhara geothermal fields, and has consistently generated electricity since that time. In more recent years, other geothermal power plants have been established in the central plateau area amounting to 350MW in 2012.

In 1989, the Ohaaki geothermal power station was built on Maori land leased from local iwi under a joint project. This station assembled and utilised power plant infrastructure manufactured in Israel. Surplus geothermal energy was harnessed to provide heating for a large adjoining glasshouse operation for horticultural production.

With the Te Mihi geothermal power station (220MW) proposal in 2008, the Board of Inquiry considered matters relating to land stability, subsidence, discharge of contaminants into the air, and reinjection of up to 95,000 tonnes per day of surplus water and steam. The Board approved the project as enabling to obligations under the Kyoto Protocol, and consistent with sustainable management of the resource. A similar approach was taken in the Tauhara II geothermal development project which was also approved.

Priority may be given to a first in time user or a user applying for extension of a consent to take geothermal energy. The regional plan should contain policies and guidelines as to the development, operation, maintenance, and upgrading of new and existing geothermal activities, to the extent applicable, and rules as to consent applications and conditions of taking.

**Wind Energy**

Wind energy as a minor source for electricity generation has been a growth industry in New Zealand following consent to the first Tararua Wind Farm in 1996. An amendment to the RMA in 2004, declaring the benefits to be derived from the use of renewable energy, and the National Policy Statement for Renewable Electricity Generation 2011, have had a significant

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46 Final Report and Decision of the Board of Inquiry Te Mihi Geothermal Power Station Proposal (3 September 2008). The station is sited 5 km west of the 1958 Wairakei station which will in time be phased out of production (except for an existing binary station commissioned in 2005).
47 Final Report and Decision of the Board of Inquiry into the Tauhara II Geothermal Development Project (10 December 2010).
effect in promoting wind farm developments. In 2010, wind energy made up more than 490MW and contributed almost 5% of total energy supply.

Earlier in 2005, an appeal by Genesis Power to the Environment Court concerned a refusal by the local council to grant consents for 18 wind turbines, to be established on a coastal landscape south-west of the main city of Auckland. Opposing the application were local indigenous people (Maori), together with an equestrian centre, which was concerned about the effect of the turbines on the behaviour of horses. Supporting the application were the Energy Efficiency and Conservation Authority (government), the Auckland Regional Council, Environmental Defence Society, Greenpeace New Zealand. The NGO parties were willing to support the move toward renewable energy, and this was significant in the outcome. The effects on disturbing ancestral land, visual effects on landscape and the equestrian centre, were considered to be minor and able to be managed through conditions. Overall the Court determined that following the Kyoto commitment, green-house gas emissions should be minimised and the wind farm would promote sustainable management of natural and physical resources. The consent was granted in this seminal decision.

**Cultural Effects**

Under the RMA, decision makers are required to give weight to the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other sacred objects. An application by Unison Networks in 2007 to establish a 37 turbine wind farm on a site in Hawkes Bay on the eastern coast of the North Island, was the subject of an appeal on these cultural grounds. Maori and other groups claimed that the site would compromise the ancestral relationship to the area. A number of the turbines were sited on a ridgeline called Te Waka, which replicated the image of a waka (Maori canoe). After assessing the benefits of the use of renewable energy for electricity with the social and economic wellbeing and consequences, the Environment Court considered the visual effects were more than minor. Overall the wind farm could have a significant adverse visual and landscape effect, in an outstanding natural landscape, and could adversely affect the cultural relationship. The Court stated “In the case of Te Waka and its surrounds … when one knows something of the lore and legends, the landscape becomes more significant and memorable”. Overall the proposal did not satisfy the purpose of sustainable management and the consent was declined. On a later appeal on points of law, the High Court considered that an appropriate assessment had

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53 Genesis Power Ltd v Franklin District Council [2005] NZRMA 541 (EnvC).
54 To date (2013), the particular wind farm has not been constructed, due to economic considerations.
55 Resource Management Act 1991, s 6(e).
56 The Outstanding Landscape Protection Society Inc v Hastings District Council [2008] NZRMA 8 at [46] (Env C) (37 turbine application by Unison Networks).
been undertaken in terms of the RMA. The site could be found to be outstanding and the proposal to adversely affect the relationship of Maori to the land regarded as ancestral. The refusal was upheld.\textsuperscript{57}

Other decisions relating to developments having a significant effect on Maori interests, may result in the applications being approved or declined, in particular where alternative sites are available without any adverse cultural impact. In the \textit{Hauauru Wind Farm Report}, the Board of Inquiry found that objections by the indigenous people were divided. On the one hand, the applicant Contact Wind Ltd had made arrangements and entered offset and compensation agreements with a particular tribal group to their satisfaction, but had not been able to reach a consensus or compensation agreement with another iwi. In these circumstances, the consent was granted.\textsuperscript{58} As a matter of practice, consultation with iwi groups, who may well be opposed to a wind farm, is viewed as a prudent practice to enable a best outcome.\textsuperscript{59}

\textbf{Landscape Effects and Alternative Sites}

Where a wind farm application is likely to raise significant effects on a landscape, as noted in the Unison Networks case involving the landscape of importance to an indigenous group, the application may not succeed. Another example of this concern, arose in the \textit{Project Hayes} application by Meridian Energy to construct 176 turbines on the Lammermoor Range in Central Otago.\textsuperscript{60} Before the Environment Court, a number of submitters opposed the application as compromising an iconic landscape, which had been represented in quality paintings executed by a respected artist Grahame Sydney. The location had an emotional response throughout the country amongst persons who respected the artistic representations, and respected the landscape for its intrinsic value. In declining the application, the Environment Court went beyond reliance simply upon the site being unsuitable due to serious adverse landscape impact, and placed an obligation on the applicant to establish, through research and an economic analysis survey, that there were not available other alternative sites. The Court applied an economic efficiency onus on the applicant to quantify the value of the landscape.\textsuperscript{61}

This decision was taken to the High Court on appeal on points of law. The High Court acknowledged that the availability of alternative sites could be a relevant matter in the assessment of the application, but to place on the applicant an obligation to undertake an economic efficiency survey of the cost-benefit of alternative sites, went beyond the powers of the Environment Court in the adjudication process. The direction under s 7(b) of the RMA to

\textsuperscript{57} \textit{Unison Networks Ltd v Hastings District Council} [2011] NZRMA 394 (HC).

\textsuperscript{58} \textit{Final Report and Decision of the Board of Inquiry into the Hauauru Ma Raki Wind Farm and Infrastructure Connection to Grid} (13 May 2011) (168 turbines).

\textsuperscript{59} \textit{Carter Holt Harvey Ltd v Te Runanga o Tuwharetoa Ki Kawerau} [2003] 2 NZLR 349 at [55](b) ("Responsible holders of resource consents will, undoubtedly consult regularly with tangata whenua interests to ensure efficient despatch of such applications"). \textit{The Outstanding Landscape Protection Society Inc v Hastings District Council} [2008] NZRMA 8 at [71].

\textsuperscript{60} \textit{Maniototo Environmental Society Inc v Central Otago District Council}, Environment Court, Christchurch, C103/2009, 6 November 2009 (Project Hayes).

\textsuperscript{61} \textsuperscript{Above n 60.}
have regard to the “efficient use and development of natural and physical resources”, did not extend to this type of economic evaluation of alternative locations.\(^6\) Although Meridian Energy succeeded on the appeal on the question of law, it subsequently withdrew the application.

Where the impact on the landscape is found to be acceptable, in coming to this outcome the court or board of inquiry may determine that conditions should be imposed to improve the landscape as a matter of mitigation. In the *Mt Cass* case, Mainpower New Zealand Ltd sought consents to construct 67 wind turbines together with access roads, along the ridge line of Mt Cass, Waipara. The Court approved the application subject to a number of conditions to achieve improved management of the landscape, trap pest species, undertake weed control and promote indigenous regeneration.\(^6\)

**Visual amenity effects**

The close up visual effects of wind turbines have given rise to an interesting aspect of human cognition, being the ability to accept after time a new structure in the landscape. Historically, the windmills commonly found in Europe, dating from the 18th century, and used to process grain and to power drainage pumps, are seen today as heritage items with an attractive appearance. The more recent introduction of wind turbines has undergone, in part, a transition from ungainly open metal framework structures to the more elegant sculptured pylons and variable blade numbers. Further, the size of the structures has increased significantly with slower rotation movements. In one of the *Unison Networks* applications in 2006, the Environment Court observed:

> “Without resiling at all from those views about landscape and visual amenity, we do need to mention the undoubted view that many people find modern turbines attractive and fascinating. Ms Lucas was moved to describe them as having… *elegance, a sculptural gracefulness*. She was of course referring to them in that way as individual structures – she was less impressed with them en masse, referring to the proposals as a… *thicket*… among other comments.”\(^6\)

The Court approved the wind farm.

**Blade reflection, noise, bird strike, other effects**

Other cases have addressed more specifically the adverse effects of the reflections from turbine blades, impact on humans in the near vicinity, bird strike, the question of turbine noise and disturbance of sleep or affect on human wellbeing. These matters were considered


in the Makara Wind Farm application (Project West Wind) where the application was for 70 turbines. The location on the coast north of the capital city of Wellington, was considered on expert evidence to be one of the best sites internationally for high velocity wind stream. The Court approved consent (less 6 turbines deleted due to proximity to other dwellings, and potential effect from the noise).\textsuperscript{65} The noise aspect has been largely resolved by improved technology and is the subject of a New Zealand Standard.\textsuperscript{66} Other matters considered were interference with migratory birds and bats, which the Court found not to be plausible on the evidence. Again, the question of ecological impact and avoidance of avian mortality, has been refined in subsequent decisions, and studies in other countries. The 64 turbine site is now in operation.\textsuperscript{67}

The consideration of adverse effects will be related to the scale of the project and location, matters raised in the assessment of environmental effects required to be filed by an applicant, and the issues raised in submissions on a notified application. In the Waitahora Wind Farm appeal, the Court considered an application for 52/58 turbines located in a working farm on the slopes of a range. The karst type landscape was characterised by sinking streams, underground rivers, and limestone rock. The Court was not persuaded that the land conditions could result in adverse effects on water supply to the rural area, the visual impact was not significant, and claimed effects on a nearby horse stud were not substantiated. The consent was granted. A question of consent for connection of the wind farm to the national grid was able to be considered in a subsequent application.\textsuperscript{68}

**Offsetting Measures and Environmental Compensation**

The purpose of the RMA is to promote sustainable management of natural and physical resources. The definition of sustainable management refers to the desirability of (c) “Avoiding, remedying, or mitigating any adverse effects of activities on the environment”. As noted, the approach is supplemented under the NPS for renewable electricity generation 2011, which includes Policy C2. This policy states that “When considering any residual environmental effects that cannot be avoided, remedied, or mitigated, decision-makers shall have regard to offsetting measures or environmental compensation including measures or compensation which benefit the local environment and community affected”.

Although mitigation conditions have been common to all applications which have been approved to promote renewable energy, the call-in decisions for the Boards of Inquiry in 2011 illustrate the scope of the discretion to provide for or endorse offsets or an element of environmental compensation. The Hauaura Wind Farm concerned an application by Contact Wind Ltd for resource consent for up to 168 wind turbines near Port Waikato and Raglan on

\textsuperscript{67} For avian considerations, see Pip Wallace “Integrated Conservation Management: Spatial Planning for the Movement of species in the Landscape” (2011) 15 NZJEL 185 at 196 (Hauaura ma Raki Wind Farm application).
\textsuperscript{68} Contact Energy Ltd v Manawatu-Wanganui Regional Council [2011] NZRMA 155.
the west coast (parallel with the inland city of Hamilton). The extensive report of the Board of Inquiry traverses a wide range of issues relating to submissions in opposition and in support, and relevant environmental effects. 69 The applicant had entered into relationship agreements with several Maori groups, but not all the Maori groups, and the agreements provided for financial benefits. The Board was willing to support these voluntary or negotiated side agreements and compensation provisions, being appropriate offsetting measures within the NPS policy.

In relation to several claims by rural property owners that they should be awarded compensation for impact on views, the Board observed that s 5(c) of the RMA had not been seen to empower the Court (Board) to require monetary compensation for such loss. Although the agreements could occur occasionally in mediation, these were regarded as side agreements. 70 Unless the applicant was prepared to offer compensation, the matter of significant unmitigated adverse effect on individual landowners, would be a factor to be taken into consideration in assessing the application. The Board noted that where works were constructed on private land, there could be a legal claim under the Public Works Act for compensation. 71

Among the raft of conditions imposed by the Board on approval of the Hauauru application were matters concerning sediment control, ecological effects management, relocation of a bat colony, and shut down of specified turbines in the event of international migratory birds using a flyway near the turbines. Provision was made to enhance the safety of bush birds, farmland birds, wetland birds, and terrestrial invertebrates. Matters of dust control, noise, glare, turbine flicker mitigation, road safety, air safety, radio and TV interference avoidance, and cultural effects, were comprehensively assessed and provided for under conditions. 72

Regarding the term of the consent, the Board noted that generally the land use consents to establish wind farms were indefinite in time. However, in this application, due to the potential for a mix of turbines, some in operation, some new and old, the consent should be for a term of 50 years. At the end of the term, conditions for dismantling unused turbines could be addressed. Further, the Board imposed a condition that the construction should commence within 10 years and conclude within 15 years. 73

In a subsequent Board of Inquiry report on the Turitea Wind Farm, 122 three bladed turbines were proposed and finally 60 were approved. The reduction was due to the need to negate the adverse effects of some of the turbines on the skyline of the outstanding natural landscape and on neighbouring properties, and the need to avoid excessive clearance of indigenous vegetation with high ecological value. The site comprised a public reserve owned by the

69 Final Report and Decision of the Board of Inquiry into the Hauauru ma Raki Wind Farm and Infrastructure Connection to Grid (13 May 2011) (application by Contact Energy Ltd).
70 Above, at [1178].
71 Above, at [1179].
72 Above, volume 2 – conditions and schedules.
73 Above, volume 1, at [1141]-[1151].
local authority for catchment purposes. The Board considered that its responsibilities did not include reaching a conclusion by comparing the proposal with some other hypothetical competing proposal, and it was not required to rule on the economic viability of the proposal. In relation to cultural objections by local Maori, the Board noted that memorandum of understanding had been agreed with iwi, to provide for a cultural monitoring plan and various benefits including a tertiary scholarship. A 35 year term was agreed for the resource consents.\(^74\)

All the wind farm cases illustrate the exacting nature of assessment of the environmental impacts. The overriding requirement is that the wind farms are found to promote sustainable management of natural and physical resources. The environment is defined to include amenity values, and those values include qualities that contribute to people’s appreciation of landscapes and cultural values.\(^75\) The promotion of the use of renewable energy with no greenhouse gas emissions is a strong supporting factor. The outcome may involve a number of modifications, and mitigation conditions and offset agreements.

Where several wind farm applications are adjoining and competing, the court may apply a priority rule that the first application should be given initial consideration and that all submitters or parties should be allowed to make appropriate submissions. A consent to one wind farm should not be subject to derogation by a subsequent application which may diminish or interfere with the wind flow to the existing establishment.\(^76\)

The New Zealand Wind Energy Association is active in promoting wind farms as the most effective and efficient renewable energy resource in New Zealand. Unlike some other countries, especially inland countries, New Zealand, being an exposed island in the South Pacific, does experience consistent wind flow conditions. The expansion of wind farm developments is likely to continue in pace with economic prosperity and the electricity market conditions.\(^77\)

**Marine energy**

The first commercial marine energy farm was launched off Portugal in 2008. In New Zealand, potential wave and ocean current energy resources are identified in certain areas of the country where strong tidal flows are experienced. The sites have been mapped and promoted by the Energy Efficiency and Conservation Authority. This government agency

\(^74\) Final Report and Decision of the Board of Inquiry into the Turitea Wind Farm Proposal (6 September 2011) (application by Mighty River Power Ltd).


\(^76\) Unison Networks Ltd v Hawkes Bay Wind Farm Ltd [2007] NZRMA 340 (HC).

has, as noted, issued an energy efficiency strategy, and in the past has supported grants for insulation of houses to promote energy conservation.\textsuperscript{78}

The Authority administers a marine energy deployment fund which may assist the development of wave and tidal generating devices. Various proposals for marine energy have been mooted. To date, Crest Energy is the only applicant who has obtained a consent to establish on a staged basis 200 turbines in the seabed near the mouth of the Kaipara Harbour, north of Auckland. This contested application was approved in an interim decision by the Environment Court in 2011, and compromises an incremental development.\textsuperscript{79} Issues relating to interference with fish stocks and spawning, and cultural concerns from local Maori, were considered in the determination. To ensure the viability of the project, the Court granted in the final decision a full 35 year consent term.\textsuperscript{80} The future viability and outcome of the project is uncertain.

**Other Renewable Energy Sources**

Other renewable energy sources identified in the National Policy Statement for Renewable Energy Generation include solar energy, biomass, tidal, wave and ocean current resources.

Regarding solar energy generation, no major commercial plants exist at the present time which rely upon solar energy. Individual property owners, either commercial or domestic, may use solar panels for water and building heating, and minor energy generation. New Zealand has about 2000 hours of bright sunshine each year. If every house had a 3kW photovoltaic (solar) panel, sufficient power would be generated to supply one quarter of the annual residential electricity needs. However only 1.6\% of homeowners have solar heating systems. Around 3400 new solar systems are installed each year.\textsuperscript{81} Provision may be available for a surplus of energy to be fed back into the national grid through a contract with an energy provider.

Biomass, landfill, and sewage gas, is used in certain industrial and commercial establishments, and in local landfills as part of development conditions. Biomass from sewage treatment plants, farm wastes and the food processing industry may be used on site to produce electricity.\textsuperscript{82}

**National Grid Access**

\textsuperscript{78} Energy Efficiency and Conservation Act 2000. Information as to energy efficiency and conservation, marine energy map. Accessible \url{www.eeca.govt.nz}.


\textsuperscript{80} Crest Energy Kaipara Ltd v Northland Regional Council [2011] NZRMA 420 (the Court rejected a claim by opponents for a 10 year term).

\textsuperscript{81} Energy Efficiency and Conservation Authority, Renewable energy, Solar energy. Accessible \url{www.eeca.govt.nz}.

\textsuperscript{82} Above, Bioenergy.
A factor affecting the promotion or implementation of smaller local renewable energy developments is the ability to access to the national electricity grid for the disposal of surplus generation. The Electricity Authority has a function to administer the industry participation code, contract with service providers, monitor the fairness of the electricity market and to regulate access to the national grid. Persons who meet the definition of participants must register with the Authority and supply generation information. Agreements may provide for small generators to supply the electricity market through feed-in tariffs.83

**Conclusion**

This paper has examined how law and policy can assist the uptake of renewable energy, for the primary purpose of electricity generation. The government target of 90% electricity generation from renewable technologies by 2025, is subject to environmental aspects that will not affect security of supply.84 As technology improves, in particular in relation to wind energy and geothermal energy, it is predictable that this target may be achieved. Technological leadership from other countries, including Europe and China, may assist in the promotion of these alternative energy sources, and their endorsement through the regulatory systems.

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