VICTORIA UNIVERSITY OF WELLINGTON TE HERENGA WAKA | Wellington Faculty of Engineering Te Wāhanga Ahunui Pūkaha | Ethics and Sustainability Symposium

Ethical Considerations for Renewable Energy Systems on Māori Land

Fraser McConnell

Abstract
Sustainable engineering projects often involve renewable energy systems. Attempts to develop renewable energy systems on Māori land can cause ethical conflicts. This report examines Māori values and perspectives relevant to the development of renewable energy systems on Māori land. A code of ethics is developed taking these values into account to assist in the design process of such projects. This code of ethics is applied in a case study of installing a renewable energy system for a marae. This code of ethics promotes a greater awareness of the impacts the system will have on environment and community, and promotes a respect for the individual values of the impacted iwi.

Keywords: Sustainability; Mātauranga Māori; Renewable Energy; Ethics.

1. Introduction
Renewable energy systems are a cornerstone of sustainable engineering projects. A sustainable project is one that meets the requirements of the present without compromising future generations' ability to meet their requirements [1]. Non-renewable energy systems with a finite fuel supply are antithetical to sustainable projects, as any such fuel used in the present cannot be used in the future. A sustainable engineering project's energy demands must be met by a reliable renewable system.

The value frameworks that guide sustainable engineering projects have some overlap with Māori values [2]. For example, Ngāti Tūhoe has expressed a great deal of support for the Living Building Challenge [3][4]. Iwi leaders say Living Buildings exemplify Ngāti Tūhoe values, and that they cannot imaging producing 'non-Living' buildings now that they have tested the concept [3][5].

Living buildings are a challenging framework that demands developers consider the wider impacts of their design choices. This relates to location, choice of materials, and impacts on humans and wildlife.

However, the development and installation of renewable energy systems can conflict with Māori perceptions and values regarding land [6][7]. It is important to identify which values should be considered both to reinforce the positive overlaps, and to acknowledge potential conflicts.

Knowledge of Māori perspectives and values gives an awareness of potential pitfalls in project design. Building a code of ethics around these considerations will ensure sustainable engineering projects are doing the right thing and will not come into conflict with Māori over development.

1.1. Objective
The objective of this paper is to introduce a code of ethics and sustainability that will consider Māori perceptions and values regarding land. This code will assist in projects to install renewable energy systems on Māori land.

2. Literature review

This section will cover the different Māori values and perspectives that can affect the development of a renewable energy system. From this a code of ethics will be constructed to guide renewable energy projects that intend to develop on Māori land.

2.1. Ethics/Sustainability issues

In a broad overview, Māori values are more community oriented than typical Western values [8]. Profits may be directed towards community reinvestment [3][5]. Social obligations and benefits are considered beyond the legal minimum, as are environmental obligations [5][6][7]. Cultural concerns are held in extremely high regard, and projects can be rejected by iwi on the basis of sacredness [6][7].

The concept of Whakapapa (relations) is the foundation of Mātauranga Māori and of Māori perceptions of renewable energy developments [2][9][10]. Whakapapa exists between all things, physical and metaphysical [10]. Understanding and respecting these relations is critical to understanding and cooperating with Māori. Each entity has heritage and connections to the environment around it [2]. No effect is isolated, as there will be run-on effects to everything related.

The emphasis on whakapapa makes the typical Māori perspective holistic, as each aspect of the project is analysed for how it relates to each other aspect, and its relations to the environment and the people [7]. Will it provide work for hapū members? How will it affect the environment? How will it affect taonga?

Mauri is at the heart of Māori views comparable to sustainability [2][7]. Mauri is the lifeforce of an entity. It represents both its own livelihood and wellbeing, and its ability to support other living things [2][10]. When issues are considered in regards to mauri, an understanding of wellbeing is applied to living things and the environment, and the ecosystems connected.

Mauri overlaps with sustainability as concern is always given that the mauri of a thing is not harmed such that it can no longer sustain what living things rely upon it. Mauri provides a spiritual Māori evaluation of not taking more than the land can sustain [2][11].

Kaitiakitanga is the concept of active protection and care for taonga. Both of these concepts can be extended to caring for land. This relates to sustainability as it values thinking into the future about how the land will support the people and be respected [2][7]. This creates issues for renewable development projects due to concerns for the spiritual wellbeing of the land.

The hapū Te Uri o Hau opposed the construction of hydro turbines in Kaipara harbour [6]. This was because they were the kaitiaki of this harbour, and they believed it was under too much stress as is, and its mana would be compromised were the turbines to be installed [6]. Ngāi Tahu has claimed to have negative experiences with existing hydro systems [7]. They believe that while the water use is sustainable, the effect on the river and its ecosystem is not, and disrupts its mauri [7].

3. Code of ethics/sustainability

3.1. Principle 1: Engagement

Efforts must be made to reach out to the local iwi and hapū that claim ownership of the land. For large scale projects contact with iwi leaders will be important, but at any local installation it is likely that a particular hapū will claim ownership of and responsibility for the land in question.

3.1.1 Local Engagement
General approaches should not be developed. Each hapū will have their own unique understanding Mātauranga Māori and the environment to be developed. Make contact with the local hapū where possible and reasonable.

3.1.2 Labour Engagement
Involve hapū workers in the project where possible. A project that provides community members with work will be more favourably received. Giving representatives a voice in the design stage will allow for quick feedback on values based transgressions.

3.2 Principle 2: Consider the community
Consider the wider effects of the project on the community, during construction, during the project lifetime, and after. Minimise the harm done to community members, and mitigate what cannot be avoided.

3.2.1 Construction
Consider how the community will be affected by the installation of a renewable system. Will people be displaced, or lifestyles disrupted? If these disruptions cannot be avoided, try to arrange alternative provisions with the iwi.

3.2.2 Project Life
Consider the run on effects of the system on the community. Who stands to benefit, and who will be hindered?

3.3 Principle 3: Ecosystems
Consider how the environment will be affected by the system. Keep the extended consequences of the system's installation and operation in mind while planning. There should be minimal damage done to the mauri of the land, which will require consultation with iwi to determine.

3.3.1 Noise
What effect will the system's installation and operation have on the environment in terms of noise? Will the project be visually disruptive or distracting to wildlife? Will it produce distressing levels of noise? Take steps to mitigate disruptive noise.

3.3.2 Wildlife
Avoid displacing native wildlife where possible. Particularly special species may be considered a taonga of the hapū, and their responsibility as kaitiaki will mean resisting any disruptions to the species' livelihood.

3.3.2 Plant-life
Avoid any unnecessary clearing of plant-life. Where possible develop on pre-cleared land.

3.3.3 Mauri
The wellbeing of the land and its ability to support the life on it should remain as healthy as possible. Keep the clearing and displacing of living flora and fauna to a minimum. More spiritual concerns will have to be discussed with the relevant iwi.

3.4 Principle 4: Respect
Treat cultural values with respect. Iwi leaders and cultural experts consider themselves the stewards of their culture as well as their land and treasures. Disregarding items and phenomena of cultural significance will create harmful disharmony.

3.4.1 Respect for Taonga

If an entity or phenomena is considered a taonga by the iwi, they will be responsible for its wellbeing and this must be respected and understood. Attempting to negotiate the level of harm that could be done will not be a productive discussion. Consider the taonga present and how to minimise negative impacts.

3.4.2 Respect for Tapu

Tapu will present a challenge for any development, as similarly to interaction with taonga, the iwi will be responsible for preventing any and all transgressions.

4. Case study discussion

This paper considers the application of this framework to the case of installing a renewable energy system for a marae. A marae is the meeting ground for a hapū, and will typically have several buildings, the most prominent being the wharenui, which is also often referred to as the marae.

4.1 Principle 1: Engagement

It would be unlikely that the hapū presiding over the marae had not solicited the development of the system. As such there should be no excuse for not communicating well and often with the hapū. As the project site is the meeting place for the hapū, it should not be difficult to commune with leaders about their local customs. The project site would likely be centred in a community hub for the hapū, and it should not be difficult to solicit local workers.

4.2 Principle 2: Impact

There will be a significant impact on the day to day lives of the hapū that live in and around the marae. Some community members may use the space as temporary accommodation, others may run social programs. It is important to consider how these may be disrupted during construction. Alternative shelters could be constructed, or provisions made to help the greater community support effected people.

4.3 Principle 3: Ecosystem

The choice of system will play heavily into this consideration. If there is a convenient stream, the engineer may want to install a hydro system. However, this may disrupt the aquatic ecosystem. Will fish be disrupted, will there be runoff from the turbines? These factors will impact the mauri of the river, and may be an unacceptable compromise for the hapū, as a river so near their marae may have community and cultural significance.

4.4 Principle 4: Respect

The first issue to arise is the concern of health and safety equipment. In many hapū it is considered tapu to wear footwear or headwear in the wharenui. If work must be done on or within the wharenui, these workers will need to have adequate protection on the feet and heads. This conflict will be important to resolve with hapū leaders. Perhaps the workflow will have to exclude the wharenui itself, built on a separate building. Or perhaps a temporary arrangement could be made to permit protective gear.

5. Conclusion and recommendations

A strong component of this code of ethics is showing awareness for the greater effects of the installation of renewable energy systems. Considering the wider impacts on the environment and the community is a necessity, and must go beyond existing legal mandates. Cultural treasures and sacred values will likely obstruct the development process and must be respected and accounted for in planning. And it must be understood that each hapū will have a unique set and weight of values and each project must be bespoke.

These efforts will greatly increase the planning workload of a project, but properly enacted will foster positive relations with iwi. If more systems are installed with support from iwi and in accordance with their values, there will be a greater interest for future projects.

Ngāti Tūhoe has set an example with their development of a living marae and this sets the precedent for other iwi to create their own. This spirit of this code of ethics has some overlap with the Living Building Challenge as it encourages a greater and more stringent concern for the good that is done by a project.

References

[1] "Our Common Future," World Commission on Environment and Development, Rep. 1, Mar. 20, 1987. Accessed: May 2, 2022. [Online].

[2] F. McConnell, R. Duggal, R. Rayudu, N. K. C. Nair. "Mātauranga Māori in Power Engineering – Achieving sustainability and zero carbon futures with countries' indigenous knowledge in design," presented at TENCON, Auckland, New Zealand, Dec. 7-10, 2021. doi: 10.1109/TENCON54134.2021.9707384

[3] Te Herenga Waka-Wellington Uni, Wellington. *Why Tūhoe Built a Living Building (In Depth version)*. (Aug. 7, 2020). Accessed: May 2, 2022. [Online Video].

[4] "Te Kura Whare." Living-Future.org. https://living-future.org/lbc/case-studies/te-kura-whare/ (accessed May 2, 2022).

[5] "Te Kura Whare." Ngati Tuhoe.iwi.nz https://www.ngaituhoe.iwi.nz/te-kura-whare (accessed May 3, 2022).

[6] M. Bargh, "A Blue Economy for Aotearoa New Zealand?," Environ. Dev. Sustain., no. 16, pp. 459–470, Jun. 2014. Accessed: May 2, 2022, doi: 10.1007/s10668-013-9487-4. [Online].

[7] J. MacArthur, S. Matthewman, "Populist resistance and alternative transitions: Indigenous ownership of energy infrastructure in Aotearoa New Zealand," Energy Research & Social Science, vol. 43, pp. 16-24, 2018. Accessed May 3, 2022, doi: 10.1016/j.erss.2018.05.009 [Online].

[8] C. K. Insley. (2014). "Energy (renewable) and Maori Development" [presentation slides].

[9] A. Buckley, M. Fitzgerald, M. P. Myatt, N. Peterson, "Ngāti Kea Ngāti Tuara Electricity Utilization," Worcester Polytechnic Institute, Worcester, Worcestershire, UK, Dec. 17, 2015. Accessed: May 3, 2022. [Online].

[10] M. Bargh, "Rethinking and re-shaping indigenous economies: Māori geothermal energy enterprises", Journal of Enterprising Communities, vol. 6, no. 3, pp. 271-283, 2012. Accessed May 3, 2022, doi: 10.1108/17506201211258423 [Online].

[11] T. K. K. B. Morgan, "An indigenous perspective on water recycling," Desalination, vol. 187, no. 1–3, pp. 127–136, Feb. 2006. Accessed May 2, 2022, doi: 10.1016/j.desal.2005.04.073 [Online].

Glossary of Māori terms

Hapū: Clan
Iwi: Tribe
Kaitiaki: Steward/Guardian
Kaitiakitanga: Stewardship
Mana: Prestige/Authority
Marae: Meeting ground
Mātauranga: Knowledge, Understanding
Mātauranga Māori: Māori Knowledge / Māori Philosophy
Mauri: Lifeforce / Spirit
Taonga: Treasure
Tapu: Taboo / Sacred
Whakapapa: Relations
Wharenui: Great Hall / Meeting House