

Rural Development Strategy

Energy: Issues and Options



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Table of contents

1	Introduction.....	4
2	Policy Framework	4
2.1	National Level Policy	4
2.1.1	Resource Management Act	4
2.1.2	The Local Government Act	5
2.1.3	The Building Act.....	5
2.2	Regional Level Policy.....	5
2.2.1	Operative Regional Policy Statement (RPS) and new RPS	5
2.3	District Level Policy.....	6
2.3.1	Whangarei District Plan	6
2.3.2	Rolling Review of Operative District Plan	6
2.3.3	Other policy instruments	6
2.4	Iwi Management Plans.....	6
3	Current Issues.....	7
3.1	Security of electricity supply	7
3.2	Reliance on imported oil and ever-increasing oil prices.....	7
3.3	Little capacity for large scale renewable electricity generation	7
3.4	Resilience/Vulnerability	7
3.5	No provisions in the District Plan to promote sustainable management of energy.....	8
3.6	Potential for generating biofuel not being explored and/or supported	8
3.7	Farm waste is little used as an energy source	8
4	Best Practice.....	8
5	Options for Whangarei District	8
5.1	Whangarei District Growth Strategy – Sustainable Futures 30/50.....	8
5.2	District Plan Implementation	9
5.3	Rural Development Strategy Implementation	9
6	References.....	10

1 Introduction

Over the last 10 years there has been a lot of activity at national level in the field of 'energy'. The introduction of a number of strategies, legislative changes, national policy statements and environmental standards has signalled the importance of 'energy' to the country.

For Northland and Whangarei one of the main concerns centres around having a sufficient and secure supply of electricity given a high reliance is placed on one 200kV double circuit line for electricity transmission from Henderson to Otahuhu. Transpower is currently undertaking the 'NAan' project which is designed to reinforce electricity supply in Auckland, North Auckland and Northland, with a commissioning date set for 2013. However, this project only serves to secure the transmission of electricity, not the generation.

Previous studies¹ have indicated that there is little capacity within the Whangarei District to generate significant amounts of electricity from renewable energy schemes, and that more distributed smaller scale initiatives may play a role in the future. Should demand for electricity start to exceed supply at a given time in the future, the real potential for imposed power cuts would be less than favourable for the social and economic well-being of the District.

Additionally, 60% of total energy consumption in the District is used for transport, private and commercial, and for household purposes. With the vast majority of our oil imported from overseas, there is a real vulnerability. Particularly in the face of peak oil, with prices set to rise considerably, security of access to affordable energy resources may falter, and substantial disruption to the community could follow.

So as to prepare for a future with minimal disturbance, it is imperative that this issue be debated so that appropriate plans can emerge. The energy debate is broad and, the topic would benefit from an extensive and strategic district-wide standpoint. However, for the purposes of this report, an effort is made to keep the focus on the rural areas of the district; although some issues and options will, unavoidably, be more general in nature.

2 Policy Framework

2.1 National Level Policy

As part of its overall focus on sustainability, the national government established the Energy Efficiency and Conservation Authority (EECA) under the Energy Efficiency and Conservation Act 2000. Since its inception, the EECA has released two strategies. The first strategy came into being in 2001 while the second strategy, replacing the 2001 version, was published in 2007.

The New Zealand Energy Efficiency and Conservation Strategy (NZECS) sets out actions to promote renewable energy, including renewable electricity and biofuels, and more efficient energy use. It focuses on implementation by sector, identifying the main measures, policy instruments and who is responsible for them (Ministry of Economic Development, 2007). The 2007 version specifically introduces and promotes initiatives targeted at the primary production sector, an industry that was not addressed in the first strategy.

The NZECS is a subset of the New Zealand Energy Strategy (NZES), also published in 2007, which sets out the government's vision of a sustainable, low emissions energy system, and describes the actions needed to be taken in order to make this vision a reality (MED, 2007). As a broad and overarching strategy, the energy policy outlined in the NZES is linked to a wide range of other government policies, including resource management.

It has to be noted that the Government is currently consulting on a draft New Zealand Energy Strategy to replace the 2007 version. The strategy has been updated to align with current government energy policy priorities and to reflect a stronger focus on economic development.

At the same time a draft New Zealand Energy Efficiency and Conservation Strategy has been prepared, which is specifically focused on the promotion of energy efficiency, conservation and renewable energy.

2.1.1 Resource Management Act

In 2004, changes were made to the Resource Management Act (RMA) with the introduction of the Resource Management (Energy and Climate Change) Amendment Act 2004. These changes place specific

¹ Previous studies relied upon in this report have been carried out by organisations such as the Energy Efficiency and Conservation Authority, Sinclair Knight Merz and East Harbour Management Services.

responsibility on local government to promote sustainable management of energy. Section 7, Part II of the RMA was amended by inserting the following as new matters to have particular regard to:

- (ba) the efficiency of the end use of energy
- (j) the benefits to be derived from the use and development of renewable energy.

The RMA, furthermore, provides for central government to formulate National Environmental Standards and National Policy Statements where it sees fit. As such, the government issued a National Policy Statement (NPS) on Electricity Transmission on 13 March 2008. This NPS focuses on the national benefits of efficient electricity transmission, managing the environmental effects of the electricity transmission network and managing the adverse effects of third parties on the transmission network.

This document was followed by a National Environmental Standard for Electricity Transmission which specifies that electricity transmission activities, such as the operation, maintenance and upgrading of **existing** lines, are permitted subject to terms and conditions. For those activities where the terms and conditions for a permitted activity are not met, resource consent requirements are identified. More detailed discussion on both the NPS and NES is provided in the Network Utilities background paper.

In September 2008, the government notified a proposed National Policy Statement for renewable electricity generation, the final outcome of which is yet to be published. At the centre of this proposed NPS is the recognition of the national significance of renewable electricity generation. The NPS is designed to promote “the development, upgrading, maintenance and operation of new and existing renewable electricity generation activities, such that 90 per cent of New Zealand’s electricity will be generated from renewable sources by 2025 (based on delivered electricity in an average hydrological year)” (MfE, 2008).

2.1.2 The Local Government Act

The Local Government Act 2002 (LGA) provides a broad mandate for local authorities to involve themselves in economic, social, environmental and cultural issues (Energy Efficiency and Conservation Authority [EECA], 2003). The LGA is outcome focused and introduces mandatory long term strategic planning in the form of Long Term Plans (LTPs). Strategic planning enables local authorities to develop and realise visions of a sustainable future.

Traditionally, energy efficiency has been far from a core focus of local authorities. But a focus on energy efficiency at local level epitomises concern surrounding financial and resource efficiency. In the new era of sustainable development many local authorities are beginning to recognise that energy efficiency is a useful organising theme around which many local authority activities may be clustered (EECA).

Energy efficiency is a very good example of an objective with genuine quadruple bottom line sustainable development benefits. Many energy projects have:

- **social benefits** in the form of improved health and related benefits (such as less school absenteeism) resulting from better insulated homes
- **economic benefits** in terms of reduced costs for local authorities and individual energy users (including, for example, reduced transport costs and productive time lost to traffic congestion)
- **environmental benefit** since less energy used means reduced demand for damaging energy extraction, processing and less need for new electricity generation (meaning lower greenhouse gas emissions and less pressure on natural resources)
- **cultural benefits** in the sense that the resources affected by energy generation (such as rivers) are often important taonga to Māori.

2.1.3 The Building Act

The Building Code, which all buildings must comply with under the Building Act, was amended in October 2007 to incorporate energy efficiency in buildings. For example, new houses and major extensions to existing houses need to use 30% less heating energy to achieve healthy indoor temperatures than previously (Department of Building and Housing [DBH], n.d.).

2.2 Regional Level Policy

2.2.1 Operative Regional Policy Statement (RPS) and new RPS

Section 28 of the operative RPS is dedicated to the energy topic. The main issues identified centre around Northland’s reliance on the use of non-renewable and imported energy into the region, and associated environmental effects, together with the desire for greater energy efficiency and the impact of high voltage transmission lines on the landscape and, potentially, on human health.

The RPS identifies the following energy objectives for the region:

- 1 recognition of the energy production potential of Northland's natural resources
- 2 prohibition of the use of nuclear energy sources for energy production purposes
- 3 promoting the efficient and environmentally acceptable use of energy.

The policy approach taken in the RPS focuses on the two main areas of energy efficiency and energy production, transmission and distribution. The policies adopted try to encourage the use of environmentally acceptable sustainable energy resources and alternatives to non-renewable sources, while promoting and encouraging sectors with legislative responsibilities in relation to energy efficiency to consider such initiatives when proposing developments.

However, the 5 and 10 year reviews of the RPS have highlighted that, although the energy section is well written, it is in need of active implementation and promotion if it is to be in any way effective. Yet, the discussion document on the new RPS has not retained a separate section on energy.

2.3 District Level Policy

2.3.1 Whangarei District Plan

Since the Resource Management (Energy and Climate Change) Amendment Act 2004 came into force, there have not been any plan changes to incorporate the changes provided for under the Amendment Act into the Whangarei District Plan. As such, the Plan does not contain any objectives, policies, rules and/or other methods to deal with matters relating to energy.

Chapter 23 of the District Plan establishes objectives and policies for network utility operations. Although these operations tend to include the transmission and distribution of electricity, fuel, telecommunications and other essential services, in a strict sense, the chapter does not cover the 'generation' and/or production of electricity or fuel sources. Network utility operations are covered in a separate report.

2.3.2 Rolling Review of Operative District Plan

Under the RMA Council is required to monitor the effectiveness of the District Plan and complete a review of all District Plan provisions within any 10 year time period. Monitoring of the Whangarei District Council Operative District Plan has identified areas of inconsistency and ineffectiveness, and has examined what new issues have emerged since the District Plan was first devised.

The District Plan will become a live document, as council staff will review chapters of the plan every year, in what is called a "rolling review". The rolling review examines whether the current objectives, policies and methods in the plan are consistent with legislation, and are working the way the community needs and wants them to.

The review will update the District Plan to recognise the role different areas of the District will play in the future, given the population changes and estimated economic growth over the next 10 years. These tie in with Council's long-term planning project Whangarei District Growth Strategy: Sustainable Futures 30/50.

2.3.3 Other policy instruments

Council currently has no other policy instruments with a focus on energy.

2.4 Iwi Management Plans

Ngati Hine iwi environmental management plan 2008

- This plan addresses many resource management issues, with a number of references made to the use of energy; making clear the iwi's support for innovative technological approaches. The relevant issues and policies are reproduced below:
- **Utilities, amenities & infrastructure:** Innovative means of providing for development infrastructure should be encouraged, for example the farming of algae for bio-fuels on sewerage treatment ponds, effluent disposal to indigenous commercial forestry plantations, low-impact micro-sewerage systems, etc.
- **Urban design:** Te Runanga o Ngati Hine supports low impact design and innovative solutions which improve the quality of urban centres and our rohe generally.

- **Climate change:** Ngati Hine identify rapid advances in new technologies such as micro-power generation and energy efficient appliances as opportunities for more sustainable living, particularly in some of their isolated rural communities.

Patuharakeke Te Iwi Trust Board (Inc.) Environmental Plan

This environmental plan appears to express a more holistic approach to resource management while stressing the importance of relationship building between the iwi and the local Council. There is no mention of specific issues within the plan. As such, 'energy' does not feature as a separate topic. However, given the importance placed on the integrity of the natural environment and on the sustainable use of its resources, it is thought that forms of renewable energy, whether for electricity generation or fuel purposes, would find favour over non-renewable forms, unless associated practices involved negative impacts upon significant sites and/or upon landscape values. This will need to be taken into account when formulating relevant policy.

Te Iwi o Ngatiwai – Iwi Environmental Policy Document

Even though this policy document addresses many specific issues, energy is not one of these. However, reference to fuel efficient vehicles, energy efficient public transport and alternative forms of heating, such as solar power, is made in relation to air quality issues. It would seem that there is implicit support for the use of more renewable forms of energy and more energy efficient practices.

3 Current Issues

3.1 Security of electricity supply

As the District's population is set to continue to grow, it is reasonable to assume that commerce and industry will do the same in order to provide job opportunities. All these factors, individually and combined, will increase the demand for electricity necessitating the upgrading of transmission lines, as well as increasing the amount of electricity generated.

Although Transpower is currently working on an upgrade to the only double circuit line servicing Northland, this upgrade will ensure the transmission of electricity only. It does nothing to enhance generating capability.

As demand increases, more electricity will need to be generated, otherwise the district may be faced with forced power cuts, which would have significant adverse consequences for the social, cultural and economic well-being of the District. Forced power cuts would likely mean loss of productivity, associated with potential job losses and so on. Particularly for the dairy sector, where milk production cannot be halted by the flick of a switch, the impact may be significant.

3.2 Reliance on imported oil and ever-increasing oil prices

As the majority of our oil is imported into the District, Whangarei communities are very susceptible to the impacts of global changes and situations. With the price of oil set to continue to rise in the future, negative impacts upon the productivity of rural activities can be expected as electricity and fuel prices rise. The transportation sector, which carries goods around the district and further afield, will also be affected. Rising fuel prices will affect every sector in our economy and every resident of our district.

3.3 Little capacity for large scale renewable electricity generation

Studies suggest that there are no suitable locations for large scale wind power generation within the Whangarei District. Similarly, no significant capacity for hydro schemes has been ascertained, although potential for a few smaller scale hydro generation initiatives has been identified. Opportunities for large scale renewable electricity generation appear to exist only in a wider Northland region context, with a number of locations identified for particularly wind generation purposes. However, no hard and fast plans seem to exist at this stage to progress these opportunities. A development for tidal generation, on the other hand, has managed to obtain resource consent, which could see a number of tidal turbines installed in the Kaipara Harbour. Regardless of this approval, any actual power to be generated from these potential facilities is likely to be a number of years away.

3.4 Resilience/Vulnerability

Being reliant on only one double circuit line for electricity transmission poses issues in terms of resilience. In the event of anything happening to the line, as has occurred in the past, many people, households and businesses will be affected by the outages. The more we are able to generate our own electricity, the less reliant we become, and the more resilience we build into the District. The more electricity generation is

distributed, the more resilient our communities will become. On the other hand, distributed generation, dependent on particularly small scale initiatives, may not necessarily produce a reliable and continual output of power, especially at peak times.

3.5 No provisions in the District Plan to promote sustainable management of energy

There are currently no provisions in the District Plan that facilitate and/or require the use of energy efficient technologies or renewable energy generation as part of development proposals.

3.6 Potential for generating biofuel not being explored and/or supported

A good proportion of rural land in the District is considered to be reasonably steep and often erosion prone. Erosion prone land is characterised by limitations in productive use in terms of growing crops, animal farming, and so on. If left unprotected, erosion prone land tends to lose the fertile top soil and either gradually degrades over time, or has potential for creating land slips.

Such land, however, may more readily sustain the growing of trees, which can be harvested for financial gain at a later stage. Wood is becoming more and more used in the production of biofuels, whether trees are harvested specifically for this purpose, or are felled for other timber production purposes and the waste wood is turned into biofuels. Northland, as a region, has been identified as having significant potential for generating energy from woody biomass.

The sustainable logging of native timbers, in particular, has been gaining rapid interest in recent times and is becoming more financially attractive. It also assists in the protection of our country's biodiversity.

3.7 Farm waste is little used as an energy source

A lot of farm waste, in particular animal effluent, contains great potential for generating electricity through the production of methane. The vast majority of animal effluent currently requires resource consent for it to be discharged onto land or into water. Statistics indicate that there is significant non-compliance with resource consent conditions in Northland for a variety of reasons. Instead of thinking of this effluent as a waste product, it could be used as a source for energy production, generating on-site electricity for farm activities. In certain instances, a co-generation process is used whereby, as well as producing electricity, heat is generated, and used for water heating or domestic heating.

4 Best Practice

In line with the New Zealand Energy Efficiency and Conservation Strategy and the New Zealand Energy Strategy, many local authorities have already initiated strategies and adopted policies intended to encourage ratepayers to become more energy efficient. However, many of these policies have been established outside of the resource management framework. Very few councils have gone to the extent of incorporating policies and rules on energy efficiency and renewable energy into their respective plans and/or policy statements, with some exceptions such as Greater Wellington, Environment Waikato, and Wellington City Council.

By far, the most comprehensive work in the field of renewable energy has been undertaken by the Far North District Council which has introduced a whole new chapter into its district plan, entitled: Renewable Energy and Energy Efficiency. The emphasis of the chapter is on the installation of renewable energy devices, but also includes energy efficiency policies for subdivision developments. The chapter reflects the intent and requirements of the proposed NPS on renewable electricity generation.

5 Options for Whangarei District

5.1 Whangarei District Growth Strategy – Sustainable Futures 30/50

The Whangarei District Growth Strategy foreshadows little in terms of large scale renewable electricity generation within the District. However, small scale projects, whether individual or community-based, can make an important contribution. Northland-wide, there is potential for the region to become self-sufficient through a combination of wind, solar, hydro, biomass, tidal and geothermal sources.

Considerable potential for the production of biofuels within the District is also highlighted, particularly in rural areas. In order to realise the potential for a more energy efficient and sustainable District, a range of policy options will be required.

5.2 District Plan Implementation

Since changes were made to the RMA in relation to energy efficiency, the district plan has not been updated to reflect these amendments. The rolling review provides the opportunity to introduce the necessary objectives and policies to assist in addressing the key resource management issues, which are (as advocated in national level strategies):

- 1 the efficient use of energy
- 2 generating energy from, primarily, renewable resources.

Objectives and policies

It is important for the District Plan to introduce objectives and policies, reflecting the outcomes wanting to be achieved in the rural areas of the District in terms of energy generation and energy efficiency. These could include the facilitation and promotion of energy efficient and renewable energy generating technologies in the use, development and subdivision of land, taking into account their effect on the environment; providing for land uses that have the potential to contribute to the energy efficiency issue, such as crops and/or trees for biofuels; using spatial planning tools to minimise transport requirements and so on.

It is unlikely, though, that district plan provisions alone will achieve the sustainable management of our energy resources, as the district plan can only regulate the use, development and subdivision of land as and when proposals, in the form of resource consents, are presented. In this sense, the district plan is not a document that facilitates proactive management. If Council should be seen to take a proactive stance on the energy issue, it is likely that a number of other actions are required to be employed simultaneously. Some of these potential actions are listed below.

5.3 Rural Development Strategy Implementation

Other methods that may assist in the uptake of renewable energy and energy efficient technologies include:

- **(Financial) Incentives to encourage uptake of energy efficient systems:** The offering of low interest or interest free loans repayable through rates is just one example of what could be undertaken
- **Offer free advice:** Trained council staff, proficient in the energy efficiency/renewable energy field, could provide ratepayers with free advice on the actions they could undertake themselves
- Free or subsidised resource consent/building consent fees for certain energy efficient/renewable energy activities
- Simplified resource consent processes
- Work together with rural sector and their representative organisations to proactively encourage the uptake of new technology
- **Education:** Educating the rural communities as to how and where energy savings can be applied may be a useful way to raise people's awareness of the issue. This could be done in several ways: distributing brochures, setting up a dedicated webpage, media campaign, targeting individual businesses and or sectors, and so on.

6 References

- Department of Building and Housing. (n.d). Energy efficiency. Retrieved February 2011 from <http://www.dbh.govt.nz/energy-efficiency>.
- Energy Efficiency and Conservation Authority. (2003). Energy efficiency and long term council community plans. Retrieved February 2011 from <http://www.eeca.govt.nz/sites/all/files/energy-efficiency-and-ltccps.pdf>.
- Ministry of Economic Development [MED]. (2007). New Zealand Energy Strategy to 2050: Powering our future. Retrieved 31 December 2010 from <http://www.med.govt.nz/upload/52164/nzes.pdf>.
- Ministry for the Environment. (2008). Proposed national policy statement for renewable electricity generation. Retrieved March 2010 from <http://www.mfe.govt.nz/publications/rma/nps-renewable-electricity-generation/>.
- Whangarei District Council. (2010). Sustainable Futures 30/50: Energy Resources Background Report. Whangarei: WDC.