7 Energy

7.1 Introduction

New Zealand has traditionally used a combination of renewable and non-renewable resources to generate electricity, for example hydro and coal. The Waikato District contains large areas of coal. Traditional methods of energy production and distribution can have adverse effects on the environment, including on ecology and habitat, landforms and natural features, and on amenity. Additionally, the use of non-renewable energy resources such as coal, oil and gas can have wider effects than just on the local environment, particularly on air quality. Efficient use of traditional non-renewable resources is possible with technological changes and should be encouraged. The Waikato District is suited to increased use of solar and wind energy, and the location and design of energy production activities should make best use of these renewable resources. Maaori have traditionally recognised the benefits of solar energy by facing wharenui east towards the rising morning sun.

7.2 Issue – Energy Efficiency

Subdivision and land use patterns may reduce opportunities for energy efficiency in building design and construction, and transport networks.

OBJECTIVES	POLICIES
7.2.1 Energy efficiency is encouraged through the design and layout of subdivision and development.	7.2.2 Subdivision and development should be designed so that buildings can utilise energy efficiency and conservation measures, including by orientation to the sun and through other natural elements. 7.2.3 Transport networks should be designed so that the number, length and need for vehicle trips is minimised, and reliance on private motor vehicles is reduced.

7.3 Reasons and Explanations

7.3.1 Energy Efficiency

The purpose of the Resource Management Act is to promote the sustainable management of natural and physical resources, including energy. Section 7(ba) of the Act requires regard to be had to the efficiency of the end use of energy. Increasing demand for energy at a local or individual level has an impact on resources needed to provide energy, including natural resources such as gas and coal, as well as infrastructure such as roads and power stations. A reduced demand for energy overall, will reduce demand on these resources and make development more environmentally friendly.

7.3.2 Subdivision Design

The form and layout of subdivisions or development can play a major role in whether efforts at energy efficiency are successful. Appropriately oriented sections enable new homes and other buildings to be designed to take advantage of the sun, resulting in warmer, drier homes and buildings that are less expensive to heat. This has economic as well as health benefits for individuals and communities.

7.3.3 Transport

A transport network that encourages the use of different modes of transport, and that reduces

reliance on private motor vehicles is encouraged in the design and layout of subdivisions. In addition to addressing broader issues such as vehicle emissions and use of fossil fuels, a network that encourages walking, cycling and use of public transport also has benefits in terms of individual and community wellbeing. An increasing trend towards working from home due to improvements in communication means that there could be a shift in energy demand for road transport.

7.4 Issue - Renewable Energy

Renewable energy resources are under utilised, resulting in lost opportunities for environmental benefits.

OBJECTIVE	POLICIES
7.4.1 Generation and use of renewable energy resources is increased.	7.4.2 Positive effects to the environment and the community of generating and using renewable energy resources should be recognised and provided for. 7.4.3 The renewable energy resources of the district (including geothermal, biomass, solar and wind) should be recognised for their potential contribution to national energy production.

7.5 Reasons and Explanations

7.5.1 Renewable Energy

The Resource Management Act requires the plan to have particular regard to the benefits to be derived from the use and development of renewable energy. Although not stated in the Act, these benefits include security of supply and greater reliability (by diversifying sources of energy), reduction in greenhouse gas emissions, reduction in dependence on the national grid, and reduction of transmission losses. There is a global trend towards less reliance on traditional energy resources and more investigation into non-traditional renewable energy resources such as solar, wind, biofuel, wave and tidal, electricity generation from waste gas (e.g. landfills), as well as small-scale hydro and geothermal energy production. The development of new renewable energy resources in New Zealand will contribute to government initiatives under the Kyoto Protocol to reduce net CO_2 emissions. Development of renewable energy resources will also add to electricity generation capability on a sustainable basis. This plan recognises that the production and use of renewable energy resources can have positive effects on the environment and the community. Very small electricity generation plants, and resources such as solar, geothermal and wind may make a contribution to national energy production.

Making the best use of renewable resources may have some degree of impact on other resources, such as landscape. However, the benefits to be derived from the use and development of renewable energy must be taken into account when considering potential impacts.

7.5.2 Deleted

7.5A Issue - Non-Renewable Energy

Renewable energy resources are not solely able to meet total energy demand, and non-renewable energy must be utilised to maintain social and economic wellbeing.

OBJECTIVE	POLICIES
7.5A.1 Non-renewable energy resources are utilised to maintain social and economic wellbeing.	7.5A.2 The non-renewable energy resources of the district should be recognised for their actual or potential contribution to national energy production.

7.5B Reasons and Explanations

7.5B.1 Non-Renewable Energy

The objective and policy recognise that ongoing availability of non-renewable energy, especially Waikato coal, is likely to remain a key source of resilience in New Zealand's energy system. Energy production in the Waikato District has traditionally been based on coal, of which the district has large reserves. While the plan recognises the advantages of renewable energy, it is acknowledged that there is significant investment in energy production based on coal, and that this energy makes an important contribution to national and regional economic wellbeing, which cannot be substituted by renewable energy in the foreseeable future. Adverse effects of all activities are addressed in other chapters of this plan.

7.6 Methods of Implementation

7.6.1 Regulatory Methods

(a) Minimum building setbacks to ensure sunlight access to adjoining sites.

(b) Rules and consent conditions where appropriate to facilitate cycleways, pedestrian routes and public transport.

7.6.2 Deleted

7.6.3 Council Works and Services

(a) Energy saving measures in council owned properties.

7.6.4 Information, Education and Advocacy

(a) Support promotion of energy efficiency in subdivision, building design and street lighting design.

(b) Support promotion of use of renewable energy resources.

(c) Facilitate the distribution of information on sustainable living and actively promote energy efficiency.

7.7 Reasons for Methods

7.7.1 Regulatory Methods

Direct sunlight to houses on adjoining properties should not be impeded by buildings too close to boundaries, hence the need for a rule requiring a minimum setback from side boundaries.

Energy efficiency can also be achieved for the transport network if energy use is taken into consideration during design. Again, there are insufficient market incentives for developers to provide alternative transport routes such as walkways and cycleways, yet these can reduce reliance on conventional modes of transport, as well as providing health benefits for communities.

Specific rules for development using renewable energy resource are not appropriate because it is difficult to predict when and where a development may be proposed. Assessment of new development on a case by case basis is more appropriate.

7.7.2 Deleted

7.7.3 Council Works and Services

Residential properties owned by the Council are being progressively insulated in order to improve energy efficiency and reduce costs to residents. Additionally, the modern vehicle fleet owned by the Council contributes to lower overall energy consumption.

7.7.4 Information, Education and Advocacy

The plan supports various initiatives undertaken by organisations such as the Energy Efficiency and Conservation Authority to promote energy efficiency, energy conservation and the use of renewable sources of energy. When the opportunity arises the Council will also undertake its own initiatives.

7.8 Anticipated Environmental Results

ISSUE	ANTICIPATED ENVIRONMENTAL RESULTS
7.8.1 Energy efficiency	(a) Subdivision and development design that makes use of opportunities for energy efficiency. (b) Enhanced opportunities for use of alternative forms of transport. (c) More efficient consumption of non-renewable resources.
7.8.2 Renewable energy	(a) Greater generation and use of renewable energy resources.