# 12. Utilities and Energy

## Utilities

Utilities provide the infrastructure which enables a community to undertake its everyday activities and functions and allows people to provide for their social, cultural and economic well-being, health and safety. They are critical to the efficient and ongoing functioning of the District.

Utilities are physical resources which generate energy, provide water and electricity, sewage reticulation, roads, railway lines, telecommunications, radiocommunications, waste disposal, and other similar services. In relation to energy, this chapter focuses primarily on renewable energy sources, efficient use of energy and the potential for these to benefit the community at a local, regional or potentially national level.

Utilities found within the District may be of national significance, such as State Highway 1; of regional significance, such as the Manawatu River (Moutoa) floodway/stopbanks; or of local significance, such as the Levin Wastewater Treatment Plant.

Utilities provide services or resources which support the community, and in doing so can use, develop or protect a resource. The resource management of utilities is two-way. The resources and infrastructure associated with individual utilities require protection to enable effective and secure operation, but to also ensure that any adverse effects generated by utilities are avoided, remedied or mitigated.

Urban growth should also be integrated with infrastructure to ensure efficiency in the design and management of infrastructure.

There are many providers of utilities: the Council, the Crown, Regional Councils, State Owned Enterprises, trading enterprises and private companies. Within the District, the Council is a major provider of utilities and services supplying water, sewage reticulation, waste disposal and roads.

The RMA defines *"network utility operators"* and *"requiring authorities"*. In summary a network utility operator distributes, transmits and provides services that are based on systems and connections involving energy (gas, petroleum, geothermal, electricity), telecommunications, radio communications, water, drainage, sewage, roads, railway and airports. A requiring authority is a Minister of the Crown, a local authority or a network utility operator approved as a requiring authority.

Where a provider of a network utility service has status as a requiring authority, the RMA enables the authority to designate land for a project or work (Section 168(2)). Only a Minister or Local Authority may issue a notice of requirement for a designation for a public work (Section 168(1)). Where an organisation does not have requiring authority status, land use consent may be required for any work.

While many utilities are provided for the benefit of the wider community, others can be intended for individual benefit and may include aerials on private property for telecommunication purposes, such as television aerials or for radio communications.

The Council is required to give effect to any National Policy Statement (NPS). The stated objective of the NPSET is to "*Recognise the national significance of the electricity transmission network by facilitating the operation, maintenance and upgrade of the existing*

*transmission network and the establishment of new transmission resources to meet the needs of present and future generations, while:*

- *Managing the adverse environmental effects of the network; and*
- *Managing the adverse effects of other activities on the network.*

The issues associated with electricity transmission are significant at a national, regional and local level and the benefits of the network must be recognised and provided for. Within the District, there is the potential for the development of new high voltage electricity transmission."

It is recognised while network utilities can have national, regional and local benefits, they can also have adverse effects on surrounding land uses, many of which have been established long before the network utility. The sustainable management of natural and physical resources requires Council to achieve a balance between the effects of different land uses.

Issues, objectives and policies relating to roading networks are contained in Chapter 10: Land Transport.

## Energy

Under Section 7 of the RMA, Council must have particular regard to energy efficiency, climate change, and the benefits of the use and development of renewable energy. The Government has confirmed its commitment to increase the proportion of electricity generated from renewable sources in order to reduce New Zealand's greenhouse gas emissions and to achieve increasingly sustainable energy use.

The Council is also required to give effect to any National Policy Statement (NPS). The NPS on Renewable Electricity Generation came into force in 2011. The stated objective of the NPS is to "*recognise the national significance of renewable electricity generation activities by providing for the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities, such that the proportion of New Zealand's electricity generated from renewable energy sources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation*".

The RMA defines renewable energy as "*energy produced from solar, wind, hydro, geothermal, biomass, tidal, wave, and ocean current sources*". The potential environmental benefits of renewable electricity generation opportunities include reducing greenhouse gas emissions and providing energy generation from reversible technology, reducing dependency on imported energy resources (such as oil and coal), security of, and the diversification of, energy sources, as well as social and economic benefits.

The issues associated with renewable energy are significant at a national and local level. There is a national commitment to increase energy generation from renewable energy resources compared to non-renewables. This commitment recognises additional energy generation is required to satisfy future demand, beyond conservation and efficiency measures. Within the District, there is potential for renewable energy development, with wind generation the most likely.

The benefits and need for renewable energy is recognised through objectives, policies and methods (including rules) that provide for the development, maintenance, operation and upgrading of renewable energy activities~~, and so is the need to effectively manage the potential for effects arising from energy related infrastructure~~. Particularly where the local

environment is sensitive to the scale and nature of energy generation facilities, for example adverse ecological, cultural and heritage, landscape and visual effects have the potential to be significant.

## Issue 12.1 Network Utilities

The maintenance and development of network utilities to enable the community to provide for its social and economic well-being, recognising that the infrastructure and operation of network utilities may create adverse effects on the environment, and other activities may impact their safe and efficient functioning.

### Issue Discussion

Network utilities are a necessary and essential component of community infrastructure. They are essential life lines, contributing to the social, cultural and economic well-being of the community. Therefore, it is important the District Plan makes provisions for these essential utilities so they can establish and operate effectively.

In making provision for network utilities, it is also recognised some utilities have the potential to have significant adverse effects on the environment. Conversely, utilities may be an accepted element of the environment and therefore have minimal adverse effects on the environment. These effects may result from the activities involved in establishing the utility, be generated by the utility itself, or be associated with the maintenance and operation of the facility. These potential adverse effects include visual impacts of structures, risks to public health and safety, noise and odour.

Some areas of the District have higher levels of amenity and other environmental characteristics than others. Certain utilities may not therefore be appropriate in those locations due to the nature of their effects. For example, residential areas ~~and areas containing outstanding natural features and landscapes~~ would be vulnerable to the intrusion of large buildings or pylons. Areas with outstanding natural features and landscapes and areas of significant indigenous vegetation or habitats also need to be protected from inappropriate use and development of utilities should seek to avoid these. In some instances, locational factors may determine the exact position of a utility, but as a general principle, network utility operators will be encouraged to locate utilities in areas with characteristics similar to the utility or in a manner which will have few adverse effects on the environment.

Therefore, in making provision for network utilities, their environmental effects must be balanced against the community's need for the service or facility. An example of this challenge is the provision of street lighting which is required for public safety, yet the spill light from this can adversely affect the night environment. It is also recognised that there may be limited choice in locating utilities, given logistical or technical practicalities. Some level of adverse effects may need to be accepted to recognise the necessity for some utility services and facilities.

The efficient and effective establishment, use and maintenance of the District's utility infrastructure can be adversely affected by the inappropriate location and nature of other land use activities and by failure to recognise their importance in meeting community needs. For example, locating residential dwellings close to wastewater treatment facilities could potentially expose new residents to adverse effects such as odour. Therefore, to protect and provide for the continued ability of utilities to function and be effective operationally, an important consideration is the suitability of new adjacent activities establishing in close

proximity or otherwise in a manner that could unduly compromise the efficient long-term functioning of a utility activity.

## Objectives & Policies

### Objective 12.1.1 Network Utilities

To protect and provide for the establishment, operation, maintenance and upgrading of network utilities, while avoiding, remedying or mitigating adverse effects on the environment.

### Policy 12.1.2

Enable the establishment, operation, maintenance and upgrading of essential network utilities.

### Policy 12.1.3

Avoid, remedy or mitigate the adverse environmental effects arising from the establishment, construction, operation, maintenance and upgrading of network utilities.

### Policy 12.1.4

Provide additional protection for sensitive areas such as Outstanding Natural Features and Landscapes, domains of high landscape amenity, heritage and cultural sites and buildings, Notable Trees, coast, lakes, river and other waterways~~, and open space~~ from the adverse environmental effects of network utilities.

### Policy 12.1.5

Ensure the establishment, operation, maintenance and upgrading of network utilities does not compromise the health and safety of the community.

### Policy 12.1.6

Consider the locational, technical and operational requirements of network utilities and the contribution they make to the functioning and well-being of the community in assessing their location, design and appearance.

### Policy 12.1.7

Require services where practical, to be underground in new areas of development within Urban and Greenbelt Residential areas.

### Policy 12.1.8

Encourage the co-location or multiple use of network utilities where this is efficient and practicable in order to avoid, remedy or mitigate adverse effects on the environment.

### Policy 12.1.9

Recognise the presence and function of established network utilities, and their locational and operational requirements, by managing land use, development and/or subdivision in locations which could compromise their safety and efficient operation and

maintenance~~subdivision and new land use activities adjacent to them~~, to ensure the long-term efficient and effective functioning of that utility.

**Explanation and Principal Reasons**

The District Plan is instrumental in facilitating the establishment, operation, maintenance and upgrading of essential network utilities. The District Plan will set clear and reasonable requirements to enable them to establish, operate and be maintained and upgraded effectively.

Network utilities comprise significant physical resources, and by their nature are often dispersed throughout the District. The District Plan provisions also need to recognise network utilities can have a variety of positive and adverse effects reflecting their diverse nature and scale. Accordingly, the District Plan seeks to acknowledge the value and necessity of network utilities and associated services throughout the District, while managing their potential adverse effects in a manner that recognises the local and valued environmental characteristics of the different areas within the District. The effects of utilities can arise during construction or installation, maintenance or on-going operation, and can be most significant in sensitive areas such as residential or open space areas, or in outstanding natural features and landscapes and domains of high landscape amenity, ecological, heritage, or cultural value. It is recognised that many network utilities in the District are located in the Rural zone and often on privately owned land. In some circumstances the location of these network utilities can constrain the activities undertaken on the land. Where resource consent is required to establish, construct, operate, maintain and upgrade network utilities in the Rural zone, consideration should be given to the effects of the network utility on the existing activities undertaken on the land such as primary production.

In considering the environmental effects of new transmission infrastructure or major upgrades of existing transmission infrastructure, the NPS on Electricity Transmission (2008) requires that Council must have regard to the extent to which any adverse effects have been avoided, remedied or mitigated by the route, site and method selection.

In establishing the standards and in assessing resource consent applications, it is important to recognise the location of utilities is often dictated by operational and technical requirements. For example, constraints imposed on avoiding, remedying and mitigating adverse environmental effects of transmission activities are recognised under the NPSET (Policy 3). In addition, given the function and role of network utilities, some must be distributed throughout the District and in particular the settlements.

Services such as power and telecommunications have traditionally been provided throughout the District by way of overhead servicing. However, overhead lines and structures associated with services can detract from visual amenity and be a crash hazard, therefore provision of new reticulation is required to be by way of underground reticulation. It is also recognised that there may be times when a new or additional overhead line needs to be installed in an area where the existing reticulation is overhead and in some circumstances a support structure for the line may also be required. The higher cost of underground reticulation is recognised, and underground reticulation is not required in rural areas where environmental and economic considerations may be differently balanced. Some exceptions to under grounding of services will exist, such as high voltage transmission lines, as it is not practical to underground these in terms of cost.

Encouragement is also given to network utility operators to co-locate, or share facilities or sites, where this is practicable, supports efficiencies and would assist in mitigating or avoiding adverse effects.

# 12 OBJECTIVES/POLICIES: Utilities and Energy

There are a number of large scale utilities within the District and to protect the adjoining activities and the ongoing operation of the utilities, various degrees of control will be implemented. In particular, it is important to protect the operation of network utilities from incompatible activities ~~on adjacent sites~~. The continued ability for network utilities to function and be effective operationally will be important considerations in assessing the suitability of new adjacent activities establishing in close proximity or otherwise in a manner that could unduly compromise the efficient long-term functioning of a utility activity.

## Methods for Issue 12.1 & Objective 12.1.1

**District Plan**

- Rules to permit certain essential network utilities subject to minimum standards recognising the relevant locational, technical and operational requirements and environmental characteristics and amenities of different areas. The minimum standards in each zone include:
  - undergrounding all pipes, lines and cables in urban areas and their location within existing roading networks;
  - landscaping and site screening where appropriate; and
  - co-location of network utilities wherever practicable.
- Any activity or proposal which does not comply with stated standards will be assessed through the resource consent process.
- ~~Resource consents will be required for network utility operations which do not comply with performance standards, or for heritage buildings and sites, or Outstanding Natural Features and Landscapes~~.
- Require network utilities that do not comply with performance standards, including those that apply to network utilities~~, which have variable effects or which may have adverse effects if~~ located in Outstanding Natural Features and Landscapes, heritage sites or buildings, or within Rural zoned parts of the Coastal Environment, Coastal Lakes, Manakau Downlands and Hill Country Landscape Domains~~some localities~~, to be assessed through the resource consent process to consider the potential effects of the proposal and impose specific conditions if appropriate.
- Apply the rules and standards (including cross-referencing within the District Plan itself) of the National Environmental Standards which relate to network utilities (e.g. electricity transmission activities and telecommunication facilities).
- Promote the use of relevant Codes of Practice and industry guidelines.
- Designated network utilities and sites including the National Grid will be identified on the Planning Maps.
- Specify the information necessary for a designation notice of requirement. Conditions may be recommended by Council for certain requirements for designations dependent upon the circumstances of the proposed works.

Note: Resource Consents may also be required from Horizons Regional Council for activities that use the beds of rivers and lakes.

*The methods are intended to enable the establishment, operation, maintenance and upgrading of network utilities, while avoiding, remedying or mitigating their adverse effects. Performance standards have been determined where the nature and scale of the network utilities is considered to be compatible with the character and amenities of the area. Larger scale network utilities or utilities*

*located in sensitive areas can create a broad range of potential adverse effects, and therefore these utilities would be assessed through either the resource consent or designation processes.*

**Long Term and Annual Plans**

- The Long Term Plan and Annual Plan will prioritise the network utilities that are managed by Council.

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## ISSUE 12.2 ENERGY

Like all districts in New Zealand, the Horowhenua District is required under the NPS for Renewable Energy Generation to provide for the development of renewable electricity facilities as a matter of national significance. The development of new electricity generation facilities can create adverse effects on the environment, in particular, the scale and utilitarian nature of many facilities may cause adverse landscape and visual effects. Generating electricity from renewable resources can have environmental benefits compared to utilising non-renewable energy resources, as well as support economic and social well-being at a local, regional and national level.

### ISSUE DISCUSSION

The use and development of renewable energy can be in a number of different forms and scales. At the domestic scale, there are various ways to use natural sources of heat, including the orientation of buildings towards the sun to assist passive heating, cooling and natural lighting; it is also possible to obtain significant energy gains through solar water heating or solar panels in dwellings.

For properties that are remote from energy sources, domestic (or small scale) wind turbines may be appropriate. The scale of such facilities are less likely to create significant environmental effects, particularly in rural areas where distances from neighbouring properties and screening vegetation can avoid or mitigate any visual and noise effects.

A substantial proportion of future energy supply will need to be generated from new and preferably renewable sources to meet the anticipated nationwide demand for energy to supply growth in the economy. While domestic scale energy efficiency and alternative energy sources will contribute to the reduction of energy consumption, they will be insufficient to meet all future energy demands.

There are many different forms of economically viable renewable energy options currently being developed in New Zealand and overseas. Currently, the key potential source of renewable energy development in the District is from wind, and to a lesser extent hydro (water). Options such as solar generation, biomass or wave energy may become more technically and economically viable in the future. The Mangahao Power Station located east of Shannon is currently the District's only renewable energy facility. This facility contributes to the national renewable energy generation and its continued operation will be important in responding to the challenge of meeting the national target of 90% of electricity in New Zealand being from renewable sources by 2025.

Wind energy facilities can potentially have environmental effects, particularly landscape and amenity effects, as wind energy facilities, by necessity, are usually located in open and prominent locations where the wind resource occurs. In the Horowhenua, such locations may include the foothills north of Shannon up to Tokomaru, or near the coast north of

Waitarere Beach. Facilities for the transmission of the generated electricity to the grid may also be necessary, with potential for environmental effects. The characteristics of areas that lend themselves to wind energy generation often provide an important landscape backdrop for urban and rural areas. This may cause tensions between the existing values of these areas and their potential for wind energy generation.

At a domestic scale, there is the potential for small scale wind turbines generating sufficient electricity for a business, house, or similar. There is also potential for the development of solar power in the District (for water heating and small-scale electricity generation). Small scale wind turbines and domestic scale solar power facilities may become more common in the future, reducing greenhouse gas emissions and contributing to local electricity supply. Depending on their size and location this scale of facility may not create significant effects.

Energy efficiency and conservation go hand in hand with renewable energy. Passive energy approaches towards energy efficiency and conservation can be taken in relation to the built environment. These include orientation of buildings towards the sun to assist passive heating, cooling and natural lighting. Reductions in overall energy use can be made through provision of hot water through solar water heating. The success of these approaches is dependent on the initial layout of a subdivision or building development providing landowners with opportunities to implement these passive energy approaches. It is important that future developments consider energy efficient and conservation measures. Conserving the use of energy together with the generation of renewable energy will be vital in responding to the challenges of providing enough energy to meet future energy needs and reducing greenhouse gas emissions.

## Objectives & Policies

### Objective 12.2.1 Energy

To recognise ~~the need for,~~ and provide for the efficient use of energy and the development and use of renewable electricity generation infrastructure, where the adverse effects on the environment can be~~energy utilising renewable resources through appropriately sited and designed renewable electricity generation activities, while ensuring environmental effects are~~ avoided, remedied or mitigated.

### Policy 12.2.2

Recognise and provide for the continued operation, maintenance and upgrading of existing renewable electricity generation infrastructure.

### Policy 12.2.3

Provide for small domestic scale renewable electricity generation facilities where their adverse effects on the environment ~~are not significant~~can be avoided, remedied or mitigated.

### Policy 12.2.4

Manage the establishment and development of new renewable electricity generation facilities to ensure the adverse environmental effects ~~on the environment~~that are more than minor are avoided, remedied or mitigated.

### Policy 12.2.5

Recognise the contribution of renewable energy use and development to the well-being of the District, Region and Nation~~, and the technical, locational and operational requirements of energy generation and distribution operations and infrastructure in setting environmental standards and assessing applications for resource consent~~.

### Policy 12.2.6

Avoid, remedy or mitigate, adverse effects on the environment from renewable electricity generation and distribution activities, specifically on those parts of the environment most sensitive to change.

### Policy 12.2.7

Avoid adverse effects which are more than minor~~the development~~ of renewable electricity generation facilities ~~where they will adversely affect~~on the character and values of Outstanding Natural Features and Landscapes; or where avoidance is not reasonably practicable then the effects need to be remedied or mitigated.

### Policy 12.2.8

Ensure development of renewable electricity generation facilities minimises visual ~~do not~~ interruption or ~~intrude~~intrusion of views of the Tararua Ranges when viewed from public spaces within the Levin urban area.

### Policy 12.2.9

Recognise the technical, locational and operational requirements of energy generation and distribution operations and infrastructure in setting environmental standards and assessing applications for resource consent.

### Policy 12.2.10

Provide for the identification and assessment by energy generators and developers, of potential sites and energy sources for renewable electricity generation.

### Policy 12.2.11

Encourage and provide for research and exploratory-scale investigations into renewable electricity generation technologies and methods.

### Policy 12.2.12

Ensure that new land use, development and/or subdivision~~subdivisions and land use~~ activities do not adversely affect the efficient operation, ~~and~~ maintenance and upgrading of existing renewable electricity generation or distribution facilities.

### Policy 12.2.13

Encourage energy efficiency and conservation practices, including use of energy efficient materials and renewable energy in development.

## Policy 12.2.14

Encourage subdivision and development to be designed so that buildings can utilise energy efficiency and conservation measures, including by orientation to the sun and through other natural elements, to assist in reducing energy consumption.

## Policy 12.2.15

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, to assist in reducing energy consumption.

**Explanation and Principal Reasons**

Energy generation from renewable sources can result in a range of benefits and positive effects, and is in line with government commitments to improving security of energy supply, reducing New Zealand's greenhouse gas emissions and achieving increasingly responsible energy supply and use. While the District may not offer the same opportunities and scale for the development of renewable electricity generation compared to some other areas of the country, the potential for some future wind generation development does exist.

In recognition of the benefits of renewable electricity, investigation into renewable energy sources is provided for in the District Plan. Investigations include the evaluation of prospective sites or sources, and also of emerging technologies and methods.

The range and scale of different sources of renewable energy leads to the potential for differing effects on the environment. Potential effects include adverse impacts on visual amenity due to the scale or location of such structures (e.g. wind turbines on high ridges, glare from solar panels or noise from operation). Potential effects can also impact on indigenous vegetation or habitats, culturally significant areas, or sites of historical sensitivity.

Outstanding Natural Features and Landscapes are places of high value to the community. Renewable electricity generation facilities have the potential to adversely affect the landscape values of these Outstanding Natural Features and Landscapes. In addition, landscapes that have high amenity values have also been identified, and renewable electricity activities within these areas could adversely affect the landscape values of these areas. The backdrop of the Tararua Ranges is an important part of the identity and character of the District, particularly the Levin urban area. Therefore, the visual effects of renewable electricity generation facilities on views of this backdrop would be a consideration in this location.

Often the nature and magnitude of effects is related to the scale of facilities associated with renewable energy and their prominence, particularly in a visual sense. While standards in the District Plan permit some such activities, those that are of a significant scale or in sensitive locations, will require effects on the environment to be fully assessed through the resource consent process, weighing the benefits along with the adverse effects, including ways to avoid, remedy or mitigate such effects.

As with other utilities, the District Plan acknowledges there may be particular locational, operational or technical requirements for energy related facilities that need to be taken into account in setting standards on development and in determining resource consents. While that does not mean all or any adverse effects will be considered acceptable, it will recognise the practical implications associated with the provision of renewable electricity activities, and the purposes such utilities serve. The District Plan also seeks to provide some protection to

energy related facilities once established against possible effects arising from other activities nearby, particularly new subdivision and development where that may unduly compromise the utilities operation.

It is also important to encourage the use of energy efficient materials and renewable energy in development including construction materials and individual application of renewable energy sources, (e.g. solar panels). In exercising its responsibilities, the Council is able to advocate for achieving efficiencies in energy use, in the design of development and subdivisions, and in implementing building standards. This encouragement of energy efficiency will be achieved mainly through the Building Act requirements, sharing information, and providing guidance and encouragement.

## Methods for Issue 12.2 & Objective 12.2.1

**District Plan**

- Rules to permit investigation and research of renewable energy sources and domestic-scale electricity generation equipment subject to minimum standards recognising the relevant locational, technical and operational requirements and environmental characteristics and amenities of different areas.
- Any activity or proposal which does not comply with stated standards will be assessed through the resource consent process.
- Rules to permit small domestic scale renewable electricity generation facilities.
- Resource consents will be required for new renewable electricity generation facilities, with more stringent activity status within Outstanding Natural Features and Landscapes and Domains of High Landscape Amenity. Assessment of environmental effects through the resource consent process, and impose conditions to avoid, remedy or mitigate adverse effects.
- Promote the use of relevant Codes of Practice.

**Long Term Plan and Annual Plan**

- The Long Term Plan and Annual Plan may make provision to support education programmes for energy efficiency in design and construction including use of natural sources of heat, consideration of the orientation of buildings towards the sun to assist passive heating, cooling and natural lighting, and opportunities to obtain significant energy gains through solar water heating or solar panels in dwellings.

**Other Processes**

- Work with the Energy Industry to develop an infrastructure strategy that among other things signals community interest in preferred locations for potential renewable electricity generation.

*The methods are intended to provide regulatory and non-regulatory methods for managing the renewable electricity generation facilities. For investigations, research and domestic-scale generation facilities, performance standards have been determined where the nature and scale of the structures and activities are considered to be compatible with the character and amenities of the area. Larger scale renewable electricity generation facilities can create a broad range of potential adverse effects, and therefore these facilities would be assessed through the resource consent process.*

# 12 OBJECTIVES/POLICIES: Utilities and Energy

*Advocacy and education is the main method of implementing sustainable energy policies because it educates and empowers individuals and businesses to implement the initiatives themselves, to fit their circumstances. This advocacy will be supported by national initiatives such as those undertaken by the Energy Efficiency and Conservation Authority (EECA).*

## ANTICIPATED ENVIRONMENTAL RESULTS

The environmental results for network utilities and energy which are anticipated to result from the combined implementation of the above policies and methods are as follows:

12(a) An efficient and effective network of utility services capable of meeting the needs of the District's residents.

12(b) A high standard of amenity in the design and construction of network utility structures, compatible with the character and amenity of the local environment.

12(c) Network utilities, where practical are located underground in urban areas, and/or co-sharing road corridors or other locations.

12(d) Efficient use and development of the District's renewable energy resources, contributing towards an increased proportion of New Zealand's energy consumption being derived from renewable resources.