

18. Energy

Introduction

Energy is used to provide heat, light and transport and enables people to provide for their wellbeing, health and safety. Sufficient affordable energy is also a key factor in the health of the transport, primary production, industrial and commercial sectors and therefore the Marlborough economy. In short, energy is an essential part of our lives.

Energy is only a resource insofar as other natural and physical resources may have stored or potential energy released to do useful work. New Zealand's energy needs in terms of fuel and electricity have historically been met from oil, gas, coal, wood, hydro (water), geothermal and, more recently, wind energy resources. The majority of Marlborough's energy needs are met by out-of-district energy sources. The only significant sources of "domestic" energy are from wood used for domestic heating and from the Branch and Waihopai hydroelectric schemes, which supply approximately 18% of Marlborough's electricity needs.

Central government has historically had primary responsibility for energy resources. Through Central Government ministries and agencies, such as the Ministry of Business, Innovation and Employment, the Electricity Authority, the Commerce Commission, and the Energy Efficiency and Conservation Authority, there are a variety of statutes, regulations and strategies in place to manage energy resources and issues.

Central government has recognised the importance of renewable electricity generated through the National Policy Statement for Renewable Electricity Generation (NPSREG), which came into effect in 2011. The NPSREG defines the matters of significance relating to renewable electricity generation activities throughout New Zealand and these matters of national significance are strengthened in the objective to the NPSREG, which states its purpose as being:

"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 resources increases to a level that meets or exceeds the New Zealand Government's national target for renewable electricity generation."

The Council is required to give effect to the NPSREG in the Marlborough Environment Plan (MEP).

Local government has an important role in supporting central government, especially in the implementation of the New Zealand Energy Strategy. The Strategy proposes a target of generating 90 percent of electricity from renewable sources by 2025. Renewable energy is that which comes from a naturally replenished resource.

Section 7 of the Resource Management Act 1991 (RMA) requires the Council to have "particular regard" to the efficient use and development of the energy resource. As any non-renewable energy resource is essentially unsustainable, Section 7 requires the Council to have particular regard to the benefits to be derived from the use and development of renewable energy. The RMA also implicitly requires councils to avoid, remedy or mitigate the adverse effects of the use and development of energy resources. Therefore, although considerable positive effects may be created through the use of renewable energy resources, this use still needs to be sustainable in a wider environmental context. Other chapters of the MEP will therefore also be relevant to the consideration of any renewable energy developments.

As demand for energy changes, it is possible that further energy generation developments will occur within Marlborough. The effects of these developments, as well as energy conservation and the efficient use of energy, are important issues that must be addressed.

Issue 18A – Marlborough requires a secure and efficient supply of energy.

The majority of Marlborough's energy sources are imported into the District. The fossil fuels that sustain our transport needs and some of our commercial and industrial needs are brought into Marlborough by truck. Similarly, the majority of electricity demand is satisfied from the national grid, which runs through Marlborough.

Any disruption in supply caused by a fuel or electricity shortage or problems with the infrastructure required to deliver the fuel or electricity is a significant issue given the reliance on these out-of-district energy sources. Supply disruptions have the potential to increase in the future due to increased volatility in international oil markets and fluctuations in electricity generation capacity (especially hydro generation in dry years). Having resilient and diverse means of energy generation and transmission in Marlborough will be important in this regard.

Irrespective of their non-renewable character and their contribution to greenhouse gas emissions, it is likely that people and communities will continue to rely on fossil fuels for the foreseeable future for their transportation needs. For this reason, it is likely that Marlborough will remain vulnerable to supply disruptions for the life of the MEP.

In contrast, there is the ability to reduce dependence on imported electricity. This can be achieved by making use of the energy sources that exist within Marlborough. Reducing the demand for electricity through conservation efforts and making better use of electricity through efficiency gains will also assist in this regard.

[RPS, R, C, D]

Objective 18.1 – Optimise the use of Marlborough's energy resources.

Marlborough contains significant and diverse energy resources. These resources are almost exclusively renewable in nature and include hydro, wind, wave, tidal, photovoltaic, passive solar and biomass. Only a small proportion of these renewable energy resources are currently utilised.

Accessing local sources of energy at all scales would directly benefit Marlborough's communities by reducing our current vulnerability to supply disruptions. The greater the diversity of energy resources utilised, the more resilient the supply of energy will be. Generation schemes located close to where electricity is used would be most efficient, as less electricity would be lost in transmission compared to that experienced when electricity has to travel from a more distant generation source.

Realising the potential to generate electricity from some of these sources is readily available now, but others will require technological advances. As this happens and the balance of energy costs shift, there will be increasingly affordable opportunities for the generation of electricity. This type of energy generation will provide alternatives for remote communities and properties and it is anticipated that these will become increasingly viable in urban and industrial areas as well.

[RPS, R, C, D]

Policy 18.1.1 – Promote and encourage the use and development of renewable energy resources.

Local sources of renewable energy should be developed to maintain and enhance a secure supply of electricity for Marlborough. This policy expresses a clear preference for the use and development of renewable sources of energy, as opposed to non-renewable sources. Renewable sources of energy ensure that electricity can be sourced on an ongoing basis, improving the

security of supply and reducing stress on the National Electricity Grid. The preference for renewable sources of energy also assists in avoiding reliance on imported fuels for electricity generation.

It is acknowledged that yields from renewable energy resources can be variable as a result of climatic and other conditions. However, utilising the wide range of renewable energy resources available should spread that risk and improve the resilience of energy supply.

The implementation of the policy will have the effect of reducing greenhouse gas emissions and reducing electricity transmission losses. The policy reflects Section 7(j) of the RMA, which requires the Council to have regard to the benefits from the use and development of renewable energy. It will also assist in achieving central government's target of 90 percent of electricity generated from renewable sources by 2025, as well as giving effect to the objectives and policies of the NPSREG. There are various regulatory and non-regulatory methods for implementing the Council's policy and those of the NPSREG.

[RPS, D]

Policy 18.1.2 – Promote and encourage the wide utilisation of solar thermal energy.

This policy seeks to ensure that people make the most of solar radiation as a source of renewable energy in Marlborough. Blenheim consistently experiences high sunshine hours in comparison to other centres throughout New Zealand and the remainder of Marlborough also enjoys a sunny climate. Solar radiation is therefore an obvious and abundant source of renewable energy that can be used to generate electricity (via photovoltaic systems) and/or heat hot water (instead of electricity or gas).

Solar energy can also be used to passively heat homes and reduce the reliance of alternative forms of heating during the winter months, although this relies on the appropriate orientation of buildings relative to the sun. The effect of orientation is enhanced through the design of the building and the construction materials used.

The Council will implement methods to promote and encourage photovoltaic systems, solar water heating and passive heating. This will reduce the reliance of households and businesses on the local distribution network for electricity and other sources of energy. (The Council acknowledges that electricity and the means to convey electricity will still be required to heat water and homes during periods of low solar radiation.)

This policy assists to give effect to Policy E1 of the NPSREG.

[R, C, D]

Policy 18.1.3 - When considering the environmental effects of proposals to use and develop renewable energy resources, to have regard to:

- (a) the benefits to be obtained from the proposal at local, regional or national levels, including:
 - (i) maintaining or increasing security of renewable electricity supply by diversifying the type and/or location of electricity generation;
 - (ii) maintaining or increasing renewable electricity generation capacity while avoiding, reducing or displacing greenhouse gas emissions;
 - (iii) for economic, social or cultural wellbeing; and
- (b) effects on the immediate and surrounding environment, including effects on air quality, water quality, water quantity, ecosystems, natural character, outstanding landscapes, visual amenities and from noise;
- (c) the degree of effect (extent, magnitude) and the degree to which unavoidable adverse effects can be remedied or mitigated, including the relative degree of reversibility of the adverse effects associated with the proposed generation technologies;

- (d) where the adverse effects are significant, alternatives to the development in terms of either means, location or scale; and
- (e) the environmental values affected or enhanced and whether these are of local, regional or national significance.

When considering an application for resource consent(s) or notice of requirement for the use and development of renewable energy resources, the Council will have regard to the positive and adverse effects on the environment from developing renewable energy resources. An overall assessment of the costs and benefits will be required and this policy provides guidance on the matters that are relevant to this consideration. The costs can include opportunity costs associated with the loss in ability to use the same resource for different purposes.

The adverse effects described in the policy are not unique to the energy sector and have been addressed in other chapters of the MEP. The use of renewable energy resources should not compromise the achievement of other objectives or policies of this MEP. This may require on-site and/or off-site remediation or mitigation to occur, or avoidance altogether in a particular location. It is acknowledged that regard must be had to the objective and policies of the NPSREG.

Consideration can also be given to matters (a) to (e) when determining the status of activities involved in developing and operating renewable energy projects. For example, where domestic or small scale developments such as micro wind and hydro have minimal adverse effects on the environment, they can be enabled through permitted activity rules.

[R, C, D]

Policy 18.1.4 – When considering resource consent applications and plan changes, the extent to which any likely increase in energy consumption will be reduced through the use of local sources of renewable energy can be taken into account.

This policy can be applied where an activity requiring resource consent will result in an increased consumption of energy if the application is granted. The policy can also apply to any Council initiated or privately initiated plan change that would result in the same outcome. In these circumstances, the Council can take into account the extent to which the energy consumption will be reduced through the use of local sources of renewable energy. It is acknowledged that this policy will not apply to any permitted activities. Where permitted activity rules apply, the Council will utilise other methods to encourage the uptake of renewable energy.

Methods of implementation

The methods listed below are to be implemented by the Council unless otherwise specified.

[RPS, R, C, D]

18.M.1 Investigation

Consider undertaking a detailed and location specific stocktake of renewable energy resources in Marlborough. This would build on the assessment undertaken by the Energy Efficiency and Conservation Authority (EECA) in 2006. The investigation could extend to an assessment of the physical, technological and regulatory barriers to realising the potential renewable energy resources identified and how these barriers might be overcome.

[RPS, D]

18.M.2 Incentives

Provide incentives for the preferential uptake of renewable solar thermal technologies, including a payback scheme for the installation of solar water heating through a targeted property rate.

[D]

18.M.3 District rules

Enable the use of appropriate land resources for micro renewable energy developments through permitted activity rules (including standards) for small scale and domestic solar and wind generation installations. Where a proposal does not meet the standards specified for permitted activities, resource consent will be required. Wind generation installations are not considered appropriate in residential environments due to the potential for adverse noise effects.

Apply district rules to ensure that minimum building setbacks are sufficient to allow sunlight access to adjoining properties.

[R, C]

18.M.4 Regional rules

Enable the use of water resources for micro renewable energy developments through permitted activity rules for the taking, damming or diversion of water associated with small scale and domestic hydro-electric generation installations. Permitted activity rules will not be appropriate for some surface water bodies because they contain significant instream values.

Apply regional rules to larger scale renewable energy developments involving the use and occupation of the coastal marine area, the taking, damming or diversion of water or the discharge of contaminants to land, water or air.

[RPS]

18.M.5 Information

Work with supply and installation companies, interest groups and the Marlborough community to share and discuss information about solar energy and to generally advocate the opportunities for and benefits of using solar energy to the Marlborough community.

[RPS]

18.M.6 Liaison

Work with central government agencies, particularly EECA, to ensure that central government-led initiatives, particularly those around solar energy, are maximised in Marlborough.

Work with Nelson City Council and Tasman District Council to explore opportunities for collaboratively advancing the uptake of solar energy.

[RPS]

18.M.7 Advocacy

Advocate to Central Government that, along with the private sector, it support innovation and research into renewable energy technologies. This could include the provision of a fair sell-back pricing policy for surplus electricity from micro generation.

Encourage building companies to showcase best practice methods in terms of energy efficiency, micro renewable generation and passive solar design.

[RPS, D]

Objective 18.2 – Increased efficiency in the use of energy.

Section 7(ba) of the RMA requires regard to be had to the efficiency of the end use of energy. Efficient use of energy is consuming the minimum amount of energy for the maximum desired output. Increasing demand for energy at a local or individual level has an impact on the resources needed to provide energy, as well as infrastructure such as roads and generation schemes. A reduced demand for energy as a result of more efficient use will reduce demand on these resources in the short term.

EECA is the main body responsible for supporting, promoting and encouraging energy efficiency and conservation in New Zealand. It is appropriate that the Council supports the Authority, as energy saving behaviour reduces the possibility of energy demand exceeding the economically and physically available supply of energy. The Council also recognises that regardless of the efficient use of energy, there will still be growth in demand for energy in the long term as a result of economic growth. This is why provisions have been included in the MEP to guide the use of renewable energy resources.

[RPS, D]

Policy 18.2.1 – Promote and encourage the efficient use of energy, having particular regard to:

- (a) **energy requirements of subdivision location and patterns and land use activities;**
- (b) **the orientation, design and operation of buildings;**
- (c) **transport modes and patterns; and**
- (d) **the proximity of subdivision and development to existing towns and small settlements.**

The main way in which the Council can promote energy efficiency is through its management of new subdivision and development. The form and layout of subdivisions and development and their proximity to existing towns and small settlements can all play a significant role in reducing the demand for energy. Appropriately orientated 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. Location is important as the greater the distance of new development from established service centres, the greater the consumption of fossil fuels and the costs of transportation.

There is considerable potential to save energy through behavioural change and the adoption of energy efficient technologies and practices at domestic, commercial and industrial scales. However, due to a general lack of knowledge and complacency among energy consumers, this potential has not been realised, despite the fact that energy efficient practices would postpone or even avoid economic and environmental costs associated with the additional energy generation and transmission systems. There is a need, therefore to increase community awareness and commitment to the benefits of energy efficiency and conservation measures.

Methods of implementation

The methods listed below are to be implemented by the Council unless otherwise specified.

[RPS, D]

18.M.1 Participation

Participate as appropriate in central government initiatives in the formulation and implementation of the New Zealand Energy Strategy. This may include supporting the provision of information to landowners, resource users and the public to promote the conservation and efficient use of energy.

[RPS, D]

18.M.2 Liaison

Liaise with and work in conjunction with central government, particularly the Energy Efficiency and Conservation Authority, to secure current information, direction and guidance about energy efficiency and conservation.

[RPS, D]

18.M.3 Advocacy and information sharing

Advocate energy efficiency in the orientation, design and operation of new residential, commercial and industrial buildings and of extensions and alterations to existing buildings to the extent that the Building Act 2002, or its successor, allows. This method can be implemented through sharing information with the community. The following areas will be targeted through this method:

- *lighting;*
- *cladding materials;*
- *insulation;*
- *heating and ventilation;*
- *passive solar design;*
- *orientation; and*
- *appliances.*

Encourage building companies to showcase best practice methods in terms of energy efficiency and passive solar design.

Encourage industry groups to develop best practice guidance to improve energy use efficiency.

[RPS]

18.M.4 Council works and services

Lead by example by investigating and where appropriate, adopting energy saving and energy efficient measures in the management of its own buildings, plant, civil infrastructure (water, sewerage, storm water) and general operations.

[D]

18.M.5 Marlborough Regional Land Transport Plan

Consider, in the review of the Marlborough Regional Land Transport Plan for Marlborough, provisions to ensure the efficient use of energy in the transport sector.

[D]

18.M.6 District rules

Apply district rules to ensure that the form and layout of subdivisions and the orientation of residential, commercial or industrial buildings within them enable the use of energy saving measures.

Anticipated environmental results and monitoring effectiveness

The following table identifies the anticipated environmental results of the energy provisions of the MEP. The anticipated environmental results are ten year targets, unless otherwise specified. For each anticipated environmental result, a series of indicators will used to monitor the effectiveness of the energy provisions.

| Anticipated environmental result | Monitoring effectiveness |
|---|--|
| <p>18.AER.1</p> <p>An increase in local generation of electricity from renewable sources.</p> | <p>The proportion of electricity generated in Marlborough is maintained at a minimum of 18 percent of total electricity consumption.</p> <p>The number and diversity of projects that generate electricity from renewable energy resources within Marlborough increases, as measured by building consents and resource consents for the generation of electricity and by the use of standards on permitted activities.</p> |
| <p>18.AER.2</p> <p>Greater efficiency in the use of energy resources.</p> | <p>The number of subdivisions and buildings utilising passive solar design and other energy efficient methods increases.</p> <p>The Council has investigated energy saving and energy efficient methods for its own operations.</p> |