



Energy (including greenhouse gas emissions from energy)

Draft provisions for the Regional Policy Statement

Working draft

FOR FURTHER INFORMATION

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1. Introduction

Energy is a global issue. Oil continues to drive world politics, even as nations argue about measures to reverse the impacts of its use on the Earth's climate.

In New Zealand, energy is one of four government priorities under the Sustainable Development Programme of Action. A National Energy Efficiency and Conservation Strategy (National Strategy) sets targets for improved energy efficiency and renewable energy production.

Other central government initiatives include the New Zealand Transport Strategy, which promotes energy efficiency and greater use of renewable transport fuels, and a national environmental standard requiring greenhouse gases from large landfills to be "collected and destroyed or utilised."

A raft of other proposals aim at cutting greenhouse gas emissions - through a carbon tax, for instance - and positive financial incentives for renewable energy projects, such as offering carbon credits for suitable schemes.

One of the functions of the Electricity Commission, established in 2003, is to ensure that electricity is produced and delivered in a fair, reliable and environmentally sustainable manner.

The National Strategy calls for a 20 per cent gain in energy efficiency by 2012, and an increase in renewable energy generation of 22 per cent - or 30 petajoules - by the same date.

The recently released draft New Zealand Energy Strategy also reaffirms New Zealand commitment to deriving energy sources from renewable energy wherever practicable.

Changes introduced in 2004 to Section 7 "other matters" of Part 2 in the Resource Management Act placed a new emphasis on energy efficiency, climate change and the use and development of renewable energy as part of the overall purpose of the Act to promote sustainable management. However energy and climate change policy is a broad subject within which Resource Management Act policy has an important but limited role to play. The following energy provisions recognise this policy context and focus on the following three key elements of energy policy that the Regional Policy Statement is able to effectively influence:

- Renewable energy production and use in the region;
- Energy demands and greenhouse gas emissions associated with the region's transport system; and
- Energy efficiency in subdivision and development design.

In addition to these matters the regional form provisions, which address the integration of land use and infrastructure, in the Regional Policy Statement also

play an important part in the overall Regional Policy Statement policy framework for energy.

2. Issues

2.1 Issue 1: Increasing demands on energy

Energy demand within the region is increasing. This increasing demand is being met from sources outside of the region and particularly from electricity and non-renewable fossil-fuels.

Description

In New Zealand, electricity consumption is currently growing at a rate of approximately 3% a year. Demand for refined oil products increased by 3% in 2004, and by 91% over the period from 1985. This increase was largely influenced by demand for diesel which has doubled since 1985¹.

While the total production of renewable energy in New Zealand has increased over the last 30 years, the proportion of energy derived from renewable sources has declined from 39% to 31%. Within the Wellington region the development of renewable energy sources has been slow.

The region's dependency on external sources of non-renewable energy makes its economic and social well-being vulnerable to cost and supply uncertainties. Further, the region's dependency on fossil-fuel based sources contributes to greenhouse gas emissions and ultimately to climate change.

2.2 Issue 2: Energy efficiency

Energy is not efficiently produced, transmitted or used.

Description

Energy is a limited and increasingly expensive resource that is currently not being efficiently used in the Wellington region. For the year ending March 2002, there was a 60% loss between the delivered and end use energy in the region². This loss is a result of inefficient technologies and the inefficient use of technologies.

For example many homes in the Wellington region are not insulated resulting in significant heat loss. In the transport sector, many of the region's vehicles do not contain modern technological advances that enable the more efficient use of fuels and the use of alternative fuels. Some modes of transport are also more energy efficient than others. As an example, coastal shipping services can be more efficient than land transport.

Using energy more efficiently would make existing supplies last longer, reduce energy costs for consumers and postpone or reduce the need for developing

¹ Source: Ministry of Economic Development Energy Outlook

² Source: Wellington Region State of the Environment Report 2005 (Energy Chapter) & Energy Efficiency and Conservation Authority end use database

further supplies. It will also reduce greenhouse gas emissions and bring numerous spin-off benefits to households, businesses and communities.

2.3 Issue 3: Greenhouse gas emissions

Regional greenhouse gas emissions associated with the production and use of energy are contributing to global climate change. These emissions are growing at a significant rate and even with significant intervention the region can only realistically expect to reduce the rate of growth.

Description

While the earth's climate has undergone many changes over millions of years it is now commonly accepted that over the past 50-100 years human activity (such as industry, agriculture and transportation) have begun to affect the natural climate balance. These activities are increasing the amount of greenhouse gases in our atmosphere and causing the earth not only to heat up, but to heat up at an unprecedented rate. This effect is known as global warming. Since this warming will also affect our weather patterns and climatic conditions, we refer to it as climate change.

Climate change is a worldwide concern and is fundamental to the future sustainability of human society. Governments, including New Zealand's, have recognised the contribution of human activity to changing climatic conditions, and have agreed to take action.

While the extent of climate change that will result from anthropogenic activity cannot be stated with certainty at this point, there is a widespread consensus among the scientific community that climatic change is a major and pressing issue in terms of both its likely effects on ecosystems and on the social, economic and cultural wellbeing of people throughout the world, including the Wellington region.

The main greenhouse gases released from anthropogenic activity are carbon dioxide, methane, nitrous oxide and some synthetic industrial gases. New Zealand is unusual amongst developed nations in the share of its total greenhouse gas emissions that comes from agriculture.

However, the principal growth in New Zealand's emissions comes from increased carbon dioxide (CO₂), primarily from transport and electricity generation.

The rate of growth of CO₂ emissions from transport are a particular issue. In 2003 the emissions of CO₂ from transport were about 37% higher than they were in 1990. Numerous factors are contributing to the growth of transport related emissions including economic growth, population growth, car ownership rates, our desire to make an increasing number of vehicle trips and the fuel efficiency of the region's vehicle fleet.

The range of factors and the fundamental social and economic drivers that are at their heart means that it is not a simple task to reverse current trends. Modelling undertaken by Greater Wellington indicates that even the strongest

of transport interventions may only half the region's growth of CO₂ from transport over the next 10 years.

2.4 Issue 4: Renewable energy resources

The region contains significant potential for the development of renewable energy resources. The use of these resources offers potentially significant regional and national benefits. However such development has the potential to generate significant adverse effects.

Description

The Wellington region contains significantly greater renewable energy resources than currently are in use. The extent of the region's potential resources has been estimated as follows³:

- Approximately 500-700 MW of wind capacity, compared to the present 9 MW actually developed, depending on the degree of acceptance of adverse effects.
- Wave energy in the order of 1,000MW, assuming that wave technologies become economic.
- Around 30 million litres of ethanol per year for transport fuel from grain crops currently grown in the region. More than 20 million litres per year of ethanol or 90 GWh/year of electrical energy from woody biomass derived from low-grade forestry.
- Remaining hydro potential of about 38 MW, in mini and small-scale projects in areas outside the Department of Conservation land and Native Forest areas.
- Significant potential for solar thermal hot water systems, considerably less for solar photovoltaic.

The uptake of these resources will create important regional and national benefits associated with increasing the security of energy supplies, diversifying our energy sources, reducing our dependency on external energy supplies, reducing our demand for non-renewable energy sources and reducing our level of greenhouse gas emissions.

However a key limit on the greater uptake of these resources is the potentially significant adverse effects associated with renewable energy production. There is currently a lack of regional and consistent policy guidance about how to appropriately balance the benefits of renewable energy production alongside the potential adverse effects on landscapes, the coastal environment, biodiversity, waterbodies, etc.

³ EECA (2006) *Greater Wellington Region – Renewable Energy Assessment*

3. Objectives

3.1 Objective 1: Energy

The energy needs for the region are met in ways that:

- Improve the efficiency of energy use
- Reduce dependency on fossil fuels
- Maximise the use of the region's renewable energy resources, without creating inappropriate adverse environmental effects; and
- Reduces the growth of greenhouse gas emissions.

4. Environmental Results Anticipated

4.1 AER 1: Dependency on fossil fuels

Non-renewable energy sources contribute a much smaller proportion of the Wellington region's energy needs than in 2007.

4.2 AER 2: Greenhouse gas emissions

The growth of greenhouse gas emissions has substantially slowed.

4.3 AER 3: Renewable Energy Sources

The quantity and diversity of renewable energy sources being utilised within the Wellington region is significantly greater than in 2007.

4.4 AER 5: Travel demand management

The implementation of travel demand management mechanisms within the Wellington region is substantially greater than in 2007.

4.5 AER 7: Energy efficient subdivision and development design

The implementation of energy efficient subdivision and development design techniques within the Wellington region is substantially greater than in 2007.

5. Policies

5.1 Policy 1: Renewable energy production & transmission - Plans

District and regional plans shall include provisions that:

- Recognise the social, economic and environmental benefits associated with the production and transmission of renewable energy, including national and regional benefits;
- Recognise and provide for the efficient development, operation, maintenance and upgrade of renewable energy production and transmission; and

- Manage activities that adversely affect the production and transmission of renewable energy, including reverse sensitivity effects.

Explanation

Policy 1 requires district and regional plans to include provisions that recognise the benefits of and provide for the production and transmission of renewable energy. Policy 1 also requires district and regional plans to include provisions which manage the adverse effects of other activities on the production and transmission of renewable energy.

The benefits of local renewable energy production and transmission include:

- Benefits associated with the security of energy supply within New Zealand, including the diversification of our energy sources;
- Benefits associated with reducing our dependency on external energy supplies;
- Benefits associated with reducing the need for non-renewable energy sources, including the benefits associated with reducing greenhouse gas emissions; and
- Benefits associated with reducing our dependence on the national grid and transmissions losses where renewable sources of electricity are located close to demand.

It is noted that such benefits are not only generated by large scale renewable energy projects but also smaller scale, distributed generation projects.

Policy 1 recognises that while district and regional plans include provisions that directly or indirectly aim to manage the adverse effects of renewable energy production, they do not commonly recognise and provide for the benefits of renewable energy. In this regard the Renewable Energy Assessment completed for the Wellington region by the Energy Efficiency and Conservation Authority notes that only one of the region's district plans specifically provides for the use and development of renewable energy. In addition, the adverse effects of renewable energy production may occur locally while the benefits of renewable energy production may be regional or national. The combination of these two factors means that the process required to obtain resource consent for renewable energy facilities may be unnecessarily difficult and may not adequately reflect the wider benefit of such facilities.

Policy 1 also recognises that activities which are located near facilities for the production and transmission of renewable energy may adversely effect the operation and efficiency of these facilities. Given the importance of renewable energy to the region it is important that regional and district plans manage the potential effects of activities on facilities associated with renewable energy. It is noted that not all activities that have the potential to impact upon renewable energy production, such as fishing, shipping and navigation, are however within the control of local authorities through the Resource Management Act.

Policy 1 does not seek to exclude the production and transmission of non-renewable energy, but rather ensure the particular benefits of renewable energy are specifically recognised and provided for. Provision for infrastructure associated with non-renewable energy production and transmission is addressed in the regional form provisions of the Regional Policy Statement.

5.2 Policy 2: Considerations – renewable energy production & transmission

When considering applications for resource consents and notices of requirement associated with the production and transmission of renewable energy, local authorities shall have regard to the social, economic and environmental benefits of such activities, including national and regional benefits.

Explanation

Policy 2 requires the region's local authorities to consider the benefits of the production and transmission of renewable energy when assessing resource consent applications and notices of requirement associated with such activities.

The benefits of renewable energy production and transmission include:

- Benefits associated with the security of energy supply within New Zealand, including the diversification of our energy sources;
- Benefits associated with reducing our dependency on external energy supplies;
- Benefits associated with reducing the need for non-renewable energy sources, including the benefits associated with reducing greenhouse gas emissions; and
- Benefits associated with reducing our dependence on the national grid and transmission losses where renewable sources of electricity are located close to demand.

It is noted that such benefits are not only generated by large scale renewable energy projects but also smaller scale, distributed generation projects.

Like Policy 1, Policy 2 does not seek to exclude the production and transmission of non-renewable energy, but rather ensure the particular benefits of renewable energy are specifically recognised and provided for in the region's resource management decision making. Again it is noted that provision for infrastructure associated with non-renewable energy production and transmission is addressed through the regional form provisions in the Regional Policy Statement.

5.3 Policy 3: Considerations – effects on renewable energy production & transmission

When considering resource consent applications, notices of requirement and changes to regional and district plans local authorities shall have particular regard to the management of adverse effects, including reverse sensitivity effects, on facilities associated with the production and transmission of renewable energy.

Explanation

Policy 3 recognises that other activities can have adverse effects on the facilities associated with the production and transmission of renewable energy, including reverse sensitivity effects. These effects can reduce the efficiency and productivity of the renewable energy facility and may also restrict maintenance and upgrade options.

Given the benefits of renewable energy production and transmission it is important that such effects are considered as part of resource consent applications, notices of requirement and proposals to change regional and district plans.

5.4 Policy 4: Balancing the provision for renewable energy production with the management of its potential environmental effects

When considering applications for resource consents, notice of requirements, or changes to district or regional plans for the production and transmission of renewable energy, local authorities shall have particular regard:

- The social, economic and environmental benefits of such activities, including national and regional benefits in accordance with Policy 2; and
- The degree to which the activity would adversely affect the values that contribute to:
 - An outstanding natural features or landscapes, or other significant amenity landscapes; or
 - A nationally and regionally significant site, within the coastal environment; or
 - An area with significant indigenous biodiversity; or
 - Waterbodies of regional significance.

While ensuring that, in all cases, adverse effects are avoided, remedied or mitigated.

Explanation

The Wellington region contains significant potential for the production of renewable energy. However a key limit on the greater uptake of these

resources is the potentially significant adverse effects associated with renewable energy production. There is currently a lack of regional and consistent policy guidance about how to appropriately balance the benefits of renewable energy production alongside the potential adverse effects.

Policy 4 provides guidance on particular matters that need to be considered when considering resource consent applications, notices of requirement or changes to plans when providing for renewable energy production.

5.5 Policy 5: Transport energy use and CO₂ emissions

The Regional Land Transport Strategy shall include objectives, policies, outcomes, strategic transport options and implementation plans that recognise the need to reduce:

- The consumption of non-renewable transport fuels; and
- The emission of CO₂ from transportation.

Explanation

The regional land transport network is a significant and growing contributor to the consumption of non-renewable fuels and the consequent production of greenhouse gas emissions. The transport sector consumes over 40% of New Zealand's energy and accounts for around 42% of the country's CO₂ emissions.

There are a number of ways the management of our region's land transport system can play a part in addressing this issue. These include improving our region's passenger transport network (particularly electric buses and trains), continuing to promote an increased uptake in walking and cycling, managing the demand for travel and increasing travel efficiency.

The Regional Land Transport Strategy (RLTS) is a statutory document (under the Land Transport Act 1998) that Greater Wellington must produce via the Regional Land Transport Committee. It is a forward plan for the development of the region's land transport system over the next ten years and beyond. The RLTS sets out a strategic framework through its vision, objectives and outcomes. It also provides policies to guide regional transport decisions, and a number of interventions in the form of action programmes, by mode and by corridor.

The RLTS therefore has a significant role in ensuring that the demand for non-renewable energy is reduced and that transport related green-house gas emissions is reduced.

5.6 Policy 6: Considerations – Travel Demand Management

When considering applications for resource consents, changes to district plans and the Regional Land Transport Strategy local authorities shall have particular regard to the implementation of travel demand management mechanisms to reduce vehicle kilometres travelled and emissions of CO₂.

Explanation

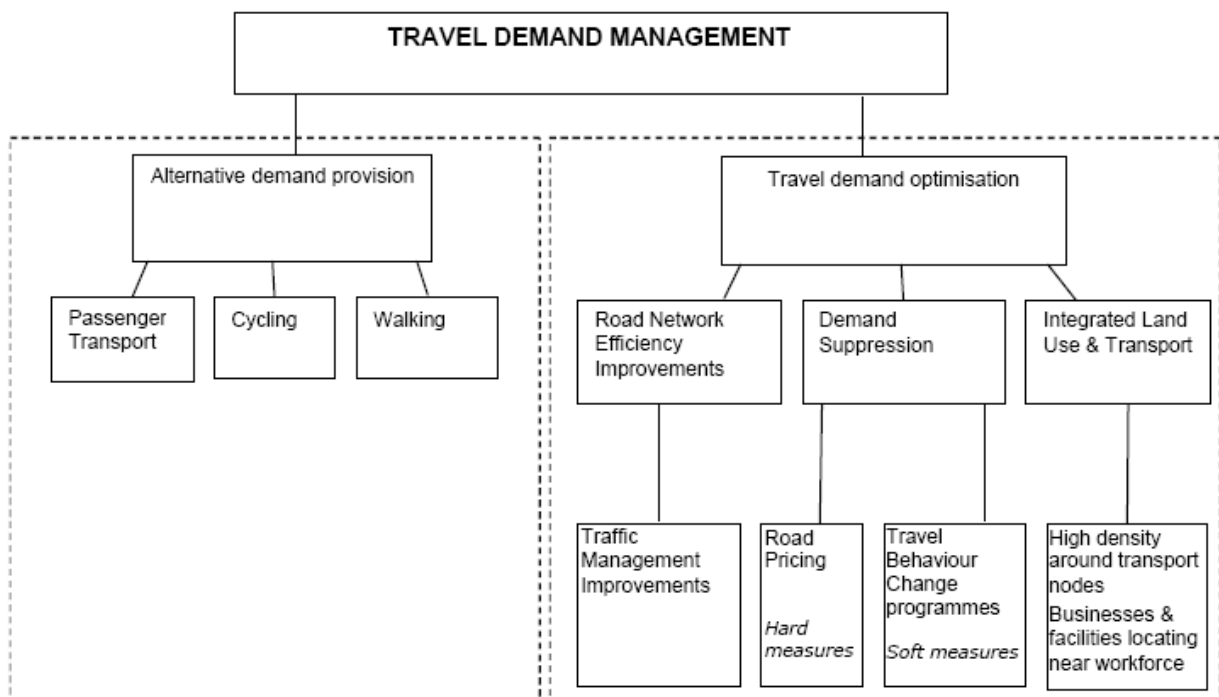
Population growth, economic growth and the distribution of both within the region are key contributors to the regional demand for travel. In this regard, faster population growth on the Kapiti Coast, partly driven by people relocating from other areas within the region, generates increased numbers of commuters travelling between Kapiti and Wellington and consequently puts greater demand on existing transport networks.

Increasing car ownership may also contribute to increased car use and greater demand on the road network. Car ownership numbers are steadily increasing in the region. Over the five years from 2000 to 2005, the total number of cars registered in the region rose by 11%.

The demand for travel within the region is steadily increasing as a result of increasing population and economic growth, increasing car ownership and a growing expectation of mobility and convenience. The underlying trend is for people to make more trips, more often, over longer distances. This means more vehicle kilometres travelled (VKT), contributing to additional CO₂ emissions and other environmental impacts and increased peak period journey times reflecting increased congestion. The Wellington region expects travel demand to increase by around 20% over the next 10 years.

Given this context it is important that travel demand management tools are promoted within the region. A wide range of methods exist to achieve travel demand management outcomes. Some of these are known as “soft” methods, such as travel behavioural change programmes, others are known as “hard” methods, such as road pricing tools. Other methods include improving the efficiency of the existing network through various traffic management tools or reducing the need to travel through integrated land use programmes.

The following diagram provides an overview of travel demand management as a concept:



Policy 6 recognises that opportunities exist for the region's local authorities to promote and provide incentives for travel demand management mechanisms when considering resource consents, changes to district plans or the Regional Land Transport Strategy.

Opportunities for resource consents or district plans may include reducing car parking requirements and financial contributions for development and activities which undertake to prepare, implement and monitor travel demand management plans or which effectively incorporate alternative transport modes.

Key mechanisms for the Regional Land Transport Strategy include travel demand management planning, ensuring an efficient public transport network, and the use of road pricing tools.

It is noted that the package of provisions within the Regional Policy Statement that address regional form, and the associated district plan provisions, are also an important travel demand management mechanism.

5.7 Policy 7: Energy efficient design – district plans

District plans should include provisions that promote and provide incentive for energy efficient subdivision and development.

Explanation

Orientation, layout and design can have a significant influence on the energy efficiency of subdivision and development. Improved energy efficiency can be achieved by:

- Ensuring that the location and layout of subdivisions and development enable everyday services such as shops, schools and community facilities to be accessed by walking and cycling;
- Ensuring that subdivision and development is located and designed to enable easy access to public transport services;
- Orientating sites so that future buildings are able to take advantage of the sun as a source of power and heating;
- Incorporating power generation facilities into subdivision and building design; and
- Incorporating energy efficient building materials.

Policy 7 recognises that district plan provisions are an appropriate mechanism through which the region's district and city councils are able to promote and provide incentives for energy efficient design. However, it should be noted that Policy 7 does not advocate the imposition of unnecessary resource consent requirements, i.e. resource consents should not be required for individual houses as a result of Policy 7. A resource consent regime such as this could adversely affect the affordability of housing within the region.

It is noted that the concept of energy efficient design is integral to the region's urban design principles included in the Regional Policy Statement regional form provisions.

6. Methods

6.1 Method 1: Changes - district and regional plans and the Regional Land Transport Strategy

(a) District and/or regional plans shall implement Policy 1 and 7, before or, at the time of the next plan review

(a) The Regional Land Transport Strategy shall implement Policy 5, before or, at the time of the next Strategy review.

6.2 Method 2: Consideration of resource consents, notices of requirement or plan changes

(a) Local authorities shall implement Policy 2 when assessing resource consents and notices of requirement.

(a) Local authorities shall implement Policy 6 when assessing resource consents, notices of requirement and considering changes to district plans or the Regional Land Transport Strategy.

(a) Local authorities shall implement Policy 3 and 4 when assessing resource consents, notices of requirement and considering changes to regional and district plans.

6.3 Method 3: Renewable energy production – identification and management

Greater Wellington will work with the region's city and district councils, central government agencies, industry representatives, and iwi authorities to develop an integrated approach to the management of the regions renewable energy production which recognises the benefits of renewable energy production while managing its potential adverse environmental effects.

6.4 Method 4: Travel demand management

Greater Wellington will:

- Implement travel demand management tools for Greater Wellington; and
- Work with the region's city and district councils, businesses and schools to promote the use of travel demand management tools.

6.5 Method 5: Energy efficient design

Greater Wellington will work with the region's city and district councils and central government agencies to prepare and/or promote guidance material on the promotion of sustainable subdivision and development design.

6.6 Method 6: Collection of information on regional energy use

Greater Wellington will work with central government agencies, the region's city and district councils and industry representatives to identify and collect information relevant to regional energy use, renewable energy production and greenhouse gas emissions.

7. Principle reasons for objectives, policies and methods

The preceding objectives, policies and methods establish a policy framework for the production and use of energy within the Wellington region.

The policy framework recognises that national energy demand is increasing and that non-renewable sources make up a growing proportion of the energy supplies. These energy trends are a significant contributor to New Zealand's growing level of greenhouse gas emissions.

Specific information on energy demands and use in the Wellington region are not readily available. The policy framework therefore assumes that energy use and production within the Wellington region is generally following national trends.

The policy framework focuses on energy matters and decisions that can be influenced under the Resource Management Act. There are several key energy related issues that are not within the scope of the Regional Policy Statement to influence and consequently these matters are not addressed in the preceding policy framework. These include the development of alternative fuels and energy efficient technologies and the development and implementation of market mechanisms associated with greenhouse gas emissions.

Recognising this, the preceding policy framework addresses three broad matters:

- Renewable energy production and use in the region;
- Energy demands and greenhouse gas emissions associated with the region's transport system; and
- Energy efficiency in subdivision and development design.

In addition to these matters the regional form provisions in the Regional Policy Statement which address the integration of land use and infrastructure, also play an important part in the overall Regional Policy Statement policy framework for energy.

In addressing the matters that policy framework uses a mix of regulatory and non-regulatory approaches. The regulatory approaches include promoting and in some cases requiring the inclusion of provisions within regional and district plans and requiring that certain matters be considered as part of resource consent, notice of requirement and district plan change processes. The package of regulatory and non-regulatory approaches is considered the most appropriate

way of achieving the energy objective taking account of potential costs and the ability of the mechanisms under the Resource Management Act to effectively influence the sustainability of the region's energy production and use.