



Progress toward achievement of  
Environment Waikato's Regional Policy  
Statement objectives:

# Energy and structures (infrastructure)

Documents in this series:

- Policy effectiveness paper No.1: Biodiversity and natural heritage: 2007.
- Policy effectiveness paper No.2: Natural hazards: 2008.
- Policy effectiveness paper No.3: Energy and Structures (infrastructure): 2009.

This document is the third in a series of reports prepared to assess the extent to which Environment Waikato is achieving its Regional Policy Statement objectives. Such assessments are to be repeated at five-yearly intervals. The reports are in response to the Resource Management Act (RMA) requirement to monitor the efficiency and effectiveness of policies, rules or other methods (RMA, Section 35(2)). As well as assessing progress towards the achievement of objectives, the reports are to make recommendations concerning future implementation, development and monitoring of the Regional Policy Statement and regional plans.

This report has been prepared by Robin Britton with assistance from Urlwyn Trebilco, Brendan Morris and Annabelle Giorgetti. We wish to express our appreciation to the many Environment Waikato staff members, district council staff members and external parties who have contributed to this report. Thanks also to Pam Gore for providing the photographs.

Disclaimer: This Policy Effectiveness Paper has been prepared for the use of Waikato Regional Council as a reference document and as such does not constitute council's policy.

Council requests that if excerpts or inferences are drawn from this document for further use by individuals or organisations, due care should be taken to ensure that the appropriate context has been preserved, and is accurately reflected and referenced in any subsequent spoken or written communication.

While the Waikato Regional Council has exercised all reasonable skill and care in controlling the contents of this report, council accepts no liability in contract, tort or otherwise, for any loss, damage, injury or expense (whether direct, indirect or consequential) arising out of the provision of this information or its use by you or any other party.

# Executive summary

This report assesses the extent to which the objectives relating to the following two chapters in the Regional Policy Statement (RPS) are being achieved:

- energy, and
- structures (infrastructure).

## Part A: Energy

The objective is:

**Objective 3.12.2:** Efficient use of energy within the Waikato region.

- The RPS focus is on efficient use of energy, which recognises this as being a key approach for managing the increasing demand for energy. The importance of global and national policy directives in this arena is also recognised. Energy demand can be managed through, in particular, efficient use of electricity and transport fuels.
- Since 1991, when the Resource Management Act (RMA) was introduced, there have been some significant legislative and national policy changes that will impact on the future efficient use of energy within the region. In particular, the Energy Efficiency and Conservation Act 2000 was introduced. In addition, the RMA has been strengthened, with respect to climate change and renewable energy issues, while the Land Transport Management Act 2003 brings a stronger focus on sustainable land transport systems.
- National policy has evolved through a number of key documents including the New Zealand Energy Strategy and the New Zealand Energy Efficiency and Conservation Strategy. These policy directives provide a strong guide for future policy development within the RPS.
- Much of the recent focus on energy efficiency in New Zealand has been as a result of increasing energy prices, concerns about supply, and concern about climate change impacts from fossil fuel use.

### What Environment Waikato has done about energy

The RPS energy chapter focuses on efficient use of energy. The six implementation methods have been partially implemented and therefore have contributed to the achievement of the objective. The main responses (described below) are relatively recent,

and it will be some time before they pay dividends in terms of energy efficiency.

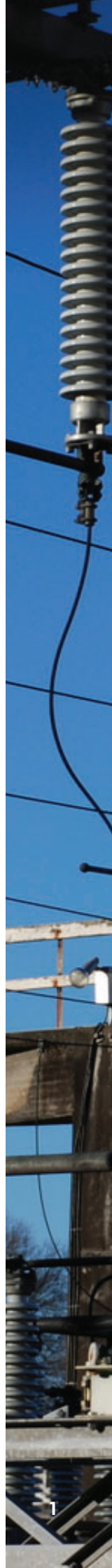
The main implementation actions are as follows:

- Environment Waikato has been instrumental in setting up the Waikato Regional Energy Forum, which is taking a lead from the national policy directives and is developing an integrated approach to the regional management of energy issues for the future (including energy efficiency). This will be a critical Forum for guiding future RPS policy development.
- The Regional Land Transport Strategy (RLTS), which has been recently reviewed, is a key document for managing the transport-related energy efficiency. It will also have a critical role in influencing future RPS policy development.
- Advocacy for energy efficient subdivision development through Environment Waikato's document: 'Sustainable Subdivision Development – An Environment Waikato Perspective' and through Environment Waikato's involvement with growth strategies such as the Hamilton Sub-regional Growth Strategy. Advocacy is also occurring through the council's Strategy for a Sustainable Development project.

### Achieving the objective

It is likely that in general there is starting to be more efficient use of energy in the Waikato region, but this would mainly be a response to national and international trends and pressures.

While the methods in the RPS chapter on energy have been partially implemented, it is clear that in relation to the efficient use of electricity they have not in general been given a strong work priority (until the recent Regional Energy Forum and growth strategy work). Environment Waikato's transport planning work does strongly advocate for efficient use of energy in the land transport arena and this has some benefits in terms of efficient energy use.





## Recommendations for policy development

Recommendations for future policy development include the following:

- Environment Waikato’s transport and growth planning initiatives are very important in terms of ensuring growth and development in the region over the long term supports efficient energy use, particularly in terms of transport energy use (which accounts for 44 per cent of all energy use in New Zealand). Planning that encourages compact development and that limits rural-residential development to areas near urban areas and/or areas easily served by public transport, will help to reduce commuting distances and other travel requirements. Future RPS policy should encourage such development planning.
- Policy should be changed to focus on efficient energy use (as opposed to efficient generation and transmission), particularly in terms of use of electricity and transport fuels.
- RPS policy should more strongly implement energy efficiency directions advocated by the Regional Land Transport Strategy.
- Consider stronger policy and methods to support greater energy conservation and efficiency, such as in homes and businesses.

## Recommendations for improved implementation

Recommendations arising in relation to implementation included:

- Supporting the ongoing work of the Waikato Energy Forum and drawing on it for assistance in refining implementation methods.
- Advocacy and education, such as with respect to growth strategies, structure plans, and national standards and guidelines are effective ways of working towards achievement of the objective. Such methods should continue to have support.
- Those with responsibilities for implementing the RPS methods are sometimes not aware of their responsibilities. Stronger linkages should be made between the RPS methods and internal work programmes.

## Part B: Structures (infrastructure)

The objective is:

**Objective 3.13.2:** Infrastructure  
The continued operation of regionally significant infrastructure (including network utilities) maintained or enhanced.

This chapter of the RPS is focused on regionally significant infrastructure, with a particular emphasis on network utilities and land transport.

The Waikato region is strategically located for the ‘transmission’ of various infrastructure services, such as: gas pipelines, electricity generation and transmission, roads, railways, telecommunications and river and catchment management assets. These services tend to cross many territorial authority boundaries and link with neighbouring regions. There is also a range of other infrastructure types which provide regional services such as research, education and health facilities, and which contribute to the health and wellbeing of the region.

Since 1991, there has been a significant change to the RMA, through the inclusion of “strategic integration of infrastructure with land use” as a new function of regional councils. Defining ‘strategic integration’ and linking it to the management of growth and land use patterns, will be critical for the forthcoming review of the RPS.

From a national perspective, the National Policy Statements on energy transmission, renewable energy and flood risk management will have significant influences on the future policy development of the RPS. Clearly a stronger land use link will be required.

### What Environment Waikato has done about structures (infrastructure)

There has been a significant amount of work undertaken in relation to the management of land transport and river and catchment management assets. Environment Waikato staff commonly advocate for the protection of regionally significant

infrastructure through input (including submissions) into applications to territorial authorities for subdivision and land use consents, and with respect to district plan changes. Environment Waikato's input into district and sub-regional growth strategies, and the development of the Strategy for a Sustainable Environment, are important methods for protecting regionally significant infrastructure.

### Achieving the objective

It is considered that the objective has been largely achieved. There is no clear evidence that the operation of any particular regionally significant infrastructure has been prevented in any significant way due to resource use or land use decisions. It is likely however that land use change has impacted to an extent on the functionality of some infrastructure services.

### Recommendations for policy development

Recommendations for future policy development include:

- Consideration should be given to widening the scope of the chapter to include other kinds of infrastructure that are important to the region such as regionally important hospitals, education institutions, landfills and prisons.
- There needs to be better guidance in the RPS about what infrastructure is regionally significant.
- There needs to be stronger guidance about how territorial authorities should manage land use for the protection of regionally significant infrastructure.
- Consideration should be given to establishing through the RPS a regional framework of strategic infrastructure corridors.
- The RPS should better support the Regional Land Transport Strategy by providing a stronger link between land use planning and the objectives and principles embedded in the Strategy.
- Future policy development needs to draw on the national legislative and strategy changes that have occurred since 1991.
- There should be consideration of providing guidance in the RPS for the provision of new infrastructure in relation to landscape values.
- The RPS should provide clearer guidance on how the objective is to be monitored.

### Recommendations for improved implementation

Recommendations arising in relation to implementation included:

- It is important that Environment Waikato staff continue to advocate for the protection of regionally significant infrastructure through their work with subdivision applications to territorial authorities, district plan changes, structure plans and growth strategies.
- Good communication with infrastructure providers such as the New Zealand Transport Agency, Transpower, Telecom and Ontrack is needed in order to ensure territorial authority growth strategies accommodate the land requirements of long term infrastructure planning.
- It is important that Environment Waikato's River and Catchment Services staff and transport staff are informed of new development plans and strategies so that they can provide input about the effect of these on the infrastructure they are responsible for.

# Table of contents

Executive summary	1
Part A: Energy	1
Part B: Structures (infrastructure)	2
1. Introduction	6
2. Scope	6
3. Methodology	6
Part A: Energy	8
1. Introduction	8
1.1. Historical legislative context	8
1.2. Regional overview	8
2. Understanding the objective	11
2.1. Introduction	11
2.2. Objective for energy	11
2.3. Matters supporting the objective	12
2.4. Observations on the objective	13
3. Changes and status of energy efficiency issues	14
3.1. Current context for energy efficiency	14
3.1.1. Legislative changes since 1991	14
3.1.2. Key national policy directives	15
3.2. Description of energy efficiency areas	16
3.2.1. Efficient use of electricity	16
3.2.2. Transport energy efficiency	17
4. What Environment Waikato has done about energy efficiency	18
4.1. Implementation methods supporting the energy objective	19
4.1.1. Advocacy and education	19
4.1.2. Transport planning	19
5. Conclusions, observations and recommendations	20
5.1. Achieving the objective.	20
5.2. Comments and recommendations with respect to policy development	21
5.3. Comments and recommendations with respect to policy implementation	22
Part B: Structures (infrastructure)	23
1. Introduction	23
1.1. Historical legislative context	23
1.2. Regional overview	24
2. Understanding the objective	27
2.1. Introduction	27
2.2. Objective for structures (infrastructure)	27
2.3. Matters supporting the objective	28
2.4. Observations on the objective	28
3. Changes and status of infrastructure issues	29
3.1. Current context for structures (infrastructure)	29
3.1.1. Legislative changes since 1991	29
3.1.2. Key national policy developments	30
3.1.3. Infrastructure industry changes	31
3.2. Description of infrastructure areas	32
3.2.1. Transport infrastructure: roads, rail, ports and airports	32
3.2.2. Network utilities: transmission networks/flood protection assets	37
3.2.3. Other regional infrastructure	40
4. What Environment Waikato has done about infrastructure	41

4.1.	Implementation methods supporting the structures (infrastructure) objective	41
4.1.1	Implementation of method 1	41
4.1.2	Implementation of method 2	42
5.	Conclusions, observations and recommendations	42
5.1.	Achieving the objectives	42
5.2.	Comments and recommendations with respect to policy development	43
5.3.	Comments and recommendations with respect to policy implementation	45
Appendix 1: Reflections on methodology used		46
Appendix 2: Key RMA definitions		47
Appendix 3: Designations		49
References		50

### Abbreviations used

ERA	Environmental Results Anticipated.
CDEMA	Civil Defence and Emergency Management Act, 2002.
EECA	Energy Efficiency and Conservation Authority.
RLTS	Regional Land Transport Strategy.
RMA	Resource Management Act, 1991.
RPS	Regional Policy Statement.
NPS	National Policy Statement.
NZES	New Zealand Energy Strategy.
NZEECS	New Zealand Energy Efficiency and Conservation Strategy.
s	section (in respect to legislation).

# 1 Introduction

## 2 Scope

This report covers two chapters of the Waikato Regional Policy Statement (RPS):

- Part A addresses RPS chapter 3.12: Energy
- Part B addresses RPS chapter 3.13: Structures (infrastructure).

The purpose of this report is to assess the extent to which the energy and structures (infrastructure) objectives in the RPS are being achieved.

This assessment is undertaken in response to the Resource Management Act (RMA) section 35 requirement which states:

s35(2) Every local authority shall monitor - ...  
(b) the efficiency and effectiveness of policies, rules, or other methods in its policy statement or its plan;...

The Act also states that:

s35 (2A) Every local authority must, at intervals of not more than 5 years, compile and make available to the public a review of the results of its monitoring under subsection (2)(b).

To fulfil these requirements, the approach taken by Environment Waikato is to focus on the RPS objectives, as these represent the key RMA matters which the regional council is seeking to influence<sup>4</sup>. Assessing the extent to which the objectives are being achieved will provide a good indicator of the efficiency and effectiveness of the regional council's policies, rules and other methods in its RPS and regional plans. As well as assessing the changes that have occurred within the topic areas since the RPS was drafted, it is also important to consider the current and anticipated pressures on these resources. The analysis for each RPS chapter therefore includes:

- background context for the RPS chapter
- a description and discussion of the relevant RPS objectives
- an overview of key changes that have occurred since the development of the RPS
- a description of key resource matters which are fundamental to the energy and structures objectives, including a pressure/state/response overview of the resources

Note: Future reports will focus on other RPS objectives.

- an analysis of the extent to which the relevant methods have been implemented
- recommendations for future policy development and future implementation of methods.

This report builds on the information provided in the report "Evaluation of the Waikato Regional Policy Statement" Enfocus, 2007, which provides an overall evaluation of the performance and continued relevance of the Waikato RPS.

Chapter 3.12 of the RPS describes the issue, objective, policies and implementation methods for energy. It is important to note that the mandate to manage energy has been strengthened since the RPS was drafted via additions to s7 (Other Matters) which require councils to have particular regard to the efficient end use of energy, climate change and renewable energy.

Chapter 3.13 of the RPS describes the Waikato's issue, objective, policies and implementation methods for Structures (Infrastructure). Likewise, the regional council's mandate to manage infrastructure has been strengthened since the RPS was drafted, via the introduction of a new function for regional councils, namely, (s30(1)(gb)) relating to the strategic integration of infrastructure with land use.

It is also significant to note for both chapters that s55 was amended to require the RPS to give effect to National Policy Statements (NPS) and for subordinate RMA planning documents "to give effect to" the RPS.

## 3 Methodology

The following methodology was used in preparing this report:

### Background scoping

Initial conversations were held with key Environment Waikato policy staff who had been involved in the development of the RPS. The purpose for these conversations was to:

- identify the reasons behind the development of the RPS provisions, in order to help clarify the intent of the objectives, and
- ascertain any matters occurring at the time that may have influenced the development of the policy.



## Interviews

Interviews were held with three key groups:

- Environment Waikato staff
- district council staff
- external stakeholders.

A representative from each of the key work areas within Environment Waikato was identified and subsequently interviewed. The work areas covered included: policy development, policy implementation, land transport, social and economy, rivers and catchment services, and resource use (consents and environmental education).

This project was introduced to territorial authorities at a Forum for Integrated Resource Management meeting (meetings held to facilitate flow of information between the councils within the region). Email questionnaires were subsequently sent out to forum participants. Replies were received from Matamata-Piako District Council, South Waikato District Council, Taupo District Council, Thames-Coromandel District Council and Waikato District Council.

A range of external stakeholders were interviewed by phone or in person. These included: Mighty River Power, Transit NZ, Land Transport New Zealand, Transpower and Telecom.

## Desk top research

A wide range of hard copy and website literature relating to the two topic areas was reviewed.

## Analysis and preparation of the report

The findings from the previous steps were subsequently analysed and the results presented within this report.

## Reflections on methodology used

Appendix 1 provides comment on the appropriateness of the methodology used in preparing this report.



Frankton railyards cell phone tower.

# Part A: Energy

## 1 Introduction

This section of the report focuses on the energy chapter of the RPS and assesses the extent to which the objective in the RPS is being achieved.

Chapter 3.12 of the RPS describes Environment Waikato's issue, objective, policy and implementation methods for energy, with particular emphasis on efficient energy use.

The objective for chapter 3.12 of the RPS states: Efficient use of energy within the Waikato region.

### 1.1 Historical legislative context

The legislative context for the energy chapter within the RPS is drawn from a range of provisions in the RMA. These include in particular the following references:

- Section 2 of the RMA defines 'natural and physical resources' as including energy.
- Section 5 of the RMA sets out the purpose of the Act and defines 'sustainable management' as including the management of natural and physical resources.
- While energy efficiency was not specifically mentioned in the 1991 version of the RMA, it is nevertheless closely linked to RMA sections 7(b) and (g):
  - 7: Other Matters – In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natura; and physical resources, shall have particular regard to – (b) The efficient use and development of natural and physical resources....*
  - (g) Any finite characteristics of natural and physical resources.*
- The functions for regional councils under the RMA are set out in s30. In particular s30(1)(a) emphasises the integrated management of natural and physical resources.

Therefore, it appears that at the time of drafting, this chapter of the RPS was focused on the RMA references to managing energy as being part of natural and physical resources (closely integrated with land, water, and air), and focusing in particular on efficient use. The RPS introduction to the chapter stated that New Zealand's energy generation, distribution and consumption were inefficient.

In accordance with s62(1)(a) energy efficiency was identified as a significant resource management issue for the region, which was to be addressed in the RPS. It was stated in the RPS that an increase in energy generation could be slowed by increasing the efficiency of generation and consumption, thereby resulting in less environmental degradation (for example, less green house gas emissions, or less demand for new infrastructure).

These key concepts underpinned the development of the objective, policy and methods for this chapter of the RPS.

### 1.2 Regional overview<sup>4</sup>

When considering energy efficiency issues for the region there are two key components: electricity use and demand, and transport use and demand.

The Waikato region is a nationally significant region for energy generation and for the range of energy-related resources within it. Energy resources, generation and transmission are shown on Map 1.

Located within this region is almost 40 per cent of New Zealand's generation capacity, generating up to 50 per cent (particularly in dry years) of New Zealand's electricity<sup>5</sup>. This emphasises the importance of energy to the region and to the nation. Energy is currently generated within the region by 11 hydro power stations on the Waikato and Tongariro Rivers (and a number of smaller dams on smaller rivers), geothermal power plants (there are nine development/limited development fields), one thermal power plant (coal and/or gas fired) and three main co-generation plants (within the dairy and forestry industries). Wind and marine energy generation proposals are being considered within the region. A number of individual

- 4 (a) The Draft Waikato Regional Energy Strategy (Working Document dated 8/11/07) is a critical document in providing a more detailed overview of energy issues globally, nationally and regionally. Part A: Energy of this report has drawn extensively on information from within this strategy. The willingness of the Forum to share this information is acknowledged.
- (b) Energy use and demand is closely tied to infrastructure requirements – refer to Part B of this report for further discussion on infrastructure.
- (c) There is a separate chapter in the RPS addressing the geothermal resource. This resource is therefore not covered any further in this report.
- 5 Waikato Regional Energy Forum, 2007b., pp42, 44: Note the percentage generated in any one year is dependent on the wholesale energy market.

buildings are also installed with solar water heating units. Biofuel (in particular from woody biomass, waste and agriculture sources) is a potentially increasing energy source for the future.

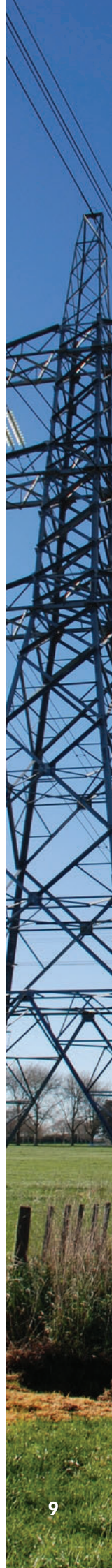
In addition the region is well-resourced with energy-related natural resources including: coal, geothermal, rivers, wind, waves, solar and biomass resources. Natural gas is piped into and through the Waikato region from the Taranaki region. Oil and petrol products are also transported into and through the region.

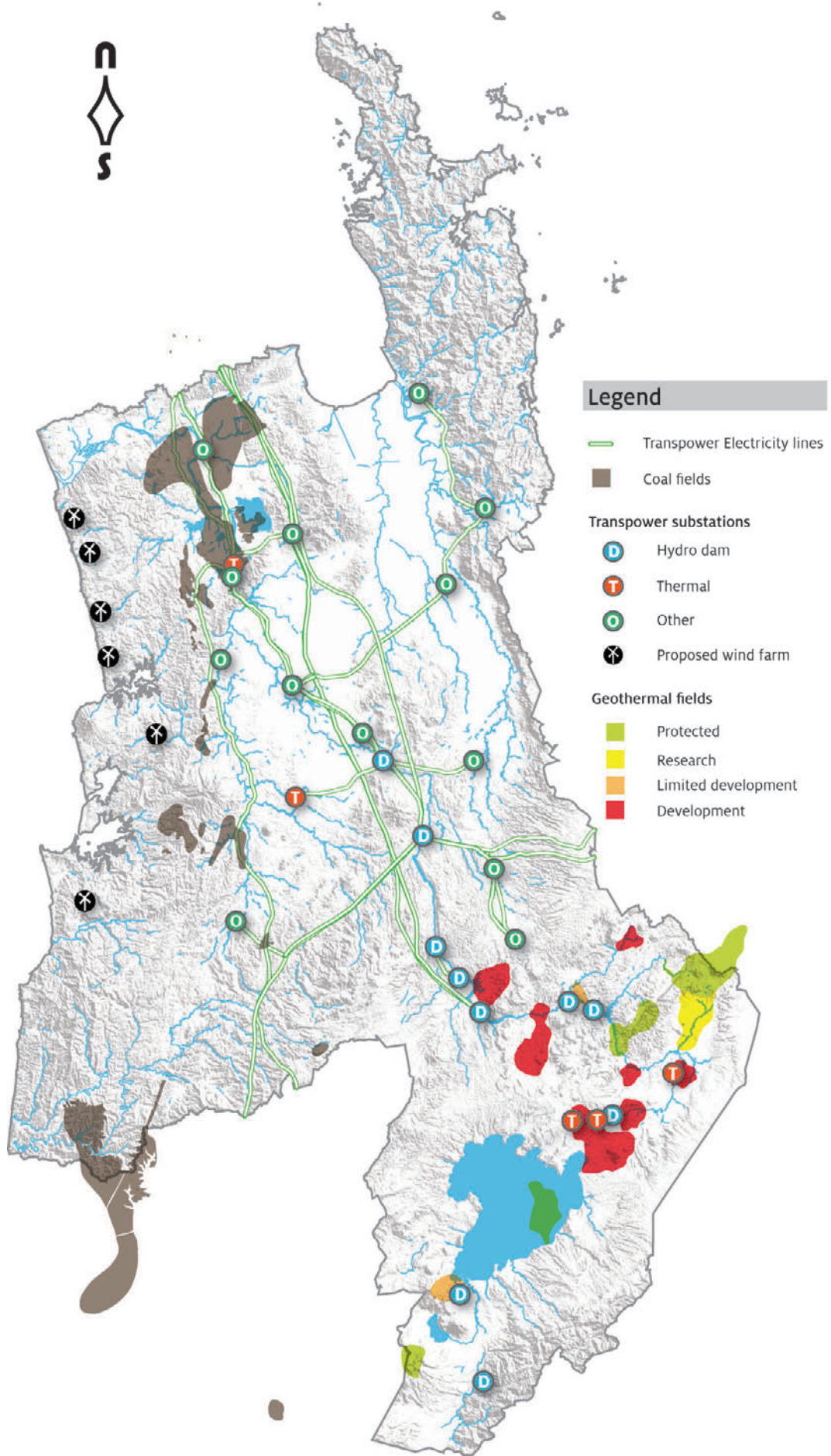
The Waikato region serves as a corridor for many transmission lines/pipes (electricity and gas), connecting the generating plant to the national distribution grid and to local distribution networks. (Refer to Part B of this report for further discussion on infrastructure).

The Waikato region is reliant on energy use from petrol, diesel, and CNG for transport. Almost 40 per cent of all energy consumed in the region is used for transport. (Refer to Table 1.)



Karapiro dam.





Map 1: Energy resources, generation and transmission.

## Waikato nett consumer energy 2005 (PJ)

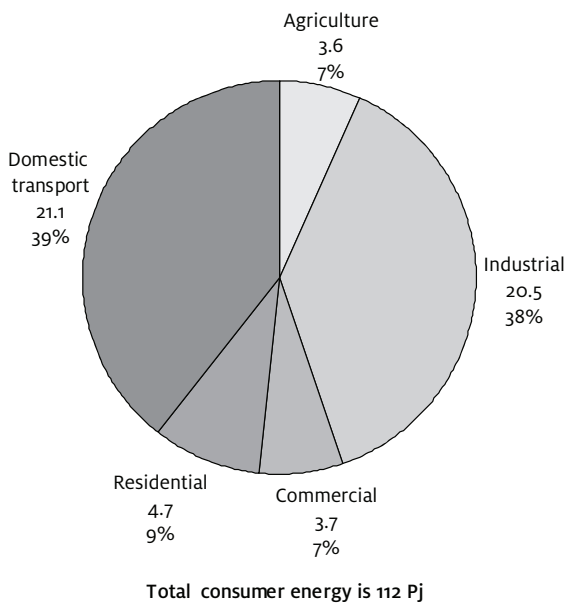


Table 1: Waikato net consumer energy 2005<sup>4</sup>

4 Waikato Regional Energy Forum, 2007b, p58.

## Waikato nett consumer energy by energy source 2005 (PJ)

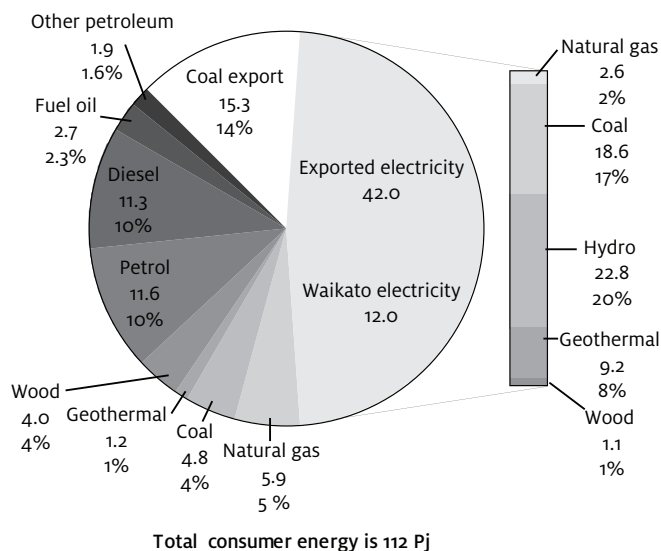


Table 2: Waikato net consumer energy by energy source 2005<sup>5</sup>

5 Waikato Regional Energy Forum, 2007b, p56.

Nationally, transport consumes 44 per cent of energy used, with freight modes accounting for 43 per cent of the transport energy use<sup>6</sup> (refer to Table 2). Transport emissions contribute significantly to New Zealand's greenhouse gas emissions.

The increasing population of the Waikato region (and that of neighbouring regions Auckland and Bay of Plenty) is expected to lead to an increase in the demand for energy supply (electricity and transport). The objective in the RPS is focused on energy efficiency as a key management approach to reduce the effects of such demand.

## 2 Understanding the objective

### 2.1 Introduction

In order to assess the extent to which the objective is being achieved, it is important to have a clear understanding of what the objective means. This section of the report therefore seeks to interpret more specifically what the objective is seeking to achieve. In doing so, the section aims to discuss important assumptions and definitions that contributed to the development of the policy at the time of writing.

### 2.2 Objective for energy

Chapter 3.12 of the RPS provides an objective, a policy and methods for addressing energy efficiency.

The objective is as follows:

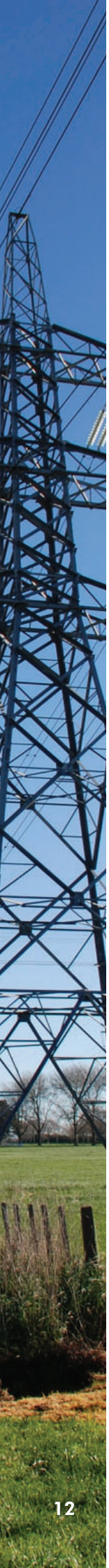
**Objective 3.12.1:** Efficient use of energy within the Waikato region.

The issue which gives rise to this objective is:

*inefficient energy production and use uses natural resources at a greater rate than is needed and results in unnecessary adverse effects on natural and physical resources.*

The issue within the RPS is focused on minimising adverse effects on the environment by promoting efficiency in energy production and use. The focus on energy efficiency was drawn primarily from the

6 Energy Efficiency and Conservation Authority, 2007. p50.



RMA s7(b), but also from the work that had been undertaken at that time in relation to efficient use of geothermal resources. This work sought to emphasise the need for efficient end uses of the energy. (A factor which was subsequently adopted in the 2004 amendment to the RMA – refer to section 3.1.1 below).

The RPS identified the main energy sources for the region as including: oil, coal, gas, geothermal and hydro. Alternatives such as wind and marine energy were still in their infancy, and at that time were not considered to be likely future resource pressures for the region.

The RPS recognised the region as having a ‘strategic location’ and described the region as an ‘energy corridor’ linking Auckland and areas to the north with energy from within and to the south of the region.

Based on 1991/1992 figures, the RPS identified that the average loss in energy from production and distribution was approximately 30 per cent and the losses between the consumer and the desired output was approximately 60 per cent. These figures contributed to quantifying the inefficiencies in energy production and distribution. As it is unclear what these figures were based on it has been difficult to provide more recent comparative figures<sup>7</sup>. It is expected that these figures also relate to technological issues of generation and distribution and would not be an appropriate measure for assessing the effectiveness of the RPS in achieving efficiency of use.

The RPS anticipated that demand for energy would increase with a probable requirement for more energy developments (generation and transmission, as well as roading infrastructure). It was also stated that the probable increase in demand for additional energy generation could be slowed by increasing the efficiency of generation and of electricity consumption – thereby resulting in less environmental degradation (for example, from green house gases or from flooding land for a new dam). The energy chapter of the RPS therefore also recognised the importance for integrated management of natural and physical resources, as set out in other chapters of the RPS.

<sup>7</sup> Note that a diagram of 2004/05 energy flows for the Waikato region is shown in: Waikato Regional Energy Forum, 2007b, p 61.

Therefore, considering the objective in light of the RMA provisions outlined in section 1.1 above, it is clear that energy is a resource that is required to be managed sustainably under the RMA and that includes having particular regard to its efficient use.

## 2.3 Matters supporting the objective

Within Chapter 3.12, the policy, methods and Environmental Results Anticipated (ERA) support the objective and assist in understanding what the objective means. They also assist in assessing the extent to which the objective is being achieved.

Section 62(1)(g) of the RMA requires the RPS to state what ‘the environmental results anticipated from the implementation of those policies and methods’ are likely to be. Policies and methods are respectively ‘how’ and ‘what’ needs to be done to achieve the objective. They therefore shed some further light on the intent of the objective.

The policy is:

*to promote efficiency and conservation in the production, transmission and consumption of energy.*

This policy expands on the objective by specifying ‘conservation’ as well as ‘production, transmission and consumption’ but it does not shed any further light on how these efficiencies are to be achieved. The term ‘promote’ implies a leadership role as well as working with other agencies. It is anticipated that this policy would therefore be implemented primarily through work with other agencies as opposed to RMA plan provisions. Therefore a key means for checking on the achievement of the objective is to review the implementation methods (refer to section 4 of this part of the report for more details). Another check is to assess the ERA.

The ERA for this chapter of the RPS are stated as:

- 1 improved efficiency of energy use
- 2 increased public awareness of energy conservation and efficiency.

These are the outcomes that were expected to reflect the achievement of the objective. As no effective monitoring of energy ‘efficiency’ or ‘public awareness of energy conservation and efficiency’ has been

undertaken since the RPS was developed, it is difficult to comment on the degree to which this objective may have been achieved (that is: to measure any improvement in efficiency or increase in public awareness).

## 2.4 Observations on the objective

The following observations on this objective, policy and the ERA are derived from the contents of the Energy chapter of the RPS. They assist in helping to better understand the intent of the objective.

1. The 'principal reason for adopting' the objective<sup>8</sup> defines energy efficiency as follows:  
*"efficient use of energy is consuming the minimum amount of energy for the maximum desired output."*

While this definition assists in the understanding of the intent behind the objective, there is no indication within the chapter about how this would be measured.

2. The policy refers to promoting energy conservation. However there is no discussion of the term 'conservation' and how this would relate to efficient use as stated in the objective. This could imply that the terms 'efficiency and conservation' are considered to be synonymous or that conservation is but one part of efficiency.

Nationally the link between efficiency and conservation has been clarified through legislation (refer to definitions under 3.1.1 below.) In addition, J Fitzsimons comments "energy efficiency uses smarter technology to deliver the same outcomes. Energy conservation uses smarter behaviour to meet our needs and save us money<sup>9</sup>."

Key drivers for conservation include, for example, technology changes, price, and government policy (such as the Building Act provisions for insulation). Many of these drivers are outside the influence of the RMA, making the assessment of 'efficiency' difficult to quantify and difficult to link back to the influence or 'effectiveness' of the RPS.

3. While ERA 1 implies that there is a baseline of known efficiencies against which change would be measured, 'efficiency' is a subjective term and could be assessed in a range of ways, such as economic efficiency, production or transmission efficiency, or end use efficiency.

Energy indicators were developed by Environment Waikato in 2003, covering 'total energy consumption' and 'energy use relative to economic growth'. An energy component was also included in the indicator for a Regional Economic Footprint (measured in 1997/98 and 2003/04)<sup>10</sup>. These indicators provide a snapshot view of energy use within the region, but do not assess trends over time. In addition there is a range of data collected on transport indicators that reflect on energy use and efficiency in the transport sector.

'Efficiency' measures for transport have included flow, travel times and congestion measures. More recently air quality has been measured to assess the level of emissions. It is however difficult to assess 'efficiency' as couched by the objective, in light of the increasing population and vehicle usage over time.

ERA 2 reinforces the assumption made above about working with other agencies and the wider public to achieve this objective. However there has been no trend data collected to measure an increase in public awareness with respect to energy efficiency.

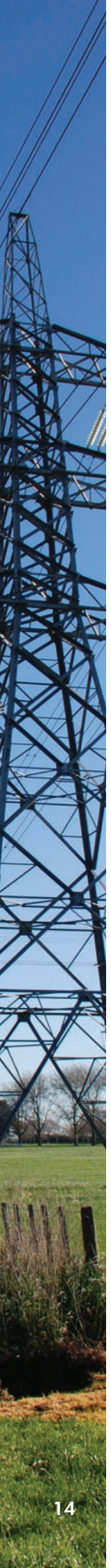
4. Through its roles and functions the RMA is constrained in 'managing' efficiency in relation to energy production and distribution. Production efficiencies are clearly the domain of the generation companies and distribution efficiencies are the domain of the transmission companies.

With regard to efficient energy use, there is an advocacy role that can be undertaken to support energy efficiency initiatives. In this respect, it is acknowledged that there is an 'integrating role' that is fundamental to the RPS energy chapter. The

8 Waikato Regional Policy Statement, p132.

9 Energy Efficiency and Conservation Authority, 2007, p4.

10 Refer to [www.ew.govt.nz/enviroinfo/indicators/community/sustainability.htm](http://www.ew.govt.nz/enviroinfo/indicators/community/sustainability.htm)



RPS also recognises that there is a strong need for managing the integration between resources. For example, energy efficiency is linked to the management of water and minerals in particular and RMA planning provisions to manage these resources could also impact on energy efficiency issues (for example through allocation of the resource).

### 3 Changes and status of energy efficiency issues

Before proceeding to analyse the extent to which Environment Waikato and the territorial authorities have achieved this objective, it is useful to record some of the legislative and national policy changes that have occurred since 1991 (when the RMA was introduced) and to provide an overview of the status, pressures and trends that impact on energy efficiency.

This section therefore provides a current and forward looking perspective on issues associated with energy efficiency, which will assist with the analysis of the achievement of the objective (as covered in section 5).

#### 3.1 Current context for energy efficiency

##### 3.1.1 Legislative changes since 1991

The key legislative changes affecting the management of energy efficiency that have occurred since 1991 include:

- RMA amendments 2003 and 2005
- RMA (Energy and Climate Change) Amendment Act 2004
- Land Transport Management Act 2003
- Land Transport Act 1998
- The Energy Efficiency and Conservation Act 2000.

The 2004 amendment to the RMA introduced three new sub-clauses to section 7 (ba); (i) and (j), in addition to the original clauses (b) and (g) mentioned in section 1.1:

*s7. Other Matters – In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to –*

*(b) the efficient use and development of natural and physical resources*

*ba) the efficiency of the end use of energy*

*(g) any finite characteristics of natural and physical resources*

*(i) the effects of climate change*

*(j) the benefits to be derived from use and development of renewable energy.*

Sub-clause (ba) significantly strengthened the management focus on energy efficiency and on end uses. That is, councils ‘shall have particular regard to’ these matters. As such, it is clear that energy efficiency is to be considered as a significant resource management issue for the region (as stated under s62(1)(a) (requirements of an RPS). This also reinforces that the management of energy efficiency in the production and transmission of electricity is outside the scope of the RMA to manage.

New clauses 7(i) and (g) support the focus on energy efficiency through recognition that energy issues are likely to be impacted by climate change (for example droughts impacting on hydro water resources), and influenced by the Government’s New Zealand Energy Strategy (through for example the management of green house gas emissions).

In support of the new sub-clauses in section 7, the 2004 amendment to the RMA also introduced a definition for renewable energy:

*s2. renewable energy means energy produced from solar, wind, hydro, biomass, tidal, wave and ocean current sources.*

The Land Transport Act 1998 requires that the Regional Land Transport Strategy (RLTS) must not be inconsistent with the RPS. The Land Transport Management Act was introduced in 2003. The purpose of this Act is to achieve an integrated, safe, responsive and sustainable land transport system. This Act establishes a stronger link between RMA planning and transport planning, including for example, the



consideration of energy consumption issues in relation to settlements, alternative modes of transport and efficient roading infrastructure.

The Energy Efficiency and Conservation Act 2000 established the Energy Efficiency and Conservation Authority (EECA) to promote energy efficiency, energy conservation and renewable energy across all sectors of the economy, within a sustainability framework. The Act also mandated the development of the New Zealand Energy Efficiency and Conservation Strategy (as discussed in 3.1.2).

This Act uses the same definition for environment as in the RMA and also provides the following definitions:

- energy conservation means a reduction in energy use
- energy efficiency means a change to energy use that results in an increase in net benefits per unit of energy.

In order to provide consistency, these definitions should be embedded into the RPS in the future.

### 3.1.2 Key national policy directives

This section provides a brief overview of recent key policy directives that have an influence on the management of energy efficiency issues under the RMA.

In 2007 the Government released the New Zealand Energy Strategy to 2050 (NZES) and the New Zealand Energy Efficiency and Conservation Strategy (NZECS).

The NZES sets out strategic directions for the energy sector to contribute to New Zealand's future prosperity and sustainability. It specifically responds to the challenges of providing enough energy to meet the needs of a growing economy, maintaining security of supply and reducing green house gas emissions.

Two key issues arising from this document include:

- responding to the risks of climate change by reducing greenhouse gases caused by the production and use of energy, and
- delivering clean, secure, affordable energy<sup>11</sup>.

The NZECS is a companion document to the NZES and sets out detailed actions and targets to give effect to the objectives set out in the NZES, in particular increasing the uptake of energy efficiency, conservation and renewable energy programmes across the economy.

The NZECS targets actions in five areas:

- energywise homes
- energywise business
- energywise transport
- New Zealand's efficient and renewable electricity system
- government leading the way.

Together the NZES and the NZECS are fundamental documents contributing to the achievement of the Government's Sustainable Development Programme of Action. They also contribute to the government's policy development on climate change and carbon emissions. These policy areas are complex and detailed actions and policy approaches are still evolving.

Energy efficiency is a key component of demand management for both electricity and transport. Managing demand for energy use can be beneficial to the consumer (through cost savings) as well as to the energy and transport industries (through reducing pressures on the need for further infrastructure). The Parliamentary Commissioner for the Environment reported that energy efficiency has the potential to save up to 1,101Gwh per year over the next five years – with savings rising to 7,755 GWh per year over a 30-year timeframe<sup>12</sup>.

The Government has also produced a New Zealand Transport Strategy. This strategy sets out a direction for achieving an integrated, safe, responsive and sustainable land transport system. This is a critical document for guiding the development of the RLTS and promoting efficient use of transport fuels through design, location and transport mode considerations.

<sup>12</sup> Parliamentary Commissioner for the Environment, 2006a, pp 53-54.

<sup>11</sup> Ministry of Economic Development, 2007, pp 5, 9.

## 3.2 Description of energy efficiency areas

This section of the report provides an overview of the status, pressures and trends that impact on energy efficiency. The two generic target areas identified through the NZEECS include the efficient use of electricity and transport.

### 3.2.1 Efficient use of electricity

#### State and trends

Promoting the efficient use of electricity is the legislated responsibility of EECA. In the past 10-years there has been increasing public awareness of energy efficiency both from a use perspective as well as from technological improvements (for example through marketing which focuses on energy efficient consumer items such as light bulbs and energy efficient white ware).

Electricity demand management is increasingly being applied in industrial and residential buildings. As shown in Table 1 in section 1.2 of this report, the Waikato region's net consumer energy for domestic and business sectors is 61 per cent of the total energy used.

Increasing electricity prices has some effect on the degree to which people use electricity efficiently in homes and business. This also drives consumer choice for energy efficient items.

#### Pressure/threats

The key pressures influencing energy efficiency include:

- increased population growth and increased economic activity (it is expected that the demand for electricity will continue to increase, due to increasing numbers of electrical goods, decreased sold fuel heating, increasing use of electric vehicles and so on)
- cost of new technology and cost of electricity (barrier to uptake of new technology and cost of electricity driving use down or change to more efficient appliances)
- Building Act requirements (impacts on new buildings in particular, while ageing housing stock can be energy demanding through for example lack of insulation)

- opportunities for biomass and biofuels co-generation plant and micro hydro plant are increasing (enabling self-sufficiency or supported electricity supplies)
- lack of awareness of information on energy efficiency and conservation (note: energy efficiency ratings on appliances; TV advertising are methods used to counter this pressure).

#### Response/methods

The NZEECS identifies actions to achieve efficient electricity use. It targets a 30 peta-joule saving in non-transport energy per year by 2025<sup>13</sup>. This strategy identifies a number of different agencies involved in assisting to achieve the actions, including local government. The NZEECS focuses on a wide range of energy efficiency programmes for both the industrial and domestic sectors. Energywise homes is focused on providing for warm, dry, healthy homes, improved air quality and reduced energy costs. Energywise business is focused on energy efficient and competitive businesses using more renewable energy and emitting less carbon dioxide<sup>14</sup>.

The proposed National Policy Statement for renewable energy will provide a national policy context for RMA planning documents, including the energy efficiency provisions of the future RPS.

The RPS response is primarily focused on advocacy rather than regulation. However regulation of air quality (clean burning of fuels), geothermal (for example, for direct or cascading uses) and water allocation (prioritising uses for hydro generation) are provided for in the Waikato Regional Plan.

Environment Waikato promotes energy efficiency through environmental education activities with the agriculture industry (currently a minor theme but expected to increase), and with waste management (a significant component of the waste advisory service to small businesses). It also has a corporate sustainability project (corporate energy plan, an energy audit, and transport audit).

<sup>13</sup> Energy Efficiency and Conservation Authority, 2007, p13.

<sup>14</sup> Energy Efficiency and Conservation Authority, 2007, p12.

District plans address a range of design and location matters under the RMA and under the Building Act which have an impact on energy efficiency.

Hamilton City Council has undertaken education initiatives promoting energy efficiency, while various councils have also undertaken internal energy audits of their own operations.

#### Gaps/issues

While demand management for electricity use can not be readily managed under RMA regulations there is an on-going advocacy role that can be undertaken. Environment Waikato does not currently do a lot to encourage efficient use of energy, such as in homes and industries. Through the Regional Energy Strategy process, strong messages are emerging that Environment Waikato should increase its advocacy for energy conservation and efficiency within the community.

Enabling provisions for the use of new renewable energy resources, may be an associated planning gap (refer also to Part B of this report.)

#### Summary and recommendations

Advocacy and education will continue to play a major part in supporting energy efficiency through the RPS.

The role for RMA planning documents in responding to domestic and business energy efficiency is limited. However from a sustainable communities perspective and being cognisant of the Government's energy policy directives, there may be an increased role for councils through the Local Government Act.

### 3.2.2 Transport energy efficiency

#### State and trends

The Waikato region is an important inter-regional transportation corridor that lies within the growth triangle of Auckland, Waikato and the Bay of Plenty (refer also to the infrastructure section of this report).

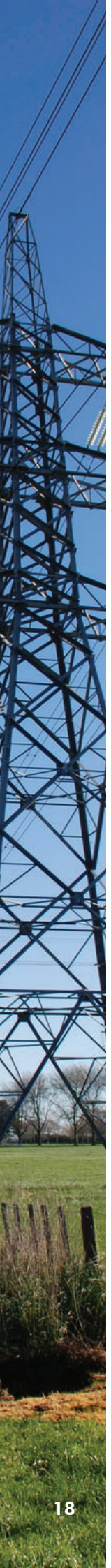
The New Zealand Energy Strategy emphasises five key areas for action to promote energy efficiencies in the transport sector<sup>15</sup>:

- managing demand for travel
- shifting to more efficient and/or lower impact means of transport (for example through road user charges)
- improving the fuel efficiency of vehicle fleets
- developing and adopting future fuels
- ensuring the security of short-term oil supplies and a diverse supply of transport fuels.

<sup>15</sup> Ministry of Economic Development, 2007, p49; and Ministry of Transport, 2007, p9.



Frankton railyards.



The increasing cost of transport fuels is starting to drive greater use of public transport, more walking (and to a lesser extent an increase in cycling) and a change of the vehicle fleet to smaller more fuel efficient vehicles.

Increasing concern for global warming and for air quality is driving moves to increase efficient use of fossil fuels.

#### Pressure/threats

In general, the key pressures facing the transport sector relate to the above five action areas. From an RMA perspective however, the main management pressure relates to the demand for travel. For example, traffic congestion results from population and economic growth and increases in the use of roads. This in turn contributes to further consumption of fuels and an increase in green house gas emissions. Urban sprawl and the spread of rural residential development is increasing commuter travel in the Waikato region.

#### Response/methods

The NZEECS target for efficient transport is to reduce the per capita transport greenhouse gas emissions by half by 2040<sup>16</sup>.

The RLTS aims to help achieve this target by:

- the identification of strategic transport corridors (for example, to ensure the efficient flow of vehicles)
- the integration of land use and transport planning (for example, to avoid congestion issues)
- the development of alternative transport modes (for example, to reduce the number of vehicle movements)<sup>17</sup>.

Environment Waikato has also developed a work place travel plan and options for telecommuting. At a corporate level, these contribute to reducing transport demand.

District plans address roading efficiency by identifying and providing for strategic transport corridors.

#### Gaps/issues

In general, there has not been a lot of attention given to transport energy efficiency matters in territorial authorities' urban and land use planning. This is beginning to change with more comprehensive structure plans and growth strategies.

#### Summary and recommendations

Integrated land use planning is fundamental to achieving the above NZES actions. Land use settlement decisions and energy efficiency associated with land transport are closely linked. The directions of the RLTS need to be more closely embedded into the RPS for the future. This would help provide more guidance to regional and district RMA plans, in particular on reducing the need to travel and encouraging the use of more efficient modes of transport.

## 4 What Environment Waikato has done about energy efficiency

To understand how effective and efficient the energy methods have been in achieving the objective for this chapter of the RPS, it is important to assess the extent to which the methods have been implemented. This section of the report summarises the implementation actions that have been undertaken by Environment Waikato and some territorial authorities.

In the RPS, the methods for achieving the objective generally cover a) advocacy and education and b) transport planning. They are stated as follows:

1. advocate, through community information and education, for the promotion of energy efficiency, conservation and the adoption of appropriate energy forms and technologies
2. encourage the use of alternative and renewable energy sources through community education
3. encourage inter-agency co-operation in undertaking research into the region's available energy sources and appropriate energy technologies, through regional and annual plans and reviewing of research proposals (such as public good science funding input)

<sup>16</sup> Energy Efficiency and Conservation Authority, 2007, pp10, 12.

<sup>17</sup> Environment Waikato, 2006, p88.

4. advocate energy efficiency in the design, location and operation of buildings and other structures, through community information, regional plans and resource consents
5. encourage central government to prepare a National Energy Strategy
6. encourage the efficient use of energy in the transport sector through the RLTS.

## 4.1 Implementation methods supporting the energy objective

### 4.1.1 Advocacy and education

Of the six implementation methods in this chapter of the RPS, five relate to advocacy/education (four refer to advocacy and two to education). The following general comments are made:

- Environment Waikato has been instrumental in setting up a Regional Energy Forum (inaugural meeting was held in March 2007). The purpose of this forum is to bring interested parties together to share views about future directions, including energy efficiency considerations. However it appears that the main driver for establishing this forum arose from the New Zealand Energy Strategy (as discussed in section 3.1.2 of this report), rather than directly from the RPS implementation methods (refer methods 1, 2 and 3).
- Notwithstanding this, method 5 was to encourage central government to prepare a national energy strategy and advocacy was undertaken with respect to this method. The New Zealand Energy Strategy and the New Zealand Energy Efficiency and Conservation Strategy were developed which clearly set out the national framework for energy issues (including the need for energy efficiency).
- The Waikato Regional Plan focuses on the management of specific resources, such as water and air. It does not address energy efficiency as suggested through method 4. By association, no advocacy for energy efficiency has occurred through regional resource consent decisions.
- District plans do not tend to address energy efficiency as a separate management issue, however it is an underlying focus in the transport section of the plans (methods 1 and 4).
- Environment Waikato and Hamilton City Council have undertaken some specific education programmes and distributed community

information on energy efficiency issues (methods 1 and 4). However specific issues such as alternative or renewable sources, technology alternatives, and building design do not appear to have been addressed (methods 1 and 4).

- Advocacy for energy efficient subdivision development is occurring through Environment Waikato's document: 'Sustainable Subdivision Development – An Environment Waikato Perspective' and through Environment Waikato's 'involvement with growth strategies such as the Hamilton Sub-regional Growth Strategy (Future Proof). Advocacy is also occurring through the council's Strategy for a Sustainable Development project.
- Method 3 does not appear to have been undertaken (apart from the link to the Energy Forum as mentioned above).
- Environment Waikato undertook a baseline survey of energy use in the Waikato region<sup>18</sup>. Data collected from this survey was used to develop 'energy use' and 'energy use relative to economic growth' indicators, which will be important for helping to assess energy efficiency in the future. However at present there is no trend information available, to assess change over time.

Overall the methods for this chapter of the RPS have been partially implemented. Where implementation has occurred it has contributed to achieving the objective of the RPS. However some of the methods did not appear to relate to the objective (for example, method 2, or the reference to 'appropriate energy forms and technologies' in method 1.)

### 4.1.2 Transport planning

Implementation method 6 in this chapter of the RPS relates to the efficient use of energy in the transport sector. The following general comments are made:

- The RLTS is the key document through which this method was to be achieved. The RLTS includes a range of policies and actions that seek to address energy efficiency in the transport sector. The RLTS has established a set of indicators that are monitored and reported on. This includes reference to efficiency of transport systems.

<sup>18</sup> Wilton, E., 2003.

- The RLTS is poorly linked to the RPS, to the extent that the RLTS has little influence over land use planning decisions that impact in particular on the efficient use of roading networks. In this respect it is noted that Land Transport New Zealand has undertaken research into this matter<sup>19</sup>. This integration of the two plans will need to be reinforced in the future RPS.
- Environment Waikato planners and transport staff do advocate the directions of the RLTS when responding to territorial authority land use and subdivision applications, district plan changes, growth strategies and structure plans.
- All district plans addressed transport issues. The 2006-2016 RLTS has some significant land use directions in it that will need to be addressed more strongly through district plans in the future.

This method has contributed in part to the achievement of the objective. Overall it is considered that this method has been well implemented (in respect of the development of the RLTS), however there is a weakness in implementing the policies and actions of the RLTS through other RMA plans.

## 5 Conclusions, observations and recommendations

### 5.1 Achieving the objective.

As mentioned earlier in the report the objective for energy is:

*efficient use of energy within the Waikato region.*

The following observations are made with respect to the extent to which the objective is being achieved.

1. It is considered that the objective has been achieved in part. While the methods have been implemented in part, it is clear that energy efficiency has not in general been a strong area of work for Environment Waikato or the territorial authorities. This is however beginning to change and increasingly, energy efficiency is an important subject for Environment Waikato's advocacy work.
2. While the RPS may have contributed to people's awareness of efficient energy issues, it has not been a significant driver for a change in attitudes to energy efficiency (for example, the quantity of electricity or fuel used by consumers). Rather, it is considered that increasing energy prices, increasing concern about the security of energy supply and concern about climate change effects from the burning of fossil fuels are driving this change in attitude. Also, the recent government policy directives and actions from EECA have had a strong influence. These government policy directives along with the recent amendments to the RMA will need to be considered further in the review of the RPS, particularly to strengthen provisions relating to electricity and transport demand.
3. The RLTS has been a significant document in providing a framework for managing energy efficiency in the transport sector (in accordance with the matters identified in section 3.2.2 above). However, because the RLTS policy directives are not strongly linked to the RMA planning documents, effective and consistent implementation through land use planning and resource consents (particularly for urban development and rural residential subdivision) has been difficult.
4. In assessing the trends and changes that have occurred since the RPS was developed, it is clear that the objective has retained relevance over time. Some of the additional areas where the objective and supporting policies and methods could be strengthened are outlined further in the following sections.
5. The definition of 'efficient use' within the RMA context and how to best measure it has been a matter of on-going debate. Many of those consulted considered that the RMA had limited ability to address energy efficiency issues. Some considered that clarification was required between 'efficiency' and 'conservation'. It is noted that these terms have since been defined in the Energy Efficiency and Conservation Act 2000.

<sup>19</sup> Land Transport New Zealand, 2007.

6. Energy efficiency in relation to electricity use was not addressed through regional and district plans. While energy efficiency in relation to transport was addressed only in terms of roading networks and functioning (not for example, in relation to travel distances). Some work on energy efficiency in the work place was undertaken by councils (but not as a result of the RPS).
7. The objective has been achieved through work on the draft Waikato Regional Energy Strategy. This is expected to inform the RPS review. It has also been achieved through environmental education promotions which have targeted energy efficiency methods in the agriculture and waste sectors.
8. Some respondents considered that further guidance was needed on how to achieve the objective.

## 5.2 Comments and recommendations with respect to policy development

Through the analysis of the energy chapter of the RPS, a number of areas were identified where policy could be improved. This section of the report therefore outlines key policy areas which should be considered further in the policy development phase of the RPS review.

1. **Land use planning and the RPS:** Environment Waikato's transport and growth planning initiatives are very important in terms of ensuring growth and development in the region over the long term supports efficient energy use, particularly in terms of transport energy use (which accounts for 44 per cent of all energy use in New Zealand). Planning that encourages compact development and that limits rural-residential development to areas near urban areas and/or areas easily served by public transport, will help to reduce commuting distances and other travel requirements. Future RPS policy should encourage such development planning.

Addressing planning for urban and rural-residential development in the RPS will help to manage the strategic integration of infrastructure and land use

as regional councils are now required to do under section 30(1)(gb) of the RMA. It will also help to ensure district plans implement directions in the RLTS.

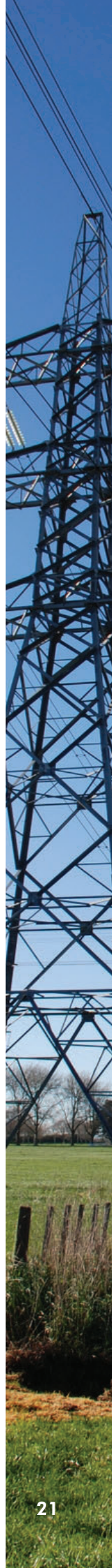
There is an obvious overlap between the energy efficiency and infrastructure chapters of the RPS. Consideration should be given in the review of the RPS to the advantages of combining these chapters in the future.

2. **Clarifying the scope of the energy efficiency mandate under the RMA:** The existing policy refers to energy efficiency of production, transmission and consumption. This is very broad and does not provide a clear link to the matters that the regional or district councils can manage under the RMA. Clearer guidance on what aspects of energy efficiency and conservation the regional council and territorial authorities should address, would enable energy efficiency to be more specifically built into regional and district plans.

At this stage, it is considered that the policies should focus on efficient energy use (in accordance with RMA s7(ba) and as opposed to efficient generation and transmission), particularly in terms of use of electricity and transport fuels. This would include guidance on how adverse effects on resources (from inefficient use) are to be managed, and how to manage the adverse effects of land use development on efficient energy use associated with transport.

An example of energy efficiency implications for land use and land transport is the increased level of subdivision and fragmentation of rural land. This trend results in greater dispersal of people and an increased reliance on transport.

3. **Clarifying 'energy efficiency' and 'energy conservation':** As mentioned above it would be beneficial in terms of consistency for the use of these terms to reflect how they are used in the NZEECS. This would also assist in ensuring that appropriate indicators or monitoring could be undertaken to assess the achievement of future policy directives.



4. **Consider policy to encourage more efficient use of energy in the community:** A strong message emerging through the Regional Energy Strategy process is that Environment Waikato should increase its advocacy for energy conservation and efficiency in homes and businesses. Consideration should be given to developing policy and methods to support such advocacy.

### 5.3 Comments and recommendations with respect to policy implementation

Through the analysis of the energy chapter of the RPS, a number of matters arose in relation to policy implementation.

1. **Waikato Energy Forum:** The recently established Waikato Energy Forum is a significant means for sharing information and encouraging inter-agency involvement in energy issues (including energy efficiency). Continued support for this forum should be encouraged.
2. **Advocacy and education:** In general, Environment Waikato cannot effectively regulate to achieve energy efficiency. Advocacy and education are therefore the most appropriate tools for implementing this objective. Environment Waikato's advocacy through involvement in sub-regional growth strategies is beginning to be reflected by territorial authorities through their growth planning which supports energy efficiency, particularly in terms of transport systems. Such continued advocacy should be encouraged. There are also energy efficiency gains to be made through advocacy with respect to building design standards (both nationally through the Building Act and at the local level) and other such advocacy opportunities.

3. **Implementation of the RPS:** In assessing whether the RPS objective has been achieved, a theme that emerged was that many of those interviewed did not feel any responsibility for implementing the RPS methods. This identifies a gap in achieving the effective implementation of the objective. Any methods specified in the RPS should be specifically able to be linked to relevant work programmes within regional and district councils, and there needs to be a continued programme of ensuring that those responsible for implementing the actions are aware of their responsibilities in this respect.



Tramway road transmission lines, Hamilton.



# Part B: Structures (infrastructure)

## 1 Introduction

This chapter assesses the extent to which the structures (infrastructure) objective in the RPS is being achieved.

Chapter 3.13 of the RPS describes Environment Waikato's issue, objective, policy and implementation methods for such infrastructure.

The objective states:

*the continued operation of regionally significant infrastructure (including network utilities) maintained or enhanced.*

### 1.1 Historical legislative context

The legislative context for the structures (infrastructure) chapter within the RPS is drawn from a range of provisions within the RMA. These include in particular the following references:

- S 2 of the RMA defines 'natural and physical resources' as including all structures. 'Structure' is defined as 'any building, equipment, device or other facility made by people and which is fixed to land'.
- S 5 of the RMA sets out the purpose of the Act and defines 'sustainable management' as including the management of natural and physical resources.
- While 'infrastructure was not specifically defined at the time of developing the RMA, 'network utility operator' was defined in s166 of the RMA and includes reference to a wide range of infrastructure assets including:
  - distribution and transmission by pipeline of gas, petroleum or geothermal energy
  - telecommunications or radio communications
  - electricity operators
  - water supply distributions
  - drainage or sewerage systems (including flood protection works)
  - roads and railways
  - airports and approach control surfaces.
- The functions for regional councils under the RMA are set out in s30. Of particular note is s30(1)(a) which emphasises integrated management of natural and physical resources and s30(1)(b) which

focuses on land of regional significance. These links to the management of structures are further emphasised under sections 62(a) and (h) of the RMA which set out the contents of the RPS as including: (a) the significant resource management issues of the region; and (h) the processes to deal with issues that cross local authority boundaries.

- Territorial authorities have a clear role under s31 RMA to manage the use development or protection of land. This would include the management of structures and infrastructure, as well as designations relating to infrastructure<sup>20</sup>.

Therefore, it appears that at the time of drafting, this chapter of the RPS was focused on the RMA references to managing structures as natural and physical resources, as well as recognising regional significance and cross boundary management. Chapter 3.13 of the RPS emphasised in particular, network utilities that provide important regional functions and land transport networks. However, other infrastructure that could be described as regionally important (such as hospitals, education institutions, or power substations) were not incorporated into this chapter. These types of structures were presumably considered to be more appropriately addressed by the respective territorial authorities.

It is also noted that the regional council has responsibilities for land drainage, flood protection and land transport planning under other pieces of legislation<sup>21</sup>. These management areas have strong links to infrastructure management under the RMA. Likewise, territorial authorities have responsibilities for local infrastructure services such as water supply, waste water systems, stormwater and roading. These matters were not overtly addressed in the RPS. It is likely that they would have been considered to be local services rather than regional ones.

<sup>20</sup> Refer also to appendix 3 for more details on designations.

<sup>21</sup> In particular the Land Drainage Act 1908, the Soil Conservation and Rivers Control Act 1941, the Land Transport Management Act 2003 and the Land Transport Act 1998.

## 1.2 Regional overview

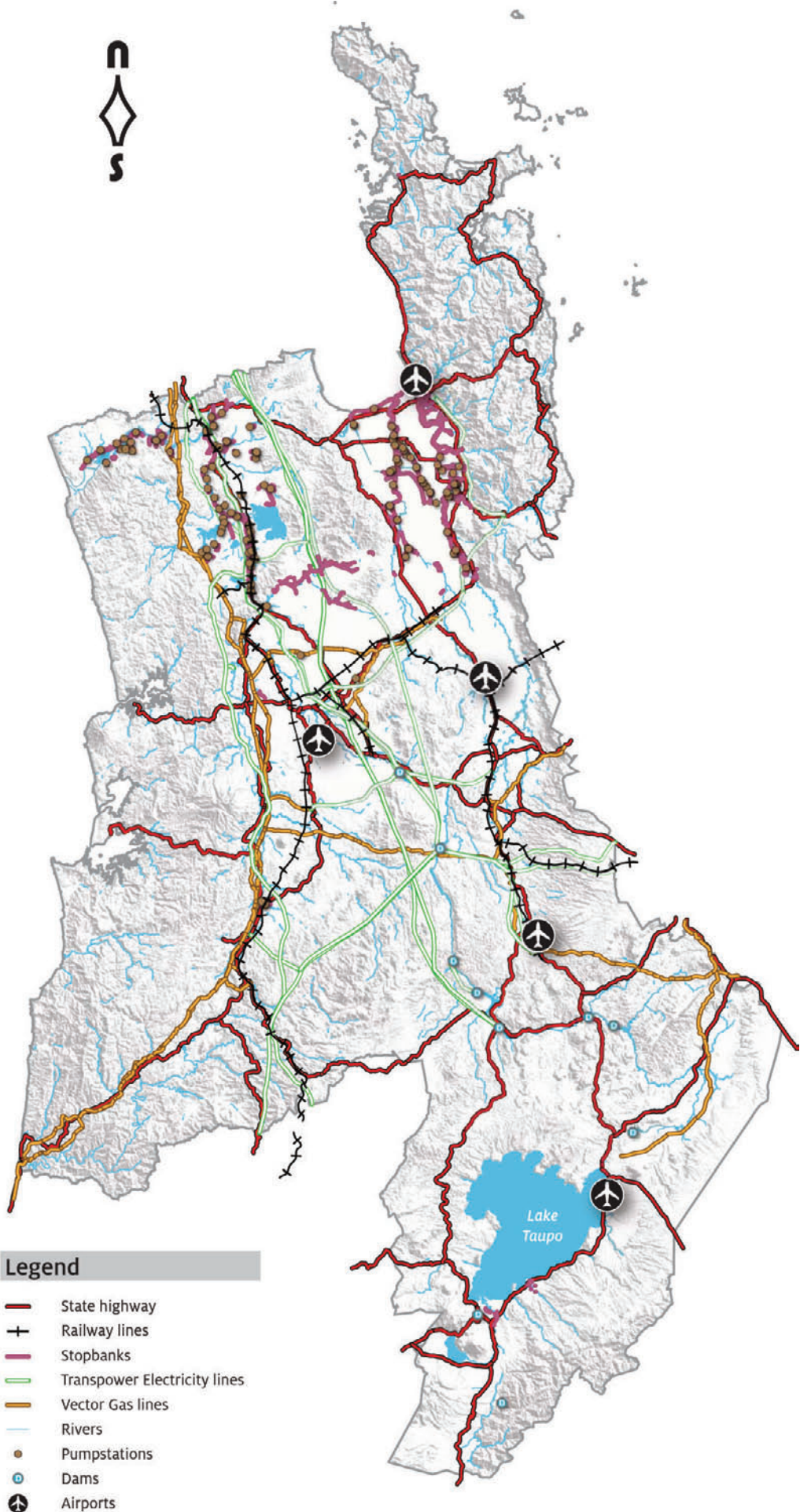
The geographic location of the Waikato region is such that it is strategically located within the central north island for the 'transmission' of various infrastructure services. For example, pipelines, electricity transmission lines, roads and railways pass through the region – cutting across many of the Territorial authority boundaries and linking with neighbouring regions. Refer to Table 5 and Map 2 for an overview of some of the key infrastructure in the region.

The increasing population of the Waikato region and of the wider Auckland – Waikato – Bay of Plenty triangle will lead to an increase in the demand for infrastructure services that are important to the region. In particular it is anticipated that additional or improved roading and network utilities will be required to be developed to meet this demand. Recent examples of this include: proposed bypasses on State Highway 1, the recent electricity transmission line up-grade, and the proposed west coast wind farms<sup>22</sup>. Associated with population growth is a growing concern that inappropriate subdivision, use or development of land could compromise existing and future infrastructure development.

<sup>22</sup> Note: infrastructure for transport and energy is closely tied to energy generation and use. Refer also to Part A of this report for discussion on energy issues.

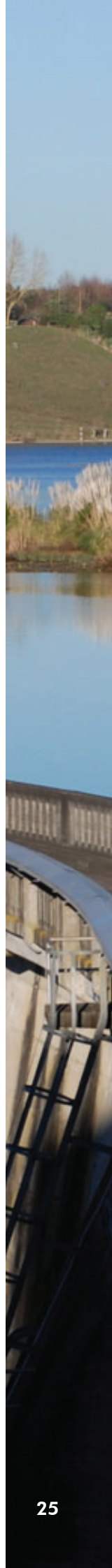


Tramway road, Hamilton.



- Legend**
- State highway
  - + Railway lines
  - Stopbanks
  - Transpower Electricity lines
  - Vector Gas lines
  - Rivers
  - Pumpstations
  - Dams
  - ✈ Airports

Map 2: Regional infrastructure





The region has an extensive **land transport network**, and is a significant transport corridor. Regional land transport includes:

- A number of state highways crossing through the region from north to south and east to west. In addition, it is crossed by a vast network of local roads and bridges.
- Two key railway lines – one joining the Auckland –Wellington route (freight and passenger services), the other branching at Hamilton for Tauranga (freight only). There are some alternative line connections for the logging and dairy industries. There are also signals, bridges and tunnels.
- The main regional airport is near Hamilton. Local services are provided at Taupo, with smaller recreational airfields at Matamata, Thames, Tokoroa and Raglan.
- The close proximity of the Ports of Auckland and Tauranga result in the Waikato playing a key role in the distribution of goods by road and rail.
- There is an 'inland port' located at Crawford Road, Hamilton, providing a key hub for the rail of dairy products to the Ports of Auckland and Tauranga.

The key **network utilities** that provide regional functions include:

- Electricity transmission and generation. There are ten hydro dams, one thermal coal/gas station, two co-generation plants and seven geothermal development systems. National grid transmission lines pass to and through the region (110kv and 220kv lines and proposal for 400kv line), while local transmission distribution is undertaken by various network companies.
- Telecommunications and IT: a range of communications services are provided. Infrastructure includes for example: cell phone and radio towers, aerials and antennas, roadside cabinets, telephone exchanges and cable.
- While the region does not mine or generate gas or petroleum products; gas is piped to and through the region from the Taranaki region, while petroleum products are generally transported into or through the region (particularly from the Ports of Auckland and Tauranga).
- There is a significant network of river and catchment management infrastructure and systems (including 623km of stopbanks, 123 pump stations, 413 flood gates, 4,500km of fencing, 1,750km of drains).

Other **infrastructure** having a **regional focus** includes:

- health facilities, such as Waikato Hospital
- education facilities, such as University of Waikato, Waikato Polytech
- research facilities, such as Ruakura, Innovation park
- waste management facilities, such as Tirohia and Hampton Downs
- community water supply and waste water treatment plant.

Table 5: Snapshot of significant infrastructure in the Waikato region

## 2 Understanding the objective

### 2.1 Introduction

In order to assess the extent to which the objective is being achieved, it is important to have a clear understanding of what the objective means. This section of the report therefore seeks to interpret more specifically what the objective is seeking to achieve and to discuss important assumptions and definitions that contributed to the development of the policy at the time of writing.

### 2.2 Objective for structures (infrastructure)

Chapter 3.13 of the RPS sets out one objective, one policy and two methods for managing structures (infrastructure). In the overview for the chapter particular emphasis is placed on land transport and network utilities.

The objective is stated as follows:

#### **Objective 3.13.2: infrastructure**

The continued operation of regionally significant infrastructure (including network utilities) maintained or enhanced.

The issue which gives rise to this objective is:

*infrastructure (including network utilities) enable people and communities to meet their social, economic and cultural needs and is therefore important to the region. Inappropriate subdivision, use and development of land can result in conflicts and incompatibilities between activities which may significantly compromise the operation of regionally significant infrastructure.*

The issue statement therefore identifies the main problem as being inappropriate subdivision, use and development of land which reduces effective operation of important infrastructure.

The objective has three key components:

- *continued operation* – reflecting the issue statement, subdivision, use and development of

land should be managed to ensure the continued operation of regionally significant infrastructure

- *regionally significant infrastructure* – this phrase is not specifically defined although the RPS glossary gives the following general definition of ‘regional significance’:

regional significance means one or more of the following:

- a. matters or values of national significance
- b. issues and/or effects that are of concern to substantial parts of the regional community
- c. values associated with natural and physical resources or any structure, place or feature which are rare or unique within the region
- d. the existence of significant cross boundary issues and cumulative effects, where resources or effects cross administrative boundaries, and where co-ordination or integration of policies, actions or decision making is required
- e. matters or effects which are of greater than local significance to tangata whenua.

Method 1 of the structures chapter states that regionally significant infrastructure is to be identified through district or regional plans, resource consents and the RLTS. The RLTS identifies key transport corridors of ‘strategic importance to the region’.

- *Maintained or enhanced* – this phrase implies that the level of infrastructure services operating in the region should not be lessened, rather retained at the current level, added to or improved.

Therefore, considering the objective in light of the RMA provisions outlined in section 1.1 above, it is clear that structures are in themselves a resource that is required to be managed sustainably. It is also clear that other resources and land use need to be managed in a way so as to avoid adverse effects on the ‘continued operation’ of ‘regionally significant infrastructure’. It is noted that while the chapter is headed structures (infrastructure) the objective relates only to infrastructure. This reflects in part the distinction between regional and district functions.

## 2.3 Matters supporting the objective

Within Chapter 3.13, the policy, methods and environmental results anticipated support the objective and assist in the understanding of what the objective means. They also assist in assessing the extent to which the objective is being achieved.

The policy states:

### **Maintenance of infrastructure.**

*Avoidance of significant adverse effects (including cumulative effects) on the safe and efficient operation of regionally significant infrastructure. Where significant adverse effects on regionally significant infrastructure cannot be avoided, they shall be remedied or mitigated.*

The policy indicates that avoidance of effects is preferable to remedying or mitigating them. Proactive planning is required to avoid effects on infrastructure, such as from land use decisions. Therefore one check on the achievement of the objective would be to review the respective regional and district planning documents (refer to sections 3 to 5 for more details).

This policy interprets 'continued operation of infrastructure' as being 'safe and efficient operation'.

There are two implementation methods which state that maintenance of infrastructure is to be achieved through district or regional plans, resource consents and the RLTS (refer to section 4 for more details).

The 'Environmental Results Anticipated' (ERA) for this chapter of the RPS are stated as:

- 1 continued operation of regionally significant infrastructure maintained
- 2 effective management of potential resource management conflicts, so as to avoid, remedy, or mitigate significant adverse effects on infrastructure.

These are the outcomes that were anticipated to reflect achievement of the objective. The intended outcome for ERA 1 was to ensure that decisions on land use, water or air did not compromise the ability of the infrastructure to continue to operate. For example, increasing the level of subdivision fronting onto a state highway, would reduce the ability of that road to provide for a safe and efficient network.

ERA 2 adds further detail on what outcome the objective is aiming to achieve. It builds on the detail in the policy. The intent of ERA 2 was to reflect as an outcome, the policy directive for managing other resources (for example, land use, water, air) in a way that would provide a level of protection for infrastructure from any significant adverse effects of other activities.

## 2.4 Observations on the objective

The following observations on this objective, policy and the ERA are derived from the contents of the structures (infrastructure) chapter of the RPS. They assist in helping to better understand the intent of the objective.

1. The population distribution in and around urban areas and the spread of smaller communities or rural properties throughout the region have implications for access, utilisation of natural and physical resources, and the delivery of services. Infrastructure is therefore critical for linking services within the region and for providing for people's economic and social wellbeing, which is a fundamental premise of sustainable management.
2. The RPS chapter specifically focuses on network utilities and transport infrastructure. The wider social and economic role provided by other structures and infrastructure is not acknowledged in the objective. The objective does not recognise structures (other than infrastructure) which may also have regional importance or significance.
3. The objective is very focused on existing infrastructure and does not provide for a proactive planning approach to be taken from a regional perspective, for new structures or infrastructure. That is, it does not provide a framework for managing future development demands in respect to preferred structures or infrastructure locations. Rather it leaves the responsibility for doing so primarily to land use decisions by the territorial authorities, and to the regional council for water allocation decisions and land transport issues.

4. In respect of land transport, the RLTS is presented as the key management tool. However the strategy cannot control land use decisions, which are a fundamental component in managing land transport. The planning link between the RMA plans and the RLTS is weak with respect to achieving the objective.

## 3 Changes and status of infrastructure issues

Before proceeding to analyse the extent to which Environment Waikato and the territorial authorities have achieved this objective, it is useful to record some of the changes that have occurred since 1991 (when the RMA was introduced) and to provide an overview of the status, pressures and trends that impact on the various structures (infrastructure) groupings.

This section therefore provides a current and forward looking perspective on issues associated with structures (infrastructure), which will assist with the analysis of the achievement of the objective (as covered in section 5).

### 3.1 Current context for structures (infrastructure)

#### 3.1.1 Legislative changes since 1991

The key legislative changes affecting the management of structures (infrastructure) that have occurred since 1991 include:

- RMA amendments 2003 and 2005
- Energy and Climate Change Amendments Act 2004
- Land Transport Management Act 2003
- Land Transport Act 1998
- Electricity reforms (various legislative changes).

The 2005 amendment to the RMA introduced a definition for infrastructure. This definition closely paralleled the matters covered in the existing definition of network utility operations under s166 of the RMA (refer to appendix 2 for definitions.)

In addition, section 30(1)(gb) was also introduced in 2005, adding a new function for regional councils as:

*“the strategic integration of infrastructure with land use through objectives, policies and methods”.*

This is a significant change in the legislation in relation to the future management of infrastructure. This section of the RMA clearly recognises the need for integrated planning to address potential conflicts between land use and infrastructure. It is recognised that this is an important regional council function. The RPS is the key mechanism for achieving this.

The Energy and Climate Change Amendments Act 2004, has also elevated the profile of infrastructure, by its association with energy, through the changes to s7 of the RMA as follows:

*s 7 Other matters*

*In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to –*

...

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

While these changes are less focused on infrastructure, there is nevertheless a strong consequential linkage between energy efficiency and the efficient functioning of infrastructure.

A discussion of what the term “strategic integration” (s30(1)(gb) RMA) could entail is provided by Enfocus<sup>23</sup> in an evaluation of the operative Waikato RPS and includes:

- adequate provisions in district plans for existing and future infrastructure
- ensuring land use is aligned with infrastructure capacity and efficient use is made of existing capacity
- ensuring land use is sequenced in a way that recognises capacity limits of infrastructure
- protect infrastructure corridors
- ensure urban/ rural design and form of settlements supports efficient infrastructure

<sup>23</sup> Enfocus, 2007, pp 94-95

- ensuring land use has access to key resources such as aggregates or water supplies.

Many of these matters relate to the management of growth and settlement patterns. The management of infrastructure is intimately linked with land use decisions.

Section 55 of the RMA was also amended in 2005 to require the RPS and regional and district plans to give effect to a National Policy Statement (NPS) as soon as practicable or as otherwise directed through the NPS. This is a much stronger directive than the previous wording of being not inconsistent with a NPS. The importance of this change is directly linked to the NPS which has been developed on energy transmission (refer to 3.1.2 below for further discussion).

In addition, the powers of the Minister for the Environment were strengthened through the 2005 amendment in relation to intervening in resource consents on matters of national significance (s141A, 141B and 141C RMA). This includes for example:

- ‘calling in’ matters to be dealt with at a national level
- issuing directions to consent authorities for a joint hearing
- appointment of hearings commissioners, and
- appointment of a board of enquiry.

The definition of national significance in s141B(2) could readily ‘capture’ infrastructure projects, thereby enabling a stronger national perspective to be included into the local authority’s decision making process<sup>24</sup>.

The Land Transport Act 1998 requires that the RLTS must not be inconsistent with the RPS. Given the above legislative changes to the RMA, it is clear that a stronger level of integration is also required between the RPS and the RLTS. The Land Transport Management Act was introduced in 2003 and a further amendment is currently before parliament for consideration. The purpose of this act is to achieve an integrated, safe, responsive and sustainable land

transport system. The Act encourages a shift in focus away from the traditional road-only focus to a more multi-modal integrated transport system. There is currently a proposed amendment to this act which is of particular significance given the population growth and the rapidly increasing demand for services, as it is seeking to establish a stronger link between RMA planning and the management of roading infrastructure.

### 3.1.2 Key national policy developments

From a national perspective the Government had expressed concerns about the capability of infrastructure in New Zealand to meet the social and economic growth pressures for the future. As a result of this a series of related documents were developed which are described in the following paragraphs.

In 2003 the Government published ‘*Sustainable Development for New Zealand: Programme of Action*’<sup>25</sup>. This document focused on sustainable development, which is defined as “development which meets the needs of the present without compromising the ability of future generations to meet their own needs”. A set of principles were included which set out how the Government would approach decision making under a sustainable development framework. These included respect for environmental limits and decoupling economic growth from environmental pressures. Both of these principles will be important reference points for the future management of infrastructure under the RMA. That is, the approach outlined in this document is closely aligned with the RMA, including the emphasis on the need for integrated and planned provisions for infrastructure, to meet the growing demands of population and industries.

Subsequently, an infrastructure stocktake was undertaken in 2004. The purpose of this document was to provide an overview of the state of various infrastructure assets and to assess their potential for meeting future development and economic growth. The document included a range of recommendations for addressing future infrastructure needs.

<sup>24</sup> Refer to relevant sections of the RMA for a full outline of process and options. The definition of national significance is included in appendix 1 of this report.

<sup>25</sup> Department of Prime Minister and Cabinet, 2003.



In 2007, the Government released the New Zealand Energy Strategy to 2050. This document sets out strategic directions for the energy and transport sectors. It specifically addresses the challenges of population growth and demands as well as the need for reducing green house gas emissions<sup>26</sup>. The Government's policy on climate change and carbon emissions is continuing to evolve. This is expected to impact on roading and energy transmission infrastructure in particular.

A number of National Policy Statements (NPS) under the RMA have also been progressed, including an NPS on electricity transmission (gazetted), an NPS on renewable electricity generation and an NPS on flood risk management.

The NPS on electricity transmission establishes the national significance of the national electricity grid (refer to appendix 2 for an outline of 'national significance'). Local authorities are required to notify changes to their respective RMA plans to give effect to this statement, within four years (as from 10 April 2008). To support this NPS, National Environmental Standards (NES) are also being developed which will set out specific regulations dealing with the maintenance and protection of built electricity transmission structures to help ensure the robustness of the national grid.

The NPS on renewable energy will have a consequential effect on transmission infrastructure (which would need to be linked to the national grid). The NPS for flood risk management is expected to have implications for flood management infrastructure through an emphasis on RMA planning provisions for climate change and 'reduction' of risk<sup>27</sup>.

A discussion document has recently been released for comment regarding an NPS on urban design. This may partly reflect concerns about the effects of urban development on effective and efficient functioning of infrastructure.

<sup>26</sup> Ministry of Economic Development, 2007, p5.

<sup>27</sup> Refer also to Policy effectiveness paper No.2: Natural hazards: 2008.

Regional and district planning documents must give effect to the NPS, while the NESs are effectively regulations that will need to be complied with.

With respect to land transport, the Government has produced a New Zealand Transport Strategy. This strategy sets out a direction for achieving an integrated, safe, responsive and sustainable land transport system. This is a critical document for guiding the development of the RLTS.

### 3.1.3 Infrastructure industry changes

Since 1991, when the RMA was introduced, there have been a number of structural changes in key infrastructure industry groups. These are briefly outlined below to provide background for the trends that have occurred in infrastructure areas since 1991 (as detailed in section 3.2).

- **Electricity transmission:** At the time that the RMA was being developed, the electricity industry was also being reformed (notably the separation of electricity generation, transmission and retail) (refer to section 3.1.3 under the Energy part of this report for further detail.) A state-owned enterprise (Transpower) was established to manage the national grid.
- **Telecommunications and IT services:** In 1987 Telecom was formed as a state-owned enterprise and from April 1989, with further deregulation, the market was opened up to competition. A governmental review resulted in the Telecommunications Act 2001 and the setting up of a Telecommunications Commissioner. This was followed in 2006 by the Telecommunications Amendment Act which proposed further changes to telecommunications regulation and further separation of the Telecom services.
- **Transport:** The national framework for managing transport was changed through the separation of funding from operational planning and implementation. This has since been re-amalgamated as the New Zealand Transport Agency (NZTA).

- **Railways:** Following the privatisation of the railways, the rail network was subsequently purchased by the Crown from Toll NZ Ltd. Ontrack was set up in 2004, as a state-owned enterprise, to own and manage the railways infrastructure. The rail and ferry operations were recently sold to the Crown and from the 1st of July 2008 will be operated by KiwiRail.
- **Shipping:** National policy is promoting coastal shipping as an alternative transport mode to roading. This will have consequential impacts on linking roading to and from ports. The flow and distribution of goods into and through the region will be affected by the reconsideration of destinations to be made by international shipping companies.

These structural changes reinforce a market driven approach to the funding of infrastructure. In general, this has resulted in a lack of strategic forward planning and investment in future infrastructure needs<sup>28</sup>. This also indicates the changed environment under which RMA planning for infrastructure would need to be considered in the future.

However it is also clear that central government is increasingly concerned about the state of infrastructure in New Zealand. The recent RMA changes with respect to infrastructure management, changes to transport and energy legislation, the 2004 Infrastructure Stocktake, the various infrastructure related NPSs and NESs, all point to this fact. There is a strong direction nationally for more effective strategic and long term land use planning to ensure that land use conflicts with infrastructure are minimised and that new infrastructure is able to effectively service New Zealand's growth and development.

### 3.2 Description of infrastructure areas

This section of the report focuses on each of the key infrastructure areas. Three key headings are used: land transport (covering roads, rail/ports/airports), network utilities (covering transmission networks/flood protection assets) and other regional infrastructure issues. A state-pressure-response approach is used to identify key issues facing each of these infrastructure areas.

<sup>28</sup> PriceWaterhouseCoopers, 2004.

#### 3.2.1 Transport infrastructure: roads, rail, ports and airports

##### 3.2.1.1 Roads

###### State and trends

The Waikato region is a significant transport corridor which is crossed by a vast network of roads and bridges. The population and economic growth in the Waikato region, combined with that in Auckland and the Bay of Plenty regions will increase private and freight traffic flows on most roads in the Waikato (notwithstanding the potential effects of increasing fuel prices and an emissions trading scheme).

The trend for increased rural, rural-residential and coastal living increases the pressures on rural roads and key access roads for urban centres and coastal towns.

Heavy transport passing to and through the region is expected to increase. It is noted that the Waikato, Auckland and Bay of Plenty regions currently generate over half of all road and rail freight in New Zealand. The Waikato region has almost 20 per cent of New Zealand's heavy commercial vehicle traffic<sup>29</sup>. The ports at Auckland and Tauranga generate truck movements to a wide range of destinations within and through the region. Goods distribution by road is also closely linked to the rail network.

###### Pressure/threats

The most significant pressures on transport infrastructure are land use changes and subdivisions which impact on the efficient flows of traffic particularly on state highways and main arterial routes, but also on local roads. The Waikato region is already becoming a dormitory residential area for people working in Auckland, leading to for example, the recent proposal for a 600-lot, residential subdivision in Ohinewai, or the expansion of the development at Hampton Downs. Both these developments could compromise the functioning of the State Highway network. Increasing areas of rural residential development and growth in satellite towns are generating greater commuter populations, creating further road congestion in some areas. Map 3 shows the increase in land parcels four hectares and under, between 1997 and 2008 in the Hamilton subregion (the orange areas on the map show the increase over this time period).

<sup>29</sup> Hyder Consulting (NZ) Ltd, 2007, p4.

Other pressures include:

- Demand for bypasses: due to the historical patterns of our roads, main routes pass through the middle of many settlements. This slows traffic and exacerbates conflicts between local services and through traffic. There are increasing pressures for bypass routes to maximise efficient traffic flows and minimise congestion and other conflicts with local communities.
- Ribbon development: requires slower traffic speeds through otherwise rural areas that are also main through roads. The 'Morrinsville Road' through Newstead (eastern approach to Hamilton) and State Highway 3 north of Otorohanga are examples where extensive ribbon development occurs.
- Road wear effects from heavy transport.
- Environmental pressures such as: carbon and noise emissions, stormwater quality from run-off, safety design (realignment expansion of routes, for example).
- Increasing traffic volumes on state highways and congestion in some sectors (for example State Highway 2). This is being caused by trends such as the increasing need to service the Auckland region from the Waikato region (such as with solid waste disposal and supply of aggregate) and increasing

holiday accommodation pressure on areas such as the Coromandel Peninsula. This leads to increased travel times, safety issues and demands for improved roading.

- There are few alternatives to road transport which can currently compete in terms of cost and convenience.
- There are many national demands for funds for road improvements and much of the available funding currently goes to the Auckland region.

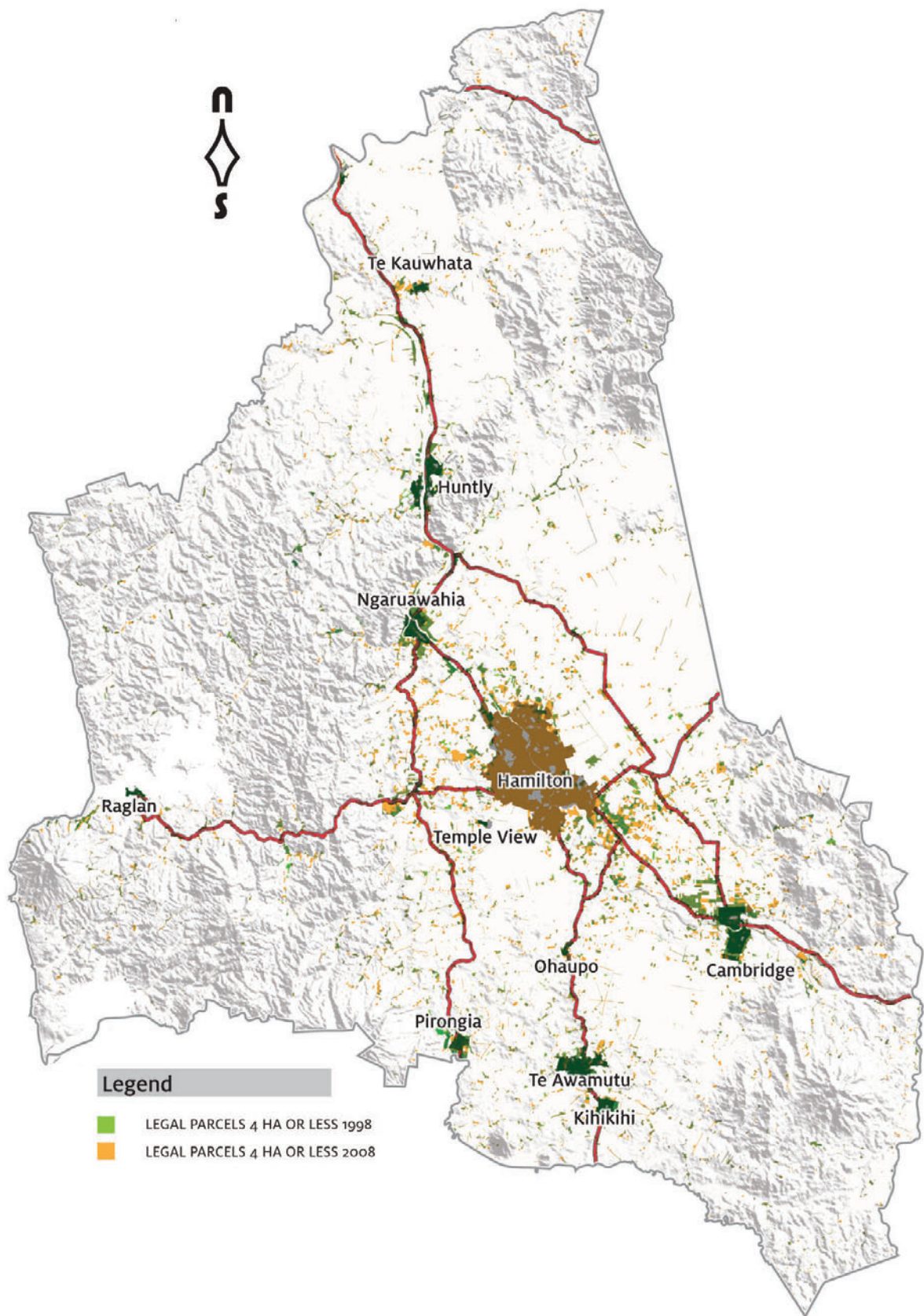
#### Response/methods

Central government funding priorities currently include: reducing severe congestion, improving passenger transport, promoting walking and cycling, assisting regional development and alternatives to roading; and improving road safety. These influence the roading projects that occur at the regional level. In addition, Transit New Zealand (now the New Zealand Transport Agency) has developed a Planning Policy Manual, which sets out Transit's approach to achieving greater integration between transport and land use in respect to state highways and motorways<sup>30</sup>.

<sup>30</sup> Transit New Zealand, 2007.



High use intersection, Cambridge.



Map 3: Land parcels in the Hamilton subregion four hectares or smaller, 1997, 2008.

At a regional and territorial level the RLTS 2006-2016 is another critical policy guidance document. The RLTS provides a significant lead on:

- the identification of strategic transport corridors
- the integration of land use and transport planning, and
- the development of alternative transport modes.

The RLTS recognises that there is a clear need to ensure that the expansion of townships and rural intensification is integrated with infrastructure (current and future planned), in order to avoid adverse impacts on the functioning of roading networks.

The roading network is generally protected through land use zoning provisions in district plans, developed in accordance with the guidance provided in the RLTS and Transit's Planning Policy Manual. All district plans for the Waikato region cover transport issues, however the level of plan controls protecting the infrastructure is variable. This is related in part, to the time lag between developing the district plans and the current RLTS. For example, the RLTS encourages consideration of urban form and design to enable future provision of urban transport, reduce the need for travel, encourage energy efficient modes, and protect strategic transport corridors.

As well as transport planning, Environment Waikato advocates for the minimisation of conflicts between subdivision development and roading infrastructure through involvement with territorial authority subdivision consents and through involvement in the development of growth strategies. This is particularly the case through the Hamilton Subregional Growth Strategy (Future Proof) which is looking to manage the current high rate of growth in Hamilton City and Waipa and Waikato districts. Environment Waikato's Strategy for Sustainable Development Project is also developing principles which will advocate for better integration of land use and infrastructure planning.

#### **Gaps/issues**

There is a weak link between the RMA planning documents and the RLTS. Most district plans do not recognise nationally significant roading corridors as defined in Transit New Zealand's Planning Policy Manual. The Waikato Regional Plan does not address roading infrastructure.

An amendment to the Land Transport Management Act will require councils to plan more strategically for future urban and rural residential developments, in a way that better recognises the impact of such growth on the roading network.

#### **Summary and recommendations**

Land use decisions and land transport networks are intimately linked. The directions of the RLTS and Transit's Planning Policy Manual need to be more closely embedded into district and regional RMA planning documents. This includes a more integrated approach to growth management, recognition of roading hierarchies and functions and stronger controls on land use planning to protect the integrity of roading infrastructure but also to 'enable' future development of nationally or regionally significant infrastructure.

Clearer RMA provisions are required to protect state highways and key arterial routes, from inappropriate subdivision or development that would impact on traffic flows in the short, medium or longer terms. Urban expansion and rural residential developments need to take into account impacts on roading in a more proactive manner.

While the RPS recognises the importance of the 'continued operation' of roading, it is not considered that this has been effectively implemented through RMA district and regional plans.

#### **3.2.1.2 Rail**

##### **State and trends**

There are two key railway lines traversing the region – the North Island Main Trunk line joining the Auckland-Wellington route (freight and passenger services), the other branching at Hamilton for Tauranga (freight only). There are also some alternative line connections for the logging and dairy industries. There are 460 kilometres of track within the Waikato region, along with a range of signals, bridges and tunnels. There is a double track between Hamilton and Auckland, except for sections through the Whangamarino wetland and Ngaruawahia. Nationally, there are 900 freight trains.

Over the past 10-years the quantity of rail track has not changed, however services provided have reduced for passengers and increased for freight.

### Pressures/threats

There are increasing pressures on railway services to provide a more efficient and cost effective alternative to transporting goods by road. The railways have been competing against a deregulated roading sector since 1983.

Currently between 17 and 23 per cent of the national market share of freight is carried by rail in and through the region<sup>31</sup>.

Key pressures include:

- trucks carrying heavier loads (there has been a recent trial approved for heavier vehicles on roads by the government)
- the ongoing need for and costs of maintenance or upgrading of the rail track and of the rolling stock to maximise carrying capacity
- market preferences for alternative modes of transport (for example, influenced by relative costs, timetabling/duration of services)
- the restructuring of shipping destinations, contributing to a change in goods distributions from the Ports of Auckland and Tauranga
- population growth and development patterns increasing the demand for more and higher usage of road crossings of railway lines.

### Response/methods

Nationally it is recognised that the railways network will have a significant role to play in addressing the increasing demand for freight movements.

The railways network is generally protected through designations<sup>32</sup> in district plans.

The RLTS identifies a key action as being the development of a Regional Rail Strategy. Transportation of freight and the efficient use of the freight hub at Hamilton are supported as specific actions.

<sup>31</sup> Environment Waikato, 2006, p27.

<sup>32</sup> Refer to appendix 3 for detail on designations.

### Gaps/issues

From an environmental perspective, the comparative benefits of rail over road (per unit of freight or per person) include for example lower energy consumption and carbon emissions, less accidents and congestion, less use of land, less noise, less stormwater run-off and so on. It is possible that the full cost of road freight is not being appropriately charged. A charging regime that better reflects the true costs of road freight would help to move freight to the rail system.

Containers used at the Ports of Tauranga and Auckland are tending to increase in size and weight. While this may add design stress to existing track, it also enables higher throughput of goods.

The Waikato Regional Plan does not address rail infrastructure. District plans do not appear to address rail crossing safety as a matter to be considered in the development and growth of settlements.

### Summary and recommendations

The key issue from the perspective of the RPS objective is to ensure that land use and resource use do not prevent the ongoing functioning of the rail track infrastructure. Land use designations in district plans will continue to be a critical technique for achieving the protection of the functioning and safety of railways. In addition land use decisions in respect to population growth and settlement patterns should take into account any adverse impacts on existing rail tracks or the potential to prevent closed rail routes from being reopened in the future. Environment Waikato advocacy will continue to be important in this respect.

The RLTS will continue to have a critical role in managing transport modes.

### 3.2.1.3 Ports and airports

#### State and trends

While ports and airports are not strictly land transport modes, they are nevertheless serviced by road and rail links, and associated transport. The main airport for the region is based in Hamilton. Taupo is also serviced with commercial flights. Smaller localised airfields are based in Matamata, Thames, Tokoroa and Raglan.

While it is primarily a regional servicing airport, international exports and tourism are key contributors to Hamilton's airport operations.

The region has one shipping port at Taharoa, which is used for the transport of iron sand. The Ports of Auckland and Tauranga are key contributors for the transport of goods into and through the region.

Hamilton has an inland port, or freight hub, which is used for the rail of export dairy products to Auckland or Tauranga.

#### Pressure/threats

Key pressures include:

- reverse sensitivities of land uses (for example noise – residential proximity to airports)
- availability of hinterland for storage and to cope with future expansion
- the inappropriate location of freight hubs could impact on the functioning of state highways or major arterial routes
- price of fuel and carbon emissions policy.

#### Response/methods

Airports are generally protected in district plans through development buffers (for example, noise/height restrictions).

Inland ports are primarily an industrial land use, as provided for in district plans.

The RLTS recognises the potential contribution Hamilton airport can make to freight transportation and to the future commercial and industrial development of airport land.

#### Gaps/issues

Two key issues for the future include:

- The appropriate location of further 'inland ports or cargo hubs' – that is, areas where cargo product can be delivered to and stored before being redistributed to other areas, or to the ports. This relies on effective transport networks and availability of suitable storage land.
- International air travel connections – Hamilton Airport may require longer runways and a higher level of ancillary servicing, particularly if air freight

and passenger demand increases. This may result in the need for greater buffer areas around the airport. As the Auckland Airport comes under more growth pressures, there may be increased opportunities for Hamilton.

The Waikato Regional Plan does not specifically address effects of activities on airports/ports infrastructure.

#### Summary and recommendations

There is an ongoing need to ensure that the airport infrastructure is not compromised by population growth and expansion, particularly settlement patterns.

Further inland ports acting as distribution hubs, could be important links for future demand management of roading. Any such location should avoid adverse impacts on the functioning of the state highway network.

Land use designations and industrial zonings in district plans will continue to be a critical technique for managing these pressures and future potential developments.

### 3.2.2 Network utilities: transmission networks/flood protection assets

#### 3.2.2.1 Transmission networks

##### State and trends

For the purpose of this section of the report, transmission networks with a regional focus are considered to include: power lines, telecommunications lines and gas pipelines. Water supply distribution and sewerage systems are in general provided by Territorial Authorities at a local level (refer also to section 3.2.3).

The region is a major energy transmission corridor – gas from Taranaki, transmission lines for national and regional electricity grids (primarily 220kv and 110kv lines) and telecommunication lines and optic cables all service within the region as well as through the region to other centres.

Telecommunications and information transfer services are undergoing major technological change and regulatory reform. Infrastructure generally includes: cell phone and radio towers, aerials and antennas, roadside cabinets, telephone exchanges and copper and fibre optic cable. Fibre optic cables are increasingly being installed. New mobile phone networks and extensions to broadband networks are also underway.

### Pressure/threats

Key pressures include:

- community reaction to new routes for transmission lines and location of power and telecom towers (reverse sensitivity issue)
- growth in population and rural residential development can increase conflicts surrounding the location of new routes
- alternative renewable sources of energy generation are likely to require new transmission links feeding into the national grid
- if wind farms increase, the national grid may need upgrading to provide more flexible capacity (that is, to move electricity around when the wind is not blowing)<sup>33</sup>
- the speed of technological changes in the telecommunications industry can readily outstrip timely planning provisions.

### Response/methods

The NPS and NES on energy transmission, which establish national priorities for the national grid, will be critical documents for future plan guidance. Transpower is developing guidelines to assist regional councils and territorial authorities interpret and include the NPS provisions into RMA plans.

Work is underway on an NES for Telecommunications facilities. These standards are expected to cover a range of activities such as: radio frequency emissions, roadside cabinets (size, location and noise) and other in-road infrastructure, and to deem them to be permitted activities under district plans.

Many transmission and telecommunication facilities are designated in district plans.



Lower furniss stop bank, Waikokowai.

### Gaps/issues

The Waikato Regional Plan does not specifically address effects of activities on transmission infrastructure.

While transmission line corridors are referred to in some district plans, there does not appear to be any proactive planning for new routes through the region to ensure a consistent and efficient placement of lines.

Environment Waikato is increasingly advocating for long term planning and protection of infrastructure corridors to minimise conflicts between such corridors and adjacent land use.

### Summary and recommendations

Determining the location of new, or upgrading existing transmission lines are very contentious issues within local communities. However the maintenance, replacement or new location of transmission infrastructure is essential to ensure capacity continues to meet demand.

The NPS and NES on transmission and the NES on telecommunications will provide guidance for future RMA planning.

<sup>33</sup> Janes, A, 2008.



While the existing RPS objective recognises the need for continuing operation of such infrastructure, it is considered that further guidance could be provided to recognise national interests and to address reverse sensitivity issues through long term land use and infrastructure planning.

### 3.2.2.2 River and catchment management assets<sup>34</sup>

#### State and trends

Over time, many river systems within the region have been modified for the purposes of flood protection.

An extensive river and catchment management system has been developed for both rural and urban communities, which includes the following infrastructure management:

- flood protection: this includes the maintenance of 623km of stopbanks, 123 pump stations and 413 flood gates
- river management: involves the maintenance of 2,800km of river and stream channels, including river erosion protection structures, groynes, river training structures and community control gates
- soil conservation: involves the monitoring of 4,500 kilometres of fencing, maintenance of gradient control structures and development of new erosion control works as required
- drainage: involves the maintenance of 1,750km of drains and lake control weirs.

#### Pressure/threats

The key pressures on river and catchment management assets include:

- land use changes (particularly large-scale land use shifts in the upper catchments), which could significantly impact on existing infrastructure
- changes to natural river systems including significant changes in sediment flows and restrictions of natural river channels
- urban and rural growth and subdivision and development, particularly within flood-prone areas and the subsequent pressures for increased levels of protection infrastructure
- climate change is expected to have long-term impacts on the maintenance of infrastructure and on the level of protection provided by existing infrastructure

- increasing requirements to manage environmental and cultural considerations, through for example, the new era of co-management with Waikato iwi
- recognition that stop banks can cause adverse environmental effects by channelling increased quantities of sediment to estuaries and harbours.

#### Response/methods

The management of river and catchment management assets is closely linked with the regional council's responsibilities under the Soil Conservation and Rivers Control Act 1941 and the Civil Defence and Emergency Management Act, 2002. This legislation results in a significant range of work related to the management of assets including Zone Management Plans and site specific hazard management plans<sup>35</sup>.

The proposed NPS on flood risk management and the associated New Zealand Standard will provide key policy guidance for the forthcoming review of the RPS.

The Waikato Regional Plan does not generally manage land use for the protection of flood and drainage infrastructure.


District plans are a key management tool for controlling land use decisions in hazard prone areas. Most river and catchment management assets are provided for through designations in district plans. Environment Waikato is increasingly trying to direct urban and rural residential development away from areas protected by flood control works through advocacy and involvement with territorial authority growth strategies and subdivision consents.

#### Gaps/issues

In some areas, there is a lack of integration between land use and catchment planning, particularly in areas prone to flood hazards. Most district plans do not consider the wider catchment management implications when setting land use provisions. This is particularly relevant (i) to upper catchment land cover and clearance and to settlement patterns in downstream flood prone areas, and (ii) where catchment boundaries extend beyond the district council boundaries.

<sup>34</sup> Refer also Environment Waikato, 2008a: Policy effectiveness paper No.2: Natural hazards.

<sup>35</sup> Refer to Environment Waikato, 2008 a for a full outline of the responses for managing river and catchment assets.



Communities need to better understand the level of designed protection from infrastructure such as stopbanks and to recognise the costs associated with changing that level of risk management.

#### **Summary and recommendations**

When considering the current RPS objective (maintaining or enhancing the continued operation of regionally significant infrastructure), it is clear that there is a need for land use planning to better recognise the impacts of catchment land use and changes. The reason for this is that the level of protection that can be provided by river and catchment management infrastructure is being significantly challenged by climate change, and cumulative land use and river catchment changes.

The RPS could therefore in the future direct stronger integration between the regional and district plans, including clear guidance on the level of risks associated with existing infrastructure and the preference to avoid reliance on protection infrastructure in relation to any new land use development.

### **3.2.3 Other regional infrastructure**

#### **State and trends**

Other infrastructure that could be regarded as having regional significance and which may be provided by a range of agencies, includes for example: waste disposal (Tirohia), prisons, hospitals, fire stations, power substations, education facilities (such as the University of Waikato), research facilities (such as Ruakura Research station), power generation plant (hydro, coal, gas, geothermal, wind, wave). While this infrastructure is primarily linked to land use decisions, it is nevertheless, of importance to the region, in terms of social and economic functions, including health and safety.

#### **Pressure/threats**

The pressures common to these types of infrastructure include:

- ageing infrastructure and the costs of upgrading it
- population growth placing more demands for the above types of infrastructure and compromising access to resources (for example, coastal development restricting landward access for

- potential wave energy generation locations or the built environment expanding over coal reserves)
- traffic congestion due to population increases can potentially restrict access to regional services such as hospitals and fire stations
- reverse sensitivity issues in relation to the location of some regional services such as prisons, landfills or new transmission lines for new energy generation plant.

#### **Response/methods**

District plans recognise many of the services mentioned above through designations and zoning provisions or through existing use rights. The regional context of such infrastructure is generally not addressed in district or regional plans.

The Government's National Energy Strategy and the NPSs on renewable energy and energy transmission provide further guidance on the national importance of energy infrastructure.

#### **Gaps/issues**

Infrastructure that may be locally based but which provides a service that contributes to the overall functioning of the region, is not recognised in regional planning documents. The issue is that development has the potential to impact on the ongoing operation or functioning of some infrastructure.

#### **Summary and recommendations**

The existing RPS recognises the need to maintain and enhance the continued operations of regionally significant infrastructure. Therefore in defining 'regionally significant' for the future, consideration needs to be given to the range of infrastructure that contributes to the social and economic operations of the region.

## 4 What Environment Waikato has done about infrastructure

To understand how effective and efficient the structures (infrastructure) methods have been in achieving the objective for this chapter of the RPS, it is important to assess the extent to which the methods have been implemented. This section of the report summarises the implementation actions that have been undertaken by Environment Waikato and some territorial authorities.

In the RPS, the implementation methods for achieving the objective are:

1. through district or regional plans, resource consents and the RLTS, in consultation with territorial authorities, network operators, resource users and other interested parties, identify and enable the maintenance of regionally significant infrastructure
2. through the RLTS, enable the safe and efficient operation of the land transport system to be maintained.

### 4.1 Implementation methods supporting the structures (infrastructure) objective

#### 4.1.1 Implementation of method 1

Following are comments with respect to the implementation of method 1.

- Environment Waikato prepares a number of transport management strategies and plans as is discussed in the next section.
- Within the RMA plans (regional and district) there is no strategic planning approach for protecting linear infrastructure such as pipelines, cables, transmission lines, that would traverse the region (for example the identification and management of critical corridors), although corridors are referred to at a policy level in a number of district plans. District plans do contain some land use controls to varying degrees (including designations) which help to protect some existing infrastructure.

- The Waikato Regional Plan has some provisions for the protection of the functioning of regionally significant infrastructure, although there are no protection mechanisms with respect to land use change. It is assumed that at the time of drafting of the Plan, the protection of infrastructure was deemed to be primarily a land use matter better addressed through district plans. The Regional Plan Water Allocation Variation recognises the importance of existing hydro dams by providing for their water take consents as controlled activities. By designating Development Geothermal Systems, some protection is provided for existing geothermal power stations. There are also regional plan permitted activity rules for established pumped floodwater, diversions and stopbanks. There are some provisions which seek to protect the operation of flood and drainage infrastructure such as planting restrictions and requirements for notifying Environment Waikato of works in the vicinity of such infrastructure.
- The Waikato Regional Coastal Plan does not generally address protection of the functioning of regionally significant infrastructure, although there are provisions for protection of historic structures and recognition of network utilities through policies and rules.
- Environment Waikato staff commonly advocate for the protection of regionally significant infrastructure through input (including submissions) on applications to territorial authorities for subdivision and land use consents, and with respect to district plan changes.
- Environment Waikato's resource use group (which assesses applications for regional consents) does not tend to consider any effects on regionally significant infrastructure, when reporting on resource consent applications. Environment Waikato undertakes no environmental education initiatives relating specifically to infrastructure.
- The Draft Flood Risk Management Strategy recognises the role infrastructure plays in managing river flood flows in particular.
- Asset and zone management plans and site specific hazard management plans provide more detailed assessments of the requirements for stop banks, drains and other such infrastructure. A range of other supporting methods are also used to

recognise the importance of hazard management infrastructure including advocacy, consultation and liaison and involvement in submissions on land use consents<sup>36</sup>.

- The Civil Defence and Emergency Management Act 'Lifelines' project provides integrated management of critical infrastructure in the context of civil defence emergencies.
- Structure plans generally cover local areas where growth is expected to occur and includes infrastructural needs such as roading, stormwater and sewage.
- Environment Waikato is often involved with territorial authorities in the establishment of district and subregional growth strategies. Currently the Franklin, Taupo and Waipa districts have growth strategies. Hamilton city and Waikato district are currently working on growth strategies (and Waipa is updating their growth strategy). Three subregional growth strategies are currently being prepared (Coromandel Blueprint, Aotea and Kawhia Harbours' Shore Futures, and Hamilton, Waipa and Waikato's Future Proof).
- Environment Waikato's Strategy for a Sustainable Environment is a high level strategy document that will provide principles to guide good decision making with respect to growth and development in the region.

Overall, it is considered that this method has been partially implemented through a range of different documents and methods. The identification of a range of infrastructure has occurred and is covered in the various documents referred to above. However there has been no clear and consistent identification of regionally significant infrastructure and actions to protect the continued operation of such infrastructure are inconsistent and somewhat sporadic. This situation is improving through the recent emphasis on district and subregional growth planning.

#### 4.1.2 Implementation of method 2

Method 2 recognises the RLTS as being the key document for maintaining the safe and efficient operation of the land transport system. The following general comments are made about the implementation of method 2:

- the RLTS identifies key transport corridors of 'strategic importance to the region' and provides general policy and specific policy for each individual corridor, to achieve the RLTS vision, principles and outcomes. In this way Method 2 is well implemented
- the RLTS will influence district plan reviews and directions in growth strategies. Regional council advocacy works to achieve this
- currently, while the RPS method requires the RLTS to help achieve the objective for regionally significant infrastructure, the reverse situation does not apply. That is, the RPS could more strongly support the objective if key RLTS policy directions for protection of roading infrastructure were more specifically built into the RPS. The RPS for example could provide stronger guidance for district plans, growth strategies and structure plans to reflect the policy directions in the RLTS.

## 5 Conclusions, observations and recommendations

### 5.1 Achieving the objectives

As mentioned earlier in the report the objective for structures (infrastructure) is:

*the continued operation of regionally significant infrastructure (including network utilities) maintained or enhanced.*

It is considered that the objective has been largely achieved. There is no clear evidence that the operation of any particular regionally significant infrastructure has been prevented in any significant way due to resource use or land use decisions.

With respect to flood control and drainage infrastructure, Environment Waikato's river and catchment services staff and policy staff often provide comment to territorial authorities and developers with respect to development proposals, to ensure the development does not compromise the services that the infrastructure provides.

With respect to roading infrastructure, the RLTS has been a significant document for providing a strategic

<sup>36</sup> Refer to Environment Waikato, 2008a: Policy effectiveness paper No.2: Natural hazards for a more detailed outline.

framework for land transport issues. Environment Waikato's transport policy staff often provide advice about the potential effects of developments on transport infrastructure. Transit New Zealand (now the New Zealand Transport Agency) also actively advocates for the protection of state highways (including through submissions to development proposals).

All district plans addressed transport issues to some degree and district growth strategies are increasingly seeking to ensure transport infrastructure is not compromised by development. Some district plans addressed other infrastructure that was of importance or significance within their region (for example dams). There was some recognition of infrastructure (other than land transport) which had a regional or inter-regional focus (such as references to transmission corridors). Some settlement growth patterns have impacted on the effective functioning of roading networks and the potential for new or upgraded transmission lines.

The Waikato Regional Plan is not a strong tool for ensuring the continued operation of regionally significant infrastructure.

## 5.2 Comments and recommendations with respect to policy development

The following recommendations are made with respect to policy development.

- 1) It is clear that the RPS's infrastructure issue statement is still valid in that inappropriate subdivision, use and development of land can still conflict with the operation of regionally significant infrastructure. This issue has gained increased national prominence in recent years as is evidenced by changes to the RMA, changes to transport legislation, the 2004 Infrastructure Stocktake and the development of various related National Policy Statements and National Environmental Standards. This issue therefore needs to continue to be addressed in the second generation RPS.
- 2) The Government clearly recognises (through a range of documents) the importance of effective and efficient infrastructure needed to support the growth and prosperity of New Zealand. This matter should be clearly stated in the RPS (currently the issue statement focuses on the importance of infrastructure to the region rather than the nation).
- 3) Currently the structures chapter of the RPS focuses on regionally significant infrastructure and particularly network utilities. It is recommended that consideration is given to widening this to other kinds of infrastructure that are important to the region and to New Zealand such as regionally important hospitals, education institutions, landfills and prisons. There could for example be policy which helps to protect access to such infrastructure and prevent reverse sensitivity issues arising.
- 4) There needs to be better guidance in the RPS about what infrastructure is regionally significant. Criteria should be developed to help define such infrastructure. This would help to focus Environment Waikato's advocacy efforts and would also help in terms of monitoring effectiveness of structures policy.
- 5) The main matter which can impact on the operation of regionally significant infrastructure, and which can be managed through the RPS, is land use change. This needs to be more clearly stated in the RPS. The Enfocus (2007) report suggests that the chapter should be renamed 'Land use and Infrastructure' for this reason. This also would reflect the new RMA s30(1)(gb) regional council function of ensuring the 'strategic integration of infrastructure with land use'. The RPS needs to contain stronger and clearer provisions to achieve such integration. This may include policies and methods which require territorial authorities to:
  - have policies in their district plans designed to protect regionally significant infrastructure from the adverse effects of land use change
  - require that land use change is managed by long term growth management strategies and plans which ensure that the rate and location of development does not adversely affect the

- efficient operation, use and development of strategic infrastructure
- ensure that new infrastructure development is integrated with, and keeps pace with land use change.
- 6) There should be consideration of stronger provisions to limit forest clearance where this may adversely affect the functioning of downstream flood protection and drainage works.
- 7) Consideration should be given to establishing through the RPS a regional framework of strategic infrastructure corridors. The framework could determine existing corridors of regional significance, and provide a process for anticipating and protecting locations of potential future infrastructure corridors. This may include for example ensuring that development does not prevent re-opening of closed rail lines, or does not prevent expansion of existing infrastructure corridors.
- 8) The RPS should more strongly support the RLTS by providing a more robust link between land use planning and the objectives and principles embedded in the Strategy. Some of the strategy's statements that could be supported in this way include:
- 7.4.1 (A3.1.2) Plan for high-speed commuter passenger transport corridors and park and ride services in the greater Hamilton area
  - 7.4.1 (A3.6) Territorial authorities to promote and develop urban form that does not preclude the future provision of passenger transport, walking and cycling
  - 7.4.1 (A3.7) Road controlling authorities to ensure route security, particularly on key strategic corridors and to ensure accessible road transport links to rural communities
  - 7.7.1 (A6.9) Territorial authorities to plan and provide for modal connections and integrated transport hubs in the region (through structure plan processes and in association with the review of the Waikato Passenger Transport Plan).
  - 7.9 (A8.1) Road controlling authorities to promote and develop more energy efficient transport options in the region including passenger transport, rail, cycling and walking modes
- 8.4 (A11.3) Territorial authorities are encouraged to protect rail corridors from the establishment of adjacent activities that may compromise the safety or efficiency of present and future rail corridors
- 8.4 (A11.7) Territorial authorities to investigate the safe use of rail corridors for walking and cycling trails while protecting the network for future rail purpose
- 13.5 (A13.2) Hamilton City Council to reduce the need to travel by integrating land use and transport planning and managing travel demand to optimise the capacity and efficiency of the existing transport network within Hamilton.
- 9) Transit New Zealand's Planning Policy Manual should be reviewed to see if there are provisions that should be supported in the revised RPS.
- 10) Future policy development needs to draw on the national legislative and strategy changes that have occurred since 1991. In particular, guidance should be drawn in particular from:
- amendments to the RMA legislation (especially s30(1)(gb) - strategic integration, and the associated recommendations from the Enfocus report)<sup>37</sup>,
  - National Policy Statements on energy transmission and flood risk management
  - the Regional Land Transport Strategy
  - the Regional Flood Risk Management Strategy and
  - the future growth strategies of the various territorial authorities.
- These policy documents should be referenced as background guidance in developing a stronger framework for and recognition of the strategic importance of infrastructure and its contribution to the social and economic wellbeing of communities.
- 11) The current RPS does not contain provisions for landscape protection and yet landscape

<sup>37</sup> Enfocus, 2007, pp94-95.

is considered in the natural heritage chapter to be an important part of regional heritage. Guidance should be provided in the RPS for the consideration of landscape values in relation to new infrastructure.

- 12) The RPS should provide clearer guidance on how the objective is to be monitored

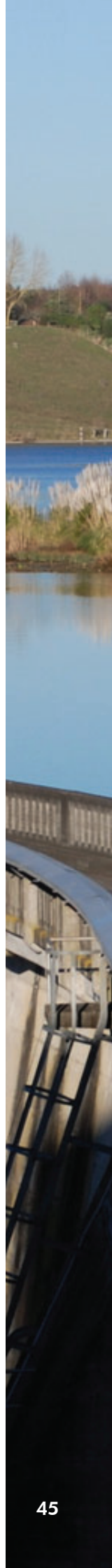
### 5.3 Comments and recommendations with respect to policy implementation

The following recommendations are made with respect to policy implementation.

- 1) Generally the infrastructure implementation methods in the RPS are being implemented. It is important that there is continuing dialogue with territorial authorities and developers about this issue as there is often a tension between development aspirations and the need to protect the efficient operation of infrastructure. It is also important that Environment Waikato staff continue to advocate for such protection through their work with subdivision applications to territorial authorities, district plan changes, structure plans and growth strategies.
- 2) Ultimately, growth strategies are the most effective method for maintaining regionally significant infrastructure as they provide the opportunity to determine where growth will occur, at what rate and with what characteristics. As stated already, it is land use change that has the most potential to adversely affect the functioning of infrastructure. Long term strategic planning for growth therefore needs to continue to be encouraged.
- 3) While growth planning is useful in terms of protecting current infrastructure, it is not necessarily helpful in terms of providing for future infrastructure, unless there is long term planning by infrastructure providers such as the New Zealand Transport Agency, Transpower, Telecom and Ontrack. These agencies are increasingly undertaking long term planning and Environment

Waikato staff need to be informed about the outcomes of such planning in order to ensure territorial authority growth strategies respond appropriately.

- 4) Environment Waikato's Strategy for a Sustainable Environment is an important project in terms of seeking to predict future conflicts between land use/resource use and infrastructure, and developing principles to avoid such conflicts. Support for this project should be maintained.
- 5) It is important that Environment Waikato's river and catchment services staff and transport staff are informed of new development plans and strategies so that they can provide input about the effect of these on the infrastructure they are responsible for.



# Appendix 1: Reflections on methodology used

This section of the report reflects on the methodology used for this report and records some comments and recommendations in respect of the policy effectiveness assessment undertaken of the two chapters of the RPS covered by this report.

1. The general approach taken in developing this document followed that taken in *Policy effectiveness paper No.1: Biodiversity and natural heritage: 2007*. This enables a level of consistency to be achieved between the two documents.
2. The range of comments generated during the assessment of the two chapters, has enabled the report to assess the extent to which the objectives have been achieved and to note areas where improved policy development or implementation could take place.
3. The methodology provided for a series of targeted interviews and email questionnaires, with various Environment Waikato staff, some territorial authority staff and other external stakeholders. This mix provided a reasonable overview of comments on the effectiveness of the RPS objective. The pressure/state/response model enabled particular energy and infrastructure areas to be identified and considered. This was considered to be important for looking forward to the RPS review. The questionnaires provided a basis for an open flow of information from participants.
4. Given the significance of land use planning to the management of energy and infrastructure, it would have been helpful to have had more input from territorial authorities. However it is recognised that there is an on-going tension between respective council's workloads and associated timeframes. While some council staff considered the email approach to be more efficient, with others, it may have been more useful to have held individual interviews.
5. This process did not include any iwi consultation, or consultation with the Ministry for the Environment or the Department of Conservation. This could strengthen future reviews of other RPS chapters.
6. Overall it was considered that the methodology used worked well for assessing the energy and infrastructure chapters of the RPS.



# Appendix 2: Key RMA definitions

## s2: Infrastructure:

infrastructure, in section 30, means—

- (a) pipelines that distribute or transmit natural or manufactured gas, petroleum, or geothermal energy;
- (b) a network for the purpose of telecommunication as defined in section 5 of the Telecommunications Act 2001;
- (c) a network for the purpose of radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989;
- (d) facilities for the generation of electricity, lines used or intended to be used to convey electricity, and support structures for lines used or intended to be used to convey electricity, excluding facilities, lines, and support structures if a person—
  - (i) uses them in connection with the generation of electricity for the person's use; and
  - (ii) does not use them to generate any electricity for supply to any other person;
- (e) a water supply distribution system, including a system for irrigation;
- (f) a drainage or sewerage system;
- (g) structures for transport on land by cycleways, rail, roads, walkways, or any other means;
- (h) facilities for the loading or unloading of cargo or passengers transported on land by any means;
- (i) an airport as defined in section 2 of the Airport Authorities Act 1966;
- (j) a navigation installation as defined in section 2 of the Civil Aviation Act 1990;
- (k) facilities for the loading or unloading of cargo or passengers carried by sea, including a port related commercial undertaking as defined in section 2(1) of the Port Companies Act 1988;
- (l) anything described as a network utility operation in regulations made for the purposes of the definition of network utility operator in section 166.

## s166: Designations, Network utility operator and requiring authority:

Meaning of designation, network utility operator, and requiring authority.

In this Act— Designation means a provision made in a district plan to give effect to a requirement made by a requiring authority under section 168 or section 168A or clause 4 of Schedule 1

Network utility operator means a person who—

- (a) Undertakes or proposes to undertake the distribution or transmission by pipeline of natural or manufactured gas, petroleum, or geothermal energy; or
- (b) operates or proposes to operate a network for the purpose of—
  - (i) telecommunication as defined in section 5 of the Telecommunications Act 2001; or
  - (ii) radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989; or
- (c) Is an electricity operator or electricity distributor as defined in section 2 of the Electricity Act 1992 for the purpose of line function services as defined in that section; or
- (d) Undertakes or proposes to undertake the distribution of water for supply (including irrigation); or
- (e) Undertakes or proposes to undertake a drainage or sewerage system; or
- (f) Constructs, operates, or proposes to construct or operate, a road or railway line; or
- (g) Is an airport authority as defined by the Airport Authorities Act 1966 for the purposes of operating an airport as defined by that Act; or
- (h) Is a provider of any approach control service within the meaning of the Civil Aviation Act 1990; or
- (i) Undertakes or proposes to undertake a project or work prescribed as a network utility operation for the purposes of this definition by regulations made under this Act,— and the words network utility operation have a corresponding meaning


Requiring authority means—

- (a) A Minister of the Crown; or
- (b) A local authority; or
- (c) A network utility operator approved as a requiring authority under section 167.

## s141B(2): National Significance:

Minister's power to call in matters that are or are part of proposals of national significance

- (1) When the Minister considers that a matter is or is part of a proposal of national significance, the Minister may call in the matter by making 1 of the following directions:
  - (a) a direction that the matter be referred for decision to a board of inquiry under sections 146 to 149; or

- 
- (b) a direction that the matter, after the receipt of any submissions that the local authority or the Minister called for, be referred for decision to the Environment Court under section 150AA.
- (2) In deciding whether a matter is or is part of a proposal of national significance, the Minister may have regard to any relevant factor, including whether the matter—
- (a) has aroused widespread public concern or interest regarding its actual or likely effect on the environment, including the global environment; or
  - (b) involves or is likely to involve significant use of natural and physical resources; or
  - (c) affects or is likely to affect any structure, feature, place, or area of national significance; or
  - (d) affects or is likely to affect more than one region or district; or
  - (e) affects or is likely to affect or is relevant to New Zealand's international obligations to the global environment; or
  - (f) involves or is likely to involve technology, processes, or methods which are new to New Zealand and which may affect the environment; or
  - (g) results or is likely to result in or contribute to significant or irreversible changes to the environment, including the global environment; or
  - (h) is or is likely to be significant in terms of section 8 (Treaty of Waitangi).

# Appendix 3: Designations

(Extracts from 'The Designation Process', Ministry for the Environment, 2006).

The Resource Management Act 1991 (RMA) gives requiring authorities the ability to have areas of land designated for use as network utilities (such as roads and telecommunications facilities) or large public works (such as schools and reserves).

'Designation' means that the works can be carried out without the subsequent need for a land use resource consent. It applies only to district plans.

If a requiring authority wishes to designate land, it must submit a notice of requirement to the council, in a similar manner to a resource consent application.

A requiring authority can be:

- a Minister of the Crown
- a local authority
- a network utility operator approved under the RMA.

Only requiring authorities can designate land for public works or network utilities. It has to have financial responsibility for a project, work or operation on the designated land.

A designation also places restrictions on what anyone other than the requiring authority can do on the designated land, without first getting the requiring authority's permission or necessary approvals from the territorial authority.

A designation that hasn't been 'given effect to' (meaning the works are largely completed) lapses five years after the date it is included in the district plan, unless the lapsing period has been extended.

Once given effect to, a designation remains valid for the life of the district plan, or until the requiring authority removes or alters the designation.



# References

- Bazendine, S., Cochrane, B., Poot, J., 2005. Demographic Change and Transport Needs in the Waikato Region. Population Studies Centre, University of Waikato. Hamilton.
- Department of Prime Minister and Cabinet, 2003. Sustainable Development for New Zealand: Programme of Action. Wellington.
- Energy Efficiency and Conservation Authority, 2007. New Zealand Energy Efficiency and Conservation Strategy: Making it Happen: Action plan to maximise energy efficiency and renewable energy. Wellington.
- Enfocus, 2007. Evaluation of the Waikato Regional Policy Statement. Auckland.
- Environment Waikato, 1998. State of the Environment Report.
- Environment Waikato, 2002. Regional Land Transport Strategy for the Waikato region 2002-2012. Hamilton.
- Environment Waikato, 2004. Corporate Energy Plan 2005/06. Hamilton.
- Environment Waikato, 2006. Regional Land Transport Strategy for the Waikato region 2002-2016. Hamilton.
- Environment Waikato, 2007a. Annual Report 2006/07. Hamilton.
- Environment Waikato, 2007b. 2006/07 Annual Report on the Waikato Regional Land Transport Strategy. Hamilton.
- Environment Waikato, 2008a: Policy effectiveness paper No.2: Natural hazards.
- Environment Waikato, 2008b. Statement of Proposal: 2008/09 Draft Annual Plan; 2006-16 Long Term Council Community Plan Amendments; Draft land Transport Plan. Hamilton.
- Hyder Consulting (NZ) Ltd, 2007. Waikato Expressway: Strategic Evaluation: Draft Executive Summary Report. Wellington.
- Janes, A, 2008. Energy Tradeoffs Loom. in Waikato Times; 1 March 2008, pC1. Hamilton.
- Land Transport New Zealand, 2007. Integrating land use and transport planning. Research Report 333. Wellington.
- Ministry for the Environment, 2006. The Designation Process: An Everyday Guide to the RMA Process Series 4.1. Wellington.
- Ministry for the Environment, 2007. Environment New Zealand 2007. Wellington.
- Ministry for the Environment, 2007. Urban Design Toolkit. [www.mfe.govt.nz](http://www.mfe.govt.nz)
- Ministry for the Environment, 2008. Proposed National Environmental Standard on Ecological Flows and Water levels: Discussion Document. Wellington.
- Ministry of Economic Development, 2006. New Zealand Energy Outlook to 2030. Wellington.
- Ministry of Economic Development, 2007. New Zealand Energy Strategy to 2050: Powering Our Future: Towards a sustainable low emissions energy system. Wellington.
- Ministry of Transport, 2007. Sustainable Transport: Update of the New Zealand Transport Strategy: Discussion paper. Wellington.
- MWH New Zealand Ltd, 2003. Evaluation of Energy Efficiency and Renewables Issues in Plans. Wellington.
- NZIER, 2004. Sustainable Infrastructure: A policy framework: Report to the Ministry of Economic Development. Wellington.
- O'Fallon, C., 2003. Linkages between Infrastructure and Economic Growth. Pinnacle research, Wellington.
- Office of the Minister of Finance, Office of the Minister for Economic Development, 2004. Infrastructure Stocktake Reportback. Wellington.

Office of the Minister: Cabinet Policy Committee, undated. Cabinet paper: Report back on development of national environmental standards for electricity transmission. Wellington.

Office of the Acting Minister for the Environment and the Minister of Energy: Cabinet Policy Committee, 2007. Cabinet Paper: Providing National guidance on Renewable Energy Projects through the Resource Management Act 1991. Wellington.

Ontrack, 2007. Ontrack Annual Report 2007. [www.ontrack.govt.nz](http://www.ontrack.govt.nz).

Parliamentary Commissioner for the Environment, 2006a. Get smart, think small: Local energy systems for New Zealand. Wellington.

Parliamentary Commissioner for the Environment, 2006b. Wind power, people, and place. Wellington.

PriceWaterhouseCoopers, 2004. Ministry of Economic Development: Infrastructure Stocktake: Infrastructure Audit.

Rogers, B., 2008. Climate Change Policy: Where are we Going? Resource Management Law Association (February).

Sinclair Knight Merz, 2006. Renewable Energy Assessment: Waikato Region. Auckland.

Transit New Zealand, 2004: Transit New Zealand's 10-year State Highway Plan 2004/5–2013/14. Wellington.

Transit New Zealand, 2007. Planning Policy Manual: For Integrated Planning and Development of State Highways. Wellington.

Transpower New Zealand Ltd., 2006. Development Guide for development near high voltage transmission lines. Wellington.

Wilton, E., 2003. Regional Energy Survey. Environment Waikato, Hamilton.

Waikato Regional Energy Forum, 2007a. Waikato Regional Energy Forum Conference Proceedings. Hamilton.

Waikato Regional Energy Forum, 2007b. Draft Waikato Regional Energy Strategy: Working Document. Hamilton.

Weir, J., 2008. Energy Strategy Risks Power Shortages in The Press, 2 January 2008, pC2. Christchurch.

### Planning documents reviewed

Resource Management Act 1991 (including amendments).  
National Policy Statement on Electricity Transmission, 2008.  
National Policy Statement on Renewable Electricity Generation: Background information.  
Waikato Regional Policy Statement.  
Waikato Regional Plan.  
Franklin District Plan.  
Hamilton City District Plan.  
Hauraki District Plan.  
Matamata-Piako District Plan.  
Otorohanga District Plan.  
South Waikato District Plan.  
Taupo District Plan.  
Thames Coromandel District Plan.  
Waikato District Plan.  
Waipa District Plan.  
Waitomo District Plan.

### Key websites searched

[www.awatea.org.nz](http://www.awatea.org.nz).  
[www.census.govt.nz](http://www.census.govt.nz).  
[www.contactenergy.co.nz](http://www.contactenergy.co.nz).  
[www.doc.govt.nz](http://www.doc.govt.nz).  
[www.eeca.govt.nz](http://www.eeca.govt.nz).  
[www.electricitycommission.govt.nz](http://www.electricitycommission.govt.nz).  
[www.ew.govt.nz](http://www.ew.govt.nz).  
[www.hamiltonairport.co.nz](http://www.hamiltonairport.co.nz).  
[www.med.govt.nz](http://www.med.govt.nz).  
[www.mfe.govt.nz](http://www.mfe.govt.nz).  
[www.mightyriverpower.co.nz](http://www.mightyriverpower.co.nz).  
[www.ontrack.govt.nz](http://www.ontrack.govt.nz).  
[www.pce.govt.nz](http://www.pce.govt.nz).  
[www.qualityplanning.org.nz](http://www.qualityplanning.org.nz).  
[www.toll.co.nz](http://www.toll.co.nz).  
[www.landtransport.govt.nz](http://www.landtransport.govt.nz).  
[www.telecom.co.nz](http://www.telecom.co.nz).  
[www.transit.govt.nz](http://www.transit.govt.nz).  
[www.transpower.co.nz](http://www.transpower.co.nz).







HAMILTON  
401 Grey Street  
PO Box 4010  
Hamilton East  
Hamilton 3247  
Telephone 07 859 0999  
Facsimile 07 859 0998

**Environment Waikato's  
freephone 0800 800 401**



S1883-0409

Policy effectiveness paper No. 3  
Policy and Strategy Group, Environment Waikato  
ISSN 1178-5136  
April 2009

[www.ew.govt.nz](http://www.ew.govt.nz)