



**Report** 08.710  
**Date** 24 September 2008  
**File** ENV/22/04/10

**Committee** Regional Sustainability  
**Author** Bruce Geden, Special Projects Coordinator

## **Draft Sustainable Energy Strategy for the Wellington Region: key opportunities for change**

### **1. Purpose**

The purpose of this report is to propose key opportunities for change in developing a Draft Sustainable Energy Strategy for the Wellington Region.

### **2. Background**

At previous meetings the Committee has discussed the need for and scope of the proposed regional renewable energy strategy. Although initially focused on issues surrounding the development of wind energy in the region (Report 08.46, February 2008), it rapidly became clear that a wider-ranging strategy was needed (Report 08.365, May 2008) if the contribution made by energy to the region's overall sustainability was to be maximised.

In the last few months we have been identifying the key issues, consulting with a number of key players and industry experts (e.g., EECA, local authorities) and talking with other regional councils and agencies undertaking similar strategies. However, a wider set of discussions needs to occur with all of the relevant parties over the next few months to build support and consensus around the direction of the draft strategy, the key areas it will address, and the roles that can be played by those parties in making it a practical and effective mechanism for change.

We have identified the *key opportunities for change* where we believe real progress can be made in both the immediate and the longer term. These need to be coalesced into a document that can form a basis for a strategy. Such a document will need to be reviewable to take account of changes in circumstance such as technology advancements, fuel costs and availability.

This report provides an opportunity for Councillors to shape this content further in advance of the draft strategy being prepared and consultation entered into with local councils and other interested parties. The objective is to

develop a broad regional consensus that will comprise the draft strategy by the end of this year.

### **3. Discussion**

The issues and options include the following:

- The principal energy related challenges and issues for the Wellington region
- The national context
- A regional approach
- Key objectives
- Key opportunities
- Roles and responsibilities

#### **3.1 The challenge**

Our region, like the rest of New Zealand, faces two major long term energy challenges, namely:

- Responding to climate change and tackling carbon emissions, especially from transport (and, indirectly, the generation of electricity elsewhere that is used in the region).
- Securing sufficient clean energy at an affordable cost so we have safe, liveable, and healthy communities, and the wheels of the economy keep turning - the provision of a reliable, affordable supply of energy for industry, agriculture, commerce and the domestic sector being fundamental to the region's wellbeing.

An effective energy strategy could make a difference to a number of energy related issues such as:

- green house gas emissions that contribute to climate change;
- broadening our energy options or 'resilience' in the face of changes in international energy supplies (e.g., oil) and conditions;
- ensuring security of electricity supply in all conditions (such as transmission/generation faults, lack of wind, low hydro-lake levels etc);
- addressing domestic living conditions and ill-health caused through the inadequate and possibly inefficient use of energy<sup>1</sup>;

---

<sup>1</sup> For comfort, the living rooms should be around 20 C and bedroom and hallways 18 C. Temperatures below 16 C lead to health problems and dampness.

- the escalating cost of energy and fuel for households and businesses and the consequent drag on the regional economy (the costs of petrol and electricity costs comprises approximately 17% of household expenditure);
- the development of renewable energy generation in the region in a way that is acceptable both environmentally and to the community; and
- environmental degradation (especially air pollution) caused by motor vehicles through the combustion of fossil fuels, and household fires.

### **3.2 National context**

Nationally, a great deal of effort is being directed at these challenges because many energy issues are national in character, affecting the national environment, the wellbeing of all New Zealanders, and the competitiveness of 'NZ Inc' (e.g., recent far reaching initiatives include the emissions trading scheme, the New Zealand Energy Strategy, the Energy Efficiency and Conservation Strategy and the New Zealand Transport Strategy).

As a country, our energy behaviour is not, on current trends, sustainable. Growth in our demand for energy for vehicles, homes and businesses has led to a greater reliance on fossil fuels, with consequent increases in greenhouse gas emissions. Between 1997 and 2005 New Zealanders' energy use per person increased by 13 per cent and imports of coal, oil, and petroleum products were up 47%. If we do not change this, greenhouse gases from energy use are projected to rise by 39% by 2030.

One of the main features of the national energy-related strategies to date has been the setting of some bold yet necessary targets in support of the general aspiration of national carbon reduction. In addition, it is impossible to predict when circumstances may suddenly change to 'force' the country away from its current fossil fuel dependence. To get there, the Government has established the following targets:

- A net increase in forest area of 250,000 hectares from 2007 levels by 2020.
- 90 per cent of our electricity generation is from renewable sources by 2025.
- Per capita transport greenhouse gas emissions are reduced by half of those in 2007 by 2040.
- Becoming a world leader in agricultural emissions reduction research and the early adoption & application of new technologies & processes.
- Becoming a world leader in the deployment and use of electric vehicles.

Generally, these targets appear to have been accepted with the 90% renewable electricity generation target being viewed as the most challenging, given we are starting from a base of about 62%. However, exactly how these targets will be achieved or by whom has not yet been clearly articulated.

### 3.3 A regional approach

This region's overall energy "landscape" is strongly shaped by what happens nationally, and internationally; it puts parameters around what can be achieved regionally and, most importantly, determines *what is worth doing regionally*, since an initiative at the national level need not be addresses locally, unless it is failing and action needs to be taken.

How we source our energy and the use we make of it is absolutely fundamental to the overall sustainability of the region and it could be argued will probably have a greater bearing on the lives of its inhabitants over the next 50 years than any other environmental factor.

Greater Wellington has a clear and unequivocal mandate to promote and implement measures designed to improve the region's energy sustainability.

#### 3.3.1 Regional Policy Statement objectives

The Council's overall statement of its policies under the Resource Management Act 1991 (the Draft Regional Policy Statement) also contains targets or end-points (expressed as an RPS Objective) for energy management which have a significant bearing on any targets we might choose for this strategy. The targets are:

- Greenhouse gas emissions from transportation are reduced.
- Dependency on fossil fuels is reduced.
- The region's use of its renewable energy resources is maximised.
- The type and scale of renewable energy development is diversified.
- The efficiency of energy use is improved.

#### 3.3.2 Regional objectives

It is proposed that the following objectives underlie the means by which the region strives towards a sustainable energy future:

- The per capita use of energy is reduced;
- Energy is both conserved and used more efficiently;
- As much energy as possible is obtained from renewable sources within the region to the extent environmentally and technically possible;
- Our use of carbon-based fuels is reduced and more sustainable transport alternatives are adopted;
- Security of supply is ensured and resilience increased; and
- Technologies resulting in no/low greenhouse gas emissions are supported

### 3.3.3 Other Strategies

The Wellington Regional Strategy highlights a range of energy objectives as part of its mandate to promote sustainable development within the Wellington region.

There are also obvious links between an energy strategy and the work being carried out by the Council as part of the Communities for Climate Change programme, the regional water strategy, and the Regional Land Transport Strategy.

Methods chosen to implement these strategies will help give effect to the energy strategy as well. The key will be to ensure that this happens in a co-ordinated way. The final strategy will only be effective if it is inclusive and carries the support and involvement of all those working in the area, both other agencies and community organisations.

Moreover, it should be stressed that these ideas are not intended to be opportunities for Greater Wellington alone, but rather the full range of parties relevant to each key opportunity. This would include energy companies which might see commercial reasons for supporting financially some of these initiatives.

## 4. Key opportunities for change

### 4.1 Reducing energy use

In order to most appropriately address our increasing use of energy, demand management is the first step to take, as opposed to just meeting demand through increasing supply; i.e. new energy generation. Numerous schemes and programmes exist or are being developed at the national and local levels to ameliorate energy usage through such means as behavioural change, the development of energy efficient devices and practical measures such as insulation.

#### **Key opportunity 1: Work with central government to insulate homes**

Probably the most consistently agreed action, as well as being ‘best value’ and tangible, is to properly insulate (including draft stop, pipe lagging, hot water cylinder wrapping) the region’s 29,000 poorly or non-insulated houses. Insulation is the key determinant of health, comfort levels and energy use in homes. Within the region, EECA, some local authorities, EnergySmart (Hutt Mana Charitable Trust), Right House (Meridian Energy), Beacon Pathway, and the Sustainability Trust are all active in retrofitting and providing energy efficiency advice. In addition, Wellington City Council is undertaking a \$220 million of its rental housing over the next 10 to 15 years including insulation.

Recently, the Government announced a significant enhancement to existing insulation retrofit schemes. Even though the full details of the scheme are still being determined by Government, it broadly comprises a fund of \$1 billion spread over fifteen years which, pro rata, should deliver to the Wellington region approximately \$110 million spread over 15 years. Assuming an average

cost of \$5,000 to retro-insulate a dwelling, this equates to the retrofitting of roughly 22,000 homes. It is not yet clear how this scheme, to be co-ordinated by EECA, will be implemented.

***Proposed action:***

- Proactively work with EECA to maximise how Wellington region houses could most benefit from the government's most recent scheme
- Investigate other retro-insulation assistance schemes including EECA's existing and proposed schemes.

## **4.2 Using energy more efficiently**

**Key opportunity 2:** Investigate and promote options for the more efficient use of energy by households and businesses.

Ensuring greater energy efficiency is the next logical step. It cuts energy costs and reduces the need for new sources of generation. There is a raft of possibilities proposed in the New Zealand Energy Efficiency and Conservation Strategy<sup>2</sup> for homes, businesses, farms and transport. Households are the largest users of energy so starting at home is good policy.

As large users of electricity through their production processes, businesses can often make big reductions in their use of energy but many are unaware of how to do so.

***Proposed action:***

- Maintain, and where possible augment, progress made by Greater Wellington's existing business sustainability programmes.
- Proactively work with EECA in the application of its home energy performance ratings scheme, similar to the star rating currently found on appliances.

**Key opportunity 3:** Assist consumers to switch to more efficient heating options in areas with air quality problems.

In a number of communities within the region households using inefficient heating sources (open fires, old burners) are contributing to air quality standards which periodically fall below the National Air Quality Standards. Improvements in air quality could be achieved if more efficient alternatives were adopted. In promoting more efficient forms of heating it would make sense to start in those areas where the health benefits would be greatest.

---

<sup>2</sup> NZEECS 2007

***Proposed action:***

- Investigate the applicability of ECan’s Home Heat Project to Wellington
- Investigate and work proactively with EECA on its rates deferral proposal

**Key opportunity 4:** Provide guidance and information on energy efficient design for subdivisions and buildings.

Local authorities are uniquely placed to promote the development of buildings and subdivisions which take energy efficiency into account. How effectively is this being conducted around the region? What scope exists for a more consistent regional approach?

***Proposed Action:***

- Work with Territorial Authorities to implement best practices in the planning of buildings and subdivisions.

**Key opportunity 5:** Remove barriers to energy efficient building alterations and small scale renewable energy generation.

Construction of these kinds should be as easy and straightforward as possible and not be hindered unnecessarily by building controls. An evaluation of ways in which local authorities can more actively facilitate energy efficiency initiatives in existing buildings would be valuable.

***Proposed Action:***

- Work with territorial authorities to identify barriers and to recognise and facilitate the option of small scale and local energy generation, especially as unit costs fall and technologies improve.

### **4.3 Maximising the use of renewable sources of energy**

To reduce emissions and develop greater resilience in terms of energy supply, a shift is required from fossil fuel energy generation to more sustainable (renewable) energy sources. In this regard, the Wellington region has considerable potential capacity to generate energy from renewable sources. Meridian Energy will fully commission its 143MW capacity West Wind wind farm soon and other wind farms (see Attachment 1) are also proposed within the region, together with Neptune’s tidal current trial in Cook Strait.

**Key Opportunity 6:** Promote the potential of the region’s wind resource

The interest shown in the region’s wind resources by energy companies is proof of its potential to generate energy that is renewable and which also enhances security of supply. However, we need to weigh carefully the benefits to climate change of such projects alongside local effects on landscape and amenity and to carefully manage the spread of wind farms so that public tolerance for them is not undermined.

***Proposed action:***

- A regional consensus will be sought as to the place and the scale of further wind energy development in the region.
- Place the wind energy resource mapping report on the Greater Wellington website as an information source.

**Key Opportunity 7: Identify and assess solar energy opportunities**

Solar energy clearly has a role to play in the future energy supply mix in the region. It has however experienced difficulty in establishing itself as a viable alternative, particularly in the domestic sector.

***Proposed action:***

- Work closely with central government (EECA and MED), together with solar energy manufacturers, distributors, importers and local government to clarify the technical, regulatory and financial issues inhibiting more extensive use of solar energy technology.

**Key Opportunity 8: Establish a marine energy testing and research centre**

Wellington is one of the few major cities in the developed world with a substantial tidal energy resource on its doorstep. The combination of this resource, the city's infrastructure, tertiary education providers, and scientists could enable such a research centre to be established, potentially leading to the development of new generating capacity, as well as valuable intellectual property.

***Proposed action:***

- Implement a plan change to the Coastal Policy Plan to reflect Wellington's potential marine energy resource so this resource can be used in an environmentally acceptable way.
- Place the marine energy resource investigation report on the Greater Wellington website as an information source.

**Key Opportunity 9: Establishment of a Renewable Energy Centre of Excellence.**

This initiative is included in the Wellington Regional Strategy programme of action. It is designed to concentrate research and development activities in a single institution based in the Wellington area but, ideally, having both a regional and a national focus.

***Proposed action:***

- Support Grow Wellington's proposals to investigate renewable energy technologies such as mini-hydro and alternative transport options.



#### **4.4 Reducing the use of carbon based fuels and adopting more sustainable transport alternatives**

Transport consumes a significant proportion of the energy used in the region, and it is vital to the economy and our quality of life. To reduce our emissions overall, we need to substantially lower emissions from this sector but retain a robust system to underpin the economy. The Regional Land Transport Strategy includes a variety of measures to do this.

**Key opportunity 10:** Promote the implementation of travel demand management.

Work to give effect to this key opportunity is already in progress.

*Proposed action:*

- Refer section 8.2 of the Regional Land Transport Strategy

**Key opportunity 11:** Provide and promote the use of high quality passenger transport services.

Work to give effect to this key opportunity is already in progress.

*Proposed action:*

- Refer to the Regional Passenger Transport Plan in the Regional Land Transport Strategy

**Key opportunity 12:** Promote more active travel modes such as cycling and walking.

Work to give effect to this key opportunity is already in progress.

*Proposed action:*

- Refer to the Cycling Plan in the Regional Land Transport Strategy

**Key opportunity 13:** Shift to more efficient modes of transport, especially smaller/more efficient vehicles and/or plug-in electric vehicles.

An improvement in the overall efficiency of the vehicle fleet is a national level trend that will have benefits in the region, along with the uptake of alternative technologies such as biofuels, electric cars, and diesel and hybrid vehicles.

With regard to electric cars, this would involve working directly with parties involved in their testing and possible introduction so that they rapidly become an integral part of Wellington's private and public transport network. Discussions would be necessary to determine what role the respective parties could assume to maximise the deployment of electric vehicles.

***Proposed action:***

- Consult with Meridian Energy and possibly vehicle manufacturers regarding the electric vehicle testing programme
- Identify infrastructural issues and implications that could act as barriers to alternative transport modes

#### **4.5 Ensuring security of energy supply**

**Key opportunity 14:** Introduce Smart Meters

Advanced metering systems such as Smart Meters could be introduced into the region's homes and buildings to help users reduce consumption and spread their energy consumption through the day. This enables demand to be better managed during peak periods. A scheme would need to be set up to facilitate this, possibly in conjunction with other demand management processes such as retrofitting.

***Proposed action:***

- Investigate, along with EECA in particular, the means by which advanced metering systems could be most appropriately introduced into Wellington region homes.

**Key opportunity 15:** Investigate and promote distributed generation

Small scale locally produced energy contributes to a more secure supply as it provides an alternative source at times when the central network is under stress. It is necessary to investigate at the regional scale whether locally distributed energy is a feasible option. This could be at either the individual household or community level, utilising solar energy for water and space heating, or at a community or town level (e.g., small scale wind farms).

***Proposed action:***

- Commission a technical analysis of distributed energy options and constraints within the Greater Wellington region. Explore funding of the analysis with relevant government agencies.

## **5. Roles and responsibilities**

For the final strategy to be successful, it will require an "owner" and a place to discuss issues and develop solutions. A forum should be set up involving all relevant parties (councils, businesses, research institutions etc) so that ideas shared and differences resolved. This body would also represent the views of the region to central government on energy-related matters but ideally it would also include representatives from government working in partnership with the regional and local levels.

As mentioned above, the final strategy will require the involvement of a range of parties from government, business, the energy sector, and community based energy organisations.

## 6. Communications

As this report is intended primarily for discussion by Councillors towards developing a draft strategy, no further communication is required at this stage. Copies of the agreed draft strategy should be sent to TLAs, relevant government departments and other bodies with which Greater Wellington seeks to collaborate in the finalisation of the strategy.

## 7. Recommendations

*That the Committee:*

1. *Receives the report;*
2. *Endorses the proposed action plan set out in the report as a basis for further consultation with other interested parties in the region; and*
3. *Agrees that the aim of the draft strategy will be to strive for regional consensus among the territorial local authorities on the underlying energy issues and possible solutions.*

Report prepared by:

Report approved by:



**Bruce Geden**  
Special Projects Coordinator

**Nigel Corry**  
Divisional Manager,  
Environment Management

**Attachment 1:** Appendix 1