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Committee Regional Sustainability Committee
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Energy Work Programme Update Status

1. Purpose

To update the Committee on progress in developing the sustainable energy work programme.

2. Background

At the Regional Sustainability Committee meeting held on 25 February 2009, the following sustainable energy actions for the Wellington region were identified as areas in which to focus our work:

- wind generation
- domestic insulation
- domestic air tightness
- plug in light electric vehicles (LEV's)
- marine (tidal current)

Progress associated with developing each of these issues is explored in more detail in this report.

3. Comment

3.1 Energy Publication

Through the Energy Efficiency and Conservation Authority (ECCA), Greater Wellington has secured a one-off grant of \$25,000 (ex GST) to produce a publication that will act as a lay person's guide to the use and generation of energy, with particular focus on what's relevant to the Wellington regional situation. The publication will also be used to outline the areas that Greater Wellington is specifically focusing on to improve the region's energy performance, and to make the public aware of the region's potential energy resources.

Greater Wellington has engaged Mike Bodnar, an independent journalist to draft the text of the publication in conjunction with Greater Wellington staff,

and the publication will be produced in both an electronic and hard copy versions.

A draft contents page can be found at **Attachment 1**.

3.2 Wind Energy Generation

The growth in development of wind farms across the country, and region, has increased general interest in which locations wind farms might actually be located in the Wellington region. While our earlier work mapped wind speed and direction in the region, further work around what constraints might exist to wind development was also requested.

3.2.1 The regional wind profile

Nationally, just 8 wind farms are fully operational producing 380 MW, or 2.5-3% of New Zealand's electricity. This will increase to 512MW once all wind farms currently under construction are complete. Hau Nui (9 MW) near Martinborough was New Zealand's first multi-towered wind farm. Brooklyn Hill, a single tower turbine, was the country's first 'commercial' sized wind generator.

Meridian's WestWind (with a full operational capacity 143MW) in the southwest corner of the region is sufficient to power all the homes in Wellington City. Although officially commissioned in April 2009, it won't be fully operational until the end of this year. In order to keep up with the current rate of new electricity demand (2% p.a.), the country must build the equivalent of WestWind's generation capacity each year.

A further 24 wind generation projects are under various stages of progress around the country, of which four are in the Wellington Region:

- Mill Creek up to 71MW - subject to appeal
- Long Gully up to 12.5 MW - resource consent lodged & submissions received
- Puketiro - resource consent yet to be applied for
- Stoney Creek – under initial investigation

The Long Gully site is of interest because the turbines are a similar scale to Brooklyn, and the electricity will be fed directly into Wellington City, not the National Grid. Another wind energy generation site is also being investigated for northern Wairarapa.

3.2.2 Constraints mapping

To date, the nature, scale and location of multiple-tower wind farms has been ad hoc rather than planned at the regional level especially with respect to landscape values and aesthetics. As a result, there has been minimal indication where they are likely to be sited in the region which, for some communities, is a concern. This is not only the case in Wellington, but across the country and even globally.

One way in which to make an attempt to resolve this is to apply a constraint mapping exercise. This is where information layers are superimposed over a base map, progressively eliminating areas of potentially conflicting values, while highlighting relatively sympathetic factors. In this case these layers denote activities or values that may influence where wind farms might be located.

It is important to emphasise that the outputs of this exercise do not allow interpretation down to a scale of individual land holdings or specific geographical features. It also does not mean that wind farms will necessarily be constructed in these areas.

The constraints mapping exercise simply indicates what parts of the region, viewed at a broad regional scale, may be potential wind energy generation areas. This exercise does not consider RMA issues, or issues such as site-specific wind flows, the proximity of housing, landscape values, bird life, land and water ecosystem values, proximity to transmission lines, sound, slope stability and access.

The constraint mapping process has shown that typically, areas classed as unsuitable for wind generation commonly had multiple factors that would indicate a wind farm would unlikely be sited there. For instance, the valley floors are not only characterised by low wind speeds, but they may also be flood prone areas, have high value soils, be urbanised areas or subject to liquefaction, or be transport corridors.

This constraints mapping exercise does, therefore, go some way to demonstrating which parts of the region have the least constraints and would therefore be the more likely locations for wind energy generation. **Attachment 2** shows the areas with least constraints to wind energy generation in the region using this exercise.

A secondary part of this exercise was to 'test' the outcomes against the actual locations of Wellington's existing or proposed wind generation sites. In all cases, the existing or proposed wind generation sites coincide with areas that are shown to have relatively few constraints, bearing in mind the broad scale of the mapping exercise.

Broadly speaking, the mapping constraints process has shown that when excluding those areas already under development, or already known as proposed wind farm sites, the main other areas identified with lesser constraints to development were those on the eastern Wairarapa hills. This does not mean that wind generation should or will occur here. Rather, this area has relatively few constraints. One obvious draw back for this area would be the current lack of proximity to the National Grid (compare this aspect with West Wind, Mill Creek and Puketiro).

Elements of the work undertaken on wind energy in the region to date will be included in the energy publication referred to in section 3.1.

3.3 Domestic Insulation and Air Tightness Scheme

The change of Government brought about the demise of the \$1B domestic installation scheme, only to be replaced by a new domestic insulation clean heating scheme allocating \$323.3 million over 4 years to retrofit 180,000 homes throughout the country – proportionately, the Wellington region should account for approximately 18,000 of these homes.

Greater Wellington officers have since been working with central government (EECA) to help develop this scheme. Apart from helping determine the overall workings of this scheme, Greater Wellington has been instrumental in determining how local government's rating mechanism could potentially be used to help spread the remaining costs over and above the grant homeowners receive from EECA.

This work has been totally consistent with Greater Wellington's Energy Work Programme areas, namely to manage energy demand through conservation and energy efficiency measures.

This issue is the subject of a separate paper to the Committee.

3.4 Plug in Light Electric Vehicles (LEV's)

Greater Wellington's role with respect to LEV's was to keep a 'watching brief' on Meridian Energy's trial of electric cars that occurred in Wellington in February. In relation to the trial, Meridian staff have noted that they:

- were overwhelmed by the interest shown
- were impressed with the ease with which people could operate these cars
- thought LEV's would be highly suited as commuter vehicles in the city environment
- expect a good uptake when they become readily available
- are encouraged that Central government is potentially removing the road user charge on LEV's
- are currently planning further LEV trials possibly with other vehicle manufacturers. These have yet to be announced.

3.5 Solar

To date no action has been taken by Greater Wellington officers with respect to advancing the use of solar energy in the Wellington Region. However, with Nelson becoming New Zealand's first pilot Solar City, Greater Wellington staff will contact Nelson council officers to determine, in principle, whether action could also be taken in this region as a means of initiating better use of solar energy.

3.6 Marine Energy

Greater Wellington has been liaising with Grow Wellington with their programme to establish a Centre of Excellence for Sustainable and Renewable Energy. In particular, Grow Wellington is working with EECA and the

European Marine Energy Centre (EMEC) to explore the potential of establishing a southern hemisphere marine energy research and testing facility in Wellington. The Centre of Excellence for Sustainable and Renewable Energy is the third Centre of Excellence being explored by Grow Wellington under the auspices of the Wellington Regional Strategy.

Grow Wellington will be bidding to New Zealand Trade and Enterprise in July for up to \$300,000 of funding from the Regional Strategy to help with some of these projects, with a particular focus on the Marine Energy Testing Centre as a key industry development initiative.

EECA is also investigating issues around the allocation of marine energy resources, especially given the government's target of 90% renewable electricity generation by 2025. At the time of writing this paper, a draft version of a report on this issue had been prepared, but not yet released. The findings of this report will be of particular significance to ensure the efficient and appropriate use of Cook Strait's tidal current energy potential, in the event this is possible.

Greater Wellington officers will continue to work closely with Grow Wellington around the potential development of a Centre of Excellence for Sustainable and Renewable Energy.

4. Communication

No further communication is required at this time. Ongoing discussions with key parties will continue and given publicity when key outcomes are reached.

5. Recommendations

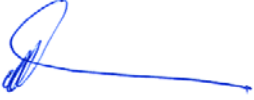
That the Committee:

1. **Receives** the report.
2. **Notes** the content of the report.

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Attachment 1: Draft Contents page

Attachment 2: Wind energy generation constraints maps