

**IN THE MATTER OF THE PROPOSED NATIONAL POLICY STATEMENT FOR  
RENEWABLE ENERGY GENERATION**

**STATEMENT OF EVIDENCE OF TODD STANLEY MEAD ON BEHALF OF  
MAINPOWER NEW ZEALAND LIMITED**

**1. INTRODUCTION**

**Qualifications and experience**

1.1 My full name is Todd Stanley Mead.

1.2 I am the Commercial Manager for MainPower New Zealand ("MainPower"). I have worked for MainPower since November 2004 as the Generation Development Manager responsible for the development of MainPower's Generation Strategy including the investigation and commercialisation of renewable generation projects. In February 2007 my title changed to Commercial Manager and my role was expanded to develop and manage MainPower's energy efficiency strategy, stakeholder relationships and business development functions.

1.3 My qualifications include a New Zealand Certificate in Mechanical Engineering 1987, Bachelor of Mechanical Engineering (First Class Honours) from Auckland University 1989 and a Masters in Engineering Management from Colorado University 1998.

**2. PURPOSE AND SCOPE OF EVIDENCE**

2.1 The purpose of my evidence today is to provide background information about Mainpower and by detailing MainPower's operations I hope to show you how important the Proposed National Policy Statement is for MainPower.

2.2 I will also make some brief comments on the National Policy Statement from MainPower's perspective, although the specific points have been addressed in legal submissions.

### 3. BACKGROUND TO MAINPOWER'S SUBMISSION

- 3.1 MainPower owns and operates the power lines used to supply electricity to the people and businesses of North Canterbury, and Kaikoura.
- 3.2 MainPower services households, farms, business and community organisations in its area.
- 3.3 The MainPower electricity distribution network delivers energy from Transpower's National Grid to approximately 32,700 customers, using 520 GWh of energy annually and carrying approximately 86 MW at peak demand.
- 3.4 In 2003 MainPower undertook a strategic review that looked at all aspects of its business including new growth opportunities.
- 3.5 The new corporate strategy and vision highlighted broadening the company's approach from its traditional narrow focus on the core electricity distribution business in North Canterbury and Kaikoura to including the development of a Generation Strategy. Local electricity generation from renewable resources was seen as a natural extension to MainPower's distribution business and could allow MainPower better control, increased security of supply and could offset the need for some distribution network investments.
- 3.6 MainPower's Generation Strategy was based on developing a robust understanding of the resources in the region that might be available to generate electricity. The next stage of the strategy was to identify and secure the generation opportunities and then investigate development options.
- 3.7 MainPower's vision is to be the **leading regional energy company in New Zealand**. Part of this vision includes looking for opportunities to use the region's abundant renewable resources to, ultimately, achieve energy self-sufficiency. Mainpower has made a conscious decision to use renewable sources of energy generation.
- 3.8 This decision by MainPower is part of a worldwide shift to renewable energy. The combined concerns of price, climate change and energy security have resulted in many countries establishing ambitious targets and policy

frameworks to encourage an increasing percentage of energy coming from indigenous renewable resources rather than from fossil fuels.

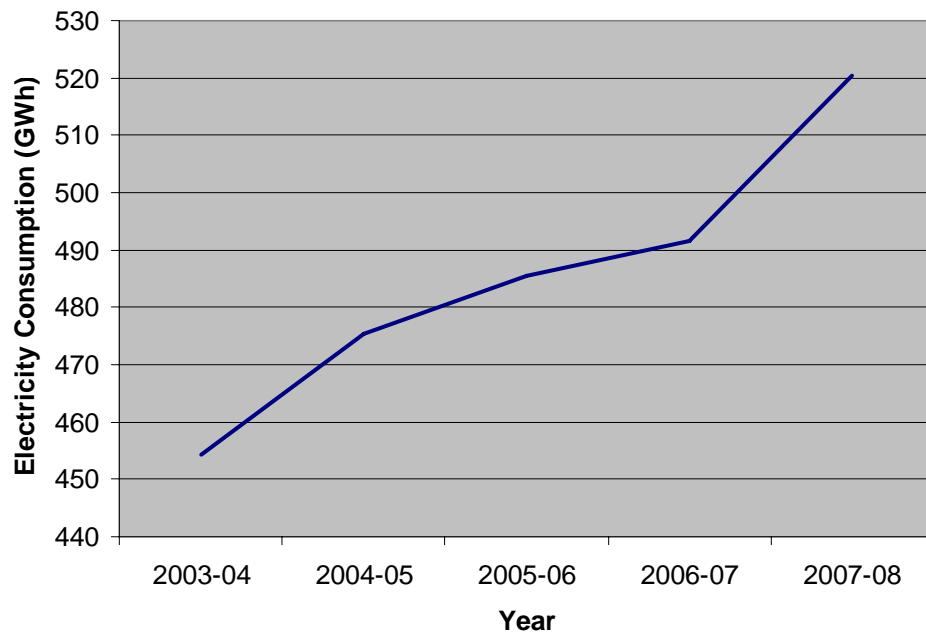
### **Regional Issues for Canterbury**

- 3.9 Environment Canterbury has sponsored the Canterbury Regional Energy Strategy Project. The Stage 1 report (April 2007) highlights the dependence of the Northern South Island on transmission links from the Waitaki Hydro schemes and an increasing reliance on thermal generation from the North Island<sup>1</sup>.
- 3.10 The impacts of this shortfall of local generation include; reduced security of supply and a high cost in transmission losses. Proposed solutions include developing more local generation incorporating diversity in both geographic location and energy source.
- 3.11 Within MainPower's region, the population and economic growth has exceeded the national average and the population (in Kaikoura, Hurunui and Waimakariri districts) is forecast to grow from 56,934, by 42%, to 80,690 by 2031<sup>2</sup>.
- 3.12 Electricity demand growth in MainPower's region has averaged approximately 4% pa for the last 5 years (ref Figure 2) and is forecast to continue to grow at around twice the national average - from 520 GWh at present - to 770 GWh by 2018.

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<sup>1</sup> Canterbury Regional Energy Strategy Project – Stage 1

<sup>2</sup>[www.dol.govt.nz/publications/lmr/regional/indepth/canterbury/aidr-canterbury-08\\_04.asp](http://www.dol.govt.nz/publications/lmr/regional/indepth/canterbury/aidr-canterbury-08_04.asp)



**Figure 2: Electricity demand growth in MainPower area of supply over past 5 years**

- 3.13 This high regional growth is driven by the encroachment of Christchurch's urban growth into the surrounding districts; irrigation and subsequent intensification of land use, and; increasing tourism activities in places like Hanmer, Kaikoura and Waipara. 'Clean Air' initiatives by Environment Canterbury and 'energy switching' from more expensive fossil fuels will also contribute to an increase in local electricity demand.
- 3.14 At present there is no electricity generation within MainPower's region. In November 2007, MainPower applied for resource consents to develop a windfarm at Mt Cass near Waipara. The application was heard by the Hurunui District Council in late 2008. Consent was declined on ecological grounds but has been appealed. Mt Cass was MainPower's first renewable energy project to reach the consenting stage and has the potential to supply up to 40% of the local region's energy needs.
- 3.15 MainPower continues to believe that wind is a viable and effective source of electricity generation for North Canterbury.
- 3.16 In New Zealand's high wind climate, wind can produce power at a cost that is competitive with other forms of generation. However, New Zealand's

installed wind generation capacity is lagging significantly behind these and other countries where government support has fostered a growing industry.

- 3.17 The fuel (wind) is free and everlasting which, in comparison with fossil fueled generation means that the future price of electricity from a site is more-or-less locked in at the time of construction. The recently released report into hydro and wind correlation by the New Zealand Institute of Economic Research confirmed "*the role of wind and hydro power in suppressing spot prices*"<sup>3</sup>
- 3.18 Wind's short-term variability also dovetails extremely well with New Zealand's base load hydro capacity which has fast start/stop capability. Wind "*varies less than lake levels, between months and between years*"<sup>4</sup> providing consistency over the long-term.
- 3.19 The environmental footprint of wind is low compared to other forms of generation because the land around the turbines (typically 97% of a site area) can continue to be used as it always has. Wind farms are 'reversible' - If future technology developments mean that wind energy is no longer required then the turbines can be removed and land restored substantially to its former condition.

### **Other Energy Initiatives**

- 3.20 MainPower is also currently investigating two mini-hydro projects. If both projects are developed they have the potential to supply up to 9.5 MW of power. MainPower has also recently been granted consents to build a 1MW mini-hydro station and has commenced detailed engineering design.
- 3.21 We have also recently completed a feasibility study on a small scale wind farm (8-10MW) using second hand turbines. We are now in the process of deciding whether to apply for resource consents.
- 3.22 Since 2004 MainPower has led energy efficiency in the North Canterbury community by promoting and part-funding a 'warm homes' insulation program in the North Canterbury and Kaikoura communities. In 2008 the 500<sup>th</sup> 'warm home' installation was completed, representing more than \$1

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<sup>3</sup> Exploring wind-hydro correlation, NZIER, September 2008

<sup>4</sup> Exploring wind-hydro correlation, NZIER, September 2008

million investment in installation retrofits in MainPower's community (funded approximately one-third by MainPower).

- 3.23 Other energy efficiency programs funded by MainPower include energy audits of large users, energy efficient light-bulb promotions, a school education programme promoting the efficient use of energy and seed funding to establish a new program to assess and improve New Zealand's home efficiency.
- 3.24 MainPower can also demonstrate a strong involvement in promoting small scale distributed generation technology.
- 3.25 Energy efficiency and small-scale distributed generation will remain important to MainPower. But alone, it will not be enough to off-set the growth in electrical demand.

#### 4. GENERAL COMMENTS ON THE NATIONAL POLICY STATEMENT

- 4.1 I do not propose to make detailed comments on the Proposed National Policy Statement as this will be covered in legal submissions and I am aware that the panel has read our original submission.
- 4.2 As we stated in our original submission, MainPower supports the Proposed National Policy Statement in principle, however we consider that the NPS in its present form does not go far enough.
- 4.3 Unless the National Policy Statement is strengthened we consider it is unlikely that New Zealand will be able to meet the goal of generating 90% of fuel from renewable sources by 2025.
- 4.4 When one reads the section 32 report, the issues facing promoters of renewable energy projects are clearly articulated. I am not however certain that these have been carried forward to the National Policy Statement policies.
- 4.5 Parts of the Proposed National Policy Statement, for example some of the comments in the preamble appear overly concerned with adverse environmental effects associated with renewable energy projects. Concerns about the environmental effects of renewable energy should not be reflected

in a National Policy Statement to support renewable energy. It is MainPower's experience that the effects of renewable energy projects are fully assessed through the Resource Management Act consenting process.

## **Policy 2**

4.6 I understand that the intention of the policy is to recognise that developers of renewable energy projects often face constraints as to how they can avoid, remedy or mitigate any adverse environmental effects associated with a renewable energy project, however as a layperson I have found it difficult to understand this policy. I am concerned that if the policy remains in this form that consent authorities and decision makers may also struggle to understand and apply the policy.

## **Policy 3**

4.7 We oppose the inclusion of a policy requiring decision makers to have particular regard to the reversibility of the adverse environmental effects associated with proposed generation technologies.

4.8 There are a number of forms of renewable energy generation that are by not particularly reversible, for example some forms of hydro development. The inclusion of this policy will seriously hinder the development of certain types of renewable generation. Although it is understood that this policy was included to offset large dams, recent experience from the United States indicates that given enough time these projects are indeed reversible.

4.9 The reversibility of effects (if relevant) is a matter that can be considered in the overall assessment of a proposal, however it is not a matter to which decision makers should have "particular regard" and it is not a matter that needs to be highlighted in the National Policy Statement..

4.10 Alternatively the policy should be amended to make clear that the policy is concerned with the relative reversibility of the effects of renewable energy generation when compared to non renewable generation.

4.11 A further difficulty with the concept of reversibility is that it implies that environmental baselines will remain relatively consistent. However, the impacts of climate changes may mean this is not the case.

## **Policy 4 and Policy 5**

- 4.12 As stated in our submission we support these policies but question why the timeframe needs to be so long. The present timeframe does not reflect the urgency required to ensure that New Zealand meets the stated goal of achieving 90% of fuel generated from renewable sources by 2025.
- 4.13 Renewable energy opportunities can be identified relatively quickly within a region or district.
- 4.14 Likewise objectives, policies and methods can also be developed relatively quickly.
- 4.15 Electricity generators will already have identified possible renewable energy projects. The timeframe for notifying amendments to policy statements and plans should be reduced so that the greatest number of potential renewable energy projects obtain the benefit of the provisions..
- 4.16 The provisions in the policy statements and plans should also ensure that smaller scale low impact renewable energy developments are relatively easy to consent. For example the small scale wind development I referred to earlier I believe that this type of development should not have to face the expected consent hurdles of a large scale windfarm, ie, local councils should have some sort of supportive policy in their plans.
- 4.17 Thank you for the opportunity to present evidence today, I am happy to answer any questions you may have.

**T Mead**

**April 2009**