IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of the Proposed Horizons One Plan

STATEMENT OF EVIDENCE OF ROBERT GRAHAM HUNTER

1. INTRODUCTION

Qualifications and Experience

1.1. My name is Robert Graham Hunter. I am the Manager – Environmental Strategy and Policy for Mighty River Power Limited ("Mighty River Power" or "the Company") and have held that position since 2006, having previously been in the role of Generation Resources Manager since 2003. My responsibilities include the lead role in the policy and planning area of Mighty River Power, as well as understanding and developing strategy for Mighty River Power in the broad field of the Resource Management Act 1991 ("RMA"). This role also involves providing advice to aid the understanding and implications of central government policy on the company, and developing international drivers for various initiatives impacting on operations.

1.2. I hold a Bachelors degree in Civil Engineering from the University of Auckland and a Post Graduate Diploma in Business Studies from the University of Waikato. I am a member of the Institute of Professional Engineers Inc, the New Zealand Water and Wastes Association and the Resource Management Law Association. I have also gained certification in the RMA: Making Good Decisions programme.

1.3. I have been involved in the energy industry for 5 years, with approximately 25 years' experience in industry in New Zealand, the past 18 of these involved with environmental management and the RMA.

Purpose and Scope of Evidence

1.4. I am authorised to give evidence on behalf of Mighty River Power.

1.5. The purpose and scope of my evidence is to outline Mighty River Power's role and commercial and environmental objectives, and to comment on the significance of the Proposed One Plan for existing and potential electricity generation capacity from the use and development of energy resources in the Horizons Region.

1.6. My evidence will:

1.6.1. explain Mighty River Power's core business and corporate values;

1.6.2. explain the importance of electricity to the economy and society and factors leading to an increase in the demand for electricity;

1.6.3. outline the state of energy supply and demand in New Zealand;

1.6.4. discuss the influence of climate change policies on energy generation in New Zealand; and

1.6.5. discuss the implications of the Proposed One Plan for existing and future electricity generation activities.

2. MIGHTY RIVER POWER LIMITED

2.1. Mighty River Power is a State Owned Enterprise established under the State-Owned Enterprises Act 1986.

2.2. Mighty River Power's principal operations are electricity generation and energy retail activities. Mighty River Power has over 340,000 customers, employs 680 staff, is the fourth largest electricity generator in New Zealand (based on electricity produced annually) and the third largest electricity retailer (based on customer numbers).

2.3. Mighty River Power produces electricity from renewable energy and other energy resources and sells energy and energy-related services and products to retail and wholesale customers.

2.4. The scope of Mighty River Power 's business relating to the Proposed One Plan is:

2.4.1. securing fuel to meet long term energy needs;

2.4.2. managing fuel reservoirs; and

2.4.3. conversion of fuel into higher value energy forms, particularly electricity.

2.5. Mighty River Power's objectives include being a leader in achieving the purpose of sustainable development for the communities in which it operates through world's best management of hydro, geothermal and other fuel resources.

2.6. In achieving this purpose Mighty River Power will:

2.6.1. Continue to seek efficiency enhancements from current generation systems as new technologies provide opportunities to gain additional output from existing plant.

2.6.2. Maintain and develop a portfolio of generation assets with fuel diversity.

2.6.3. Continue to encourage energy efficiency at the end user level.

2.6.4. Continue to monitor and review prospective renewable energy generation and end-use efficiency technologies to ensure that, when these are considered commercially capable of making a material contribution to New Zealand's energy requirements, Mighty River Power are part of that development.

2.6.5. Extend the breadth of Mighty River Power's involvement across a full range of sustainable development activities, in particular providing leadership and direction in the energy field.

3. MIGHTY RIVER POWER – COMMUNITY FOCUS

3.1. Mighty River Power is an organisation that has an informed sense of social responsibility. It seeks to enhance the communities in which it operates by supporting them when it is able to do so. By way of example, it is a founder and ongoing supporter of the Maungatautari Ecological Island Trust which has established a mainland based

"island" south of Cambridge through the construction of a pest proof fence around Maungatautari Mountain. The ultimate aim is the reintroduction of endangered native species such as Kiwi and Kaka with the expectation that the "island" will become a regionally significant tourism and educational centre.

3.2. The Company has committed to maximising the economic benefits of producing electricity while minimising negative environmental impacts and positively contributing to the wellbeing of its communities.

4. MIGHTY RIVER POWER'S CORE BUSINESS

4.1. The business fundamentals of Mighty River Power involve the investment of significant amounts of capital in assets with lives of 30 to 100 plus years that are generally dependent upon the management of natural resources and their associated effects.

4.2. The sustainability of the Company's business is dependent on an ongoing ability to utilise and manage natural resources, and on national, regional and territorial planning frameworks providing a regulatory environment that recognises the necessity of electricity generation.

4.3. At the heart of Mighty River Power's business activities is the generation of electricity. On average, the generation stations it owns or operates generate a total of around 6,000 gigawatt hours (GWh) annually. This represents approximately 15% of New Zealand's current electricity requirements. Mighty River Power's generation assets encompass hydro, geothermal, thermal (gas) and bio-energy (recovered methane) power stations.

4.4. The Waikato hydro system provides the majority of the Company's electricity generation, averaging 4,100 GWh per year. The actual amount of energy generated by the Waikato hydro system varies from season to season and year to year depending on how much rainfall there is in the various catchments, as it does for all of New Zealand's hydro systems. The range of variation in the Waikato system has been between 3,300 GWh and 5,400 GWh over the past 20 years.

4.5. Mighty River Power has a significant and growing portfolio of geothermal assets. At present the Company's assets include the recently completed and commissioned

100MW geothermal power station at Kawerau, a shareholding in the Tuaropaki Power Company's 113MW geothermal power station at Mokai near Taupo, which Mighty River Power operates and manages on behalf of Mighty River Power and its co-shareholder - the Tuaropaki Trust - and a 33MW geothermal power station at Rotokawa near Taupo which the company owns and operates in partnership with Tauhara North No. 2 Trust.

4.6. Mighty River Power is undertaking the largest geothermal exploration and expansion programme in New Zealand in the past 20 years. This programme involves the investment of more than $1 billion to develop some 400MW of new geothermal generation capacity over the next five years. As part of this programme the Company has recently obtained consent to develop the 132MW Nga Awa Purua power station alongside its Rotokawa plant which will roughly quadruple output from the field, and has commenced drilling operations at Ngatamariki.

4.7. The Company owns and operates bio-energy power stations that recover methane gas from landfills at Rosedale and Greenmount in Auckland, and a new facility at Tirohia just outside Paeroa. The total capacity of these three stations is 10MW.

4.8. In terms of thermal power generation, Mighty River Power owns the 175MW Southdown gas fired co-generation plant near Auckland, which produces steam for an industrial heat customer in addition to electricity.

4.9. Over 85% of Mighty River Power's electricity production is from renewable hydro and geothermal resources. This compares with approximately 70% of New Zealand's total electricity production being from renewable energy resources in an average hydro year.

4.10. Mighty River Power has acquired a stake in New Zealand wind turbine developer and supplier, Windflow Technologies Limited. This is a further indicator of Mighty River Power's intentions for ongoing development of renewable electricity generation in New Zealand.

4.11. Mighty River Power is currently working through the process of consenting the Turitea wind farm in the Manawatu, which is planned to have a capacity up to 360MW when completed.

5. ELECTRICITY SUPPLY AND DEMAND

5.1. Electricity is an essential commodity in a modern economy, often with no alternatives. New Zealand's economic and social wellbeing are inextricably dependent on a secure and cost effective electricity supply system.

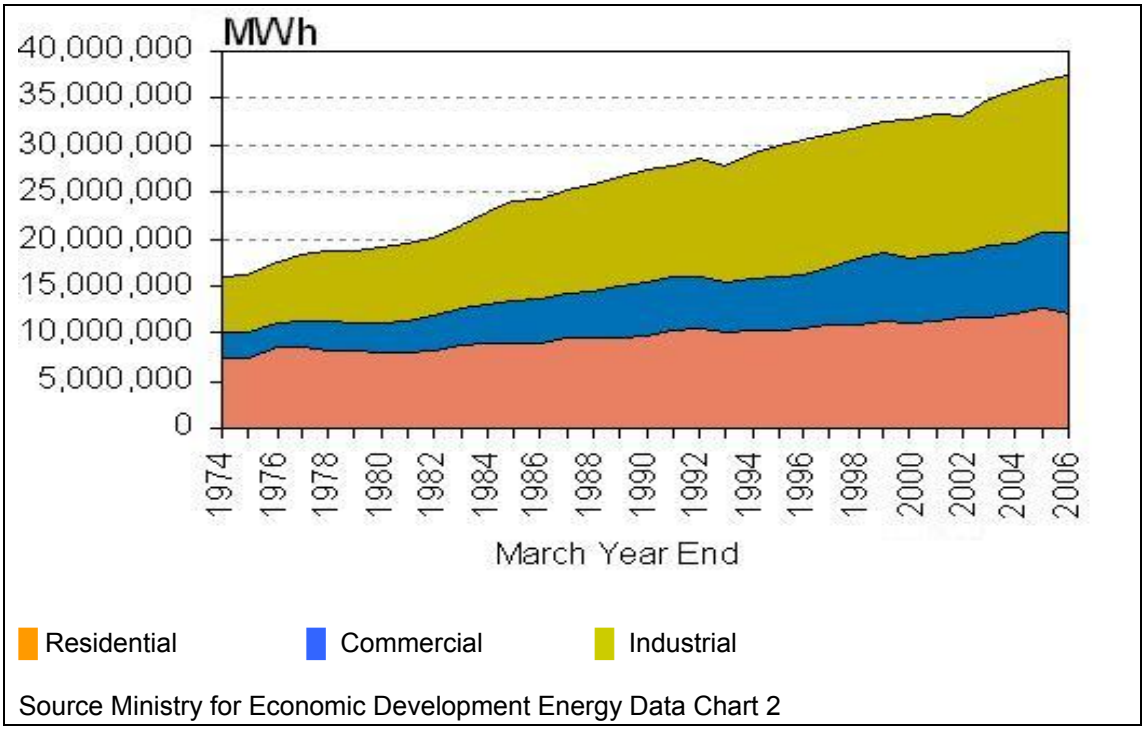
5.2. New Zealand's remote geographic situation means that it is important that the New Zealand electricity system is self reliant and that the means of electricity production must be diverse and stable.

Demand Forecast

5.3. The Electricity Commission's May 2007 National Demand Forecast predicts that New Zealand's demand for electricity will continue to grow for the foreseeable future. The growth in electricity demand is illustrated in Figure 1 for the period 1974 to 2006. Electricity generation increased in 2007 to 42,374 GWh[1], which is shown in Figure 2. The difference between these two figures is the losses that occur between electricity generation and final use. The demand for electricity in New Zealand has grown on average by around 2.3% per annum since 1980 to its current level of around 40,000 GWh. In some years, demand growth has been around 1% while in others it has exceeded 3% to 4% and current forecasts range from 1.3% through to 2.5% per annum over the next 25 years.

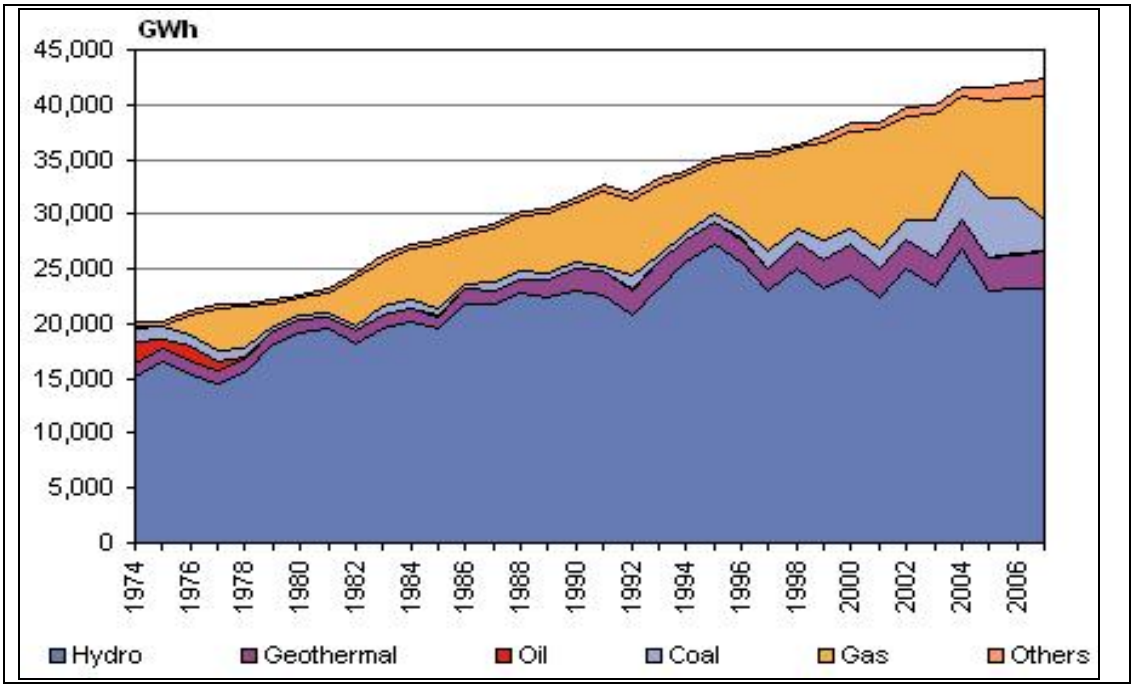
[1] Ministry for Economic Development Data Electricity Generation, www.med.govt.nz

Figure 1 Electricity Consumption by Sector[2]



Source Ministry for Economic Development Energy Data Chart 2

Figure 2 Electricity Generation by Fuel Type



[2] http://www.med.govt.nz/templates/ContentTopicSummary____21417.aspx

Supply Options

5.4. The attached Figure 3 (located at the end of my evidence) shows the historical and forecast demand growth (the red line). Figure 3 shows the electricity generation supply provided by various fuel types. The figure also identifies the hydro capacity by inflow in three broad classes, being "Hydro Wet", "Hydro Normal" and "Hydro Dry", to indicate generation capability when the hydro inflows are high, normal or low in any particular year, as a result of precipitation.

5.5. Figure 3 also provides an insight into the concerns being expressed in relation to the provision of sufficient generation capacity to meet this forecasted demand. The ongoing increases in generation capacity have clearly been able to meet historical demand in a way which has meant that under most scenarios there was not a shortfall caused by low inflows. This is evidenced by the demand line being generally within the band of "Hydro Dry" generation.

5.6. It should be noted that during the period of 2003 through to 2006 the demand was only able to be met by inflows being at least normal and there were years within that period when shortages were experienced as a result of lower than required inflows. Over the past 5 or so years then it has become evident that New Zealand has been relying on wet year rainfall to fuel hydro generation in order to maintain the electricity supply reliability we have all come to take for granted. This has left the nation, both socially and economically, at the mercy of the weather and forced to accept the long term risk on the stable provision of electricity to meet increasing demand. This situation arises when the ability to generate from the hydro systems around New Zealand is constrained by inflow conditions resulting in insufficient water being available. Under the "Hydro Dry" year scenario the electricity supply requirements to meet the demand are met by using non-hydro renewable and thermal generation capacity.

5.7. I have produced Figure 3 to show the level of risk in the supply of electricity to meet demand based on the mix of generation capacity available in New Zealand at any time. The figure clearly shows that there have been years when electricity supply would have been constrained if the inflows had been low.

5.8. Figure 3 clearly shows that looking at the future predictions of demand growth and electricity generation capacity increases there is an increased likelihood that the situation could become more critical and depends on generation options available. Concerns in terms of ability to supply demand arise from the uncertainty in thermal electricity generation resulting from changes in domestic gas availability. Given the current assumptions about the amount of electricity generation available this could result in years that will rely on high hydro inflows to meet demand.

5.9. As we look into the future this shortfall is likely to get worse unless moves are made to provide for additional, probably renewable, generation capacity to be installed.

Factors in the Electricity Demand Growth

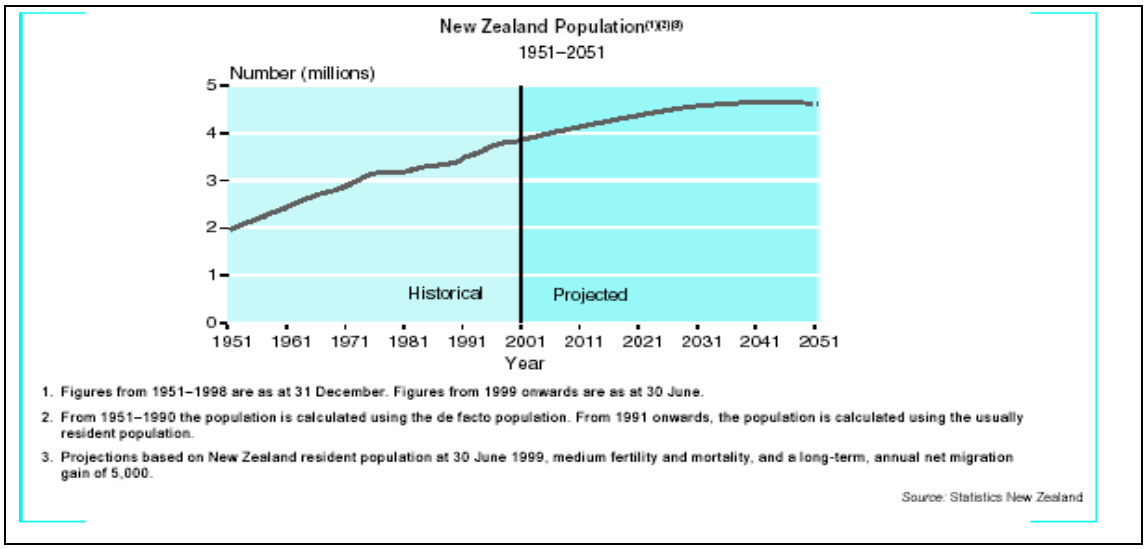
5.10. At the same time that New Zealand has been facing increasing demands for the provision of electricity supply, the expectations around the stability of the electricity supplied have significantly increased, in terms of frequency and voltage. This expectation has occurred as a result of the dramatic increases in the use of digital technology in all facets of our lives and economy and the requirements this places on supply in order to avoid upsets. It is far easier to maintain stability when the electricity supply system is not working at or near maximum capacity as is the case in New Zealand at the current time.

5.11. Although there have been significant improvements in the efficiency of use of electricity in our economy the overall demand for electricity has increased as more technology has been introduced. This ranges from the increase in the average size of television set in our homes to the number of computers used by students involved in the education system at all levels to the significant increases in electricity use in industry and agriculture as the New Zealand economy continues to grow.

5.12. The New Zealand population is projected to increase at a modest rate, as Figure 4 illustrates, which will also contribute to increased demand. It must be noted that this is just one of a number of population growth projections for New Zealand and is at the lower end of the range of projections. The range varies from 4.8 million to 6.6 million by 2061. It must be recognised that in order for the economy to continue to grow and

develop the demand for electricity will continue to increase and that any constraints imposed by lack of capacity in the ability for supply to meet the demand will result in economic uncertainty and slowing of growth.

Figure 4 New Zealand Population Growth - Historical and Projected



5.13. Historically New Zealand has relied heavily on hydro electricity and since the 1980's Maui gas fired generation. However, with the depletion of the Maui gas fields and an increasing demand for energy, New Zealand has become increasingly reliant on what are varying rainfalls to sustain hydro generation. It is difficult to envisage future large scale hydro projects being developed in New Zealand given difficulties in gaining public acceptance and expected costs.

Renewable Energy Generation Targets

5.14. I will discuss the issues of climate change and its impact on the New Zealand economy later. However, one of the matters arising from the response to climate change is relevant to this discussion, namely the target introduced by the New Zealand Energy Strategy and the New Zealand Energy Efficiency and Conservation Strategy of 90% renewable electricity generation by 2025. The current level of electricity generation from renewable sources in an "average year" is of the order of 70% of the supply and the current demand for electricity is of the order of 40,000 GWh annually. Figures 5-7 show the projections for annual demand growth of 1.5%, 2% and 2.5% respectively and

it can be seen that by 2025 the demand will have grown to between 52,000 GWh and 62,000 GWh. Viewed in isolation this is an increase in demand of between 12,000 and 22,000 GWh and many commentators are expressing a view, which I agree with, that this growth can be met by construction and commissioning of renewable electricity generation facilities.

Figure 5 Electricity Supply Projection based on Growth in Electricity Demand at 1.5% per annum

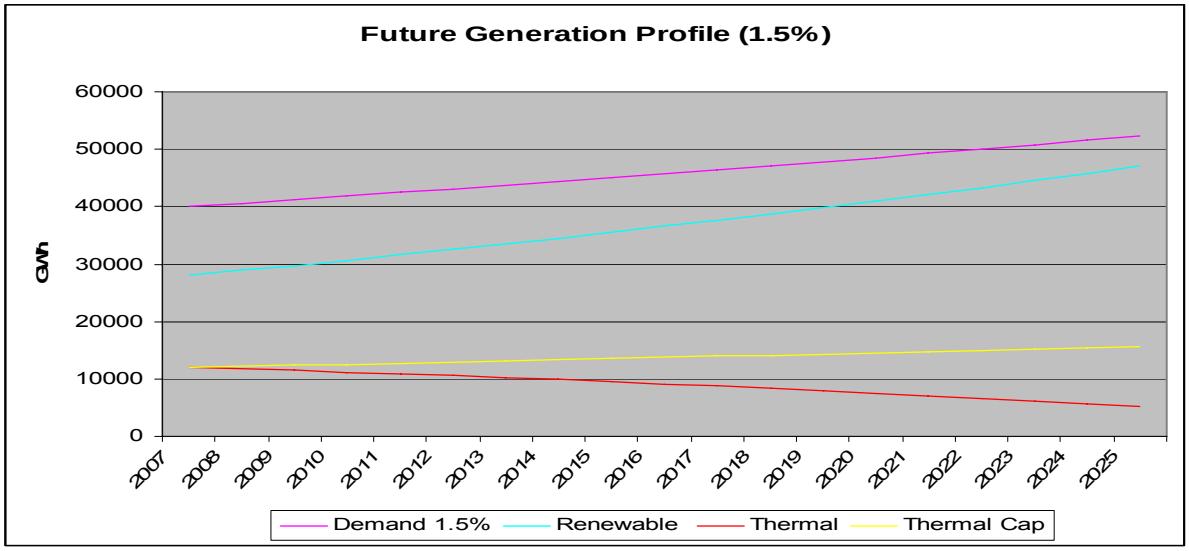


Figure 6 Electricity Supply Projection based on Growth in Electricity Demand at 2.0 % per annum

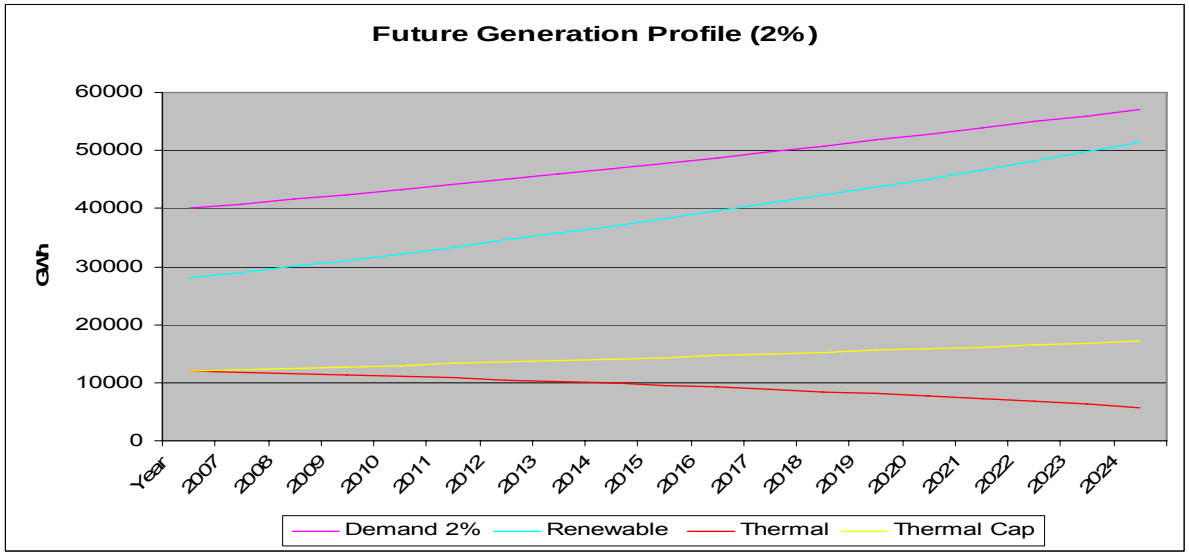
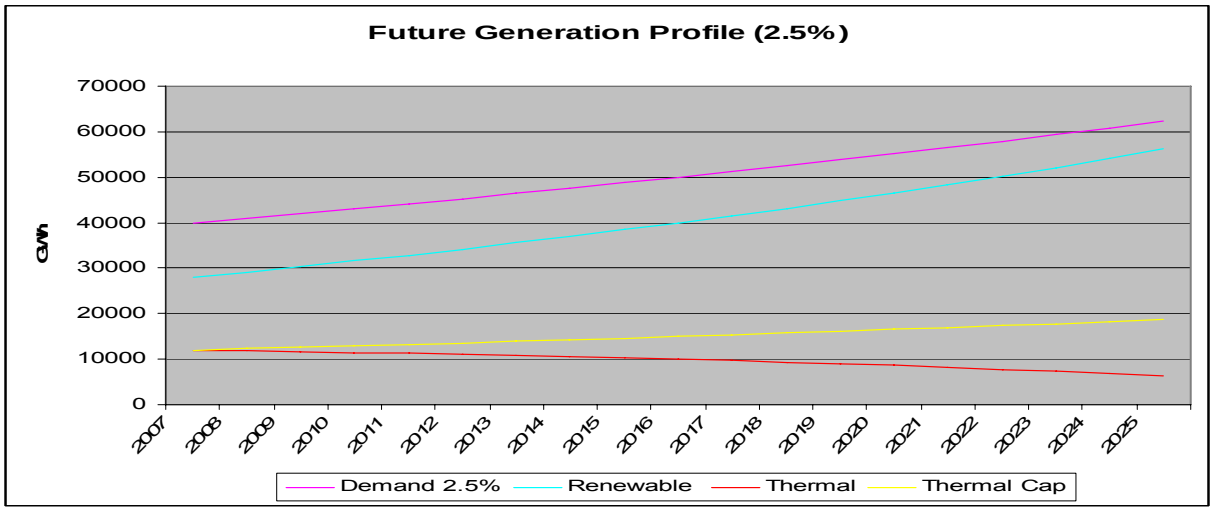


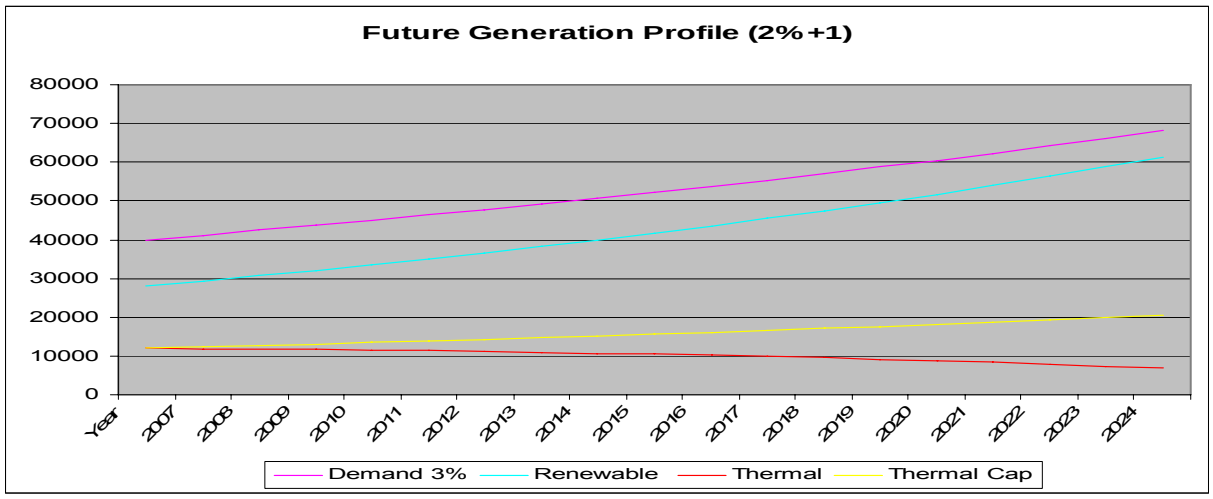
Figure 7 Electricity Supply Projection based on Growth in Electricity Demand at 2.5% per annum



5.15. However the future picture is altered significantly if the requirement is to meet the target of 90% renewable electricity generation by the 2025 date. To achieve this, the amount of renewable electricity generation required to displace current thermal generation in an average year would be between 19,000 and 28,000 GWh, as identified in Figures 5 to 7. This target will require a significantly greater level of commitment by the whole economy to achieve.

5.16. These expectations for growth in demand for electricity do not currently include an allowance for the ongoing substitution of fossil fuel by electricity in transport and stationary energy. It is realistic to expect this could add up to 1% to the demand growth over the next 30 years. This is a reflection of the Governments expectations for the uptake of electric traction in transport with a parallel change in non-transport energy provision and is illustrated in Figure 8 which shows the impact of a 2% growth assumption and the additional 1% growth to allow for substitution.

Figure 8 Demand Growth of 2% and an additional 1% for substitution



5.17. The outcome of this assessment indicates that the demand under this scenario will rise to some 68,000 GWh annually. If the target of 90% renewable by 2025 is to be achieved there is a requirement for a renewable capacity of 61,250 GWh to be installed.

5.18. This means that New Zealand will have to look to develop its hydro, geothermal, biomass, wind, solar, wave and tidal energy resources. The introduction of the emissions trading scheme will favour the use and development of renewable energy resources. Opportunities for such development need to be maximised in the national interest.

Thermal Generation Required for Security of Supply

5.19. We now need to consider this future scenario set alongside the understanding we have from Figure 3 in this evidence and realise that security of supply cannot be maintained by development of renewable electricity generation capacity alone. If we needed any further proof of that late last year the summer/autumn dry period of early 2008 has brought home the need for thermal plant capacity to be available for the instances when the risks of low inflows of hydro water become too much and the economy cannot continue to function normally by relying on the installed renewable generation capacity.

5.20. Currently the capacity in New Zealand for generation from thermal plants is of the order of 30% of capacity, and for the sake of this scenario this is an appropriate level to

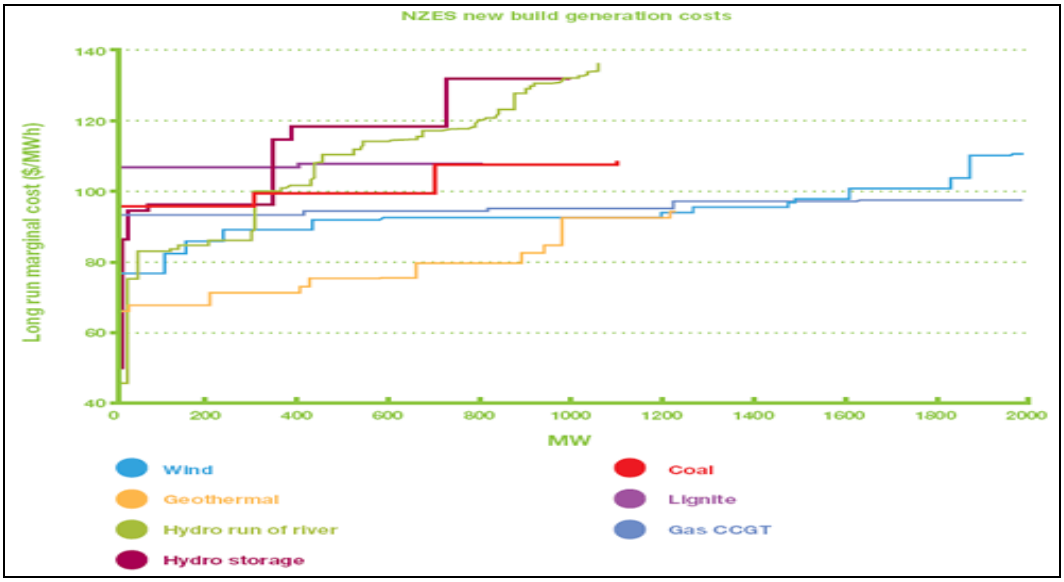
maintain. In aiming to maintain this security of supply the level of thermal generation capacity required by 2025 will be between 16,000 and 19,000 GWh compared to the current level of capacity of some 12,000 GWh. This means that along with the significant amounts of renewable electricity generation required to be installed there is also an increase in the thermal capacity of the order of 50% required in order to maintain the security of supply into the future.

Levels of Diversified Generation Required

5.21. Against the backdrop of increasing demand and diminishing supply, it is critical that existing energy infrastructure is maximised and opportunities to increase and diversify New Zealand's generation capacity, and in particular renewable generation capacity, are fostered.

5.22. Figure 9 shows the range of costs associated with the provision of new electricity capacity. When installing any generation plant it is important to understand that the capacity of the plant in Mega Watts (MW) is only a measure of the instantaneous output potential of the plant and the critical measure is the longer term generation capacity of the plant as a supplier into the market to meet the annual demand. This output is measured in GWh and is influenced by the type of plant and availability of fuel. The 'capacity factor' is a measure of comparing these two variables.

Figure 9 Typical Costs for New Electricity Generation by Fuel Type[3]



5.23. The National Policy Statement for Renewable Energy Generation uses capacity factors of 40% for wind, 53% for hydro and 90% for geothermal generation. By converting the MW output of a plant and including the capacity factor we can arrive at an estimate of the total amount of annual generation likely. If we consider a base of 1000MW installed capacity the output for a wind plant is of the order of 3000 GWh annually with hydro at 4800 GWh and geothermal generation at about 8300 GWh. By comparison a theoretical 1000 MW thermal plant running at capacity would have an output of 8760 GWh annually.

5.24. If these factors were applied to all of the renewable electricity generation shown in Figure 9 almost all of it would be required to be installed in order to meet the 90% renewable generation target by 2025, as identified in Figures 5 to 7.

5.25. It is essential to the provision of a secure supply of electricity for the New Zealand economy that all generation opportunities remain available for development. Failure of the One Plan to allow for this future opportunity will result in the 90% renewable by 2025 being put at risk.

[3] Source New Zealand Energy Strategy to 2050 – Powering Our Future Towards a sustainable low emissions energy system" October 2007, New Zealand Government, Ministry of Economic Development, Figure 5.7 (updated August 2007).

6. CLIMATE CHANGE POLICY

6.1. New Zealand has made an international commitment[4] to reduce greenhouse gas emissions to 1990 levels during the initial Kyoto Protocol commitment period (2008 to 2012). This has significant implications for New Zealand, noting that on current predictions, New Zealand faces economic impacts during the first commitment period which range from $0.25 billion surplus to a deficit of up to. $1.2 billion[5].

6.2. To comply with its obligations under the Kyoto Protocol and beyond, New Zealand must look to reduce its emissions of greenhouse gases in all sectors of the economy including the current reliance on thermal generation by developing its renewable energy resources.

6.3. The New Zealand Energy Strategy sets a target of 90% of the country's energy being supplied by renewable energy generation by 2025. Government policy is that it is *"in New Zealand's longer-term economic and environmental interests to meet increases in [electricity] demand through an economic mix of renewable energy sources..."* The Government expects to achieve this outcome through:[6]

> *"Maximising the contribution of cost-effective renewable energy resources while safeguarding our environment."*
>
> *"Aggressively pursuing existing and new renewable-based electricity generation."*

6.4. As became evident during 2008 hydro fuel (water) shortage the provision of sufficient thermal generation in order to maintain the security of supply is key to success in the plans to generate a higher proportion of New Zealand's electricity from renewable sources. This means that in abnormal years demand can be met from thermal generation which is not normally needed to make up the shortfall.

6.5. The challenge ahead of us all becomes more difficult as we pause now to reflect on the international situation beyond the current Kyoto commitment period ending in 2012.

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[4] In 1997, New Zealand signed the Kyoto Protocol on greenhouse gas emissions. The Protocol has now been ratified.
[5] http://www.climatechange.govt.nz/about/kyoto-provision.html
[6] New Zealand Energy Strategy, pages 15, 36.

New Zealand has a target in this first period to reduce its Greenhouse Gas (GHG) emissions to the level of 1990 emissions by 2012, and currently emission rates are at about 1990 levels plus 30%. However the Annex 1 countries, along with those of the G8 are now beginning to discuss reductions of the order of 50% below 1990 emission levels by 2050, and 40% reductions from current levels by 2020. These are not agreed targets but are an indication of the debates currently being held internationally which will inform our domestic policy in the future. The outcome of these current debates will, in all likelihood, result in a strengthening of the requirements for renewable electricity generation in the future.

7. MIGHTY RIVER POWER IN THE HORIZONS REGION

7.1. Mighty River Power's Waikato hydro system relies, to some extent, on water that is diverted from the Horizons Region as part of the Tongariro Power Scheme. Mighty River Power wishes to ensure that the importance of this diversion is recognised and provided for in relevant planning instruments.

7.2. There may also be other hydro generation opportunities within or connected to the Region that can be developed in the future. For these reasons the Company has an interest in ensuring that renewable energy issues and water allocation questions within the Region are addressed in a way that preserves existing hydro generation potential and does not unduly restrict new development.

7.3. An important feature of the Waikato Hydro System is the storage role of Lake Taupo which represents 13% of New Zealand's maximum national hydro storage capacity when assessed against the hypothetical situation of all of the storage lakes being at full storage. The majority of the balance of storage is provided by the South Island hydro lakes. Continued availability of inflows to Lake Taupo is therefore critical to the security of supply scenarios that I have outlined above.

7.4. The Horizons Region also contains other energy resources with significant potential to benefit New Zealand's energy supply. The quality of the wind resource on the Tararua and Puketoi Ranges is virtually unparalleled both in New Zealand and internationally.

7.5. As Mr Nash will outline in his evidence, the Company is exploring further wind energy developments in the Region. He will identify the considerable wind resource that is available in the Region. Wind energy generation can only be undertaken efficiently in locations where the wind is strong and reliable. The development of wind energy resources helps decrease New Zealand's dependence on hydro generation, and the vagaries of rainfalls and lake levels.

7.6. EECA's Renewable Energy Assessment for the Manawatu-Wanganui Region (2006) identifies a wide range of other renewable energy technologies that are or may become feasible power generation options, including: solar energy collection; hydro; biomass using a variety of fuels; geothermal; and a range of emerging marine generation methods utilising wave, tide and current energy. As market conditions change or technologies improve a wider range of these options may be worthwhile pursuing within the Region.

7.7. Energy generation activities within the Horizons Region benefit not just New Zealand generally, but the Region in particular. Economic benefits flow from the construction, maintenance and employment associated with the energy industry, as well as the resulting increase in regional generation and reduction in imported electricity. This has benefits in the efficiency of transmission of electricity as well as improved security of supply for the region.

7.8. Mighty River Power views the Horizons Region as the one of the most important regions in the country in terms of the significant potential and opportunity for the development of renewable energy projects. In coming to this view recognition has been given to the issue of transmission of electricity, which I will now discuss.

8. IMPLICATIONS

8.1. Opportunities such as the process to develop the Proposed One Plan which we are currently engaged in cannot be overlooked in order to make the appropriate provision for renewable energy development and use.

8.2. Renewable energy has a number of potential benefits that should be given recognition in the Horizons One Plan. Mr Peterson will explain how this can be achieved. Some of the key benefits of new electricity generation from renewable energy sources are:

8.2.1. a positive contribution to addressing the effects of climate change through low emissions of greenhouse gases;

8.2.2. the ability for New Zealand to satisfy current and future electricity demand and thereby enhancing the reliability and security of electricity supply;

8.2.3. utilisation of sustainable sources of energy for the long term benefit of the economy, people and communities; and

8.2.4. enhanced storage of energy for hydro electricity generation.

9. PROTECTION OF EXISTING RENEWABLE ELECTRICITY GENERATION CAPACITY

9.1. The most effective means of New Zealand achieving the long term targets of 90% renewable electricity generation by 2025 and security of supply is by ensuring that the existing renewable electricity generation capacity is provided for. The development of the Proposed One Plan provides an opportunity to ensure that renewable energy use and development is recognised and provided for and now is the appropriate time for this consideration and inclusion of policies to achieve this.

9.2. The provisions in the One Plan must provide for replacement consents for existing renewable electricity generation plants to be assessed without undue interference or barriers being present. The reconsenting process is extremely costly and places an unnecessary resourcing burden on owners, regulators and submitters.

9.3. For example the re-consenting process for the Waikato Hydro System required assessment of the impacts of the existing renewable hydro generation system against a baseline of no consent being granted. This resulted in a cost of tens of millions of dollars, 4 years of preparation, and 3 years of hearing, appeal and negotiations, all for a system which by any logical assessment was not going to be denied consent.

9.4. If the Waikato Hydro System had failed to be granted a consent the resulting loss of generation capacity in the upper North Island would have rendered the New Zealand electricity system unable to supply demand until a replacement 1000MW of generation was consented, constructed and commissioned and it is not likely that this would have been renewable generation.

9.5. The Waikato Hydro System provides a reliable source of electricity which if protected can be sustained over a long term. It plays an important role in meeting demand in the upper North Island where there has been a consistent increase in population and economic activity over previous decades. There are no other rivers in the North Island with comparable water resources that could provide this level of electricity generation. Strategically located and with the flexibility to meet peak demand the Waikato Hydro System is essential to security of electricity supply.

9.6. In such situations, if the existing plant has been operated in a responsible manner and within the requirements of the current consents such an onerous process is not justified. It is possible to develop a policy that provides for a controlled consenting process for such plant that allows for control to be exercised over the conditions impacting on the environment outside of the reasonable operation of the plant.

9.7. The Proposed One Plan needs to recognise and allow for existing consented and operational renewable electricity generation plant. The inclusion of such a policy would result in greater surety of ongoing operation of the existing generation capacity as well as enhancing the security of electricity supplies for present and future generations.

9.8. Mighty River Power seek the incorporation of a new policy into the proposed One Plan that should allow for existing consented and operational renewable electricity generation plant to follow a controlled re-consenting pathway with control being exercised only over the matters which can be changed in a way that does not impact on the plants ability to operate in an effective and efficient manner.

10. TRANSMISSION EFFICIENCY

10.1. The larger 'load centres' in New Zealand exist in the upper North Island, especially in the Auckland region. Electricity supply in New Zealand generally flows from south to north, because in the South Island, hydro electricity supply typically exceeds demand.

10.2. Along with provision of generation in amounts to satisfy the demand requirements of consumers in terms of availability, stability and security it is key that provision is made for sufficient transmission infrastructure to be put in place to allow the electricity supply system to work as required. A strong transmission system is essential to future electricity provision. We are seeing ongoing issues develop with transmission from provision of infrastructure, maintenance and upgrading of the existing infrastructure, constraints developing in the transmission network and issues of reverse sensitivity.

11. CONCLUSIONS

11.1. For the reasons set out in my evidence electricity is an essential commodity in a modern economy. People and communities expect a reliable electricity supply to match demand so that economic and domestic activities can continue to function.

11.2. It is appropriate to recognise the benefits of renewable energy and the contribution that generation of electricity from renewable energy can make to address the effects of climate change. To provide for a secure and reliable supply of electricity into the future, development of generation from diverse sources of energy is required.

Dated: 28 July 2009

Robert Graham Hunter
Manager – Environmental Strategy and Policy
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Figure 3 Electricity Demand and Supply