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Eastern Bay of Plenty: energising our community's future - together

SUBMISSION – POST 2013 REVIEW

To: Post 2013 Review
Electricity Group
Energy and Communications Branch
Ministry of Economic Development
PO Box 1473
Wellington

From: Eastern Bay Energy Trust
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Eastern Bay Energy Trust

1. Background

The Eastern Bay Energy Trust represents the 23,800 electricity consumers in the Eastern Bay of Plenty, and the energy related purposes in its Trust Deed require the Trust to proactively support a reliable and affordable supply of electricity, in particular to consumers in rural and remote areas of the Trust's district.

The Eastern Bay Energy Trust is the major (77.3%) shareholder in Horizon Energy Distribution Limited (formerly Bay of Plenty Electricity Limited).

2. Horizon Energy Distribution Limited

Horizon Energy's (and therefore the Eastern Bay Energy Trust's) region includes the Whakatane, Opotiki and Kawerau District Council areas, and Kaingaroa Village.

Horizon Energy has over 35% of its network created from lines which were subsidised by the Rural Electrical Reticulation Council (RERC) fund, which was set up to subsidise lines construction, mainly to farmers in remote areas, between 1948 and 1989 (post-war).

Of the 28 distribution companies in New Zealand, there are only four companies with a higher proportion of lines built with RERC subsidy.

3. Consumer advocacy

The Trust has an advocacy role on behalf of the 23,800 electricity consumers of the Eastern Bay of Plenty.

By demonstrating to the Electricity Governance Board Establishment Committee that the Trust's relationship with Horizon Energy Distribution Limited is totally commercial, and that through its activities it consults with its beneficiaries, listens to them and acts to support their interests, the Eastern Bay Energy Trust was one of only two energy trusts which received Electricity Governance Board voting rights.

4. Section 62 of the Electricity Act 1992) 'Continuance of supply'

The Trust has for some time been concerned about the implications for its beneficiaries, should subsection 6 of the Electricity Act 1992 not be repealed, and has worked with Horizon to identify those consumers who may be affected.

The Trust has proactively investigated various options for alternative supplies of energy to consumers in rural and remote areas, including undertaking a pilot study at Wairata in the Waioeka Gorge between Opotiki and Gisborne (see Appendix A).

Summary

1. The Eastern Bay Energy Trust submits that the Ministry of Economic Development should recommend to the Minister of Energy, that Subsection (6) of the Act be repealed; meaning that section 62 of the Act would no longer expire in 2013.

2. The Discussion paper released by the Electricity Group in August 2007 lists six options and indicative impacts for key stakeholders.

3. The Eastern Bay Energy Trust, on behalf of the 23,800 electricity consumers of the Eastern Bay of Plenty, supports option (a), continuance of obligation to maintain line function services with no expiry date, or alternatively, option (b), continuance of obligation to supply, using lines or alternatives, with no expiry date.

4. The Eastern Bay Energy Trust does not support options (c), (d), (e) or (f).

Kevin Hennessy
Chairman
27 September 2007

APPENDIX A

Debriefing for the Eastern Bay Energy Trust – Rural and Remote Lines Investigation - Pilot Project at Wairata

1 Background

This briefing has been prepared in relation to the Governments notice of intention to review the continuance of supply obligation on Lines Companies for lines built before April 1993. This obligation to supply will expire on 31 March 2013 unless legislation changes.

The Eastern Bay Energy Trust (The Trust) is an Electricity consumer Trust formed in 1994, when the District's Power Board was corporatised to form Bay of Plenty Electricity Ltd (BOPE). The 1999 electricity reforms saw BOPE's retail and generation assets sold to Todd Energy Ltd together with the trading name. That left the Trust owning 25% of the ensuing Electricity Lines Company Horizon Energy Distribution Ltd, which is listed on NZX. The Trust subsequently acquired a further 52% of Horizon and the Company has not changed its operations since 1999.

There are a number of potentially uneconomic electricity lines in the Eastern Bay of Plenty region which have been identified by Horizon and these may not be replaced by Horizon after 1 April 2013, when Lines Companies are no longer required, by the Electricity Act 1992 (Part 6 – Clause 62), to continue supply electricity through existing lines built prior to April 1993.

The Opotiki – Wairata SWER (Single Wire Earth Return) line is one of 12 currently identified by Horizon as "uneconomic" lines in the Horizon (Eastern Bay of Plenty) region. The Eastern Bay Energy Trust funded a pilot study into the various alternatives to grid connected electricity for the Wairata Valley residents. This SWER line has 27 ICP's (Installation Control Points) from approx. 30 km's of overhead line.

This pilot study was primarily focused on finding the cheapest and most reliable form of electricity generation for these rural and remote uneconomic lines.

2 Main Objectives of the Pilot Study

The main focus areas of the study were:

A) **Energy Audits** – to identify individual and collective electricity usage drivers, constraints, alternatives and opportunities for savings or alternative energy.

B) **Analysis of SWER Line Replacement & Annual Maintenance Costs** – a technical options analysis incorporating various maintenance and line life extensions analyses was completed together with estimated costs for the various options.

C) **Solar** – both solar water heating and photo voltaic's were studied.

D) **Hydro Generation Opportunities** – data recording was completed for a full year on a local river where it is possible to build a "run of the river" hydro scheme. Other localised small rivers and creeks were also examined for micro hydro generation opportunities. The larger river running through the area was considered but quickly discarded due to the environmental impact and Resource Consent difficulties.

E) **Wind Generation Opportunities** – the local area was analysed for wind generation opportunities.

F) **Comparative Studies** – the learnings of the 2 NIWA sites and the Totara Valley and other NZ sites were reviewed with the view to replicating successful solutions.

3 Key Learnings from the Pilot Study

A) **Energy Audits**:
The energy audits from each household show that electricity usage follows a similar pattern to domestic usage - peaks in the morning and evening with small continuous usage. There are a number of opportunities to reduce peak usage by changing appliances (stoves for cooking and heating, hot water heating to solar water heating, etc.) However, these appliances would generally be expensive to replace / install, be less convenient for the user and in the case of solar water heating less efficient due to locality issues (in steep valleys, etc.). There are issues with ineffective insulation in rural and remote areas, however, this has been a major initiative of the Eastern Bay Energy Trust for many years and limited assistance is available to residents in a number of areas in New Zealand through their local Trusts and ECCA and other funding partners.

B) **Analysis of SWER Line Replacement & Annual Maintenance Costs**:
A comprehensive analysis of options concluded that this line would require partial replacement around 2020. The analysis of the costs of maintaining the line shows that it is indeed uneconomic and therefore causing the Lines Company annual losses by being required to keep it operational – i.e. costs exceed revenues.
The cost of a total line replacement would be between $20,000 and $30,000 per customer – the range is dependent on whether the line's capacity is increased or the status quo is maintained.
It should be noted that Lines Companies will generally be maintaining their uneconomic assets currently with an end point of 31 March 2013 in their planning.

C) **Solar**:
Solar Water Heating - the terrain in this area (steep hills and valleys) and the associated weather patterns result in this area not being optimum for the efficiency of Solar Water Heating.
Similarly, it is not an ideal location for photo voltaic's (for the generation of electricity), which are currently well "out of the money" given current technology and costs. However, this is a technology which is rapidly improving both with the collection panels and with storage and in time could be a solution.

D) **Hydro Generation Opportunities** –
A local scheme sourced from a river which would have been likely to have been acceptable from a Resource Management Consent viewpoint was analysed to a pre-feasibility stage. Clearly the capital costs are high compared to the kWh output.
The flows are not substantial and have a low minimum flow which occurs for long periods of time.
In conclusion there would be quality of supply issues and the distribution line would still be required therefore the scheme is not currently viable.
We are doing some ongoing work to determine whether individual house solutions using micro hydro would be a solution for some sites. However, this would not be a solution for all households on the line as there are only a few houses with the creek / river opportunities nearby.

E) **Wind Generation Opportunities**
The studies concluded that there are some wind generation opportunities but these would not be economically efficient and would require grid connection as there would be little nexus between generation and usage.

F) **Comparative Studies:**
The learnings of the 2 NIWA sites and the Totara Valley and other NZ sites were reviewed.
The main outcome from this review is that the various technologies are currently more expensive than grid connection; however, as the price of retail electricity rises that situation could change.

G) **Community Generation Schemes:**
More recently we have reviewed the concept of community electricity and heating systems. These are becoming more prevalent in Europe utilising localised resources such as wood biomass. We have commenced a study of biogasification plants and our initial conclusions are that the capital cost and resultant amortised kWh cost is relatively expensive given the current cost of grid supplied electricity.

4 Conclusions from the Pilot Study

Overall, the most economic solution currently to the electricity / energy needs of the residents on this line is indeed maintenance and ultimate replacement of the electricity distribution line. All the other options we analysed were more costly both from a capital cost and energy unit (kWh) viewpoint.

The economics of maintaining rural and remote electricity lines are clearly best managed by the local Lines Companies – i.e. the replacement of a line can be staged over a number of years dependent on the various elements of its economic life. However, this situation may change in future dependent on the relative cost increases in retail electricity rates for kWhrs compared to technological improvements in the various options outlined above.

5 Implications for Electricity Users After 1 April 2013

The implications of the current legislation are potentially dire on or after 1 April 2013.
Lines Companies have the responsibility to maintain all electricity lines in 'good order' until 31 March 2013. For example, one would expect that the line route would be clear of trees over the entire length and width of the corridor. The Line Company's asset management plan should describe this detail as it affects this particular line or at least all lines that they have assessed as being 'uneconomic'.

If there was a major storm on 1 April 2013 and the "uneconomic" lines, built prior to April 1993, were brought down, the local lines Company could look to the consumer for a shared contribution to bring the line back into operation – assuming that the outage wasn't covered by insurance, which is likely given its uneconomic status.
If the Lines Company deemed that a line was required to be replaced or required substantial maintenance to keep it operational – it would look to the consumer to contribute his share of costs before power was restored.
Both of these scenarios would be untenable to consumers.

The Eastern Bay Energy Trust has, as one of its purposes, a consumer advocate responsibility. As such we believe that the Government in its review of the impact of this legislation needs to consider:

- What is the Government's intention and responsibility to rural and remote electricity consumers as 2013 looms nearer?
- Will the Lines Companies determine what lines are uneconomic?
- Who would maintain an "uneconomic line" if it was replaced by consumers and what happens to the revenue that is collected?

The various Electricity Consumer Trusts in New Zealand have varying roles and responsibilities (some are indeed not electricity consumer Trusts – i.e. they are charitable or community Trusts) and we believe that Trusts will not deem it their responsibility to keep the electricity on for uneconomic lines. Their responsibility under Trust law is to all beneficiaries, rather than a small minority of consumers.

Peter Dwyer, 23 May 2007