In the matter of the Resource Management Act (1991)

and

In the matter of an application by Hydro Developments Ltd (HDL) for resource consents for the proposed Stockton Hydro.

Submission from:

Frida Inta and Family.

Date January 2009.

INTRODUCTION

Hydro Developments Ltd (HDL) have proposed a hydro-generating plant to take advantage of the high rainfall of the Stockton Plateau, and the natural drop from the plateau to the sea at Granity, to create a 25MW electricity generating plant.

In principle the Inta family supports this renewable energy project even though some of the environmental effects are deleterious to our natural environment. Overall however, the project does appear to have a net beneficial effect on the local environment by removing most of the acid mine drainage (AMD) from the large and ecologically important Ngakawau River. Although the flow of the river may be reduced by 30% the advantages of a cleaner bed in the lower sections of the river means that a fuller range of biodiversity within the river may be achieved, similar to that in the majestic Mokihinui River to the north of the Ngakawau River. A complete recovery however, would not be achieved through the removal of the AMD due to the reduced flow involved, and residual AMD problems.

Some of the principles by which we try to live, in relation to HDL's proposed scheme, are as follows:

We try to live within the limits of the natural world, in order to understand the impacts of our way of life on the environment, and are involved in decision making about sustainable development. Sustainability needs to take precedence over growth in GDP.

The RMA needs to be protected. We see a need to uphold the core principles of environmental protection and public participation, and ensure better enforcement of consent conditions by councils.

All reasonable needs for energy services should be reliably and affordably met from renewable energy. There should be much smarter use of energy, which would allow the scale and impact of energy production and use to be reduced in line with ecological sustainability. All New Zealanders should be involved in decisions about energy and should take responsibility for using it sustainably.

For reasons of both resource depletion and climate change, we need to progressively reduce our use of fossil fuels to a very low level, eventually providing all energy services from renewable energy.

We need to ensure that New Zealand supports the implementation of the Kyoto Protocol, because this is the only international agreement that we presently have that works towards reducing emissions.

We believe a tax incentive of accelerated depreciation for investments in industry that increase energy efficiency or the use of renewable energy but which require a longer payback time than is normal for business investments is viable.

Demand side participation in the market and distributed generation (including two-way metering and/or billing for houses and businesses that generate their own power) should occur, in order to reduce the risk of electricity transmission failures and losses, and environmental damage, and increase flexibility.

We would like to see consumers and small providers of energy services and distributed energy have the same input to the Electricity Commission decisions as large suppliers and users, eg through the creation of advisory panels.

Rules set for the electricity market should prohibit fixed charges for electricity for the main family residence and instead, charge per unit used, so that energy savings are fully reflected in cost savings.

Electricity grids need to serve as networks connecting distributed energy systems with minimal environmental impact.

Hydro provides the backbone of our current electricity generation system. We do not favour further large hydro plants because:

- *Our system is vulnerable to dry winters already and we need to diversify, and*
- *Rivers are important habitats for wildlife and highly valued for recreation such as fishing and kayaking. We need to protect wild rivers from further development.*
- *New Zealand's indigenous plants, animals and ecosystems must be protected also.*
- *We see a need to control pollution of lakes and rivers*

We support small hydro developments being considered on their merits, where they can be built without significant damage to ecology or public values.

(Extracts from Green Party of Aotearoa NZ Party Policy 2009)

Overall this project appears to support some of these policies and principles. However, there are concerns, particularly:

- Discharge to sea of elevated precipitated aluminium levels on our vulnerable and nationally threatened Hector's dolphins, which love to frequent the particular area.
- Discharge that may at times contravene acceptable healthy ecosystem standards.
- Substantially reduced flows in the Ngakawau River and contributing lower-reach streams such as the Mangatini.
- Seismic vulnerability.
- Flood inundation areas and depths in a worst-case scenario dam burst.
- The loss of some high quality indigenous forests in the proposed reservoir footprints.

We support:

- Enhanced clean waters of the Ngakawau River.
- Local electricity production counteracting the effects of transmission losses, which occur at present
- Local economic boost in providing work.
- Increase in the local communities' self-esteem in becoming self-sufficient in renewable electricity, and independent of the national grid.
- The contribution this scheme will provide to counteracting the effects of global warming.
- The innovative and efficient use of the potential energy of the water involved in the drop from the plateau to the sea, to provide the pressure and kinetic energy for the hydro to work.
- The minimal ecological footprint involved in the use of deep tunnels for penstocks and power stations.
- That the project would be within an ecologically important environment which has however, been highly modified through over a century of coal-mining, and that the project does not encroach on the close-by Ngakawau Ecological Area.
- This project contributing to our Kyoto Protocol commitments.
- The least environmental impact possible that this project appears to have considered when drawing up plans.

- This project providing diversification from the east coast hydros, which are prone to winter water deficits.
- The mitigation proposals, which will counteract, to some extent, the adverse effects of the scheme.

The scheme appears to fit, to a large extent, within the confines of the RMA, even though some of the dams, the tunnelling, and various other activities are non-complying (including destroying some historic features) within the Buller District Council (BDC) Plan.

COMMENTS

Forests:
It is obvious that there is high indigenous value in the forests which will get drowned if the proposal goes ahead. Their very nature of being **indigenous** forest associations gives them high value in our modern era. However, the value of these forests must be weighed up against the value that the proposal will give to the community.

I am concerned that there are **rare** forest trees and associations within the reservoir footprints e.g. *Exocarpus bidwillii*, and the mountain beech – cedar association. I'm not sure if relocation would completely compensate for the loss of these associations, for alongside the floral association there will be fauna that thrive on these rare associations also. What is it about these particular areas that makes them so special for these associations? Are there other suitable areas to relocate them to? What forest associations would be displaced to accommodate these translocations? It would probably take many decades for these trees to recover and flourish, as it would only be the saplings that could recover from translocation – what would happen to dependent fauna?

As the cedars (pahautea) and their associations are more common on the southern parts of the plateau, perhaps there could be an extension of the Ngakawau Ecological Area to cover them, as they are rare in the present limits of the Ecological Area.

Recommendations for mitigation, including relocation of rarer species and associations, and weed control, are good. Wetland creation in shallow parts of the reservoirs is particularly good, and this could perhaps include introduction of wetland plants that are known to have the ability to clean up AMD waters by absorbing metals and raising the pH.

Fauna:
The Stockton Plateau has unique biodiversity, some of which is still intact, and is of regional and national significance, and any additional impact on this already modified environment, requires appropriate mitigation. Mitigation recommended would go some way towards achieving this.

Avoiding construction during breeding seasons of vulnerable species is good. That a more detailed entomology search has been recommended is good, but micro as well as macroinvertebrates needs to be studied.

Intensive predator control would enhance biodiversity within the wider scheme footprint. This is particularly important, as the increased industry on the plateau will provide for the passage of increased pests and weeds into the area. Therefore predator control would keep this new invasion within tolerable levels. Also, once construction works finish there is a need for intensified predator control to compensate, and give further protection to, our vulnerable indigenous biodiversity on the plateau

Outfall:
The AEE says that the outfall area is not a sensitive receiving environment. I disagree with this statement. Unless highly polluted, all waters are sensitive receiving environments. I do agree though, that there will be some degree of dispersion of extant AMD waters due to the turbulent nature of the west coast seas. I do agree that there will be buffering and conversion of AMD waters by the seawater.

Extracts from Appendix K (bold is my emphasis):

1. *P29 – "Medium and reservoir over flow events have been used to model water quality within the reservoirs and the wider Ngakawau catchment and have been applied to each scenario. Overflow events account for less than 1% of all flows."*

Only 1% of all flows into the reservoirs will be allowed to flow further into the lower catchment areas; this is a phenomenally low amount of flow. Hopefully the reduced flows of the sub-catchments and the Ngakawau River will not be further compromised by this disturbing statistic.

5.1.4 Modelled scenarios

Two main scenarios have been modelled within PHREEQC and are summarised in Table 5-2.

Scenario 1. Current. Investigates the overall water quality of the scheme and its impact on the wider catchment should the scheme be installed and operational immediately. It assumes current water quality and current mining practises continue ***including limestone dosing*** *within the Mangatini catchment.*

Scenario 2. Stockton Mine Closure. This is the 'best estimate' of modelled water quality of the two modelled scenarios and investigates a post closure scenario where the ***proposed Millerton Mine has been developed and fully rehabilitated,*** *The water quality for the Upper Mine Creek therefore is changed to that of the "Upper Mangatini – Treated" to reflect similar treatment and/or rehabilitation of the Millerton mine waters.* ***The Upper Mangatini Catchment is assumed to retain its current water quality through ongoing lime dosing or rehabilitation of the mining areas.*** *The "Upper St. Patrick Stream" water quality input does not change from the current scenario as there is little data to separate out the impacted catchments upstream, with non-impacted areas and therefore the result of proposed rehabilitation efforts on overall catchment water quality is difficult to predict.* ***Discharges from the Cypress mine are assumed to remain as current since discharge consent conditions define water quality during mining and post closure.*** *Also of note, the St Patricks Stream passes through historic workings downstream of the Cypress Mine which means that even though water from the mine will be treated the quality could be modified again downstream. Historically impacted catchments (Fly Creek and Darcy) that are not included within the current CML have retained current water qualities for modelling.*
Modelled scheme water quality including all scheme options and during a median flow event is presented
For each scenario in Table 5-3. A rehabilitated mine site has dissolved Fe, Al and Zn concentrations up to 0.6, 4 and 0.24 respectively and a pH of 3.5 – 3.7..

I have been led to believe by HDL that the lime-dosing plant could become defunct if HDL's proposal goes ahead. However, appendix K modelling appears to depend on the lime-dosing plant being extant. The increase in pH in the appendix K modelling appears to be reliant on lime dosing of some of the waters. The modelled pH output to the sea would be between 3.6 and 4.5, with a median of 3.7.

Tasman Bay seawater was used for the dilution series analyses. Tasman Bay seawater would be slightly different than Granity seawater due to:

- Large difference in annual precipitation
- Different geology
- Different sedimentation rates
- Different terrestrial ecology.

Admittedly seawater is reasonably consistent within an ocean, but near-shore make-up can vary due to varying inputs. Rainfall at Granity is about 2-3 times that in Tasman, and sedimentation is much, much higher. This leads to different types (geology and terrestrial ecology) and concentrations (precipitation and sedimentation) of salts being released into the near-shore sea.

Appendix L says a pH of 3.3 would take a dilution of 1000:1 to fall within set standards (ANZECC), such as turbidity levels more than 50% clarity, and a pH of 7 being reached; a pH of 4.5 would take a dilution of 10:1. It is not clear from the modelling what type of relationship there is between pH and dilution factors (even allowing for the pH $\log_{10}$ scale). From the assumed outlet pHs (3.6 – 4.5, median 3.7) the dilution ratio could possibly be at the worst, extreme end of dilution (i.e. the diffuser would need to be constructed to cope with dilution of near to 1000:1) the majority of the time.

A dilution of 50:1 could occur in a 100m length; 60:1 would take 500m length; 1000:1, which a pH of 3.3 requires to be safe, I don't believe has been modelled. A pH of 3.3 is perhaps a worst-case scenario, but nevertheless it could occur if lime-dosing is discontinued, as I have been told it will, and an extended period of low-flow occurs, coupled with calm sea conditions (App L, p38), which can occur perhaps 3-4 times per year. My interpretation of appendix L modelling is that for some part of the year, outfall would not meet required environmental standards.

App L, p38 – "it cannot be stated conclusively that the effluent will meet the receiving water criteria under all discharge scenarios, especially at an initial pH of close to 3."

Cawthron Institute (app L p38) suggests that ocean outfall cease at such low pH times, and for effluent to spill into the Ngakawau River. This is NOT an option; the most important environmental outcome of the proposed scheme, which underscores its viability, is a continuously cleaner Ngakawau River.

Further and more detailed modelling of dilution in relation to low pH's of around 3→3.6 is required.

More information could help in assessing the extent of the outfall plume e.g. how often would the pH be so low that a plume is created, and to what extent?

Appendix L says that further investigations will be required for the Al, Fe plume dispersion modelling. I look forward to the results.

Metal hydroxides and chelates could smother benthic habitat at the outfall site. How big a problem would this be? To what areal extent would this situation occur?

There is the possibility that heavy metals could build up at the outfall site; in particular, as stated in Appendix L, zinc may be a problem.

App L p38 says - "Hence, at worst, the discharge could lead to a localised increase of some trace metals in sediments adjacent to the immediate vicinity of the pipeline discharge."

How far exactly, in this case, does "local" and "immediate vicinity" extend? Would that include the Granity foreshore? Would local fishing stocks be adversely affected?

App L p38 says - "Whether these compounds would be sufficiently bioavailable to impact upon resident benthic assemblages is unknown."

Further investigation on benthic impacts is required.

Precipitation of aluminium as the pH is increased at the outfall could impact adversely on local fish. Dolphins often use the Granity area, and come close to shore there. Would they be aware of and avoid the adverse effects of the precipitating aluminium clogging their respiratory system etc., or would they develop health problems as a result of spending time in the vicinity? Also, if their prey accumulate heavy metals and aluminium, will the dolphins be adversely affected?

The AEE states that the mussel beds at Torea Rocks will not be adversely affected, as they are not affected at present by the outfall at the Ngakawau River. However an outfall 600m offshore from the beds is closer to the beds than is the Ngakawau River, which is approximately 1.5km north; and littoral drift is generally northerly along this coastline also. On the incoming tide there is the chance that outfall effluent will move in an onshore direction. The outfall will be in water that is less than 10m deep. This is within the range of surface processes. Regional Coastal Plan Policy 10.4.5(c) says that the outfall must produce water of a quality that is suitable for recreation and shellfish gathering.

The fact that the effluent has a lower density than that of the receiving waters means that it will not sit within the benthic area, but will slowly rise until in equilibrium with the denser seawater. This could help dispersion, but on the other hand the discharge could end up sitting as a scum on the surface of the sea. 4.5 cumecs (average) of discharge will be delivered into about 6.5m depth of water, with a calculated 0.2m current. Although the caisson will be greater than half a kilometre offshore, and the diffuser modelled to be about 150m in length there is a possibility that the effluent will float to the surface before being diluted enough to be safe, especially at low pHs.

There is a possibility the diffuser could become smothered with sediment.

The outfall pipe could possibly undermine the Lyric Community Hall.

It is vitally important that all recommendations by Cawthron Institute, and management plans submitted by HDL in relation to the outfall are adhered to.

Relevant documentation pertaining to the outfall issue includes:

- *RMA section 6(a) The preservation of the natural character of the coastal environment.*
- *RMA Section 105(a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects;*
- *RMA section107 Restriction on grant of certain discharge permits*

1(c) The production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials (in receiving waters)

1 (d) Any conspicuous change in the colour or visual clarity (of receiving waters)

- *New Zealand Coastal Policy Statement 1994 and the Proposed New Zealand Coastal Policy Statement 2008*
- *Regional Coastal Plan for the West Coast.*

AMD:

It is true that the Ngakawau River will be enhanced as a result of less AMD flowing into it the majority of the time. As suggested in the AEE, species diversity may one day even reach that of the Mokihinui River, located just further north.

There is the possibility that the Ngakawau may not return to former biodiversity levels, as suggested by a British Columbian study quoted in these appendices,

where taking AMD out of the estuarine area did not result in biodiversity returning to its former levels. This could be due to residual heavy metals being bound to the sediments, and it would depend on the half lives of this metal bonding as to when the Ngakawau would return to full biodiversity levels, and this may be a very long time.

What will happen though, if AMD does enter the river? Will this negate all the good that keeping the AMD out most of the time will do?

No doubt at least some of the excavations for the scheme will involve AMD rock. I am concerned that this may add to the present AMD problem on the plateau.

The fact that a banded kokopu was found in Mine Creek in the 1960's implies that the excess AMD, rather than access from the Ngakawau, is inhibiting survival of these fish on the plateau. It is hoped that, with removal of toxic waters, these fish may return.

I am concerned about koura (freshwater crayfish). They have been found in AMD waters. I would hope that, if the scheme gets consent, then special effort is made to relocate these macro-invertebrates.

River Flows:
I am concerned that an average 30% reduction in flow of the Ngakawau River may be detrimental to the lower river. The salt wedge will move further upstream than at present, and therefore salt-tolerant species will also move further upstream.

A 75% reduction in flow of the Mangatini Stream is alarming. In any other situation this drop in flow would be totally unacceptable. However in this case it appears to be a necessary evil.

A 50% drop in flow for the St Pats Stream is also concerning.

Access:
An important aspect of the HDL proposal is that the bulk of the scheme would be within an area that is given the perception of being off-limits to the general public. In actual fact most of the scheme would be on DOC land, and there is actually a walking track skirting the Mining Licence area that allows access to the Upper Waimangaroa, and coincidentally through the proposed scheme's footprint. The proposed Weka reservoir would drown a part of this walking track, and it is important that access to retained DOC land is maintained if the scheme goes ahead.

It is important that all extant public access through the scheme's footprint is maintained.

Granity Powerstation:
The entrance to the powerstation is probably a kids' play area at the moment, being scrubby semi-wilderness; just the type of area that kids love to play in. It also impinges on the Millerton incline.

Lighting:
It is important that all lighting be hooded. The skies in the northern Buller are relatively pristine, but every extra light installed decreases clarity of the night sky. For this reason it is important to hood all lights. This is important for the birds of the night also.

Too many people are brought up with the only knowledge of the night sky being that taught at observatories, and out of books. Here in the Buller we are blessed with a still lucid night sky, where we can all learn our night sky by looking at the stars. It is essential that we keep our sky as such.

Industry:
It would be good to make some type of observance with weekends in relation to work e.g. no blasting on Sundays.

Dam Breach:
Dam breach scenarios have been modelled for earth dams, but with reservoir volumes of half what this scheme proposes. This gives little idea of what a real situation would be like in the case of dam breach. Modelling of dam breach needs to be done for RCC dams at the expected reservoir volumes.

The worst-case scenario, where Hector and the Ngakawau River could be inundated by up to 4m of water, and the Ngakawau Bridge may get washed away, is very serious indeed, even though the likelihood is very small. I think it is important that we, as the local public, get better modelling for dam breach scenarios of the proposed hydro.

I disagree that a warning system would not give residents enough time to take evasive action. If there was an alarm system, like the present fire alarm systems (or louder) set up in the Hector/ Ngakawau area, with activation available at any of the proposed power stations, or other such area, residents could be informed of impending disaster within 5 minutes or less, of it occurring on the plateau. This would give them (worst case) about 20-25 minutes to take evasive action – this has to be better than no warning. There could also be warning lights installed either side of the Ngakawau Bridge

In case of dam breach, safety routes for downstream residents should be explicit and accessible to all in the area, including a set of instructions to each household (in the form of a laminated poster perhaps). Posters should also be erected at public sites within the area. At each end of the Charming Creek Walkway safety escape routes should be clearly shown, with advice to get to higher ground very quickly, probably.

Exactly what type of re-alignment is being considered to the Charming Creek Walkway in the area of potential flooding, needs to be elucidated.

Seismicity:
The scheme would be built in a highly seismic zone. The Kongahu Fault is a very large fault; a second order fault (where the Alpine Fault would be a first order fault). This means that it is a regionally very important fault. Movement on this fault would be similar to that of the White Creek Fault, being subject to the same compressive forces. A movement on the Kongahu Fault would result in many metres of uplift on the hanging wall. It is doubtful if any man-made structure could survive such a movement intact. The size of HDL's scheme is such that a movement on the Kongahu Fault would probably not result in a serious life-threat to the Granity community from the penstock pipes going in to the Granity powerstation. However, it would be advisable to build the Granity powerstation on the footwall of the Kongahu Fault, as this is where the least movement would happen. But since it has been designed to sit on the hanging wall it needs to be of **very** solid construction, and be as far away from the faultline as possible. According to one of HDL's shareholders it will be at least 100m east of the faultline.

It is acknowledged that the dams for the reservoirs on Stockton will be built to high PIC standards, due to the seismicity. Also cement mix for the dams will reflect the high seismicity loading of the site, being expected to use a high paste cement mix of about 200kg/m^3 . A movement on the Kongahu Fault could imperil people's lives at Hector if there is a dam breach, especially as the main Mt William dam wall is intended to be 40m high over a short length.

It is important that paleoseismicity statistics for the Kongahu Fault, the Millerton Fault, Mt William Fault and other faults within the scheme footprint are assessed before any work commences. If any fault is found to be nearing time of movement the scheme should be altered accordingly.

DOC swap:
It is good that some coastal forest has been procured and set aside as compensation for that which would be lost to the reservoirs. The coastal forest to be procured is now very rare, as it has mostly been removed and modified for farming and residential properties. That to be removed for the proposed reservoirs however, although sparse in the scheme footprint, is in greater abundance further south on the plateau.

However, as rare as this coastal forest now is, the forest that may be drowned needs to be compensated also by forest of similar stature i.e by stands of similar forest.

It will be important to make sure that this coastal forest is fenced, as adjacent farmland could very easily lead to stock wandering within the forest. Also predator control would need to be a priority in such a site.

Picnic Table:
People walk the Charming Creek Track to pay homage to nature (among other things). A picnic table at Mangatini Falls would detract from the natural aspect of the walk. There are plenty of nice warm (on a sunny day), rounded boulders to spread a picnic on. A picnic table is not necessary, and would be out of keeping with the general surroundings. A picnic table would be more acceptable near the Ngakawau end of the track, where there are remains of mine and railway workings.

Consents:
It is acknowledged that there are a number of non-complying applications for consent, according to Buller District Council rules. This means that all consents should be bundled, and that s104 RMA needs to be applied, to test whether the overall scheme has environmental effects that are minor, or that the scheme is not contrary to goals and objectives of at least the Buller District Plan, if not all Plans applicable to the scheme.

Extract from the RMA section 104:

Consideration of applications

- *(1) When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to–*
    - *(a) any actual and potential effects on the environment of allowing the activity; and*
    - *(b) any relevant provisions of—*
        - *(i) a national policy statement:*
        - *(ii) a New Zealand coastal policy statement:*

        - *(iii) a regional policy statement or proposed regional policy statement:*
        - *(iv) a plan or proposed plan; and*
    - *(c) any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

(2) When forming an opinion for the purposes of subsection (1)(a), a consent authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect.

In their AEE HDL have not considered RMA s104(1)(b) (i) National Policy Statement.

RMA s104(d):

Particular restrictions for non-complying activities

- *(1) Despite any decision made for the purpose of section 93 in relation to minor effects, a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that either—*
    - *(a) the adverse effects of the activity on the environment (other than any effect to which section 104(3)(b) applies) will be minor; or*
    - *(b) the application is for an activity that will not be contrary to the objectives and policies of—*
        - *(i) the relevant plan, if there is a plan but no proposed plan in respect of the activity; or*
        - *(ii) the relevant proposed plan, if there is a proposed plan but no relevant plan in respect of the activity; or*
        - *(iii) both the relevant plan and the relevant proposed plan, if there is both a plan and a proposed plan in respect of the activity.*

(2) To avoid doubt, section 104(2) applies to the determination of an application for a non-complying activity.

Having read through HDL's consent application it appears that, even though indigenous values are reasonably high, and it would be preferable if these forest and other indigenous remnants were left as is, the pressing need for autonomous power within the Buller, the enhancement of the Ngakawau River, and various mitigation and land swap procedures go some way to satisfying the demands of s104(d) RMA. However AMD discharge into the ocean may have a major effect on the receiving environment. Further clarification will be needed before the discharge can be considered as either a minor or major effect. Reduction of water flows in the sub-catchments of the scheme is major in those sub-catchments, but in the overview of the whole scheme could possibly be considered a minor effect.

Mitigation measures recommended by the various assessors involved in the AEE and project are good, and if adhered to, will go some way towards counteracting adverse effects of the scheme.

CONCLUSIONS

The Buller is long overdue to have an autonomous electricity supply. There are a number of options open at the moment, and this particular scheme appears to be the least environmentally disruptive of all those being proposed. It will also be beneficial in the face of the anthropogenic damage that has happened over the last century to waterways on the Stockton Plateau and surrounding areas.

Mitgation measures recommended would go some way towards counteracting any adverse effects of the scheme on social, cultural and ecological values. Intensified predator control on the plateau and surrounds is particularly important, as this will enhance survival of important vulnerable species on the plateau, such as our Great Spotted Kiwi.

Although the footprint of the scheme is in a highly modified area there are still some parts that have high biodiversity values, and these areas would need to be given priority protection, especially as these juxtapose the Ngakawau Ecological Area.

Renewable energy is very important, but not at the expense of environmental destruction. I believe this scheme could possibly fit my expectations since most adverse effects can be avoided, remedied or mitigated (as in RMA section 5). However the ocean outfall needs to be proven to have minor adverse effects.

Major hydro schemes, such as that proposed for the Mokihinui River, can have huge permanently adverse environmental effects, which the RMA does not support, and can be grossly inefficient users of our natural, clean waters. The proposed Stockton Hydro appears to a more evolved, sensitive and intelligent hydro answer to our nation's electricity demands.

Frida Inta