Submission in Support of the Brockton Plateau Hydro Scheme
Hydro Developments Ltd

Mr Barrie Ernest Brown
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I was moved to support this application when I like many had a all electric house and expensive to try and keep the house and sleeping areas at 18°C. With the yearly price increases it was becoming too expensive to keep the switch on with the consequent damage to a persons health.

My observation despite objections to the consenting of power generation construction in recent years the finished hydro electric plants constructed in previous years are an immense benefit to New Zealand in power generated and acquatic areas provided by the storage lakes

New Zealands generation and transmission of electricity was designed for a narrow and strung out country with Cook Strait in between. The hydro electric power stations were bolstered by thermal stations but with Huntly reaching its thirty year design life in 2013 and the successor to the Kyoto agreement appearing in 2009, plus the fragmented power utilities after the electricity reforms there will be no relief for Buller and Westland consumers without new generation in our regions

Just imagine all purchases in Westport first had to be sourced from Kurow and then transported to Blenheim and then on to Westport. With power being transported this distance I suppose this is the main reason that our electricity prices are so expensive compared with most of New Zealand.

New generation is required to compleiment and bolster that in place

If Hydro Developments is permitted consents to build this dam I believe most people will be happy with the completed project as they are. with hydro electric dams and lakes in place in New Zealand

I also support this proposal because it is the type of Capitalism I prefer and admire Private money building new generation and not moving in on mature NZ public assets

Submission in Support of the Stockton Plateau Hydro Scheme

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The recent BBC documentary 'Global Dimming' shows that with the 50% drop in air pollution in Russia since the fall of Communism, and Europe with cleaner chimney smoke and car exhausts cleaner than the air the car needs for combustion of the fuels the sky is so clear that the suns rays are not being reflected back to the atmosphere but melting the Artic ice sheet. If the Artic ice continues to melt and global ocean currents slow from the source under the ice. NZ will be left with a colder climate without the warm ocean current maintaining our temperate climate We will require this project to be operating with Mokihinui and the Arnold schemes because the rest of NZ wont have surplus electricity at any price for us on the West Coast of the South Island. Also Hydro developments can operate for at least 100 years if such a eventuality occurrs

With all the focus on increased productivity in NZ I fail to see how NZ can meet this, if electricity is in short supply and expensive.

Teletext 27-7-09 Primary industry used the same amount of energy in 2008 as 1.5 million households - all the households in NZ

Primary industry which includes farming, forestry, fishing and mining used 42,288 terajoules of energy last year according to Statistics NZ

Mining was the hungriest user accounting for almost a quarter of total primary energy usage

Consumer July 2009 Page 7. 'This calculation is based on power costing 12.5 cents per kwh in Australia in 2007. At New Zealand typical rates in 2009 are 21c kwh My latest Meridan account was uncontrolled 21.05c kwh and controlled 23.42c kwh including lines charges minus prompt payment discount of 10%

I have visited Taiwan the island 160 kilometres off the coast of China and about one third the area of New Zealand. Their government has avoided building prestige projects such as casinos

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Instead it built useful infrastructure that contributed to economic growth like the north south freeway, railways, harbours an electronic industry, hydro, coal and nuclear power plants. By 2004 Taiwan had foreign exchange reserves of about $215 US billion, the largest next to China and Japan. In contrast NZ foreign exchange deficit is largest per capita after Iceland.
I have visited a complete mock up of nuclear reactor which is housed about 150 metres from the actual plant. A concern to me was the reactor waste was stored at the plant.
Without coal powered thermal and harnessing the wind, solar and hydro potential the West Coast is trying to compete with the rest of New Zealand and the world. The availability of locally produced cheaper electricity would help industry, tourism, commercial, farming forestry, fishing, mining and reduce the home electricity account

New Zealand grasped the 'Energy Revolution' concept from the 1880's but 100 years on adopted a 'cargo culture' where other nations would finance our energy requirements and just about everything else NZ requires. A consequence of this culture is New Zealand attempts to fund growth with short term money from overseas and does not have the intergrated and reasonably priced energy source to produce enough to grow a economy. Again 'Energy comprises 10 per cent of economy but 90 percent of the economy depends on it.'

Let us all unite to see this consent process supported and the Resource Consent Application approved in a short time just as the geo-thermal power plant was in the North Island recently.

THE BURNING QUESTION: HOW TO REPLACE HUNTLY

THE RELEASE last week of the National Party's energy policy delivered some much-needed balance to the New Zealand energy debate.

The fusing of energy and climate change policy has been a hallmark of the government's latest term, formalised late last year with the release of its Energy Strategy by joint Energy and Climate Change Minister David Parker. That document was proudly proclaimed to "help New Zealand respond to climate change" by setting a target of 90% renewable generation by 2025.

While some in the industry have questioned the progressive intertwining of the two policy areas, until recently the direction has proceeded largely unchallenged by the electorate. But the last 12 months has shown two things. Firstly, voter willingness to pay for the market failure that the world now refers to as climate change is not without limit. The surge in global commodity prices has hit consumers hard, and increasingly they are asking just how much the extra layers are going to cost.

The prospect of voter resistance is already drawing political response. Delays to the timing of entry for transport fuel and industrial process may be just the first of further populist concessions before a New Zealand emissions trading scheme (ETS) is enacted.

Secondly, security of electricity supply is a problem that just will not go away. New Zealanders have been incredibly patient with the recurring winter problem of electricity availability, primarily because, just as has been the case with carbon, most have been insulated from incurring the real cost of supply insecurity. But, also as with carbon, users are likely to take on an increasing share of that cost in future.

The common problem these two issues highlight is that of investment uncertainty. The energy sector is a hugely capital intensive business where individual investment decisions can stretch into the billions of dollars and where asset lives are discussed in terms of decades, not years. In a fluid regulatory environment where the future cost of doing business is made even more unclear than usual, committing to investment decisions of such scale is exceedingly difficult. New Zealand's energy history is littered with floods and droughts – not of the weather kind, but the investment kind – for exactly this reason.

Steps to address the key crunch points currently weighing on energy investment decisions is why National's energy package has generally been greeted positively by the industry.

A major but predictable component of the package is to scrap the government's ban on building new baseload thermal generation. This was easy meat – the ban was an ill-conceived, and probably rushed, piece of tack-on policy that placed too great an emphasis on idealism, and too little on pragmatism. Ironically, it also demonstrated a lack of faith in an ETS being able to deliver adequate levels of new renewable generation in an economically efficient manner.

The reality is that more, not less, gas-fired generation is needed, not to meet demand growth (new geothermal and wind projects currently under construction should do that for the next few years), but to meet the looming challenge of replacing ageing plant.

The elephant in the room is Huntly. At 1000MW, Huntly is still the country's biggest power station, and as winter 2008 has again shown, arguably its most important. Lost in the noise of this year's dry winter was that the old, inefficient, coal-hungry and emissions-heavy Huntly plant generated at near full capacity for most of the first six months of 2008. This despite the commissioning just a year ago of e3p, a new 385MW high-efficiency gas turbine also located on the Huntly site. Even with e3p, system headroom wasn't enough to avoid yet another winter savings campaign.

> In July, the partners in the Kupe field spent $50 million drilling a single, unsuccessful well.

By 2013, Huntly will be 30 years old, its existing (and cheap) coal supply contracts will have lapsed, and its resource consents will have expired. As the country's biggest single carbon emitter, the ETS that will be in place by then will seriously challenge Huntly's continuing economic viability. Although this is precisely the intention of an ETS, a supply mix in five years' time without Huntly in it in some form is currently unthinkable.

This is why it makes perfect sense to move Huntly to reserve (standby) as soon as feasible. But this will not be achieved without first commissioning enough fast-start, high-capacity generation to cover the load that Huntly currently supplies. The moratorium proposes regulating against precisely the type of generating plant needed to support Huntly's withdrawal.

For similar reasons, the steps proposed to incentivise oil and gas exploration are also encouraging. Exploration is risky and costly. In July, the partners in the Kupe Field spent $50 million drilling a single, unsuccessful well. Investment decisions with that sort of risk profile are for brave people to make, but if they're successful, as the Tui Field has demonstrated, the rewards can be huge.

The latest trade data gives a telling insight into what hydrocarbons are already worth to the economy, and what they could be worth if further Tui-like wins are made. Oil exports alone in the three months to June 30 totalled $898m, more than quadruple that of last year. Dairy receipts in the same period totalled $2040m. In other words, oil earnings in the second quarter of 2008 were close to half that of New Zealand's biggest export earning (and booming) sector. The arrival to market of the Maari field later this year and the Kupe field in early 2009 will grow the pie further.

New Zealand remains a lightly explored, but high-potential, hydrocarbon province. In a white-hot global resources sector, it must do all it can to attract and retain explorers. Recent suggestions have been that acreage and data access constraints are acting to deter potential explorers. Proposals to review the Crown Minerals regime and to fund additional seismic exploration are steps in the right direction.

National's energy package appears one of balance. As well as contributing to the incentive mix for decision makers, it retains the integrity of a standardised approach to pricing the future emissions that will accompany those decisions. No matter what the regime, managing the withdrawal of Huntly will be the next decade's key electricity challenge.

■ John Kidd is head of research with sharebroking and investment banking firm McDouall Stuart Securities, www.mcdouallstuart.co.nz.

The energy revolution

TECHNOLOGY WILL SOLVE ALL OUR ENERGY SUSTAINABILITY ISSUES, WON'T IT? FAR FROM IT, SAY ENERGY RESEARCHERS PROFESSOR GERRY CARRINGTON AND DR JANET STEPHENSON OF THE OTAGO ENERGY RESEARCH CENTRE.

and Dr Janet Stephenson do not look like your typical revolutionaries. Not even closet ones. But together with a host of other top-line researchers, both at the University of Otago and nationwide, they are part of a group that is serious about shifting New Zealand to a sustainable energy path by using the combined forces of our researchers.

"We have huge issues facing us, both nationally and globally, in terms of energy constraints and, more particularly, how our use of fossil fuels contributes to global warming," says Stephenson.

"And we need to address those issues with a very broad front of knowledge because the solutions are not necessarily going to come from a single magic bullet."

Adds Carrington: "What we have to do over the next 40 years, if we are going to be successful, is to reconstitute entirely our systems for the supply and consumption of energy." It has to be appropriate for commercial and domestic consumers alike, and it has to be done in an affordable way, he says.

"To turn this around in 40 years is not trivial and there are major commercial forces reluctant to contemplate that kind of revolution."

Carrington is head of the Department of Physics at Otago, and leader of the Otago Energy Research Centre and the associated National Energy Research Institute.

Stephenson is a planning expert from the Department of Geography and convenor of the Otago centre. Both are passionate about the need for collaborative, multidisciplinary approaches to one of the modern world's most pressing quests – energy sustainability.

"The idea of changing the way we produce and consume energy in the space of the next three or four decades is horrendous in its implications," says Carrington. "And there are still some people who say, 'Look, come on, this is just a rush of blood to the head.'

"But the truth is we've seen this particular storm [carbon emissions and related climate change] brewing over the last 15 years. It has been on the radar for at least that long and at no stage has it gone backwards."

In March 2004 Carrington called together a group of interested University of Otago researchers for a day-long workshop on sustainable energy issues. For him it was the next logical step in an active interest that reaches back three decades. For others, it was something of a watershed.

Stephenson explains: "The upshot of that workshop has been the establishment of the Otago Energy Research Centre (OERC) which is a formalisation of the strong linkages starting to be established among energy researchers thoughout the University.

"We are officially recognised as a Research Centre with a capital R and a capital C . .

"It's the beginning of a bit of a head of steam, not only in terms of our own work as individuals, but also in terms of a cluster of strengths we can offer to industry and others who want research done.

"It feels like the time is right for something like this," she adds, "because everywhere we go to talk about it researchers are saying, 'Yes, we can see the scale of the problem is huge'. And Helen Clark's Statement to Parliament for 2007 was talking about sustainability and carbon neutrality – it's a vision that is shared by researchers."

"Energy comprises 10 per cent of the economy, but 90 per cent of the economy depends on it," says Carrington. To underscore the point he cites last June's Auckland power outage, caused when a shackle broke.

"For every dollar's worth of electricity you don't get, it costs the economy $100 … that's a ratio of 100 to 1."

The Otago Energy Research Centre was officially launched in March this year. It brings together about 40 researchers with an interest in energy issues. Its primary focus is the complex interaction among energy supply, energy users, human behaviour, social processes and economic forces, and the implications of all this for climate change and the environment.

The centre is unusual in its visionary "holistic" approach to sustainability. It challenges, but does not exclude, the popular notion of the quick technological fix, by insisting on collaborative multidisciplinary pathways.

"Our energy system is so interlinked – a linked jigsaw puzzle. You can't change the picture of the puzzle by focusing only on individual pieces," observes Carrington.

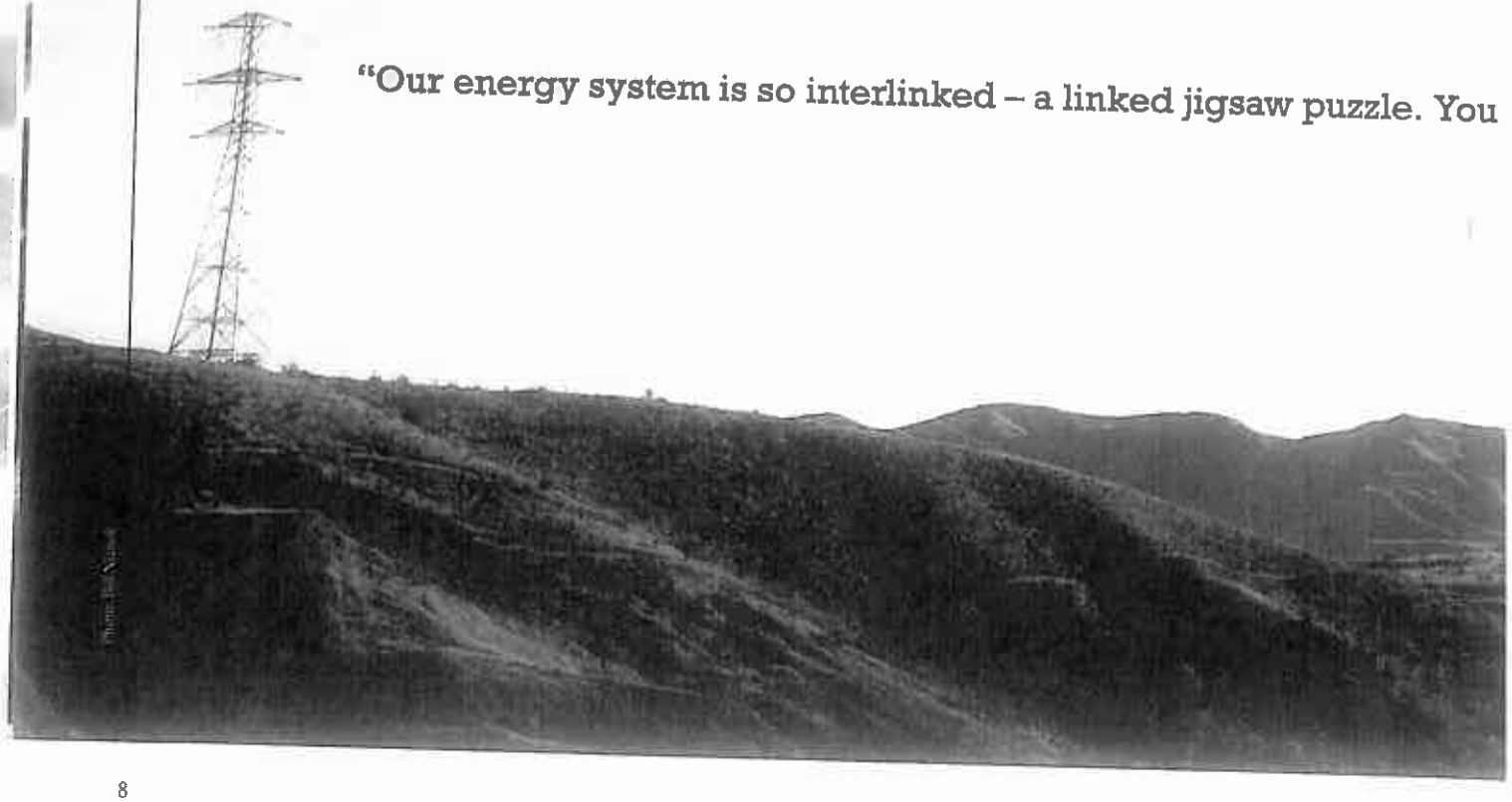
The aim, he says, is to "defragment what is an intensely and deeply fragmented area of endeavour, both in terms of research and in terms of policy". And it is about building the appropriate infrastructure – a challenge in itself.

He cites the example of his attendance at a recent Ministry of Research, Science and Technology meeting in Wellington on infrastructure funding for the research sector.

"They were talking about physical equipment – do you want a spectrometer, a laser? – until I made a point that cut across the meeting. I said that what we need in energy is the infrastructure that will hold the research groups together …"

Those groups come from numerous academic disciplines, including accountancy, anthropology, biochemistry, chemistry, design, economics, engineering, geography, geology, information science, law, marketing, medicine, physics, psychology, surveying, tourism and zoology.

"I can't think of a discipline that doesn't have a role to play here."



"Our energy system is so interlinked – a linked jigsaw puzzle. You

Stephenson offers a topical example of the need for multidisciplinary problem-solving – wind turbines.

"Wind turbines need engineering expertise to work out the mechanical and electrical requirements. But we also need to consider other things, including the value of the landscape, the environmental impact of the turbines, alternative energy sources, or using present energy sources more efficiently."

Networking and collaborating, both nationally and internationally, are also central to the centre's aims and, to date, linkages have been formed with all the other major universities as well as interested entities such as CRL Energy Ltd, Landcare Research, Crop and Food Research, Centre for Advanced Engineering, Industrial Research Ltd and the Institute of Geological and Nuclear Sciences.

Creating such an extensive network of contacts and like-minded energy researchers has enabled other initiatives. One of these is the National Energy Research Institute (NERI), based at the University of Otago, which will receive Tertiary Education Commission funding of $1.5 million from 1 July 2007.

"There were four broad areas – research, education, community outreach and industry relations – that, as a group of collaborating organisations, we felt had to be addressed," says Stephenson.

Through NERI's activities, this translates into better research co-ordination through improved networking among energy research organisations; improving the quality and depth of energy education in New Zealand; developing stronger relationships and understandings between researchers and the energy industry, energy consumers, iwi and government; improved education in energy-related professions and trades, and so on.

In a further development in a snowballing field, an application this year for Centre of Research Excellence (CoRE) funding, again based at Otago, provided the perfect opportunity to consolidate relationships already established through NERI, create new ones and pull together an impressive and wide-ranging body of existing and mooted research projects.

It is intended that many of the projects will proceed regardless of the CoRE decision.

This comprehensive research programme would focus on new and improved sources of renewable energy, reducing dependence on fossil fuels, and more efficient use of energy. Research would be grouped within five themes (see panel page 10).

Again, a central theme of the project would be the need for collaboration across disciplines. "It's easy to assume that a new form of energy or a new type of motor will be

change the picture of the puzzle by focusing only on individual pieces."

the answer to all our energy problems . but it's far more complex than this," says Stephenson.

"Unless you involve people from different fields of knowledge, you may find that the emperor's got no clothes – it's not going to work because of a mismatch with another part of the energy system, or with people's preferences.

"Windpower's a good example. The technology's great, but it's meeting resistance from communities who don't want a wind farm on their hills. If you look at an issue from a number of different angles, you get a much better appreciation of its benefits and its drawbacks, and how best to move forward without stumbling."

Carrington knows this better than most. His team's development of energy-efficient heat-pump technologies for industrial drying has experienced resistance from businesses, even though it provided clear economic and processing benefits.

"We do need new technologies," he says. "But we need to find ways to get them embedded with the consumer and there are many things we can do to facilitate the uptake."

Understanding why energy consumers – industrial or domestic – make the choices they do is a large part of this and is where marketing, design, economics, anthropology and psychology, even law, may come in.

He offers an example – the logic-defying response of consumers to apparently commonsense energy solutions: "I know my house is cold and miserable, but don't talk to me about insulation and double-glazing."

They are responses that go to the heart of the multidisciplinary approach. Says Carrington: "We will make absolutely no progress in our energy sustainability until we have a broad-based understanding of the options for the energy system as a whole."

It is in this kernel of wisdom that the seeds of the energy revolution lie.

Simon Cunliffe

RESEARCH THEMES FOR ENERGY SUSTAINABILITY

Renewable Energy Systems
Developing and enhancing innovative techniques for harnessing wind, geothermal and solar energy; contributing to improved biofuels production.

Sustainable Transport Systems
Developing blueprints for renewable-energy transport systems, promoting improvements in energy efficiencies of vehicle fleets and reducing the risk to the transport system from constrained or high-priced fuels.

Energy Efficient Technologies
Developing leading-edge technologies with significant potential energy savings (for example, in dairy processing, refrigeration and industrial drying) and improving the uptake of energy-efficient technologies by industry and households.

Macro Influences
Understanding how national policies, laws, trade and markets affect the supply and demand of energy (for example, modelling the trade implications of New Zealand's international commitments on energy use - the Kyoto Protocol); modelling future energy scenarios; suggesting improvements to energy regulation and the legal regime for renewable energy developments.

Micro Influences
Understanding how the behaviour of individuals or groups affects energy use; removing barriers to energy-conscious decision-making; understanding why people choose particular energy goods and services, how different lifestyles affect energy uses and how families make everyday decisions about travel choices.