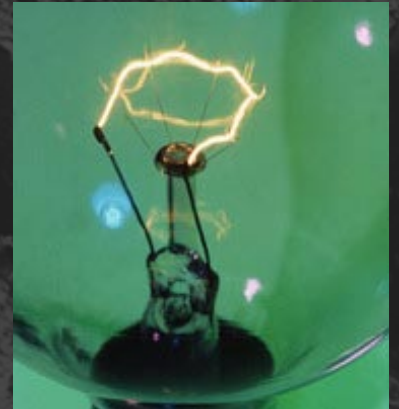
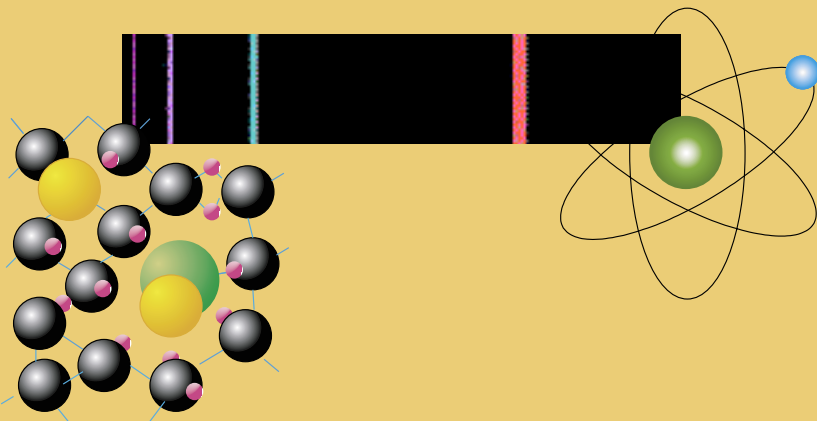


Annual Review 2005

Coal Association of New Zealand Inc. and CRL Energy Ltd.



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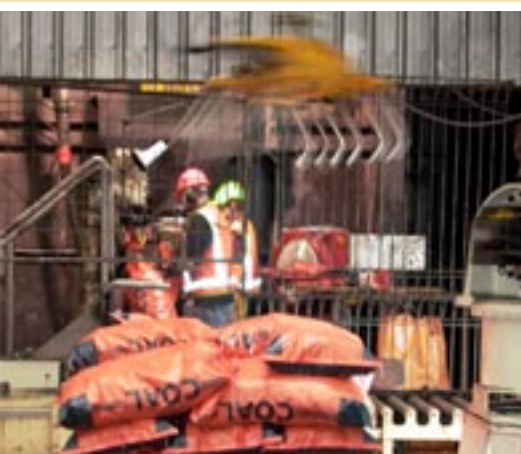


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Coal Association of New Zealand Inc.

Directors

C Baker - Chairman	(Other)
A Broome	(Other)
B Bragg	(Coal Producers)
B Francis	(Coal Producers)
B Highsted	(Coal Producers)
G Perkins	(Coal Producers)
R Pridmore	(Other)
R Pullein	(Coal Users)
S Ridell (Resigned 2004)	(Coal Producers)
N Shewan	(Coal Users)

Officers

Secretary	T W Matheson
Treasurer	R McGregor

Representatives

EXITO	M Reynolds
	M Pizey
Mines Rescue	D Stewart

Coal Producer Members

Birchfield Coal Mines Ltd	Menzies Mining Company
Burkes Creek Mining	Mt Somers Mines Ltd
Canterbury Coal Company	New Creek Mining
Cascade Mining Ltd	New Vale Coal Co. Ltd
Francis Mining Co. Ltd	O'Reilly's Opencast Ltd
Glencol Energy Ltd	ROA Mining Co. Ltd
Harliwich Carrying Co	Rogers Mining Ltd
Heaphy Mining	Solid Energy NZ Ltd
Kai Point Coal Co. Ltd	Victory Lime 2000 Ltd
MacDougall Mining	Waituna Coal Mine
McLaughlin Mining	

Associate Members

A W Taylor Industrial Coal Ltd	Meritec (Worley Consultants)
Alliance Group Ltd	Metso Minerals (New Zealand) Ltd
Bionutral Laboratories Corporation	Ministry of Economic Development
Canterbury Health	Montgomery Watson Ltd
Coal Distributors (Auckland) Ltd	National Institute of Water and Atmospheric Research (NIWA)
Coal Marketing Services	Natural Gas WEL Energy
Coal Power Ltd	NZ Coal Processors Ltd
Doug Hood Contractors	NZ Steel Ltd
Fonterra (Edendale)	Oderings Nurseries, Christchurch
G L Bowron Ltd	Phillips Fox
Genesis Energy	Pike River Coal Ltd
Golden Bay Cement	Port of Greymouth
Heinz-Wattie Ltd	Robert H Hall Group Ltd
Holcim (New Zealand) Ltd	Sea-Tow Ltd
Huntly Retail Distribution Centre	SGS NZ Ltd
Kenham Holdings Limited	Shpherd Nurseries
Kenroll Industrial Coal Ltd	Sinclair Knight Merz
Lincoln University	Skellerup Industries Ltd
Lion Breweries South	Southtile Ltd
Lytelton Port Company Ltd	TNL Group Ltd
Mangapapa B2 Incorporation	University of Canterbury
McDonald's Lime Ltd	Websters Hydrated Lime Co Ltd
Meridian Solutions (Energy for Industry)	

In my report for the previous year I noted that “A number of events . . . have brought a welcome exposure and focus to coal in New Zealand”. I also noted that a key barrier to increased use of coal in New Zealand was the “widely held perception that climate change and New Zealand’s obligations under the Kyoto Protocol are not compatible with increased coal use”.

These two comments remain relevant this year. Two or three years ago the Coal Association’s focus was on the survival of the industry in New Zealand. Now, we need to take a long term view and focus on a sustainable strategy that will see coal being an important contributor to the New Zealand energy sector in 15 or even 30 years time.

Demand for coal, both in New Zealand and internationally, is strong and independent projections continue to forecast coal’s growth, particularly in developing countries but also in the United States and parts of the European Union. Concurrently, international investment in research and development in the technologies that can address coal’s impact on the environment – clean coal and carbon capture and storage (CCS) technologies – measures billions of dollars in the US, Australia, the EU and China. Also, CCS technologies are increasingly being seen, and acknowledged globally, as one of the key responses to climate change.

It is in this global context that the Coal Association has been addressing coal’s environmental credentials. Three key strategies have been pursued:

- a) Technical tours – to date, three tours to Australia have been run, attendees included MPs, government officials and industry representatives. These tours are aimed at exposing attendees to the importance of coal in Australia and globally, and providing a detailed knowledge of the range of research and development programmes being undertaken;
- b) Seminar series – a number of international experts in carbon capture, sequestration, gasification, etc. technologies have been invited to New Zealand for lectures, interviews and one-on-one discussions; and
- c) International collaboration – The Coal Association belongs to the International Energy Agency (IEA) GHG R&D Programme, the IEA Clean Coal Centre, and has recently joined the World Coal Institute (WCI), and the Australian COAL21 programme.

The COAL21 programme is particularly important as we challenge the “anti coal” lobby. The objective of this government, industry and research partnership is reduce or eliminate greenhouse gas emissions arising from the use of coal in electricity generation in Australia. Our participation puts the coal industry in New Zealand on the “front foot” in the environmental debate, and provides real traction to influence both policy and research.

There have been a number of Board changes during the year. Steve Riddell resigned from the Board during the year. The Board would like to acknowledge the contribution Steve made to the Association and the industry over the years – his departure is a loss for Solid Energy and the Board of the Coal Association. New members on the Board are Bret Highsted (New Vale Coal), Alan Broome (formerly HRL’s representative on the Board of CRL, and now, still in his capacity as Chairman of CRL, representing CANZ), and Dr Rick Pridmore, CEO of NIWA. All three new Board members add considerable depth, knowledge and strength to the Association’s activities.

The Coal Association budgeted for a shortfall of \$290k for the March 2005 financial year. The actual shortfall was \$100k, the “gain” being principally attributable to a number of projects coming in under budget. Some budgeted work was not progressed during the year, including SME policy analysis, public survey, some media exposure activities and a research consortium proposal.



Chris Baker

“Demand for coal, both in New Zealand and internationally, is strong and independent projections continue to forecast coal’s growth.”

“Challenges remain, but technology opportunities, supported by sound research and sound strategies, provide a clear and bright path for our industry.”

The budget for the 2005/06 financial year forecasts a deficit of \$156k. This deficit is being funded from existing resources and is in line with our strategy to optimise the coal industry's position in the current political and energy environment. The Board is currently debating the relative importance of, for CANZ, investment in representation and research activities.

CRL Energy continues to be successful in implementing its growth strategy and remains a key asset for the coal industry. It has established itself as an independent and credible centre of research and consulting knowledge.

Looking forward key priorities and activities for the Association in 2005/06 and beyond are:

- Representation of the industry, particularly at national level, to encourage rational policy making in the energy sector. Ongoing initiatives to support this strategy are:
 - COAL21 programme participation and membership of the coal-related IEA groups;
 - The associated dissemination of information and issues in New Zealand;
 - Seminar series; and
 - Technical tours – a key target here will be energy and related industries MPs in the new Government post elections in September 2005.
- Promoting and supporting research consistent with our long term vision regarding coal technologies.

Challenges remain, but technology opportunities, supported by sound research and sound strategies, provide a clear and bright path for our industry to 2020 and beyond.



Chris Baker
Chairman

Over the past financial year, Coal Association activities have increasingly focused on the long term view of the sustainable role of coal. Some of the major events that have impacted on the industry include the Government's approval of the first ever national environmental standards aimed at air quality in July 2004, Solid Energy's announcement of withdrawal from the home-heating market in September 2004, a rapidly dwindling Maui gas field – with the result that Huntly, is running hard on coal to plug the gap, and the Kyoto Protocol coming into force on 16 February 2005 - thereby confirming the Labour Government's carbon tax to be in force from 1 April 2007.

Removing barriers

We are continuously striving to remove barriers to coal use, both real and perceived, with ongoing representation of the industry, particularly at national level, to encourage rational policy making in the energy sector. There is a commonly held view that coal use and New Zealand's obligation to reduce greenhouse gas emissions are incompatible. To help change attitudes the Coal Association organised three technical tours to Australia for MPs, government officials, and industry representatives. These tours exposed attendees to the importance of coal, both globally and in Australia, where coal generates some 79 percent of that country's electricity and is the largest export earner. Ideally the attendees also gained a greater knowledge of the range of research and development programmes being undertaken.

The Coal Association has also run a number of well-attended seminars in New Zealand, featuring international experts in carbon capture, emissions control, sequestration, gasification, clean coal technologies, and the Coal21 programme in Australia (see page 8). We've also joined a number of international organisations and research consortia which allows us better access to the latest research in these areas and other forms of energy generation. These organisations include the International Energy Agency (IEA) GHG R&D Programme, the IEA Clean Coal Centre, the World Coal Institute (WCI),

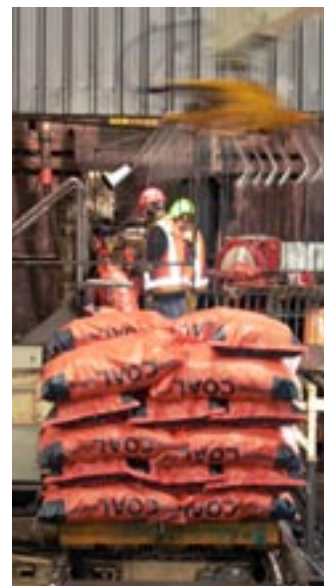
and the Australian COAL21 programme; all of which strive to reduce or eliminate greenhouse gas emissions and improve efficiencies in the use of coal in electricity generation.

Coal to hydrogen energy research

The Coal Association's research arm, CRL Energy Ltd, has been working hard in the past year on several research fronts to address some of the technical barriers to coal use. In particular, CRL Energy continues with research into a coal to clean hydrogen to electricity programme for New Zealand. In combination with research partners IRL they are developing a technology package suitable initially for distributed energy generation and ultimately for large-scale implementation. In the last financial year the coal gasifier has come online. After a number of trials in combustion mode to develop procedures, the gasifier is now producing pure hydrogen for use in a fuel cell assembly being developed by IRL. The entire technology package is designed to produce approximately 25 kW of electricity. The continued success of the research has put New Zealand in the international limelight, with a number of international visitors showing keen interest. To that end, CRL Energy has worked with Government officials to join New Zealand as a member of the International Partnership for the Hydrogen Economy (IPHE), which is a key collaboration in the global move to a hydrogen-based energy economy (for details of the hydrogen programme see page 14).

Withdrawal from home-heating market

Solid Energy's withdrawal from the domestic market is expected to cause barely a blip in the books as the company announced expanded export markets in India, Japan, China and Brazil, but it may make a significant difference to smaller coal producers who fill the home-heating gap. However, the gain in local sales may well be short-term as regional councils move to ban open fires in some areas and enforce design standards for enclosed burners. We expect that coal producers will see an increasing share of their profit made up of sales to industry and electricity suppliers,



Solid Energy's Ohai Bagging Plant. A pallet of bagged coal is ready for the home heating market.

The Year in Review



The Huntly Power Station runs largely on coal, is 1000MW, and has four large generators. The future could see more efficient coal-fired power plants to help secure New Zealand's energy supply.

where coal is burnt in compliant industrial burners with very low pollutant emissions.

National Air Standards

The tightening of the rules regarding home fires is in response to the Ministry for the Environment's National Environmental Standards (NES) for air quality. From September 2005, the design standard for new wood burners in urban areas applies. The ambient air quality standards set a maximum level for the amount of fine particles, carbon monoxide, nitrogen dioxide, sulphur dioxide and ozone in the air.

However, it is an ill wind that blows no good as the imminent introduction of the NES for air quality has increased the demand for CRL Energy's industrial boiler tuning service, and ambient air emission monitoring services.

Kyoto Protocol

The 1997 Kyoto Protocol officially came into force on 16 February 2005, 90 days after the Russian Federation's instrument of ratification was received by the United Nations Secretary-General. The Protocol has been ratified by 141 nations to date and sets binding emissions reduction targets, averaging around five percent below 1990 levels, for all of the world's developed nations except

the United States, Australia and Monaco.

In addition, the international carbon trading market will become a legal and practical reality. The Protocol's "emissions trading" regime enables industrialised countries to buy and sell emissions credits amongst themselves. This market based approach will improve the efficiency and cost effectiveness of emissions cuts. The Clean Development Mechanism (CDM) will move from an early implementation phase to full operations. The CDM will encourage investments in developing country projects that limit emissions while promoting sustainable development.

Coinciding with the Kyoto entry into force, the Greenhouse Policy Coalition (GPC) released a business perspective on greenhouse gas emissions and climate change. GPC membership represents most of the major emitting companies in New Zealand and includes the Coal Association.

GPC reports its main concern with the Kyoto Protocol as the unacceptably high cost to New Zealand to further reduce emissions beyond 2012, especially if there is an absence of technology breakthroughs, particularly in relation to reducing transport and agriculture emissions. The coalition urges that New Zealand should be very cautious before making further emission reduction commitments beyond 2012. GPC considers it is imperative that there is broad global cooperation and action on emission reduction, otherwise, the reductions in New Zealand will be outweighed by the emissions of others. The coalition has stated that at present there is no global level playing field under Kyoto and this has yet to be recognised in domestic climate change policies. With major trading competitors such as the US and Australia failing to ratify Kyoto and developing countries not yet

accepting targets, New Zealand is at risk of losing business to these competitors if costs of primary processing and manufacturing increase due to climate change policies like a carbon tax. Before any further commitments are made beyond 2012, an objective assessment needs to be made of the potential cost to the economy and smarter ways identified of achieving real sustained emission reductions.

Possibly hardest hit by the announced Carbon Tax, set at \$15 per tonne of CO₂, coming into force in April 2007 will be small to medium enterprises (SMEs). To help mitigate the effects of the C Tax, CRL Energy has undertaken a two-year consortium study entitled *Educating Business Energy Consumers in Climate Change Solutions* to raise awareness of energy efficiency measures among SMEs in the dairy farming, protected crops, forestry, fishing, mining and quarrying and road transport sectors. The group has undertaken a round of workshops in the last financial year and has published six industry-specific information kits.

The information kits identify immediate cost-effective solutions to rising energy costs, and increase awareness of incentives and opportunities to reduce greenhouse gas emissions provided through the Government's climate change policy. A workbook approach was adopted for the kits which contain a series of case study calculators so the reader can estimate the potential savings various measures may have on their business. The savings are calculated in terms of energy intensity, energy savings and emission reductions. A simple payback calculator has also been included (see page 15 for further details).

Coal offering security of supply

The demise, at least until we find more, of cheap abundant gas, aka Maui gas field, has last year seen

Huntly power station being fired up on coal, the coal being sourced both domestically and from Indonesia. As gas supplies wane many energy industry players see coal as the only fuel source able to offer adequate security of supply. Over the next ten years, coal producer Solid Energy estimates that coal-fired electricity plants are likely to provide between 500 and 1,000 MW of new, mostly baseload generation, creating additional annual demand for up to three million tonnes of coal. Growth in the dairy, timber and other industrial processing sectors is likely to increase annual coal demand by around two million tonnes. If major new low-cost gas fields are not discovered and developed, and New Zealand's growth continues to be driven by the primary sector, potential demand in New Zealand could grow up to 10 million tonnes within the next ten years.

By 2015 up to 25 percent of New Zealand's electricity could be generated from coal. Increasingly strong demand for coal is likely to continue for at least 20 years.

Late last year, Fonterra submitted a resource consent application for a 250MW coal burning power station for its Whareroa site near Hawera. Although undecided about whether to yet proceed with construction, the company said that a continuous supply of electricity and steam is vital to their processing operation. Given the uncertainty surrounding future gas supplies, they were proceeding with the application process as a contingency plan.

Both Solid Energy and Genesis Energy have also been investigating coal-fired power stations to meet the growing demand for electricity. If Genesis Energy gets approval they plan to begin construction on two new stations from mid-2006. Mighty River Power has plans in the pipeline for Marsden B to become a coal-fired power station with a generating capacity of up to 320MW.



Dr Kelly Thambimuthu, the Chief Executive of the Centre for Low Emission Technology in Australia, presents a Wellington seminar on "CO₂ Capture Technologies and the Development of Low Emission Clean Coal Power Plants", part of the Coal Association's seminar series.

The increased coal-powered generation at Huntly has been a boon for CRL Energy, which earlier this year began providing testing services to Huntly Power station from an on-site coal laboratory.

With increased coal use likely, coupled with carbon tax and the Government's drive to reduce carbon emissions, carbon capture and sequestration research is becoming increasingly paramount.

In the last financial year CRL Energy received support from a US/NZ bilateral research agreement which saw Dr Tony Clemens provided with access to the synchrotron at Argonne National Laboratory for fundamental studies of pressurised carbon dioxide interaction with New Zealand and United States coals: important research if we are to utilise deep or unusable coal seams to sequester concentrated carbon dioxide emissions.

The research company is currently seeking further funding to push the carbon sequestration programme forward.

Sustainable mining

The Coal Association applauds CRL Energy's major research programme into acid mine drainage (see page 16). CRL Energy is continuing with its second year of a six-year project focused on reducing water quality impacts from mining, the main impact coming from acid mine drainage (AMD).

CRL Energy has been involved in Foundation for Research, Science and Technology-funded AMD research for a number of years. AMD is an important environmental issue in the mining industry and occurs when sulphide-bearing minerals in rock are exposed to air and water by mining activity. Breakdown of sulphides releases acid and can mobilise trace elements such as arsenic, zinc, nickel and others from waste rock and tailings into ground and surface water.

Using environmentally acceptable practises when extracting minerals in has come under increasing industry and public scrutiny. It is up to the mining industry to solve these issues and act using only the best practice methods available.

Coal Association Seminars

As well as a range of papers and presentations by CRL Energy Ltd staff, the Coal Association, through CRL Energy Ltd, organized a number of Wellington-based seminars throughout the year featuring international experts in various fields. These seminars included:

“The CSIRO Energy Transformed Flagship Programme”. *Presented by:* Dr. John Wright, Director, Flagship Programme, CSIRO, Newcastle, Australia.

“Advances in CO₂ sequestration technology: the CO₂ Capture Project (CCP)”. *Presented by:* Scott W. Imbus, Senior Research Scientist of Chevron Texaco Energy Technology Company, Houston, Texas.

“CO₂ Capture Technologies and the Development of Low Emission Clean Coal Power Plants”. *Presented by:* Dr Kelly Thambimuthu, Chief Executive, Centre for Low Emission Technology, Brisbane, Australia.

“Kyoto and the USA – Advances in emissions control and energy”. *Presented by:* Dr Gary Stiegel, US Department of Energy.

“Clean Coal for the Future”. *Presented by:* Dr John Topper, Managing Director, IEA Clean Coal Centre, London, United Kingdom.

“Launch of the Coal Association joining Coal21 programme”. *Presented by:* Mark O’Neill, Executive Director, Australian Coal Association.

Publications

Four Issues of the Coal Newsletter

The Coal Association Newsletter is circulated to over 1,300 energy professionals throughout New Zealand and internationally.

Seven Issues of the Coal e-news. Circulated via e-mail to interested energy professionals. If you would like to join the E-mail list for this publication please contact Trevor Matheson. E-mail: t.matheson@crl.co.nz

“Analysis Update 2004: Analysis of New Zealand Industrial Coals 2004”. *December 2004*. Four-page leaflet. Published by the Coal Association of New Zealand Inc.

“The Case For Coal”. *June 2004*. Two-page leaflet. Published by the Coal Association of New Zealand Inc.

Coal Association Annual Review 2005.

This has been a year in which the business restructuring of previous years has started to take effect. Sales growth of 16 percent was on budget and resulted in a profit for the year of \$127,800 before tax – double that of the previous year.

Sales growth and profit were very close to budget during the year, as were expenses. This growth follows CRL Energy's diversification from coal to a much wider remit of clean energy. It also reflects a new interest in energy and modern energy technologies.

This year marked the 10th anniversary of CRL Energy becoming a limited company. It is worth considering where we have come from as a measure of the gains made in those ten years. Our sales this last financial year were 175 percent of those in our first full year as a limited company (1994/95). The diversification to a wider range of clients is evidenced by services to the Coal Association making up only eight percent of the sales this year, compared to 20 percent in 1994/95. Staff numbers have also doubled over the ten year period.

CRL Energy has continued to drive the move to a hydrogen future in New Zealand with the ongoing development of the coal gasifier. After a number of trials in combustion mode to develop procedures, operation as a gasifier has commenced. This represents a significant milestone in achieving the programme objectives. A number of international visitors have shown keen interest in the research programme and its rationale. CRL Energy staff has worked closely with government officials in facilitating New Zealand's membership of the International Partnership for the Hydrogen Economy (IPHE), which is a key collaboration in the global move to a hydrogen-based energy economy.

Fossil fuels will continue to be an essential part of New Zealand's energy mix and CO₂ sequestration will be a key to this continued use of fossil fuels in New Zealand. CRL Energy is committed to CO₂ sequestration research and is actively seeking investment for research in this area. Support from a US/NZ bilateral research agreement has provided access to the synchrotron at Argonne National Laboratory for fundamental studies of pressurised CO₂ interaction with New Zealand and US coals. We believe that New Zealand can be energy self sufficient with substantially reduced CO₂ emissions from the energy and transport sectors. To achieve this we need CO₂ sequestration in combination with hydrogen energy from fossil fuel, and realistic use of our good range of renewable energy options.

A consortium study entitled "Educating Business Energy Consumers in Climate Change Solutions" co-ordinated by CRL Energy on behalf of the Energy Federation and the Ministry for the Environment Sustainable Management Fund has significantly raised the awareness of energy efficiency measures among Small to Medium Enterprises in the dairy farming, protected crops, forestry, fishing, mining and quarrying and road transport sectors. A long term effort to win a contract with the Asia Development Assistance Facility (ADAF) has come to fruition and a pre-feasibility study on energy production from biomass in the Philippines will commence early in the new financial year. CRL Energy runs the secretariat of the Energy Federation of New Zealand (EFNZ), and in this role has run four successful one-day conferences on the CDM and Kyoto, Transport Emissions, New Zealand Future Energy Needs and International Markets for Carbon Credits, and a number of lunchtime seminars, particularly for the Coal Association.

The Managing Director, Rob Whitney, is participating in a World Energy Council (WEC) Study "Scenarios to 2050", this is the creation of new scenarios motivated by the WEC vision of the evolution of the world energy scene.

CRL Energy has completed the first stage of a new study to be conducted in China. The study examined the viability of integrated coal gasification combined cycle (IGCC) as a cross border project that promotes clean coal power generation technology with higher efficiency



Alan Broome

"Fossil fuels will continue to be an essential part of New Zealand's energy mix and CO₂ sequestration will be a key. . ."

“Additional opportunities lie in the testing and development phase of coal seam gas and the need for testing and monitoring of emissions. . .”

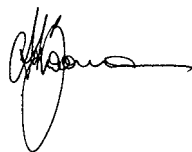
and lower emissions than traditional coal-fired power generation technologies. The second stage is in negotiation.

In our testing services, the analytical laboratory has developed new skills in wheelstand testing for coal behaviour in flumes. Our Gracefield laboratory also offers a wide range of IANZ accredited solid fuel, chemical and microbiological water tests. During the year, CRL Energy began providing testing services to Huntly Power station from the on-site coal laboratory. The imminent introduction of National Environmental Standards for air quality has increased the demand for tuning industrial boilers to minimise emissions and we have become involved in providing ambient air emission monitoring services to a number of clients.

Using environmentally acceptable practises when extracting minerals in New Zealand has become a critical requirement. A new FRST-funded research programme led by CRL Energy, with sub-contractors from Landcare Research, the University of Canterbury and the University of Otago, commenced in July 2004. The new research is an evolutionary step from the past four years of research by CRL Energy on the assessment and trial remediation of acid mine drainage. The six-year programme is concentrating on mining regions of the South Island. The main investor is FRST with additional support from Solid Energy. The outcome from this programme is to provide a robust framework for verifying and streamlining the decision making processes associated with mineral wealth creation.

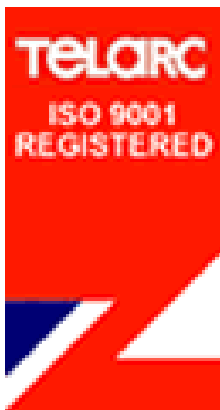
In the coming year the local and international growth in demand for coal offers a range of opportunities for our geology and testing (water and coal) field services. Our two major (multi-million dollar) FRST contracts (for hydrogen and AMD related work) provide significant opportunities for leverage of the Intellectual Property developed in the course of the research programmes. Additional opportunities lie in the testing and development phase of coal seam gas and the need for testing and monitoring of emissions, whether they come from industrial or domestic sources.

CRL Energy has demonstrated in the last year an ability to continue to grow and to move into new markets and to provide a range of RS&T services for all parts of the Energy Sector. Our staff has been a key part of this, and I would like to thank them all for the commitment they have shown to CRL Energy and our customers throughout the year. We will continue to develop a committed and highly qualified team of energy technologists of all disciplines. Our new structure allows our senior executives to concentrate on the strategic growth of CRL Energy in existing and new markets, and to help us achieve our goal of becoming New Zealand's pre-eminent energy RS&T organisation.



A.J. Broome
Chairman CRL Energy Ltd.

About CRL Energy Ltd



CRL Energy Ltd is an energy and environmental consulting company, with a strong research and testing base and a specialist knowledge in all aspects of the energy chain. As well as specialist knowledge in new energy technologies such as hydrogen and biomass conversion, we have a strong history in all aspects of fossil fuel energy, particularly coal research, offering research, consultancy and testing in the areas of exploration and mining, fuel quality and use, and environmental monitoring.

CRL Energy is a Telarc Registered Supplier to ISO9001. Our chemical laboratories and energy test centres provide a solid practical basis for all our work. We have ongoing research contracts with the Foundation for Research, Science and Technology, Technology New Zealand, Energy Federation of New Zealand, World Energy Council, and the New Zealand coal industry.

Our main laboratories, test facilities and library are on the Science Campus at Gracefield, Lower Hutt. We also have:

- A geology and hydrology team based at our Christchurch office in Riccarton.
- An environmental team in Hamilton based on the Ruakura Science Campus.
- A coal analysis team based at the Huntly Power Station.
- A coal and water testing laboratory, and mine geology service in Greymouth.



CRL Energy's Services



Analysis & Testing

CRL Energy offers a comprehensive range of solid fuel analytical tests, with IANZ accreditation for the most important tests. We offer both chemical and petrographic analysis.

CRL Energy's capability includes fuels, such as gas, wood and biomass. We have over twenty years of experience in sampling and analysing export coal shipments for New Zealand's largest coal producer. Our Greymouth and Gracefield laboratories offer IANZ accredited chemical and microbiological water sampling and testing services, whether for drinking water or waste water.

Geological, Geotechnical Engineering & Hydrogeological Services

The mix of geo-consulting skills available from CRL Energy can be applied to any type of land development, from small subdivisions to large-scale mining.

The geological team at CRL Energy's Christchurch Office gives clients an integrated service for the interpretation of geological data, from the exploration stage through to mining and production.

Our petrographic and palynological expertise and our seam modelling techniques offer clients a premium service for exploration and characterisation of coal deposits. CRL Energy is leading the way in coalbed methane exploration from New Zealand's low rank coal deposits.

Energy & Fuels

CRL Energy's combustion test centre offers testing programmes tailored to meet the needs of individual clients. Our 50kW combustion test rig can test and evaluate fuel performance under controlled conditions. Our gasification bench-scale test rig is ideally suited to measuring char reactivities, with the capability of rapid and accurate measurement of gas mixtures.

CRL Energy wins contracts for research on New Zealand coals and their utilisation from a number of clients, including the Foundation for Research Science and Technology.

Environmental Monitoring

CRL Energy's acid mine drainage (AMD) research team are experts in the latest remediation technologies, such as limestone dosing and wetland development schemes, to mitigate the impacts of metal pollution on water and aquatic life and habitat.

CRL Energy measures particulate emissions from wet or dry gas streams and offers a size distribution analysis. Size fractions as low as 2.5 microns can be quantified.

We offer at-source pollutant gas emissions measurement with our portable gas analysers.

Our dust deposition monitoring service will measure ambient dust present at work sites and near stockpiles. We can help companies to reduce carbon dioxide emissions by advising on boiler efficiencies.

Climate Change

We have an excellent reputation in providing a wide range of climate change related services such as research, consultancy and education.

The New Zealand Government ratified the Kyoto Protocol in December 2002. By ratifying the Protocol the government has agreed to reduce New Zealand's greenhouse gas emissions to their Kyoto Protocol target, which is based on 1990 emissions. The target under which New Zealand has agreed to at Kyoto, based on national greenhouse gas emissions inventories for the first commitment period (2008 - 2012) is 365 million tonnes CO₂ equivalent. However according to a business as usual scenario New Zealand's actual greenhouse gas emissions will be 14 - 20% higher than this target.

In order to meet this target the Government is introducing a climate change policy that includes a carbon charge. Climate Change has become an issue that will have an impact on all New Zealanders, especially New Zealand businesses.

World Energy Council Research

Cross-border studies

As part of a World Energy Council (WEC) research programme, CRL Energy has completed the first stage of a new study focusing on assessing the feasibility of a 300-400 MW integrated coal gasification combined cycle (IGCC) demonstration project in Shandong Province, China. The study examined the viability of IGCC as a cross border project that promotes clean coal power generation technology with higher efficiency and lower emissions than traditional coal-fired power generation technologies.

Coal-fired power generation in China is a major source of CO₂ emissions, and the WEC considers China a key country for promoting greenhouse gas (GHG) reduction projects.

An IGCC system uses coal gasification (as opposed to simple coal combustion). When coal is brought into contact with steam and oxygen, thermochemical reactions produce a fuel gas, largely carbon monoxide and hydrogen, which when combusted can be used to power gas turbines. IGCC power generating systems are presently being developed and operated in Europe and the USA.

These systems give increased efficiencies by using waste heat from the product gas to produce steam to drive a steam turbine, in addition to a gas turbine. Existing commercial systems achieve efficiencies close to 45 percent.

With recent advances in gas turbine technologies these systems are capable of reaching above 50 percent. IGCC systems additionally produce less solid waste and lower emissions of SO_x, NO_x and CO₂. Over 99 percent of the sulphur present in the coal can be recovered for sale as chemically pure sulphur. Presently in China where most power plants are relatively small, average efficiency is about 28 percent compared to an OECD average of 38 percent.

This is the third clean development mechanism (CDM) study for the

WEC. The first study for the WEC in 2001 explored the feasibility of Japanese investment in the Tararua Stage 2 Wind farm. It looked at several innovative options on how best to make the Tararua Stage 2 wind farm project proceed. The conclusion was that the best option was an early allocation and international trade of New Zealand's Kyoto assigned amount units.

A second cross border investment CDM study in the WEC research programme in 2003/04 was undertaken in the Philippines with several exist-

ing partners from a previous study and new ones from the Philippines and Australia and examined a wind farm and geothermal project. The study concluded that the United Nations Framework Convention on Climate Change - CDM Fast Track Process and guidelines would facilitate the processing of small-scale CDM projects.

The second stage of the China CDM study is currently under negotiation and will be reported on in the Coal Newsletter later in the new financial year.

Energy Scenarios to 2050

CRL Energy's Managing Director, Rob Whitney, has been selected as part of study group participating in a World Energy Council (WEC) Study "Scenarios to 2050", this is the creation of new scenarios motivated by the WEC vision of the evolution of the world energy scene.

This major study to develop new WEC Energy Scenarios follows earlier WEC work such as *Energy for Tomorrow's World* (1993) and *Global Energy Perspectives* (1998). Scenarios for 2050 will be based on updated assumptions about the main drivers of energy supply and demand and the Study group will work in partnership with expert data and modelling institutions.

Updated Terms of Reference will be considered by the Studies Committee at the upcoming meeting in Sri Lanka in September 2005.

Dr Whitney says he expects that the predictions will be based on three basic scenarios which had appeared in the WEC publication; *Energy for Tomorrow's World*. "These are: High Growth, Reference or Middle Course, and Ecologically Driven. We will re-examine assumptions about declining energy intensity, which had appeared in WEC's previous scenarios study, with a focus on technological opportunities, potential learning curves and diffusion rates, and their investment implications.

In previous exercises, the scenarios have indicated a move away from fossil fuels towards non-fossil fuels.

"However, I believe that huge amounts of coal, oil and natural gas will be consumed over the next half-century.

"I expect that, as with previous scenario predictions, that we'll be estimating cumulative capital investment requirements for the scenarios. These estimates cover requirements for expanding production capacity, and for transmission and distribution infrastructure, but not for all energy-related infrastructural requirements nor for investments in end-use technologies.

"We'll also be projecting global carbon dioxide emissions by scenario. Depending upon the different scenarios, the global carbon intensity of primary energy supply is expected to start declining at various points and speeds between the years 2000 and 2050.

"It will be an interesting exercise, and perhaps provide a primer for governments to work from. At present, around the world energy is unevenly distributed with the resulting detrimental impacts on the global, regional and local environment and on human health. Health, water, food, education, and many other key aspects of welfare cannot be improved unless modern energy becomes available to all."

Research Highlights

Hydrogen energy research



CRL Energy Scientist Dr Tony Clemens, right, with the coal gasifier. Using heat and air, coal entering the gasifier is reduced to a char, then steam is added to the char to produce a syngas. Filtration separates the hydrogen and carbon byproducts. The coal gasification reaction can be catalysed by the presence of calcium - many New Zealand coals contain calcium in the correct form to perform this catalyst role.

The New Zealand Government's (via the Foundation for Research, Science and Technology) \$6 million *Hydrogen Energy for the Future of New Zealand* project has recently finished its third year and has enhanced New Zealand's capabilities and skills in hydrogen production from coal.

New Zealand has an estimated 8.6 billion tonnes of economically recoverable coal reserves, enough to meet New Zealand's energy needs for hundreds of years. Much of these reserves are particularly suited for hydrogen rich gas production. CRL Energy was charged by the New Zealand Government with the task of exploiting these reserves to develop a totally new 'carbon-based fuel to clean hydrogen to electricity' technology package suitable initially for distributed energy generation and ultimately for large-scale implementation.

The first part of the technology package – the air blown bubbling fluidised bed coal gasifier – was

designed, built and commissioned by CRL Energy and is the first example of this technology in New Zealand. The combination sulphur scavenger, Venturi scrubber and water gas shift catalyst package to be used for gas cleanup and pure hydrogen production is also a first for this country.

The pure hydrogen is for use in a fuel cell assembly being developed by research partner IRL. The entire technology package is designed to produce approximately 25 kW of electricity.

Individual elements of the technology package – both CRL Energy's gasifier and initial sections of the clean-up line and IRL's fuel cell with the final section of the cleanup line have been frequently discussed and progress demonstrated to high level policy makers and industry stakeholders. The project has also enjoyed a significant amount of media coverage.

Previous modelling work relating to New Zealand's transition to

a hydrogen economy to meet the needs of the transport fleet have been completed and work has now commenced modelling distributed generation applications in a hydrogen energy economy.

After 2013 there will be no compulsion on electricity lines companies to supply electricity to areas where it is uneconomic to do so. Hydrogen fuel cells could help fill the gap if the plug is ever pulled. It is likely that hydrogen-powered fuel cell will be operational in the field in New Zealand within the next few years, initially to produce electricity at small remote sites, where the cost of electricity delivery is already high.

Dr Tony Clemens, Research Manager at CRL Energy, says the robustness of the *Hydrogen Energy for the Future of New Zealand* programme has been a significant factor in New Zealand's decision to join the International Partnership for the Hydrogen Economy. "This Partnership aims to collaborate global efforts into addressing the issues and barriers to a hydrogen economy – hydrogen production, storage, utilisation, codes and standards and public outreach. Membership in this organisation ensures New Zealand is up with the latest developments in all areas of the hydrogen economy as they happen, is well placed to make the transition to this new, secure, clean energy system at the same time as the rest of the world and to benefit from that change."

The International Partnership for the Hydrogen Economy was established in 2003 as an international institution to accelerate the transition to a hydrogen economy. Most developed countries have joined the Partnership including Australia, United States, Canada, Germany, United Kingdom, European Union, Iceland, Norway, France, Italy, India, Japan, China and the Federation of Russia. For information about the partnership see: <http://www.iphe.net>.

CO₂ sequestration research

As part of the New Zealand/United States Bilateral Climate Change Partnership suite of programmes, CRL Energy and the Advanced Photon Source (Synchrotron) of the Argonne National Laboratory near Chicago, collaborated on an introductory investigation of CO₂ uptake in coals by use of small angle X-ray scattering (SAXS).

CO₂ is preferentially adsorbed onto the surface of the coal, releasing methane which can be harvested. Two or three molecules of CO₂ are adsorbed for each molecule of methane released, thereby, providing an excellent storage sink for CO₂.

Although there are methods avail-

able to measure the CO₂ capacity of coals, there have been no reliable means of direct observation of accompanying changes to coal structure and the implications for long term storage.

SAXS is a technique for structural investigations on a nanometer length scale (1-300 nm). Typical samples consist of macromolecules or colloids in solution and measurements are performed in situ.

SAXS technology applied to coals is in its infancy, but this preliminary work clearly showed that it is able to provide reliable and reproducible information on pore size changes and distribution with CO₂ uptake as

it occurs. Four New Zealand coals (ranging from lignite through to sub-bituminous) and three bituminous coals from the Argonne Premium Coal sample bank were successfully investigated. The results were presented to members of the US delegation to the Partnership during their July 2005 visit to New Zealand.

Future work will concentrate on expanding the coal data set and experimental parameters (temperature and pressure), correlating with CO₂ uptake volume measurements and developing the technique into a new globally applicable method for predicting sequestration behaviour of selected coal seams.

EFNZ project improving energy efficiency

Following on from the *Methodologies for Projects to Reduce Greenhouse Gas Emissions* project, a two-year consortium study entitled *Educating Business Energy Consumers in Climate Change Solutions* was managed by CRL Energy on behalf of the Energy Federation of New Zealand and the Ministry for the Environment Sustainable Management Fund. The project has already raised awareness of energy efficiency measures among small to medium enterprises in the dairy farming, protected crops, forestry, fishing, mining and quarrying and road transport sectors, with a round of workshops and the publication of six industry-specific information kits.

The information kits identify immediate cost-effective solutions to rising energy costs, and increase awareness of incentives and opportunities to reduce greenhouse gas emissions provided through the Government's climate change policy.

A workbook approach was adopted for the kits which contain a series of case study calculators so the reader can estimate the potential savings various measures may have on their business. The savings are calculated in terms of energy intensity, energy

savings and emission reductions. A simple payback calculator has also been included.

The six information kits are entitled:

- Energy efficient ways to improve the economic bottom line of your dairy farm business;
- Energy efficient ways to improve the economic bottom line of your protected crops business;
- Energy efficient ways to improve the economic bottom line of your forest harvesting business;
- Energy efficient ways to improve the economic bottom line of your fishing business;
- Energy efficient ways to improve the economic bottom line of your mining or quarrying business; and
- Energy efficient ways to improve the economic bottom line of your road transport business.

The release of the information kits has been timely with the announcement of the carbon tax that will come into force in 2007. The information kits are aimed at energy intensive industries which the C tax may have a significant impact on. Early action will help mitigate the effect of C tax on a company's bottom line.

The *Educating Business Energy Consumers in Climate Change Solutions* project consortium was established in July 2003 and was made up of 18 companies and organisations: Coal Association of New Zealand, Energy Efficiency and Conservation Authority (EECA), Holcim (New Zealand) Ltd, IAG New Zealand Limited, Landcare Research New Zealand Limited, Massey University, Mercury Energy, Meridian Energy Limited, Motor Trade Association, New Zealand Climate Change Office, New Zealand Steel Limited, New Zealand Business Council for Sustainable Development, Road Transport Forum, Tourism Industry Association of New Zealand, The New Zealand Vegetable and Potato Growers Federation's Fresh Tomato Sector & Fresh Vegetable Sector's Covered Crops Group, Westland Milk Products, and Westpac.

The kits were coordinated by CRL Energy climate change advisers, Julia Rackley and Deborah Maxwell. The project was funded by the Sustainable Management Fund through the Ministry for the Environment, and by contributions from each of the consortium companies.

Copies of the information kits are available from CRL Energy or from the Energy Federation Web site at: www.energyfed.org.nz/publications.html.

Research Highlights

Acid mine drainage research

CRL Energy Ltd is continuing with its second year of a six-year project focused on reducing water quality impacts from mining, the main impact coming from acid mine drainage (AMD).

CRL Energy Ltd has been involved in Foundation for Research, Science and Technology-funded AMD research for a number of years. AMD is an important environmental issue in the New Zealand mining industry and occurs when sulphide-bearing minerals in rock are exposed to air and water by mining activity. Breakdown of sulphides releases acid and can mobilise trace elements such as arsenic, zinc, nickel and others from waste rock and tailings into ground and surface water.

In the past, research has focused on identifying the sources of AMD and trialling AMD remediation techniques. The abandoned Sullivan and Blackball Mines, near Westport and Greymouth, have been used extensively as AMD impact assessment research sites. The research focus has now shifted to geochemical quantification of AMD, identification of high AMD risk rock types, identification of ecological impacts, methods to assess ecological impact and installation of remediation techniques.

Led by Dave Trumm, CRL Energy environmental scientist, small-scale remediation trials using passive treatment techniques developed overseas have been assessed at the Sullivan site, and laboratory experiments in AMD treatment were completed for the Blackball Mine AMD.

In the last financial year the results were reported at two major international conferences. (See Publication and Presentations page 19). In addition, on 27 May 2004, a



Members of the CRL Energy project team take acid mine drainage samples at the abandoned Sullivan Mine near Westport.

workshop in Greymouth on assessment and remediation techniques in both New Zealand and West Virginia, in the United States, was presented to an audience of scientists, regulatory authorities, environmental managers, and industry stakeholders with interests in acid mine drainage issues.

Presenters from CRL Energy Ltd, Solid Energy Ltd, University of Canterbury and the West Coast Regional Council explained the remediation trials at Sullivan Mine, progress at Stockton and the Ngakawau River, the remediation work on the Malvern Hills project, and stream ecology in AMD impacted sites. Dave Trumm and Amanda Black gave a presentation on the collaborative research visit to West Virginia.

Pathways to mineral wealth and environmental sustainability

The AMD workshop in May 2004, provided an opportunity for Amanda Black, CRL Energy's environmental scientist in Christchurch,

to outline CRL Energy's new FRST-funded contract: "Delivering pathways to mineral wealth and environmental sustainability". Led by research manager Dr Tony Clemens, this six-year contract started on 1 July 2004, and has already achieved a number of its milestones. As the title of the programme suggests the aim is to provide a decision-making framework to assess potential mining sites, and determine whether extraction is possible in an environmentally sustainable manner. The programme has four broad objectives:

- Identifying potential AMD environmental risks significant to each of the primary mining regions;
- Categorising the impacts from AMD on the ecology of the receiving aquatic ecosystems and the processes that drive aquatic ecosystem recovery;
- Identifying best strategies to sufficiently remediate

impacted ecosystems and strategies to prevent ecosystem degradation; and,

- Combining the results from the above objectives into a standard decision-making framework – a process that will include wide consultation with representatives from the mining industry and regulators.

To identify potential AMD environmental risks a team led by Dr James Pope, CRL Energy Applied Research Manager, collated existing available rock (geochemical) and water data (quality, flow and precipitation events) from targeted areas in the West Coast and Southland mining regions. The team has selected specific sites in each region and designed a sampling plan for a more detailed evaluation which will be completed in December this year.

To categorise the impact of AMD on ecology a team led by Jon Harding, a fresh water ecologist from the University of Canterbury, has collated existing data on water chemistry and aquatic biota for West Coast and Southland mining regions. They are now working on an initial draft of water quality thresholds to identify ecological impact which will be completed in December this year. In addition, Jon's group is organising an M.Sc student to undertake an extensive algal survey, including identifying taxonomic tolerances, in a range of mine impacted systems in the West Coast and Southland Regions. The survey should be completed by June next year.

Work on identifying best strategies to remediate impacted ecosystems and prevent ecosystem degradation is being led by Dave Trumm. So far this team has developed guidelines for management strategies

for minor, moderate and severely impacted sites. By mid-2005 they have also categorised sites in West Coast and Southland into severe, moderate and minor impacted. They now move forward in the new financial year to set-up small scale trial remediation systems at minor and moderately impacted sites.

As well as the work by CRL Energy's own scientists, Kathryn O'Halloran, Jo-Anne Cavanagh and Rowan Buxton of Landcare Research have lent their expertise in environmental care areas, as has Dr Dave Craw from the University of Otago, with geological and geochemical expertise of the West Coast and Southland.

All those involved in the programme are contributing to a standard decision-making framework, an objective being led by Amanda Black, which is also being strategically guided by a Governance Panel made up of representatives from Solid Energy NZ and Oceana Gold, two regional

regulatory bodies; West Coast Regional Council and Environment Southland, and three Government departments, Ministry for the Environment, and the Department of Conservation.

The completed framework will enable New Zealand to realise economic benefits from its mineral deposits by provision of a robust framework for unifying and streamlining the decision-making process when a site is assessed for its potential to be able to extract mineral wealth with an acceptable level of environmental impact, and best-practice methods for mitigating and rectifying any environmental impact. The end result will be better managed access to mineral resources, a raised profile of good mining practices, and a more positive image of mining within the general community - all necessary outcomes if the Government hopes to realise its goal of doubling New Zealand's earnings from mineral wealth within the next decade.



A range of remediation systems were tested including anoxic and oxic limestone drains, and successive alkalinity producing systems which were particularly positive.

Publications and Presentations

Coal to hydrogen research

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Energy Federation of New Zealand (EFNZ) Events

CRL Energy organised a number of Wellington-based events (seminars, conferences and workshops) on behalf of the EFNZ. These included:

- 16 April 2004 - Workshop on CDM and the Kyoto Protocol – Wellington (EFNZ)
- 18 August 2004 - Transport Emissions Conference: Moving Forward – Wellington (EFNZ)
- 25 November 2004 - Conference on New Zealand Future Energy Needs and Outlook – Wellington (EFNZ)
- 27 January 2005 - Seminar on International Markets for Carbon Credits – Wellington (EFNZ)
- 7 March 2005 - Seminar with Gerald Doucet (Secretary General, World Energy Council) – Wellington (EFNZ)

Who's who at CRL Energy Ltd

SHAREHOLDERS

Coal Association of New Zealand Inc.
ACIRL Ltd (Part of the HRL Group of Companies)

BOARD

A J Broome	Chairman
B J Bragg	Solid Energy New Zealand Ltd
B S Francis	Francis Mining Co. Ltd
S C Thompson	Royal Society of New Zealand
R S Whitney	CRL Energy Ltd
F Woskoboenko	HRL Pty Ltd

EXECUTIVE

Rob Whitney, PhD	Managing Director
Trevor Matheson, PhD	Manager - Operations
Tony Clemens, PhD	Manager - Research Business

STAFF

Luda Aptekar, NZCS - Gracefield, laboratory technician
Maurice Arnott, NZCE - Hamilton, environmental technical officer, safety officer
Rachel Baggs, MSc - Greymouth, geologist
James Beechey, BSc - Greymouth, technical officer
Amanda Black, MSc - Christchurch, environmental scientist
Rodney Brown - Gracefield, engineering technician
Ramon Brown, BE (Hons) - Gracefield, principal engineer, hydrogen energy systems
Edwyn Bryant, BSc - Gracefield, technical officer
Patricia Clare - Christchurch, administrative assistant / receptionist
Caroline Cudby - Gracefield, PA to Managing Director
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Nigel Newman, PhD - Christchurch, geochemist, export and oil sampling supervisor
James Pope, PhD - Christchurch, applied research manager
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Julia Rackley, BRS - Christchurch, climate change/energy research analyst, safety coord.
Pieter Rossouw, DSc - Gracefield, EERA project manager
Meng Fei Shi - Gracefield, laboratory assistant
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Dave Trumm, MSc - Christchurch, environmental hydrologist
Poata Tuisamoa - Gracefield, coal preparation technician
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Mark von Huben, BE (Civil) - Christchurch, technical officer: air emissions
Sue Watkins - Gracefield, receptionist, accounts payable
Malcolm Watts - Greymouth, laboratory manager, water and solid fuels, safety officer

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Financial Statements of the Coal Association of NZ Inc.

for the year ended 31 March 2005



Coal Association of New Zealand Incorporated

Financial Statements

For the year ended 31 March 2005

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COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

STATEMENT OF FINANCIAL PERFORMANCE

FOR THE YEAR ENDED 31 MARCH 2005

	Note	Group		Parent	
		<u>March</u> <u>2005</u> \$	<u>March</u> <u>2004</u> \$	<u>March</u> <u>2005</u> \$	<u>March</u> <u>2004</u> \$
Operating Revenue	2	3,276,267	2,872,788	396,241	403,528
Operating Expenses	3	(3,262,777)	(2,829,238)	(495,890)	(398,900)
Operating Surplus (Loss) Before Taxation		13,490	43,550	(99,649)	4,628
Taxation on Operating Surplus	4	45,775	19,400	-	-
Net Surplus After Taxation		(32,286)	24,150	(99,649)	4,628
Adjust for Minority Interests in Subsidiary		(24,161)	(12,577)		
Net Surplus after Taxation Attributable to Parent		(56,446)	11,573		

The attached NOTES form part of these Financial Statements



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY
STATEMENT OF MOVEMENTS IN EQUITY
FOR THE YEAR ENDED 31 MARCH 2005

	Note	Group		Parent	
		March 2005 \$	March 2004 \$	March 2005 \$	March 2005 \$
Net Surplus After Taxation:					
Parent		(56,446)	11,573	(99,649)	4,628
Minority		24,161	12,577	-	-
Movement in Asset Revaluation Reserve	5	-	4,984	-	4,984
Total Recognised Revenues and Expenses		(32,286)	29,134	(99,649)	9,612
Ordinary Dividends Paid		(6,288)	(9,600)		
Movements in Equity for the Year		(38,574)	19,534	(99,649)	9,612
Equity at Start of Year		2,271,444	2,251,910	1,791,520	1,781,908
Equity at End of the Year		2,232,870	2,271,444	1,691,871	1,791,520

The attached NOTES form part of these Financial Statements



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

STATEMENT OF FINANCIAL POSITION

AS AT 31 MARCH 2005

	Note	Group		Parent	
		March 2005 \$	March 2004 \$	March 2005 \$	March 2004 \$
Members Funds and Shareholders' Equity					
Accumulated Funds		1,605,425	1,663,822	1,510,227	1,609,876
Asset Revaluation Reserve	5	281,644	281,644	181,644	181,644
Realised Capital Gain	6	3,500	2,000	-	-
		1,890,569	1,947,466	1,691,871	1,791,520
Minority Interest		342,301	323,978	-	-
TOTAL MEMBERS FUNDS AND SHAREHOLDERS' EQUITY		2,232,870	2,271,444	1,691,871	1,791,520
Represented by:					
Current Assets					
ANZ Banking Group		473,370	378,638	307,975	419,323
Accounts Receivable		447,882	406,137	46,558	45,607
Accruals		172,117	178,044	1,808	2,577
Prepayments & Accrued Expenses		90,331	78,693	8,656	5,000
Income Tax	4	2,634	21,055	-	-
Inventories		150,341	164,909	-	-
Total Current Assets		1,336,675	1,227,476	364,997	472,507
Non-current Assets					
Property, Plant & Equipment	7	1,447,343	1,450,738	803,234	816,010
Investments in Subsidiaries	8	-	-	600,000	600,000
Total Non Current Assets		1,447,343	1,450,738	1,403,234	1,416,010
TOTAL ASSETS		2,784,018	2,678,214	1,768,231	1,888,517
Current Liabilities					
Accounts Payable		437,393	310,615	23,070	14,126
Current Portion of Hire Purchase & Secured Loans	9	35,415	23,482	-	-
Income In Advance		37,416	31,044	-	-
Related Party Transactions		-	-	53,290	82,871
Total Current Liabilities		510,224	365,141	76,360	96,997
Non-current Liabilities					
Term Portion of Hire Purchase & Secured Loans	9	40,925	41,629	-	-
Total Non-current Liabilities		40,925	41,629	-	-
TOTAL LIABILITIES		551,149	406,771	76,360	96,997
NET ASSETS		2,232,870	2,271,444	1,691,871	1,791,520

On behalf of the Board of the Association

Chairman, 5 July, 2005

The attached NOTES form part of these Financial Statements



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

STATEMENT OF CASHFLOWS

FOR THE YEAR ENDED 31 MARCH 2005

	Note	Group		Parent	
		March 2005 \$	March 2004 \$	March 2005 \$	March 2004 \$
CASH FLOWS FROM OPERATING ACTIVITIES					
Cash was provided from					
Receipts from Customers		3,222,792	2,821,225	363,136	365,045
Dividend Received		-	-	14,673	22,400
Interest Received		18,459	15,033	17,312	11,633
		<u>3,241,251</u>	<u>2,836,258</u>	<u>395,121</u>	<u>399,078</u>
Cash was applied to					
Payments to Suppliers and Employees		2,923,582	2,502,219	502,859	358,134
Taxation Paid		2,443	73,933	-	-
Interest Paid		11,377	3,663	3,520	55
		<u>2,937,402</u>	<u>2,579,815</u>	<u>506,379</u>	<u>358,189</u>
Net Cash Inflow from Operating Activities	14	<u>303,849</u>	<u>256,443</u>	<u>(111,258)</u>	<u>40,889</u>
CASH FLOWS FROM INVESTING ACTIVITIES					
Cash was provided from					
Sale of Property, Plant & Equipment		8,000	-	-	-
		<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Cash was applied to					
Purchase of Property, Plant & Equipment		(222,058)	(377,132)	(90)	(8,380)
		<u>(222,058)</u>	<u>(377,132)</u>	<u>(90)</u>	<u>(8,380)</u>
Net Cash Outflow to Investing Activities		<u>(214,058)</u>	<u>(377,132)</u>	<u>(90)</u>	<u>(8,380)</u>
CASH FLOWS FROM FINANCING ACTIVITIES					
Cash was provided from					
Gross Proceeds of Hire Purchase Contracts and Loans		37,155	75,121	-	-
		<u>37,155</u>	<u>75,121</u>	<u>-</u>	<u>-</u>
Cash was applied to					
Payment of Dividend to Minority Interest		(6,288)	(9,600)	-	-
Repayment of Hire Purchase Contracts and Loans		(25,926)	(10,012)	-	-
		<u>(32,214)</u>	<u>(19,612)</u>	<u>-</u>	<u>-</u>
Net Cash Outflow from Financing Activities		<u>4,941</u>	<u>55,509</u>	<u>-</u>	<u>-</u>
Net Increase (Decrease) in Bank Balances		<u>94,732</u>	<u>(65,180)</u>	<u>(111,348)</u>	<u>32,509</u>
Add: Bank Balances at the Start of the Year		378,638	443,818	419,323	386,814
Bank Balances at the End of the Year		<u>473,370</u>	<u>378,638</u>	<u>307,975</u>	<u>419,323</u>
Represented by					
ANZ Banking Group - Bank Balances		473,370	378,638	307,975	419,323
		<u>473,370</u>	<u>378,638</u>	<u>307,975</u>	<u>419,323</u>

The attached NOTES form part of these Financial Statements



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2005

1. STATEMENT OF ACCOUNTING POLICIES

Reporting Entity

The Coal Association of New Zealand Incorporated (the "Association") is an Incorporated Society registered under the Incorporated Societies Act 1908.

The Financial Statements presented here are for the reporting entity Coal Association of New Zealand Incorporated and the consolidated Financial Statements of the Group comprising Coal Association of New Zealand Incorporated and its subsidiary, CRL Energy Limited (formally Coal Research Limited).

Basis of Preparation

These Financial Statements have been prepared in accordance with the Financial Reporting Act 1993.

These Financial Statements form a general purpose financial report which has been prepared in accordance with the generally accepted accounting practice as defined by the Institute of Chartered Accountants of New Zealand.

These Financial Statements have been prepared using the historical cost method modified by the revaluation of the buildings.

Basis of Consolidation

The Consolidated Financial Statements include the Association and its subsidiary accounted for using the purchase method. All significant inter entity transactions are eliminated on consolidation. In the parent entity Financial Statements, the investment in the subsidiary is stated at valuation.

Differential Reporting

The Group qualifies for differential reporting as it is not publicly accountable and there is no separation between the members and the governing body. Differential Reporting Standards have been applied except that pertaining to FRS 10 Statement of Cashflows and SSAP 12 Accounting for Income Tax.

Accounts Receivable

Accounts Receivable are stated at their expected realisable value, and adequate provision has been made for amounts not expected to be recovered.

Foreign Currencies

Transactions in foreign currencies are converted at the New Zealand rate of exchange ruling at the date of the transaction. Foreign monetary assets and liabilities are translated into New Zealand dollars at the exchange rate ruling at balance date. Exchange variations arising from these translations are included in the Statement of Financial Performance.

Goods & Services Tax

These Financial Statements are prepared on a tax exclusive basis. All items in the Statement of Financial Position are stated on a tax exclusive basis, with the exception of Accounts Receivable and Accounts Payable which include GST invoiced.



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2005

Income Tax

The liability method of accounting for taxation has been followed. Provision has been made for taxation after taking full advantage of all deductions and concessions permitted. No provision has been made for deferred tax.

Intangible Assets

The costs associated with ISO 9001 are being amortised over its three year life.

Investments

Investments are stated at directors valuation.

Inventories

Inventories are stated at the lower of cost, determined on a first in first out basis, and net realisable value.

Leases

The Group leases certain land and buildings.

Operating lease payments, where the lessors effectively retain substantially all the risks and benefits of ownership of the lease items, are recognised in the determination of the net loss in equal instalments over the lease term.

Property, Plant & Equipment

The property is shown at net current value as determined by an independent valuer, A E Davis (ANZIV, SNZPI) of Holmes Davis Limited at 31 March 2004. Property is to be revalued on a cyclical basis every 3 to 5 years. The basis of the valuation was on the current market rental and sales analysis of nearby properties. The valuation assumes the highest and best use of the property was its current business use and accordingly the valuation was valued on that basis.

Depreciation is provided on all assets, except land, on a straight line basis at rates that will write off the value of the assets over their useful economic lives. The following depreciation rates are applied.

Buildings	2.00%
Furniture & Fittings	8.00% - 48.00%
Alterations	10.00%
Leasehold Improvements	3.00% - 11.40%
Plant	9.60% - 48.00%
Motor Vehicles	18.00%
Library Books	9.50% - 76.20%
Office Equipment	21.60% - 48.00%
Leased Equipment	36.00%

Work in Progress

Work in Progress has been valued at the lower of cost or net realisable value on a percentage of completion basis, except that work in progress that has been completed and about to be invoiced has been valued at retail.

Changes in Accounting Policies

There have been no changes in accounting policies. All policies have been applied on bases consistent with those used in the prior year.



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2005

<u>2. OPERATING REVENUE</u>	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Depreciation Recovered on Sale of Fixed Assets	8,000	-	-	-
Dividend Received	-	-	14,673	22,400
Energy Trust Distribution	1,500	-	-	-
Interest Received	18,459	15,033	16,543	14,210
Research & Consulting Fees	3,192,027	2,801,009	238,550	240,672
Rent	14,806	14,806	85,000	85,000
Subscriptions	35,975	35,546	35,975	35,546
Sundry	5,500	6,394	5,500	5,700
Total Operating Revenue	3,276,267	2,872,788	396,241	403,528

<u>3. OPERATING EXPENSES</u>	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Operating Expenses Include:				
Auditor's Remuneration	6,000	6,019	-	-
Bad Debts	9,646	-	5,350	-
Chairman's Fee	30,000	29,400	30,000	29,400
Change in Provision for Doubtful Debtors	-	2,813	-	2,813
Depreciation	217,453	214,009	12,866	14,612
Foreign Exchange Loss	115	1,606	-	-
Interest Expense	11,234	3,663	3,520	55
Rental Expense on Operating Leases	28,527	30,203	-	-

<u>4. INCOME TAX</u>	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Operating Surplus Before Taxation	13,490	43,550	(99,649)	4,628
Taxation thereon at 33%	4,452	14,372	-	-
Plus/(Less) Taxation Effect of:				
Permanent Differences	37,231	5,865	-	-
Timing Differences	4,092	(836)	-	-
Taxation on Operating Surplus	45,775	19,400	-	-
Prior Year Taxation Due / (Refundable)	(21,055)	5,935	-	-
Tax Refund Received	21,055	-	-	-
Terminal Tax Paid	-	(5,935)	-	-
Transfers	-	1,266	-	-
Foreign Investor Tax Credit	1,110	1,694	-	-
Provisional Tax Paid	46,633	38,477	-	-
Resident Withholding Tax Paid	667	284	-	-
Available Tax Credits	48,410	40,455	-	-
Taxation Due / (Refundable)	(2,634)	(21,055)		

The Association has tax exempt status under Section CB 4(1) of The Income Tax Act 2004.

<u>5. ASSET REVALUATION RESERVE</u>	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Opening Balance	281,644	276,660	181,644	176,660
Net Revaluations	-	4,984	-	4,984
Closing Balance	281,644	281,644	181,644	181,644

<u>6. REALISED CAPITAL GAINS RESERVE</u>	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Opening Balance	2,000	2,000	-	-
Energy Trust Distribution	1,500	-	-	-
Closing Balance	3,500	2,000	-	-



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY
NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 31 MARCH 2005

7. PROPERTY, PLANT & EQUIPMENT

	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
<u>Land and Buildings</u>				
At Valuation	820,000	820,000	820,000	820,000
Accumulated Depreciation	(25,746)	(13,746)	(25,746)	(13,746)
	794,254	806,254	794,254	806,254
<u>Leasehold Improvements</u>				
At Cost	40,818	40,818	-	-
Accumulated Depreciation	(19,961)	(17,040)	-	-
	20,857	23,778	-	-
<u>Furniture & Fittings</u>				
At Cost	107,188	106,805	4,264	4,264
Accumulated Depreciation	(84,833)	(76,832)	(3,791)	(3,687)
	22,355	29,973	473	577
<u>Computer Equipment</u>				
At Cost	737,312	645,818	-	-
Accumulated Depreciation	(606,492)	(535,427)	-	-
	130,820	110,391	-	-
<u>Plant</u>				
At Cost	1,370,377	1,212,241	6,350	6,350
Accumulated Depreciation	(965,598)	(933,477)	(6,313)	(5,551)
	404,779	278,764	37	799
<u>Library Books</u>				
At Cost	99,043	93,925	-	-
Accumulated Depreciation	(90,689)	(81,983)	-	-
	8,354	11,942	-	-
<u>Motor Vehicles</u>				
At Cost	108,385	63,811	-	-
Accumulated Depreciation	(50,931)	(40,437)	-	-
	57,454	23,374	-	-
<u>Website Development</u>				
At Cost	8,470	8,380	8,470	8,380
Accumulated Depreciation	-	-	-	-
	8,470	8,380	8,470	8,380
<u>Fixed Asset Under Construction</u>				
At Cost	-	157,882	-	-
Accumulated Depreciation	-	-	-	-
	-	157,882	-	-
Total Net Book Value	1,447,343	1,450,738	803,234	816,010



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2005

8. INVESTMENTS IN SUBSIDIARIES

The Association's investment in a subsidiary comprise shares at valuation.

Name of Entity	Interest Held by Group		Principal Activity
	<u>2005</u>	<u>2004</u>	
CRL Energy Limited	70%	70%	Energy & Environmental Research

The subsidiary has a balance date of 31 March.

9. HIRE PURCHASE

	Group		Parent	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Equipment Finance Limited	36,692	57,995	-	-
Fuji Xerox Finance Limited	5,142	7,116	-	-
Toyota Finance Limited	18,570	-	-	-
ANZ Banking Group	15,936	-	-	-
	<u>76,340</u>	<u>65,111</u>	-	-
Less Current Portion	<u>(35,415)</u>	<u>(23,482)</u>	-	-
Term Liability	<u>40,925</u>	<u>41,629</u>	-	-
Payable Less than One Year	35,415	23,482	-	-

Security has been lodged over the assets subject to the above Hire Purchase Agreements, namely certain Computer Equipment, Motor Vehicles, and a Photocopier.

10. OPERATING LEASES

The Group has operating lease commitments for the premises in Hamilton, Greymouth and Christchurch. During the year an additional operating lease was signed for a motor vehicle.

The future operating lease commitments are as follows:

	Group		Parent	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Within One Year	18,170	40,792	-	-
Between One-Two Years	16,219	34,388	-	-
	<u>34,389</u>	<u>75,180</u>	-	-

11. RELATED PARTIES

Coal Association of New Zealand Inc. (CANZ) owns 70% of the share capital of CRL Energy Limited. During the year CANZ received from CRL Energy Limited revenue related to rental accommodation. In addition, CANZ paid to CRL Energy Limited expenditure related to energy related environmental research and consulting services.

12. SEGMENT INFORMATION

The Group operates in one industry (research) and in one geographical area (New Zealand).

13. BANK OVERDRAFT FACILITY

CRL Energy Limited has a bank overdraft facility of up to \$100,000 with the ANZ Bank. The facility is secured by way of a registered debenture. The facility was utilised at various times during the year.



COAL ASSOCIATION OF NEW ZEALAND INCORPORATED & SUBSIDIARY

NOTES TO THE FINANCIAL STATEMENTS

FOR THE YEAR ENDED 31 MARCH 2005

14. RECONCILIATION OF NET SURPLUS AFTER TAXATION
TO CASH FLOWS FROM OPERATING ACTIVITIES

	<u>Group</u>		<u>Parent</u>	
	<u>2005</u>	<u>2004</u>	<u>2005</u>	<u>2004</u>
	\$	\$	\$	\$
Net Surplus after Taxation	(32,286)	24,150	(99,649)	4,628
Add / (Less) Non-cash Items				
Depreciation	217,453	214,009	12,866	14,612
	217,453	214,009	12,866	14,612
Add / (Less) Movement in Working Capital				
(Increase) Decrease in Accounts Receivable	(41,745)	172,506	(2,125)	(2,107)
(Increase) Decrease in Prepayments & Accrued Expenses	(11,638)	(68,661)	(3,656)	(5,000)
(Increase) Decrease in Inventories & Work in Progress	14,568	(56,084)	-	-
Increase (Decrease) in Accounts Payable	126,777	20,997	10,118	(20,398)
Increase (Decrease) in Income in Advance	6,372	31,044	-	-
Increase (Decrease) in Related Party Transactions	-	-	(29,581)	50,170
Increase (Decrease) in Accruals	5,927	(54,528)	769	(1,016)
Increase (Decrease) in Taxation	18,421	(26,990)	-	-
	118,682	18,284	(24,475)	21,649
Net Cash Inflow from Operating Activities	303,849	256,443	(111,258)	40,889



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AUDITORS' REPORT

To the Members of the Coal Association of New Zealand Incorporated

We have audited the Association and Group financial statements on pages 1 to 10. The financial statements provide information about the past financial performance and financial position of the Association and Group as at 31 March 2005. This information is stated in accordance with the accounting policies set out in Note 1 of the financial statements.

Board's Responsibilities

The Board is responsible for the preparation of the financial statements, which give a true and fair view of the financial position of the Association and Group as at 31 March 2005 and the results of their operations and cash flows for the year ended on that date.

Auditors' Responsibilities

We are responsible for expressing an independent opinion on the financial statements presented by the Board and reporting our opinion to you.

Basis of Opinion

An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the financial statements. It also includes assessing:

- the significant estimates and judgements made in the preparation of the financial statements; and
- whether the accounting policies are appropriate to the Association's and Group's circumstances, consistently applied and adequately disclosed.

We conducted our audit in accordance with New Zealand Auditing Standards issued by the Institute of Chartered Accountants of New Zealand. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to obtain reasonable assurance that the financial statements are free from material misstatements, whether caused by fraud or error. In forming our opinion we also evaluated the overall adequacy of the presentation of information in the financial statements.

Other than in our capacity as auditors, we have no other relationships with, or interests in, the Association or its subsidiary.

Unqualified Opinion

We have obtained all the information and explanations we have required.

In our opinion:

- proper accounting records have been kept by the Association as far as appears from our examination of those records; and
- the financial statements on pages 1 to 10;
 - comply with generally accepted accounting practice in New Zealand; and
 - give a true and fair view of the financial position of the Association and Group as at 31 March 2005 and the results of their operations and cash flows for the year ended on that date.

Our audit was completed on 8 July 2005 and our unqualified opinion is expressed as at that date.

Sherwin Chan & Walshe
Chartered Accountants
Lower Hutt

Our Vision

Coal is accepted as a secure, competitive and environmentally sustainable energy resource contributing to New Zealand's prosperity

