

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

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This Newsletter is published for the Coal Association by CRL Energy Ltd. We value your feedback on issues discussed in the Coal Newsletter. For comments or enquiries please contact:

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## Unlocking our mineral wealth

At an opening address to the Australasian Institute of Mining and Metallurgy on 26 August 2009, Energy and Resources Minister, the Hon. Gerry Brownlee, announced he is investigating access for mining in Crown-owned land, particularly conservation land.

In his address he said that there is no doubt that New Zealand is a mineral rich country.

"A recent report by Richard Barker estimated our metallic mineral potential to have a gross in-ground value in excess of \$140 billion, with lignite alone at least an additional \$100 billion. Australia is often referred to as the "lucky country" because of its natural resources endowment. . . But New Zealanders need to know that this country is also well endowed with natural resources. A report circulated by the World Bank some years ago ranked New Zealand second in the world in terms of natural wealth per capita. We were behind only Saudi Arabia, but well ahead of Australia.

"So I am firmly of the belief that our natural resources have the potential to make a significant contribution to our prosperity and our economic development. As a nation we have neglected the contribution that the resources sector could make to our growth rate, levels of employment, and quality of life. Of course we must be cognisant of our responsibility to the environment. But mining and the environment can co-exist together."

### Improving access to mineral resources

Mr Brownlee said that in his short time as Minister he had become acutely aware that one of the fundamental barriers to mineral exploration and development is access to prospective land, particularly to land administered by the Department of Conservation.

"Reasonable access to the mineral estate in Crown-owned land, particularly conservation land, is a key issue. There are obviously competing objectives here but there is scope to explore how economic development objectives could be better reconciled with other land values. There is the potential for more flexible arrangements that do not undermine conservation and environmental objectives."

The Minister said that he and the Minister of Conservation, the Hon. Tim Groser, have agreed that officials from Crown Minerals and DOC are to work together with a clear directive to make progress on improved access to conservation land across three fronts.

"These are, first, a review of Schedule 4 of the Crown Minerals Act; second, improvements to DOC processes for access arrangements; and third, consultation on the reclassification of DOC administered land."

Mr Brownlee said that DOC administered land hosts a majority of our mineral potential – an estimated 70%. "About 40% of that land is listed in Schedule 4 of the Crown Minerals Act. That means something like 30% of our most prospective land is off limits because the Minister of Conservation is not allowed to enter into any access arrangement for any area described in Schedule 4, except for certain low impact activities. This effectively precludes all mining activities and most exploration activities on that land. Collectively the areas currently covered by Schedule 4 make up around 13% of New Zealand's total land area and include the highest value conservation areas." Crown Minerals has now been directed by the Minister to undertake a strategic review to determine areas possessing significant mineral potential that, with the removal of the access prohibition provided by Schedule 4, could through responsible mining techniques contribute considerably to our prosperity.

Mr Brownlee's address is not without its critics, conservation lobby groups, such as Forest and Bird, have already expressed concerns about any changes allowing access to conservation lands and feel there are very few places listed on Schedule 4 where mining activity might be appropriate.

However, Mr Brownlee says in the case

*continues next page*

## Fugitive methane

*The inclusion of fugitive emissions of methane (FEM) from coal mining in the ETS will cause significant competitiveness problems for the coal industry. Last year, officials listened to coal industry concerns about FEM issues of financial liability, ownership, geological variability, and measurement uncertainty, and recommended FEM not be included in the ETS. The officials' advice was ignored in the political deal to pass the legislation.*

*Coal producers are now expected to absorb the FEM costs if they are to remain competitive as coal exporters (or to compete in the New Zealand market against imports from, for example, Indonesia). These costs could result in mine closure and the inability to develop new mines. Currently it appears unlikely there will be any transitional provision for "free allocation" for trade exposed producers.*

*The Government justifies its position on the grounds that it is feasible for FEM from New Zealand mines to be captured and combusted. Research has shown there is no feasible method of utilising the methane, even in the most gassy mines. Coal producers hope to meet with Government ministers to resolve some of these concerns.*

*Chris Baker commented that this is a "ridiculous outcome that was hatched together in a deal between Labour and the Greens when the Legislation was introduced in 2008".*

*"I am very disappointed that the Minister hasn't understood the inequity this provision creates. I am also disappointed that the Minister has received incorrect advice from officials regarding the opportunity for industry to exploit FE on a commercial basis."*

*FEM is also a major concern in the ETS debate across the Tasman with the Australian Coal Association saying that without compensation, their proposed tax is likely to result in 16 mines (22 million tonnes per year) closing prematurely.*

## Unlocking our mineral wealth

*continued from page 1*

of Crown land, including that administered by DOC, the Crown has distinct interests in both the land itself and the Crown owned minerals on, or under, that land. "The relative value of these two interests depends on the specific circumstances. Accordingly, before making a final decision to recommend that certain areas are removed from Schedule 4, the Minister of Conservation and I will be required to carefully consider the land's mineral potential and conservation values respectively."

### Consultation on the reclassification of DOC administered land

Reclassification of DOC administered land currently takes place under several different provisions of five different statutes. None of these statutes require the Minister of Energy and Resources to be consulted prior to public notification and only two - national parks and national reserves - require the Minister to be specifically notified. "Accordingly, under current law any opportunity costs associated with a reclassification can only be assessed by Crown Minerals and raised with me after proposals to reclassify areas have already been publicly notified. This situation is clearly unsatisfactory as reclassification of DOC land can significantly raise the conservation threshold in respect of gaining access to mineral resources. "Fortunately, with the Oteake Conservation Park proposal, at a late stage I was able to meet with the Minister of Conservation to discuss the impact that the park would have on any future development of the Hawkdun lignite deposit.

"The Minister of Conservation gave due consideration to the economic development potential and consequently the park boundaries were amended to exclude this important lignite deposit which constituted just 0.3% of the proposed conservation park.

"To improve the present situation, the Minister of Conservation and I have directed officials to develop options to improve processes around DOC consultation with

Crown Minerals on conservation land reclassification.

"Personally, I favour a system where all DOC land reclassifications are referred to Crown Minerals prior to public notification so that an early review of the land's mineral potential can be undertaken."

### Environmental Responsibility

Mr Brownlee said that good economic outcomes must not be inconsistent with good environmental practice, as we need to preserve the environment for future generations. He added that there are a number of examples that demonstrate that good mining practice can be reconciled with respect for the environment.

"Take for example the Pike River coal project on the West Coast, which was presented with a certificate from DOC for the "environmental consideration it demonstrated" in the development of the coal mine. The mine's environmental footprint has been kept to a minimum through good design, with little damage to the ancient trees and bush. Driving through the spectacular Paparoa ranges, you would not know there is a coal mine only a few hundred metres away.

"The building of a road through the ranges to get access to the coal mine has actually opened up that area of the country for people who otherwise wouldn't get to experience it. There is ample scope for environmental tourism."

Another example is the work of Solid Energy at the Stockton Opencast Mine.

"Solid Energy has an environmental policy of reasonably minimising the adverse local environmental affects that may be an unavoidable part of operating coal mines. As part of this, it spent 13 months between 2006 and 2007 collecting over 6,000 "Augustus" native land snails from the Mt Augustus ridgeline of Stockton Mine. Following collection of the snails, much of the original habitat was moved 800 metres north. By the end of 2007, approximately 4,000 snails, and over 1,000 eggs, had been released onto this and other sites."

Mr Brownlee said that these examples demonstrate that mining and good environmental practice can sit side by side.

## ETS update

On 24 September the Government introduced, with Maori Party support, the Climate Change Response (Moderated Emissions Trading) Amendment Bill. It will revise the Emissions Trading Scheme to “reduce the costs to households and the impact on jobs while ensuring New Zealand takes a responsible approach to the global problem of greenhouse gas pollution and climate change”.

Features of the revised scheme include:

- Revised entry dates of 1 July 2010 for transport, energy and industrial sectors and 1 January 2015 for agriculture;
- A transitional phase until 1 January 2013 with a 50% obligation and \$25 fixed price option for the transport, energy and industrial sectors (effectively a \$12.50 per tonne CO<sub>2</sub> price cap for 2.5 years in line with the Australian A\$10 cap proposal);
- A production-based industry average (intensity) approach to allocations for trade exposed, emissions intensive businesses: >1600 tonnes CO<sub>2</sub> equivalent/\$M revenue is the high intensity threshold for 90% allocation (Government estimates approximately 15 companies eligible) and >800 tCO<sub>2</sub>e/\$M for medium intensity 60% allocation (approximately 50 companies eligible); and
- A phase-out of industry support of 1.3% per annum aligned with trading partners and the Government’s long-term 50% by 2050 emissions reduction target.

Minister for Climate Change Issues Nick Smith says these changes will halve the price impact on households for fuel to 3.5c per litre and electricity to 1c/kWh. The costs for the average household are expected to reduce from \$330 to \$165 per year during the transition phase. Taxpayers will have to pay the shortfall of about \$400M by 2013.

He describes the ETS as the first of any country outside of Europe and will be the most comprehensive by including transport, industrial and energy emissions.

The Finance and Expenditure Select Committee will hear submissions and report back quickly to meet the Government’s objective to have the revised law passed before the December Copenhagen climate change conference.

Business reaction to the changes has been generally positive. The Greenhouse Policy Coalition (representing energy intensive industries) welcomes the effort being made to keep New Zealand employers competitive in the period before other countries are imposing the same costs on carbon. The proposals to make the scheme more affordable for households and industry are “sensible in the current tough economic environment”.

“We need to remember that in New Zealand our large industry is already close to World’s Best Practice in energy intensity and we have one of the highest percentages of renewable electricity of any country.”

Details that needed to be worked through include the major issues of the emissions factor for electricity, the method for calculating industry average emissions, and the definition of trade exposure.

Chris Baker, Chairman of the Coal Association, commented “these changes are positive and the Government is to be commended for recognising a number of the key concerns of business. We need to remember however that an ETS will only be an effective means of reducing global emissions over time if similar policies are adopted by many other countries, not just the EU. Which countries will take up such policies, and over what time is unclear in the

extreme and that in itself dictates a cautious and flexible start to New Zealand’s ETS.”

## Emissions reduction target

In August, the Government announced an emissions reduction target range of 10% to 20% below 1990 levels by 2020, with the final target depending on a number of conditions to be met in the Copenhagen conference.

The commitment is conditional on a comprehensive global agreement being secured that sets the world on a pathway to limit temperature rise to 2°C, developed countries make comparable efforts to those of New Zealand, effective rules on forestry, and New Zealand having access to a broad and efficient international carbon market.

“This target is internationally credible and both environmentally and economically responsible. It is an ambitious but achievable goal,” says Dr Smith.

“The target is going to be a big ask for New Zealand because our gross emissions are already 24% above 1990 levels. On top of this, half our emissions come from agriculture, which is unique amongst developed countries, and we already have one of the highest proportions of renewable electricity. While forestry planted in the 1990s is currently offsetting the increases in our gross emissions, the age of our trees means this will not be the case in 2020.”

Dr Smith says New Zealand would meet its 2020 target through a mixture of domestic emission reductions, the storage of carbon in forests, and the purchase of emission reductions from other countries.

Chris Baker says the ambitious target appears to ignore the advice given by Treasury, which recommended (on the basis of analysis of equal costs for developed countries) a target range from 15% above 1990 levels to 7% below.

“I think the target announced is simply a signal to ‘show willing’. The only way we in New Zealand could get near that target in any rational framework would be if global progress to reduce emissions wildly exceeds even the most optimistic estimates. “It would be unrealistic to believe that a 10-20% target wouldn’t impose direct costs on New Zealanders in 2020 about six to nine times higher than the average for developed countries from current pledge levels of 15% cuts. Meeting such a target will impact negatively on our GDP, and impact negatively on global emissions!”

The Treasury recommended target took no account of the offset offered by forestry, arguing that there is too much uncertainty about what the accounting rules for forestry will be, and that credits trees earn while growing have to be repaid when harvested – setting up a future liability for the country.

Treasury based its analysis on international modelling of an “equal cost” approach to calculating comparability of effort among countries, which takes into account differences in population growth, wealth and the potential to reduce emissions. The Treasury report acknowledged the difficulty in marketing a growth target in the international negotiations. By setting a costly target range that is in line with the targets set by other developed countries, the Government considers it is not putting the New Zealand ‘brand’ at risk.

Catherine Beard (GPC) warned that if the Government settles on a 15% reduction target from 1990 levels, it will cost New Zealand households ten times what the US is proposing to charge its citizens. Ms Beard said the reason it is so difficult and expensive for New Zealand to reduce emissions is due to our unique national circumstances, including the second highest population growth amongst developed countries and our high percentage of agricultural emissions. - See also Page 2 *Fugitive methane*.

## Stockton Mine reservoir



*The \$14 million Mangatini Sump at Stockton holds up to a million cubic metres of water and sediment. Photo: Solid Energy.*

Mine water from Solid Energy's Stockton Mine in Buller began flowing into a huge new reservoir in early July, a significant milestone in a long-term project to improve the quality of water in the nearby Ngakawau River.

The \$14 million Mangatini Sump, built at the mine, holds up to a million cubic metres of water and sediment. It is the largest in a series of structures designed to ensure runoff from the mine's main working areas is treated prior to discharge to the Mangatini Stream and Ngakawau River. The project is designed to meet water quality targets agreed with the local community and West Coast Regional Council in 2005. The works, begun in 2006, have to date cost \$40 million.

Future work includes relocating a system which adds finely powdered limestone to the sump water to lower acidity levels and remove metals. This will be done by Christmas and will lead to a marked improvement in the appearance of the downstream water. Work is due to begin to enlarge and improve the performance of a settlement dam in the south of the mine and additional treatment measures in the Fly Creek catchment are being planned. These improvements should be completed in 2010. Fly Creek runs into St Patrick Stream, another tributary of the Ngakawau River.

Solid Energy's Chief Executive Officer, Dr Don Elder, says the ongoing improvement in river water quality since about mid-2007 is a major achievement and is now a source of significant pride for the energy company.

"There's been coal mining on the Stockton Plateau since the 1880s and it is an understatement to say that, for most of that time, it wasn't being done with the environment as a high priority," says Dr Elder. "In March 2004, we publicly acknowledged that in the past some of our mining activities had fallen short of environmental

best practice," says Dr Elder.

Solutions involve prevention as well as treatment. There are physical works like the reservoirs, pipelines and the water treatment plant, and changes to mining methods, such as dealing with waste rock and re-establishing plant cover once work has finished.

Measures to improve water quality at Stockton form one part of the mine's wider environmental management programme. Water management in the Mangatini catchment (which collects water from the main working areas of Stockton Mine) is designed to ensure the Ngakawau River downstream is consistently of a quality which is suitable for native fish. Last year, whitebaiters on the Ngakawau reported some good runs of fish and there will

be strong interest in seeing if the river again proves to be attractive to whitebait when the season opens in September.

The ongoing cost of maintaining and operating the system is estimated to be \$8 million a year. It has three elements – minimisation, prevention, and treatment.

**Minimisation and prevention:** Mining pits and other work areas such as roads are engineered to minimise the amount of clean water which can enter these disturbed areas. Mine planning also aims to reduce the amount of disturbed area, while a strong rehabilitation effort has resulted in up to 30 hectares of former mine land being rehabilitated each year.

Advances in the way overburden rock is handled at Stockton also assist the prevention regime. Low-permeability capping layers isolate potentially acid-forming rock from air and rain, significantly reducing the impact on downstream waterways.

**Treatment:** Before being returned to the area's natural waterways, water affected by mining is collected and passed through a series of passive and active systems designed to both remove impurities and ensure the overall water chemistry is suitable for sensitive native species. Associated scientific work has resulted in solutions to remove suspended metals from mine water. The treatment system includes a \$10 million water treatment plant, commissioned in late 2007, which can clean up to 1.4 million litres of water an hour.

Building the Mangatini Sump involved removing 1.8 million cubic metres of rock. It is the largest of a series of reservoirs which retain mine water, allowing time for coal fines and sediment to settle to the bottom. It is estimated it will take 50 years for the trapped sediments to fill half of the Mangatini Sump.

## International CCS seminar held in Wellington



*Chris Baker, Chairman of the Coal Association of New Zealand.*

On Monday, 27 April 2009, the Coal Association of New Zealand hosted a one-day seminar on Carbon Capture and Storage (CCS). The seminar was organised by CRL Energy and included nine speakers from a variety of organisations in New Zealand and abroad who provided stakeholders with an update on the status and prospects for CCS globally.

Chris Baker, Chairman of the Coal Association, said that many of the attendees at the CCS seminar may have had the view that CCS has been around

for some time and that there is a lot of talk but not a lot of action. But after this seminar many have changed their minds.

“There is a lot happening globally; Snohvit, In-Salah, Sleipner, Rangeley, and Weyburn are just some of the projects that John Gale, General Manager of the IEA GHG R&D Programme, provided an overview on; there are also other projects underway which speakers outlined including the assessment of New Zealand’s CCS potential, and Australia’s Callide Oxyfuel Project.”

John Topper, Director of the IEA Clean Coal Centre, presented an overview of coal issues worldwide and discussed the IEA projection that world energy demand will expand by 45% by 2030 (one third to be supplied by coal) unless measures are taken to limit this growth. “John’s address crystallised the importance of CCS if the world is to respond successfully to climate change,” says Mr Baker.

“The establishment of the Global CCS Institute (GCCSI) in Australia, which CEO Nick Otter talked about, is a key development for CCS. New Zealand is a founding member of the Global CCS Institute, a contribution that we strongly support and that will be vital for keeping abreast of international activities, building New Zealand’s international links and guiding our own CCS programme.”

David Brown, Chief Executive of CS Energy, outlined the A\$204 million clean coal demonstration project in Queensland – the Callide Oxyfuel Project – which aims to demonstrate that oxyfuel combustion combined with carbon dioxide capture and sequestration can achieve near-zero gas emissions from coal-fired electricity generation.

Dr Rob Funnell from GNS Science provided an overview of New Zealand’s options for carbon dioxide storage. “While there may only be a few point sources

of sufficient magnitude to warrant CCS in New Zealand, we have large resources of lignite. If these are to be developed, then CCS options need to be addressed,” says Mr Baker.

Neil Wildgust and Tim Dixon (also from the IEA GHG R&D Programme) presented storage lessons and international CCS regulations, while Kate Riddell from New Zealand’s Ministry of Economic Development outlined the work her regulatory team is undertaking, including the likely consultation process, to develop CCS regulations in New Zealand.

“CCS is largely a collection of technologies that are known and broadly understood. R&D will continue to be of huge importance, but the critical issue for CCS internationally is moving from R&D and pilot scale operations to commercial scale operations.

“The global vision for CCS, and the vision of the GCCSI, is to have twenty commercial-scale plants in operation by 2020. This seminar provided an understanding of the activities that are going on to help realise that outcome.

“To get CCS up and running, and to do so in this challenging time frame, there are some major technical and financial hurdles to overcome, and governments have an essential role to play in addressing those hurdles for what is after all a societal problem. The price of carbon, while it may over time have an important role in addressing climate change, will not on its own be an incentive sufficient to drive the deployment of CCS. For these technologies we need the investment and risk sharing that only governments can provide,” says Mr Baker.

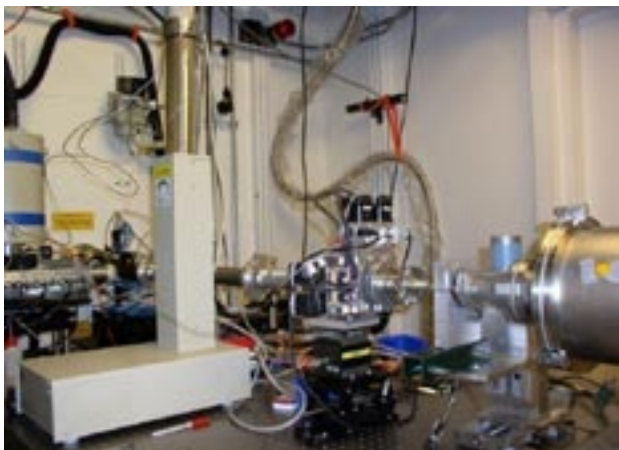
Proceedings of the CCS seminar *Carbon Capture and Storage: Where are we now?* are available from the Coal Association website at <http://www.coalassociation.org/content/files/CCSproceedings.pdf> (PDF 5MB).



*The Callide A station is home to the Oxyfuel Project. The old station was refurbished in 1998 and mothballed in 2000 for this project - one of the units was recommissioned in 2009. Photo: David Brown, CS Energy.*

## Nano-scale research for geosequestration wins silver at Pittsburgh

*A research team including CRL Energy's Research Manager Dr Tony Clemens has again won international accolades, this time a silver award for an "Outstanding Contribution" at the September 2009 Pittsburgh Coal Conference. The award is for a scientific paper produced as a result of their recent research at the US Argonne National Laboratory into the processes that occur when carbon dioxide is injected into various coal types. The work is to understand what happens at the atomic level to the pore spaces in coal if unminable coal seams are used as part of geosequestration.*



*The coal sample holder in the beamline at the 7GeV Argonne APS synchrotron facility. The pump on the left is the CO<sub>2</sub> injector. The beam comes in from the left and the detector is on the right.*

Geosequestration (the capture and storage of CO<sub>2</sub> in geological structures such as deep aquifers, unminable coal seams, and oil and gas fields) is an increasingly likely option with the pressing need to stabilise CO<sub>2</sub> levels in air, combined with the continued widespread use of fossil fuels predicted to continue at least through to 2050 as the world transitions toward renewable-based energy.

Dr Clemens has been working with Drs Randall Winans and Sönke Seifert of the US Argonne National Laboratory, using in situ Small Angle X-Ray Scattering (SAXS) from Argonne's Advanced Photon Source (APS) high energy synchrotron. Dr Clemens directly observes changes in coal structure when it is injected with pressurised CO<sub>2</sub>. In the past three years, tests have been carried out on a suite of New Zealand coals and US coal samples from the Argonne Data Bank, this year Dr Clemens has focussed on a suite of 10 New Zealand sub-bituminous coals.

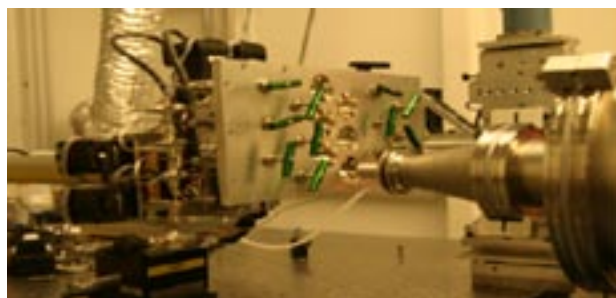
"Until the Hadron Collider comes online, Argonne is one of the three most powerful synchrotrons on the planet. The beam intensity provides the level of resolution and observational power that couldn't be achieved using any other method. We've been measuring the low angle elastic scattering of X-rays from samples with non-homogeneities in the nanometre to micron range; this provides the pore size distribution, shape, and the surface morphology over a broad size range. The sample doesn't need to be crystalline and we've injected CO<sub>2</sub> over a wide range of pressures, which gives us an insight into the changes in coal structure as pressurised CO<sub>2</sub> is injected," says Dr Clemens.

"To understand better what we're doing, you have to understand the structure of coal. We think there are some types of unminable coal seams that could be ideal CO<sub>2</sub> storage sites. This is because coal itself is actually a heterogeneous organic structure which is riddled with variable pore spaces ranging in size from Angstroms to microns. In our first experiments we put samples of New Zealand and US coals in the beamline and injected CO<sub>2</sub> at a series of pressures.

"We went from ambient to 200 psi, held for a few minutes, then to 400 psi, held for a few minutes, then 600, then 800, then stepped back to 600, 400, and 200. The result was the scattering intensities decreased monotonically with increasing pressure and the scattering variations occurred during pressure changes and the depressurisation data matched that of the pressurisation steps. This strongly suggests we are looking at adsorption of CO<sub>2</sub> on walls of pores or voids and that this is a completely reversible process.

"With our next set of experiments we increased the pressure straight through to 800 psi and held it overnight (15 to 18 hours), we then released the pressure back to ambient. This resulted in decreased scattering intensity which cannot be due to changes in pressure, it is more likely we are seeing the dissolution of CO<sub>2</sub> into the coal and swelling. This process was only partially reversible, with a partial increase in scattering intensity on depressurisation.

"To get more information from this set of experiments, we plotted a function called the Porod Invariant – it is a measure of the variation in volume fraction of the voids and the solid coal matrix on swelling. The Porod invariant plots obtained for high rank coals (bituminous) are completely consistent with an initial pore or void filling process followed by dissolution and diffusion of the CO<sub>2</sub> through the sample. As the CO<sub>2</sub> front proceeds it does so as if it were proceeding through a glassy



*The sample holder in the beamline, this time a six sample holder allows Dr Clemens to do six samples in one run.*

polymer type material, swelling the material (coal) as it passes via a largely irreversible relaxation process (Class II diffusion).

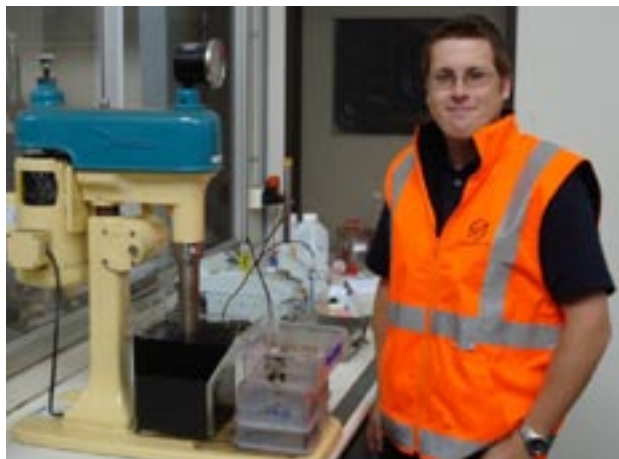
“This implies that for lower rank coals - which are less like a glassy polymer structure, this effect may not be seen. We tested this with a suite of 10 New Zealand sub-bituminous coals. It happened that three of the sub-bituminous samples (the highest ranked of the ten) behaved like the coals studied previously; that is with void or pore filling followed by Class II diffusion. However, for the other seven samples we saw only the void or pore filling. The dividing line between the two outcomes is very thin.

“The technique is now being applied to other coals from around the world, and there are plans to try using SAXS to observe simulated injection of CO<sub>2</sub> into aquifers and oil and gas fields and to compare the results of SAXS direct observation with the models currently used to predict CO<sub>2</sub> behaviour in geological structures.”

As well as the Pittsburgh Coal Conference, Dr Clemens also presented a paper on the research entitled *The use of small angle x-ray scattering (SAXS) for direct observation of the injection of CO<sub>2</sub> into coal samples* at the New Zealand National Energy Research Institute (NERI) conference in April this year.

Dr Clemens’s research was initiated by support from the NZ/US bilateral climate change research partnership between the NZ Ministry of Foreign Affairs and the US State Department and more latterly by the Foundation for Research Science and Technology and the Ministry for the Environment. The Argonne APS-based research is supported by the US Department of Energy, Basic Energy Science (BES) Program.

## New coal prep knowledge in use at CRL Energy



*Coal preparation researcher Ben Rumsey with the Coal Preparation Laboratory Denver Cell for froth floatation. Photo: CRL Energy.*

CRL Energy’s coal preparation research officer, Ben Rumsey, has recently returned from a productive week in Rockhampton, Queensland with the Australian Coal Preparation Society (ACPS). Ben participated in the society’s General Coal Preparation Course which covered a wide range of topics including coal geology, mining methods, sampling and analysis, physical

## CRL Energy library service

The CRL Energy librarian, Glenys Lloyd, provides a basic library service to members of the Coal Association, and is on site at CRL Energy in Gracefield on Tuesdays from 9am to 11.30am.

The collection of coal-related items includes books and reports, and articles from journals such as *Energy and Fuels*. These are available to borrow free-of-charge to Coal Association members, or on a fee basis to recipients of the Coal newsletter who are not members of the Coal Association. The librarian also offers a search service, where internal and external databases are searched for references which can then be obtained from other libraries or document providers.

If you are a member of the Energy Library, you also have access to the services offered by that library; this includes the collection, and also access to extensive energy databases. In addition, the interloan system offers access to items in other libraries both in New Zealand and overseas. The website address for the Energy Library is [www.energylibrary.org.nz](http://www.energylibrary.org.nz)

Contact details, Tuesday mornings only:

Glenys Lloyd, CRL Energy Librarian

Tel: 04 570 3700, [library@crl.co.nz](mailto:library@crl.co.nz)

Rest of the week:

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Web: [www.energylibrary.org.nz](http://www.energylibrary.org.nz)

properties of coal, coal washability, principles of separation, classification, gravity separation process, fine coal beneficiation, dewatering, and plant practice.

“The Australian Coal Preparation Society is an active organisation, with their courses very much practically orientated. Among other things we looked at were worked calculations, sampling, size analysis and elementary unit operations.

“The course gave me a great opportunity to talk to people in other positions, such as plant superintendants, maintenance crews and process engineers. The last day of the course included an industry visit to the 1400MW Stanwell power station and guided tour with the Fuels Manager. Stanwell in Rockhampton is a fully-automated coal-fired station, recognised as one of the most efficient and economic in Australia. The tour was useful in providing an insight into the end use of the coal product, and what the final customers are looking for in terms of coal quality and security of supply.

“We’re already putting my new knowledge gained on the course to use here at CRL Energy, with new efficiency testing and calculation of Ep (separation efficiency) for a range of coal washing equipment - important stuff if end coal-users are to gain the maximum possible yield from their resource.”

# Coal Association of New Zealand Inc.

## Directors

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D Elder Solid Energy

B Francis Francis Mining

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Heinz-Wattie Ltd

Huntly Retail Distribution Centre

Johnson Brothers 2006 Ltd

Kenroll Industrial Coal Ltd

L&M Coal Ltd

Lincoln University

Lion Breweries South

Lyttelton Port Company Ltd

Mangapapa B2 Incorporation

McDonald's Lime Ltd

Ministry of Economic Development

NZ Steel Ltd

Peat (NZ) Ltd

Pike River Coal Ltd

SGS NZ Ltd

Shipherd Nurseries

Sinclair Knight Merz

South Port NZ Ltd

Southtile Ltd

Synlait Milk Ltd

TNL Group Ltd

University of Canterbury

Vector Ltd

Websters Hydrated Lime Company

## Associate Membership

Did you know that you can join the Coal Association, even if you are not a coal producer, by becoming an Associate Member?

### Why should you join?

The Coal Association needs the support of Associate Members more than ever, so that New Zealanders can retain access to the plentiful and economic fuel coal. Your support is vital, as the Association attempts to reduce the impact of economic measures, designed to help meet New Zealand's Kyoto Protocol obligations. As an Associate Member, you can keep up to date with happenings in the energy industry by reading the Coal Newsletter, which is sent out twice yearly, and the Annual Review, which every Associate Member receives with an invitation to the Annual General Meeting.

### Other benefits of Associate Membership are:

- opportunities to participate in Coal Association activities;
- opportunities to make your voice heard through Coal Assn initiatives;
- free access to information held by CRL Energy Ltd;
- free short consultations with CRL Energy staff; and
- free updates of recently published coal information.

### What does it cost?

An annual fee of \$350 +GST.

### How do I join?

Ring CRL Energy 04 570 3715 for the details.



**CRL Energy Ltd**

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