

Coal Newsletter

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Solid Energy to quit coal home heating

Solid Energy is planning a phased withdrawal from supplying coal for home heating. Currently the company supplies about half the coal used for home heating in New Zealand, a market worth an estimated \$10m per annum – about 4 percent of Solid Energy's total sales.

Solid Energy Chief Executive Officer, Dr Don Elder, cites environmental concerns as the motivating reason behind the withdrawal. "Burning coal and wood in open fires and enclosed household burners contributes to air pollution, particularly in cities like Christchurch."

Dr Elder also said that many New Zealanders have negative views about coal, based on incorrect perceptions that coal use in New Zealand is largely about home burning and, as a result, air pollution.

"Coal has a very important future in New Zealand but that future is in industrial uses and for electricity generation, not in household use.

"Coal burnt in compliant industrial burners by New Zealand industry and for electricity generation at Huntly has very low pollutant emissions. Technologies to deal with emissions of particulates, SO₂ and NO_x are widely used and available and cleaner technologies are under development internationally which will significantly reduce further the environmental impacts of industrial coal use."

Solid Energy's two biggest New Zealand customers are the Glenbrook Steel Mill and Huntly power station, with other markets including the dairying, cement making, timber, and meat processing industries.

Last year, Solid Energy entered the renewable fuels market with the purchase of the biomass business, Pellet Fuels NZ Ltd, and the creation of a new company, Solid Energy Renewable Fuels Ltd. No doubt the company hopes that this gap in the home heating market will be filled by more energy efficient fuel pellets burners, which run on the pellets made from waste wood and sawdust.

However, it is unlikely the hardened home coal users will find the product in short supply as many smaller coal producers are anticipating filling the market gap left by Solid Energy's departure. That said, both domestic coal suppliers and home users could eventually see the market legislated out from under them in some areas.

The withdrawal of Solid Energy's home



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

coal supplies to Christchurch is likely to be within a year, in line with the draft Canterbury regional air quality plan, which will see the use of open fires banned from the city from 1 January 2006.

At a public meeting in Invercargill on 20 September, Dr Elder acknowledged that there had been a number of concerns raised by Southland residents. The company wants to discuss these further with local councils and other stakeholder groups, including Environment Southland and Ministry for the Environment, and can be flexible in the timescale they envisaged, of up to five years, for withdrawing the supply of coal to the household market in Southland and Otago.

"We believe that we have made the right decision to withdraw our coal from the home heating market, but we are listening to the reaction that there has been in Southland. Our decision is supported by extensive studies over many years both in New Zealand and internationally, that solid fuel - coal and wood - burnt on open fires and enclosed household burners contributes to air pollution and significant health problems. This is the one, and the only, reason that we have decided to withdraw from supplying the home heating market. Every other reason that I have heard or seen reported in the media is untrue," says Dr Elder.

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.

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Chairman of the Coal Association, Chris Baker.

Challenges and rewards for coal industry

Late August saw the Coal Association's Annual General Meeting, held this year in Wellington. The Association's and CRL Energy's Financial Statements were tabled, and the Association's Chairman, Chris Baker, took the opportunity to reflect on the past financial year.

By Chris Baker, Chairman, Coal Association of New Zealand Inc.

The year to March 2004 has been a challenging and rewarding year for the coal industry and for the Coal Association. A number of events, in addition to the activities of individual players in the industry and the Association itself, have brought a welcome exposure and focus to coal in New Zealand.

Over recent years the Government's focus and enthusiasm for renewable energy has been a barrier to the rational development of the energy sector in New Zealand, and to the coal industry. Linked to this issue there has been and continues to be a widely held perception that Climate Change and New Zealand's obligations to the not yet in force Kyoto Protocol, are not compatible with increased coal use.

These issues were brought into sharp focus during the year when Meridian Energy abandoned Project Aqua. The logic was always that an appropriately located coal-fired power station would be of greater benefit to the New Zealand electricity generation sector than additional hydro capacity in the South Island. However, it took the demise of Project Aqua to highlight the importance of New Zealand's coal reserves and to encourage some constructive debate about New Zealand's energy options.

There are two key issues that support the increased use of coal in New Zealand.

The first is: It is obvious that a portfolio approach to energy generation in New Zealand is required, including both supply and demand side options. With the rapid depletion of Maui however, coal is the one option that provides security of supply, at a reasonable cost. Reserves are certain. Coal, as an important component of the energy mix gives New Zealand the best

opportunity to maintain our competitiveness in the primary and resource sectors that are energy intensive and that comprise such a large part of our economy.

The second issue is: There is a widely held perception that New Zealand, being a signatory to the Kyoto Protocol, should not use coal. This is nonsense. Rather, coal has a vital and pivotal role in the provision of energy internationally, now and clearly for the next few decades, or longer. No other energy source is as cost effective and so widely available in New Zealand. Other technologies will develop over time and the world will transition to low cost, low emission energy technologies. However, until there is a viable technology alternative for developing countries as well as a large number of developed countries, investment in the technologies that capture and store CO₂ released by coal utilisation should be and is a priority internationally. New Zealand should have the same view.

The Coal Association promotes this perspective. Support and investment in carbon capture and storage and hydrogen technologies, membership of international research and information agencies (International Energy Agency Clean Coal Centre and IEA GHG R&D programme), and dissemination of information within New Zealand are helping to achieve a more rational development of energy sector policy in New Zealand. The Coal Association's rolling five year strategy is committing more funds and resources into these areas. In addition, we are looking to the Australian coal sector whose Coal21 programme, a partnership between industry, government and the research sector, aims to develop the technologies to significantly

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“Over recent years the Government's focus and enthusiasm for renewable energy has been a barrier to the rational development of the energy sector in New Zealand. . .”

Russia postpones decision on Kyoto

By Wayne Hennessy, CRL Energy Ltd.

Despite earlier reports that President Vladimir Putin had finally decided Russia would ratify the Kyoto Protocol, the Russian Government has asked to delay making an official report to the President until December. In a draft report, the Prime Minister criticised the Protocol as ineffective for resolving the main duty of the convention, stabilising greenhouse gas concentrations. The government was not convinced that the treaty would lead to significant new investment or sales of emission quotas, and was not tailored to fit Russian needs. "The Kyoto Protocol does not take into account, or does not fully take into account the natural climatic and geographical conditions of countries ... which have a high significance for the Russian Federation." The report cast doubt

on claims that Kyoto would represent a windfall for Russia, quoting experts who said emissions could reach 1990 levels by 2008, which would make attracting investment and selling excess emission quotas difficult.

The government has asked, with the participation of the Russian Academy of Sciences, to extend the work and send a draft report to the President by 15 December 2004.

The signatories to the Kyoto accord are due to meet in Buenos Aires on 6-17 December. They will be hoping for a clear Russian position on the pact since they cannot decide what should follow if its future is still unclear. In 2005, they are also due to decide what emission cuts should be scheduled after 2012 when the protocol runs out and countries must schedule new emissions limits.



Russia's President, Vladimir Putin.

Challenges and rewards for coal industry

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reduce emissions from coal-fired electricity generation while "maintaining our international competitiveness". Coal, and consequently energy, is a major comparative advantage for the Australian economy, and the Coal Association's strategy is to lever off the Australian initiatives for the benefit of New Zealand.

The Coal Association reported a surplus of \$4.6k for the March 2004 financial year against the budgeted deficit of \$150k. Association expenses were generally in line with budget but some planned project expenditure was not incurred.

The budget for the 2005 financial year forecasts a deficit of \$290k. 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 five year plan requires significant additional funds being applied to the areas of research, information and promotion.

CRL Energy continues to trade profitably, albeit sometimes in difficult conditions and has established itself as an independent and credible centre of research and

consulting knowledge. This is a credit to that organisation, and a key asset for the coal industry.

Looking forward key priorities and activities for the Association in 2004/05 and beyond are:

- * Promoting and supporting research consistent with our long term vision regarding coal technologies; and
- * Addressing the barriers, through better quality information and better dissemination of that information, to optimal use of coal in New Zealand. Two key initiatives that support this strategy are:
 - Arranging visits, seminars, exposure for international experts in relevant fields of research; and
 - Organising a technical and policy focused tour(s), to Australia, for selected stakeholders and policy makers.

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.

Pew Center: C capture and storage 'exciting prospect'

Carbon capture and storage (CCS) holds out the prospect for continued use of coal even in a carbon constrained world, Eileen Claussen, President of the Pew Center on Global Climate Change told the American Coal Council recently. Addressing a major coal conference in the United States, Ms Claussen said the aim was to ensure that the costs do not become a barrier to action and be mindful of "the very real costs of not acting to address the problem of climate change... We must move beyond that point (Kyoto) and begin discussing 'what needs to happen' ...Promising technologies need to be encouraged, supported and implemented."

In her opinion, investing in the two key technologies of CCS and integrated coal gasification combined cycle (IGCC) may be the only way for coal to have a long term future in the United States and global energy mix. She said the technologies would not get any closer to "prime time" without substantial investment in research and development, as well as a major policy commitment. The potential for coal to become a source of hydrogen for transportation could revolutionise the industry and future energy supply.

NZ commits \$1.9 million to trans-Tasman sequestration research

Solid Energy, Genesis Energy and research institute Geological and Nuclear Sciences Ltd (GNS) have joined a trans-Tasman research project to seek ways of storing CO₂ emissions underground in coal seams, oil and gas reservoirs or other geological structures. The three are committing \$1.9 million over 7 years to the joint Australian and New Zealand research initiative aimed at developing advanced technologies and systems for the capture and storage of CO₂ emissions. The seven year A\$11 million research programme is run under the Australian Cooperative Research Centre (CRC) programme, where the Australian Government matches research funding dollar for dollar.

The Cooperative Research Centre for Greenhouse Gas Technologies is also supported by Shell, BP, ChevronTexaco, Woodside, Rio Tinto and BHP Billiton. Research will be carried out in universities and research organisations in Australia and New Zealand.

Researchers from leading universities and research organisations in Canada, Japan, the Netherlands, the United Kingdom and the

United States will also participate through parallel programmes.

GNS considers New Zealand's storage potential is vast. As well as depleted oil and gas fields, there are deep saline aquifers and unmineable coal seams. CO₂ storage may even lead to enhanced oil and gas production from depleting hydrocarbon fields. The oil and gas exploration industry has for many decades used injection of liquid CO₂ as a way of maintaining pressure in depleting fields.

CRL Energy has carried out a preliminary survey of sources and potential geologic sinks in New Zealand as part of a Foundation for Research, Science and Technology research programme. A project supported by the Coal Association and Ministry for the Environment Climate Change Office compares the CO₂ sequestration capacity of typical New Zealand coals and their US counterparts. This is part of an ongoing US/NZ bilateral research partnership which is currently using the synchrotron facility at the Argonne National Laboratory in Chicago to follow changes in coal structure that accompany CO₂ injection.

Climate Change and Business Trade Expo

The inaugural Climate Change and Business: The Australia-New Zealand Conference and Trade Expo 2004 to be held in Auckland from 3 to 5 November will bring together business leaders from Australia, New Zealand, China, Japan, USA and Europe to consider the implications of the carbon economy. The speakers will describe the size and nature of emerging carbon markets, provide background on regional governments' policies and incentives, and describe new technologies and scope business risks. Global and regional energy requirements for the next 50 years will also be profiled.

Interactive workshops will explore renewable energy, low emission technologies, energy efficiency methods and greenhouse gas reduction methods, and exhibitors will present more information about the technologies and action that can help reduce greenhouse gas emissions and costs.

The Government's proposed carbon tax from 2007 creates new opportunities for

businesses to capitalise through "intelligent entrepreneurship." This is the message from the New Zealand Business Council for Sustainable Development (NZBCSD) CEO Peter Neilson, who says businesses should stop grumbling about the carbon tax and instead do their homework to find ways to profit from it. "Whenever there's a change of policy there are business opportunities. We believe we might as well help people find ways of making a dollar from it." Neilson is one of the organisers of the Expo, he believes New Zealand is ideally placed to benefit, due to the country's large area of forests as a worldwide market for emissions trading becomes established.

Speakers include Dr Richard Bradley, from the International Energy Agency in Paris, and former US Assistant Secretary of State, Eileen Claussen, now President of the Pew Center on Global Climate Change.

More information, including registration details, can be found on the Internet at <http://www.climateandbusiness.com>

New coal-fired power plants on the cards

Solid Energy has stepped up its investigations into building a coal-fired power station near Westport. The proposed station is forecast to balance power supply and demand in the South Island.

After discussions with Transpower, the company has reportedly decided that two 120MW units is the most economically feasible configuration. The proposed power station would be relatively small - by comparison, the Huntly Power Station, which also runs largely on coal, is 1000MW, and has four large generators. The size will be limited because of commercial factors (the size of the local market), transmission factors (the grid capacity to Buller) and environmental considerations, specifically the combination of the coal sulphur content and the efficiency of the desulphurisation plant needed to remove it.

The preferred location for the coal-fired plant is north of Westport, in the area of Transpower's Waimangaroa substation, and close to the Buller coalfields. A major advantage is that a line upgrade would not be required to feed power back into the top of the South Island. Solid Energy has looked at several potential sites in the region, including reviewing historical investigations. In a newsletter to residents in the area, Solid Energy says it has narrowed down the search to two possible sites. One is a block of land near Birchfield, inland from the main road, on which the company has an option to buy. The other possible site is the land at Granity owned by Solid Energy which was previously consented for the proposed West Coast Coal Terminal.

While the company has short-listed the sites, it says it has not ruled out considering other locations if they are viable.

Both sites had advantages and disadvantages. The Birchfield block was closer to the national grid connection at the Waimangaroa substation but further from the Stockton mine, while Granity was closer to the mine but further from the grid.

Weather, geotechnical and environmental monitoring are being carried out at both sites.

Solid Energy plans to consult with residents about the sites over the next four to five months before deciding which one to choose or whether to proceed at all.

The company reports that it will be December this year before they finish the research to fully consider the environmental aspects of the project and finalise the station's specifications. If the project looks positive at that stage, they would not be applying for resource consent until sometime next year at the earliest. If the proposal does go ahead, it would about four years before the station is operational.

A coal-fired plant was proposed in Buller at the time of Labour Prime Minister Norman Kirk, in the early 1970s. He had the grid designed for this purpose, but the power station was never built.

National Party leader Don Brash recently said in Southland that a National Party-led government would back coal-fired power plants to help offset electricity supply problems. He said that New Zealand "clearly has enough carbon credits rising from forestry" and industries should not be subjected to carbon taxes until at least 2012.

Economic Development Minister Jim Anderton had commented favourably in June 2004 on the prospect of a new coal-fired power station as a way of meeting electricity demand in the top of the South Island. He considered it was "clearly an option" and while the Kyoto Protocol "is an issue, so is running out of electricity. . . We have to make some hard decisions."

Genesis Energy is also investigating coal-fired power stations to meet the growing demand for electricity. The power company is currently carrying out a feasibility study for a new coal-fired plant and if it gets approval, plans to begin construction from mid-2006. One new plant would begin generating electricity in the summer of 2008-09 with a second to come on stream in summer 2011-12. The project would depend on the results of the study and is also subject to approval by the shareholding Finance Minister and SOE Minister. Genesis said that in its briefings with them the company has "had a good reception."



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.



CRL Energy re-ignites Home Heating Test Centre

Demand from New Zealand's home heating manufacturers and importers has prompted the opening of CRL Energy's Home Heating Test Centre in Gracefield, Lower Hutt. The demand has been driven by the imminent introduction of National Environmental Standards for air quality and the need to ensure that new wood burners are compliant with emission restrictions. A parallel demand has also occurred for CRL Energy expertise in tuning industrial boilers to minimise emissions.

The Test Centre has International Accreditation New Zealand (IANZ) accreditation for Applied Physics Testing for solid fuel fired appliances in accordance with NZS/ISO/IEC 17025:1999 - an internationally recognised standard for technical competency. Specifically the Test Centre will be focusing on testing solid fuel burning heaters and cookers for power output and efficiency, particulate emissions, and thermal installation clearances.

> Thermal Clearance Testing

Batch-fed solid fuel burning appliance/flue system installations in accordance with AS/NZS 2918:2001 Appendix B "Thermal Testing of Installation Clearances".

Continuous feed pellet burning appliance/flue system installations to the relevant Australia/New Zealand Standard test method.

> Power Output and Efficiency Testing

Batch-fed solid fuel burning appliances in accordance with

AS/NZS 4012:1999 and AS/NZS 4014:1999

Continuous feed pellet burning appliances to the relevant Australia/New Zealand Standard test method.

> Particulate Emission Testing

Batch-fed solid fuel burning appliances in accordance with, AS/NZS 4013:1999 and AS/NZS 4014:1999.

Continuous feed pellet burning appliances to the relevant Australia/New Zealand Standard test method.

Manager for the Test Centre, Dr Steve Pearce, says that they have the capability to separate the particulate emission particles into six different size ranges to show the percentage of particulate matter smaller than 10 microns (PM_{10}) or 2.5 microns ($PM_{2.5}$).

"In addition to these IANZ accredited services we can also offer research and development advice and planning of test programmes for new batch fed or continuous feed heater designs and non-standard test fuels. We can offer expert advice on design for clean burning combustion systems and our extensive research database means we can help with troubleshooting for operating or design faults."

For further information on the Home Heating Test Centre please contact:

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CRL Energy Ltd

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Clean coal technology developments

The Canadian Clean Power Coalition, representing electricity generators and coal suppliers of over 90 percent of Canada's coal-fired power generation, has summarised the initial findings of its feasibility study into controlling all emissions (including CO_2) to meet foreseeable regulatory requirements.

The emissions target was a coal-fired plant as clean as a modern natural gas-fired turbine plant - while maintaining overall efficiency at or above current levels and costs competitive with other generation technologies.

The first phase of the project comprised the Conceptual Engineering and Feasibility Studies, undertaken from mid 2001 to early 2004. Implementation plans, preliminary designs and cost estimates were developed for the most appropriate technologies, recognising

the geographical variability of coal.

The report concluded that emissions from coal can be reduced to levels equivalent to natural gas power generation and while the cost of electricity with CO_2 capture was 50 percent higher than current rates, it was lower than prior studies. Gasification ranked first and amine scrubbing second.

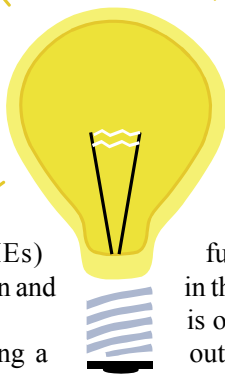
Gasification still requires significant research to make this a competitive power plant technology, although it is probably the most likely platform if limits on CO_2 emissions are applied. Similarly, oxyfuel is not yet a mature technology. Amine scrubbing would appear to be relatively mature, one of the lowest cost alternatives, and ready to apply to power plant applications for capturing CO_2 .

Teaching business to save energy

Last year the Ministry for the Environment approved a second round of two years of co-funding from its Sustainable Management Fund for the Energy Federation of New Zealand's *Educating Business Energy Consumers in Climate Change Solutions* project. At the end of the first year of this latest round six reports have been completed by CRL Energy on behalf of the EFNZ that investigate how small to medium enterprises (SMEs) can reduce their energy consumption and improve their bottom line.

The six reports, each representing a Milestone of this project, are:

- *Review of Existing Climate Change Tools for Small to Medium Sized Businesses;*
- *The Business Case for Reducing Greenhouse Gas Emissions and Improving Energy Efficiency;*
- *Energy Efficiency Measures for SMEs in New Zealand's Primary Production Sector;*
- *Fleetcheck Audit Report;*
- *Energy Efficiency Measures for SME Land Transport Operators in New Zealand's Primary Production Sector – A Guide To Reducing Fuel Consumption and Improving the Fuel Efficiency of your Fleet;* and
- *A Practical Guide to Improving Energy Efficiency in New Zealand's Primary Production Sector.*



As a result of discussions and feedback with consortium members, the Climate Change Office and other government departments, the project was refined to focus on SMEs in the primary production sector.

Five energy audits were completed as part of Milestone Four on land transport fleets in New Zealand. The results of the audits found that while

fuel consumption is a significant factor in the operation of these businesses there is often little analysis conducted to find out where improvements in efficiencies can be made.

The final two reports in this stage of the project provide practical solutions to improve energy use for SMEs. The reports aim to identify ways in which SMEs owners and operators can improve the performance of their fleet or organisation by using energy more efficiently.

The information contained in all six milestone reports will be used to develop an information kit in the second year of the project. This information kit will focus on five primary production sectors: dairy farming, protected crop growing, forestry, fishing and mining.

Opportunities to reduce energy consumption by the more efficient use of on-site equipment will be identified and the associated energy, greenhouse gas emission and cost savings determined.

“. . .there is often little analysis conducted to find out where improvements in efficiencies can be made. . .”

Coming Events

Power-Gen Asia 2004, Bangkok, Thailand, 5-7 Oct 2004, Contact: Seonaid Thomas, PennWell Publishing UK Ltd., Warlies Park House, Horseshoe Hill, Upshire, Essex EN9 3SR, UK, Tel: +44 1992 656 629, Fax: +441992656704, E-mail: powergenasia@pennwell.com, Internet: www.powergenasia.com

Coaltrans 2004 Conference, Barcelona, Spain, 18-20 Oct 2004, Contact: Coaltrans Conferences Ltd., Nestor House, Playhouse Yard, London EC4V 5EX, UK, Tel: +44 20 7779 8945, Fax: +44 20 7779 8946, E-mail: coaltrans@euromoneyplc.com, Internet: www.coaltransconferences.com

22nd Annual Coal Market Strategies Conference, St. Petersburg, FL, USA, 20-22 Oct 2004, Contact: Betsy Poley, American Coal Council, 2980 E Northern Avenue - B4, Phoenix, AZ 85028, USA, Tel: +1 602 4854737, Fax: +16024854847, E-mail: bpoley@americancoalcouncil.org, Internet: www.americancoalcouncil.org/events

McCloskey's Australian Coal Conference, Sydney, NSW, Australia, 25-26 Nov 2004, Contact: Justine Clark, The McCloskey Group, PO Box 15, Petersfield, Hampshire, GU32 3HX, UK, Tel: +44 1730 265095, E-mail: justine.clark@mccloskeycoal.com

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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 industry is facing its biggest challenge in recent times. The Coal Association needs the support of Associate Members more than ever, if New Zealanders are to retain access to such a plentiful and economic fuel as coal. Your support could be vital, as the Association attempts to reduce the continuing threat of economic measures, designed to help meet New Zealand's Kyoto Protocol obligations. You can keep up to date with the efforts being made on your behalf, by reading the Coal Newsletter, which is sent out quarterly, 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.



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