



EnergyWatch

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Editorial

By John Blakeley

Power Price Inquiries

When Contact Energy announced so close to a general election that it was raising electricity prices by 10% or more, it was bound to make consumers angry and politicians nervous.

The announcement came a month after Contact had announced at the beginning of September a profit of \$237.1 million for the year ending 30 June, a fall in profit of 1% from the previous year (and also a bid by Contact's directors to almost double their total fees to \$1.5 million).

Rising Electricity Prices:

The obvious question to be asked is why, when an organisation is obviously very profitable, does it need to raise its prices by so much at a time when many of its customers are struggling financially with rising prices increasing their cost of living?

Contact's price rises for its Wellington and Dunedin customers, effective from 1 November, are expected to cost the average consumer about \$14 more per month.

This price rise comes soon after recent smaller price rises announced by Meridian Energy and Mighty River Power, two Government-owned electricity companies.

The immediate political reaction to Contact's announcement was to call for an inquiry, especially since the outcome of this wouldn't be known until the general election had long gone, and having an inquiry could be used to help inhibit debate on this topic during the run up to the election.

Two ministers at the time, Lianne Dalziel (Commerce) and David Parker (Energy), said that they would raise the issue of an inquiry at the meeting of Cabinet held on Monday 6 October.

After the Contact price rise was announced, the two then ministers said that they would be asking Cabinet if such an inquiry was needed into whether these electricity price rises are evidence of a lack of competition and market power being used to ratchet up prices.



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Following the 6 October Cabinet meeting, the then Prime Minister, Helen Clark, said that Cabinet had decided against holding another inquiry, but that two current inquiries into the electricity sector would report back by the end of the year, and these would be acted upon to get more competition into the electricity generation sector by next winter.

The two present inquiries are before the Commerce and Electricity Commissions, to consider the adequacy of competition in electricity markets.

However to many people, it is already blindingly obvious that competition is not working in the electricity market. In April 1999, the then Minister of Energy, Max Bradford, moved to split the Electricity Corporation of New Zealand into three smaller competing electricity generation companies and constantly told the public that the competition produced by doing this would bring electricity prices for the consumer down.

The reality has been that there is still very little real price competition in the electricity market, especially for domestic consumers, and there are very few places in the world with unregulated electricity markets such as we have now, which deliver either lower prices or sustainable outcomes.

Indeed, exactly the opposite effect has been occurring, and as the two former ministers were implying in their recent statement above, the lack of competition in the market has in fact been “ratcheting up” the price of electricity.

Security of Electricity Supply:

Another major concern about the electricity market is its failure to ensure security of supply, especially during dry winter months. The reality of the situation is that it suits all the electricity generating companies very well to have the market quite frequently in a state of fear of a shortage of supply looming, as that pushes the prices up, which is exactly what they want to happen to increase their profits.

A real shortage can be very costly for some of those companies when it occurs, so what

they benefit from most is the regular fear of a shortage without that shortage actually then occurring!

There is in fact no incentive in the present electricity market for generating companies to take initiatives to improve security of supply but rather the incentive is in the opposite direction, as evidenced by Contact Energy closing down the New Plymouth power station in September 2007 and then in reaction to a developing electricity shortage situation, partly re-opening it in June 2008.

This particular power station had been functioning as de-facto reserve generation capacity for some years but when power supply was relatively plentiful, it no longer suited Contact to have that station available for use until a real shortage situation emerged.

Independent Inquiry Required:

Tinkering around the edges of the electricity market will not work if the Government really does wish to reduce power prices for consumers. But there is a conflict of interest here for the Government, because it is the direct beneficiary of the large profits being made by state-owned electricity generation companies.

Only an independent inquiry can circumvent the Government's vested interest, through the state-owned electricity generation companies. This is because of the large profits presently being made by these companies, much of which goes straight into the consolidated fund, helping to create fiscal surpluses over recent years. Changes must be made to create a more fair and equitable electricity pricing system.

A Shower for Nanny State?

The debate about low-flow shower heads becoming compulsory, which arose during the election campaign and following after the proposed future banning of incandescent light bulbs is at first glance a rather frivolous issue, but one which caught the public's imagination at the time.

However, there is an underlying serious issue which is - to what extent should the Government mandate desirable behaviour changes in the population by regulation or compulsion, and to what extent should it be left to strong promotion backed up by logical argument to persuade people to change their behaviour?

Writing in the NZ Herald on 16 October, columnist Garth George said "What gets up our noses is interference in how we live our lives day by day and it is no better illustrated than by the latest insane idea of restricting everyone to showers delivering 6 litres a minute".

Mr George goes on to suggest that instead of providing services to its citizens tailored to their needs, the State is now constantly endeavouring to alter peoples habits. He goes on to say -

"Instead of building new power stations to meet people's needs, the State tries to lower demand, all the while creaming off exorbitant profits.

Instead of building more roads, the State insists on wasting untold millions on promoting and subsidising public transport, building cycle ways and the like.

And it never works. Human nature being what it is, is pretty much impervious to such blandishments. We are a selfish lot. We will do what we want when we want".

Even allowing for the fact that he is probably exaggerating his position for effect, the above statements suggest that this man does not have even a very basic understanding of the principles of sustainability and any sense of responsibility for the welfare of future generations.

Nevertheless, the underlying serious message is that in a democratic country, Governments can only go so far in seeking to require or compel changes in people's behaviour before they rebel. Beyond that point, Governments have to seek to obtain good outcomes of human behaviour either by moral persuasion or by

using incentives.

US Worries About Energy Security

At about the same time as this debate was occurring in NZ about low-flow shower heads, it was interesting to note that during the US Presidential election campaign, the issue of future energy security for the USA became a live topic.

The response of the Republican candidate, Senator John McCain (and his Vice-Presidential running mate, Governor Sarah Palin whose catch cry was “drill baby, drill”) was to suggest a major new drilling programme for oil both on land and off the coast of the USA, including in areas such as national parks where drilling is at present prohibited, even though it would take at least ten years before any new oil fields discovered were likely to come into production as a result of such drilling. Also there is a global shortage of suitable drilling rigs available at the present time to do such work.

On the other hand, the response of the Democratic candidate, Senator Barack Obama, was to propose new initiatives to promote the use of alternative fuels, and to reduce energy consumption in a variety of ways, with the objective of limiting oil imports to the US from the Middle East to a maximum of 10% of total US requirements within a few years.

It is interesting to note that neither side mentioned Climate Change issues in relation to their energy security concerns. Both sides pretended to be crusaders against increasing greenhouse gas emissions and pollution, while at the same time favouring expanded coal use.

The USA gets nearly half of its electricity from coal-fired generation plants, which account for about a third of that nation’s emissions of man-made carbon dioxide and yet both Senators Obama and McCain waste few opportunities to declare their support for “clean coal”. By this, they may mean they want more research into pumping underground the carbon dioxide emissions produced by burning coal. But the voters in coal-producing states such as West

Virginia interpret the candidates’ rhetoric as endorsement of increased mining and burning of coal using existing processes that are anything but clean, and the presidential candidates have done nothing to disabuse those voters of that notion.

Letter to the Editor

SEF Member, Russell Baillie had the following letter published in the NZ Herald on 16th October 2008.

Electricity Efficiency

Dear Sirs,

In response to your correspondent’s letter “Producing Electricity”, yes, we could go on producing more and more electricity, but this is generally the most expensive answer.

New generation and transmission projects have simple paybacks between 15 and 20 years. Meanwhile there are thousands of equivalent megawatts worth of end use efficiency projects with paybacks as low as three years in homes and businesses throughout the country that are not being implemented.

Everyone pays for the electricity industry’s 15 to 20 year payback projects through their monthly electricity bill, yet we do not appear keen to reduce our bills by implementing our own end-use efficiency projects that have paybacks that are shorter. It is easier to blame the government instead of looking for what we can do to help ourselves.

Lighting controls, high efficiency motors, heat recovery systems, variable speed drives, insulation, solar water heating, domestic hot water heat pumps, wet backs in fires, efficient lighting, water efficient showers and double glazing are all examples that are cheaper than new generation.

And they help make New Zealand more competitive in the international market place.

Russell Baillie

Reference: SEF News Posting, 16/10/08.

Responses on SEF News

Steve Goldthorpe commented that Russell is right, of course, that efficiency projects with a short payback period are more sensible than power generation projects that push up electricity prices.

However, the reality is that householders and small businesses do not have the resources to invest much in energy efficiency, whereas the big power companies do have resources to invest in power generation.

Accordingly we are destined to continue generally with business-as-usual, unless there is some serious intervention.

Also, the action of an individual which will have the effect of benefiting everyone with lower electricity prices in the long term is of no benefit to the individual unless everyone else heads in the same direction. The same argument applies to individuals reducing their carbon footprint.

What we need is some strong statesmanship to lead the people and to guide this country through the hard times ahead.

Frans Plugge urged Russell to keep giving the message. He said that it takes years for the message to get through, but when he looks at the change in awareness of energy efficiency

between 1993 when he started and now, the message is getting through. It just takes time to filter down and even now it is only the more enlightened that are getting it. We should have a good understanding throughout the population by about 2020 on current trends!

Malcolm Souness noted that one thing we need to understand more is the cost of capital – which for the state-owned electricity generating companies is of the order of 5.5% to 6.5%, whereas household cost of capital is either the capital cost of the VISA card, or at best the floating mortgage rate.

Norman Smith responded to Malcolm by saying that a pilot carried out with the old Energy Direct in Lower Hutt in the mid 1990's – when 6 houses were given a basic retrofit with households repaying the loan through their power bills – a sensitivity analysis showed the interest rate was not a critical factor. Energy Direct loaned households the money at the same rate as they charged people to buy electrical appliances, around 16% as he recalled. If this had been reduced to 6% the payback period was only modestly reduced from say 36 to 30 months.

Reference: Various SEF News Postings, 16/10/08.

SEF Seminar Report

“Making Household Energy More Sustainable”

by Tim Jones

On Thursday 9th of October, following the 2008 AGM, the Sustainable Energy Forum held a seminar in Wellington on the topic “Making Household Energy More Sustainable”. Considering that there were a couple of competing attractions on in Wellington at the same time, the turnout of forty or so people was pleasing.

Four speakers addressed the topic from a variety of angles, under the wise chairmanship of Ken Piddington. The speakers and their addresses were:

- **Alexandra MacMillan**, Domestic Energy Users' Network: DEUN; A National Federation to Advocate for Sustainability and Equity in Meeting Household



Photo Sonali Mukherji

Energy Needs

- **Philippa Howden-Chapman**, Wellington School of Medicine & Health Sciences, University of Otago: Reducing Fuel Poverty through Residential Energy Efficiency
- **Jonathan Lermit**, specialist in electricity forecasting: Analysing the Response of the Residential Sector to the Hydro Shortage
- **Frank Pool**, specialist in energy efficiency programme design: Designing Energy Efficiency Projects For Real Impacts

Dr Alexandra MacMillan is a Public Health Physician and Senior Lecturer at the School of Population Health, University of Auckland. Her teaching and research interests are around urban sustainability and human wellbeing. She represents the Public Health Association on the Domestic Energy Users' Network.

Alex spoke about the formation and goals of the Domestic Energy Users' Network, a comparatively new organization co-convened by Molly Melhuish and bringing together Rural Women New Zealand, the RSA, Grey Power, the Public Health Association, Age Concern and the Child Poverty Action Group to advocate for affordable and sustainable energy services for householders. After outlining DEUN's origins and priorities, Alex looked at such issues as initiatives for household energy efficiency and the relationship between energy poverty and health outcomes.

Philippa Howden-Chapman is a Professor and Acting Head of Department at the University of Otago's Wellington School of Medicine, and is the Director of He Kainga Oranga/ Housing and Health Research Programme and the Centre for Sustainable Cities.

Philippa's presentation followed on neatly from Alex MacMillan's, as it looked at the practical contribution that energy efficiency can make to reducing fuel poverty. She spoke about the research that she and others have done, subsequently published in the British Medical Journal, which show positive effects from a range of energy efficiency interventions — not

only on health and wellbeing, but on household energy use and costs. The overriding question that arose from both Alex and Philippa's presentations was: if the benefits of action in this area can be clearly demonstrated, why isn't more being done?

Jonathan Lermit has been involved in the energy industry, in particular electricity, for nearly 35 years (far too long, he claims!). He is a mathematical modeller, and spends his time building models for electricity forecasting, pricing, and scheduling of mixed hydro and thermal generating systems.

Jonathan presented some fascinating new research on the way in which the various sectors of the electricity market responded to the calls for electricity savings during the recent dry winter. As Jonathan says, the recent hydro generation shortage brought about a response from all consumers to reduce electricity consumption, partly by price response and partly by responding to savings campaigns. The availability of individual supply point data by half-hour made it possible to estimate the pattern of residential load over the shortage period, and by comparing this with historical data, to estimate the savings made by households. Jonathan concluded that residential consumers' savings were a bit better than average, and that the value of the energy saved was high (c. \$300/MWh, 30¢/kWh) over much of the period. The question that arises is: how were the savings achieved? Did residential customers switch to other fuels, or did they have colder than usual homes over the winter?

The audience was very appreciative of Jonathan presenting this new analysis to the seminar.

Frank Pool is currently working as Energy Engineer, Technical Support Facility, Carbon Market Initiative, Asian Development Bank (ADB) in Manila. Frank is a Fellow of the Institution of Professional Engineers NZ with 30 years international experience in the design and evaluation of energy efficiency policies, programs and projects. Frank has worked on sustainable energy projects from Azerbaijan

to Mongolia for ADB, and led major UNDP-GEF (UN Development Program - Global Environmental Facility) greenhouse gas reduction project designs and evaluations in China, Mongolia, Vietnam and Iran.

As Frank was not able to present at the seminar in person, and as a video hook-up did not prove to be feasible, he recorded a full presentation which was then edited down for use at the seminar.

Frank was far more sceptical about the effectiveness of energy efficiency programmes, especially as practised in New Zealand, than were the first two speakers. He summarised his concerns, under the heading “Professional Energy Efficiency Project Design — Why It Does Not Work in New Zealand”, as follows:

1. Amateurs and enthusiasts think energy efficiency is simple
2. Householders are not stupid – there are very good reasons why energy efficiency doesn't happen
3. Subsidies are advocated by people who aren't working hard enough to identify the real barriers
4. The lack of affordable finance argument ignores other important barriers – like trained plumbers
5. Post-project sustainability design is ignored – the activity stops once the subsidies end
6. Without changes, the proposed new \$1 billion for household energy efficiency will be wasted.

Frank made the following proposals for how to get sustainable energy efficiency interventions:

1. Really analyse the proposed intervention – e.g. not just subsidising solar water heaters (SWH) to lower NZ prices when China is making 1000 times more SWH/year than the NZ demand
2. Policies that are not just based on simplistic ideology - it has to work in practice and not

just in theory - e.g. there is no point in SWH subsidies that slow SWH sales as no one can actually access them

3. Professional, humble and transparent design processes – insulating cold NZ houses will (mostly) give warmer NZ houses (a good thing), not energy savings
4. Beware unintended consequences – e.g. heat pumps will give warmer houses and minimal energy savings, and then be used for summer air-conditioning, so will lead to increased energy use
5. People need 7 to 10 years of real experience to design, run and evaluate projects – not new graduates

Frank's message was at variance with much that Alex and Philippa had said, and provoked extensive discussion. I hope that, at a future event, there will be an opportunity for these contrasting views to be discussed directly by the panellists.

Following the four presentations, there was a lively question time which covered a range of topics, but focused increasingly on the Government's recently-announced Household Energy Fund: how it would be administered, how projects would be decided upon, and how the money would be disbursed. Mike Underhill, Chief Executive of EECA, was in the audience, and answered a number of questions about the fund.

Overall, the seminar provided clear illustrations of both the promise and the pitfalls of household energy efficiency programmes. The will to act in this area is clear. The best means of action are less clear. More needs to be done to establish what works and what doesn't in the New Zealand context.

Tim Jones

Footnote: It is understood that the incoming National-led government is likely to cancel the proposed Household Energy Fund. This will have serious implications for ongoing efforts to make household energy more sustainable in NZ.

Transport Matters

Carpark Firm Lowers Prices

Bus and ferry commuters are being offered free inner-city parking for at least a month to tempt them to bring their cars into the city again.

As high fuel prices and tighter household budgets have pushed more Aucklanders on to public transport, one inner-city parking firm is fighting back.

Tournament Parking has been handing out flyers to passengers leaving the Quay Street ferry terminal and around the Britomart Transport Terminal showing its spread of available carparks.

Tournament has about 6,500 carparks in Auckland and about 200 were vacant at any

one time. The discounts were a seasonal offer, coinciding with the end of the university year and people leaving the city over Christmas.

Tournament acknowledged territorial local authority policies to promote public transport use over bringing cars into the city, but said that carparking businesses were already extremely limited, citing policies against construction of new parking facilities.

Another company Wilson Parking has also been courting customers with its “red hot October offers” of \$80 for a month’s parking in Victoria Park markets and \$150 for Elliot carpark and Auckland University.

Reference: NZ Herald, 30/10/08

Electricity matters

Thermal Ban to Go?

One of the first moves of the new National-led Government may be to dump the ban on new thermal electricity generation and to focus on security of supply.

It criticised the previous Government’s 10-year moratorium on new thermal stations, saying that the distinction in the proposed ETS legislation between new power stations being either base-load or peak-load is “nonsensical”.

National notes that instead of moving NZ towards the goal of 90% renewable electricity generation the proportion has in fact fallen from 72% in 1999 to 66% in 2007. (Editor’s Note: these percentages are weather dependent, according to whether it is a wet or dry winter in our hydro generation system).

National regards the 10-year moratorium as a very “blunt instrument”, which does not seem to be part of any coherent policy. The moratorium might actually increase emissions in preventing

the substitution of old dirty thermal generation technology, with new efficient gas technology which produces less than half the emissions per unit of electricity produced.

Experts say that under National, the key will be the comparative economics. The cost of new wind generation ranges between 8.5 and 11 cents/unit, while the cost for new gas-fired generation is between 8.5 cents and 14 cents, depending on the cost of natural gas and the cost of carbon emissions.

However, taking into account transmission costs, and relative efficiencies, gas-fired plant can be more economic if sited close to main markets like Auckland or distribution points like New Plymouth or Marsden Point.

Any new gas-fired plants may take up to three years to build. Genesis Energy, which has a stake in the Kupe gas and condensate field to come on stream in 2009 says it has guaranteed supplies for the 480MW gas-fired Rodney power station it plans to build near the Kaipara Harbour.

On the other hand, Contact Energy gained RMA approval before the ban to build two large new combined-cycle gas-fired plants (at Stratford and Otahuhu C) but has deferred building them because of the cost of gas, and uncertainty over long-term gas supplies.

Reference: NZ Energy & Environment Business Week 12/11/08.

Wind Dominates New Generation

Newly updated figures from the Electricity Commission show that of the 5634MW of planned new electricity generation plant, 3524MW is in wind farms.

However, these wind farm projects are much less likely to have been granted resource consents, or to be under construction than any other type of project.

By other generation types the next largest category is gas-fired plant (1089 MW, including Contact Energy's Otahuhu C and Genesis Energy's Rodney combined-cycle plant).

The next largest category is geothermal plants (502MW planned), followed by hydro 424MW, diesel 24MW and just 2MW of marine energy, indicating just how far wave and tidal power have to go to become commercially attractive.

(Installations below 5MW apart from marine energy are not included in these forecasts).

Of the 3524MW of potential wind power projects:

- 245MW is actually being built at present.
- Another 567MW has resource consents, and of these, only one is larger than 100MW.
- Appeals have been lodged against 33% of the proposed new wind farms (1166MW), with the smallest of these being 84MW and the largest 630MW (Project Hayes).

These figures suggest that while wind power has been ramped up politically, and in the popular imagination, the reality is that other generation forms, particular gas-fired and geothermal

plants, are easier to obtain resource consents for, and more likely to be built in the longer term than wind farms.

Also, small wind farms are much more likely to succeed with obtaining resource consents and then be constructed than very large wind farm projects.

The exception to this may be Contact Energy's 540MW Hauauru Maraki wind farm scheme on the west coast of the Waikato region, which is proceeding smoothly through the resource consents process although still short of a transmission corridor.

Reference: NZ Energy & Environment Business Week 12/11/08.

Contact Hikes Power Prices

Thousands of Contact Energy customers in the Wellington area are about to be hit with a 10% power rise, with the rest of the country expected to follow.

Consumer NZ Chief Executive, Sue Chetwin, says that of the power companies, Contact was "up there with the most rapacious".

Contact is increasing prices in the Wellington region from November. Also hit will be customers of Empower, a Contact offshoot, who will pay 12% more. The company is expected to raise prices in the rest of NZ, but will not say when.

The prices will eat into household budgets already squeezed by increases in petrol and food prices, and high mortgage interest rates.

A month ago, when it posted a \$237 million annual profit, Contact said an electricity price increase of at least 6% was likely. Later Contact directors came in for criticism from the Shareholders Association over plans to almost double director's fees to \$200,000 each which the Association says is undeserved.

Contact is putting its retail prices up at a time when hydro power lakes are almost back to average levels for the time of year, and when wholesale market spot prices have plunged at times to less than 1 cent per unit. Contact

says the latest price rise is expected to cost the average customer about \$14 more a month.

Reference: www.stuff.co.nz 30/9/08.

Belmont Wind Farm Halted

The plug is set to be pulled on a multi-million dollar Wellington wind farm proposal because of visual pollution concerns.

A report by the Greater Wellington Regional Council has recommended a five-year moratorium on wind farm development at Belmont Regional Park, five years after the Council called the site a “world class wind farm opportunity”.

The Belmont wind farm - up to 81 turbines sited near Porirua - had a price tag of between \$117 million and \$139 million five years ago. At least three parties are interested in developing it.

The move to put this project on the “back burner” comes as concerns grow about the visual effects of wind farms.

The Environment Court ordered recently a “cumulative effects analysis” on two controversial Central Otago wind farms - Meridian Energy’s Project Hayes and Trustpower’s Mahinerangi.

A report written by the Greater Wellington Regional Council’s Manager of Development and Strategy said that “with the increase of wind energy projects in NZ, issues of cumulative effects on the landscape and visual aspects are starting to arise”.

The report also said that concerns about cumulative effects and visual impacts would make wind farm applications “quite challenging”

Reference: www.stuff.co.nz, 30/9/08

Fuels

Hydrogen is Not Realistic?

Hydrogen is not a realistic solution to the USA’s transport energy problems. This message is coming through loud and clear from the American Society of Mechanical Engineers (ASME) at their Congress in Boston.

These comments come from a conference stream called “Fuel Cells: The Future of Sustainable Automotive Transportation – Fact and Fiction”.

The conference was told that there are huge technical and economic problems with hydrogen as a fuel source including production and distribution of the hydrogen and the likely cost of hydrogen-fuel-cell cars.

This starts with the fact that one of the most referenced sources for the hydrogen is methane (natural gas). From a carbon dioxide emissions perspective, this represents no improvement over internal combustion-engined vehicles.

Reference: NZ Energy & Environment Digest, 5-11 November 2008

Oil Demand Growth Forecast Reduced

Over the weekend of 11/12 October, the price of crude oil fell below US\$78 per barrel and by 16 October it had fallen further to US\$73 as the global economic crisis continued.

During the same weekend, the International Energy Agency (IEA) cut its oil demand growth forecast for the 2008 calendar year to the lowest rate in 15 years, citing economic weakness and “a spiralling liquidity crisis”.

In a monthly report, the IEA reduced its 2008 demand growth forecast by 0.25 million barrels per day (bpd) from 0.69 million bpd to 0.44 million bpd.

This works out to be a 0.5% demand growth rate for the 2008 year, the lowest in percentage terms since 1993. But the IEA cautioned against too much focus on demand, saying that the international credit crisis would also affect investment in bringing on new oil supply.

World oil demand is now expected to grow from 86.1 million bpd in 2007 to 86.5 million bpd in 2008 (instead of to 86.8 million bpd as previously forecast).

International events can impact significantly on world oil output. For example, output fell by more than 1.0 million bpd during the month of September, partly because of storm disruption, the IEA said.

Non-Opec net oil output growth has now almost disappeared this year, to an average growth of only 0.15 million bpd.

The IEA said that the impact of Opec's recent decision to adhere strictly to its output targets, had so far reduced its output by 0.3 million bpd to 32.3 million bpd during the month of September 2008.

Reference: NZ Herald - 13/10/08.

World Economy Affects Oil Prices

The price of crude oil reached a 13 month low of \$US73 as investors withdrew from world commodity markets on fears of a collapse in demand growth, as the world economy heads towards a recession.

Crude oil now stands at half the price of its mid-July peak of US\$147 per barrel, and analysts have scaled back global demand growth estimates after recent gloomy economic data has overshadowed Opec's talk of possible production cuts and a hurricane which is disrupting Caribbean refining operations.

US petrol demand has recently fallen more than 9% for the second straight week in a year-on-year comparison, as consumer spending has slowed.

J.P. Morgan has cut its average oil price forecast for 2009 to US\$74.75 per barrel, and Opec has also reduced its forecasts for world demand for crude oil in its latest monthly report.

Reference: NZ Herald Business Herald, 17/10/08.

Oil Heading Back to US\$50 per Barrel?

The dramatic fall in oil prices is likely to continue with some commentators predicting it could drop back to US\$50 per barrel.

With oil now trading at around US\$72 per barrel, it has fallen more than 50% from July's record of US\$147.

This is somewhat embarrassing for those in the "Peak Oil Camp" who predicted that the price would never drop below US\$100 again.

It now appears that soaring oil prices during the last year were driven largely by speculation. Now that the speculative bubble appears to have burst, oil is likely to settle back closer to its real value.

Reference: NZ Energy and Environment Business Week, 22/10/08.

Editor's Note: By late-November the price of crude oil had dropped back even further and was hovering around \$US50 per barrel, meaning that the above prediction had already come true. By 6 December the price was around \$US42 per barrel.

Oil Bubble Has Burst

Three months ago, the world was said to be running out of oil. Everywhere you turned, you heard that the day of petroleum reckoning was at hand.

Now there is too much oil, prodding Opec to cut production targets for the first time in two years. In late October, Opec confronted with the halving of oil prices since July 1 announced a 1.5 million barrel-a-day cut in output.

World markets greeted the news of reduced oil supply by pushing prices down further to US\$65 per barrel. How quickly things change or do they?

All speculative bubbles have a kernel of truth behind them to justify their existence. This time around it was said to be India and China.

These emerging Asian giants were said to be gobbling up all the commodities that the world could produce to fuel their rapid industrialisation.

In fact growing demand globally was probably the reason for the gradual rise in oil prices from US\$20 to US\$40 earlier in this decade and even to US\$60 by mid 2005.

Emerging nations didn't start gobbling up crude oil, coal, copper and other commodities all of a sudden in the middle of 2007. Yet analysts on TV and in print told us with a straight face that the doubling of oil prices from July 2007 to July 2008 when the price briefly reached US\$147 per barrel was a result of fundamental demand, not speculative buying, or investors including pension funds "diversifying" into "alternative investments".

The silliness that accompanies speculative bubbles isn't going to be outdone by what passes for economic analysis. It is just over three months since commodities began their sharp, swift descent in price, and already the nonsense is starting. Lower oil prices are said to be going to boost consumer demand.

But the price of oil (and other raw materials) is falling because of a cutback in demand during a time of economic recession around the world. To say that lower prices will stimulate demand is a widely held misconception.

That oil prices are falling in the face of Opec's announced production cuts – a reduction in supply would tend to raise the price, not lower it – suggests that demand is falling even faster than Opec can reduce supply.

Reference: Bloomberg, as reported in NZ Herald, 30/10/08.

NZ's Coal Reserves Over-stated

EnergyWatch Issue 48 – May 2008, pages 8-11, covered this issue thoroughly and concluded that the claim that NZ has 1000 years, or even 800 years, of coal supply is unrealistic. It is

based on counting lignite as equivalent to industrial coal.

The internationally acknowledged proved coal reserves in NZ are sufficient only for about 10-50 years. Beyond that, coal reserves may last no more than a few centuries.

Yet on 2 September 2008 Dr Don Elder, CEO of Solid Energy was reported in the Otago Daily Times as saying that coal was globally estimated to peak in 100 years but that NZ had more than 1000 years' supply of coal to develop. Whenever he makes such statements, Dr Elder should be immediately challenged to authenticate them.

Most other energy commentators are no longer talking about 1000 years of coal supply in NZ or even 800 years as Solid Energy has claimed elsewhere, but only a few hundred years of coal supply and most of that is in low grade lignite deposits.

At the AusIMM Conference in Wellington where Dr Elder was speaking, the then Minister of Energy and Climate Change, David Parker also spoke at the opening of the conference on 1 September.

Mr Parker believes that the process of turning lignite into fuel through a gasification plant is too costly in terms of carbon dioxide emissions, and he said that his Government would wait until the technology of carbon capture and underground storage (CCS) became viable and the costs known.

Mr Parker also said that CCS was not central to NZ's economy, as it was for Australia's economy.

Reference: Article by Simon Hartley, Otago Daily Times, 2/9/08.

Biofuels

Biofuels Denigrated by Lobby Groups

Worldwide, there has been an orchestrated publicity campaign over the last two years by powerful lobby groups to denigrate the use of biofuels as a transport fuel. This seems to have occurred as momentum was building for implementing strong targets both within the European Union (EU) and the USA for replacement of a significant percentage of fossil fuels by biofuels in those countries.

This was a central message with I took from a presentation made at a public meeting held at the Waitakere City Council offices on Thursday 9 October. The speaker was David Blume of California, Executive Director of the International Institute for Ecological Agriculture who has recently written a book entitled "Alcohol can be a Gas: Fuelling an Ethanol Revolution for the 21st Century".

Community Involvement in Producing Biofuel

The theme of David Blume's presentation was actually on how people at the level of the small community can produce and use low-cost alcohol as a fuel at home, in their community or on their farms.

Blume believes that any community can become energy independent by producing fuels from a variety of crops to increase their self sufficiency and at the same time reduce their greenhouse gas emissions and vehicle pollution. He demonstrated this by examples of how on a small scale, it is possible and practical to grow and process crops that can be distilled into a high octane alcohol car fuel.

For example, he said that it is possible to install for US\$1,500 a still to produce alcohol which can make a small farm or other property energy-independent in transport fuel.

He noted that a crop of sugar beet, for example, can produce 2,000 litres of alcohol fuel per hectare of land planted.

The money obtained from selling the alcohol fuel can then circulate locally around the community (rather than being sent to some overseas country supplying oil). As a by-product of this process, the "waste" being produced can often be turned into valuable and profitable products for sale as well. Managed carefully, the by-products can actually produce a lot more income than that obtained from the ethanol itself.

The Food Versus Fuel Debate

Biofuels which up to about two years go were being welcomed as a carbon-neutral substitute for petroleum-based vehicle fuels, have since become a contentious subject now that they are being made from food crops, plants that displace food crops, or plantations established from cutting down native forest (especially in developing countries).

Blume asserted that it is a myth that demand for ethanol pushes up food prices. Last year he said that the USA had a surplus of 1.6 billion bushels of corn, and yet the prices of corn, rice and wheat have all gone up with the rising price of oil.

He noted that the USA had about 500 million acres of cropland and another 1 billion acres of farmland of lower quality, making a total of 1.5 billion acres of farmable land in the USA. And yet, at present the USA is only growing corn crops on about 70 million acres of farmland per year.

He also said that in the USA at present, most of the corn produced does not actually go to produce ethanol but is used by farmers to feed cows. And yet, for every 10 food units of corn used, only 1 food unit of beef is produced, most of the other 9 units being waste products produced by the cow, which can then cause environmental problems downstream.

Also an important by-product of the corn ethanol industry in the USA is the production of animal food, so much of the corn can still be used for its otherwise intended purpose of feeding animals.

Environmental Impacts of Ethanol are Less than Biodiesel

Blume said that in considering the environmental impact, or “sustainability” of biofuel crops, it is necessary to differentiate between biodiesel and bioethanol.

Most of the environmental criticism of biofuel has related to palm oil plantations being created in third world countries by destroying the native rainforests, in order to produce biodiesel. This criticism does not usually apply to crops to produce ethanol. For example, in Brazil, the main area of plantations used to grow sugar for ethanol production are at least 1,500 miles distant from the Amazon rainforest (where the amount of deforestation at present occurring is the cause of much environmental concern).

Energy Return on Energy Invested (EROEI)

Blume said that EROEI is also a topic on which there has been much criticism of biofuels. He noted that a lot of the information used to criticise the energy returns on corn crops has come from one person, David Pimental, who under pressure has only recently released some of his calculations on this topic.

It appears that much of the energy which is said to be involved in producing the corn crop is actually “embedded energy” in the tractor being used on the farm. Pimental has assumed that the life of the tractor is only 10 years, whereas observation soon establishes that the average age of a tractor on a farm in the USA is probably 20-25 years. Also the size of tractor assumed is way out of proportion to the average size of tractor used on a farm, to the extent that the size of tractor assumed by Pimental could probably do a month’s required work in less than half a day!

Therefore Blume believes that the energy returns on biofuel crops is actually much higher

than that stated by Pimental, to the extent that the energy return might be as much as five times the energy invested.

Effects of Using Biofuels on Car Engines

Blume noted that oil companies have been mounting huge publicity campaigns on how alcohol fuels can destroy your car engine. Many US citizens are very sentimentally attached to their cars and don’t want to hurt them!

Also nearly all car manufacturers will state that their new car warranty will not apply if a fuel is being used containing more than 10% of biofuel.

Much of the corrosive effect of alcohol fuel on engine gaskets and seals is a criticism which applies mainly to methanol, but not so much to ethanol which is far less corrosive.

Blume noted that actually, because there is no build up of carbon, much less wear occurs in engines fuelled by alcohol than in fossil-fuelled engines, and the alcohol fuel is also much more clean-burning.

Impact of High Oil Prices on Demand for Fossil Fuels

Blume noted that the high increases in fossil fuel prices earlier in 2008 had led to increased interest in alternative non-fossil fuel sources of transport fuel.

However he noted that as the US Presidential election has been approaching over the last two months, the price of fossil fuel has been going down. He suggested that a study of the last five US Presidential elections will confirm this trend and predicted that once the US election is over, fossil fuel price will rise steeply once again!

Why Ethanol is a Threat to the US Oil Industry

At the present time, Blume states it is possible in the USA to produce ethanol from a variety of sources for around US\$60 per barrel which is well below the price of oil in recent times.

However in a few year's time as Peak Oil approaches, it is likely that the price of oil will again reach US\$150 per barrel (which it almost did in mid-July 2008) and then go on to exceed this figure.

At around a cost of US\$150 per barrel it will become economic to produce oil in large quantities from a variety of other sources including oil shales, tar sands and a coal-to-gasoline process, but in all these cases with horrific environmental consequences in terms of greenhouse gas emissions and other effects.

However if at that time, it is still possible to produce ethanol at around US\$60 per barrel with relatively negligible environmental impacts, this will become the preferred method of fuelling motor vehicles in the USA, especially if the security considerations of heavy US reliance on importing oil from countries which are politically unstable or anti-American is taken into account.

(Editor's Note: A major proportion of ethanol produced in the USA comes from growing corn and the above ethanol cost probably does not take into account the heavy subsidy from the US Federal Government presently being paid to US farmers for growing corn, but this subsidy is probably likely to continue into the future anyway, regardless of whether the corn is used for fuelling vehicles or feeding animals or for some other purpose.

And in any case, there are already much more economical ways of producing ethanol than by growing corn which would be used more if it were not for the present heavy subsidy on growing corn.)

Alternative Sources of Biofuel

Blume concluded by saying there are a number of alternative sources of biofuel which together could quite quickly supplant fossil fuel as the main source of transport fuel for the USA.

As two examples he gave:

1. Growing kelp in the sea off the coast of California to produce alcohol fuel. He suggested

that the coast off California alone could produce enough alcohol fuel to cover about two-thirds of the total US transport fuel requirements.

2. Planting raupo (as it is called in New Zealand) and its equivalent in other countries to grow in oxidation ponds in sewerage treatment plants across the country. This will not only produce large amounts of alcohol fuel, but also clean up the water in the treatment pond at the same time. A number of cities in the USA are now looking at doing this.

John Blakeley

SEF News Discussion

Following the posting of the above article on SEF News on Monday 20 October, a number of contributors made important points in the discussion which followed:

Dave McArthur noted the following points from David Blume's lecture in Wellington on Thursday 16 October

- There are 1.5 billion acres of arable land in the USA.
- Corn produces 900 litres of alcohol/acre, a relatively low yield
- Fodder beet produces 3700 litres of alcohol/acre.
- Sweet sorghum produces 3700 litres of alcohol/acre.

Steve Goldthorpe commented that ethanol has 70% of the volumetric energy density of petrol, so the alcohol yield from corn is 630 litres of petrol equivalent per acre, and this presumably is an annual yield.

The annual petrol consumption in the USA is around 10.5% of the world's total demand for crude oil, the annual petrol consumption in the USA being 9.286 million barrels per day (159 litres per barrel), which equals 539 billion litres per year.

Therefore to meet the US petrol requirements from corn would require 0.859 billion hectares

of land to be planted in corn (i.e. 57% of all the arable land in the USA). This does not include land needed to grow biodiesel for trucks, and jet fuel for planes, and to produce the energy required for all the fuel conversion.

Steve noted that of course the crops with the higher alcohol yields (fodder beet and sweet sorghum) would reduce the land requirement (to meet domestic petrol demand by producing alcohol) to a much more realistic 14% of the total arable land in the USA, and therefore would of course leave a reasonable amount of land still available to feed the people after the objective of feeding the cars had been met.

In a separate communication with your editor, Steve Goldthorpe noted that my report on David Blume as an “ethanol evangelist” made interesting reading, but he questioned some of the figures presented. He said that his natural instinct is to be highly sceptical of extravagant claims until he can see some hard proven data.

As an example, he noted that commercial production of ethanol-water beverages with a high ethanol content, is in the region of US\$30 to 40 or more per litre of alcohol content, whereas David Blume’s figure of US\$60 per barrel of ethanol produced in small community production schemes works out to be about US38 cents per litre (or 26 cents/litre on an energy equivalent to petrol basis).

Steve asks, if alcohol really can be made on a commercial basis for US 30 to 40 cents per litre, then why do alcoholic spirits as beverages cost 100 times more? He concluded that unless convinced otherwise, he will continue to follow the old adage, “if it seems too good to be true, then it probably is”.

Kerry Wood commented that he is comfortable with biofuels being part of our future transport fuels solution, but thinks that one of the explanations for our painfully slow progress in this direction is that it isn’t easy.

He said as an example of another problem, that he has been trying to find a solution to achieve problem-free running of a medium-speed diesel

engine running on 100% biodiesel and found it very difficult to obtain firm answers.

Finally he noted that if it wasn’t biofuels which pushed up the price of food, then what did? Might it have been the oil price? And if so would biofuels be any better at limiting future food price rises?

Murray Ellis noted that he also had a lack of enthusiasm for small community, single-farm-scale ethanol production. Converting a crop of sugar beet to ethanol requires a lot more investment than just the still. There is the use of fuel for the still and small stills are notoriously inefficient since they are not nearly as sophisticated as an industrial plant. They also do not produce pure ethanol.

He said that there is no doubt that biofuel production is impacting on food supplies. The USA may have a lot of “cropland” that could grow crops if someone could find an adequate water supply, but Murray is aware of no evidence that the total area planted in crops in the USA has expanded with the increased use of crops for ethanol.

Murray notes that David Blume’s comment on the palm oil situation may not be so relevant to the USA where the primary transport fuel is still petrol, but it is relevant to Europe where the direction has been to go for biodiesel rather than ethanol.

Murray noted that other people doing EROEI calculations generally come out with more favourable figures for biofuels than David Pimental, but not nearly to the extent that David Blume is claiming. The result Blume claimed (energy obtained equals five times the energy invested) would only be possible for a hypothetical situation, perhaps with wood-fuelled processing plants and ethanol-fuelled tractors

Murray said that it is not reasonable to suggest that people being concerned about damage to their car engines from using biofuels are just being sentimental. Damaged engines stop working and are expensive to repair!

He noted that if the oil industry really thought that their crude oil business was going to be destroyed by ethanol, they would be responding by moving into ethanol production themselves. This is not happening because the threat is not there.

Most crude oil around the world is produced by government-owned operations, NOT the big oil companies of the USA and Europe. It is Opec that is worrying about “competition from biofuels”.

In addition the whole ethanol situation in the USA is completely artificial. Not only are there heavy subsidies for the local product, but imports of biofuels are banned from the USA.

The whole thing is far more a mechanism to subsidise the USA agriculture and agricultural processing industries rather than as a means of obtaining liquid fuels. For the USA to be happily importing Venezuelan crude oil while at the same time banning ethanol imported from Brazil, only makes sense from a domestic agriculture support point of view, and not from a US energy security viewpoint.

Finally Murray noted that David Blume’s suggested alternatives of growing kelp and planting raupo both require “second generation” biofuel conversion processes that are not yet commercially available. They also have harvesting problems.

Reference: SEF News postings 20, 21 and 23/10/08.

Palm Oil is Not the Villain?

In recent postings on SEF News, it has been pointed out that growing palm oil to create biodiesel is not the major cause of large scale destruction of rainforests it has been made out to be.

Alan Thatcher noted that the cry that “rainforests are being cut down to supply palm oil to power western countries” is a over-simplification of the facts. He noted that rainforests were being cut down on a large scale long before biodiesel came on the scene, simply because there is good money to be made in doing so.

The countries in the Pacific region mainly responsible for this (Indonesia, Malaysia, Burma) have leapt on the biodiesel band wagon in order to justify rainforest destruction, but a very significant proportion of the sort of land being clear felled in their countries is unsuitable for palm oil production anyway, either because the soil is infertile, or the land is too steep.

Stephan Heubeck noted that palm oil plays as yet a rather negligible role in the global biodiesel sector. In 2005, 2.95 million tonnes of biodiesel were produced globally.

Of that amount 2.4 million tonnes was produced in Europe and 0.25 million tonnes in the USA, which is 90% of the total world production of biodiesel and this is all made from canola and soy oil.

Therefore, compared with canola and soy, palm oil remains a rather insignificant biodiesel feedstock. Furthermore, much more of the forest destruction for palm oil production can be attributed to the growing middle classes across Asia demanding more palm oil for cooking

So when the actual figures are considered, biodiesel from palm oil is not after all such a scapegoat for the destruction of rainforests, but it suits the lobbyists opposed to biofuels to cast palm oil in that light.

References: SEF News, postings, 14/10/08

New Biofuel Law

Oil companies say that NZ motorists should not expect radical changes at petrol or diesel pumps when the Government’s biofuels sales obligation comes into effect on 1 October 2008.

Although 1 October is the official starting date, the industry will have up to 15 months to phase itself into the new regime under a renewed Labour administration.

Or it might escape the obligation if National wins office and abolishes it.

Gull and Mobil are already supplying bioethanol-petrol blends in various parts of the

North Island, and BP has disclosed that it plans to start selling biodiesel on a modest scale by the end of 2008.

But Shell indicates that it has yet to finalise details for meeting the obligation, including deciding which centres it would supply, despite

building a storage tank at Mt Maunganui for potential bioethanol imports.

A spokesperson for Caltex said that they are focusing on providing quality biofuel, but no details are available as yet.

Reference: NZ Herald, 30/9/08.

Climate Change/Global Warming

New Government to Revamp ETS?

Following the election of a National-led Government on 8 November, there are likely to be significant changes to the Emissions Trading Scheme (ETS) including reconsideration of a carbon tax as an alternative. This will lead to delays in the implementation of the ETS.

National's likely coalition partner ACT, wants to scrap the ETS and withdraw from the Kyoto Protocol altogether, and there will be intense pressure from business and farming lobbies to radically revamp the ETS.

Although National says it is committed to Kyoto and the concept of emissions trading, there are many National MP's who are privately sceptical of human-induced climate change.

Within the farming sector, there is real concern about the implications of emissions trading for NZ's main export industry and Federated Farmers will be lobbying hard to have food production excluded from the ETS, arguing that the world needs more food from NZ, not less and that NZ is the only country so far to include farm animals in an ETS.

Even among those in National who are "sitting on the fence" over climate change, one of the key arguments used to support emissions trading is the threat of European consumers boycotting NZ produce if the country doesn't show its commitment to reducing emissions.

Reference: NZ Energy & Environment Business Week, 12/11/08

Government Under Estimates Kyoto Liability

The July 2008 edition of EnergyWatch (Issue 49) on pages 1-2 raised the concern that NZ's official liability estimate for its obligations under the Kyoto Protocol keeps fluctuating between \$0.5 billion and \$1.0 billion with no clear information as to how these figures are being arrived at. There is a concern that these figures are overly optimistic.

EnergyWatch 49 reported that in early May 2008, at the time of deferring for two years the entry of the transport sector to the NZ Emissions Trading Scheme (ETS), it was announced that the estimated deficit in May 2008 of 45.5 million tonnes had now been revised downwards to 21.7 million tonnes.

This meant that the estimated liability which the country faces at the end of the five-year Kyoto Protocol commitment period (in December 2010) was halved from \$1 billion to \$481.6 million. The new liability figure seems to be based on a unit cost of NZ\$22 per tonne of carbon dioxide equivalent.

The true estimated liability figure is in fact likely to be two or three times as much as the May 2008 Government estimate, as explained below. If the present significant reduction in the amount of forest planting and widespread deforestation were to continue, the liability would be a lot more than this again.

EnergyWatch 49 on pages 26-27 reported that the Sustainability Council has released

a report written by Geoff Bertram and Simon Terry, concluding that the ETS will involve huge transfers of wealth but will only reduce NZ's gross greenhouse gas emissions by 2% compared with what they would otherwise be, leaving them still 30% or more above the Kyoto target.

Since that report was written, the entry of the transport sector into the ETS has been delayed by two years from the beginning of 2009 to 2011, so the revised figure may well be only 1% less by 2012 compared with what they could otherwise be.

This was confirmed by the then Minister of Energy, David Parker, in a little-publicised written answer to a Parliamentary question submitted on 19 August (see following article).

This is a miniscule emissions reduction likely to be achieved by 2012, but considering that the major emitting industries of agriculture and many large industrial processes do not come into the scheme until 2013 or later, and the full costs for them are phased in up to 2030, it is not surprising that the estimated emissions reduction by 2012 is so small.

Figure 1 seeks to give a simplified explanation of NZ's greenhouse gas emissions situation up to 2012. The latest figures available are for the 2006 calendar year when these emissions were 77.9 million tonnes of carbon dioxide equivalent, up from 61.9 million tonnes in 1990 (the "base year" for the Kyoto Protocol), a rise of 26%.

This represents a reasonably steady pattern of annual average rate of increase of 1.4% between 1990 and 2006. Extending this forward under "business as usual" gives 84.7 million tonnes during the 2012 calendar year.

The dashed line indicates the very small amount of assumed reduction due to the ETS as predicted by Bertram and Terry (2% less increase that it would otherwise be), reducing the 2012 figure from 84.7 to 83.4 million tonnes.

The shaded area on Figure 1 represents the amount of credits which must be purchased

by 2012 to meet NZ's Kyoto Protocol commitment.

Allowing for the small reduction as a result of the ETS, NZ's average gross greenhouse gas emissions over the five-year Kyoto Protocol Commitment period will be 81.9 million tonnes per year, or a total of 409.5 million tonnes for the 5 years.

Under the Kyoto Protocol, NZ is permitted to emit at 1990 levels 61.9 million tonnes over each of the five years which equals 309.5 million tonnes, so the deficit for which carbon credits must be purchased is 100 million tonnes – around 20 million tonnes per year over five years.

From this figure must be deducted the available carbon credits from NZ's forests are estimated by the Ministry for the Environment (MfE). The MfE's Net Position report for 2008 gives a Most Likely Scenario of 84.1 million tonnes removals via forests less a deduction of 16.9 million tonnes for deforestation emissions, giving a net removal via forests of 67.2 million tonnes.

Deducting the net forest removal figure from the gross emissions gives 100.0 - 67.2 million tonnes or 32.8 million tonnes.

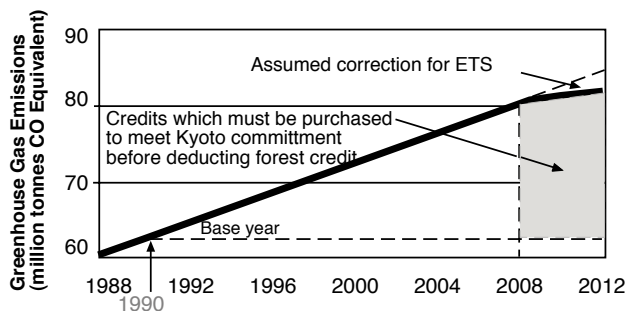


Figure 1: Growth of New Zealand's greenhouse gas emissions with time.

- If the Government's assumed price of carbon credits of NZ\$22 per tonne is taken, this would give a Kyoto liability figure of NZ\$721.6 million dollars (compared with the present official figure of NZ\$481.6 million).
- If a more likely price of carbon credits of NZ\$30 per tonne is taken, this would give a Kyoto liability figure of NZ\$984 million dollars.

- If a quite possible price of carbon credits by 2012 of NZ\$50 per tonne is taken, the Kyoto liability figure is NZ\$1.64 billion.

Upper Emissions Scenario: However the MfE's Net Position Report also gives an Upper Emissions Scenario for removals via forest of 64.2 million tonnes minus deforestation emissions of 30.5 million tonnes, giving a net removal via forests of 33.7 million tonnes.

Deducting this figure from the gross emissions gives 100 - 33.7 million tonnes, which is 66.7 million tonnes.

Given the amount of publicity over the last two years about the reduction in the rate of forest planting in NZ and increased deforestation, this scenario must also be seriously considered and the Kyoto liability figures would increase as follows:

- Carbon credits at NZ\$22 per tonne, NZ\$1.46 billion.
- Carbon credits at NZ\$30 per tonne, NZ\$1.99 billion.
- Carbon credits at NZ\$50 per tonne, NZ\$3.31 billion.

Economic Impact:

I suggest that much larger liability figures such as these will have sufficient impact on living costs and standard of living in New Zealand so that it may be politically unacceptable in 2012 to proceed with honouring NZ's commitment under the Kyoto Protocol, especially if tight economic conditions continue for several years from now, significantly reducing our overseas income as a nation.

If we had that amount of money available during a time of economic recession, it would be much better to use it on implementing effective and worthwhile local emission reduction projects, creating economic activity and employment opportunities in forestry and other industries here, rather than sending the money overseas to purchase emissions credits. This is an approach which has been advocated by Canada.

John Blakeley

Minister Replies to Question

The then Minister of Climate Change responded to a written question in Parliament as follows:

Question: What reduction in gross emissions is expected to be achieved as a result of the Emissions Trading Scheme (ETS), expressed in megatonnes and as a percentage of total emissions for the period 2008 to 2012?

Portfolio: Climate Change Issues

Minister: Hon. David Parker.

Date Lodged: 29/08/2008

Answer Text: Under Kyoto Protocol reporting, gross emissions exclude those from the Land use, Land-use Change and Forestry sector (LULUCF). Thus, no emissions from deforestation are included in gross emissions.

Assuming there will be an ETS or similar measure in 2013, then the reduction in gross emission is in the range of 2.5 to 4.0Mt. This is around 1% of total gross emissions for the period 2008 to 2012.

Emissions from deforestation are expected to be reduced by between 13.6 and 36.1 Mt as a result of the ETS.

Including all expected reductions in emissions, the ETS is expected to result in a reduction of up to 40.1Mt of emissions. This is 9% of total emissions (i.e. including all sectors).

Economic Recession and the Environment

As the global economy slides into the worst recession since the 1930's, it is likely to have a major impact on the efforts to combat climate change, and on the environment in general.

It will be tough for any Government to sell climate change policies which will increase the price of electricity and fuel, at a time when people are already feeling a financial squeeze.

It can be argued that most environmental concern is driven by the relatively well-off

middle class. The poor are too busy struggling to survive to worry about “being green”.

As middle-class households also start to “feel the pinch”, they are likely to be willing to forego their environmental conscience if it will help to lower their cost of living.

The downside is that the Emissions Trading Scheme is likely to be delayed in its implementation, or abandoned in order to prevent price rises from occurring. Also, consumers will be looking for cheaper products at a price undercutting greener products, and businesses are likely to face a financial squeeze, causing them to reduce investment in research and development and in developing greener products.

The upside is that householders and businesses will give increasing consideration to the cost-effectiveness of their spending, including cutting back on energy and water use. Producers of eco-friendly products such as energy-saving light bulbs can highlight their money-saving merits.

A recession will also mean less consumption, meaning a reduction in greenhouse gas emissions (or at least a slowing down of their rate of increase), less packaging and waste, and less greenhouse gas emissions from air travel.

So a recession is not all bad news for the environment, but nevertheless a challenge to the next government to send the right signals to ensure that its environmental commitments don't fall by the wayside.

Reference: NZ Energy & Environment Business Week, 1/10/08.

European Union (EU) leaders have vowed to maintain ambitious targets to fight climate change despite the present economic crisis, arguing that green industries will help revive their country's economies and protect against oil shocks.

However a strong opposing view has developed amongst EU countries in Southern Europe led by Italy, and in Eastern Europe led by Poland. Poland in particular argues that because of the

economic downturn, it just cannot afford to change from coal-fired electricity generation to other forms of generation as it had previously planned to do.

The result is that the issue will come before a full meeting of the EU's governing body in December 2008. The supporters of the present targets led by Germany, France and the United Kingdom are confident that they have enough support to carry the day, but it may be a close run decision.

Reference: NZ Energy & Environment Business Week, 22/10/08.

Can Carbon Trading Save the World?

The crisis in global financial markets must surely have caused those advocating carbon trading to take a pause for thought.

Do the peaks and troughs of the financial markets, driven ultimately by human greed, ready to hold the key to solving the world's climate change problems?

The protagonists of carbon trading appear to think so, with many predicting that carbon will eventually become the most traded commodity in the world.

Carbon trading will create a whole new industry of brokers, traders, bankers, fund managers and lawyers, all making a packet in the process as they “clip the ticket” along the way.

It is easy to see why politicians favour carbon trading because for Governments, it will create an entirely new “green” tax base.

The carbon market is fundamentally different from other financial markets because it is created artificially by Governments. Politicians decide who gets the right to emit carbon, and how much they can emit.

But so far, carbon trading has a dismal track record, with the trailblazing European Trading Scheme (ETS) collapsing in Phase 1. This was because Governments handed out far too many carbon permits to polluting companies, making the value of credits ultimately worthless.

Carbon trading forced up the price of electricity in Europe, benefiting power companies. Yet for those power companies, the cost of being part of the ETS was essentially zero. Instead they got windfall profits.

While this European experience should help reduce the pitfalls of a global carbon market as it develops, it could still be a rocky road.

It is up to the world's politicians to show that carbon trading is more than just hot air, and don't be surprised if the reality fails to live up to the expectations.

Reference: NZ Energy & Environmental Business Week, 29/10/08

China's Emissions to Sky-rocket?

An interesting question is "How does China's rate of increase of carbon dioxide emissions compare with that of NZ?"

A new report predicts that China's carbon dioxide emissions will more than double in the next 20 years.

Although Beijing has not released official data on its emissions, researchers from the Chinese Academy of Sciences have concluded that unless there is dramatic action to curtail carbon dioxide emissions from burning coal, China will face huge pressure to meet international commitments to reduce greenhouse gases.

The 2007 Situation:

- China's carbon dioxide emissions in 2007 were 1.8 billion tonnes.
- This compares with the New Zealand 2007 figure of about 37 million tonnes, which is just over 2% of the Chinese figure.

The Year 2020:

- By 2020, China's carbon dioxide emissions are predicted to jump from 1.8 billion tonnes to between 2.5-2.9 billion tonnes, an increase of somewhere around 50% above 2007 levels,

which makes a mockery of Kyoto Protocol targets seeking to limit greenhouse gas emission to 1990 levels by 2012 (but of course China is not required to comply with this target, being regarded as a developing country under the present Kyoto arrangements).

- If New Zealand continues to increase its carbon dioxide emissions at around 2.2% per annum as it has done on average since 1990, then by 2020, its annual carbon dioxide emissions will be around 50 million tonnes per annum, an increase of 35% above 2007 levels.

The Year 2030:

- By 2030, China's annual carbon dioxide emissions could be up to around 4 billion tonnes, compared with 1.8 billion tonnes in 2007, an increase of 122% during the 23 year period.
- Projecting the same 2.2% annual rate of increase forwards, New Zealand's carbon dioxide emissions would be around 62 million tonnes of carbon dioxide, an increase of 67% above 2007 levels during the 23 year period.

Therefore, on a percentage basis, although China's projected increases in carbon dioxide emissions over the next 23 years are very large indeed if present trends continue, New Zealand's projected increase, although just over half the Chinese figure, is still very substantial.

Reference: NZ Energy & Environmental Business Week, 29/10/08

Editor's Notes:

1. New Zealand's 1990 figure (the base year under the Kyoto Protocol) for carbon dioxide emissions was 25.5 million tonnes. So by 2020 New Zealand's carbon dioxide emissions are likely to be about 96% above 1990 levels if present trends continue and by 2030 about 143% above 1990 levels.

2. New Zealand's assumed annual rate of increase of carbon dioxide emissions of 2.2% which is used here compares with an assumed annual rate of increase of overall greenhouse gas emissions for NZ of 1.4%. The difference is because carbon dioxide emissions, coming

primarily from the combustion of fossil fuels, are increasing at a much faster rate than overall greenhouse gas emissions, which include methane and nitrous oxide emissions coming primarily from the agricultural sector.

3. Whereas for most developed countries greenhouse gas emissions from the agricultural sector are generally only around 12-20% of total greenhouse gas emissions, for NZ that figure is 48%.

Latest NZ Emissions Figures

The Ministry of Economic Development (MED) has recently released its latest Energy Greenhouse Gas Emissions Report.

The report shows that NZ's greenhouse gas emissions from industry increased by 6% in 2007 compared with 2006, but greenhouse gas emissions from the energy sector were about 4% lower in 2007 than for 2006, mainly because a higher percentage of electricity was generated by hydro stations during a relatively wet winter.

Emissions from thermal electricity generation were around 18% lower in 2007 than in 2006. Emissions from coal combustion fell by 24%, but as a result, emissions from natural gas combustion increased by 11%.

Growth in greenhouse gas emissions from transport appears to have slowed, with an average growth rate of 1% per annum since 2004.

Reference: NZ Energy & Environment Business Week, 10/9/08.

NZ Among Big Polluters

New Zealander's love for cars is contributing to our huge ecological footprint, which per person is now ranked sixth largest in the world, according to a WWF Living Planet Report released in late October.

The report, regarded as the leading statement on the planet's health, differs from measuring just our carbon footprint by including not only what

the country consumes in resources, but also how much waste is generated, and its impact on the natural environment.

Globally the report showed that more than three-quarters of the world's people now live in nations which are ecological debtors, where national consumption has outstripped a country's biological capacity.

However, because NZ has a relatively small population for the country's physical size, it is not yet in eco-debt, with a biocapacity still up to half greater than our footprint, but our global consumption was increasing and our biodiversity declining.

NZ moved from requiring 5.9 hectares of land per person in the 2006 report (based on 2003 data) to an average of 7.7 hectares of land per person in this latest report (based on 2005 data).

Worldwide, the average ecological footprint jumped from 2.2 hectares per person to 2.7 hectares per person. The planet could afford just 2.1 hectares per person and humans were now exceeding the planet's regenerative capacity by about 30%. The report warned that if demands on the planet continued to increase at the same rate, by the mid 2030's we would need two planets to sustain our lifestyles.

And if everyone on Earth used resources at the same rate as New Zealanders do, by the mid 2030's we would require over three and a half planets to sustain our way of life.

The report showed that the largest human-induced pressure on the planet continued to be carbon dioxide emissions from fossil fuel use.

The report shows that ten nations are consuming half of the Earth's resources, with the USA and China between them accounting for 42% of the Earth's resources.

Reference: NZ Herald, 30/10/08.

Join our sustainable energy news & discussion group!

SEF Membership provides discounted access to the annual SEF conference, and a copy of our quarterly EnergyWatch magazine. However many members find the SEF email news and discussion facility an easy way to keep up to date with news and views as it happens. And the discussion by the 200 sustainable energy “experts” who have joined the service offers an interesting perspective.

Non-members are invited to join the SEFnews email news service for a trial. To do this send a blank email to: <SEFnews-subscribe@yahoogroups.com>. To help us stop spammers, non-members need to supply a name and contact details, and a brief statement of their interest and/or involvement in sustainable energy issues, before their trial is approved.

As with all Yahoo groups, SEFnews emails can be received “individually” (as they are sent) or as a “daily digest” (grouped into one email per day). If you have a Yahoo ID you can also switch emails on and off, or read the news on the web – a handy option for travelling Kiwis. And YahooGroups saves all of our text emails for later reference, and there is a search function so that you can review the thousands already stored over the last 5 years.

Some busy people using a work address prefer to use the Rules function in their email software to automatically save SEFnews emails to a separate folder for later reading. If you do not want a Yahoo ID, the SEF Office <office@sef.org.nz> can select the ‘daily-digest’ option for you.

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