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Editor: John Blakeley
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EDITORIAL

Is Emissions Trading the Answer?

Energy Watch Editor John Blakeley

Before attempting to reply to this, it is first necessary to clarify "the answer to what question'?"

If the issue is primarily how will the NZ Government raise additional revenue to cover the cost of purchasing emissions credits, which may be necessary to cover its obligations under the Kyoto Protocol, then the Emissions Trading Scheme (ETS) may provide the answer.

However the latest information from the Ministry for the Environment (report released on 15 April) now suggests that NZ might actually have a **surplus** of $241 million under the Kyoto Protocol expiring on 31 December 2012, rather than having a large liability. But some people are dubious about the veracity of that estimate, which is still subject to a high degree of variability.

In any event, the surplus will only be a very temporary situation, with the strong likelihood of large liabilities at a later date if a follow-up international agreement similar to the Kyoto Protocol is actually reached for the post-2012 period (which is a very open question at this stage).

But if the issue is mainly whether or not the ETS will materially assist NZ in reducing the rate of growth in its gross greenhouse gas emissions since 1990, then in my view the answer is a definite "NO".

The reason for this is that the amount of increase in the price of everyday necessities for most New Zealanders, like motor fuel and electricity, which would be necessary to substantially change people's consumption behaviour, would be many times more than the likely price increases under the present ETS (based partly on what is politically acceptable, and partly on the likely international trading price for emissions credits).

Your editor recently (30 April) had the privilege of presenting his submission on the ETS Review by video conference to the Parliamentary Select Committee undertaking this task (see oral presentation on pages 8-11 of this issue of EnergyWatch).

One of the main points in my submission was that if the Government thinks that it can rely

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on the ETS to try and substantially trim NZ's greenhouse gas emissions by 2012, then I believe that it will be making a very big mistake. The ETS will need to be supplemented with a number of other complementary measures if NZ is to meet its international obligations to reduce its gross greenhouse gas emissions by 2012.

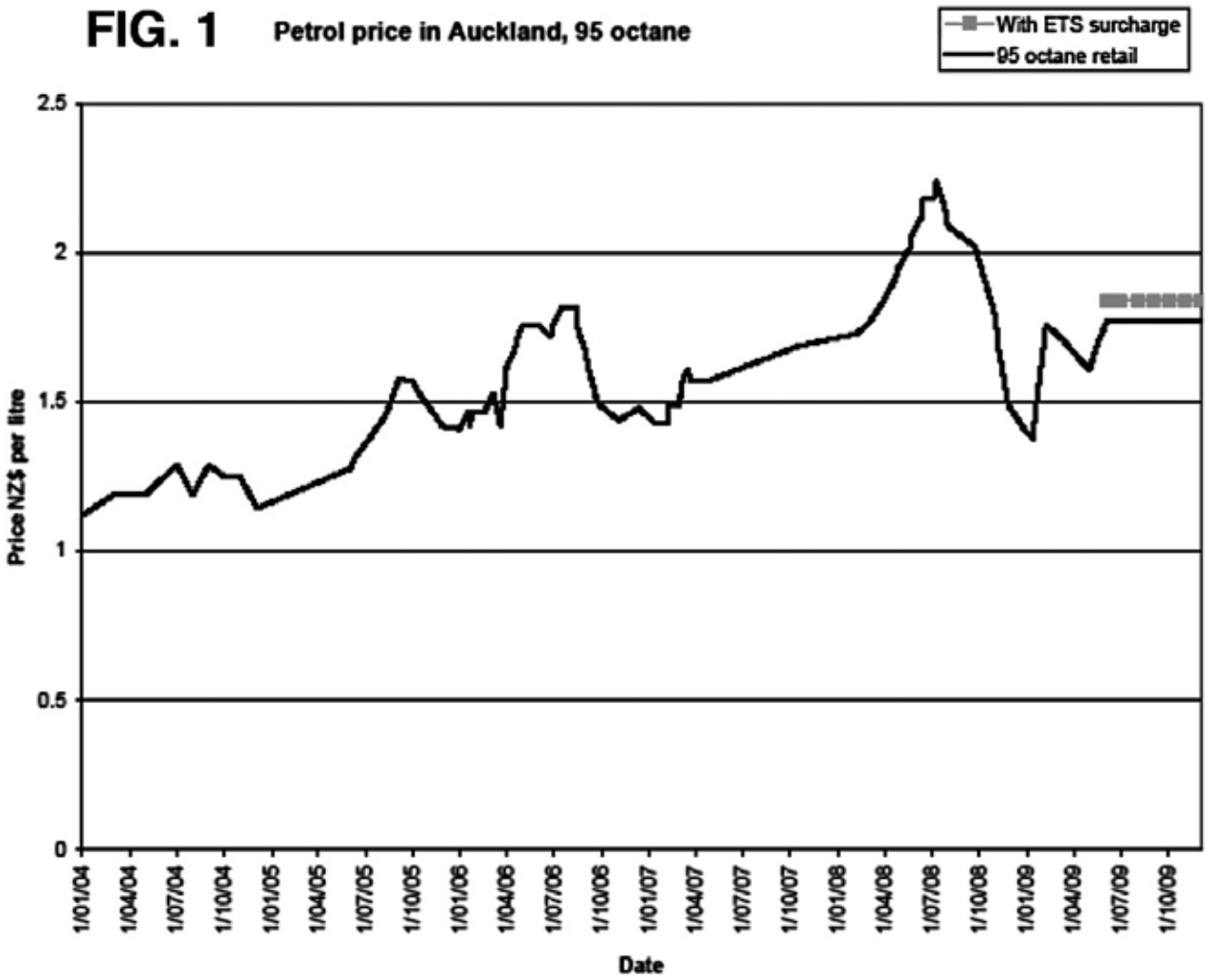
I was not sure though during my presentation that all the members of the Select Committee see the need for complementary measures as well, in addition to the ETS, but rather that at least some of those members see the ETS on its own to be the answer to reducing NZ's greenhouse gas emissions.

I was asked one specific question about why I thought that the ETS would not be effective in reducing greenhouse gas emissions in the transport sector, when observations at the time suggested that the oil price "spike" in mid-last year led to an increased patronage of public transport and less congestion on the motorways and main highways of our cities at peak times. I couldn't fully answer the question at the time, but said that I believed that the petrol rise at that time was much greater than that which will be caused by introduction of the transport sector to the ETS (from the beginning of 2011). I have since looked into that matter in some detail and report as follows:

(a) Comparison of Fuel Price Increases.
Figure 1 shows the variation with time since the beginning of 2004 in the price of 95 octane petrol retailing in Auckland. The price "spike" in mid 2008 is clearly visible.

My understanding is that the rise in fuel prices which occurred as a result of the oil price "spike" last year was very much greater than the price rise which would be caused by the introduction of the ETS, and hence much more likely to lead to a change in human behaviour.

When the ETS was first announced in September 2007, the then Climate Change Minister, Hon. David Parker, said during the announcement that at the time when the ETS was introduced into the transport sector (then planned for the beginning of 2009, but subsequently postponed till 2011), the increase in petrol price was estimated to be about 4 cents per litre. However this was based on the Government's then estimated cost of emissions credits of $15 per tonne of carbon dioxide equivalent, which should now be at



least $25 per tonne, which would change that estimate to 6.67 cents per litre of petrol.

I do not have the figures for regular (91 octane) petrol but in Auckland on 1 May 2009; super (95 octane) petrol was selling at 159.9 cents per litre. This had increased to 173.9 cents per litre by 7 June. So the additional price rise as a result of introducing the ETS as of 7 June would be around 4.0%, ie only half of last month's real price rise!

My records (in Figure 1) indicate that the price of 95 octane petrol peaked in Auckland at 223.9 cents per litre on 11 July 2008. So the increase in petrol price on 11 July 2008 compared with the price on 7 June 2009 was an additional 50 cents per litre, a 28.8% increase on the 7 June price. Therefore the peak increase in price in petrol in July 2008 in comparison with the 7 June 2009 price was 7.2 TIMES the likely petrol price increase as a result of the ETS.

(b) Percentage of NZ Commuters Using Public Transport

I would also note that the percentage of commuters in New Zealand who use public transport to get to work each day is very low. On the last census day (7 March 2006), only 1% of employees travelled to work by train and 3% by bus (plus 1% by motorcycle and 1.5% by bicycle). This compares with 58.6% driving themselves to work plus 4.6% as passengers in vehicles, a total of 63.2% using their own four-wheeled motor transport - see article in EnergyWatch, Issue 43, page 14.

Therefore about 16 TIMES as many people drive to work each day using their own four-wheeled motor transport as the number using public transport (bus or train), so a significant percentage increase in public transport usage will lead to a relatively very minor decrease in the percentage of people getting to work in their own four-wheeled motor transport.

For example, if the number of people using public transport (bus or train) to get to work each day was to increase from (say) 4% to 10% (a 150% increase and a significant challenge to achieve), then the number of people using their own four-wheeled motor transport to get to work is only likely to drop from 63.2% to 57.2%, a decrease of only about 10% in four-wheeled motor transport usage.

I believe that this information will help to reinforce my contention that:

• Petrol price rises of the extent likely to occur as a result of the introduction of the ETS, are likely to have very little impact on the percentage of people using public transport to get to work each day.

• Even if these price rises did have an impact on public transport usage (which is only likely if the fuel price rise was at least several times more than that planned for the ETS), then the decrease in four-wheeled motor transport usage for people to drive themselves and any passengers to work each day is likely to be no more than 10%, and thus have only a relatively minor effect on New Zealand's gross carbon dioxide emissions from the transport sector.

John Blakeley

ETS Will Not Reduce Electricity Consumption?

The stationary energy sector (including electricity) is scheduled to join the ETS from 1 January 2010. At the time of the announcement of the ETS in September 2007, the then Climate Change Minister, Hon. David Parker, estimated that retail electricity prices will rise by 5% in 2010, assuming a price for emissions credits of $15 per tonne of carbon dioxide equivalent.

That price should now be at least $25 per tonne which would raise retail electricity prices by 8.3% rather than 5%, but even a price rise of this magnitude is unlikely to be sufficient to substantially change electricity consumption behaviour.

However the ETS may succeed in encouraging more electricity generation from renewable energy sources and less from thermal generation by burning fossil fuels, and especially penalising coal-fired power generation.

The ETS will also be a very useful revenue generation source for the Government for the purchase of any emissions credits needed to meet NZ's international obligations under the Kyoto Protocol for two main reasons.

1. As Brian Fallow has recently pointed out in the NZ Herald, the ETS can be seen as a regressive tax. It will impose a carbon cost on every litre of petrol and diesel sold from the start of 2011, and on every tonne of coal and cubic metre of natural gas burned by electricity generators from the start of next year.

The Government on the other hand is only liable for the increase in emissions from 1990 levels, not for every last tonne of greenhouse gas emitted. So the ETS over-recovers from consumers of electricity and transport fuels, to help offset the fact that the taxpayer is picking up the tab for most of the emissions from the trade-exposed sectors.

2. The way the electricity market works in NZ, the price of all electricity sold on the market is at the price of the electricity generated "at the margin" which will usually be from a thermal power station. So the Government will be raising the price of all electricity sold after the ETS is introduced, and not just that from thermal generation sources, which produce only around 25% of NZ's total electricity requirements. This will significantly raise the profits of all generating companies the majority of which are owned by the Government.

So in summary, my view is that the Government is very much seeing the ETS as applied to the stationary energy sector from the beginning of next year as being primarily a revenue generating exercise, rather than as a serious effort to reduce electricity consumption.

John Blakeley

Reference: NZ Herald, 30/4/09, pg B2

SEF Feedback

Letter to the Editor

15th May 2009
The Editor,
The Whangarei Report, 88 Robert Street
Whangarei

Rewriting History

Dear Sir,
In Whangarei MP Phil Heatley's report on May 14th he rightfully celebrates the Electricity Commission's (EC) final decision in April to approve the investment by Transpower of $473 million on the North Auckland and Northland (NAaN) electricity transmission project. That cost will be borne by all electricity consumers.

However, his statement "This thankfully reversed an earlier decision made under the previous government" is rewriting history.
The NAaN project had been proceeding for several years through all the necessary stages, with EC approvals, on the basis that there is no realistic alternative to meeting the power demands of the NAaN region. That was until the National Government came into office in November 2008.

The new government immediately removed the moratorium of new gas fired power stations, signalling an about turn in energy policy. The EC analysts then attributed a 33% probability to the Rodney power station being built in the NAaN region and used that as a basis to recommend saving costs to the consumers by declining or delaying the NAaN project. The EC draft decision, released in mid December 2008; caused severe concern to Transpower and to Northlanders. A public conference was held in March in which the alternatives to the NAaN project was debated in detail. An outcome of that conference was a revised view by the EC analysts that the probability of the Rodney power station being built in time to help meet the electricity needs of the NAaN region was "negligible".

Thus the final approval by the EC of the NAaN project reversed an earlier rushed draft decision to decline, which was brought about by the actions of the present government not the previous one.

Steve Goldthorpe Energy Analyst, Waipu

Footnote: The NAaN project is further discussed on page 12 of this issue.

Indications of Government Resources Policies

Summary of note to DEUN, Sustainable Energy Forum, Climate Defence Network, ECO.

Background
Government has given several indications in recent weeks of where its energy policy is going. Other indications have come from the Electricity Commission, and from a hearing of the National Policy Statement on Renewable Electricity.

Summary of Government Policies
• *Government will support petroleum exploration and development, with $20 million over three years for seismic mapping. We must assume there will be a more business-friendly regime of royalties and licence terms and conditions.*

• *The Electricity Commission's electricity expansion model shows an LNG plant being "needed" by 2020 in most scenarios, with a small chance that it is not "needed".*

• *Resource consent procedures are being streamlined, giving reduced opportunity for communities to contribute their options and insights.*

• *Government has instructed its state-owned energy companies to continue to seek profit as their main objective (to maximise their profits?).*

• *Government programmes to support insulation for middle-income households and*

some State houses appear to be meagre compared to the previous government's Household Fund. Retrofits will be offered by consortia between power companies, mega-stores etc, and seem likely to promote heat pumps above clean wood burning.

Moves by Industry

• Contact Energy announced its intention to develop at least one new power station on the Clutha River, leading to strong comment from local environmentalists. In fact, all four stations seem likely to be necessary.

• Methanex, a Canadian company that uses Maui gas to export methanol, is now using 33 PJ/yr of natural gas for producing methanol, despite very low world methanol prices. It may soon re-open the Waitara methanol plant, doubling its usage.

Impacts on Consumers and Community

• Retail electricity prices are rising. Government documents support continuing price rises in line with the ever-increasing cost of building new power stations.

• Wholesale electricity prices are not rising. Already a generation surplus is keeping average spot prices down. The surplus may increase further with government's new emphasis on "security of electricity supply".

• Retail gas prices can be expected to rise rapidly as soon as gas becomes scarce, and wholesale gas prices will become too high for much gas to be used for electricity.

• State-owned Enterprises have been directed by Government to put profits first. (Rising retail prices are a tax by another name).

• Electricity market power combined with regular use of diesel back-up (like the Whirinaki generator) could de-stabilise the whole electricity market.

• The Commerce Commission's report on abuse of market power in the wholesale electricity market is about to be released. The Commission funded a second report by Professor Wolak on retail electricity prices, which appears to have disappeared without a trace.

• Opportunities for energy efficiency businesses and sustainable energy providers (especially small-to-medium scale generators) are stifled by electricity market rules.

• The Resource Management Act is being streamlined. Communities will have little opportunity to object to new power stations, transmission lines, Liquefied National Gas development, and other resource development projects.

• The "power planning scenario" that appears most consistent with the above trends is the Electricity Commission's "Sustainable Path" scenario. This would install 2000MW of wind generation, 400MW hydro run-of-river generation, nearly 500MW of hydro peaking, 1000MW geothermal and 900MW diesel peaking by 2024.

• Carbon dioxide emissions from the NZ energy sector would not be reduced by the rush to "green" electricity. The so-called "Sustainable Path" plan is driven by the loss of gas being exported as methanol. This creates carbon dioxide emissions which NZ must pay for.

Conclusion

The above observations confirm government's drive to promote resource development to increase economic growth, to support its economic and social development programme.

The trade-off for growth is the need for additional generation capacity, and rising energy prices, as indicated by the scenarios modelled by the Electricity Commission.

Proposals could be lodged over the next decade for some 2000MW of wind generation, plus all the hydro and geothermal stations noted above to meet the projected targets.

Transfers of wealth from small consumers to suppliers and major electricity (and gas) users will increase. Regulatory action on these wealth transfers seems unlikely.

It is up to consumers and communities to get together to improve public understanding of the likely impacts and outcomes of Government policies and the commercial responses to the policies.

The budget later in May will confirm or modify the policies indicated above. Appropriate and considered consumer/community response to the budget would be desirable.

Molly Melhuish
SEF Life Member
19 May 2009

Response

Hi Molly

That is a very useful assessment. A few small points:

The Electricity Commission's models show many new gas fired stations. Contact is intending to build an open-cycle gas fired turbine station to partially replace New Plymouth, but don't need LNG for it.

What the scenario does need soon is an assurance that an LNG plant (or substantial new gas field) will be available when required to enable a new gas-fired station to have an assurance of supply for its minimum bankable life. This may be sooner than may appear from the scenarios, since they assume unduly long lives for the existing CCGT plants.

Regarding the Clutha hydro options you refer to "all four stations seem likely to be necessary". They can't actually have this as two of the options (Beaumont and Tuapeka Mouth) overlap. The necessary extras come from other rivers.

The Clutha stations are allocated higher installed capacities than Contact is proposing. It is interesting to see that Meridian's North Bank proposal does not figure in the scenarios at all, even in the "Sustainable Scenario" which has numerous hydros including one on the Arawata River, which is pretty far-fetched.

Restarting the Waitara plant would increase Methanex gas use by about 60% rather than double.

Wholesale prices are low this year because the aluminium smelter has had a potline down for months (blown transformer), the recession has knocked back electricity demand, and it has been fairly wet.

All are likely to be temporary and there is no underlying capacity surplus. It would not take much to bring shortages back.

Regards, ***Murray Ellis****, SEF Member*

Peak Everything?

If climate change and the end of cheap oil generate an economic collapse, might there be a risk that our descendants can never recover? They are unlikely to repeat our excesses but will they be able to maintain a technical society at all?

For other minerals and minerals processing, the ironmasters learned how to make better iron more cheaply and from more 'difficult' coals and ores. They didn't understand the chemistry but came up with empirical solutions anyway. Later, oil production and refining went through a similar process, sometimes only slightly more science-based.

Today, many metal ores are concentrated from rock containing only a tiny proportion of mineral. There is said to be more gold in computer scrap than in some gold ores (weight or volume basis?). Mining huge quantities of rock and concentrating the ore is easy enough because energy is cheap.

The pattern is the same for many technologies and over centuries. Resource depletion deferred by technology and cheap energy: deeper, wetter, lower grade, offshore, deeper water, Arctic and on to the oil shale fantasy: fuel for our future from a resource with all the energy density of a baked potato.

What happens when cheap energy runs out? Can we maintain skills, proprietary methods, public and private records? Computer-based records are very vulnerable when a company collapses or a library loses funding. Might there be a danger that by exhausting easily-won (and not-so-easily-won) minerals, we have pulled the technology ladder up behind us?

Kerry Wood
SEF Life Member
18 January 2009

Oral Presentation to ETS Select Committee

Written Notes

I would like to amplify three points in my written submission, dated 13 February 2009.

A. VARIABILITY IN TRYING TO ESTIMATE NEW ZEALAND'S PRESENT KYOTO LIABILITY SITUATION

On 17 December 2008, I wrote to the Minister for Climate Change Issues expressing concern about the level of accuracy of the official estimate of New Zealand's liability under the Kyoto Protocol, then estimated at $481.6 million. The Minister replied in a letter dated 23 March 2009 noting that my "estimation that the actual balance of the Kyoto emissions units and the price of carbon are open to uncertainty is correct".

Subsequently on 15 April 2009, a report released by the Ministry for the Environment showed that the liability had now shifted to an estimated surplus of $241 million.

However, an analysis of the figures shows that resulting from the present economic recession, there was reasonably little impact on figures for carbon dioxide emissions in areas such as energy, transport, and industrial emissions. The change from a liability to a surplus has come about mainly from two biological sources:

1. A reduction of methane emissions nationally as a result of significantly reduced livestock numbers caused by the recent drought; and

2. New ways of measuring carbon storage and tree felling patterns have pushed up the amount of carbon that we can claim is being stored in our forests.

But the drought has already gone away and livestock numbers will increase again. Also those carbon-storing trees will eventually be felled. Therefore it is likely that this temporary change in estimated liability will have no longer-term impact on New Zealand's net greenhouse gas emissions.

B. THE IMPORTANCE OF LIMITING THEN REDUCING GROSS CO_2 EMISSIONS.

New Zealand's gross carbon dioxide emissions have been steadily rising at an average rate of increase of around 2% per annum since 1990, as a result of burning more fossil fuels in areas such as industry, energy and transport.

Available evidence from around the world suggest that emissions trading schemes do little, if anything, to decrease the growth in gross carbon dioxide emissions. If New Zealand really does want to take action to reduce these emissions, then it should be considering measures which directly reduce emissions in the key areas of emissions growth.

If the Government thinks that it can rely on the proposed ETS to try and substantially trim New Zealand's gross greenhouse gases by 2012, then I believe that it will be making a very big mistake.

C. THE IMPORTANCE OF THE ENVIRONMENTAL INTEGRITY OF ANY EMISSIONS CREDITS PURCHASED FROM OVERSEAS.

My submission notes that a certain proportion (perhaps as much as 20%) of certified emissions credits available internationally do not have environmental credibility. The only possible reason for purchasing such doubtful credits under the ETS would be that they are available at a lower price than emissions credits from other sources.

I have noted that in their ETS submissions, Contact Energy have advocated amending the ETS so that yet-to-be specified environmental restrictions are dropped on the kind of internationally traded carbon credits which can be imported into New Zealand.

I would very much disagree with Contact Energy on this matter. Clearly, if a carbon credit imported from overseas does not represent

authentic emissions reductions, then it is just a worthless piece of paper as, far as any overall reduction in New Zealand's actual greenhouse gas emissions is concerned.

If they are to be asked under the ETS to pay more for their petrol and electricity to purchase such worthless pieces of paper, many New Zealander's will be justifiably very upset.

In the Autumn 2009 issue of the magazine AA Directions, the NZ Automobile Association notes from a survey of 1,300 AA members, that an overwhelming 86% said that the best use of funds collected from carbon charges on fuel was to develop new carbon absorbing forests within New Zealand. Only 2.7% supported the use of carbon trading mechanisms to send the money collected on fuel sales to other countries to buy carbon credits.

The AA article then states its members believe that encouraging forestry is the best way to sustainably reduce New Zealand's net emissions. They see little merit in paying foreigners to "pick up our climate charge tab" on a year-by-year basis.

John Blakeley
30 April 2009

Transcript

Below is a summary of the Oral Presentation, but it is not a formal or official record of the proceedings.

Dunne
Welcome, Mr Blakeley.

Blakeley
Thank you for having me.

Dunne
You've seen the way we operate, so we have your submission and your supplementary paper. I'd ask you to make some brief opening comments and we'll proceed to ask you some questions. The floor is yours.

Blakeley
Before I proceed, Mr Chairman, I would like to express appreciation to the select committee for enabling this to take place by videoconference. I felt distinctly uncomfortable about the prospect of flying to Wellington to discuss lowering carbon dioxide emissions, so I feel much more comfortable about doing this by videoconference.

Dunne
Thank you!

Blakeley
The three points I want to make are listed on the supplementary paper. The first is the concern I've had for some years about the tremendous amount of variability in these figures on Kyoto liability, and I've followed this for about the last 5 years. I remember the famous quotation from Dr Michael Cullen about 3 years ago that the Kyoto liability figures were "bouncing around like a yo-yo". I think they are still bouncing around like a yo-yo, and it is a bit of a problem if you're trying to project ahead for what future financial commitments might be. So I wrote to the Minister for Climate Change Issues in December, pointing out a few issues to do with variability. He replied to me in March and basically said that my estimation that the actual balance of the Kyoto emissions units and the price of carbon are open to uncertainty is correct. So the Minister agrees: there's a lot of uncertainty in these figures.

When I look at the latest figures that show the surplus (which was a complete surprise to me because when I wrote the Minister, I thought we were looking at a larger liability), we find that it is almost entirely due to biological sources - reduction in methane emissions from the recent drought, new ways of measuring carbon storage, and the tree felling patterns. So this is only a temporary amelioration of the problem, and, as I say in my next point, to me the basic problem is the inexorable rise of carbon dioxide emissions of about 2 percent per annum every year since 1990. Until we do something to address that problem, I think tinkering around with these liability figures is not going to solve anything, because the drought is going to go away - in fact, some people tell me that the drought has gone away - livestock numbers are

increasing; and those carbon-storing trees are eventually going to be felled, and the liability will just come with them when they're felled.

The second point relates to my strong view that carbon dioxide emissions are the critical factor here, not methane emissions or nitrous oxide from the agricultural sector, because the carbon dioxide emissions, which are growing the fastest are now the predominant source of our increasing greenhouse gas emissions. Available information I've been able to find from around the world suggests that emissions trading schemes as such, don't do much to reduce any country's gross carbon dioxide emissions. Mr Parker, in answering a question in Parliament last August, conceded that the effect of the ETS might only be a reduction of 1 percent in our gross emissions up to 2012. So I think if the Government wants to rely on the ETS to reduce carbon dioxide emissions, then it's making a big mistake and I agree entirely with Gary Taylor that we have to do it by a series of complementary measures to address carbon dioxide emissions and not rely on an emissions trading scheme alone.

The third point that is causing me great concern is the credibility of some of these carbon credits available around the world. My reading has suggested that 20 percent of those carbon credits are essentially the shonky, less-certified ones. They don't have environmental credibility, and the only possible reason we might buy them is because they're the cheapest ones available. I noted that in their submission Contact Energy advocated amending the ETS so that yet-to-be specified environmental restrictions are dropped from the kind of internationally traded carbon credits that can be imported into New Zealand, and I'd very much disagree with that, because if the carbon credits imported from overseas do not represent authentic emission reductions, they're just worthless pieces of paper as far as any overall reduction in New Zealand's actual greenhouse gas emissions is concerned.

The general public, if they're asked to pay under the ETS more for their petrol and their electricity, and they then see the Government purchasing worthless pieces of paper, many of them are going to be very upset. So we must try to prevent these shonky carbon credits being bought in New Zealand.

The autumn 2009 issue of "AA Directions" noted in a survey of 1,300 AA members that an overwhelming 86 percent said that the best use of funds collected from carbon charges on fuel was to develop new carbon-absorbing forests within New Zealand, and only 2.7 percent supported the use of carbon trading mechanisms to send the money collected on fuel sales to other countries to buy carbon credits.

The AA article then stated that its members believe that encouraging forestry is the best way to sustainably reduce New Zealand's net emissions. They see little merit in paying foreigners to pick up our climate change tab on a year-by-year basis.

Dunne
Thank you, Mr Blakeley, I'm going to begin with Dr Paul Hutchison.

Hutchison
Thank you. I just wanted to ask about the value of the tax mechanism versus the ETS. In your opinion, if we do have a unit price of, say $50 per tonne by about 2012, what level of domestic carbon tax would be required to deliver a greater than 1 percent reduction in emissions?

Blakeley
I don't know that I can answer that question. Various figures were stated by the previous Government about the estimated cost of emissions credits, but I think that it was based on initially $15 per tonne and it went up to $22 per tonne; I think the latest figure might be $25 per tonne. So, if we're talking $50 a tonne - it will be two or three times the amount that was estimated previously. I think that might have some effect on the amount of motoring that takes place in New Zealand. But, basically most of the evidence suggests that, with human behaviour being what it is, people will just pay the extra and keep driving their cars.

Foss
Just to extend that a wee bit: when the price of petrol was - what was it; how high did it get to? - $2.30 or something, people did start to drive less or they drove smaller vehicles, so doesn't that kind of counter the general taxation idea? People are actually making rational economic decisions when prices are beyond the level where they are willing to pay the price.

Blakeley
I don't know offhand the comparison between how much the cost of fuel went up during the recent large rise in fuel prices and what we're talking about here, but I suspect that the increase then was quite a lot higher than what we'll be getting with this emissions trading impost on fuel costs. I think that the level at which the emissions trading scheme sets the impost on fuel will not be sufficient to discourage many people from using their cars.

Fitzsimons
Yes, you made a point that I've often made as well. The amount that an ETS, or for that matter, a carbon tax, is going to put up prices is not going to produce a huge amount of emissions-saving behaviour. But isn't that the same, regardless of whether you have a carbon tax or an emissions trading system?

What the person who burns the fuel sees - is simply a rise in price. And isn't, in fact, the way the ETS works for the transport fuel sector the same as a carbon charge, in that the oil companies purchase the credits - they remit them to Government; they pass on the cost of that to the motorist, and the motorists actually see no difference at the pump between a carbon charge and an ETS? So why would their behaviour be different?

Blakeley
I have had some discussions with my colleagues about carbon taxes versus emissions trading and I must concede we have differences of views. A carbon tax can be more directly targeted, perhaps, to specific uses of energy, such as motoring, where fuel might have a higher impost on it that elsewhere. That's one thing, perhaps, a tax might do that emissions trading doesn't. But the main worry I have about emissions trading is my third point: I would hate to see New Zealand purchasing what I would call worthless pieces of paper for shonky carbon credits. It would much rather see the proceeds used in New Zealand, whether they be from a tax or emissions trading.

Fitzsimons
So you would support the amendment that the Greens negotiated at the end of process of the last bill, which many submitters want us to get rid of, that AAUs are only acceptable if they've been through a greening process in that country?

Blakeley
Yes, I would thoroughly support that.

Dunne
Thank you, Mr Blakeley, for your submission. Thank you for the clarity of it and the ideas you've brought forward this morning.

Blakeley
And thank you for giving me the opportunity.

Electricity Matters

Electricity Commission Approves NAaN Project

In the previous issue of EnergyWatch (Issue 52 - April 2009) several references were made to Transpower's North Auckland and Northland (NAaN) project (pages 4, 5 and 6).

On 1 May, the Electricity Commission has now reversed its decision to decline the NAaN project. The EC decision includes the statement:

"On the basis of the factors outlined above, the Commission considers that it is no longer appropriate to assign a 33% probability to the likelihood of generation being built at Rodney within the required timeframe. The Commission now considers that the probability of significant generation at Rodney being committed to by Genesis by 2011 is negligible".

The media release accompanying the decision reads as follows:

Electricity Commission approves NAaN project

The Electricity Commission has approved Transpower's $473 million NAaN project, which will reinforce electricity supply through Auckland and for Northland.

The project involves installing a cable between Penrose and Albany, a new 200/110kV transformer at the Penrose substation, and a 220kV cable between the Pakuranga and Penrose substations. The project makes allowance for two new grid exit points to supply Vector at Hobson Street in the CBD and Wairau Road on the North Shore. Transpower has withdrawn a second proposal regarding a potential second cable between the Penrose and Albany substations.

The Commission's approval is required before Transpower can charge consumers for the cost of new transmission investments. The Commission has previously said it intended to decline the proposal as analysis showed it did not pass the cost-benefit test that all transmission projects must pass. The test compares Transpower's proposals against alternatives to see which provides the best value, and so protects consumers from paying too much for transmission.

In its original decision to decline, the Commission said that alternatives to NAaN, including waiting to build it until it was needed in 2016, appeared to have significant benefits compared to proceeding with the project as a whole at this time. In particular there was uncertainty over the proposed Genesis Energy power station at Rodney.

New information presented at a public conference has caused the Commission to review its assumptions regarding the alternatives, the comparative benefits of the NAaN proposal and its earliest commissioning date, which Transpower now says is 2014. After considering these submissions and carrying out further analysis, the Commission has concluded that NAaN is the best way to reinforce supply through Auckland.

Electricity Commission Chair David Caygill said: "The NAaN project was a difficult one to review as there were a large number of factors to consider. The Commission was greatly assisted by the public submissions in response to its preliminary decision. These yielded fresh information which the Commission has taken account of. The result should give consumers confidence in the future reliability of the transmission system".

Mr Caygill noted that since 2004, the Commission has approved more than $2.7 billion in transmission investments. When built, they will roughly double the value of the transmission grid. The Commission now has only one minor transmission investment in front of it for consideration: a $4.9 million proposal to upgrade the Bombay substation.

Reference: SEF News posting by Steve Goldthorpe, 1/5/09.

NZ's Maximum Electricity Output

In March 2009, Green Party MP, Jeanette Fitzsimons asked the Parliamentary Library to obtain some information for her on New Zealand's maximum electricity demand and output.

Q What is the maximum amount of electricity ever generated and fed into the National Grid?

A Figures on actual instantaneous peak load are not publicly available. What is available is the maximum peak electricity demand (actual peak load is higher, owing to transmission losses).

• The maximum national peak electricity demand in 2008 was 6274.8MW on 18 August 2008.

• The maximum national peak electricity demand in 2007 was 6483.6MW on 20 June 2007.

• The maximum national peak electricity demand in 2006 was 6434.3MW on 29 June 2006.

(Source: Electricity Commission database)

By comparison, the estimated total installed generating capacity for 2007 was 9132.8 MW.

(Source - Energy Date File - June 2008, Table G3b, page 106).

Comment
We have been frequently told by politicians and others that New Zealand needs to increase its generating capacity by around 150MW per year. And yet from the above figures, the maximum national peak electricity demand in 2008 was less than in either 2007 or 2006.

Also maximum national peak electricity demand is only around 70% of total installed generating capacity.

Q What is the maximum amount of electrical energy ever supplied in a year?

A Data for the full 2008 calendar year is not yet available. However, for the 12 months ended 30 September 2008, New Zealand generated 42705 GWh of electricity, which was the highest amount produced over a 12 month period.

The highest amount of electricity produced to date in a calendar year was in 2007, when 42,373GWh was produced, followed by 2006 with 41,995GWh, and 2005 with 41,670GWh.

Comment
Therefore the annual rate of growth has been very small in recent years - 0.9% more for 2007 than 2006, and 0.8% more for 2006 over 2005.

Q What is the maximum amount of electrical energy ever supplied in a single day?

A The three highest daily figures are:

136.8GWh on 28 June 2007

135.7GWh on 29 June 2006

133.5GWh on 27 June 2007

Comment
By comparison, electricity loads in late June 2008 were in the region of 120GWh, probably as a result of the energy saving campaign that was running at the time, during the winter electricity shortage.

Reference: Information supplied by the Parliamentary Library.

Contact Slows New Electricity Generation

Contact Energy has announced a slowing down of work on the new 200MW Te Mihi geothermal power station near Taupo, which will be a replacement for the ageing Wairakei power station.

Contact said that falling electricity demand and increased funding costs created by tight credit in global financial markets, have led to a delay in making a final decision to proceed with Te Mihi.

One other factor is uncertainty about how quickly, if ever, the Bluff aluminium smelter

will return to full production. Using about 7% of NZ's electricity, the smelter has been operating at two thirds of full capacity since a transformer failure in November 2008, which frees up some electricity production from the Manapouri power station to be available for other purposes. Because of the downturn in world aluminium demand, there may be no need for the Bluff smelter to return to full production in the near future.

Also delayed for a year or more is Contact's resource consent application for the 180 turbine wind farm near the coast south of Port Waikato. If built, this $1 billion project would be easily NZ's largest wind farm development. The presiding judge of the board of inquiry has required a much greater level of detail on the project than has been provided by Contact to date, and Contact has decided to take another year to prepare a more detailed submission which appears to be necessary.

Also there has been a significant shift against the economics of wind farm development in NZ since our dollar fell against the US dollar in late 2008. There have been criticisms that Meridian's West Wind project near Wellington is producing electricity at perhaps as high as 10.5 cents per kWh, where production costs of around 8.5 cents per kWh were assumed for a Tier One wind site such as West Wind.

However the above two delays perhaps create opportunities for new large scale thermal plants such as Otahuhu C, for which Contact received a resource consent some years ago, but it remains unbuilt because of uncertainty about future natural gas supplies.

Reference: NZ Energy & Environment Business Week, 20/5/09.

Wolak Report Finally Released

In April 2009, EnergyWatch Issue 52, page 11 we reported that a "bombshell" report will reveal widespread abuse of market power by NZ electricity companies extending over several years.

The report by Stanford University economics professor, Frank Wolak was commissioned in 2005 as part of an investigation after the Commerce Commission received numerous complaints about power prices, excess profits by the generators, and allegations of uncompetitive activity.

This initial report by Wolak covers only the wholesale electricity market - a subsequent report will address the generators' ownership of retail businesses (report now abandoned?)

Release of this initial report has been delayed for a long time during which Wolak has published an academic paper on the subject, which has been readily available on the internet.

Commenting on the situation in mid-May 2009, the NZ Energy and Environment Business Week (20/5/09) said that the *"almost-comically delayed"* Wolak report should reach interested parties' desks by Friday 22 May. The review had been under way since 2005 and has cost close to $2 million. The review has found evidence of market power being exercised by generator-retailers between 2001 and 2007.

Sure enough, the report was finally released on Thursday 21 May. Energy Minister, Gerry Brownlee said that he was 'advising' electricity companies not to raise their prices while the Government decides what to do about this report, which states that these companies have been profiteering, perhaps by as much as $4 billion or more over the six year period being considered.

"It would be audacious to raise their prices while this sort of allegation is hanging over them" Mr Brownlee said of the electricity companies.

The Wolak report concludes that each of the four big generating companies - Meridian, Contact, Genesis and Mighty River Power - has been exercising the power that the markets design gives them, to command unjustifiably high prices, at least during the years when inflows to the hydro lakes are low, as they were in 2001, 2003 and 2006.

But this did not amount to a breach of the Commerce Act, the Commerce Commission said. *"It was a lawful and rational exploitation of the opportunities that the market gave generators and they would not be hauled before a court"*.

Mr Brownlee said that it came as no surprise that there was something fundamentally wrong with the way that the electricity market was working. He said that was why he set up in April, a ministerial review, chaired by economist Brent Layton, to advise on what changes could be made.

"Nothing was ruled out", Mr Brownlee said, *"other than privatisation of state-owned enterprises. No assets are going to be sold*".

Residential power prices rose by two-thirds between 2000 and 2007, or 5% a year faster than general inflation.

This has caused the near-farcical situation that at the same time as the energy minister is demanding that electricity companies do not raise their prices, the state-owned-enterprises minister is demanding greater financial returns from all state-owned companies to assist the Government's books in the present difficult financial situation it finds itself in.

Sue Chetwin, chief executive of Consumer New Zealand said that the Government was in an interesting position, because as the owner of three of the four biggest players in the wholesale electricity market, it benefited from increased prices, but also had the tools to do something about it.

SEF Life Member, Molly Melhuish, speaking on behalf of the Domestic Energy Users Network (DEUN) said that the information pointed to why the Government would be hesitant to do anything about the wholesale electricity market - because it benefited so much from it.

Reference: NZ Herald, 22/5/09

TrustPower to Ignore Brownlee Edict?

TrustPower says the company reviews its tariffs on a rolling schedule around the country each year and has indicated that it will continue to do so, as it has been doing the same thing for the last 10 years.

The Wolak report has addressed only the high prices of the four biggest generating companies, but of course TrustPower, the fifth largest, also benefits from higher prices on the wholesale electricity market.

Energy Minister, Gerry Brownlee has recently said that it would be an *"audacious act"* for any of the power companies to raise their prices before September 2009 when the Ministerial Working Party to advise on reforms in the electricity market first reports back to him.

Mr Brownlee has since indicated that more time may than this be needed before the Working Party can report back.

The Prime Minister, John Key, in his weekly press briefing said that his *"preference"* would be that the electricity companies listen to what the Minister of Energy is saying (that they not raise their prices before September).

But the Prime Minister was cautious about commenting on the findings of the Wolak report, noting that New Zealanders had been *"potentially"* overcharged based on a *"perfect pricing scenario"* when *"no market is perfect and the electricity market in NZ is not perfect"*.

Genesis Energy has indicated that it is still deciding what to do (about raising prices), noting that they are discussing it and taking the Minister's advice into consideration, but pointing out that the Minister of Energy cannot instruct them as to how to run their business, but can only "suggest and advise". Genesis only has small retail areas up for price review before September.

Of the other electricity companies, it seems that none of them are planning to raise their prices in the near future anyway.

Contact Energy has put a temporary halt on all price increases after negative reaction to its price rises last November, soon after announcing an annual profit of $237.1 million (and also a bid by Contact's directors to almost double their total pool of fees to $1.5 million - see EnergyWatch, Issue 51, page 1).

Mercury Energy (owned by Mighty River Power) has already indicated no price rises before April 2010, and Meridian Energy generally only reviews its tariffs once a year in September. Meridian last increased its prices by an additional 7% in March 2009, after Mr Brownlee had "jawboned" the increase down from a double digit rise which Meridian had planned - see EnergyWatch, Issue 52, page 12.

Reference: NZ Energy &Environment Business Week, 27/5/09.

What Happens Next with Wolak?

The reality is that the Commerce Commission plans to take no action against any of the generator-retailers, which it says were legitimately using market power to maximise profits.

The reality also remains that all new electricity generation options are more expensive than those of the past, especially when thermal generation options are yet to face the cost of their carbon dioxide emissions under the proposed Emissions Trading Scheme.

At the centre of the analysis in the Wolak report are assumptions about the value of stored hydro water. By concentrating on the short-run regional cost of water, critics say that Wolak has downgraded the importance of the long-run marginal cost of new generation options as the primary guide as to which power station gets built next.

Under the current market arrangements, outcomes in NZ to date have succeeded in prioritising new electricity generation projects roughly in the order of their cost of production.

It can be said that the Wolak report does nothing more than highlight an old problem which has concerned NZ's electricity policy makers for many years - how do you balance the need for security of supply, which comes at a cost, with the politics of a country which is accustomed to relatively low-cost electricity and deeply untrusting of energy companies and their prices and profits?

One example is that Contact have slowed down work on geothermal and wind projects (see pages 13&14 of this issue of EnergyWatch) because of the weak economy and presumably an assumed reduction occurring in the rate of demand growth for electricity.

But even without demand growth, new electricity generation projects are needed to replace ageing, existing plant. As an example, the 200MW Te Mihi geothermal power station is planned as a replacement for the Wairakei geothermal plant, built in the 1950's.

So a threat of under-investment for the future is already looming in the electricity generation industry, and the outcomes from consideration of the Wolak report may increase that threat.

Some energy analysts are predicting that a lot of noise but not necessarily a lot of action will come out of the Ministerial Energy Policy Review.

Forsyth Barr comments as follows:

"We believe it will be very difficult for the Ministerial Review to put in place structures that significantly reduce wholesale market prices. And if it does, under-investment in generation is the only logical outcome, which then puts in jeopardy future security of supply. Security of supply and low electricity prices are diametrically opposed goals and forcing prices down can only jeopardise security of supply."

Goldman Sachs JB Were says that equally compelling for the Government is the political risk of under-investment in major new electricity

generating plants leading to future power shortages which will always lead to severe criticisms of the Government-of-the-day.

They are expecting flat earnings for electricity companies over the next year, because at present weak wholesale prices, retail competition, and now political restraints on tariff growth.

They also remain convinced that the long-run marginal cost (LRMC) of wholesale electricity is around 10.5 cents per kWh - a level consistent with Ministry of Economic Development analysis. They conclude "*At our assessed LRMC, no retailers currently earn an economic profit"*.

It is clear that the Wolak report concentrates strongly on short-run rather than long-run marginal electricity costs, and this is where there is greatest disagreement with the Wolak analysis.

Reference: NZ Energy & Environmental Business Week, 27/5/09.

Alternatives to the Market?

Writing in the N.Z. Listener (6 June 2009), political columnist Jane Clifton, noted that there is now a Ministerial Review of the wholesale electricity market which will report its findings in September.

And then the Government will decide what changes to make, which will take some months to implement. So that by the end of next year we might have a more rational electricity market. Or not?

She notes that once upon a time, electricity in this country was very cheap. This boring old electricity system was so boring because it worked. And as it was infrastructure, basic to the standard of living, no one thought it a fit thing to make a profit from, so there were no margins, no tickets clipped along the way.

Now three decades on from the unthinkably primitive days of unimaginatively run, yet strangely cheap electricity, we may be coming to a day of reckoning. The Commerce Commission's report didn't find that the electricity generating companies were colluding. They were simply, independently, exhibiting natural behaviour.

So the Government must by now have got the message that leaving the wholesale electricity market as it is, is not an option. As commentator, Bernard Hickey, points out, while inflation ran at an average of 2% annually between 2001 and 2008, retail power prices rose 8% annually on average.

So far Energy Minister, Gerry Brownlee's only contribution is a coded threat to cap wholesale electricity prices in the meantime.

At the risk of propounding the odious idea that the state is occasionally the most efficient steward of vital infrastructure, time and money might be saved by finding some of those ageing cardy-wearers who used to provide us with cheap electricity, and ask them how the heck they did it!

Reference: NZ Listener, 6/6/09

In a more serious vein however, it is significant that in the terms of reference for the Ministerial Review of Electricity Market Performance, released about 2 April 2009, it is noteworthy that in a section headed "Components of the Review", item 7, the statement is made that:

"The review will take the current market design as a starting point and focus on improvements to this model. The assumption here is that there is still room for improvement within the current market approach and that there is no evidence that a move away from a market approach to a more centrally controlled approach would provide additional net benefits".

Referring to this in an SEF News posting, your editor commented as follows:

"The mere fact that they even had to mention this possibility speaks volumes! Bring back ECNZ? Or even NZED?"

Reference: Postings on SEF News 2 and 3/4/09.

In an earlier SEF News posting (2/3/09) anticipating the forthcoming release of the Wolak report, SEF member, Alistair Barnett said:

"We need to be careful about assigning blame for why the wholesale electricity market is not working properly. If all each electricity producer has done is to follow instructions to work to the short-term advantage of their shareholders (mainly government) the condemnation is hardly appropriate.

Surely the problem is the naivety of the political agendas that the simple removal of regulation would deliver electricity generation into the safe (albeit invisible) hands of the market".

Commenting further on this after the release of the Wolak report, Alistair Barnett said:

"This whole criticism about excess profits seems to me to stem from a basic failure to agree on the rules! I do not believe the accountants and economists have ever got their head around the concept of assets which do not depreciate or ever need replacement (i.e. dams). OK, they may fill in with sediment over hundreds of years, but even then the live storage is still available for generation.

Against this we have an economic model in which virtually all the dams in New Zealand have been written off years ago, solely because they have repaid the borrowing required to build them, not because they have lost any functionality. Faced with the reality that power from these dams costs almost nothing to produce, the Rogernomes insisted that correct economic principles required this power to be charged at the marginal price required to cover the costs of a new entrant to the market, so that new schemes could be built to run with an acceptable profit as more capacity was required.

Now we have a report finding - wonder of wonders! - that the existing generators are charging far more than it costs to generate the electricity.

So what do we want - prices based on marginal market entry costs or the old public service style cost plus?

The trouble is, reports like the present one cause such an outcry that generators are forced to charge less than the marginal entry cost during wet years, so there is no incentive to build new capacity for the dry years (except when they happen, when it is too late to start a new project).

So we have the worst of both worlds - overcharging on present capacity and no incentive to put something aside for a rain-free day.

I suggest the sensible way out is to change the official policy back to cost plus, rather than blaming the generators for not returning to the pre-Rogernomics era unilaterally".

Reference: SEF News posting by Alastair Barnett, 22/5/09.

A Cardy Wearer Replies

In reply to Jane Clifton's column (see page 17 of this issue of EnergyWatch), Geoff Robinson wrote a letter as "an ageing NZED engineer and cardy wearer". He noted that being a government department, NZED had a capital expenditure which was sourced via Treasury, which could obtain capital at lower rates than private companies. Staff were paid public service salaries and operated with minimal overheads - for example, no expensive Boards, no inflated salaries and no PR or advertising expenses.

The electricity tariff was set to provide an acceptable return on the capital base over a period of time. Occasionally the profit was small but in a favourable hydro year, profits were large. The brief was to provide a continuous and reliable supply of electricity at all times, bearing in mind that this was an essential infrastructure service. It was not per se to make a profit. Does our road infrastructure make a profit?

Also, being in one unit rather than four, NZED was able to optimise the use of all water resources while bearing in mind thermal availability and transmission constraints.

Reference: NZ Listener, 20/6/09

Climate Change/Global Warming

AA Surveys its Members on the ETS

In 2007 and 2008, the NZ Automobile Association (AA) carried out a survey of 1,300 randomly selected members to obtain their views on climate change and emissions trading.

AA members showed a high degree of scepticism about carbon trading mechanisms under the Kyoto Protocol. Opposition was from both those who wanted action on climate change and those opposed to it.

Those who wanted action tended to see trading as a **cheat's** way of avoiding obligations (15%), while others saw trading as sending money offshore to carbon credit holders for no real benefit (44%). Combined, this meant around two thirds opposed carbon trading.

When asked what they thought was the best use of funds collected from carbon charges on fuel, an overwhelming 86% said that it should be retained in New Zealand to develop carbon absorbing forests.

Only 2.7% of respondents supported the use of carbon trading mechanisms to send the money collected from fuel sales to other countries to buy carbon credits.

On the basis of this survey, the AA says that New Zealanders believe that encouraging forestry is the best way to sustainably reduce NZ's net emissions. They see little merit in paying foreigners to "pick up our climate change tab" on a year-by-year basis.

Reference: AA Directions Magazine, Autumn 2009, pp 21-23.

Long-Term Future Looks Bleak?

In a recently published book entitled "Poles Apart", economist Gareth Morgan and John McCrystal note that the IPCC forecasts that if atmospheric carbon dioxide doubles from its pre-industrial level of 280 parts per million (ppm), and beyond the current 387ppm to 560ppm (which the IPCC considers to be a "lower emissions scenario"), the climate is likely to warm by **3 degrees C.** So far, it has warmed by **0.8 degrees C** over the past 150 years.

Actual numbers are hard to predict because there are a number of significant moderating effects on temperatures, and in particular clouds, which are extremely difficult to factor into computer modelling of the climate.

The IPCC's "mid range scenario" suggests concentrations of carbon dioxide could reach 800ppm by the year 2100, which could mean an increase of 3.3 **degrees C** from present levels.

As "***Poles Apart"*** points out, if 3 degrees C doesn't sound like much, people should remember that in any 50-year period, the average temperature varies by usually no more than 0.2 degrees C, and there is no evidence that Planet Earth has ever been, on average in the period of human habitation, more than 2 degrees C warmer than it is now.

Nor is there any evidence that homo-sapiens have experienced higher atmospheric carbon dioxide levels than currently exist.

"If we accept the theory of anthropogenic global warming, we must at least evaluate the prospect that we may soon be inhabiting a world whose climate is different to that to which our species has adapted" Morgan and McCrystal say in ***"Poles Apart***".

"After all, greenhouse-gas concentrations seem set to keep rising at the equivalent of 1.5ppm of carbon dioxide per year".

Reference: NZ Listener, 9/5/09, pp 18-22

Almost 9 out of 10 climate scientists do not believe political efforts to restrict global warming to 2 degrees C will succeed, a Guardian poll reveals.

An average rise of 4 to 5 degrees C by the end of this century is more likely, they say, given soaring carbon dioxide emissions and political constraints.

The poll of those who follow global warming most closely, exposes a widening gulf between political rhetoric and scientific opinions on climate change.

While policy makers and campaigners focus on the 2 degrees C target, 86% of the experts told the survey that they did not think it would be achieved.

A continued focus on an unrealistic 2 degrees C rise (which the EU still sees as sufficient to be dangerous) could even undermine essential efforts to adapt to inevitable higher temperature rises in the coming decades, the Guardian warned.

Reference: NZ Energy & Environment Digest, 22-28/4/09, pp1-2.

Post-Kyoto Climate Change Agreement is Difficult

On Thursday 7 May, your editor attended by invitation, a briefing in Auckland by Government officials on progress (?) in the international climate change regulations since Poznan in December 2008, and leading up to the major climate change conference to be held in Copenhagen in December 2009.

The comments below are my own impressions and do not necessarily reflect what was actually said at the briefing.

It was apparent after the Poznan conference that the whole negotiating process had become much too unwieldy and considerable efforts have since been made to try and define the ongoing negotiations into distinct topics where it is hoped that some progress can be made. However this progress is extremely slow.

Nevertheless, it seems that most countries still have expectations that a broad political agreement can be reached at Copenhagen but it is likely that after that conference, politicians will indulge in "window dressing" to make it appear that firm agreements have already been reached, whereas in fact most of the detailed agreements will still require a lot more subsequent negotiations, and brokering among the major players outside of the UNFCCC processes.

I asked a question about the impact of the current global recession on the climate change negotiations, bearing in mind that the economic landscape has changed very considerably since the current negotiations really got under way at the time of the Bali Conference in December 2007.

The response was that the economic recession is certainly making the negotiations more difficult, but any agreement which can be reached at this time is likely to be more robust into the future in withstanding fluctuating economic conditions.

However, in the present time of economic stringency, it is much less likely that Governments will allow large transfers of money to other countries as part of the negotiated international agreements.

Also noticeable at the moment is that countries are quite keen to talk about medium-term emissions reductions targets for 2020 to 2030, or long-term targets for 2050, but much more reluctant to talk about actual commitments to emissions reduction targets in the shorter-term, bearing in mind that a successor agreement to Kyoto should run from 2013 to 2017 inclusive.

Also pivotal to reaching a post-Kyoto agreement is the involvement of the USA. At the present time, the USA is now participating in ongoing UNFCCC discussions, but is not involved in the present negotiations over a post-Kyoto agreement, which are at present confined to the parties currently involved in the Kyoto Protocol, from which the USA withdrew in 2001.

It seems that climate change negotiators for the USA still see the Kyoto Protocol as "radioactive" and want nothing whatsoever to do with it, but on the other hand they are very keen to be involved in discussions on engaging in the world's carbon markets.

The US attitude is very important in trying to achieve agreement on a post-Kyoto successor agreement because unless the USA is involved, there is no way that China, now the world's largest emitter of greenhouse gases, will agree to any binding commitments to reduce its greenhouse gas emissions.

So in my view, it seems most unlikely that any post-Kyoto climate change agreement can be reached as long as the USA maintains its standoff approach to discussing anything to do with Kyoto.

Finally, the comment was made that New Zealand is still the only country in the world which is intending to incorporate agricultural emissions into an emissions trading scheme. Most countries see these emissions as being too difficult to quantify to include in such a scheme, whereas New Zealand takes the view that since nearly half of its greenhouse gas emissions come from the agricultural sector, this sector must be included in our ETS.

Also on a global scale if world population increases from the present 6.7 billion people by 1 billion people per decade for the next 2 decades as the United Nations predicts, then producing enough food to cover the needs of this increasing population will be a major global challenge and one which is likely to lead to a large increase in global greenhouse gas emissions from agriculture, which cannot be inhibited by emissions trading schemes without leading to wide scale food shortages.

John Blakeley

Footnote: The UK Guardian newspaper has recently reported that China is ready to abandon its resistance to limits on its carbon dioxide emissions, and wants to reach an international agreement to fight global warming.

According to Britain's climate change secretary, Ed Miliband, who met senior officials in Beijing recently, China is ready to "do business" with developed countries to reach an agreement to replace the Kyoto treaty.

Nevertheless it is difficult to believe that China would be prepared to sign a post-2012 Kyoto-type agreement while the USA is still standing apart from any commitment to impose emissions reduction targets in the 2012 to 2017 period.

Reference: NZ Energy & Environment Business Week, 13/5/09.

Climate Change Threatens Asia's Growth?

The Pulitzer Prize - winning geographer, Jared Diamond, recently contended that rich nations use 32 times more water, fuel and food than developing countries on a per capita basis, and the rich countries produce that much more greenhouse gases and plastics waste too.

He said that the world has serious consumption problems, but they can be solved if those rich countries choose to do so. *"The time to begin is now"*.

As Asia's leaders converge on Bali for the Asian Development Bank's annual meeting, no one believes that Planet Earth can withstand billions of Asian people consuming the way the West does in the decades ahead.

"Washington officials often tell developing countries that if they champion free-market economics and good governance, that they can become rich too. That is becoming a fantasy US-style, because consumption on that scale isn't environmentally sustainable. Addressing climate change is no longer a choice but a necessity".

Reference: NZ Herald 5/5/09.

US Climate Bill Progresses

New US laws to impose the first limits on US greenhouse gases have cleared a key House of Representatives Committee, despite strong Republican opposition.

The Energy and Commerce Committee has approved the sweeping climate change bill by a vote of 33 to 25 after repeatedly turning back Republican attempts to kill or weaken it.

The Committee's actions boost the likelihood that President Obama will succeed in his wish that the US can attend crucial international climate talks in Copenhagen in December, having taken concrete action at home to fight global warming.

Such action is widely seen as an essential act of good faith to the drawing of China, India and other developing nations into a global deal to succeed the Kyoto Protocol.

The Bill will now be considered by the full House of Representatives, with the Senate yet to take up the issue.

How the Senate handles this issue will be absolutely critical, because way back in the days of the Clinton/Gore administration, the Senate voted overwhelmingly against the US joining the Kyoto Protocol, and thereby becoming committed to limiting its greenhouse gas emissions.

Reference: NZ Energy & Environmental Business Week, 27/5/09

US Emissions Reduction

Compared with the 2007 year, carbon dioxide emissions related to energy use in the USA fell by 2.8% during 2008. This is thought to be mainly due to high oil prices experienced, especially in the middle part of the year, and an economy in severe recession, especially in the latter part of the year.

This fall in energy-related carbon dioxide emissions is the steepest experienced in the USA since 1982.

The amount of carbon dioxide emissions produced for every dollar of economic output also declined by 3.8% during the 2008 year, as industry and motorists became more energy efficient, and as renewable energy sources gained a slightly larger share of the energy market.

This was a far greater decrease in "carbon intensity" than the average decline experienced in previous years.

Reference: NZ Energy & Environment Business Week, 27/5/09

Preparing NZ for Climate Change

At the NZ Climate Change Centre conference held in Wellington in late May, scientists looked at two possible futures for NZ at the lower and upper ends of the IPCC predictions for global warming.

Climate Change Minister, Dr Nick Smith, said that NZ could expect temperature rises of between 1 and 2 degrees Celsius by 2090, matched by sea level rises of about 20cm by mid-century and 50cm by the end of the century.

Also predicted are higher rainfall in the west of NZ and more droughts in the east.

Dr Smith said that the Ministry for the Environment is leading cross-government work on climate change. It is preparing a discussion document scoping options for a proposed national environmental standard on sea level rise. It is also working on a proposed national policy statement on flood risk management, aimed particularly at local government organisations.

Dr Smith also said that a harmonised Emissions Trading Scheme (ETS) with Australia would have three key advantages:

- Lowest possible cost mitigation measures.
- Reduced compliance costs, aligning measuring and reporting schemes in both countries.
- A common ETS would allow Australia and NZ as CER partners to deal with trans-Tasman competitive issues.

Dr Smith said that the new Australian timetable for its Carbon Pollution Reduction Scheme (delaying the introduction of its ETS by one year, to 2011) does not affect NZ's desire or ability to harmonise its ETS with Australia's scheme.

Reference: NZ Energy & Environment Business Week, 27/5/09

Fuels

Has Oil Already Peaked?

Opec has dropped its forecast for crude oil demand in 2009 because of a significant consumption drop caused by the worldwide recession.

It now says production will be down by 1.6% to average 84.18 million barrels per day (bpd) during 2009. Opec countries still have another 700,000 bpd to take out of production to meet cuts agreed to by Opec.

Opec predicts that a "devastating contraction" in oil consumption will keep prices under pressure in the months ahead.

Opec says that the cartel's members want oil prices to exceed $US70 per barrel. The current price of around $US50 is not enough to cover investment costs for the future.

Reference: NZ Energy and Environmental Business Week, 29/4/09, pg 4.

As shown on Figure 2, information from previous issues of EnergyWatch indicates that average annual world oil consumption grew from 82 million bpd in 2004 to 83.3 million bpd in 2005 to around 84.5 million bpd in 2006 then to 86.1 million bpd in 2007.

It appears that global oil supply may have reached a maximum of around 86.8 million bpd by mid 2008 before falling away again to 86.5 million bpd towards the end of 2008.

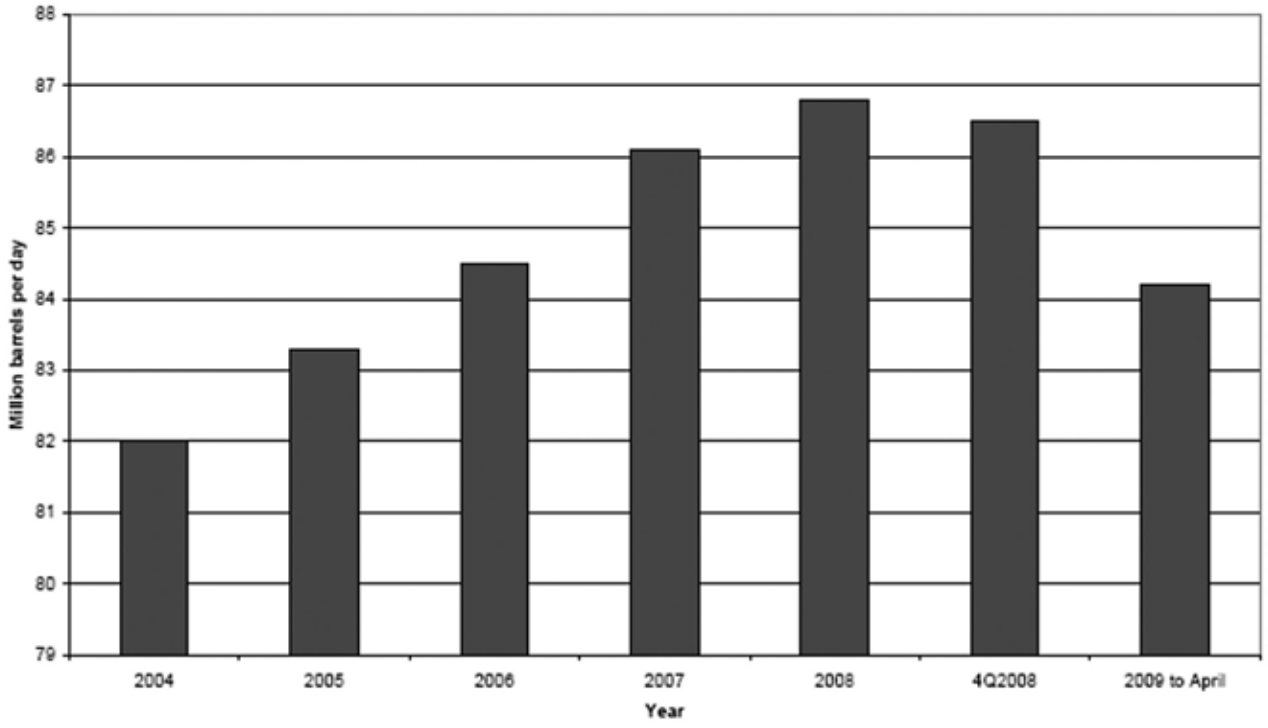
Since then, oil supply has fallen sharply to around 84.2 million bpd, without any significant change occurring in the international oil price (until April 2009, but the price has been rising since then).

During late April and May 2009 a four-part "Post-Peak" seminar series was held at Victoria University of Wellington, the publicity for which included the statement:

"A key turning point may have passed us by. World crude oil production may never exceed the record set in July 2008, setting up a bumpy ride down for the century's remainder".

Reference: SEF News Posting by Simon Tegg, 23/4/09.

Fig. 2 Average Daily World Oil Consumption



The global financial crisis and collapse of the oil market have stalled vital investment in oil exploration and production and are likely soon to lead to a sharp spike in prices, an energy consultant and financier says.

Matt Simmons, founder of Houston-based investment bank Simmons & Co, argues the underlying rate of decline of the world's ageing oilfields is as much as 20 percent a year, and only high levels of investment can reduce that to single digits.

With credit tight and oil prices almost US$100 a barrel below their highs last year, oil companies are unable to sustain previous levels of spending and the result is falling production, he said in an interview on Thursday.

"We are three, six, maybe nine months away from a price shock. We are not talking about three to five years away -- it will be much sooner," Simmons told Reuters in London. (26 March 2009).

Reference: Energy Bulletin, 29/3/09. www.energybulletin.net/node/48467

Oil Price Rising Again

Oil prices rose towards US$60 per barrel in mid-May after data on oil inventories showed an unexpected drawdown, boosting hopes of an economic recovery in the USA, the world's largest energy using country.

US crude oil for June delivery was selling at US$59.60 on 13 May having risen steadily from US$40 per barrel in recent weeks.

Adding to positive sentiment was data showing that output from Chinese oil refineries had accelerated in April along with data that China's industrial output had risen 7.3% in April 2009 from a year earlier (although analysts had earlier forecast that it would rise 8.3%).

The crude oil price has plunged from a record high of US$147 a barrel in July 2008, but a rally in sharemarkets over the last few months has helped lift the price almost 80% above a January 2009 low of US$32.70 a barrel.

Figure 3, provided by SEF member Neil Mander plots crude oil price variations over time since May 2004. This graph is also available from the

Fig. 3

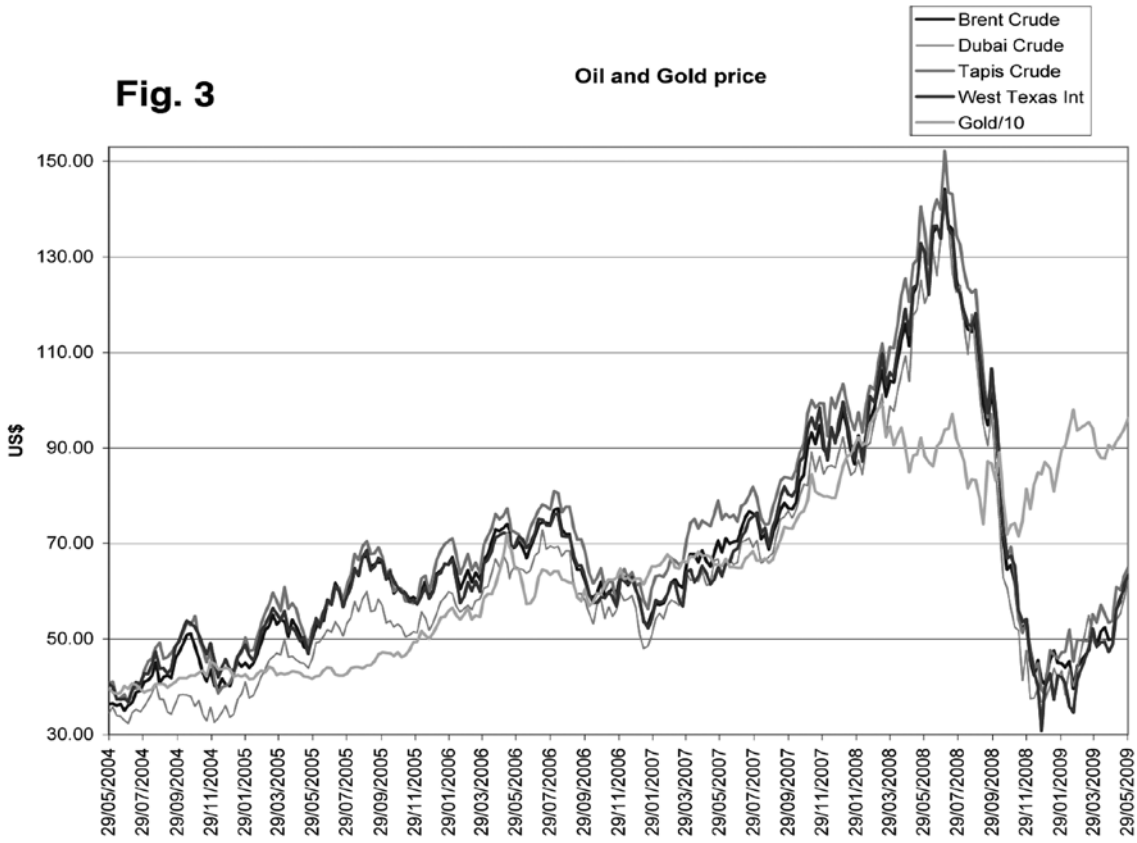
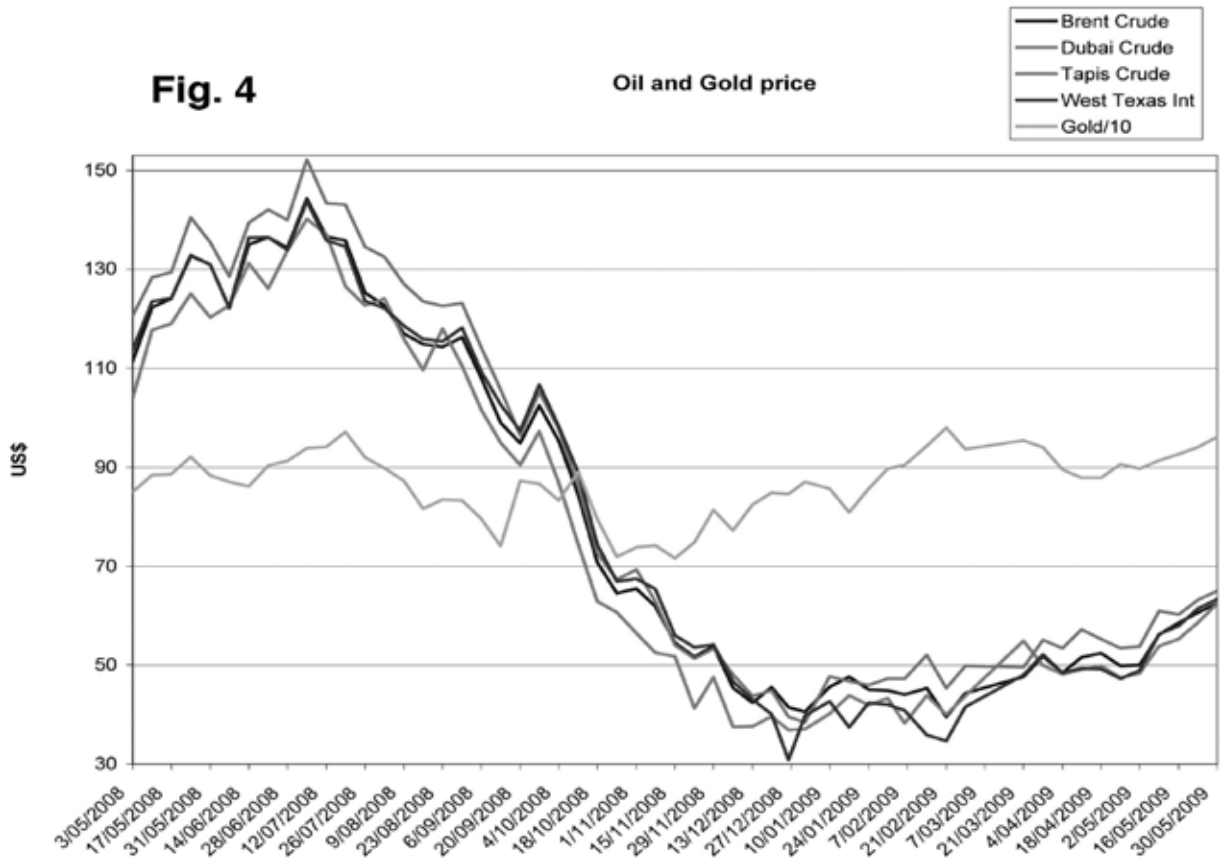


Fig. 4



Members Views section of the SEF website as a pdf file.

Figure 4 is a narrower time span from the same graph for the last 12 months. The graphs have been updated to 29/30 May, when oil prices had exceeded US$60 per barrel.

Reference: NZ Herald, 14/5/09.

On Monday 2 June, oil prices rose to a new seven month high as stock market optimism and sustained hope for a global economic recovery supported the market's gains. Brent crude rose to US$66 per barrel.

Reference: NZ Herald, 2/6/09.

Stop Press: On Tuesday 22 June, Brent crude was trading at US$69 per barrel but was back to $US66 on 23 June.

Offshore Oil Fields Help Govt Accounts

Recently, the Minister of Energy and Resources, Gerry Brownlee has noted the growing economic impact of offshore oil fields on Crown accounts.

For the eleven month production period ending 30 June 2008, the Tui joint venture paid the Crown $210 million in royalties and a further $250 million in related corporate tax.

It is estimated that over the life of the Tui field, more than $1.5 billion in royalties will flow to the Crown, plus corporate tax on profits.

Similarly the Maari oil field now getting into full production and expected to reach its initial production peak of about 35,000 barrels per day later this year, is expected to yield over $1.5 billion in royalties to the Crown over the life of the field.

The Kupe gas/condensate field which is due to be commissioned in the third quarter of 2009 and is also expected to yield over $1.5 billion in royalties to the Crown over the life of this field.

The Pohokura gas/condensate field which was commissioned in 2007 has considerably greater reserves of gas and oil, and is expected to average $200 million dollars in royalties for more than 20 years.

Reference: NZ Energy & Environment Business Week, 20/5/09

Offshore Field	Start Date	Oil Reserves (P50)	Gas Reserves (P50)
Tui	July 07	216.3 PJ	--
Maari	April 09	300PJ (est)	--
Kupe	Sept 09	95.4PJ	250PJ (est)
Pohokura	Mid 07	366.4PJ	1063.6PJ

Table 1

Table 1 shows the remaining (P50) reserves in each of these four fields as of 1 January 2008.

Reference: Energy Data File, June 2008, pp 120-121.

Obama's Toughest Challenge?

Of all the challenges facing President Obama, none is likely to prove as daunting, or as important for the future of the USA, as that of energy.

After all, energy policy - so totally mishandled by the outgoing Bush-Cheney administration - figures in each of the other major challenges facing the new President, including the economy, the environment, foreign policy, and the Middle Eastern wars.

Most of all, it will prove a monumental challenge because the USA faces an energy crisis of unprecedented magnitude that is getting worse by the day. The USA needs energy - lots of it.

Day in and day out, the USA, with only 5% of the world's population, consumes nearly one quarter of the world's total energy supply. About 40% of US energy supply comes from oil - around 20 million barrels per day or about 23.5% of the world's total daily consumption of crude oil.

Another 23% of US energy supply comes from coal, and a similar percentage from natural gas, giving an approximate breakdown of:

Oil	40%
Coal	23%
Natural Gas	23%
Other	14% (including hydro, wind, solar and nuclear energy).

Providing all this energy to American consumers and businesses, even in an economic downturn, remains a herculean task, and will only grow more so in the years ahead.

Addressing the environmental consequences of consuming fossil fuels at such levels, all emitting greenhouse gases, only makes this equation more intimidating.

Reference: Michael T Klare, "America's Energy Crunch Comes Home", 9/11/08.

Budget Boost for Biodiesel

As noted briefly in the previous issue of EnergyWatch (Issue 52, April 2009, page 1), soon after coming into office, the new National-led Government repealed the Biofuels Sales Obligation which has been recently passed into law by the previous Labour-led Government.

Under that obligation, oil companies were required to sell biofuels blended into petrol and diesel, starting overall at 0.5% in 2009 and reaching 2.5% of total fuel sales in 2012.

The official starting date was to have been 1 October 2008, but the industry was given up to 15 months from then to phase itself into the new regime under a renewed Labour-led administration

In EnergyWatch, Issue 51, pages 17-18 it was noted that Gull and Mobil were already supplying bioethanol-petrol blends in various parts of the North Island and BP had disclosed plans to start selling biodiesel on a modest scale by the end of 2008.

In the 28 May 2009 budget, it was announced that the present Government is now giving a

subsidy of $36 million over the next three years to biodiesel producers.

It will establish a biodiesel grant fund which will provide up to $9 million in the first year, up to $12 million in the second and up to $15 million in the third. The subsidy will be paid out by way of a 42.5 cents per litre grant on biodiesel sales.

Energy Minister, Gerry Brownlee, said that the initiative fulfils the Government's pre-election promise of providing incentives for biodiesel producers, in recognition of the taxation advantages which bioethanol already enjoys.

An industry analysis commissioned by EECA indicates that biodiesel produced in NZ will result in reductions of greenhouse gases of between 50% and 90% compared with ordinary diesel. It will not be produced on land of special environmental value and will not compete with food production.

Some biodiesel is already produced in NZ from waste cooking oil, tallow (a by-product of meat processing) and rape seed oil. Present users include vehicles, fishing fleets and boilers.

The grant is only available to domestic biodiesel producers selling to NZ consumers. It is not available to biodiesel producers who want to export.

References: Beehive Press Release, 19/5/09, and NZ Energy and Environment Business Week, 27/5/09.

Biofuels Subsidy to Foreign Farmers?

Under the Government's new biofuel subsidy scheme, responsible NZ firms producing biodiesel can be undercut by biodiesel made from crops grown on land cleared from tropical rainforest. Green Party MP, Jeanette Fitzsimons said that the National-led Government threw the baby out with the bathwater when they repealed sustainability standards.

Ms Fitzsimons said that she assumed that it must have been a mistake, because the new biodiesel subsidy scheme defeats the purpose of introducing biofuels, which is to look after the NZ environment and the economy. She is introducing to Parliament a Sustainable Biofuels Bill which will make sure that biofuels sold in NZ were good for the environment, by restoring a sustainability standard. Her Member's Bill resolves the issues created by the subsidy scheme, as NZ farmers are worried that the Government's biodiesel scheme will lead to large subsidies going to foreign farmers.

Last year, after the previous Labour-led Government introduced the biofuels sales obligation, requiring companies selling motor fuel to also sell a small proportion of biofuel, the Green party negotiated an amendment to ensure that the biofuel was from sustainable sources. The amendment ruled out fuels made from food crops, by destroying biodiversity, or which did not significantly reduce carbon dioxide emissions.

The incoming national-led Government repealed the legislation a few months after it was passed, preferring a subsidy for biofuels to a mandatory obligation, but also dropping the sustainability standards. Ms Fitzsimons Member's Bill reinstates the legal framework for selling sustainable biofuels in NZ. As required by NZ's international trading obligations it does not distinguish between locally produced and imported biofuel, but requires both to meet the sustainability standard. The Bill will be entered in the next ballot for Member's Bills, which could be as soon as 18 June.

Reference: Green Party press release, 11/6/09

Vehicles

Hydrogen Versus Battery Electric Vehicles

Hydrogen fuelled internal combustion engines (HICEs) and fuel cell vehicles (FCVs) may offer significantly greater economic savings than battery electric vehicles (BEVs) due to a much lower capital cost, according to a study led by Assoc. Prof Jonathan Leaver of Unitec Institute of Technology in association with Stanford University and recently published in the International Journal of Hydrogen Energy.

Using base case scenario parameters of a carbon tax of US$50 from 2012, and an oil price of US$90/bbl in 2008 increasing to US$180/bbl (2008 dollars) in 2032, along with vehicle costs based on the 2006 MIT study *"Electric Powertrains: opportunities and challenges in the US light duty vehicle fleet"*, the study found that by 2050, 65% of the light vehicle fleet would be hydrogen-fuel- based and 5% BEVs, with a reduction of 69% in petrol and diesel fuel use by 2050.

Restricting the fleet to conventional internal combustion engines, results in additional average annual costs of $558 per vehicle from 2015 to 2050, while excluding hydrogen powered vehicles to 2050 results in an additional average annual cost of $937 per vehicle for the same period.

The greater capital cost of BEVs over hydrogen fuelled HICEs and FCVs leads to significant cost savings by using a hydrogen fleet, rather than an electric powered fleet.

The dominant long term production of hydrogen fuel is by coal gasification with cogeneration of electricity that results in an increase in greenhouse gas emissions of about 31% between 2010 and 2050, but with sufficient sequestration capacity, emissions could be reduced to 67% of 2010 levels.

The study concludes that varying the assumed improvements in fuel cells and batteries, or the assumed 73 kW size of the battery within credible margins, may alter the results somewhat but would not likely dramatically change the principal findings.

Reference: International Journal of Hydrogen Energy , Vol 34(7), April 2009.

Obama Requires More Fuel-Efficient Cars

President Barack Obama is now proposing new fuel economy and exhaust emissions standards for the USA which are planned to be introduced in 2016. The likely effects in the USA will be:

- Sports utility vehicles (SUV's) will become smaller.
- Diesel engines will become more popular.
- Carmakers will offer more hybrid power trains.
- More carmakers will produce plug-in electric cars.
- Sales of small/medium sized cars will greatly increase.

The proposal would require the overall new passenger vehicle fleet in the USA to average 35.5 miles per US gallon (3.78 litres) of fuel by 2016, an average fuel consumption of 6.6 litres per 100km.

If applied to the whole US vehicle fleet, this is estimated to save 1.8 billion barrels of oil per year (nearly 5 million barrels per day, which is one quarter of the USA's present fuel needs, or around 6 per cent of the worlds total present crude oil consumption).

The proposal would also instruct the US Environmental Protection Agency (EPA) to regulate **maximum** carbon dioxide exhaust emissions from new vehicles for the first time, to 250grams per mile (155 grams per km).

The European Union wants an **average** carbon dioxide emissions limit across Western Europe's new vehicle fleet of 130 grams per km by 2012.

In New Zealand, the previous Labour Government proposed a 170 grams per km standard by 2015.

This US initiative for increasing fuel standards for passenger vehicles will sharply raise pressure on struggling carmakers to produce more fuel-efficient cars and light trucks.

The EPA and the US Department of Transportation believe that carmakers have already developed much of the technology required to meet stricter standards and some of this technology is already available in New Zealand:

• Direct-injection engines improve fuel economy by around 6%.

• Smaller but more powerful turbo charged engines reduce weight while preserving performance compared with a bigger engine. Fuel economy gains can be as much as 15%.

• Dual-clutch transmissions, continuously variable transmissions and six speed manual and automatic gearboxes contribute fuel efficiency gains of between 5-10%.

• Stop-start systems will be here soon (as already in hybrid cars). The technology offers 10-15% fuel saving.

Common rail diesel engines are an accepted 30% more fuel efficient that the same capacity petrol engine. This is one of the reasons for the recent growth of diesels in the passenger car market. In New Zealand sales of such vehicles have gone up from a 1% share of the car market in 2004 to 8% in 2008. If SUV's are included, then the diesel-powered proportion of new passenger cars sold in New Zealand was 13% in 2008 and is expected to increase to 20% by 2015.

Reference: NZ Herald, 23/5/09.

On Tuesday 19 May, President Barack Obama ordered the struggling US auto industry to make more fuel efficient cars under tough new national standards to cut greenhouse gas emissions and reduce fuel consumption.

Obama said that the standards announced at a White House ceremony attended by auto industry and union leaders, would reduce US dependence on foreign oil and give five years of cost certainty to an industry battling to survive.

"The status quo is no longer acceptable", Obama said in an announcement which will pressure US car makers to transform and modernise the industry to produce more efficient vehicles.

"We have done little to increase the fuel efficiency of America's car and trucks for decades", Obama said, calling the standards the start of a transition to a clean energy economy.

Obama has made fighting climate change a priority, and lawmakers in Congress have begun wrangling over a historic bill which many hope will provide broader guidelines for controlling greenhouse gas emissions from motor vehicles.

Reference: Reuters, as reported in NZ Energy and Environment Digest 20-26/5/09.

World Uptake of Electric Vehicles

In a posting to SEF News, SEF member, Simon Tegg noted a recent report on electric vehicle (EV) uptake that SEF members might be interested in as follows:

Under scenario 2 "Steady Pace" - Oil is US$150/barrel and governments implement incentives for low carbon transport. Electric vehicles reach around 5% of sales in Western Europe, North America, Japan and China.

Under scenario 3 "Acceleration" - Oil prices flirt with $US300/barrel and governments and all stakeholders jump on board. Electric vehicles reach around 15% of sales.

Actual fleet penetration will be much lower than sales although this information is not given. Scenarios appear to assume standard economic growth.

In response to this, your editor commented as follows:

If I am interpreting Simon Tegg's summary correctly, when the crude oil price reaches US$150 a barrel and governments implement incentives for low carbon transport, then electric vehicles might reach about 5% of sales in Western Europe, North America, Japan and China.

But at that rate of sales, fleet penetration to anywhere near 5% will take many years (at least 10 years with sales at 5% to achieve 5% fleet penetration?) So you would have to say that market penetration of electric vehicles is likely to be absolutely minimal in the near future, presumably because the high cost of these vehicles means a very long payback time (if at all) on the investment made in them.

And how long might it take before oil reaches US$150 a barrel?

If world leaders now try to "prime the pump" too much and create another out-of-control credit card binge in order to quickly increase economic growth again, and with it the excessive consumption of resources, then oil demand could rise very quickly and the oil price would then go up rapidly with demand.

The whole thing would be greatly exacerbated as it was in early to mid-2008 (when the crude oil price peaked at US$147 a barrel) when all sorts of investors suddenly latched on to oil as being the best commodity to speculate on a rapid increase in price, leading eventually to another massive spike in oil prices followed by an equally rapid descent.

So in my view, how long it takes for oil to reach US$150 a barrel and electric car sales to reach 5% market penetration will depend very much on whether the present economic crisis and eventual economic recovery is handled in a conservative and responsible manner, or in an irresponsible manner.

Replying to this, Simon Tegg commented:

To illuminate further,

I forgot to include the timeframe of 2020 in the summary for both the above scenarios 2 and 3.

According to Exhibit 3 an oil price of around US$110/barrel is required before the five year Total Cost of Ownership (TCO) of an 20kWh capacity EV (at US$500 per kWh) is lower than an advanced gasoline vehicle in Germany. If battery prices remain around $700kWh as expected, then a crude oil price of around US$280/barrel is required before an EV beats an advanced gasoline vehicle.

TCO includes depreciation, fuel and electricity, battery costs, taxes, but not insurance or maintenance. The report states it is the key criterion influencing vehicle purchase decisions.

Responding to this, SEF member, Nigel Williams said:

Simon Tegg is suggesting a 'coupling' between oil price and electric vehicle (EV) production.

When oil gets to US$150 a barrel then EV = 5% (i.e. at least 20 years for fleet replacement).

John Blakeley has alluded to one of the many challenges that confronts us – "...how long might it take before oil reaches US$150 per barrel?" and thus "...how long might it take before EV reaches 5%?

The (nearly) US$150 price per barrel was arrived at in July 2008 when the divergence of demand vs supply was modest – considerably less than that experienced during the 1980s. So there is no demand-based reason for the price reaching so far beyond the 'natural' trading price. Apparently on the (near) $150-days, less than 1% of oil traded was by oil source-suppliers/sellers or oil end-users/buyers. ***The rest of the trading was by commodity speculators.***

So now that the speculators are acting with less vigour, we find that the actual trading of oil-to-sell versus those actually wanting oil-to-burn is letting the price settle in the $40 to $50 range – likely much closer to a true reflection of actual production costs and margins.

Yet so many of the 'good' solutions only start to look viable when the price of oil is lingering around the new pseudo-standard of US$150 – a price which has no sensible practical foundation at all as far as the market is concerned. At US$150 refineries can afford to look to upgrade to take the increasing proportion of sour crudes, with their high sulphur content – something most Asian refineries can't readily handle. Existing refineries can upgrade and provide more capacity; domestic solar and wind solutions look better; traffic volumes fall, easing congestion and reducing travel costs; demand for public transport escalates; and funding for active transport modes soars; etc.

Likewise many of the 'bad' solutions will not work either, unless oil is around the US$150 mark:- the cooking of oil out of tar sands or shale; advanced extraction techniques; development of deep and remote sea bed fields; development of high-cost fields in the inhospitable areas of the Arctic (both on and off-shore) and other exotics.

Provided the speculators stay out of the market (or are kept out by regulation), then there does not appear to be any practical reason for the price to rise through US$100 per barrel again.

The effect of that is two-fold:- firstly the 'good' things will be less likely to happen; bulk production and uptake of EVs won't become economic; demand for vehicle travel will continue to rise unsuppressed; and so demand for more roads as a solution to that pressure will also continue (regardless of the total lack of logic entailed); refineries will not afford upgrades to take lower grades of crude; and the heat will go out of any chance for national sustainable energy or transport initiatives, or even for a last-ditch swing to local production of a sustainable biofuel industry. Each of these failures is a great loss to 'the cause'.

And secondly many of the 'bad' things won't happen either; silly sources of fuel won't be developed beyond the end of any current subsidies, and mercifully (as James Hanson urges) a lot of carbon will be left in the ground. But the lack of investment in enhanced extraction techniques and extraction of lighter crudes and gas from more remote fields will remove the opportunity to buffer the IEA's predicted fall in conventional transport fuel crude production.

All these combine to ensure that the impact of 'peak oil' will be felt more acutely sooner, and at the same time we will have failed to make any material change to sustainable alternative transport fuels. We will simply hit the wall.

The final tweak is that oil is not a commodity that we cannot do without. At US$150 a barrel many of us made 'other arrangements', and simply chose not to buy and not to drive our cars at the resulting pump price. Thus as the divergence between supply and demand widens, the price for each tanker-full will not continue to rise as it would for (say) a core food commodity, where even a few grains are worth paying the going price for. It will reach a point where it is beyond the ability of people to pay the price and people will 'make other arrangements' whether they like it or not.

At that point (and I believe it is well below US$150 a barrel on a longer term basis), the ability of field operators to continue to produce from declining fields requiring ever-increasing costs and to develop new more expensive fields will diminish and even collapse; domestic demand in supplier-states will continue to increase – hastening the supplier-states swapping from supplier to consumer. This will further exacerbate the downward spiral of supply in the face of a flat price response from the market that will be – for the foreseeable future – in some state of fiscal shock, disbelief and suspicion from the current global economic turmoil.

The last of the conventional oil supply will probably remain in the ground un-sold, as half a can of petrol is worthless to me if I need a full can to get me there and back.

But by then, we will be well over the top of M. King Hubbert's hill (Peak Oil) and going down the other side, never to return.

Reference: Various postings on SEF News, 30 and 31/3/09.

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EnergyWatch

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