EnergyWatch

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"Climate change is an exercise in risk management, not accountancy"

Yes, this is the headline used in our last issue. It is from Minister of Energy Pete Hodgson (*NZ Herald*, 2/12/01) and we make no apology for repetition:

"Climate change policy is an exercise in risk management, not accountancy. The short-term costs of action on climate change can be roughly estimated, but the costs of doing nothing, while undoubtedly large, are virtually impossible to quantify. Good risk management entails several obvious stratagems, including emission reduction, energy efficiency, research and development, contingency planning and an effort to define and capture the business opportunities of the post-Kyoto business environment."

One reason for the retreat from this stand will be pressure from business, with motives ranging from valid concerns to corporate policy set in the US. There has been some scaremongering (see page 16) and much confusion. Did anyone *really* think that the government would cripple the economy by taxing farm methane emissions? Reducing stock numbers would further increase costs, because of overheads, so a tax would give many farmers the choice of re-mortgaging, overstocking or getting out. Did we *really* need repeated assurances that this was a non-starter?

It goes without saying that the risks to be managed include sea level rise and climate changes, but there are other risks:

- Sudden climate change, with the temperature rise expected in a century or more happening in a decade or less. This is unpredictable and the risk is unknown, but it has happened before and is more likely during periods of change.
- Oil scarcity, with new development falling behind the combination of demand growth and production decline. Associated risks are rising production costs; current account problems and supply disruption.
- The supertanker effect: not being able to change course quickly enough. The response to policy will tend to be very slow (see pages 3–4) — like a large ship — and the climate response to climate-friendly policy will be much slower again — like a very large iceberg.

The government must be serious if it aligns transport policy, NEECS, waste strategy, the RMA and other activities to support the Kyoto Protocol. But if the government is serious, why the big holes?

- Very little change of direction until 2008. We shall have replaced nearly a third of our vehicle fleet by then, on a business-as-usual basis.
- An implied assumption that risk will be minimised if we delay changes for as long as possible: a bad mindset on a supertanker.
- A tiptoeing around the edge of carbon avoidance. Surely a tonne of carbon avoided is worth more than a tonne emitted and taxed, or offset against 'sinks.'

This edition of *EnergyWatch* is to encourage submissions on the government's Kyoto proposals; see pages 2 – 3. There are two consultation documents, on climate change policy and renewable energy targets. Both have their weaknesses but also huge strengths: they are well thought through, readily improvable, and they represent a policy for ratification of the Kyoto Protocol. The government now needs all the support it can get. Please make supportive submissions on one or both of these documents if at all possible, and add any criticism you wish.

You could also contribute to SEF's submission...

A glass half-full

Steve Goldthorpe

The New Zealand Government launched the Climate Change Preferred Policy Package on 30 April and invites feedback by 14 June. Copies are available free of charge, or it can be accessed at www.climatechange.govt.nz.

That discussion document has provided a comprehensive framework for the formulation of policy instruments to enable NZ to commit to controlling its national Greenhouse Gas (GHG) inventory. However, the announced package is only a framework, which does need a lot of detail added. Many practical policies and regulations need to be resolved to build this foundation into something that can be implemented. Whether you consider the package to be a glass half-full or a glass half-empty depends on your perspective.

The polarisation of positions in the earlier debate has been defused by the multi-faceted approach used. The four themes of the preferred policy are:

- Building on existing foundation policies;
- A Projects programme to provide incentives for emissions reduction;
- Negotiated Greenhouse Agreements for firms with competitiveness at risk; and
- A capped emissions charge from 2007.

The translation of these themes into policy and regulations is the next step, and feedback is requested. This is the opportunity to suggest ideas that go beyond the basic least cost economic efficiency that is required to balance NZ's Greenhouse Inventory. A few questions are raised here for consideration by readers of EnergyWatch.

1 Reductions in GHG emissions will be important side effects of the implementation of existing policies. These include the National Energy Efficiency and Conservation Strategy (NEECS), the National Waste Strategy, the Land Transport Strategy, the Public Good Research Strategy, the Growth and Innovation Framework and public awareness campaigns. Are there ways in which these policies should be strengthened to improve the GHG reduction outcome? Can the different GHG intensities of energy sources and the GHG emissions from preparation of energy sources be made more transparent within NEECS? Can full Life Cycle Analysis contribute more to understanding the GHG benefit of good waste management practices? In addition to encouraging public transport, can transport policy also encourage appropriate vehicle choice as a means of reducing fuel use? Can innovation be encouraged to disconnect economic growth from energy demand growth? Should GHG emissions assessment be made a routine procedure under the Resource Management Act?

2 The Projects programme will allow the Government to sponsor schemes with GHG emission benefits, which would not proceed without financial assistance. Projects will be selected on the basis of cost-benefit analysis. Additionality will be an important criterion in the selection of projects for support. Are there other non-financial criteria that should be applied to the selection of projects for Government support?

3 Some companies will choose the option of entering a Negotiated Greenhouse Agreement (NGA) with the Government in return for exemption or partial exemption from an emissions charge. Those case-by-case agreements will be based on the requirement to achieve international best practice in GHG emissions minimisation. Some public involvement may be beneficial to ensure public confidence in the fairness of the negotiated arrangements. However, the Government negotiators must be sensitive to the commercially confidential nature of industrial data. Where does the optimum for public involvement lie? What wider issues might usefully be included in the negotiations?

4 The proposed emissions charge would be introduced in 2007 and would be linked to the then international carbon trading price and capped at $ 25/tonne of CO_2. Is the timing and amount of this charge appropriate? Is it too little too late? Should the level of the charge take account of the economic drivers needed to change the behaviour of the energy consumer in NZ? Would the future introduction of the charge influence investment choices prior to 2007? How could that effect be maximised? What should be the Point of Obligation for the emissions charge? Should the Point of Obligation for electricity be on fossil fuel purchase, electricity wholesaling or electricity retailing? How would low-CO_2 electricity generation be encouraged? If the emissions charge were itemised on electricity bills and related to the CO_2 emissions from each electricity retailer's sources, would the consumer demand low-CO_2 electricity? If so, would the competitive retail market send signals back to the generators demanding low-CO_2 power generation? Can the market mechanism promote emissions reduction beyond a simple response to price increase?

The Climate Change project team is keen to receive feedback to contribute to the detailed policy formulation process. SEF encourages members to contribute ideas and perspectives to help to fill up the glass.

The proposed renewable energy targets

Kerry Wood

The government discussion paper, *Renewable energy: the proposed target for New Zealand*, is available from EECA (www.eeca.govt.nz), and submissions close on 14 June.

The National Energy Efficiency and Conservation Strategy (NEECS) was published last year, and set a range of renewable energy targets, at 25 – 55 PJ/year by 2012. Now the new discussion paper proposes a disappointingly low 30 PJ (Petajoule = 10^{15} Joule: the energy of about 21 000 tonnes of petrol, or 280 000 MWh of electricity).

The 30 PJ in the proposed target is given as:

Already committed	6 PJ
Manapouri second tailrace (2.3 PJ/yr) and other electricity generation and forestry sector process heat	
Other expected developments	9 PJ
Electricity generation and forestry sector process heat	
Climate change/NEECS responses	4 PJ
Total 'Likely'	**19 PJ**
Wood processing	2 PJ
Climate change/NEECS policies (high range response)	5.5 PJ
Project Aqua	5.5 PJ
Meridian's proposals for generation and irrigation on the Lower Waitaki (which may need improvements to the Cook Strait cable)	
Total 'Possible'	**13 PJ**
Grand total	**32 PJ**

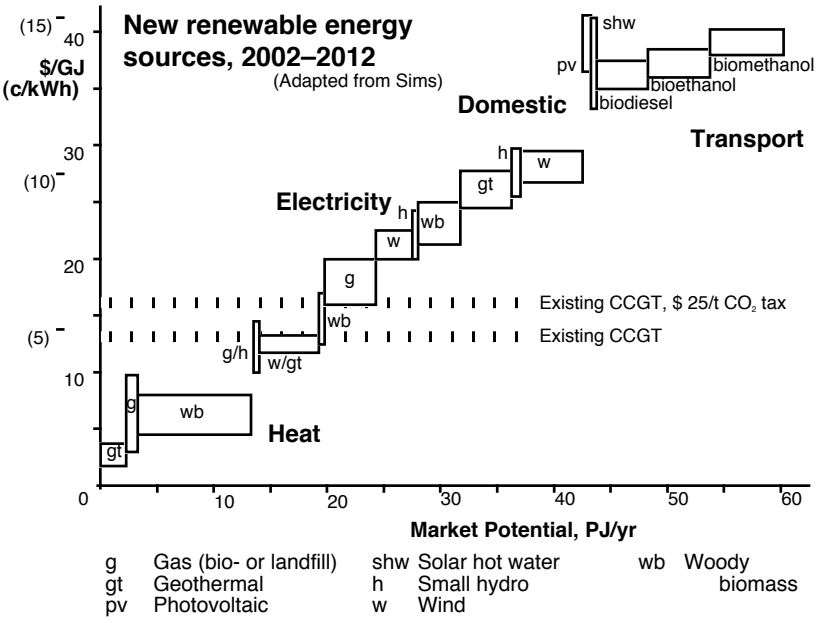
Obviously, most of this is large projects and business-as-usual. Nothing wrong with that, except that the climate change/NEECS contribution is little more than a third of the total, at 11.5 PJ: surely, the original idea was that the 25 – 55 PJ be renewables derived from new policy, outside the business-as-usual mould?

Much more renewable energy is available, at a price. The diagram is adapted from Ralph Sims ('Renewable energy and the NZ national energy efficiency and conservation strategy,' *Pacific Ecologist*, 3/2002). It shows that more than 55 PJ/yr of renewable energy can be available by 2012, in addition to any large hydro. A rough breakdown is:

Heat	13 PJ	Costs below $ 8/GJ 2.9 c/kWh equivalent
Electricity	26 PJ	Costs below 10.8 c/kWh $ 30 /MJ equivalent
Domestic etc	<2 PJ	Costs below $ 40/MJ 14.4 c/kWh equivalent
Transport	17 PJ	Costs below $ 40/GJ 1.40/litre tax-free
Total	**Up to 58 PJ**	

The diagram shows that very few sources of electricity are competitive with a combined cycle gas turbine (CCGT) power station burning Maui gas, but this basis is anomalous. Sustainable technologies need development if they are to compete, especially with under-priced Maui gas. The price at present is around $ 3 /GJ, or around 5 c/ kWh for CCGT electricity. Post-Maui gas prices will be higher or substantially higher, and will push up electricity prices by about 0.8 c/kWh for each $/MJ on the gas price: for example to 6.6 c/kWh for new gas at $ 5.0 /GJ. Or perhaps more. Add a carbon tax of perhaps $ 25 /tonne, and the range of currently economic renewable options grows substantially — to perhaps 25 – 30 PJ/yr. This is around twice the governments target, and a useful 3% of total primary energy supply (see page 13 below). Of course this is no more than an indicative figure — nobody knows the post-Maui gas price yet — but surely it is indicative of a very cautious approach. Is this the 'achievable challenge' of the principles used in policy development?

Some of the caution is more apparent than real, such as the target of 10 000 solar hot water



installations a year. At that rate it will take well over a century to get around to re-equipping those houses already fitted. But the present installation rate is less than 1500 units/yr, so reaching 10 000 units/yr by 2012 will need an annual growth rate of about 20% — surely enough of an 'achievable challenge.' This will leave the industry well-placed to make a much greater contribution in the second and subsequent commitment periods of the Kyoto Protocol, but without too great a risk of speed-wobbles in the mean time.

There is a general point here: it is important to making an early start and go for a high rate of growth. Taking 1500 solar hot water units a year as an example, theoretical installation rates in 2012 would be:

Start 2002, growth 20%	11 000/yr
Start 2002, growth 25%	18 300/yr
Start 2002, growth 30%	30 000/yr
Start 2004, growth 25%	11 000/yr
Start 2006, growth 25%	6700/yr

Looking at growth rates in this way brings out a strong point of the proposed targets; a real focus on barrier-busting. One example is a project to look at using geothermal energy as a heat pump source, to get the best use of both electricity and the available low-grade heat (with no CO_2 emissions). Others are work to remove entry barriers to small, grid-connected renewable energy sources, and develop quality standards for the solar heating industry — including the all-important training needs. This kind of thing is essential if we are make an early and orderly transition to renewables, and is to be applauded.

Even in transport, probably the weakest area of the proposals, the tiny 0.1% target for renewable energy is described as 'symbolically important,' which is fair enough. Much more than that is needed to change direction, but in New Zealand transport, for the period to 2012, it will mostly be on the conservation side.

On the whole, the proposals are very good. What they now need is strong public support, especially support for ratification; and funding Hopefully the funding reported on page 6 will be enough. Oh, and could we have more 'real' renewables please: to bring on the renewable sources that are not yet commercial but — if encouraged — can be commercial soon?

Are NZ's energy policies contributing to sustainable development? A report for Helio International

Molly Melhuish

(Helio International is a Paris-based, research-orientated, non-profit, NGO, working to monitor whether energy policies are contributing to sustainable development. Their NZ reporter is Molly Melhuish (the original Editor of EnergyWatch) and she has contributed extracts from her latest report. See www.globenet.org/helio for more details of Helio. EW)

New Zealand could achieve energy sustainability more easily than any other IEA country. It has a temperate climate with high sunshine, rainfall and wind regimes. Trees and crops grow very quickly. The population is small and educated. It is far from energy exporting countries. Energy suppliers that were owned and run by the state are now companies and more accountable — at least in theory. Sustainability is an overall objective of several laws and regulations.

All these factors are favourable, but NZ's so-called 'free-market' culture is working against sustainability. Privatisation and deregulation have been pursued energetically by both Government and business interests aligned with global markets. This allows energy companies to wield great market power. NZ has an unusually 'lumpy' mix of supply facilities and demand centres, usually connected by long transmission facilities. This allows market power to be greatly increased. Many energy companies that were once publicly owned have been wholly or partly sold to foreign companies. When these companies abuse their market power, the excessive profits go overseas, adding to NZ's burden of debt.

Indicators

The report follows the brief of Helio International, comparing data for 1990 and 2000 using eight indicators. Because statistics are available for each year, and there are great variations in each year, a trend line is used wherever possible.[1]

- For the global environment, NZ's average per capita CO_2 emissions from fossil fuel use are 8% higher than in 1990, and 80% higher than global emissions in 1990.

[1] This uses the "polynomial trend line" available in Excel, choosing the third power, which is the simplest fit available that allows significant variations in either direction over the ten-year period of interest.

- For the local environment, emissions of particulate matter were 25% higher in 2000 than in 1990. Particulates are the most significant indicator of local pollution. NZ records come mostly from Christchurch, which has long monitored these emissions.
- The indicator for social sustainability is access to electricity. NZ households had 100% access in both 1990 and 2000. It is not access, but high prices for small consumers, rural consumers, and low-income households, that deprive some people of the benefits of electricity.
- A second social indicator is that NZ investment in small-scale renewable energy almost doubled between 1990 and 2000. However, this indicator is very subjective, because we must define what counts as 'small-scale.' Unfortunately the two significant wind farms that contributed to this have postponed their plans to expand.
- Economic indicators begin with 'resilience.' essentially the amount of self-sufficiency in fossil fuels. This is declining — we imported 29% more fossil fuels in 2000 than in 1990.
- The 'burden of investment' indicator works differently in NZ's highly commercialised environment than in most countries. We define 'burden' as the flow of profits overseas as NZ energy supply businesses are privatised. We cannot quantify the flow of wealth overseas from capital gains and payments to related companies and to top managers and directors.
- For technological sustainability, we look at the amount of primary energy needed to produce a unit of gross domestic product. This declined (become more favourable) by 13% in the decade from 1990 to 2000.
- The final technological indicator is the percentage of energy supply coming from all renewable resources. This was 18% higher in 2000 than the 1990 figure. Plans for more thermal generation may reverse this trend.

These indicators do not fully reflect the adverse effects of NZ's free market reforms. Reporting requirements are too loose, and important data remains confidential. NZ's energy efficiency and economic efficiency have lagged behind gains made by other OECD countries. For years, governments have made 'sustainable development' a goal of energy law and policy, but still allowed abuse of market power. Increasing foreign ownership is allowing profits to flow overseas, adding to NZ's burden of debt.

The restructuring of the 1980s and 1990s amounted to a cultural revolution, and the energy sector led those reforms. It would take a counter-revolution to bring social goals back into the energy free-market. Energy companies are constrained only by threat of regulation. Until real regulation is imposed on energy companies, we have little hope for sustainable energy development in NZ.

Regulatory problems

Decisions such as new power are being made on purely commercial grounds, supported by energy officials. Bankers are unlikely to finance a new power station unless there are firm contracts for both fuel supply and sale of electricity. In practice this means the company must sell to its own customers. So much for competition!

Public support for sustainable options is strong and increasing. Some are now competitive; they also employ New Zealanders and keep profits in the country. But sustainable options cannot capture the monopoly profits that are now rife in both gas and electricity, and have not been a commercial success. Industry self-regulation can legally deal to any initiatives presenting a real commercial threat. Complaints about predatory pricing, gaming on the spot market to hike spot prices, and use of network bottlenecks to shut out competition, have fallen on deaf ears, and the market treats mainline energy businesses and sustainable ones on an equal footing. Unless industry self-regulation is replaced by effective regulation in the public interest, there is little future for major sustainable energy initiatives.

A failed initiative

For a brief few years New Zealand was on track to be truly resilient in vehicle fuels. From 1979 to 1984, the government promoted compressed natural gas (CNG) and LPG (liquified petroleum gas) as a move towards self-sufficiency. Subsidies paid half the cost of installing CNG filling stations and a proportion of the cost of converting cars to CNG. LPG was promoted for use in areas not reticulated for natural gas. A network of almost 300 CNG filling stations ensured wide availability, and about 5% of cars were converted at the peak. The technology to convert large truck engines to CNG was developed and commercialised. But in 1985 Government, according to its new philosophy removed the subsidies, "so the industry could stand on its own feet." Car conversions slowed to a trickle and CNG filling stations gradually lost business and closed down. Over $M 20 of government funds, and several times that amount of private investment in CNG, were almost totally wasted, as CNG equipment was sold at salvage value, mostly to Pakistan, or simply thrown away. Sales of gas for CNG peaked at 5.85 PJ in 1987, and by 2000 had declined to .073 PJ/year.

Budget 2002: towards a sustainable energy future

NZ Government , 21/5/2002

Funding of $M12.6 over four years ($M 3.1/year) from Budget 2002 will support the implementation of the National Energy Efficiency and Conservation Strategy (NEECS). The new funding is the result of a budget bid jointly promoted by Energy Minister Pete Hodgson and the Green Party.

Hodgson said, "We waste hundreds of millions of dollars a year through inefficient energy use, while our increasing reliance on fossil fuels causes pollution and contributes to climate change. Moving towards a sustainable energy future is the answer." The new funding will be used for initiatives including:

- Industry energy efficiency programmes — relaunching the successful EnergyWise Companies, with a stronger focus on sector initiatives including benchmarking, better practice opportunities and data analysis;
- Enhancing transport programmes — including demand management, promotion of efficient transport networks, vehicles and fuels;
- Enhancing energy supply programmes — including work with the electricity and gas sectors on efficiency improvements and support for renewable energy development.

"The strategy has the potential to deliver about $M 900 of net benefits to New Zealand over the next 10 years through cost effective investments in technologies and better energy management. Improving energy efficiency is an investment that pays off many times over."

Green Party Co-leader Jeanette Fitzsimons said she was delighted that the strategy, required by legislation she introduced to Parliament, will receive more funding. "After the good work EECA has done helping industry save energy and making homes warmer, drier, healthier and cheaper to heat, I'm really keen to see it move into transport — to help reduce our dependence on cars and encourage use of the cleaner vehicles that are becoming available."

Sea level rises 'underestimated'

BBC

Scientists may have seriously underestimated the likely rise in sea levels this century. The claim comes from a research team that has examined the rate at which glaciers and ice caps are melting. They say new data show these areas to be retreating far faster than previously thought, with the run-off waters set to raise sea levels well above the range recently predicted by the IPCC. "The glacier wastage at the moment is unprecedented," Professor Mark Meier of the University of Colorado told the annual meeting of the American Association for the Advancement of Science. "In some glaciers, like the South Cascade Glacier in Washington that I have studied for years, we know that the present rate of melting is greater than it ever has been for the last 5000 years."

Meier and his colleague Mark Dyurgerov analysed glacier volume data from several thousand years ago to the present, and studied the last 40 years in more detail. Their work suggests glacier wastage will have a much bigger impact on sea levels than the scientific consensus has accepted. "The IPCC thinks there will be an increase in sea levels by 2100 of 50–110 mm due to glacier melt alone. We think it will be nearer 170–270 mm — and thats a conservative estimate," said Meier. He said there were several reasons for the different assessment. The IPCC had not had the benefit of studying the latest data — especially from Alaska which has two giant glaciers — and had not taken account of the increased sensitivity of glaciers to rising temperatures.

Meier concedes that much of the data on glaciers is patchy, predominantly from Europe, and that which does exist has only been fully reported from the 1960s onwards. Nevertheless, he claimed a clear picture of behaviour was emerging. Overall, the IPCC expects global sea levels to rise by 110–880 mm this century, and to rise further after that. Currently, measured sea levels are going up by about 0.8 mm/yr with no apparent acceleration in that increase. The IPCC is supposed to represent a broad scientific consensus on climate change — and it will examine Professor Meier's evidence.

(If this evidence is accepted, the corrected IPCC estimate of sea level rise will be 230–1040 mm by 2100. Even the mean value of this range would be enough to cause huge problems in the Wellington CBD, and many other coastal cities around the world. EW)

US on the sidelines

ENN 19/4/02

At least 50 million tonnes of greenhouse gas emissions have been traded since 1996 by companies and countries trying to limit global warming while the world's biggest polluter — the US —remains on the sidelines. The Pew Center on Global Climate Change says in a new report that regional and national emissions-trading markets are rapidly evolving, but each has different rules that can increase the costs of trading. The US, which emits about one third of the developed world's man-made greenhouse gases, has so far rejected a national emissions trading scheme for CO_2.

The treaty also offers emissions credits to energy firms that invest in renewable power projects. The Pew Center report says more than 65 trades of greenhouse gas emissions totalling 50 – 70 Mt have occurred over the past five years, but that those figures probably underestimate the market activity. The emissions reductions traded at € 0.65 – 3.80 /t of CO_2 equivalent. The data did not include trades within BP Plc and Royal Dutch Shell, which launched their own internal cap-and-trade programs in 1998 to cut emissions.

In one example cited by the report, Canadian utility TransAlta agreed to buy 24 000 t of CO_2 credits from German utility HEW over seven years. HEW will generate the credits by using wind power in place of its own fossil-fueled generation during periods of high demand.

Greenhouse gas trading has so far involved mostly European, British and Canadian firms. "Despite the US inaction, it is abundantly clear that we are beginning to see the outlines of a genuine greenhouse gas market," said Eileen Claussen, president of the Pew Center. The US refusal to join the Kyoto treaty means American companies may have a short-term advantage if they compete against other firms that must add in the costs of carbon emissions. But the report said US firms face longer term uncertainty about climate change policy, which may be costly. US innovators such as DuPont, which have begun cutting emissions, may not be able to sell their reductions in an international market.

The earth is warming

National Post

A team of American and Canadian researchers has found evidence of real global warming: the temperature of the Earth's crust is increasing. "We can now say we truly have global warming," says Dr Hugo Beltrami, a geophysicist at St Francis Xavier University in Nova Scotia. Until now most data on global warming has been gleaned from the atmosphere, polar ice caps and oceans, but Beltrami's team looked at continental rocks, which cover about 30% of the planet's surface. They studied 616 deep bore holes in rock formations from Africa to the Arctic, and found evidence of a marked rise in temperature over the past 500 years. The surface of continental rocks are, on average, 1.0 ˚C warmer now than they were five centuries ago, and most of the warming has occurred since 1900, the scientists report in a paper being published in *Geophysical Research Letters.*

Beltrami says there is now about as much heat going into the Earth from the atmosphere as there is coming to the surface from the planet's hot core. The warming is most pronounced in northern latitudes, Beltrami says. On Ellesmere Island and in Alaska, ground temperatures are 4–5 ˚C higher than in 1500. The rise is having a significant effect on permafrost, turning some northern areas that were once perpetually frozen into "several metres of muck," he says.

Beltrami and his colleagues found that more than half of the land's heat gain over the past 500 years came during the 20th century, and 30% since 1950. The new data from the rocks fits with evidence from the oceans and atmosphere showing that all major parts of the Earth's climate system have warmed over the past half century. The geophysicist's conclusion means that the warming has been truly global.

The historic temperature profile of bore holes is a more reliable reflection of warming trends than tree rings because heat absorbed from the atmosphere by rocks slowly permeates the Earth, leaving a distinct signature in the temperature profile of the rocks as it moves down. "We can plot the heat actually going into the ground," Beltrami says. Heat absorbed 100 years ago is now about 150 metres deep, and heat from 300 years ago is between 250–300 metres below ground, depending on the type of rock.

Underground fires and climate

New York Times

Fires are burning in thousands of underground coal seams from Pennsylvania to Mongolia, releasing toxic gases, adding millions of tonnes of carbon dioxide to the atmosphere and baking the earth until vegetation shrivels and the land sinks. Government agencies are starting to use heat-sensing satellites to map the fires and try new ways to extinguish them. But in many instances — particularly in Asia — fires are so widespread that miners simply work around the flames.

Many coal fires start spontaneously, when reactive minerals in coal are exposed to oxygen. They begin to release heat, which, if not dissipated by air currents, builds until the coal itself ignites. In Indonesia, hundreds of coal fires erupted deep in the rain forests when forest fires spread during an extreme drought in 1997 and scorched exposed coal seams. There were 700 such fires just in East Kalimantan, Borneo. Some were extinguished by crews using hand pumps and picks to isolate the hot spots, but many are still burning.

There is geological evidence that surface fires and spontaneous combustion of coal have spawned such fires for hundreds of thousands of years. The fires persist as long as there is fuel, oxygen and heat. One fire in an Australian peak called Burning Mountain is believed to have been going for 2000 years. The mountain has often been mistaken for a volcano by passers-by, although Australia has no volcanic activity.

Assessing the problem

The problem needs to be more carefully assessed, both as a potential contributor to global warming and as a source of toxic air pollution. A 1999 report by the Clean Coal Centre of the International Energy Agency concluded that the biggest coal fires, in China and India particularly, "make a significant global impact."

Only in the last few years have scientists begun a concerted effort to map and monitor coal fires around the world, and calculate how much pollution they produce. For the moment, the total is anyone's guess, said Dr Anupma Prakash, a geological mapping expert at the International Institute for Aerospace Survey and Earth Sciences in the Netherlands. Prakash has been developing ways to integrate maps of the earth's surface temperature, generated by satellites, with geological maps to track coal fires in northern China. A deep coal fire may raise the surface temperatures by only a few degrees, even though the heat in the middle of the fire can easily exceed 500 °C. But that subtle signal is enough to show up from space, particularly when other clues about coal deposits are combined with the heat data.

Prakash's team, together with Chinese geologists, recently generated a map of China's coal fires that showed a constellation of spots spread across the country's northern coal belt, spanning thousands of kilometres. One goal, Prakash said, is to monitor the region continually from space, so spots that are growing warmer — indicating intensifying fires — can be attacked by fire-fighters before they become unstoppable.

Getting it out

For many years, engineers have been finding ways to control the fires. Some small fires have been snuffed by drilling holes and pumping in inert gases or foams. Others have been flooded by damming surface streams and creating lakes over the burning coal, or controlled by excavating deep trenches that cut off the fires like a fire break in woodland. But in most cases the costs of such efforts outweigh the benefits.

Some fires are in densely populated regions where hundreds of thousands of people live on the edges of open pits that fume and flame. Parts of one of India's most important coal fields have been on fire since 1916. In 1995, the walls of one mine complex collapsed, killing more than 60 miners. A plan was drawn up to modify the mining operations and constrain the fires, but they are so complicated and so widespread that India could not really afford to extinguish them. In the mean time, the fires still burn, and residents and mineworkers continue to adapt. In places where the ground cracks and slumps and smokes, people simply dismantle their mud-brick homes and move them somewhere else.

(Underground fires will tend to have incomplete combustion, because of limited air, so they effectively produce coal gas as well as more usual combustion products. As well as CO_2 they will emit methane, butane and propane; carbon monoxide; hydrogen; and some nasties.

The NYT article does not say whether the benefit:cost calculations included pollution and global warming effects. Putting out a big fire would earn useful Kyoto points under the 'Clean Development Mechanism,' but just how many points? EW)

Transport policy, 'Moving Forward'

The government finally released a new transport package at the end of February. Transport Minister Mark Gosche said, "The vision is that by 2010 New Zealand will have a transport system that is affordable, integrated, safe, responsive and sustainable." Main features of the present package are:

- Petrol excise duty increased by 4.7 cents/litre (including GST) immediately.
- Road User Charges (for diesel, LPG and CNG vehicles) for vehicles with a maximum weight of up to 4 tonnes increased by an average of 30% from 1 April 2002. The expected increase is about 0.628 cents/km.

Gosche said a New Zealand Transport Strategy based on this vision was currently being developed. The objectives would be:

- Assisting economic development
- Ensuring safety and personal security
- Improving access and mobility
- Protecting and promoting public health
- Ensuring environmental sustainability

Full details of the strategy will be announced later this year. "Roading will of course continue to be the major focus of land transport funding. But we are looking to a more balanced mix of options," Gosche said, The present National Road Fund is to be renamed the National Land Transport Fund. The fund's priorities will be:

- Reducing severe traffic congestion
- Improving passenger transport
- Promoting walking and cycling
- Assisting regional development and alternatives to roading
- Improving road safety.

The budget of the National Land Transport Fund is given in the table. The comparison figures are taken from the Ministry's Land Transport Pricing Study, 1994 – 95, but note that there is at least one discrepancy: the costs grouped under 'Administration' are unlikely to be the same for both years, and the reduction in LTSA funding also looks odd.

Budget comparison: 1993 and 2002

Income	Proposed $M	1993 $M
Road user charges	652	345
Petrol excise tax	462	280
Vehicle registration	213	141
Miscellaneous	15	10
Total	**1342**	**776**
Expenditure		
National Roading Programme		
Regional passenger transport*	70	28
Local roading*	370	234
State highways	612	309
Police (safety enforcement)	200	116
Administration	62	47
LTSA (Safety education & regs)	29	42
Total	**1342**	**776**

* Also supported from local authority rates. For local roading the rating support is about half the total.

Main points of the Kyoto Protocol

1 Industrial countries agree to legally binding targets to reduce their greenhouse gas emissions by an average of 5% below 1990 levels over the period 2008–2012.

2 Targets vary. The US cut is 7%, Japan 6%, the EU 8%, Australia is allowed an increase of 8% NZ has to return to 1990 levels (0%).

3 Developing countries assume no obligations at this early stage and this is a cause of concern by the US.

4 The Clean Development Mechanism allows developed countries to claim credit against missions by providing developing countries with funding and technologies that reduce emissions.

5 Trade emission Quotas allow those countries that cut more than their quotas to sell the excess savings to those who cannot meet their targets.

6 Developed countries can offset emissions by the use of carbon sinks. Sinks include plantation forests planted into pasture land after 1990.

7 The protocol comes into force after 55 countries ratify their acceptance of it, accounting for at least 55% of the total 1990 emissions from developed countries.

Alpha (RSNZ)

Speeding the buses

Auckland City Council, 28/2/02
Christchurch City Council, 11/4/02

Auckland City is to go ahead with a scheme to speed up bus travel, after receiving a grant of $M 3.14 from Infrastructure Auckland. The Council is contributing $M 0.6 and Transfund $M 3.21. The scheme is called signal pre-emption, which means buses get automatic preference to keep traffic lights green as the buses approach. The system will detect buses approaching intersections and extend the green phases or shorten the red phases to allow buses to pass through the intersection with less delay. The scheme also includes the introduction of real-time information sign at bus stops to tell people exactly how many minutes away their next bus is. The system will take over three years to fully implement. More than 170 intersections will be equipped to give buses the green light, using a Global Positioning System (GPS) to be installed in 737 buses.

Meanwhile, Christchurch City has introduced the first phase of a real time bus information system at selected bus stops, to give waiting passengers up-to-the-minute information on when their bus will arrive. The first stage saw the installation of screens in the new Bus Exchange and at Colombo Street bus stops. The screens show a list of buses, and indicate, in minutes, when each bus will arrive. Later phases will use a small interactive screen at selected bus stops around the city. Passengers will be able to press a route button to see how many minutes away their bus is, or press a destination button to see which bus goes to that destination and how many minutes away it is.

Bill Sissons, the City Council's co-ordinator of Traffic Systems and Information, says that new facilities at bus stops will further improve Christchurch's public transport system. "Passengers can be more confident of catching their bus when they know for sure that it is coming. For example if their bus has been delayed in traffic by 3 minutes, the Real Time Bus Information system would show this," says Sissons.

The system has been developed by Christchurch company Connexionz. It operates by a GPS device in each bus sending the bus's location back to the central computer by radio telephone every 5-30 seconds. Special software then uses this information, in combination with historic data, to determine how long the bus will take to arrive. Finally this information is relayed to the bus stop's device and appears on the screen.

Vehicle pollution kills 400 a year in NZ

Ministry of Transport, 21/3/02

A new report on the health impacts of vehicle emissions in New Zealand showed the effects were greater than previously realised, Transport Minister Mark Gosche says. The report estimates that 399 people aged 30 and over died prematurely each year from exposure to microscopic particles from vehicle emissions, with 970 deaths a year from air pollution derived from all sources, including fires for home heating.

Gosche said that by comparison, in 2001, 454 people died from road accidents of which 243 were aged 30 and over. "This report shows that air pollution from vehicle emissions in NZ is a significant but under-recognised cause of health effects ranging from illness to premature death," he said. "It demonstrates that we have an invisible road toll as well as a visible one, and highlights the need to continue working to reduce the amount of emissions created by motor vehicles."

The report was commissioned by the Ministry of Transport following a recent World Health Organisation study in Europe which indicated the number of premature deaths for those aged over 30, due to vehicle-related air pollution, was greater than the road toll. The NZ report was produced by the National Institute of Water and Atmospheric Research, working with air quality and public health researchers. "As with all statistical studies, there is a measured level of uncertainty regarding these figures," Gosche said. "However, this report is the first comprehensive one of its type done in New Zealand and provides a useful benchmark for future research."

Response to the report

The Government said it was taking measures to cut vehicle emission levels including: improving the quality of petrol and diesel fuels; improving emission standards for imported new vehicles; and setting minimum requirements for air quality plans. It also said a recently announced land transport funding package — which included an extra $M 94 for easing severe traffic congestion, $M 36 for public transport and $M 30 for alternatives to roads, such as rail — would have a direct impact on pollution levels.

Both the Asthma and Respiratory Foundation and the Energy Efficiency and Conservation Authority (EECA) said that a large proportion of harmful vehicle emissions could be avoided by drivers taking their own action.

People tended to buy larger cars than necessary and overused their cars, EECA chief executive Heather Staley said in a statement. Instead, they could choose car sizes to suit their needs and use other forms of transport for shorter trips. "One third of car trips are less than 2 km. These shorter trips result in very high emissions as the car is running cold. Cycling and walking are realistic and non-polluting options for these shorter trips," Staley said. She also supported the Walking School Bus initiative as a way to reduce car trips, and emissions, by providing supervised walking of children to and from urban schools. Staley said some driving habits, such as heavy acceleration and aggressive driving, increased fuel consumption and emissions. Regular vehicle maintenance helped to cut emission rates.

The Asthma and Respiratory Foundation supported the call for regular vehicle maintenance and urged people to use public transport where possible.

Agriculture and climate change

Pete Hodgson
Minister of Energy 8/4/02

(This article is an edited extract from speech notes to The Shepherds, *a Wairarapa agricultural group, but with general material on the Kyoto Protocol omitted EW)*

The government has agreed in principle to ratify the Kyoto Protocol this year, subject to some further necessary steps. It is important to remember that the Protocol does not come into force until enough developed nations have ratified. In practice that means both Russia and Japan must ratify. It is likely, but not yet certain, that both will. If the Protocol does not come into force, policies required to implement our obligations will not take effect. Some policies — such as strategies for energy efficiency, transport and waste management — will proceed because they have a wide range of benefits, but there is no sense in which New Zealand will be 'going it alone.'

There are compelling reasons to support international action. This country owes its prosperity — indeed its status as a developed nation — to a stable, equable climate that is ideal for pastoral farming. We have bought our place in the developed world with grass, which we have converted with exemplary efficiency into meat, wool and milk. For the rest of our lives, and far beyond, primary production will remain a basic driver of our economic welfare. That means climate change is, profoundly, an issue of economic security for this country.

If global warming is allowed to continue unchecked, the long-term impacts on this country are likely to be severe indeed. There may be some initial benefits for agriculture, but floods and droughts are expected to become more frequent and more extreme. Biosecurity is likely to come under increasing pressure. Further problems with water supply and infrastructure would arise from higher rainfall in the west of the country and drier conditions in the east. New human health risks would arrive, and native species would be threatened by climatic changes in what remains of their habitats.

Climate problems can be very, very expensive. Flooding costs this country an estimated $M 125 a year, not counting the millions spent on flood protection measures and insurance. The El Nino floods in 1997 cost our agricultural industry an estimated $1 billion. The costs of inaction on climate change are essentially inestimable, but there is good reason to expect they would be huge. And because global warming is a cumulative process, the costs only magnify with time. Doing nothing is not the low-cost option.

Remember too that we are a major supplier of food to world markets, many of them sophisticated and increasingly influenced by perceptions of environmental integrity. A positive response to climate change will underscore that integrity. But ducking responsibility on climate change will not go unnoticed.

Flatulence tax

You will have heard suggestions that the Government will be taxing livestock emissions to enable New Zealand to meet its greenhouse gas emission targets. Both Jim Sutton and I have made it as clear as we can that this is not going to happen. We do not want to achieve emission cuts by driving farmers away from farming, but we will have to do something about livestock emissions. One tonne of methane has the global warming potential of 23 t of CO_2. A dairy cow produces about 75 kg kilograms of methane a year, equivalent to over 1.5 t of CO_2. Atmospheric concentrations of methane increased by 150% globally over the last 250 years, while CO_2 concentrations increased by 30%. Clearly the

farming sector will have to bear its share of the costs of responding to climate change, just as it will have its share of the benefits.

I have been urging people in agriculture to start gearing up some research on emission reduction. Ruminant physiology and forage research — in my view — are they keys to progress in reducing emissions from farming. Between 5% and 10% of gross energy consumed as feed is lost as methane, so if you invest successfully in research to reduce agricultural emissions, three things happen:

- You make or save money by reducing emissions, when emissions have a price attached.
- You improve food conversion efficiency, and therefore productivity.
- You make money if the research produces intellectual property in NZ ownership.

The Government committed $1 million of new funding in the last budget to the investigation of mitigation opportunities for ruminant methane, transport and energy. When the payoff for farming is potentially so good, I suggest the reasons for you to come up with your own research strategy and funding are overwhelming.

There is no reason why NZ should not profit from agricultural technologies in particular: No other developed nation has a greenhouse gas profile as heavy in agricultural emissions as we do, so none has the same incentive to develop processes and technologies for reducing agricultural emissions.

The demand for such technologies will come from less developed nations as the Protocol expands, and as developed nations seek to sponsor emissions-reducing projects under the Protocol's Clean Development Mechanism. We are increasingly exporting agricultural expertise. The Protocol offers new opportunities for that, as well as addressing a fundamental threat to this country's agribusiness.

Record warm start to 2002

UK scientists say the last three months were globally the warmest January, February and March since records began. They are also the second warmest consecutive three months ever recorded. Worldwide temperatures were 0.71 ˚C above the 1961–1990 average.

The scientists say it is significant that the record was broken in the absence of any warming influence from El Nino. BBC News 26/4/02

New fuel specifications

NZ Government 15/5/02

New Zealanders will have access to higher quality petrol and diesel that is cleaner and more environmentally friendly, Associate Minister of Energy Paul Swain has announced. The decision to amend the Petroleum Products Specifications Regulations follows a comprehensive review, led by the Ministry of Economic Development, with the assistance of the of Consumer Affairs, Environment, Health, and Transport Ministries. The process involved wide consultation with stakeholders and other interested parties. The changes will be phased in over the next three and a half years. "While it would be ideal to implement all the improvements at once, the timetable we have chosen is the most realistic," said Swain. "Our fuel comes from two major sources, the Marsden Point Oil Refinery and from overseas. The changes we have agreed to, allow sufficient lead time for the Marsden Point Oil Refinery to build the plant required to meet the new specifications. They also take into account the availability of fuel from other refineries in the Asia-Pacific region.

For diesel fuel, maximum average sulphur levels will be lowered to 500 ppm from 2004, and to 50 ppm from 2006. By mid-2005, the government will review the diesel sulphur levels, with a view to implementing a 10 – 15 ppm limit as soon as possible after 2006 but no later than 2009–10. It is possible that lowering diesel sulphur levels below 500 ppm in 2004 will bring forward maintenance requirements in some vehicles, especially older Japanese-imported light duty vehicles.
Another change to diesel standards is the introduction of a filterability requirement, to help avoid the engine filter blocking problems experienced last winter.

Changes to the petrol standards include:

- Reducing petrol benzene levels from 4.2% to 3% by 2004 and to 1% by 2006.
- Lowering petrol aromatics limits from a maximum of 48% to an average of 42% immediately for regular grade and in 2006 for premium grade petrol.
- Allowing up to 10% ethanol blended into petrol. Ethanol, a renewable energy source, is used internationally as a blending agent for petrol.
- Disallowing the use of the additive MTBE from March 2003.

- Restricting the addition of manganese to petrol as a precautionary measure until research on its health effects is completed.

The announcement was well received by the industry. Perry Kerr, CEO of the Motor Industry Association, which represents new car distributors, said that members were particularly happy with the decision to reduce sulphur in diesel. "This aligns the NZ with international requirements and will [allow us to] import vehicles with the latest emission and fuel efficiency technology." However, Auckland Regional Council described the announcement as a big let down for Aucklanders worried about air quality in the region. Councillor Bull said, "Many of the specifications can be achieved by the New Zealand Refinery company much sooner than the Government is requiring."

On 18 May, NZPA reported that NZ Refining Co will be spending up to $M 150 on upgrading at the Marsden Point Refinery, about two thirds of it for diesel production. The new plants should come onstream in 2005.

US Court upholds cleaner truck rules

ENS 7/5/02

A US federal appeals court has upheld a Environmental Protection Agency (EPA) regulation that requires reduced emissions from diesel trucks and buses and lower sulphur level in diesel fuel. The rule, issued in the final days of the Clinton administration, was challenged in court by a coalition of trucking, manufacturing and oil industry groups. Administrator Christie Whitman said the EPA estimates that about 8 300 premature deaths will be prevented by the new regulations each year, along with 5 500 cases of chronic bronchitis and 17 600 cases of acute bronchitis in children. The EPA projects that the new regulations will ultimately cost about $4 billion a year, while bringing more than $70 billion a year in benefits.

Beginning with model year 2007, NO_x emissions from heavy duty diesel trucks and buses will be reduced by 95%. However, pollution control technologies will not work using fuels with current levels of sulphur, and the EPA regulation requires a 97% reduction in the sulphur content of highway diesel fuel, from its current level of 500 ppm to 15 ppm.

Oil refiners say dramatic cuts in sulphur could prove prohibitively expensive. At least two refineries have said they can not stay in business if they are forced to reduce the sulphur content of both their gasoline and diesel fuel products.

New energy data file released

NZ Government, 16/4/02

Energy Minister Pete Hodgson today released the latest edition of the *Energy Data File*, a compilation of energy statistics published twice a year by the Ministry of Economic Development. The January 2002 edition contains comprehensive statistics on energy supply, demand and prices to September 2001, including:

- Total primary energy supply grew by 0.6%, to 772 PJ. This includes net imports of oil and oil products.
- Total petrol consumption declined by less than 1%. Premium unleaded petrol consumption declined by 9%, but this was largely offset by a 2% increase in consumption of regular unleaded petrol.
- Consumption of diesel increased by 2% and LPG by 17%.
- NZ's production of crude oil, condensate and naphtha was relatively unchanged, at 34% self-sufficiency.
- Coal production was 4.1 Mt, an increase of 12% on the previous year. Coal exports grew by 240 000 t, a 16% increase.
- NZ gas production rose by 6%, with 78% coming from the Maui field. About 37% was used for petrochemical production, 47% for electricity generation and 16% for industrial, commercial and domestic purposes.
- The gas used for electricity generation (including cogeneration) was 114 PJ, up 24%. Constraints on hydro generation in the cold, dry winter of 2001 caused greater need for gas generation.
- Total electricity generation, at 38 690 GWh was about 2.7% up. Preliminary indications are that transmission losses increased and electricity consumption grew by only about 1.3%. Further data on consumption are awaited.

For the calendar year 2000, renewable forms of energy contributed about 135 PJ of consumer energy, about 29% of total consumer energy. The proportion has remained essentially static in recent years.

Asset valuation of electricity lines companies

Commerce Commission, 4/4/02

The Commerce Commission has completed its statutory requirement to complete a comprehensive audit of the asset valuations of the 29 electricity lines companies and Transpower. All but two lines companies have had their valuation reports approved by the Commission.

Chair, John Belgrave, said the Commission's task was to ensure that electricity lines companies applied the Ministry of Economic Development's Optimised Deprival Valuation (ODV) Handbook in a rigourous and accurate way. Lines companies and Transpower were required under the Commerce Act to publish valuation reports approved by the Commission by 31 March 2002.

"The Commission's overall view is that the ODV Handbook has generally been applied well by electricity lines companies, although the audit prompted some improvement. The audit resulted in the total ODV valuation of all lines companies whose reports have been approved by the Commission being reduced by 1% off the pre-audit level, which amounts to approximately $M 45," said Belgrave.

"While many of the original valuation reports submitted to the Commission were not approved, companies worked quickly and constructively with the Commission in preparing their revised valuation reports," said Belgrave. He explained: "Asset valuations are central to monitoring the economic performance of electricity lines companies. The ODV audit has provided the Commission with valuable insights that will feed into its other statutory work on reviewing asset valuation methodologies, information disclosure and the development of a price control regime."

Tolerance on audit

The Commission's materiality threshold for the audit was 3%. In order for the Commission to approve a valuation report taking the materiality threshold into account:

- Each inconsistency with the ODV Handbook had to be non-material, with a variance (positive or negative) from the appropriate value of less than 3% of the company's ODV valuation; and
- All inconsistencies with the ODV Handbook taken in aggregate had to be non-material, with have a variance of less than 3% of the company's ODV valuation.

Key results from the 28 valuation reports approved by the Commission were:

- Five companies made a material reduction in their pre-audit ODV valuation (a reduction of more than 3% of the pre-audit level), and three companies (including Transpower) increased their ODV valuations, as a result of the ODV Handbook being applied more rigourously and accurately;
- The remaining 20 companies made non-material reductions in their pre-audit ODV valuations or made no change;
- The total ODV of the lines companies (excluding Transpower) was reduced by approximately $45 million of the pre-audit level, or 1%;
- One lines company, The Power Company Limited, reduced its ODV valuation by approximately $M 22 (13%) as a result of the audit; and
- Transpower increased its ODV valuation by approximately $M 13 (0.7%) as a result of the audit.

The two lines companies whose reports have not been approved by the Commission are Westport-based Buller Electricity Limited and Gisborne-based Eastland Network Limited. The Commission has invited both companies to further explain their valuation reports and compliance with the ODV Handbook. We need to know why they consider their valuation reports comply with the ODV Handbook or why compliance with the ODV Handbook is not possible," commented Belgrave.

NIWA studies wave power

Concerns over depletion of the Maui gas field and other fossil fuels have prompted the National Institute of Water and Atmospheric (NIWA) to study harnessing the power of waves. NIWA scientist Andrew Matthews says waves across a 10 km stretch of coastline produce about 200 MW, about the same as the Benmore hydro-electric power station. NIWA can now simulate wave conditions for the country's entire coastline, and identify areas where wave power plants would be most successful. Newsroom, 16/4/02

Study reveals rise in energy use on dairy farms

Ministry of Agriculture
and Forestry, 16/4/02

(A preview of this report was published in the March 2002 edition of EnergyWatch, as part of our obituary to SEF member Colin Wells EW)

The average overall energy use per hectare by New Zealand's dairy farmers is lower than anywhere reported overseas, despite a doubling in energy use on our dairy farms over the past twenty years. The findings come from the MAF Policy-commissioned *Total Energy Indicators of Agricultural Sustainability: Dairy Farming Case Study*, prepared by the late Dr Colin Wells of the University of Otago.

The study is based on data gathered by Agriculture New Zealand from 150 dairy farms spread throughout the country, representing about one percent of all national suppliers. The farms chosen provide a good mix of irrigated and non-irrigated properties. Wells' report finds that improvements in productivity have kept energy use on most farms — expressed as energy use per kilogram of milk solids — to an overall increase of about 10%.

MAF's Director of Policy Information and Regions, Alan Walker, says the main cause of increased energy use is the growing use of nitrogen fertilisers and the substantial amount of energy required for their manufacture. "The high power requirement for spray irrigation is, however, emerging as a potential sustainability issue," Walker says.

New Zealand's energy consumption in dairy production is measured against overseas producers by its overall energy ratio (OER): the all-important ratio of the total primary energy input per kilogram of milk solids to the calorific energy output in those milk solids. New Zealand's OER is 0.59 compared to an estimated 2.8 in the USA and a range of 0.67 to 2.4 in European countries.

However, some individual farms, particularly those with pumped irrigation or high nitrogen application rates, may have higher OERs than calculated for some conventional and organic dairy farms in Europe.

The energy use on New Zealand dairy farms is calculated to be about 18 GJ/yr for each effective milking hectare. The most significant contributions to that total energy use on the 'national average' dairy farm are: fertiliser 35%; electricity 25%; and fossil fuels 20%. Estimates of the energy used in running capital equipment and farm structures add a further 13% to the total energy use. On spray irrigated farms, electricity use jumped to become the most significant energy input at 40%. "Interestingly, the report finds that the average production intensity (kg of milk solids /ha) and stocking intensity (cows /ha) is not significantly different between irrigated and non-irrigated farms," says Alan Walker. "Yet the amount of energy used is significantly greater on the irrigated properties."

The study finds that the use of renewable energy is fairly low at 15%, even on spray irrigated farms. A high proportion of fossil fuel energy is used in the New Zealand electricity generation mix — during the study period only 57% of the total primary input to the generation system was renewable.

Walker says a positive aspect of the report for New Zealand's dairy farmers is that it identifies significant areas where energy efficiency can be improved. "Paramount among these is taking opportunities to improve fertiliser management and in particular, judicious use of urea because of its high energy content, " he says. "Where possible, best water management practices on irrigated dairy farms, and in particular those with high pressure overhead spray systems, could reduce direct energy use," Walker says. "There is always scope to make savings in the use of fuels such as diesel through efficient tractor use. And the insulation of hot water cylinders and milk vats, coupled with greater use of heat exchanges would reduce direct electricity use in dairy sheds."

Farmers who participated in the energy use study have all received the results for their individual farm, along with comparisons of where they fit into the wider district picture and some suggestions on how they can improve their energy usage.

Alan Walker says with this report — his final publication — Colin Wells has made a major contribution to the understanding of inputs into dairy farming. "He has developed a methodology and survey for assessing energy use on farms which is a world first and will have applications to other farm products. Regrettably, due to his recent tragic death, we won't have his valuable input into ongoing work in this area."

Dr Robert Watson loses chair of IPCC

On 19 April, Dr Robert Watson lost his position as Chairman of the Intergovernmental Panel on Climate Change (IPPC). Appointed in his place was vice Chairman Rajendra Pachauri, an Indian economist.

In a letter to Energy Minister Pete Hodgson, urging that NZ lobby for Watson, SEF said:

"There can be no question that Dr Watson, an atmospheric scientist who is also chief scientist of the World Bank, is doing his job very well. We would have no difficulty with a new appointee who could do as well, but a recent article in the New York Times made it clear that energy lobbyists are opposing Watson. This can only be seen as an attempt to muzzle Watson and reduce the effectiveness of the IPCC."

Understandably, The *Times of India* was more upbeat about the appointment, if not the methods:

"India's pre-eminent energy specialist Rajendra Pachauri has been elected to head the (IPCC). Pachauri was elected 76–49 in a bitter and controversial election, after the Bush administration backed him against the American incumbent, Dr Robert Watson.

"The election outraged many NGOs and European countries that believe Watson, a World Bank executive who is an atmospheric scientist, was a victim of lobbying by American automobile and oil companies because of his tough stand against emissions. Britain and Germany among other countries tried to effect a compromise by pushing for Watson as a co-chair, but American clout carried Pachauri to a comfortable win.

"Pachauri is an engineer and an economist who founded the Tata Energy Research Institute in New Delhi. While the environmental community is not against him and concede that he too has a tough stand on emissions, it fears that it will be easier for the US industry and the Bush administration to marginalise him because he is from a developing country. Watson, they say, was a Washington insider who could not be wished away. He was an outspoken critic of the Republican line on emissions that sought to deny that global warming was because of human activity."

And a long article by US ex-vice-President Al Gore backed the *Times of India* (*New York Times* 21/2/02):

"Under the presidency of George W Bush, the environmental and energy policies of our government are completely dominated by a group of current and former oil and chemical company executives who are trying to dismantle America's ability to force them to reduce the extremely dangerous levels of pollution in the earth's atmosphere.

"The first step was to withdraw from the agreement reached in Kyoto to begin limiting world-wide emissions of greenhouse gases. Then the administration cancelled an agreement requiring automobile companies to make the leap to more fuel-efficient vehicles. Other acts of sabotage are taking place behind the scenes. Just as Enron executives were allowed to interview candidates for the Federal Energy Regulatory Commission — and to veto those they didn't think would approve of Enron's agenda — ExxonMobil has been allowed to veto the US government's selection of who will head the prestigious scientific panel that monitors global warming. Dr Robert Watson, the highly respected leader of the Inter- Governmental Panel on Climate Change, was blackballed in a memo to the White House from the nation's largest oil company. . .

"Why is this happening? Because the largest polluters know their only hope for escaping restrictions lies in promoting confusion about global warming. Just as Enron needed auditors who wouldn't blow the whistle when the company lied about the magnitude of its future liabilities, the administration needs scientific reviews that won't sound the alarm on the destruction of the earth's climate balance."

Major update of SEF web page

The Sustainable Energy Forum now has its own internet domain name, and the website has been expanded, updated and generally revitalised. Visit it at:

www.sef.org.nz

The intention is to to bring you news and comment, and to provide information on SEF's past conferences, coming events, and links to other websites of interest and relevance to sustainable energy. The site is being developed as we go, so please keep coming back to it, and let us know what you think.

Not only in America

SEF member John Peet has received details of a worrying paper from the US. Author John Sterman says, "Here is a new paper reporting experiments with highly educated adults (MIT graduate students) assessing how well they understand the basic dynamics of the climate and global warming. The results are scary."

The paper is available on web.mit.edu/jsterman/www/cloudy_skies

The abstract of the paper is:

Cloudy Skies: Assessing Public Understanding of Global Warming

John D. Sterman, MIT Sloan School of Management
Linda Booth Sweeney, Harvard Graduate School of Education
March 2002

"Surveys show most Americans believe global warming is real. But many advocate delaying action until there is more evidence that warming is harmful. The stock and flow structure of the climate, however, means wait-and-see policies guarantee further warming. Atmospheric CO2 concentration is now higher than any time in the last 420 000 years, and growing faster than any time in the past 20 000 years. The high concentration of CO2 and other greenhouse gases (GHGs) generates significant radiative forcing that contributes to warming. To reduce radiative forcing and the human contribution to warming, GHG concentrations must fall. To reduce GHG concentrations, emissions must fall below the rate at which GHGs are removed from the atmosphere. Anthropogenic CO_2 emissions are now roughly double the removal rate. Emissions must therefore fall by half even to stabilize CO_2 at present record levels. Such reductions greatly exceed the Kyoto targets, while the Bush administration's Clear Skies Initiative calls for continued emissions growth. Does the public understand these physical facts?

"We report experiments assessing people's intuitive understanding of climate change. We presented highly educated graduate students with descriptions of greenhouse warming drawn from the IPCC's non-technical reports. Subjects were then asked to identify the likely response to various scenarios for CO_2 emissions or concentrations. The tasks require no mathematics, only an understanding of stocks and flows and basic facts about climate change. Controversial or highly uncertain issues such as the impact of warming on ecosystems and economies were not relevant. Overall performance was poor. Subjects often select trajectories that violate conservation of matter. Many believe temperature responds immediately to changes in CO2 emissions or concentrations. Still more believe that stabilizing emissions near current rates would stabilize the climate, when in fact emissions would continue to exceed removal, increasing GHG concentrations and radiative forcing. Such beliefs support wait-and-see policies, but violate basic laws of physics. We discuss implications for education and public policy."

In New Zealand the Automobile Association put out a press release on 26 April under the heading, "Motorists Say 'Reduce Emissions With Efficiency Not Prices.'" Their latest survey of their members shows that 87% would strongly oppose moves to increase fuel prices to make people drive less. Policies 'strongly' preferred included good maintenance (95%), cleaner petrol (90%) and more efficient cars (86%). A majority would be willing to accept stricter controls on vehicle emissions (70%), and promoting alternative fuels (60%). Another 60% supported public transport as important, but only 6% thought they might themselves use public transport more in the next year.

"Options that members are likely to favour to reduce vehicle emissions include: sourcing better quality fuel; extending the availability of lower sulphur diesel to the rest of the country; a low-cost tune-up as part of the Warrant of Fitness check; introducing vehicle emission standards; and continuing the popular 0800 SMOKY campaign. The clear message members are sending to politicians is, to reduce emissions, motorists support measures that improve the technology rather than restrict use of cars," said George Fairbairn.

(None of these measures are likely to make much difference to energy use EW)

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Climate of change is here for good

Independent (UK) 20/3/02

Glaciologists from the British Antarctic Survey say that the 500 billion tonne Larsen B ice shelf is no more. Another team of Antarctic scientists in America spotted a huge iceberg half the size of Cyprus. Meanwhile, closer to home, climate researchers from East Anglia University have found that the British growing season — as defined by the period between two cold snaps lasting five consecutive days — is now longer than ever. "If the trend continues, it is possible that we will have a year-round growing season within a generation," predicted Tim Mitchell of East Anglia's Tyndall Centre for Climate Change Research. It seems patently obvious that man-made greenhouse gases are causing a catastrophic change to the world's climate.

In truth, many of the scientists behind these latest observations would be the first to question the assumption that greenhouse gases are responsible for what they are seeing. Melting ice, milder winters and warmer springs, they would argue, may fit in with global warming, but they do not amount to indisputable proof. "The fact that spring is going to be warmer is consistent with global warming but no more. Global warming is the obvious explanation, and I don't think there a better one, but we can't say more than that," said Mark Saunders, from UCL's Benfield Greig Hazard Research Centre.

But what about that giant iceberg, measuring 65 x 85 km, which the US National Ice Centre says has broken away from an ice tongue in the Amundsen Sea? Big icebergs 'calving' in the Antarctic are unusual but by no means unprecedented. According to Dr David Vaughan, a glaciologist from the British Antarctic Survey in Cambridge, it would be unusual if we did not see them floating away. "We expect big icebergs to fall off the Antarctic ice sheet now and again. It's normal because the ice that is lost is constantly being replaced by snowfall," Vaughan said. So the calving has little or nothing to do with the global warming debate. A far more important observation is that the Larsen B ice shelf, in the Antarctic peninsula, has over the past month collapsed and disintegrated into thousands of small icebergs.

According to Vaughan this is only the second time that he or any of his colleagues have witnessed the disintegration of such a large chunk of floating ice — this one being 200 m thick and covering an area of 3250 km^2. Glaciologists have only seen this kind of event once before when the nearby Larsen A ice shelf collapsed in 1995.

Astonishing speed

Although the Larsen B ice shelf's disappearance has been well documented, the speed of its final demise has astonished scientists. "It's been retreating for 10 or 15 years and this slow retreat, which is driven by regional climate change, developed into a total collapse, like a bridge that had one too many bricks taken out of it," Vaughan said. The Larsen ice shelves have been stable for centuries and there is no obvious reason why they should be melting now, apart from the fact that the regional climate of this part of Antarctica is warming at five times the rate of the rest of the world. No one knows exactly why this is happening. It could be a change in the local wind patterns, or ocean circulation, or some little-understood 'feedback' mechanism causing more and more heat to be pumped into the peninsula.

Whatever the reason, it would be remarkable if it were *not* connected in some way to global warming. "If the two things were coincidental then it would be extremely surprising. One of the best candidates available to explain why this regional climate change has happened is that it has been kicked off by a global climate change," Vaughan said. "We're fairly confident that the present ice shelves have been there for about 1800 years. Before then many of these ice shelves were absent, probably because the climate on the continent was as warm or warmer than it is now," Vaughan said.

"We can see this warming in the Antarctic peninsula, we know that it is geographically unusual, and unusual in the timescale of 1800 years. What we can't say is what has caused it," he said. "I can't with my hand on my heart link it to global warming, or link it to enhanced greenhouse gas warming with absolute surety." Ice shelves float on the sea, but they are attached to the Antarctic mainland. When they melt they do not affect sea levels — on the same principle that a melting ice cube in a gin and tonic does not increase the level of the drink in the glass.

But if ice shelves do not affect sea levels directly, they are thought to be critical when it comes to preventing the mainland ice sheets from slipping into the sea. One of the greatest fears is that as ice shelves collapse, the ice sheets on the mainland will become more unstable, leading to mass melting into the surrounding oceans and a catastrophic rise in sea levels. So far, there is little evidence of general collapse, but for how long this will remain the case is any one's guess.

"We expect more ice shelves further south to eventually be attacked in the same way, but it's unlikely that the really big ice shelves — like Ross and Ronne — will be attacked in the next... few decades. They appear to be stable at the moment," Vaughan said. The real problem for scientists is marrying up the overall changes to global temperatures with the actual observations from different regions of the world. The UN's Intergovernmental Panel on Climate Change says that all the evidence suggests a link with man-made emissions, but trying to prove a sequence of cause and effect with one particular phenomenon is proving hard to do.

All that the IPCC scientists can say is that the global warming seen over the past 50 years can now be attributable to human activities and that, "an increasing body of observations gives a collective picture of a warming world and other changes in the climate system." We still have some way to go before science can categorically say that a melting ice shelf on the other side of the world is caused by the same phenomenon resulting in a longer growing season in Britain.

Natural or man made?

Ocean currents changing direction:
One of the biggest fears of global warming is that the ocean circulation could slow down or flip into reverse. Scientists have found that a crucial part of the North Atlantic 'conveyor belt' is slowing down but cannot as yet attribute it directly to a warmer world.

Tropical diseases in Britain:
A warmer world and milder winters could lead to an explosion of insects and other pests that normally live farther south. One global warming nightmare is the possible return of malaria to the UK — but malaria did not need warmer weather when it was eradicated less than 100 years ago.

Warmer summers, wetter winters:
The 1990s were the warmest years on record and winters have been noticeably wetter and warmer. However, although this is unusual, some climatologists say that it could still be within the natural variation of the British weather - a notoriously fickle phenomenon.

The North Pole is melting:
Anecdotal reports of tourists cruising on ocean liners suggested that the North Pole melted last summer. Scientists later pointed out that seasonal melting was a natural phenomenon, although the Arctic ice is known to be considerably thinner now compared with 50 years ago.

From the home of the web

We hold these truths to be self-evident:

- That our nation's excessive dependence on Persian Gulf oil gives unstable and undemocratic governments undue influence over our foreign policy.
- That our nation possesses only 3% of the world's oil reserves but consumes 25% of the world's oil supply and, therefore, can never drill its way to energy self-sufficiency.
- That exploiting natural treasures such as the Arctic National Wildlife Refuge would supply only a tiny fraction of our oil needs and would therefore prolong energy insecurity while senselessly destroying our natural heritage.
- That raising fuel economy standards for cars and light trucks to 40 mi/USgal (5.9 litre/100 km) by 2012 would save 1.9 million barrels of oil (300 000 m^3) a day — four times the expected peak output from the Arctic Refuge and more oil than we imported from Saudi Arabia last year.
- That our government could further slash oil consumption by: raising fuel economy to 55 mi/USgal (4.3 l/100 km) by 2020; requiring replacement tires to be as energy efficient as those installed on new cars; enacting tax incentives for hybrid and fuel cell vehicles; reinvesting in public transit; promoting anti-sprawl 'smart growth' of our cities; accelerating the development of plants for making motor fuel from crop wastes; ensuring production of 100 000 vehicles that run on non-polluting, hydrogen fuel cells by 2010 — and one million such vehicles by 2020.
- That pursuing this path of energy self-reliance will benefit our health, save us billions of dollars, preserve our environment, slow global warming, and enhance America's national security.

We, the people of the United States of America, therefore call upon our elected leaders to lead an energy revolution that will reduce our nation's destructive reliance on oil and set us on a sustainable path toward lasting oil independence.

UN Secretary-General names five key areas for action at Summit

UN, 15/5/02

UN Secretary-General Kofi Annan has set out five key areas where he feels concrete results can and must be obtained at the Johannesburg Summit:

Water and sanitation

More than 1 billion people are without safe drinking water. Twice that number lack adequate sanitation.

Energy

Energy is essential for development. Yet two billion people currently go without, condemning them to remain in the poverty trap. We need to make clean energy supplies accessible and affordable. We need to increase the use of renewable energy sources and improve energy efficiency. And we must not flinch from addressing the issue of over-consumption — the fact that people in the developed countries use far more energy per capita than those in the developing world. States must ratify the Kyoto Protocol, which addresses not only climate change but also a host of unsustainable practices. States must also do away with the perverse energy subsidies and tax incentives that perpetuate the status quo and stifle the development of new and promising alternatives.

Health

The links between the environment and human health are powerful. Toxic chemicals and other hazardous materials are basic elements of development. Yet more than one billion people breathe unhealthy air, and three million people die each year from air pollution — two thirds of them poor people.

Agricultural productivity

Land degradation affects perhaps as much as two thirds of the world's agricultural land. Agricultural productivity is declining sharply.

Biodiversity and ecosystem management.

Biodiversity is declining at an unprecedented rate. Half of the tropical rainforests and mangroves have already been lost. About 75% of marine fisheries have been fished to capacity.

Anan suggests a simple acronym: WEHAB, which can also stand for 'we inhabit the earth.'

NZ Waste Strategy launched

NZ Government

The New Zealand Waste Strategy, designed to address the country's growing waste problem, was launched in March by the Environment Minister, Marian Hobbs. Every year 3.4 Mt of solid waste is sent to landfill — nearly a tonne a year for every person in New Zealand. The Ministry for the Environment and Local Government New Zealand have developed in the strategy a vision and an action plan for reducing and better managing waste. This broad blueprint covers all wastes, from generation to disposal. It provides targets, guidelines and economic incentives to reduce waste, and change wasteful behaviour.

Marian Hobbs says the objective of the strategy is to solve the waste problem — rather than transferring it elsewhere. "It is no longer acceptable to simply dump waste out of sight or flush it into our environment," she said. "The strategy has moved away from a focus on 'end of pipe' solutions to focus on ways to prevent waste being generated. One of the best ways of materially helping our environment is by making and delivering what we need without creating so much waste in the first place."

"Promoting materials and resource efficiency can also result in good ideas that make money in their own right. We only need to look at companies such as Fisher & Paykel and their successful white-ware take-back scheme. In 2000 this scheme to process used appliances made a profit of $500,000." Hobbs says the success of the waste strategy will depend on government, businesses and individuals working together. "We are working with councils and Local Government New Zealand to develop a long-term public education and information programme to help change the way we think about waste," she said.

A full copy of the Strategy is available on the Ministry for Environment's website:

www.mfe.govt.nz

Slipping

EnergyWatch tries to keep away from unrelated items, but even with a broad definition, we occasionally let our standards slip:

"Sometimes I think the surest sign that intelligent life exists elsewhere in the universe is that none of it has tried to contact us."

Bill Watterson, US cartoonist

MiniWhats

Japanese Cabinet agrees to ratify Kyoto

At the end of March the Japanese Cabinet approved a bill to revise the global warming prevention law and submitted it to the Diet with a request that it ratify the Kyoto Protocol. The planned revision would oblige the government to map out a legally binding plan to achieve Kyoto Protocol cuts of greenhouse gases. The revision would also call for the creation of local citizens' forums on stemming global warming, and would mandate study into domestic use of so-called Kyoto mechanisms, including emissions trading. Japan Times

Hurricanes affect carbon sequestration by forests

In the March 2002 issue of *Environmental Pollution*, Steven McNulty of the USDA suggests that the effects of hurricanes must be taken into account in predicting the carbon storage capacity of US Forests along the south-eastern seaboard. A major hurricane hits the south-eastern US coastline two out of every three years. Over 55% percent of the land is forested, and timber damage from one hurricane can exceed €bn 1.0 and significantly reduce carbon stored. "A single hurricane can convert 10% of the total annual carbon storage for the US into dead and downed forest biomass," said McNulty. "Hurricanes leave behind a lot of dead trees that decompose and return carbon to the atmosphere before it can be harvested."

A large amount of accumulated forest carbon is lost in the years following a major storm. For economic reasons, most of the wood from hurricanes is not salvaged. Not only is carbon lost as trees decompose, but the downed wood becomes fuel for wild fires that can kill surviving vegetation and release additional CO_2. "If increased carbon sequestration is going to be one of the mechanisms used to reduce net emissions of CO_2 in the US," said McNulty, "incentives to increase post-hurricane timber salvage need to be addressed. Science Daily 25/3/02

Russia may drag feet on Kyoto

Russia may delay ratification of the Kyoto Protocol on curbing global warming until after this (northern) autumn if Japan does not agree to buy emission credits, according to high-ranking Russian government officials. The officials asked that Japan and European Union countries promise to buy emission credits from Russia as a condition for its ratification. Russia's concern is that it will not be able to sell its emission credits to the US, as that country has already dropped out of the agreement. The possible delay of Russia's ratification of the Kyoto Protocol will likely make it impossible for the treaty to come into effect before the World Summit on Sustainable Development in August and September, the time Japan and other countries want the pact to come into effect. Yomiuri Shimbun

Norway proposes ratification of Kyoto Protocol

The Norwegian government has submitted to parliament a proposition on ratification of the Kyoto Protocol, and a supplementary white paper containing plans for greenhouse emission reductions in the period up to 2008. These include continued use of the CO_2 tax and the introduction of a domestic emissions trading system, from 2005, for emissions from sources not subject to the CO_2 tax. "The coalition government has announced a more proactive climate policy," said Boerge Brende, environment minister. "The ratification of the Kyoto Protocol and the supplementary white paper on Norwegian climate policy are important steps in the right direction." AFX Europe

Australia adopts greenhouse gas protocol

With the launch of the Greenhouse Gas Protocol in Sydney in March, Australian companies are now able to apply internationally accepted greenhouse-gas accounting and reporting standards. New South Wales Energy Minister Kim Yeadon launched the protocol, developed by the World Business Council for Sustainable Development (WBCSD). The protocol, a joint venture of international businesses, non-governmental organisations and governments, was developed in Geneva and Washington over the past three years. Australian businesses are now able to use the protocol as a tool to identify and calculate greenhouse-gas emissions and report on their company's greenhouse impact.

"More than 30 companies in 10 countries road-tested the draft, with extensive peer reviews over three years," WBCSD spokeswoman Heidi Sundin said. "This protocol sets the first international benchmark for corporate reporting applicable to different business sectors." A range of multinational companies contributed to the initial testing of the protocol, including BP, Volkswagen, DuPont, IBM and Ford.

"The protocol not only provides companies with a way to track greenhouse-gas emissions generated from their business operations, but also the opportunity to clearly identify potential improvements in their emissions," Australian Cement Industry Federation spokesman Peter Klose said.

Yeadon said that the New South Wales government takes the issue of managing greenhouse-gas emissions seriously. "The development of a standardised approach to assessing greenhouse-gas emissions for industry is a very valuable contribution to underpinning an emissions trading regime," Yeadon said at the launch. Asia Times

Europe moves towards jet fuel levy

Europe is moving toward imposing charges on jet fuel, the fastest growing source of greenhouse gas emissions. The levy, which would end the fuel's tax-free status, could add about € 60 to ticket prices in the EU within 3 years. If implemented, the charge could pave the way for a global tax on jet fuel, which has been exempt since the Second World War to encourage the airline industry. The IPCC says aviation causes 3.5% of man-made global warming, and that could rise to 15% by 2050. NewsRoom, 16/5/02

Australia's non-ratification 'costing billions'

The Federal Government is coming under increasing pressure from Australian business, led by emerging industries in the environmental services sector, to ratify the Kyoto Protocol. While the Government and the Aluminium Council have argued that ratification could cost jobs and investment, other companies are considering moving offshore to take advantage of the Kyoto Protocol's opportunities.

According to the executive director of the Australia Institute, Clive Hamilton, non-ratification of the Protocol amounted to a betrayal of Australian business, with losses to be counted in the billions. "Australian business stands to lose access to carbon credits worth between one and two billion dollars a year on the world market," Dr Hamilton said. "If Kyoto is not ratified, no-one — not farmers, corporations or any of the state governments — will be able to access this revenue stream."

A spokeswoman for David Kemp, the Federal Minister for the Environment, said any move to relocate business to Kyoto-compliant countries would be premature. "The Government is shortly to receive a detailed analysis of the impact on Australia of the final Kyoto rules laid down in Marrakech last November," she said. "It's extremely alive to the difficulties all international companies face working with Kyoto and non-Kyoto countries. "That analysis will include costs as well as benefits of ratification."

Financial Review

UK invests in solar power

The UK government is offering £ 20 million (€M 33) to kick-start the installation of solar panels, in a bid to increase solar power tenfold within three years. The government's move to encourage the use of solar cells or photovoltaics (PV) is part of its wider programme to lift renewable energy generation and to curb carbon emissions, blamed by many scientists for contributing to global warming.

Trade and Industry Secretary Patricia Hewitt said she hoped the money will help cut the cost of solar technology. "This money will not only contribute to the UK achieving its ambitious environmental goals, but also help the UK PV industry develop the technology to allow us to compete for this massive global market," she said in a statement. The high cost of PV, poor demand and lack of aggressive government support have been put forward as reasons why Britain lags so far behind other industrialised countries in the solar power league table. Installed PV capacity in 2000 was only about 2 MW in the UK compared with Japan where 100 MW is installed every year, Britain's Photovoltaic Association says.

Power Report 26/3/02

CNG: a big mistake?

Delhi is in the throes of a disastrous introduction of compressed natural gas (CNG) for buses in the city, and the Indian Supreme Court has recently reaffirmed that the buses shall use only CNG as fuel. It is easy to imagine that old buses, maintained in third-world workshops, may not be the cleanest, so how can this decision be so bad? Sadly, it was taken in isolation, and enforced when there was only one filling station available and very few buses converted. Just who was at fault is unclear, but the situation has dragged on for over a year. Results include:

- Immense disruption in the first few weeks.
- Small, country buses (12 seater) brought into the city because they were already fitted for CNG.
- Increased use of heavily polluting two-stroke motorcycles
- Large-scale car-pooling, sometimes using vehicles bought specially for the pool.
- Large increases in both congestion and emissions.

As Prof Dinesh Mohan put it (*The Economic Times* [India] 16/4/02): "Policies that are complex in nature should never be put in place through antagonistic processes like courts."

Eric Bruun, a commentator on sustainable transport issues, says:

"The reason that buses are singled out in India is probably the same as why they are singled out in the USA. They are not backed by politically powerful corporations nor do the politicians use buses. In the US, (buses) are outnumbered by truck and long-distance buses by 100 to 1, and large personal SUVs keep proliferating, yet transit agencies are being singled out to lead the fight for cleaner air."

Climate change and the future of governance

A report by US organisation Ceres examines the mounting evidence of the potentially devastating financial consequences of climate change across a wide range of economic sectors, and finds that 'climate risk' is embedded — to some degree — in every business and investment portfolio in the US. The report gives recommendations for those seeking to discharge their fiduciary duties in a responsible and prudent fashion in the face of climate change. See:

http://www.ceres.org/publications/main.htm

Fines for NSW power retailers' greenhouse failures

Electricity retailers will be fined if they fail to meet greenhouse emission benchmarks over the next five years, the New South Wales state government has announced. "This decision will add little or no extra cost to household power bills," NSW premier Bob Carr said. "Introducing these benchmarks means electricity retailers will need to reduce emissions by 5% on a per-capita basis, compared to 1989-90 emission levels, by 2007." Retailers who fail to meet the target reduction will be fined up to A$ 15 /t of CO_2 equivalent (€ 9/t). The NSW government said the penalties would be broadly equivalent to the estimated cost of meeting the new benchmarks. Reuters/CAN, 9/5/02

EU curbs greenhouse gases

The European Union reached its target of stabilizing greenhouse gas emissions at their 1990 levels by 2000, despite a slight upturn in the final year of the period. Latest figures from the European Environment Agency show CO_2 emissions in the EU were 0.5% lower in 2000 than in 1990, while emissions of the six main gases responsible for climate change were 3.5% less than a decade earlier.

The prospect of future cuts looks slim, according to the EEA. Between 1999 and 2000, greenhouse gas emissions rose by 0.3% and are set to rise by up to 6% over the next decade unless member states sign up to a costly package of CO_2-cutting measures. Under the Kyoto Protocol the EU is to limit emissions to 8% below 1990 levels by 2008–2012. EU Environment Commissioner Margot Wallstrom conceded: "Without additional efforts the EU will not be able to reach its Kyoto target." More than half of EU members look likely to overshoot their agreed share of the reduction target. Bottom of the class is Spain, with emissions up by a third. Other countries faring badly include Portugal, Greece and Ireland, which all saw double-digit gas increases. At the other end of the scale, both Germany has had a 19% drop since 1990, largely because of industrial restructuring in East Germany, and the UK a 13% drop because of the 'dash to gas' policy. Data released Monday showed a 19% drop in German emissions and a 13% fall in British levels since 1990. Greenpeace's Michel Raquet said the reason the EU had met its 2000 climate change commitments was, "more due to luck than design." He said an 80% reduction in CO_2 emissions by 2050 was needed to offset global warming. UPI 29/4/02

Australian Kyoto commitment still likely

Australian Federal Environment Minister David Kemp says Australia has a very good prospect of meeting its obligations under the Kyoto Protocol, despite a draft report showing a large projected emissions increase. Labour's environment spokesman Kelvin Thomson released the AGO figures saying they showed projected emissions increase (excluding land clearing for which figures are still unavailable) from 1990 to 2010 is a massive 33%. This compared with a former report projecting that the emissions increase between 1990 and 2010 would be 18%. Australia's Kyoto target is 108% of 1990 emission levels.

The Draft Report attributes the blow-out to higher than predicted emissions growth *(Really? EW)*, and says that the impact of Government measures announced in 1997 has been less than earlier predicted. Australia's emissions are now projected to grow by 128 Mt CO_2 equivalent to 518 Mt between 1990 and 2010.

Kemp said the completed Third National Report under the UN Framework Convention on Climate Change would be released shortly. It would include land-clearing data and up to date numbers on the 1990 baseline for greenhouse emissions, thereby providing a clearer picture of Australia's expected emissions measured against Kyoto-level targets. He said greenhouse gas emission intensity of the Australian economy is continuing to fall. With other elements of the Australian strategy this will put Australia in a position where he believed it has a very good prospect of reaching the target that was negotiated internationally.

On the issue of Australia ratifying the Kyoto protocol Dr Kemp said the government was

currently conducting due diligence before making a final decision on ratification. It was reported this would be months away.

utilicon.com.au, 19/04/02

US wants Kyoto dropped from UN agenda

The United States, having pulled out of the Kyoto Protocol, is now objecting to its implementation in 2002 being mentioned as one of the goals for a global environmental agenda being drawn up at the UN. The US has demanded that wording on bringing the Kyoto Protocol be excluded from the implementation documentation of a global environmental agenda being drawn up at the third session of the preparatory meeting of the UN Conference on Environment and Development (UNCED). The move is a sign that the US is stiffening in its attitude toward the pact, and is likely to draw the ire of other countries, including those in the EU and Japan, which want early implementation. Yomiuri Shimbun

More wrangles over Maui gas

In mid-May it was reported that Methanex NZ Ltd is seeking a Court injunction against Maui Development Ltd (MDL), seeking to delay the Maui gas reserves redetermination process. Methanex is thought to take nearly half of Maui gas.

Energy researcher Molly Melhuish suggests that Methanex wants to delay the official redetermination because it will confirm that reserves are lower than expected: reportedly 30% lower than the original White Paper. Until this is official, Methanex can go on using gas at a very cheap price — possibly even cheaper than for electricity generation. Afterwards, there will be a reallocation amongst the Maui gas purchasers, and Methanex will probably be cut out. MDL want the redetermination because is is thought that this will immediately allow gas prices to be hiked.

Melhuish also suggests that it would have been in the national interest to make a redetermination many years ago; wholesale gas prices would have risen a little then, but gas would have been used more wisely and would have lasted longer. Retail gas prices would probably have been barely affected, as the monopoly gas networks are taking so much profit.

An interesting spin-off is that redetermination might stall Contact's proposed gas turbine power station, and leave space for renewables. However if the electricity market isn't fixed, that step towards sustainable energy is certain to be overridden by the supply side. Electricity prices will rise sufficiently to pay for the new station: bad for consumers as well as sustainable energy.

EnergyWatch

Our normal publication schedule is 'at least' four copies a year, published in March, June, September and December.

This year our schedule has been disrupted by government consultation papers, and will be disrupted again by editorial leave in September. Our revised schedule for 2002 is publication in March, May, July, October and December.

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