



# EnergyWatch

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## After the Energy Conference: where to now?

For many of us on the renewable end of the spectrum, the NZ Energy Conference was indeed disappointing: 'sham' was the word used by one SEF member. Nevertheless there were a few pointers for SEF, RENZ, EECA and others to use as guidance for future action. We do have the opportunity to make a difference: there are more opportunities now than at any time in recent decades.

So how might the various renewable energy stakeholders contribute to progress? There seemed to be four key areas in which there was a moderate to high degree of consensus among conference participants (but only occasionally articulated from the platform):

- We need a strategic vision for the future of energy in New Zealand. The depletion of Maui gas highlights the urgency for us to know where we are heading. Some believe that we need a 'plan' in order to plot our route towards the more distant goal(s).
- There is clear market failure in the triggering of new investment for electricity generation, partly related to uncertainties about post-Maui gas supply. We need protection against the threat of dry-year shortages, which present arrangements look unlikely to provide.  
(Mike Underhill made the offhand comment, "I wonder what would have happened if we'd focused on energy and economic efficiency from the start of the electricity reform process, rather than just economic efficiency?" The point was not picked up)
- A clear choice exists between 'business-as-usual' — more large (thermal) power stations plus huge investment in transmission — and a greater reliance on distributed generation and

renewable energy sources (DG/RE). Risk analysis and risk management will be key tools in reaching a satisfactory answer.

- The synergy between the Johannesburg outcomes (and Kyoto mechanisms) and the DG/RE option creates a new set of opportunities. The RENZ breakfast at the conference was heavily attended, and served to demonstrate that the partners pursuing this option now have critical mass.

Taken together, these factors suggest that we have just had the first post-Rogernomics energy conference. The Government appears to be behind the play in picking this not-so-subtle shift. The debate on the future role of the Electricity Governance Board (EGB) reflected this most clearly. Where is the consumer representation? Before the market philosophy took over, this was seen as a primary role for the political and bureaucratic agents of government. Not much sign of *that* at the Conference.

Plans for each of the consensus areas already noted might include:

### Your ideas and support please

Three areas where you might be able to help, by providing ideas or opposing a backward step, all closing on **November 15 or 18**:

- Energy efficiency and renewable energy under the RMA. See page 8
- Renewable energy sources. See page 8
- Resource consent variation for the existing Stratford power station (the one that demanded tree planting). See page 21

- Develop a process which will deliver a vision and strategy for the energy sector (by mid-2003?), following stakeholder consultation. This might be developed with the benefit of Amory Lovins' advice about a similar exercise in the US in 2001. The Institute of Policy Studies at Victoria University would be a logical umbrella for the process. This could provide two factors needed for success: a reasonably open approach and a degree of Government 'comfort'.

- Resolve the problems causing market failure in investment, including the overt role of consumers and demand-side players in the electricity market, and therefore in the EGB.

- Analyse the long-run economic, environmental and social costs to NZ of going down the business-as-usual track for primary energy supply, as opposed to the DG/RE option.

A solid debate on assumptions about costs, risks and technology would have to precede the commissioning of any technical analysis and it may be helpful to use scenario techniques. It would be unhelpful to allow high-powered consultants to state opinions as if they were conclusions.

- Prepare an investment plan for RENZ and other participants to contribute to the DG/RE option. Include rough estimates of overseas market potential in this plan. Calculate Transpower's investment for both this scenario and the business-as-usual option.

MFAT is working in this area, in its role as executor of NZ's contribution to the Johannesburg Action Plan. We have here a new and significant set of policy commitments which are additional to — but interact with — the various Kyoto mechanisms.

The renewable energy sector is not going to pull this off unless we can manage a higher level of co-ordination than we have seen before. Perhaps that is the key point that the RE/DG sector needs to pick up, quickly.

## EnergyWatch

A long-standing computer niggle went critical, and the file for this edition of EnergyWatch would not open. Software conflicts had slowly built up file corruption to toxic levels. After expert help EnergyWatch proceeded under jury rig, but the October edition will not now be mailed until November.

The next issue of EnergyWatch is still due in mid-December: we will not be corrupted!

## Pete Hodgson at the Energy Conference

*(A heavily edited version of Energy Minister Pete Hodgson's speech at the NZ Energy Conference, hosted by The Energy Federation and SEF. The full speech will be in the conference proceedings, available soon from the Sustainable Energy Forum EW)*

Let it be clear from the outset that the government is committed to a sustainable energy future for New Zealand. This will be achieved through gains in energy efficiency and a transition to renewable energy sources. Specifically, by 2012 the government hopes to have achieved three goals:

- Improve NZ's energy efficiency by at least 20%;
- Increase renewable energy supply by 30 PJ/yr, which would reverse the current decline in the share of total energy from renewable sources;
- Make significant greenhouse gas emissions reductions on business-as-usual, turning the current growth into long-term contraction.

The government has been looking closely at modelling of electricity supply and demand over the next few years. The crucial factor is our ability to cope with dry years. That requires a buffer of reserve generation capacity that we can draw on when the lakes are low. It is clear from the modelling already done that NZ will need significant new generation capacity by about 2005, to adequately cover the risk of a dry year. I say 'about 2005' because modelling is never exact, and because in this case my examination of what we have available persuades me that there is considerable room for improvement.

*(see page 6 — EW)*

Modelling by Transpower, the national grid operator, suggests 2005 as the point at which the current system might have difficulty meeting demand in a seriously dry year, assuming high growth in demand. This conference will hear different predictions from Bryan Leyland of Sinclair Knight Merz, who has done some modelling in association with the Centre for Advanced Engineering. For another independent assessment we have commissioned Tom Halliburton, an experienced energy modeller, to review both Transpower's and Bryan's work. Tom Halliburton's review suggests that Transpower errs on the side of optimism while Bryan errs on the side of pessimism. But it suggests that the limitations of both models are significant. I have

asked officials to investigate the options for making better quality modelling work available.

The modelling has caused us to look hard at supply security factors over the next three years or so. The three most important issues are the industry's plans for new generation capacity; the availability of gas; and the level of demand side flexibility in a dry year. I'll address each of those in turn.

### **New generation capacity**

In theory the price signals from the wholesale market should prompt the industry to build new capacity when needed. It is still a relatively new market, however, and I am not a minister who has blind faith that it will always deliver as theory says it should. The interests of electricity companies are not the same as the national interest, which is what the government has its eye on. I have had officials gathering information on current plans for new generation capacity. Some of those plans are public, such as Genesis' gas-fired plant at Huntly, Contact's proposed Otahuhu C gas-fired plant, Meridian's Project Aqua hydro system along the lower Waitaki (570 MW, available 2008 – 2012) and a 39 MW upgrade to the Mokai geothermal station. More plans have been disclosed privately to officials on a commercial-in-confidence basis. I am aware of serious investigations and planning amounting to more than 2000 MW over the next decade, including some in the next two to three years. Clearly not all of this will be built, and plans will change in response to market conditions.

Gas combined cycle plant is generally the cheapest option for significant new generation — depending on gas availability and price — followed closely by wind and geothermal. Meridian's Project Aqua appears very competitive. There is some public discussion about the prospects of new coal-fired generation, but unit cost is a limitation. The ministry puts the break-even cost of new coal generation at about 10 c/kWh, significantly higher than the estimated 6 c/kWh for gas combined cycle and geothermal, and 6.2 c/kWh for wind. Southland lignite would be even more expensive. Rather than fuelling new power plants it seems more likely that coal will become a more important dry-year reserve fuel, particularly for Huntly.

### **Gas availability**

The availability of gas for electricity generation is an important issue. Gas currently fuels 22% of generation in a normal year and significantly more in a dry year; about 30% in 2001. Gas is likely to be preferred for new capacity if it is available long-term, even if the wholesale price rises significantly

above the current low level set by Maui.

NZ has arguably been rather spoiled by its good fortune with the Maui field, which looks likely to be substantially depleted by 2007. Maui has been both cheap and flexible, with the very useful capacity to increase output in a dry year. There are uncertainties over the volume of gas likely to be available in future, including:

- Economically recoverable reserves in the Maui field: a redetermination should be completed this year;
- Economical Maui reserves at a higher price;
- How much gas Methanex will take — it is currently about 40% of total consumption;
- How much gas will come from Pohokura, and when. Shell recently said it might be a third of the size of Maui and bids could be sought from about March next year;
- The timing, size, location and cost of new gas discoveries.

But these uncertainties are not cause for high anxiety. The end of Maui is not a crisis but a transition to a more typical gas supply situation. It is not normal for a country to have one enormous, cheap gas field dominating supply for so long. As Maui production tails off, many smaller gas fields — including a number already discovered, proved up and resource consented — will become economic. NZ will revert to a more typical supply situation in which gas is drawn from a larger number of smaller fields. Known reserves might typically stretch forward a decade or so, rather than Maui's thirty years.

Projections from Shell, our dominant oil and gas producer, suggest current known reserves are enough to meet demand, at a wellhead price of \$ 4 /GJ, until 2010. This appears to be conservative, since there is a surplus available before 2010, at least some of which is likely to be carried over into subsequent years. These projections do not assume any new discoveries and exclude the Kupe field, which Shell believes would be uneconomic at \$ 4 /GJ. They also assume that \$ 4 /GJ would be too much for Methanex, which requires cheaper gas to be economic.

New gas discoveries are likely to take 5 to 10 years to bring on stream, depending critically on location, accessibility and the quality of the field. That is why steady exploration is important. Exploration is currently high, particularly in Taranaki, and is projected to increase. NZ's current royalty and permitting regime is considered internationally attractive, the government's Crown Minerals group is actively promoting NZ to international petroleum explorers. The

development of new fields will also be eased by open access to the Maui pipeline for non-Maui gas, which the government will facilitate, and by the establishment of better market institutions for gas trading as a result of the gas review.

I suspect there is a particular need for the financial sector to adjust its expectations about the duration of gas supply contracts. We are no longer in the unusual situation where a plant with a 30-year life will have gas supplies secured for the duration, before the first flame is lit.

### **Demand management**

With some exceptions, NZ's energy efficiency record is poor. Most NZ businesses could cut their energy costs by 20 – 30% through cost-effective energy efficiency measures. Improving energy efficiency and conservation improves electricity supply security in two respects:

- Reduced pressure for increased generation plant and new fuel supplies
- Improving our energy management capability improves our ability to adjust energy requirements in response to unusual circumstances, such as a dry year.

My view is that more active load management, in co-operation with large industrial and commercial customers, will become a more established part of dry year contingency planning. Already we have seen the development of contracts that give big consumers a larger role in managing dry year risk by including an element of spot market exposure. The choice for big customers will increasingly be between cheaper power with an element of dry-year price risk, and more expensive contracts with greater price stability. Large consumers taking a share of dry-year risk have the incentive to develop new tools to manage it, whether technological or financial. With the risk shared a little more widely the opportunities for innovative management solutions increase.

The energy intensive industries entering Negotiated Greenhouse Agreements would be required to move to world best practice in managing their greenhouse gas emissions, in exchange for exemption from the carbon charge. Moving to world best practice in energy management is an obvious way to improve emissions management, with the bonus that it delivers bottom-line gains for business and a sustainable energy future.

With the climate change Projects mechanism the government would provide incentives for businesses, partnerships or industries to undertake emissions reduction measures. Qualifying projects would not be supported if they were commercially

viable without government assistance. For electricity generation, renewables compete in an unfair market because thermal power stations do not have to internalise the environmental cost of carbon dioxide emissions until a carbon charge applies. Hence the economic rationale for a Projects mechanism. The qualifying criteria are a policy design challenge, but there is considerable experience overseas with such mechanisms and we are drawing on that experience.

### **Carbon charge**

Another key component of our preferred climate change policy is a carbon charge, to apply in the Kyoto Protocol's first commitment period. By increasing the cost of fossil fuels a carbon charge makes renewable energy projects more attractive, starting now, through its effect on future revenue and cost projections. One important consequence is that, for a given amount of new renewable energy, less funding would be required from a Project mechanism than would be the case without a carbon charge.

### **Electricity governance**

We are nearing the birth of a new governance structure for the sector. The Commerce Commission has authorised the proposed new rulebook for self-governance of the electricity industry, subject to four conditions. This is a real milestone in what has turned out to be an arduous and lengthy process. The Commerce Commission has decided that on balance an industry governance board will be of greater net benefit than one imposed by the government. That will be true as long as the conditions imposed by the commission relating to consumer interests and competition are met.

I expect the industry will scrutinise intensely the Commerce Commission's findings. I will be doing the same. However the likelihood is that the time has now come for the Electricity Governance Board to be put in place. I urge the sector to make this happen as quickly as possible. As I never tire of pointing out, the alternative — or the penalty for failure to deliver on the Government's policy objectives — is a government-appointed board and government regulation rather than self-regulation. That will happen if necessary, but I would much rather see the industry and its stakeholders sign up to the new rules and seize the opportunity to take responsibility for its own future.

# Something is very wrong with New Zealand's electricity market

Molly Melhuish

(Molly's summary of her paper at the NZ Energy Conference EW)

The reliability of New Zealand's electricity supply is at risk. The Auckland blackout and the shortage of winter 2001 followed the trend found in the US and other countries — competitive markets lead to a less reliable supply. Generators can profit from either generation or transmission capacity shortages.

Attempts to improve reliability by building more power stations and transmission lines will be very costly. Not only has New Zealand run out of cheap gas, but the capital costs of new investments are higher in competitive electricity markets.

For once the environmentally acceptable answer to these problems is also the least costly solution. The high spot prices of winter 2001 could not have been maintained if commercial and industrial consumers had been paid to shift their load away from peak times. New Zealand has developed the metering technology to do this — but the electricity market discourages it.

Energy efficiency programmes, if targeted to reduce winter peak demand (insulation and draught stopping) or summer peaks in central business districts (lighting and air conditioning), could defer the looming power shortages. But in New Zealand as in other countries, the move to competitive electricity markets has suppressed energy efficiency programmes.

Small-scale renewable energy generation is an important part of the portfolio of energy solutions. It adds diversity to the present rather vulnerable mix of hydro in the South Island and gas-fired power in the northern half of the North Island. But the electricity market makes new generators pay for some transmission assets that the incumbents use free of charge. And new renewable generation gets no reward for the diversity it provides.

New Zealand's electricity market is unique in that it was designed by private contract between the wholesale market participants — the generator-retailers, Transpower and the major electricity users. Details of the rules are decided by vote, and

the generator-retailers have three quarters of the voting rights on the critical spot market rules.

I fully agree with the comment by Transpower's overseas consultant in Transpower's final submission on electricity governance:

*If industry decision-making is not inherently superior to that of a body having the responsibility, capability and authority to support the public interest, then the whole theory of the Applicant's design crumbles. This is a radical conclusion, fully supported by the record. It requires a correspondingly radical reorientation of oversight and decision processes for this sector.*

SEF's final submission on electricity governance called for a retail issues working party of the new Governance Board, to propose changes to market rules that would give energy efficiency, peak load response and small-scale renewable generation a fair go in the market place. We propose that Government specifically requires the Governance Board to show progress in this area in its first year.

It will take a real culture change in both supply-side engineers and consumers for active retail participation in markets to succeed. This needs to be supported by information and at least some financial help, especially for energy efficiency which always suffers in competitive markets. But without it, retail consumers — and the environment — will pay for the next wave of investment in centralised power supply.

## Another Manapouri power increase

State-owned Meridian Energy is to spend \$ 50 M over the next three years on its Manapouri power station, upgrading the seven generators and increasing maximum output to at least 760 MW. The project will complement the \$ 200 M already spent on a second tailrace tunnel, which has already increased output from 585 MW to 710 MW. Upgrading work will include replacing the generator excitation units and busbars; refurbishing the penstocks; and replacing the cables that carry power from the underground station to the surface. Dominion Post 2002/8/6

# Review of electricity supply modelling

*(At the NZ Energy Conference, Energy Minister Pete Hodgson announced the release of a review of electricity supply forecasts, by analyst Dr Tom Halliburton. This is an edited version of the summary and conclusions of Halliburton's report. EW)*

## A review of Leyland and Transpower security of supply projections

This study reviews two reports that examine the adequacy of supply in the New Zealand electricity system. These reports are Transpower's *System Security Forecast 2001-02* and a draft of *Electricity Supply and Demand to 2015* to be published by Sinclair, Knight, Merz and the Centre for Advanced Engineering (the Leyland Report).

Transpower's report gives two sets of results:

- An overall generation shortfall assuming a '1 in 20' dry year with a probability of shortfalls from 2006-07 assuming demand growth of 2.2% / yr, or from 2004-05 for high demand growth of 2.6% / yr.
- A probability of small shortfalls in supply (less than 0.5%) from 2001-02 onwards in some parts of the country.

Leyland's study, based on what he considers to be an approximately '1 in 20' dry year, gives significant generation shortfall from 2003-04.

Both reports use years ending 30 June. A statement that shortfall might occur in 2003-04 indicates that shortfall is possible at any time from 1 July 2003 to 30 June 2004.

## Modelling Approaches

Transpower's results are from two different modelling approaches. The first is a simple stack model using one year time steps which compares current capacity against demand. The second approach, outlined in an appendix, to its report gives results from a stochastic optimisation model (OCCAM) used in conjunction with a transmission system model (SCNPD) for more detailed studies.

Leyland uses a more complex stack model, also with one year time steps, implemented on a spreadsheet. This compares total demand over the year with the generation resources available, accounts for some fuel constraints, and includes the HVDC link. Rules are incorporated to estimate

how individual plants would be loaded and what fuels would be used. The Leyland model is difficult to review due to its complexity, especially as data are not always separated from the model's calculations.

Drawbacks for the NZ system for stack models in general include inability to model the transmission grid, and no modelling of inflow variability, either within or between years (other than by scaling the year's total inflows), or of hydro storage, or of seasonal patterns in load.

## Use of Hydro Data

Leyland obtains mean hydro data by taking the average of actual outputs over the period 1984 - 2001, whereas better results would be obtained using the full record back to 1931. Transpower inflow data is thought to be derived from 72 years of records, but the exact origin of some of the data is unknown within Transpower and therefore the data cannot be readily audited. There are some weaknesses in inflow data used in both reports.

## Differences in input assumptions

There are four major differences in the assumptions used by the reports reviewed:

- Dry year inflows: Transpower reduces total hydro energy by 4047 GWh, or 16.6% as representing the lower 5 percentile on a normal distribution. From Ministry records, the March 2002 year generation was about 3300 GWh below mean. Leyland models the effect of a 30% reduction over six months only, by applying this reduction over the full year. This is not unreasonable given the limitations of the model, but is a much more severe condition than that used by Transpower.
- Plant factors: Transpower uses a New Plymouth plant factor of 95% which is clearly too high. Its assumed Huntly plant factor of 85% is perhaps reasonable for a dry period, but not for the full 12 months as it has assumed — bearing in mind that even in a dry year, much of the year will consist of apparently normal conditions. Leyland's maximum plant factor of 66% for Huntly for a normal year is somewhat pessimistic, but he uses 90% plant factor for four months during a dry period. This performance was exceeded in 1992, and accordingly Leyland's figure seems reasonable.
- Water rights: Transpower assumes no loss of water rights. Leyland assumes hydro water rights losses of 1030 GWh in a mean year, which would result in approximately 721 GWh loss in a dry year. These are high in the short term.

- New plant: Transpower assumes no new plant commissions, whereas Leyland has three categories of assumptions for new plant (committed, probable and possible).

Both studies used similar forecasts for total NZ demand, although Leyland's forecast for South Island growth seems to be too high. For NZ as a whole Leyland uses growth averaging 1.72%/yr, while Transpower uses 2.01%/yr for its medium growth scenario, which is used throughout this analysis. Actual demand for the year ending 31 March 2002 was less than that for the preceding year, because the 2001 winter supply situation suppressed demand. The figures used in both reports for 2001-02 demand are consistent with the growth that would otherwise have been expected based on 2000-01 data.

### Summary of Output Results

The estimated shortfalls in supply are:

	Mean Year	Dry Year
Leyland (Committed projects only)	2009-10	2003-04
Transpower (No new plant )	2011-12	2006-07

### Conclusions

Transpower's simple stack model suggests a limited security risk until 2006-07 (or 2004-05 for the high demand growth scenario). There are, however, indications that Transpower's model is overly optimistic in respect of plant factors, and as a result it may understate the risk.

Leyland's more complex stack model shows significant security risk as early as 2003-04. Leyland does, however, make rather pessimistic assumptions about loss of water rights. Without the loss of water rights Leyland would generate a reduced shortfall in 2003-04 which disappears in 2005-06 (due to new plant commissioning) but still exists in the following years.

There remain significant differences between the models in the way they treat dry year inflows. It is not possible to form an opinion as to which is a more accurate representation of reality in respect of these inflows. Therefore, it is not possible to form a firm judgement as to the real security risk situation.

Both Transpower and Leyland concede the limitations of their models. Further modelling, using a more comprehensive model is needed to provide a sound assessment of the security risk. Given the modelling that has already been done and the data available, a much sounder assessment of the situation could probably be produced within a time-span of 2-3 months.

## The Leyland report

CAE, 2002/10/7

*(From the Centre for Advanced Engineering's press release for the Leyland Report, which is reviewed at left EW)*

The [Leyland] report, published by the independent engineering body, CAE, and Sinclair Knight Merz, presents the findings of a review of New Zealand's future electricity needs and signals shortfalls in future electricity supply unless there is urgent intervention to bring new electricity generation on line beyond current commitments.

The report reinforces the continued vulnerability of the electricity supply during dry year events and also the increasingly urgent need to respond to the decline of the Maui gas resource. New Zealand is facing an unprecedented situation where if nothing is done there is a high risk of electricity shortages over the next few years. The report further suggests that reducing electricity consumption through energy efficiency and other demand side management measures will not on their own provide the necessary energy savings to meet future needs.

"The message from these findings must be that urgent action is required to counter these risks," says Dr George Hooper, Executive Director of CAE. "More information is needed to fully assess the implications of the study findings and to build our understanding of likely preferred pathways to meeting future needs."

The report makes a number of recommendations which the Government should implement, including:

- The assembly of an industry-wide team with access to information on all aspects of the New Zealand system so that they can make a more accurate model of supply and demand;
- Investigate the costs and economics of wind power generation and other 'new renewable' generation technologies;
- Carry out a wide-ranging review of the electricity market in New Zealand and other markets overseas to see if there is a market model which is better able to provide the country with a reliable and economic supply of electricity.

# Urgent input please!

The Ministry for the Environment is calling for information and views on two projects. Note that the closing dates are **soon (15 November)**:

- **Energy efficiency and renewable energy under the Resource Management Act (RMA)**

Objective: Ensure sustainability issues (eg solar access, wind farms, maintenance and upgrading of the national grid and distribution networks) are effectively addressed in RMA processes and documents.

Contact: [Connie.crookshanks@mfe.govt.nz](mailto:Connie.crookshanks@mfe.govt.nz)

Closing date: 15 November

- **Renewable energy sources**

Objectives: —Implement government policy of a progressive transition to renewable sources of energy

—Increase regional awareness of the costs and benefits of renewable energy.

Contact: [Tania.hood@eeca.govt.nz](mailto:Tania.hood@eeca.govt.nz)

Closing date: 15 November

SEF suggests that the first of these is the more important. To encourage members to contribute, we give some possible topics.

## What is right about the RMA?

- A focus on effects.
- A requirement for developers to consider the broad effects of their proposals, act responsibly and justify their actions to their technical peers. For example a requirement to demonstrate minimised greenhouse emissions might result in a better outcome for the developer, as well as the community as a whole.
- Encouraging developers to 'do the right thing.'
- Flexibility.

## Possible topics

- A general problem of balancing objectives, with a bias towards the status quo. Perhaps the precautionary principle has become too strong.
- A balance between preserving landscape and allowing wind turbines on exposed and thus highly visible sites.
- A balance between visual (and possible health) effects and allowing transmission lines to be upgraded.

- Allowing the consenting authority to impose conditions on other sites (possibly outside the consenting authority's area), so that, for example, a less efficient power station is in fact closed or used for dry-year reserve when a more efficient station is constructed to replace it. *(See page 20 — EW)*
- Mechanisms to consider distributed generation and/or energy efficiency projects as alternatives to conventional generation projects. There are difficulties here with remote effects, outside the consenting local authority's area, although in this case the remote effects are largely beneficial.
- National consistency might require some central government function, such as a National Climate Change Office.
- Barriers created by long-term uncertainty due to over-use of review provisions, which should be used only if there are significant unforeseen effects. The short term of consents is also a barrier to long-term projects.
- Improved consistency between consenting authorities.
- Transaction costs are very high for small projects, but these may have less adverse effects than a smaller number of large projects. Helpful measures could be guidelines, standard acceptable solutions or good practice guides, available to anyone. The Clean Air Guidelines are a very good example.
- Another helpful measure to control transaction costs might be a multi stage process.
- The present failure to present the national interest at hearings. This could be a role for government departments.
- In complex cases, possible technical support to developers (and/or opposers?) from a Climate Change Office, EECA or other external expertise.
- Strong guidelines on the information required at the application stage, to minimise delays.
- Who should have standing? Should there be a non-frivolous requirement, and who should decide what is frivolous? *(Again, see page 20 — EW)*
- Should call-in by central government be permitted?
- Links to the National Energy Efficiency and Conservation Strategy, with a focus on world best practice and a presumption that the least emitting zero cost option be adopted.

*Contributors include  
Jim Lawless, RENZ  
Steve Goldthorpe, SEF*



## EnergyWise awards 2002

### EECA supreme award

#### Christchurch City Council

Energy conservation policies and savings of some 25% since 1994. Achievements include new and retrofitted building efficiencies; cycle facilities; and the Windflow turbine on Banks peninsular.

### Booz Allen Hamilton Transport Award

#### Connexionz Ltd, Christchurch

Bus tracking system reduces idling time and makes secondary savings through a more passenger-friendly system.

### BP Renewable Energy Award

#### Easteel Industries Ltd, Hastings

Energy plant burning green sawdust.

### Contact Energy Innovation Award

#### Beca Carter Hollings & Ferner

Capital and energy savings at Hornby Mall.

### EMA Energy Manager award

(Accounts over \$ 100 000)

Awarded jointly to:

Leonid Itskovitch, Christchurch City Council

Andrew Paterson, Capital and Coast Health

### EMA Energy Manager award

Also awarded jointly:

Arnold Yeoman, Degussa Peroxide Ltd

Mohan Rao Vanamisetty, Manukau CC

### Local Government NZ Public Sector Award

#### Hamilton City Council

Energy management programme

### Pink Batts residential award

Te Whare Mahana, Waihopai Runaka,

Invercargill

Energy efficiency measures in 168 low-income houses.

### Transpower energy supplier award

Orion New Zealand Ltd

Peak load reductions of 160 MW in 2000 – 2001 (40% of Stratford CCGT capacity).

### Genesis Energy commercial/services award

Arrow Motel, Nelson

Energy savings of some \$ 39 000 /yr compared with comparably sized motels, at a capital cost of \$ 20 000.

### Industry NZ industry/manufacturing award

Degussa Peroxide Ltd

Reduced process steam use and improved heat recovery.

### EECA sustained achievement award

Christchurch City Council

\$M 4.2 invested since 1995, for cumulative savings to 2002 of \$M 12.2.

## EGB voter registration

### SEF's letter to David Caygill

On 25 October, SEF sent a letter to David Caygill, chair of the Electricity Governance Committee, signed by Molly Melhuish. The letter complained about the Electricity Governance Board voter registration process, and confirmed that SEF wants to be registered as an active participant in the EGB.

The text of the letter is:

#### *Sustainable Energy Forum*

#### *Registration for EGB Voting Process*

*On 12 October SEF wrote you saying we wished to register interest in participating in the EGB processes, but that we could not figure how to define the amount of electricity consumed by the interests we represent.*

*We received a standard letter from KPMG that mistakenly tried to define us in the 'consumer camp,' otherwise we have not received a reply from you about the issues raised. We note that applications are due by 28 October. Please consider this letter to be a pro forma application that will be clarified when you explain the issues raised.*

*Our interests are best described as businesses at the retail level which compete with the supply of electricity generation, transmission and distribution. Our businesses supply kilowatt-hours of renewable energy and negawatt-hours of conservation, and also reduce the need for new network and generation capacity (negawatts).*

*The worldwide literature on competitive electricity markets recognises the need for active participation of retail consumers and small-scale suppliers of energy services, in order to improve reliability of electricity supply, to mitigate market power of generators, and to reduce the financial and environmental costs of electricity. We believe that New Zealand cannot afford to drift further from the direction being taken by world electricity markets, and hope to work constructively to facilitate active retail participation in New Zealand's market.*

*It is becoming clear to us that the registration process in itself has already become a barrier to active demand side participation in the EGB process. This is clearly outside the spirit of the Commerce Commission determination conditions, and it seems that the industry continues to depart from the principles in the Government's Policy Statement for the industry.*

*We would appreciate an early meeting with you to discuss how we can best participate in the EGB process.*

## Insuring it ends in a flood of tears

Jeremy Leggett, *The Guardian*, 2002/10/14

The insurance industry's core business doesn't work. Competitive paring of rates to attract premium income — standard practice for years — means that even a mild crop of disasters can render insurance unprofitable. This was acceptable while investment returns were good, but not now.

As the UNEP pointed out recently, the danger is real and present. As long ago as 1993 a director of Lloyd's warned that the greenhouse effect could bankrupt the entire industry. In 1997, the world's largest reinsurance company, Munich Re, warned that such a crash could topple global capital markets. The industry takes well over a trillion dollars in annual premiums. Several hundred billion are invested for catastrophic losses: mainly earthquakes and climatic disasters. Annual losses in recent years have been unprecedented, but have never exceeded a quarter of reserves. But in a warming world, disasters are likely to be more numerous, and more intense.

The worst-case scenario is something like a full-blown hurricane hitting New York. Only a few catastrophes like this would drain the industry's reserves. A volley of smaller catastrophes could have the same effect. One of the industry's most eminent climate experts, Andrew Dlugolecki, has warned that, in a world doing nothing about greenhouse gas emissions, net wealth destruction will exceed net wealth creation by 2065.

The industry has done virtually nothing. Some companies joined a UNEP initiative, but it has become a mere talking shop. Only a few companies have instigated unilateral initiatives.

Most of the climate-risk whistleblowers come from underwriting departments. They understand risk. But the investment departments behave as though global warming has no price implications. They invest much of their income in energy, mainly in fossil fuels.

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## Blowing hot and cold

**Climate change may be slow and uncertain, but that is no excuse for inaction**

*The Economist*, 2002/7/4

*(An edited version of a business-orientated UK view of the Kyoto Protocol*  
*EW)*

What would Winston Churchill have done about climate change? What if he had been presented with a potential time bomb capable of wreaking global havoc, although not certain to do so. Warding it off would require concerted global action and economic sacrifice on the home front. Would he have done nothing? Not if you put it that way, but the answer might be less straightforward with other provisos added:

- Evidence of this problem would remain cloudy for decades
- The worst effects might not be felt for a century
- The costs of tackling the problem would start biting immediately.

That, in a nutshell, is the dilemma of climate change. It is asking a great deal of politicians to take action on behalf of voters not even born yet.

One reason for the long-term uncertainty is that the oceans, which absorb carbon from the atmosphere, act as a time-delay mechanism. Their massive thermal inertia means that the climate system responds only very slowly to changes in the composition of the atmosphere. Another complication arises from the relationship between CO<sub>2</sub>, the principal greenhouse gas (GHG), and SO<sub>2</sub>, a common pollutant. Reducing man-made emissions by cutting down on fossil-fuel use will reduce emissions of both gases. The reduction in CO<sub>2</sub> will cut warming, but the concurrent SO<sub>2</sub> cut may mask that effect by contributing to warming.

There are so many such fuzzy factors — ranging from aerosol particles to clouds to cosmic radiation — that we are likely to see disruptions to familiar climate patterns for many years, without knowing why they are happening or what to do about them. Tom Wigley, a leading climate scientist and member of the UN's IPCC, goes further. He argues in an excellent book (*US Policies on Climate Change: What Next?* Aspen Institute) that scientific uncertainties will, "make it difficult to detect the effects of such changes, probably for many decades." As evidence, he points to the negligible change in short- to medium-term temperature increases under an array of possible emissions 'pathways.' He plots various strategies for

reducing GHGs (including Kyoto), that will lead to stabilising atmospheric CO<sub>2</sub> at 550 ppm. That is roughly double the level in pre-industrial times, and is often mooted by climate scientists as a reasonable target. But even by 2040, the temperature differences between the various options will still be tiny — and certainly within the magnitude of natural climatic variance. In another four decades we will probably still not know if we have over- or under-shot.

### **Ignorance is not bliss**

That does not mean we know nothing. We do know that the greenhouse effect is real: without it our planet would be lifeless. We also know that our actions have contributed significantly. GHG concentrations have risen from around 280 ppm two centuries ago to around 370 ppm today. Surface temperatures and sea levels are rising.

There are good reasons to think temperatures will continue rising. Since what matters is not just the absolute temperature but also the rate of change, it makes sense to try to slow the increase. The worry is that a rapid rise in temperatures would lead to climate changes that could be devastating for many parts of the world. As many countries in these areas are tropical and poor, those most likely to be affected will be least able to adapt.

Colder countries also face perils: warming may trigger irreversible changes that make the earth largely uninhabitable. Given that possibility — extremely remote though it is — it is no comfort to know that stabilising GHGs at a particular level will take a very long time. Because of the oceans' thermal inertia, explains Wigley, even once atmospheric concentrations of GHGs are stabilised, it will take decades or centuries for the climate to follow suit. and even then the sea level will continue to rise, perhaps for millennia.

The human contribution to warming is the only factor we can control, so the sooner we start drawing up a long-term strategy for climate change, the better. What should such a grand plan look like? First and foremost, it must be global. Since CO<sub>2</sub> lingers in the atmosphere for a century or more, any plan must extend across several generations. The plan must recognise, too, that adaptation measures will be needed, such as flood defences. But since the most vulnerable people are those in poor countries, they will need help to adapt to rising seas and unpredictable storms. Infrastructure improvements will be useful but the best investment will probably be to help the developing world get wealthier.

We must be clear about the long-term objective. A growing chorus of scientists now argues that we need to keep temperatures from rising by much

more than 2 – 3°C. James Edmonds of the University of Maryland points out that stabilisation of concentrations is not at all the same thing as stabilisation of emissions. He concludes, "In the very long term, global net CO<sub>2</sub> emissions must eventually peak and gradually decline toward zero, regardless of whether we go for a target of 350 ppm or 1000 ppm."

### **A low-carbon world**

Such a transition can be very gradual and need not necessarily lead to a world powered only by bicycles and windmills, for two reasons that are often overlooked. One involves the type of fossil fuel used. According to Michael Grubb of the Carbon Trust (UK), the long-term problem is coal. In theory, we can burn all of the conventional oil and natural gas in the ground and still meet the most ambitious goals for tackling climate change. If we do that, we must ensure that the far greater amounts of coal and unconventional resources like tar sands never enter the atmosphere. The snag is that poor countries are likely to burn cheap domestic coal for decades.

The other reason, as Edmonds points out, is that it is net emissions of CO<sub>2</sub> that need to peak and decline. That leaves scope for the continued use of fossil fuels if some way can be found to capture and dispose of the associated CO<sub>2</sub>. One option is biological sequestration in forests and agricultural land. Another promising idea is capturing and storing CO<sub>2</sub>.

But is anyone going to pay attention to these long-term principles? Go back a decade and you will find the UN Framework Convention on Climate Change (FCCC). This treaty came from the Rio summit, and remains the basis for the international climate-policy regime, including Kyoto. The treaty commits signatories to pursuing, "the stabilisation of GHG concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system." Note that the agreement covers concentrations, not merely emissions.

### **Better than Kyoto**

Crucially, the FCCC treaty also specifies the means: any strategy, "must not be disruptive of the global economy." That was the stumbling block for the Kyoto Protocol: its targets and timetables proved unrealistic. Any revised Kyoto or follow-up accord (which must include the US and the big developing countries) should rest on three pillars:

- Governments everywhere (but especially in Europe) must understand that reductions have to start modestly, because the capital stock involved in the global energy system is vast and long-lived.

- Governments everywhere (but especially in America) must send a powerful signal that carbon is going out of fashion.
- Promote science and technology. That means encouraging basic research, giving incentives for spreading the results and finding ways to adapt, and help the poor world adapt.

Adaptation will be especially important if the deep cuts in emissions are left for later. That, observes Wigley, means that by mid-century:

*Very large investments would have to have been made — and yet the ‘return’ on these investments would not be visible. Continued investment is going to require more faith in climate science than currently appears to be the case.*

### Miracles sometimes happen

Two decades ago, the world faced a similar dilemma: a hole in the ozone layer. Some inconclusive signs suggested that it was man-made. There was the distant threat of disaster, and the knowledge that a concerted response was required, and the Montreal Protocol was signed in 1987. That deal has proved surprisingly successful, and there are already signs that the ozone layer is on the way to recovery.

This story holds several lessons for the admittedly far more complex climate problem:

- It is the rich world which has caused the problem and which must lead the way in solving it
- The poor world must agree to help, but is right to insist on being given time — as well as money and technology — to help it adjust
- Industry holds the key
- The uncertainty surrounding a threat such as climate change is no excuse for inaction.

Churchill would surely have approved.

*EnergyWatch adds:*

If both the following are correct:

- The prediction quoted by Leggett (page 10), of net wealth destruction exceeding net wealth creation by 2065, and;
- We cannot make any significant difference to atmospheric CO<sub>2</sub> concentrations before 2040 (article above, top of page 11).

Can we still prevent the collapse of wealth creation, or are we too late to do more than defer it?

## Bringing road and rail into balance

Kerry Wood

The newly-formed Rail Freight Action Group have been calling for reorganisation of the railways. Spokesman Cedric Allen claims that government ownership of the rail tracks will make the railways ‘robust and efficient’ because of open access to the tracks, ‘creating an efficient, competitive market.’

So what sort of market are the railways in now? Surely the markets that matter are not transport by rail, but land transport, or all transport. If Tranz Rail are a monopoly operator they are concealing their monopoly profits very well.

Allen describes open access as, “exactly parallel to how the roading system works.” Well, yes, if you can imagine single-lane state highways with several kilometres between passing places and no alternative route. Open access has been tried in the UK but has done nothing for either costs or competitiveness. The system was so inflexible that on at least one occasion a locomotive was sent out for overhaul, and was returned by road because the arrangements needed to deliver it by rail were too difficult. Worse, the UK model had insufficient flexibility for track maintenance, with fatal results.

If the details of shared-track competition can be worked out, then what? The new competitors will need locomotives suitable for New Zealand’s 1067 mm track gauge and tight tunnels, and will pay twice as much as Tranz Rail because they have no existing fleet to rebuild and modernise. They will face similar problems with rolling stock, depots and freight yards, inevitably putting themselves in a worse financial position than Tranz Rail. Is this a recipe for success?

A proven and reasonably effective model is competing operators on separate routes: it was used in the UK for about a century, up to 1947. But in New Zealand the alternative routes are limited to Auckland – Westfield, Taumarunui – Marton and Palmerston North – Wellington: not much basis for competition here. Another option is dividing the system between operators and using benchmarking to provide a proxy rail-rail competition, but again the New Zealand system is unsuitable: whoever wins the Auckland – Wellington section will put the opposition out of business. Possibly more realistic is a single operator, benchmarked against overseas operators. This system is already being used in Australia, to provide proxy competition in another area of

natural transport monopoly: urban bus services. Perhaps it is time to take another look at the SOE model for railways, perhaps with benchmarking against one or more comparable overseas systems.

### Transport subsidies

Focussing on rail in isolation avoids the real problem, and the Road Transport Forum's Tony Friedlander recently tried a further distraction by saying that subsidies to rail are acceptable if they don't come from truck operators. Nobody suggested they would, but the implication that truck operators somehow have superior efficiency and market purity is quite ingenious.

In fact the really big subsidies — in the form of unpriced external costs — go to road users. Figures identified by Ministry of Transport studies in 1995 and 1996 are given in the table; bracketed figures give indicative current values (assuming that costs are proportional to vehicle kilometres) where no up-to-date information is available:

	\$M 1993	\$M 2002
Territorial local authority funds (also used for footpaths etc)	265	330
Noise ) best estimate	290	(380)
Local air quality ) values	700	(900)
Greenhouse gases ) values	290	(380)
Water quality )	100	(130)
Less revenue transferred to the crown account	-208	-600
Capital charge (6.4 % interest on a depreciated replacement value of \$ 25.8 billion [1993])	1650	(2100)
<b>Total</b>	<b>3087</b>	<b>(~3600)</b>

### Uncertain costs

There are some missing externalities in the table, such as crash costs for pedestrians and cyclists, and 'free' parking, and there is probably also some double counting. The most important errors will be in the environmental values. The MoT give a five-fold to twenty-fold range for their figures for environmental externalities, but in each case the quoted 'most probable' figure is near the low end of the range.

Large as they are, the uncertainties must not be allowed to blur the fact that these are real costs, already borne by the community. User charges are unlikely to be 100% right, but ignored costs are certain to be 100% wrong.

The largest externality is the absence of any capital charge for the roading asset. Rail could be treated the same way, but charging all users true costs would be more economically efficient — subsidising both would tend to lead to over-use of

both. The next largest externality is for the roading contribution to local air quality, which is probably an underestimate; we now know that air pollution from roading sources kills nearly as many people as road crashes. Another important externality is that about half of local roading costs come from rates.

Overall, there is a current effective subsidy to road freight of roughly \$ 1.6 billion a year (45% of the total), with roughly another \$ 2 billion a year going to support car and light truck use.

Few of these externalities apply to Tranz Rail, and those that do probably have values an order of magnitude lower than for road.

### Transport strategy

A more balanced policy may be in sight at last. At the NZ Energy Conference Roger Toleman, Deputy Secretary at the Ministry of Transport, promised that the long-awaited transport strategy will be released before Christmas. It will be followed next March by a detailed look at transport costs, initially focussing on road and rail. Toleman said that the strategy will focus closely on sustainability, but warned that it is rarely possible to set a single goal in transport. Integration, safety and responsiveness will also be considered.

Features of the strategy will include:

- A renewed emphasis on common law rights to safe access.
- In-service emissions checks, monitoring the exhausts of passing vehicles.
- Public-private partnerships to build new roads.
- Electronic road user charges, initially for heavy trucks only but eventually extending to all vehicles and replacing fuel taxes.

The switch to electronic road user charges is particularly interesting in the context of a new focus on real costs. Electronic charging will be linked to a central computer and an on-board GPS unit, and will allow charging of something reasonably close to actual costs for any particular road and time of day.

However, not everyone is happy with the MoT's draft proposals. The ACT Party's transport spokesperson Deborah Coddington described the draft as an appalling document, and said that road users will be forced to take 'responsibility for all the costs' associated with transport, including such things as noise, emissions and water quality. Coddington claimed that the Road Transport Forum and the AA have estimated that, "the cost impacts of the strategy could increase petrol tax by between 33 cents and \$1 a litre — effectively doubling the cost of petrol."

## More on energy risk management

We have commented before on energy supply risks in the longer term, but what about the short term: this year or next? An article in the Washington Post<sup>1</sup> is revealingly upbeat:

*A US-led ouster of Iraqi President Saddam Hussein could open a bonanza for American oil companies long banished from Iraq, scuttling oil deals between Baghdad and Russia, France and other countries...*

Others are less optimistic. An 11 September article in Le Monde<sup>1</sup> points out that:

*[The al-Qaeda terrorists'] aim is to drive a wedge into the Arab world that would make it possible to eliminate its more moderate and modern-thinking elements.*

*As they say in Las Vegas, Bush has chosen a 'no-win game'.*

Bush may be able to bribe and bully some sort of UN acquiescence but cannot build a legitimate coalition. Le Monde again:

*The tensions caused in the Arab world by the aftermath of September 11 have reached breaking point. Muslim moderates and reformists already faced threats whenever they attempted to make their voices heard before the attacks on the US. An American strike against Iraq would further weaken them.*

Of course the US can win the war, but what about the subsequent peace? David Hirst<sup>2</sup> says that Arabs see 'regime change' as a new name for colonisation, and highlights the complexities:

*"For us," says Muhamma Said, a columnist at Egypt's leading newspaper al-Ahram, "the West always preferred control to democracy. Now 90% of the problem flows from the Arab-Israel conflict, that continuous reminder of our colonised past."*

Hirst goes on to say:

*The price of failure, in so strategic, complex and volatile a region, would make the postwar falterings in Afghanistan pale into insignificance, exacerbating both the Arabs' internal crisis and its external consequences. The Arabs would probably not be the only ones to pay the price.*

Historian Simon Schama<sup>1</sup> highlights how Bush in particular is so provocative:

*The more serious problem with presidential rhetoric was that the Manichean struggle between good and evil, freedom and terror, was not just the beginning*

<sup>1</sup> Guardian Weekly, 2002/9/19-25

<sup>2</sup> Guardian Weekly, 2002/9/12-18

*but apparently also the end of any sustained attempt to articulate just what, in this particular life-or-death struggle, was truly at stake...*

*Clinton was... commendably clear about what the battle lines of the already bloody new century would be: the conflict between those who not only claimed a monopoly of wisdom, but the right to impose it on everyone else, against those who claimed neither. Put another way, the fight is between power based on revelation (and thus not open to argument) and power based on persuasion (and thus conditional on argument): militant theocracy against the tolerant Enlightenment.*

John Pilger<sup>3</sup> points out another reason for urgency:

*...the dire state of the world's number one source of oil, Iraq's neighbour, Saudi Arabia. This medieval throwback is America's most important client in the region... and Washington is losing control...*

*Because of the American connection with Saudi Arabia, the reaction and opposition within the deeply fundamentalist kingdom has been growing. Al-Qaeda probably enjoys support or influence among a majority of the ruling families. The Americans are desperately urging the caretaker ruler, Prince Abdullah, to 'modernise,' but the American pressure is having the opposite effect; popular support for al-Qaeda is unabated.*

*Bush faces a dilemma. An attack on Iraq and conflict in the Middle East would provide a timely boost for America's military-industry-complex... divert attention from a sick economy and the corporate corruption scandals... [but] could also give al-Qaeda the moment they have been waiting for and allow it to take over Saudi Arabia through proxies and control the most important oil fields on Earth.*

In such a no-win game, New Zealand should take care. We should avoid military involvement unless we are clearly on the side of the tolerant Enlightenment — and a UN mandate is no guarantee. This approach will lose us any benefits of cosyng up to a superpower in desperate need of a regime change, but could reap major gains when it comes to the inevitable negotiations.

### Good intelligence

According to Russian military intelligence sources, the US begun concentrating forces around Iraq months ago, using the war in Afghanistan as a cover. The sources thought the US government was "preparing to launch a series of wars in the Middle East" and the attack on Iraq would begin in September. The Independent, 2002/8/11 quoting Nezavisimaya Gazeta, 2002/2/6

<sup>3</sup> 'A war based on lies,' 2002/8/29

# Carless days again?

Kerry Wood

Suppose that the commentators quoted opposite are right: US President George Bush invades Iraq, only to have the whole Middle East present him — and us — with a nasty surprise. Saudi Arabia, Iraq and Kuwait between them produce about 20% of world oil production, and Iran, the UAE and Oman another 10%. Oil production systems are only too easy to sabotage, so it is not difficult to imagine a scenario leading to oil scarcity in New Zealand.

Petroleum reserves already in the country will last six weeks or so, and there will be another four weeks or so of imported fuels already on the way (but then a further four weeks delay before supplies resume after the crisis). Indigenous production will last indefinitely — at least from an emergency perspective — and presumably can be refined to an acceptable standard at Marsden Point. We can get through a short crisis without taking any conservation measures, but will we know at the beginning how long the crisis will be? Our most important liquid fuel use is for transport, and road users — especially commuters — will inevitably bear the brunt of any cuts. Managing scarcity will be a key objective if we are to minimise economic damage.

Another helpful objective might be to 'kick-start' developments useful in a post-Kyoto environment. Measures such as lower urban speed limits are routine in many countries but near-impossible to justify in New Zealand (although the evidence is plain enough). If justified on an emergency basis they would have the chance to demonstrate their benefits.

An important limitation will be lead time. Emergency legislation can allow some corners to be cut, such as permitting speed limits lower than posted, or introducing a new bus lane in a few days, by taking over a traffic lane. But of course, no legislation can create new buses to run on the new lane.

Useful measures might include:

- Put on additional public transport services where possible. A few reserve buses and trains will be available, and others can come from overnight servicing or deferred overhauls, but the biggest source of vehicles is likely to be tour coaches — tourists will face fuel scarcities too.
- Speed up public transport where possible, so as to increase capacity by improving vehicle

utilisation. On multi-lane highways (including motorways), taking lanes for a busway may be practicable.

- Another method of speeding up services is to reduce time at stops. Improved ticketing could reduce peak hour travel times by as much as 20% on some systems, or free rides might be considered as an emergency measure.
- A simple way of suppressing demand for travel by car is to reduce parking capacity, which is higher in NZ's main centres than in most overseas cities. Central area options might include closing all on-street parking, or all local authority parking, or a given proportion of all but the smallest off-street parks — public or private. Parking bans near schools might encourage parents to allow children to walk or cycle (and school runs by car are particularly inefficient because the vehicle and driver make a return journey, usually with a cold engine).
- Lower open road speed limits will reduce fuel use: 80 km/h instead of 100 km/h would be appropriate. However, a broader approach would be to reduce all speed limits by the same amount. This would allow a simple rule: *all speeds 20 km/h slower than posted*. In a 50 km/h zone this would make very little difference to fuel consumption, but would bring savings in another way: improved pedestrian and cyclist safety, and hopefully greater use of these modes.
- Freight can be transferred onto rail or coastal shipping in some cases, but any transfer would soon create a shortage of ships, wagons and locomotives.

Fuel rationing is likely to be needed in any longer crisis, but will need lead time to set up a scheme and print coupons. We can only hope that this has already been done, and the government now has a better contingency plan than the exhortation and 'carless days' of twenty years ago.

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## More bus patronage

Bus patronage in Christchurch and Timaru has risen to 13 million passenger trips per year — a level not seen since 1988. The massive increase in the last year, 23%, is the third highest annual increase on record: larger increases only occurred in 1932 (32%) and 1907 (107%).

Sustainable Transport Network, 2002/8

## London to spy on its motorists

Rashmee Ahmed,  
The Times of India, 2002/7/31

*(An Asian take on London's congestion charging scheme, obtained through Debi Goenka of Sustran-discuss EW)*

London is soon to become the world's first city to spy on motorists with cameras and then bill them for the privilege of driving into the centre of town for business, pleasure or a simple raincheck. The controversial scheme, billed as congestion charging, has passed the last legal hurdles and is considered an important test case for big cities all over the world.

There is a lot at stake for London, say city planners, who bewail the laughable official figures, which put the average London car speed at marginally slower than the 19th century horse and cart. A spokeswoman for London mayor Ken Livingstone's office told this paper the scheme was, "the first of its kind and different from the two others existing, Singapore and Oslo." Both cities use 'smartcards,' automated booths and road sensors to harvest tolls, which in Oslo's case run to millions of pounds a year in revenue.

London's camera-policed charging is thought likely to be even more accurate, and deadly. A triumphant Livingstone declared that the world's eyes would be on London with a view to introducing copycat plans if his were successful.

The scheme envisages a £ 5 (€ 7.90) daily charge for motorists driving into a designated central London zone between 07.00 and 18.30 Monday to Friday. Motorists, who will be able to buy daily, weekly, monthly or even annual passes, will have to pay a hefty fine for dodging charges. The scheme will be enforced by means of Automatic Number Plate Recognition, a system routinely employed by London police to address the risk of terrorist attacks.

London's proposed congestion charges, which are to be introduced early in 2003, have been described by some city planners as all for a good cause, but many Londoners are worried, particularly those within the golden congestion charging zone, which will become unfashionably expensive to drive in, though Livingstone insists it would be easier to breathe and heaven for pedestrians and cyclists.

## Is our Kyoto commitment up in smoke?

Claire Miller  
The Age (Melbourne)  
2002/7/5

*(A heavily edited version of an article on the Australian decision not to ratify the Kyoto Protocol. See also page 23: "New analysis..." EW)*

Sometimes, words speak louder than actions. They certainly did for staff at the Australian Greenhouse Office when the Prime Minister announced he would not ratify the Kyoto Protocol. It was World Environment Day. Apparently it was a unilateral decision, made as John Howard was finalising arrangements to visit the White House. Only two hours earlier, Environment Minister David Kemp had assured a UN meeting that cabinet had not yet decided. The announcement left staff at the greenhouse office in despair.

The greenhouse office administers an A\$ 1 bn programme of mostly voluntary measures to control emissions. It is also developing the regulatory and policy frameworks to meet the Kyoto Protocol target cost-effectively, and advises on the implications of major projects. It seems governments have rarely heeded the advice, given that emissions rose 17.4% during the 90s. New oil, gas and coal projects will make it that much harder again to meet the target.

Insiders say the government's interest in climate change issues began to wane in early 2001, when the US withdrew from the Kyoto Protocol. The situation worsened after the federal election when Kemp took over from Robert Hill. A Kemp spokeswoman referred to ill-informed comments that, "completely misrepresent what is happening in the Australian Greenhouse Office," and expressed commitment. But one greenhouse office manager, speaking on condition of anonymity, says real progress had all but stalled months ago for want of political leadership and direction. In the vacuum, the manager says, the agency is rudderless, having also lost its internal leadership with the resignation of chief executive officer Gwen Andrews in March, followed by her deputy Colin Grant. Neither position has been advertised.

The agency is not entirely paralysed. Under Kemp's recently signed Climate Action Plan, the manager says it is busy handing over intellectual capital to the US. "So far the flow of information is all one way," the manager says of the internally dubbed 'climate inaction plan.' "We are at the



forefront in the development of world greenhouse mitigation thinking... Our work is valuable and we are in the process of handing it all to the US. In terms of global greenhouse gas reduction this is undoubtedly a good thing, but competitively for Australia it is probably not."

It might not matter if the greenhouse office were reduced to an expensive piece of window dressing, except that almost everyone in business — with the exception of the fossil fuel and aluminium lobbies — is concerned that failing to meet the Kyoto target will only cause more pain later. They are looking to the government for leadership.

### Agreement inevitable

John Hine from the Business Council of Australia says a global agreement is inevitable, so meeting the Kyoto target now will make it that much easier and cheaper to meet future targets. "Part of the issue with emissions reductions is management — understanding the implications and then working out how to manage the changes at least cost to the Australian community," Hine says. "And companies are recognising that the best way to do this is to start doing it now."

Clive Hamilton, executive director of the Australia Institute, argues that Australia could easily and cheaply meet its target. He says studies by the Australian Bureau of Agricultural and Resource Economics and others have found that national energy consumption could be cut by 20 – 40% at no net cost. Australia could easily end up with emissions credits, to be traded to countries like Japan that will struggle to meet their Kyoto target. However, the windfall is available only if Australia ratifies the protocol.

At the same time, the Americans are not exactly sitting on their hands, warns Alan Tate, director of the corporate consultancy Cambiar. He says the US is preparing to cash in on the transition to a carbon-light economy, with government money pouring into developing clean production and renewable energy technologies:

*So while the US Government is saying it will not join the protocol, it is ensuring that the nation is a part of the new industrial world. The problem in Australia is that we are mirroring the Bush administration in so far as not being a part of Kyoto, but we have not gone beyond that in taking action to get our economy on track and prepared for the changes ahead. The danger is that the US can turn around at any stage and rejoin the global agreement and just leave Australia sitting in no-man's land. The US has power and authority and can expect to be accommodated by the rest of the world. If Australia changes its mind, it won't be.*

## World Summit post-mortem

Energy-Wise News, 2002/8

The Worldwatch Institute's assessment of the World Summit:

- The agreement reached in Johannesburg is weak on targets and timetables. It will also be more difficult to enforce as it lacks sanctions for non-compliance. (To the contrary, such sanctions were included in a world trade agreement struck last year) The question now is whether government leaders will enact and enforce laws needed to make the vision of a sustainable world a reality.
- World Summit deliberations revealed widening splits between nations. Europe, for example, is now far more willing than the US to adopt tough new environmental standards. The next few years will reveal whether progress over the last two decades on pressing environmental and social issues will continue.
- A vigorous debate over renewable energy lasted right up to the end of the Summit, with Europe and several Latin American countries arguing for a firm commitment to move away from fossil fuels. Although the US, China and OPEC were ultimately successful in weakening this provision, the fact that the debate progressed as far as it did reflects strengthened confidence in the ability of new energy technologies to move quickly onto the marketplace, a perspective that was shared by many industry representatives in Johannesburg.

*EnergyWatch adds:*

Acting on renewable energy sources with "a sense of urgency," without targets, does little to inspire confidence, but two outcomes look more hopeful:

- Russia intends to ratify the Kyoto Protocol. If this report proves correct it means that the protocol will come into force, probably in early 2003.
- Our Ministry of Foreign Affairs and Trade are wrestling with the small print, which should provide helpful support to the Kyoto Protocol.



# Disasters waiting to happen

Andrew Simms  
The Guardian, 2002/6/19

As the US finally concedes that global warming is happening, dramatic new data is emerging on the impact of 'natural' disasters. Neither rich nor poor countries can escape. But the biggest question raised is for the developing world. After a decade of UN conferences designed to end poverty and save the world, disasters driven by global warming are causing catastrophe for the poor majority and political and economic insecurity for the rest.

Although the number of people killed by disasters has more than halved over the past three decades, the number affected — a definition which includes being injured or made homeless — has grown enormously. According to the World Disasters Report, it is up from 740 million in the 1970s to more than two billion in the past decade (these figures include some double counting due to people being repeatedly affected). Reported economic losses, calculated at current values, have risen from € 131 bn in the 1970s to € 629 bn in the 1990s. Actual losses are greater. The number of reported disasters rose from 1110 to 2742 in the period.

In regions such as Oceania in the past 30 years, the number affected has increased 65-fold. Yet in all the international political efforts to agree targets for reducing poverty and protecting the environment — now focused on the so-called millennium development goals — no one has taken serious account of the increasing impact of disasters. Heads of state will go to Johannesburg this summer to make the millennium goals a reality. They include doubling the proportion of people with access to drinking water by 2015, halving absolute poverty and improving the lives of 100 million slum dwellers by 2020. But without modelling the impact of disasters, this is wishful thinking. The Bangladesh centre for advanced studies calculates that every dollar invested in the country is absorbed by the cost of dealing with predictable disasters.

It would also be a mistake for industrialised countries to think they can weather the storms. The disasters boomerang will hit the rich world in a number of ways. Insurance firms are backing away from providing cover to the 10% of UK households prone to flooding. Long-term projections from big insurers, such as CGNU, suggest that the upward curve of economic

damage from global warming will overtake gross world product by 2065, effectively bankrupting the global economy. Serious destabilisation is likely well before that date. Environmental refugees now outstrip political refugees: an estimated 25 million people are displaced by environmental causes, more than double the 12 million political refugees. They are proving such a contentious issue that the UN high commissioner for refugees does not want them to have international legal status requiring protection. Where global warming-driven disasters are forcing people to flee their homes, responsibility falls heavily on rich countries whose greenhouse gas emissions have largely created the problem. Their challenge is to provide financial and technical support, and to create protective status for environmental refugees.

There has been no global assessment of the number likely to be displaced by a rise in sea level of half a metre to one metre, both possible in the foreseeable future. Following such a rise, millions would be displaced in countries across the developing world such as Bangladesh, Nigeria, Egypt and Guyana. At least five island nations would become uninhabitable. These include the Maldives, the Marshall Islands and Tuvalu, which, frustrated by international inaction, are seeking legal assistance to take the world's biggest polluters to court.

There has also been no global assessment of the likely costs to poor countries incurred by the need to adapt to global warming. Being better prepared can make a huge difference. Two million lives were saved in the 1990s in Bangladesh through co-ordinated evacuations. But it is no longer sufficient to leave disaster management to the specialists. Global warming means a whole new way of thinking is necessary.

*Andrew Simms is policy director of the New Economics Foundation and co-author of the World Disasters Report 2002, published by the International Federation of the Red Cross and Red Crescent Societies*

## France Testing Satellite Speed Control

France is preparing to test satellite technology that will automatically slow speeding cars and override driver control. When drivers break the speed limit either a warning message will flash up, or the automatic cut-off will take hold, slowing them down to the legal velocity. The accelerator pedal of a targeted car will be inoperable, because the fuel injection will be regulated by an onboard computer connected to a Global Positioning System unit. The project could be in a marketable form in 2010.

Newsroom, 2002/10/9

# US businesses face risks in ignoring climate change

Dow Jones Newswires, 2002/7/2

US businesses that ignore the looming issue of global climate change face potential risks and lost opportunities as the rest of the developed world embraces the Kyoto climate accord, experts have warned. This poses challenges for US companies doing business in Europe and Japan, as well as lost potential for new business opportunities.

"Taking action on climate change is good for business," said Joseph Romm, a former Clinton administration Energy Department official who now heads the nonprofit Center for Energy and Climate Solutions. "There is no company in this country that can't profit by creating an effective greenhouse gas strategy," Romm said, citing the bottom-line benefits of reducing energy consumption and corresponding carbon dioxide emissions.

Developing a climate change policy is a way for companies to manage risk, said John Palmisano, managing director of Evolution Markets, a brokerage and consulting firm active in 'environmental credit markets' involving emissions trading. "When you manage greenhouse gas emissions, you're managing energy," Palmisano said. "Reducing energy demand, 'lowers costs and adds to the bottom line.'" Palmisano also cited ramifications for US companies in light of emerging markets for greenhouse gas emissions reductions credits. "Once the Kyoto pact is ratified, this emerging market will 'explode,' and it likely won't include American companies because the US isn't participating in the Kyoto process," he said.

Michael Marvin, president of the Business Council for Sustainable Energy, warned that US businesses face potential trade problems with Europe and Japan as a result of the Bush administration's withdrawal from Kyoto. "Compliance with the protocol will necessarily increase energy costs for companies, raising competition issues that could rise to the level of World Trade Organization complaints," Marvin said.

The comments came at a press briefing sponsored by Environmental Media Services, which sought to bring attention to a recent report by the Conference Board calling for businesses to pay attention to the climate-change issue.

"Companies that choose to ignore climate change in their planning are betting that worldwide

concern about climate change will prove illusory," the Conference Board report said, "but that represents a huge gamble." If right, they avoid costly investments in new processes and renewable energy. But if wrong, they risk falling behind to Europe and Japan in market-disruptive innovative technology. "Disruptive technologies are those that seemingly overnight alter the terms of competition in an industry," the report said, citing the way personal computers supplanted mainframes as a 'classic case.' More relevant to the environmental debate, the report also cited the introduction of new formulations of refrigerants and solvents in response to the problem of stratospheric ozone depletion.

The Conference Board advised businesses to hedge their bets by assessing greenhouse gas emissions, noting that increasingly shareholders are demanding an accounting of emissions. This would be a first step toward participating in an international market for greenhouse gas reductions. Further, by identifying productivity and energy efficiency gains that would reduce emissions, companies will, "save money, improve market share and reduce the potential for negative publicity."

## Rain dampens spot prices

The average spot price of electricity at Haywards averaged \$ 33.47/MW for one week in August, compared with \$ 37.17 for the previous week. This 10% reduction was linked to heavy rain in the southern South Island catchments, with a seven day rainfall of about 125% of the average at that time of year. Dominion Post 2002/8/22

## New oil exploration permits issued in Taranaki

Twenty-one new petroleum exploration permits have been issued for the onshore and offshore Taranaki Basin. Forty one competitive bids were received for the 26 blocks on offer. The 21 permits went to 19 different companies, of which four were local. Seven of the remaining companies are from the United States, six are from Australia and three are from Europe. As part of their bids petroleum exploration companies were required to submit programmes of exploration work in each permit area. The company, or group of companies, with the most intensive exploration programme were most likely to win the exploration permit.

NZ Government, 2002/8/9

## Contraction & Convergence

Contraction & Convergence has received a very welcome boost from the World Bank, even if they did not quite put it that way. The Bank's annual World Development Report for 2003 was published in time for the Johannesburg Summit on Sustainable Development, in just the same way as their 1992 report was published in time for the Rio Summit. It is the Bank's flagship publication.

In 1992 the bank said 'grandfathering' emissions rights was "the most feasible option."

In the current report they say:

*How can emissions reductions — beyond those that pay for themselves — be financed? This remains the most contentious issue in climate change mitigation.*

*In carbon markets, for instance, the allocation of emission allowances determines who pays for reductions.*

*In the view of many, equal per capita allocation of allowances across the world — perhaps entailing transfers from rich emitters to poor countries — would constitute an equitable allocation.*

*But such an allocation rule, if imposed abruptly, might disrupt the rich emitters' economies and thus would not secure their participation in the scheme.*

*On the other hand, a strong link between past emissions and current allowances, applied globally, would hurt the development prospects of poor nations and thus be unacceptable.*

*Hybrid allocation schemes that blend per capita and 'grandfathered' allocations and shift toward the former over time have been proposed as a compromise.*

This is Contraction & Convergence in all but name: the idea that all but the least developed nations should contract their emissions, and all should converge on a target emissions level: say 400 kilogrammes a year per head of population. A sample curve published in EnergyWatch (September 2001) shows total emissions by the OECD countries peaking in 2000 and total emissions by all countries peaking in about 2030, to achieve convergence by 2050 and contraction by 2110. This would give a maximum 450 ppm of atmospheric CO<sub>2</sub>.

More information from the Global Commons Institute website. [www.gci.org.uk](http://www.gci.org.uk)

## Stratford Power Station appeal rejected

Taranaki Energy Watch

The Environment Court's decision on two appeals against a resource consent for the Stratford Power Station were released in mid-October. The appeals were by the Environmental Defence Society Inc (EDS) and Taranaki Energy Watch Inc. The decision has gone against them. It makes depressing reading, with some very weak points:

- The proponents claim that each unit of power generated in the new plant would have lower CO<sub>2</sub> emissions than the existing fossil-fuelled plants (Huntly and New Plymouth). EDS requested that the resource consent should require Stratford to perform at least as well as the average of existing CCGT plants, but this was rejected.  
The problem is that Stratford will be largely run on Kapuni gas, which contains over 40% of CO<sub>2</sub>. In round figures, instead of burning a tonne of gas and getting 2.75 t of CO<sub>2</sub>, they will burn 1.65 t of gas to get the same amount of combustible gas. The extra 0.65 t is CO<sub>2</sub>, which will go straight through, to give a total of 3.4 t of CO<sub>2</sub> emitted: quite a lot worse than other CCGT stations. The claimed advantage of lower CO<sub>2</sub> emissions will not be met.
- A mistake made in evidence but corrected later in the hearing was that the Stratford station will emit only one millionth of world-wide anthropogenic emissions of CO<sub>2</sub>. The true figure is more like a ten thousandth (a seven thousandth on Kapuni gas), yet the wrong figure is given in the judgement.
- The purpose of arguing that emissions would be very small in world terms was to show that they could not be separated from the effects of other emission sources. Scientists could not possibly trace the effects of a particular source this size.  
If this argument is accepted, then any single CO<sub>2</sub> source must be acceptable, regardless of size. It is not individual sources that matter, but the totality, and especially increases.
- The judgement quoted evidence that removal of carbon dioxide for underground disposal was "off the planet," when it is already being done (at the Sleipner gasfield in the Norwegian North Sea). What is off the planet is our attitudes to emissions from our 'clean green' country.

To be fair to the court, their job was to review the decision by Taranaki Regional Council, who are not yet required to take a national or international view on carbon dioxide emissions, but the decision remains disappointing.

# Miniwhats

## More emissions?

The Natural Gas corporation (NGC) may be planning to sell their power stations. They have applied to delete conditions 4 – 10 of their Resource Consent (relating to the mitigation of CO<sub>2</sub> emissions) from the conditions of the existing Taranaki Combined Cycle station: the tree-planting and energy efficiency conditions. Submissions to the Taranaki Regional Council must be received by 18 November.

NGC is either packaging this station for sale or intending to burn untreated Kapuni gas. With a carbon tax being signalled from 2007, burning as much Kapuni gas as possible through this station in the interim would make very good business sense.

Taranaki Energy Watch ask that as many organisations and individuals as possible be made aware of what is happening and are encouraged to make submissions. Submissions need to give your contact details, the decision you want the council to make and whether you wish to be heard in support of your submission.

The application number is 1900.

The applicant is Stratford Power Ltd, East Rd, Stratford — address for service, Environmental Management Services (attention Stephen Daysh), PO Box 149, Napier. A copy of your submission should be sent there.

The Taranaki Regional Council's address is Private Bag 713, Stratford, phone (06) 765 7127, fax (06) 765 5097 Taranaki Energy Watch

## Wind farming in Scotland

Scottish Power has spent £ 21 M (€ 33 M) to install 46 turbines on the Kintyre peninsula, which has one of the best wind resources in Europe. The towers are 450 m above the sea and their 30 MW installed capacity displaces the emission of 92 000 t of CO<sub>2</sub>. Beinn an Tuirc was commissioned last December and is Scottish Power's eleventh windfarm in the UK. The utility now owns 150 MW of renewable energy generation and plans to invest £ 500 M (€ 770 M) to add 785 MW of wind by 2010, which will meet half of Scotland's renewable energy targets. Another windfarm in Argyll has received consent and will benefit the local Vestas factory that has been built on the site of a former Royal Air Force base near the town of Machrihanish. The factory will produce Britain's first domestic-built turbines.

Refocus Weekly, <http://www.re-focus.net>

## Wind farming in Ireland

A green energy supplier in Ireland has started construction of the country's largest windfarm, a 25 MW facility that will be operational early next year. Airtricity says the € 35 M Sligo facility at Kings Mountain will involve ten Nordex 2.5 MW turbines, which are the largest machines available. The facility was to have been completed last year, but delays in connecting to the grid meant that Airtricity failed to meet its obligation for green power during the winter. "We are obliged to remedy this short-term situation by over supplying green power this year," says CEO Eddie O'Connor. "With a project of this scale underway, Airtricity is in an even stronger position to ensure the supply of green energy to all of our customers." The Irish government has approved € 400 M of green energy projects this year, which will double the generation from wind, hydro and biomass. Currently, 7% of Ireland's electricity is generated from renewables, and a committee of the Assembly recently set a target of 15% from renewables by 2010. Refocus Weekly, <http://www.re-focus.net>

## UK nuclear power bail-out

The UK government has announced a £ 410 million (€ 650 M) bail-out of British Energy, the privatised company that runs the nuclear power stations generating about a quarter of Britain's electricity. The bail-out comes only months after the failure of Railtrack (privatised at about the same time), and after BE paid a large dividend to shareholders. BE blames the collapse of wholesale electricity prices, due to oversupply, and BE's need to run stations on base load for safety reasons. Ofgen, the electricity regulator, has ruled out calls to rig the market in favour of nuclear power, even though the government is relying on the industry to help meet its targets for cutting CO<sub>2</sub> emissions.

Guardian Weekly, 2002/9/12

## "More tests for well in pipeline"

The Dominion Post used this headline when it tangled its metaphors in a report of testing the Huinga well, in onshore Taranaki. The report went on to say that only drilling mud and filtrate had been recovered, with 'minor amounts of gas,' which can be found almost anywhere in Taranaki. Further tests were scheduled after an acid wash.

Dominion Post 2002/8/2

## \$M 20 in energy savings

In August, the Energy Efficiency and Conservation Authority announced energy savings in 2001 of \$M 20.5, made by the 550 New Zealand companies participating in the EnergyWise programme. The largest saving by a single company was \$M 3.4

saved by Carter Holt Harvey, who rescheduled electrical loads to minimise peak hour demand; improved hot water heat recovery; and increased use of wood waste as a fuel. Not all savings were in manufacturing, with the National Bank saving \$ 260 000 by attending to lighting and air conditioning at branches and running a 'switch off' campaign. EECA

*(Most of these savings are cumulative, making the figures quite impressive in the current business climate. Assuming that 10% of savings are lost in each subsequent year, due to plant closures, backsliding on switch-off and so on, the total saving over thirty years is some \$M 200. Ten percent is probably conservative for this kind of loss, because of increasing awareness of the need for conservation. Assuming 7.5% annual losses instead of 10% increases the cumulative gain to \$M 250, or 5% gives \$M 320. And those are just the cumulative figures from efficiency gains in 2001. There will be more this year, and next, and so on. EW)*

### **Bikes faster in London**

In Central London the average speed for door-to-door journeys by cycle (including parking) is 8.8 km/h. This compares with 5.6 km/h for public transport and 4.5 km/h for cars.

Transport Statistics for London 1999

### **NGC Reaches Conditional Sale Agreement**

Natural Gas Corporation Holdings Limited (NGC) announced that it has reached a conditional agreement to sell its mass market retail natural gas business to Genesis Power Limited. The sale is subject to Genesis receiving Commerce Commission clearance. NGC, 2002/9/23

### **More on methane**

What is the effect on greenhouse gas (GHG) emissions of burning methane (CH<sub>4</sub>), which would otherwise be released to the atmosphere?

CH<sub>4</sub> is a more effective greenhouse gas than carbon dioxide (CO<sub>2</sub>), but is more quickly broken down in the atmosphere, so the relative impacts of CO<sub>2</sub> and CH<sub>4</sub> depend on the timeframe considered. The International Panel on Climate Change (IPCC) concluded that a 100-year time frame is the most appropriate basis for comparison of the global warming potential (GWP) of each gas. That is now the internationally accepted standard.

The GWP of CO<sub>2</sub> is 1.0, by definition. The GWP for methane was 24.5 in the early 90s but was revised by the IPCC in 1996 to the standard value of 21, which is now used for international GHG accounting. The most recent IPCC report suggests that a methane GWP of 23 would be more accurate, but the IPCC has decreed that the

standard value of 21 shall be retained as the basis for GHG accounting, at least for the first accounting period of the Kyoto Protocol.

When a tonne of methane is burned it generates 2.75 t of CO<sub>2</sub> (44/16), so the effect of burning methane is to reduce the actual global warming impact over 100 years by a factor of 7.6 (21 x 16/44). However, there are three other factors to consider:

- If fossil-derived methane is flared to reduce GHG emissions (and maybe address a safety issue), the GHG contribution would be reduced by a factor of 7.6.
- If the methane originates from biological sources, the discharge of CO<sub>2</sub>, as a product of methane combustion, should not count in a GHG inventory. Also, if the methane has associated CO<sub>2</sub> (as in the case of landfill gas or biogas) then that associated biologically-derived CO<sub>2</sub> should not count in a GHG inventory.
- In either case, if the combustion energy is captured and employed usefully then there would be additional GHG benefits, provided some other fossil fuel combustion is avoided.

Steve Goldthorpe

### **Forest sinks OK?**

Contrary to an NZPA report today, NZ's claims for forest sink credits under the Kyoto Protocol are not "partly rooted in a scientific fallacy," says the Convenor of the Ministerial Group on Climate Change, Pete Hodgson. "NZ's forests, silviculture and soils are significantly different to Europe's. The research quoted may be relevant to European conditions but is most unlikely to have any bearing on NZ forestry or NZ's allocation of forest sink credits under the Kyoto Protocol.

"New forest plantings in NZ are predominantly on marginal farmland and do not involve extensive cultivation of high-carbon soils, which is the focus of the Italian research. Measurements of soil carbon changes relating to new forest plantings in NZ have shown very little change in total soil carbon levels.

NZ will be claiming credits under the Protocol for new forests planted after 1990. We will do so in accordance with good practice guidelines being developed by the UN for accounting for carbon changes in forests, cropland and grassland. New Zealand has done its homework and our position is robust." NZ Government 2002/10/22

*(We note that the Minister does not say anything about what happens to the carbon when a sink credit is obtained and the forest is then milled EW)*

### Heat leaks cost householders \$1 M/week

Houses leaking heat are costing the country about a million dollars a week and the Energy Efficiency and Conservation Authority is calling on the building industry to review its practices. EECA Chief Executive Heather Staley says many New Zealanders are rightly concerned about leaky houses that are letting water in, with the cost of repair estimated at quarter of a billion dollars.

“But slack standards of building construction are also resulting in houses leaking heat that householders are paying for. One million dollars worth of energy is leaking out of New Zealand homes every week.

“The building industry needs a wake-up call. The current minimum standards, set in the building code, are treated as good practice by the industry when in fact they are a minimum practice standard only... Buying a cheap house, or cutting corners when building, is like buying a cheap car — it will be a gas guzzler and will become expensive to run. The first cost is never the total cost. People lose value over time when their houses leak energy,” Staley said. EECA, 2002/9/18

### New analysis of per capita emissions

The Australia Institute has updated its figures on per capita greenhouse gas emissions for industrialised (Annex B) countries. Using 1999 data from national communications to the UNFCCC, the paper also contains for the first time per capita emissions for all Annex B countries for each of the years 1990-1999. The highest four countries are:

	Carbon dioxide equivalent tonne/capita/yr
Australia	27.9
Canada	22.2
USA	20.7
Ireland	15.6

The mean per capita emissions of industrialised countries has been falling slowly in recent years (from 13.0 t in 1994 to 12.6 t in 1999), but fell by 14% from 1990 to 1999, in large part due to falling emissions in the former Soviet Union and Eastern Europe. The paper can be read under ‘What’s New’ at [www.tai.org.au](http://www.tai.org.au)

Climate Change Info, 2002/8/7

### Vector to acquire United Networks

The Commerce Commission has cleared Vector Ltd to acquire up to 100% of United Networks Ltd. Commission Chair John Belgrave said, “The Commission concluded that the monopoly power currently held by United Networks would be

transferred to Vector and therefore would not have any effect on competition.” Vector is 100% owned by the Auckland Energy Consumer Trust. United Networks is a network infrastructure company with business activities in electricity and gas distribution, and telecommunications.

Commerce Commission, 2002/8/23

### Attitudes to cycling

Motoring organisations in the UK have reacted with incredulous fury to an EU move to make motorists automatically liable for damages in accidents involving car and bicycles — regardless of who is to blame. The proposal would turn UK law on its head. In Britain a driver involved in an accident with a bicycle is presumed innocent and a cyclist must prove negligence in order to win compensation.

The fifth motor insurance directive, as it is called, was floated in June. It will have to be approved by the European Parliament and member-state governments, though not unanimously, which means that British opposition could be ignored. The commission says the rationale is to harmonise motor insurance across the EU and to provide better protection for pedestrians and cyclists.

Chain Links

### More want cuts

Three quarters of US voters surveyed want the government to require power plants and industry to cut emissions linked to global warming, and not rely on voluntary cuts, according to a poll released by the Union of Concerned Scientists.

Reuters, 2002/7/9

### Japanese government to cut emissions by 7%

In an effort to lead by example, the Cabinet has committed the national government to cutting greenhouse gas emissions at ministries and affiliated bodies by 7% of 2001 levels by 2006.

Under the plan, fuel consumption by official vehicles will be cut by at least 15%, energy and water used per square meter of office space are to be pared by at least 10%, waste will be reduced by 25% and combustible waste slashed by 40%. Consumption of paper and fuel for buildings will be held at 2000 levels.

The government will replace its nearly 7000 car fleet with lower emission vehicles by 2005 and hopes to introduce the first of the fuel-cell powered automobiles scheduled to come off assembly lines next year. In terms of energy, the government will look to supply buildings with solar cells and adopt more energy-saving actions.

With this in mind, government buildings are to undergo a 'green diagnosis' by the end of the year, to determine how operations can be streamlined and energy saved.

Japan Times, 2002/7/20

### More detail in climate simulations

Atmospheric scientists from Lawrence Livermore National Laboratory have performed the first global climate simulations with spatial resolutions of roughly 50 kilometres. This capability will be used to assess climate change and its societal impacts. Typical global climate simulations use spatial resolutions of about 300 km, which limits their ability to simulate climate and climate change on a regional scale. The high-resolution global climate simulations were run on a number of large computers at LLNL and on two machines at the Department of Energy's National Energy Research Supercomputer Center (NERSC).

The 50 km global model has 32 times more grid cells and requires about 200 times more computer processing time than comparable models at 300 km resolution. "While higher resolutions have been used in weather prediction simulations before, those typically only cover several days," said Philip Duffy, group leader of LLNL's Climate System Modelling Group in the Atmospheric Science Division and key author of a paper on the subject. 'Livermore's climate simulations span years.'

NASA, 2002/7/9

### Paris-on-sea

In July the Mayor of Paris, Bertrand Delanoë, closed the Georges Pompidou expressway on the right bank of the Seine (which normally attracts 200 000 vehicles a day), and laid down grass and sand on the pavements for sunbathing and picnics, at a cost of some NZ\$ 300 000. The opening day was attended by 600 000 people.

The most praised aspect of the 3.8 km scheme has been the illusion of seaside holidays for thousands of poor families whose children play on supervised climbing walls or are entertained while their parents sit at open-air cafes. At night, Paris-Plage is devoted to popular concerts and dancing at an old-fashioned guinguette.


Chain Links

### EU will miss Kyoto target

The European Union will be unable to reach its Kyoto targets for reducing carbon dioxide emissions, according to the International Energy Agency. The EU could boost the share of renewables in its electricity generation to 30% by 2030, but even that would not be enough to meet climate change targets. "Fossil fuels will still dominate," said IEA Chief Economist Fatih Birol, "Even with these alternative policies (on renewables) we don't reach the Kyoto targets."

Fatih said the reason was a large rise in demand for transport, and the fact that traditional electricity plants had a long life span and would not be replaced overnight. "If governments want to do something they have to act not only radically but also as soon as possible," he said. However, European Commission environment spokeswoman Pia Ahrenkilde-Hansen said, "We still believe that the EU can meet its target, but we need to implement key elements of the European climate change programme."

Reuters, 2002/10/2

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