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The Chilling Costs of Climate Catastrophism

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Sometime after the Soviet Army had crushed the Dubcek regime in Prague in 1968, our great cold-war warrior, Frank Knopfelmacher, was described by his opponents in condescending and patronising tones as a "threat expert". Vietnam had fallen and the US was in disarray, the Soviet Empire was marching from success to success, and Soviet apologists in Australia were increasingly confident about the future. At that point Knopfelmacher embraced the term with enthusiasm. "Yes" he replied, "I am indeed a threat expert" and went on to recount the story of his escape from Czechoslovakia as a teenager just before the Nazi takeover in 1938; and then how, having returned to Czechoslovakia after the war, he was forced to use the proceeds from selling his family's property (he was the only survivor) to bribe his way out after the Communist takeover in 1948. He was, through first hand experience, a highly qualified threat expert.

In recent years another Czech threat expert has been sounding the trumpet for freedom. Vaclav Klaus was born in Prague in 1941 and became an outstanding student in economics, graduating from the University of Economics in Prague in 1963. He was allowed to study abroad in Italy in 1966 and in the US in 1969 where he came under the influence of Milton Friedman. In 1968 he was awarded his PhD from the Institute of Economics of the Czech Academy of Sciences. From 1970 until 1987 he was kept under wraps in the State Bank of Czechoslovakia, but after the successful uprising of November 1989 he was appointed Federal Minister of Finance, and he became Prime Minister in June 1992. In Feb 2003, and again in February 2008, he was elected President of the Czech Republic

The presidency is a non-executive role and so Vaclav Klaus has been able to immerse himself in the global warming debate. He has written a book entitled "Blue, Not Green Planet," published in Czech last year and due out in English translation in the US this May. He has spoken regularly on the issue at home and abroad. In Feb 2007 he was interviewed by a Prague journalist who took him to task for his refusal to accept the global warming thesis now hegemonial throughout Europe. Klaus was very blunt. "Global warming is a false myth and every serious person and scientist says so."¹

His constant theme is the threat which the "warmists", as he describes them, pose to freedom.

Here is a characteristic Klausian description of this threat.

"Global warming hysteria has become a prime example of the truth versus propaganda problem. It requires courage to oppose the "established" truth, although a lot of people – including top-class scientists – see the issue of climate change entirely differently. They protest against the arrogance of those who advocate the global warming hypothesis and relate it to human activities.

As someone who lived under communism for most of his life, I feel obliged to say that I see the biggest threat to freedom, democracy, the market economy and prosperity now in ambitious environmentalism, not in communism. This ideology wants to replace the free and spontaneous evolution of mankind by a sort of central (now global) planning."²

In the paper President Klaus gave at the Heartland Institute conference held in New York on March 2-5 last, attended by more than 500 highly qualified people in climate science, economics, and public policy, he concluded with these comments.

As a politician who personally experienced communist central planning of all kinds of human activities, I feel obliged to bring back the already almost forgotten arguments used in the famous plan-versus-market debate in the 1930s in economic theory (between Mises and Hayek on the one side and Lange and Lerner on the other); the arguments we had been using for decades until the moment of the fall of communism. The innocence with which climate alarmists and their fellow-travellers in politics and media now present and justify their ambitions to mastermind human society belongs to the same fatal conceit. To my great despair, this is not sufficiently challenged, neither in the field of social sciences, nor in the field of climatology. The social sciences, especially, are suspiciously silent.

The climate alarmists believe in their own omnipotency; in knowing better than millions of rationally behaving men and women what is right or wrong. They believe in their own ability to assemble all relevant data into their Central Climate Change Regulatory Office (CCCRO) equipped with huge supercomputers, and in the possibility of giving adequate instructions to hundreds of millions of individuals and institutions and in the non-existence of an incentive problem (and the resulting compliance or non-compliance of those who are supposed to follow these instructions)

We have to restart the discussion about the very nature of government and about the relationship between the individual and society. Now it concerns the whole of mankind, not just the citizens of one particular country. To discuss this means to look at the canonically structured theoretical discussion about socialism (or communism), and to learn the uncompromising lesson from the inevitable collapse of communism 18 years ago. It is not about climatology. It is about freedom.

Vaclav Klaus has given us a salutary reminder of the seriousness of the danger Australia is now facing from the "warmists". Both the Rudd Government and the Federal Opposition currently led by Brendan Nelson, have promised us an emissions trading scheme; in the case of Prime Minister Rudd, by 2010. The responsibility of advising the Federal and State Governments on how such a decarbonisation regime should be established lies with Professor Ross Garnaut, a noted economist and diplomat, and a passionate advocate on the benefits of free trade and of the advantages of an ever-closer relationship between Australia and China.

The Garnaut Inquiry has issued two Interim Reports and Garnaut has given a number of papers to professional audiences in recent months.

Three observations emerge from immersion in these documents.

The first is the child-like, unquestioning, belief which Garnaut has in the IPCC story of global warming caused by anthropogenic emissions of carbon dioxide, which, if not curtailed, will result in climatic and economic disaster for the whole world. Many people have noted the religious-like quality of faith in this story of human sin (particularly of Western mankind); the calamitous consequences following failure to repent; and the possibility of redemption through repentance and sacrifice under the wise guidance of green prophets such as Al Gore, James Hansen, Bob Brown, Peter Garrett, and now Ross Garnaut.

The second is the refusal to face the political reality posed by Chinese and Indian "intransigence" in the face of demands from the West, the EU in particular, to decarbonise their economies. Both India and China are embarked on a trajectory of extraordinary and historically unprecedented economic growth. China is commissioning two new coal-fired power stations every week. Both countries are also operating and building nuclear power stations. China has 10 operating nuclear power plants, 1 under construction, and 6 planned. India has 15 operating nuclear power stations, 8 under construction, and 4 planned. These

are not countries devoid of technological and scientific expertise. The idea that they should give up their dash to modernity has been repeatedly and emphatically rejected by their most senior political leaders.

The third is the Orwellian use of the words "market" and "price" to persuade people to accept a degree of control over their lives which is unprecedented in the Anglosphere, except in time of war. This control is the necessary consequence of permanent decarbonisation regimes which will dramatically lower living standards.

The foundation on which the Garnaut (and Stern) prescriptions for global decarbonisation are based has to be repeated. It is taken as given that global temperatures have increased, are increasing, and will continue to increase to catastrophic levels because, **and only because**, mankind is emitting greenhouse gases, carbon dioxide in particular, and that these emissions have caused atmospheric concentrations of carbon dioxide to rise, and global temperatures to increase as a consequence.

In order to save the planet (redemption in religious terms), mankind must stop "polluting" the atmosphere with carbon dioxide. This means reducing the current emission rate of approximately 25 billion tonnes of carbon dioxide per annum (7 Gigatonnes of carbon) to 5 or 7 billion tonnes of CO₂. There is competition between the various prophets of decarbonisation as to the extent of the purification process required to save the planet. They are united, however, in the very great urgency of the task. Delay in decarbonisation, they insist, will be disastrous, and they conjure up a "tipping point", some magical proportion of CO₂ in the atmosphere which will bring about run-away heating, or alternatively, perhaps, the next ice age. The tipping point is rather like the second coming of Christ, that final moment in history when Christ will come again in glory and power to judge the world.

As I argued previously (Quadrant March 08), such massive decarbonisation can only take place if the **entire** world's current stock of coal-fired power stations is replaced with nuclear power stations by 2050 (the currently favoured target date). At the same time all motor vehicles, ships and aeroplanes currently using liquid hydrocarbons (kerosene, petrol and distillate) as fuel for their engines, will have to convert to hydrogen, or accept batteries in lieu of IC engines. The only alternative approach which will achieve the degree of decarbonisation the Greens and Garnaut demand, is to return to the living standards which were characteristic of Britain and North America in the 18th century, prior to the Industrial Revolution. Both China and India have rejected any such option.

Returning to the life-styles of Adam Smith's Britain and George Washington's North America is not a politically feasible project, at least not in the Western democracies. So the Greens and their allies in this project go to considerable trouble to disguise their ambitions. One tactic they use to disguise the cost is to conduct econometric studies which predict very modest decline in GDP over the decarbonisation period, or even no decline at all. The fundamental problem with this is that per capita GDP is not a reliable measure of living standards and prosperity. As Frederick Bastiat pointed out over a century ago, deliberately smashing windows and then producing and installing replacements will contribute to GDP, but at the same time reduce living standards, because the resources required to build and install the new windows will have to be diverted from other more productive activities.

The decarbonisation parallel is that measured GDP will not be affected by the *extra* resources required to build wind farms relative to the resources required to build the same quantity of coal-fired capacity. However, because those extra resources will have to be

diverted from producing other goods and services of value to consumers, the building of wind farms will, *cet par*, reduce living standards. Accordingly, using estimates of changes in GDP as an indicator of the costs of shifting away from carbon-based energy sources is not only misleading, but very shoddy economic practice.

So the use of GDP numbers to ward off accusations of serious economic hardship caused by decarbonisation is spurious. Garnaut is guilty of this practice, a misdemeanour made worse by the way in which his modellers "assume" in their models that the price signals embodied in ever rising prices for coal-based electricity and liquid fuels for transport will bring forth, in a cargo-cult fashion, new technologies which have not yet been invented, let alone deployed, but which will suddenly enable the world to reach a new, green, nirvana, and take the place of the old and proscribed technologies.

Arnold Zellner, one of the giants in the development of econometric analysis, relates this amusing story in a long interview published in the International Journal of Forecasting.³

Steve Peck and I simulated the Federal Reserve-MIT-PENN econometric model of the US economy that had over 170 nonlinear equations. Our simulation experiments showed that the model had very strange properties that were unknown to the model builders. From these results we concluded that the model was not safe for use in analysing serious economic problems.

Further he commented:

I do not know of a complicated model in any area of science that performs well in explanation and prediction, and have challenged many audiences to give me examples. So far, I have not heard about a single one. Certainly the large scale econometric models and complicated VARs (*very awful* regressions) have not been very successful in explanation and prediction.

We can conclude that the debate about decarbonisation, and the various emissions trajectories which could be mandated to achieve the required state of purity, cannot be illuminated by econometric models. We are concerned here with the most basic building blocks of Western civilisation. We are entirely dependent upon liquid hydro-carbons for our transport needs and upon electricity for our energy and communications requirements. If petrol supplies are curtailed, all economic activity is seriously affected. If electricity supplies are shut down as a result of storm damage, for example, then those affected find that their lives are completely disrupted.

Coal is the fuel of choice for generating electricity. It is cheap, supplies are abundant, reserves are huge, coal-fired power stations can be bought pretty well off-the-shelf for between US\$1200 and US\$2000 per KW of installed capacity. A typical coal-fired power station is rated (can run continuously) at 1500 MW, i.e. 1500 thousand KW. (A household refrigerator is rated at 0.5 KW and will consume 1 KWhr if it runs continuously for two hours). Depending on the price of coal at the power station, the long-run marginal cost of coal-based electricity at the power stations in eastern Australia is between 3 and 5 cents per KWhr, which is between \$30 and \$50 per MWhr. In Australia our Victorian brown coal stations produce electricity for less than \$30 per MWhr. Brown coal has no value other than as input fuel for on-site power stations and briquetting plants. Because of its very high moisture content (typically 65 - 70 per cent) it cannot be transported or traded.

The black coal stations of NSW and Queensland are more expensive to run but that is because the high-quality black coal they consume has a world market value which has been rising rapidly in recent years. Oil-fired power stations are cheaper to buy, but except for

small remote towns, where big diesel-generating sets are still the favoured technology, coal provides the cheapest electricity by a very big margin. The domestic retail price of electricity in Australia is typically 13-15 cents per KWhr.

Ziggy Switkowski, John Howard's nuclear power protagonist, claims nuclear power could be delivered in Australia at between \$40 and \$70 per MWhr. These estimates are disputed since they are based in part on the current costs now pertaining to the nuclear power industry in the US, where the plant has long since been amortized. A more reasonable cost estimate for Australian conditions (where we would have to begin at the beginning) would be \$70 - \$100 per MWhr.

The nuclear power industry has been almost choked to death by the demands of Green NGOs around the world to shut it down. Currently there is only one steel company in the world that can cast the reactor vessels (the 42 ft, egg shaped vessels at the core of a nuclear reactor) - Japan Steel Works. That company is now back-ordered for four years. The word "nuclear" does not appear in Garnaut's latest interim report, but that omission was generated by political considerations as much any appreciation of the current state of the nuclear industry. It would take decades for Australia to build even one nuclear power station. My preferred site for such a plant is on the shore of Lake Burley Griffin, on the site of the old Canberra Hospital, now currently occupied by a museum.

ExxonMobil, who have some very clever people working for them, estimate that world energy demand will grow by 1.2 per cent pa until 2030. They estimate gas consumption to increase by 1.7 per cent pa, oil by 1.2 per cent pa, coal by 0.9 per cent pa, nuclear by 2.0 per cent pa, particularly after 2020. Their estimates of growth in renewable energy supplies are contingent upon political developments. The most important elements in the renewables category are wood, charcoal, and animal dung. Hydroelectric and geothermal are projected to increase at 2.0 per cent pa, but they are limited as always by the availability of development sites. There are still some massive rivers with huge hydro-electric potential to be exploited, but they are a long way away from consumers. PNG is a case in point.

ExxonMobil expects that bio-fuels, mainly ethanol, will grow at about 8 percent pa, driven of course by mandated consumption. But the uproar which diversion of food crops into ethanol production has already caused, and the steep increase of food prices in countries such as Mexico, spells the end of this particular Green mantra. Energy Minister Martin Ferguson has already hinted at an end to the ethanol subsidies in Australia. Only the EU can maintain a line of stoic indifference to the plight of starving families in the developing world. If the sunspot observers have got it right, and we are in for a repeat of the very low temperatures of the Dalton Minimum (1795 - 1820), grain production on the Canadian wheat belt and the northern states of the US will be severely curtailed, and food production more generally in the northern latitudes of Eurasia will decline. This will impact on the world grain markets in a serious way. Under these circumstances conversion of grain to ethanol, will be politically impossible.

Garnaut has been at least partly honest in this regard. He has warned us to be ready for an increase in the price of petrol and diesel of about 15-20 cents per litre, and an increase in the price of electricity of at least 30 per cent, once his Emissions Trading Scheme (ETS) is in place. However, since these estimates are based on econometric models in which alternative sources of electricity are "assumed" into existence as a result of the market forces which these cost increases will generate, his assurances should not be taken seriously.

A second device designed to sooth the electorate, is to use the emissions trading scheme which Garnaut is planning as a way of disguising from the community that the increased costs for petrol and electricity, which they are expected to accept gracefully, are taxes, pure and simple. The Garnaut proposal requires emitters of carbon dioxide such as power stations, oil refineries, cement manufacturers, for example, to bid for licences to emit, say, 1000 tonnes of carbon dioxide. The emissions thus paid for can be part of the process such as power generation, or embedded in the product, as in oil refineries. The proceeds from these auctions go to the government. Once issued, the licences can be bought and sold, just as taxi licences can be bought and sold. The difference between a CO₂ emission licence and a taxi licence is that once the emitter has burnt his coal or sold his petrol, and sent his 1000 tonnes of CO₂ into the atmosphere, that licence somehow becomes worthless. Who is to certify whether the piece of paper purporting to give the owner the right to emit this CO₂ is valid or not? Does it have an expiry date on it? How is it to be validated? Can it be forged? How much will these processes of inspection and validation cost?

A more immediate complication, not dreamt of by Ross Garnaut, or Minister Penny Wong, or Prime Minister Kevin Rudd, is the consequences to the balance sheets of all those companies, power generating companies in the Latrobe Valley, aluminium refining companies in Victoria, NSW and Queensland, LNG producing companies in WA and the NT, for example, which, as soon as the regulations requiring the purchase of emissions licences are promulgated, will have to place on their balance sheets contingent liabilities that should lead immediately to withdrawal of their bank loans. Unless rescued, they will become bankrupt overnight. Their only realistic saviour is the state. It will be Northern Rock multiplied by at least ten. As in the UK, either the various State Governments, or the Commonwealth Government will have to up put very large sums of money to maintain the solvency of these power stations. The alternative will be no electricity for the east coast of Australia.

The Rudd Government is sleepwalking into a train wreck of historic dimensions. It faces in dramatic fashion a potential repeat of the fall of the Scullin Government.

Ross Garnaut assumes that any such unforeseen problems will be readily solved through the magic of market processes. He also assumes that by selecting an emissions target on a year by year basis, and abiding resolutely to an emissions reduction trajectory which will bring us to our declared target of say 20 per cent of 1990 carbon dioxide emissions of CO₂ by 2050, the market will provide all the incentives necessary to provide the investment required to maintain the electricity supplies we need (albeit, he admits, at a somewhat greater cost than we now enjoy).

There is a further complication. For an emissions trading system to function properly there needs to be an efficient and effective forward "market". This is unlikely to emerge if the yearly allocation of emissions licences is constantly changing. Markets only work when there is predictability. This is why Garnaut insists on an irrevocable pre-determined emissions-licence reduction trajectory. Only a constitutional referendum could provide such entrenched irrevocability, and even then, as the High Court has shown, plain meanings can be turned by judges into their opposites.

The purpose of the implicit carbon taxes embodied in these emission licences is to force the shut-down of Australia's coal-based power stations, whether they are privately owned or have been resumed by the state. As the quantity emission licences are reduced, year by year, their auction price will rise, and the cost of running these power stations will increase.

Electricity consumption will fall (that is the whole point of the carbon tax) even though under Garnaut's proposals the energy intensive export industries such as aluminium smelting will be exempt from the tax and will actually increase production. Garnaut's models assume that as the coal-based power stations become unprofitable and close, other non-carbon based electricity supplies will take their place.

In his latest report Garnaut cites renewables, wind and solar, as providing the alternative. Wind generators provide power when the wind is strong enough to drive the turbine, but not so strong as to wreck the machine. The real costs of wind power are difficult to estimate. We do know that wind power is now economically viable only because it is heavily subsidised by electricity consumers in that ridiculous prices are paid for their output whenever they come on stream. A cost of \$80 - \$100 per Mwhr is probably a reasonable guess, but that does not include the costs of back-up which are substantial. Denmark is often cited as a successful example of wind-power, with 20 per cent of installed capacity coming from wind turbines. What these claims do not mention is that Denmark has the most expensive electricity in Europe, relies heavily on back-up power from Germany and Sweden, and that system reliability is now stretched beyond reasonable limits.

Solar power, whether it is of the thermal type (in which the sun's rays are focussed with parabolic mirrors on a micro-boiler and generate steam), or of the photo-voltaic type (in which the sun's rays fall on a photo-voltaic cell and generate a mini-current), is available only when the sun shines. So energy storage back-up is necessary, either in the form of batteries, or pumped hydro-installations in which water is pumped up hill during the day, and is returned via water turbines at night. A typical price for a photo-voltaic supply is \$10,000 - \$15,000 per KW.

Another technique of decarbonisation, strongly supported by the coal industry, and just as strongly opposed by the Greens, is called CCS - Carbon Capture and Storage. The idea is that the flue gases from coal-fired power stations are somehow stripped of their CO₂ content, and the CO₂ stream is then piped to a favoured location and injected underground. The idea comes from the oil and gas industry where CO₂ is stripped from the output of oil and gas wells and then re-injected back into the oil basin to improve the product yield from that basin.

Martin Ferguson, former ACTU president, now Minister for Resources and Energy, and suspected by the Greens as a closet global-warming sceptic, recently opened the world's largest demonstration of the deep geological storage of carbon dioxide, the Otway Basin pilot project 200 km west of Melbourne. This pilot project will inject 100,000 tonnes of carbon dioxide 2 km deep underground over the next two years. Those attending the opening ceremony sheltered from squalls of icy rain in a fancy marquee, an irony presumably not lost on the Minister who, with a dead-pan face, predicted that "the success of the programme would confirm the carbon storage technology as a viable option to reduce the carbon footprint of coal, which generates 80 per cent of Australia's electricity."

For the coal industry CCS is a suicide note. Stripping the CO₂ from the flue gas stream is expensive. Pipelining it hundreds of miles away is also expensive. The most recent CCS cost estimates for the Latrobe Valley brown-coal power stations, where the CO₂ is to be injected into Bass Strait, is \$160 per tonne of CO₂, which is equivalent to an increase in the cost of electricity of \$103 per MWhr. (Recall their current production costs of less than \$30 per MWhr.) Such an impost would make these power stations worthless.

One can only wonder at the extraordinary naivete of those coal industry leaders who have promoted this fantasy, have persuaded governments to take it seriously and to pour tax-payers' money into pilot schemes, and who expect the Government to assume all future liabilities if the CO₂ should leak back into the atmosphere.

A third and important strategy is rhetorical. The Greens are brilliant at the language game. Following the very strong El Nino of 1998, global temperatures refused to increase, so "global warming" became "climate change". The twelve month period Jan 2007 - Jan 2008 saw global temperatures fall by 0.67 deg C. This was described as "subdued warming". There is no evidence connecting tropical storm intensity with atmospheric concentrations of carbon dioxide emissions. But when Hurricane Katrina devastated New Orleans it was immediately ascribed to carbon emissions. In April 2008, after Melbourne experienced violent wind storms and black-outs took days to repair, Premier John Brumby explained that climate change was not just global warming, it was also "wind".

But their most brilliant feat of Orwellian newspeak was to replace the reality of a carbon tax with the fantasy of a "carbon price", and to generate belief in "market mechanisms" as the best way of imposing a draconian reduction in the living standards of Australia's working families. The Greens also realised that the creation of a rent-seeking class, which would profit from trading these licences to emit carbon dioxide, would give their project much-needed political clout.

So a hungry and determined rent-seeking class has indeed been created. It includes bankers and financial traders of all kinds who believe there is serious money to be made from buying and selling emissions licences, which are in reality just tax receipts. Those who are in the wind turbine business are putting a lot of time and money into pushing the renewables barrow, and more and more wind turbines can be seen desecrating the sky-lines of our countryside. Scientists such as Graham Pearman, David Karoly, and the indefatigable Tim Flannery, who have built successful and profitable careers from riding in the global warming cart, are merely the tip of the iceberg. Underneath them are hundreds of younger scientists all dependent on the continuing unimpeded progress of the global warming cart for their professional careers.

One immediate consequence of this unstable situation, a sort of neither war nor peace predicament, is that much needed investment in new coal fired power stations, in the brown coal fields particularly, cannot take place. We are already paying more for electricity than we should because generating companies are installing gas-turbine units which are cheap and quick to buy, but expensive to run, rather than embarking on the thankless task of building new brown-coal stations in order to meet increasing demand. Those companies who bought the Victorian brown-coal power stations from the Kennett Government are now facing effective expropriation, and there is not much consolation for them in the takings clause of our Constitution. The NSW Treasurer, Michael Costa, who is desperate to sell the black coal power stations owned by the NSW Government in order to finance desperately needed infrastructure in Sydney, voiced his frustrations in a speech given on 3 April last. In *The Australian* on April 4 Imre Salusinszky wrote:

Mr Costa said the "sovereign risk" associated with imposing a new carbon trading regime on Australian companies, combined with rigid emission targets, would result in a capital flight by overseas investors.

"The Garnaut proposal has significant financial and economic impacts," Mr Costa told the annual dinner of the Australian Chamber of Commerce and Industry. "The transitional effects could seriously disrupt critical sectors of the

economy. The Rudd Government needs to proceed with caution and recognise that international investors, in particular, will be looking at how they treat existing property rights of asset owners."

He described the suggestion that no compensation was necessary for asset holders as, "absurd" and "unacceptable". The NSW Labor Government is set to be among the big losers under the Garnaut model, with Mr Costa and NSW Premier Morris Iemma preparing to take about \$10 billion worth of state-owned electricity assets to market next year. Mr Costa said his modelling showed the cost of carbon permits traded in the electricity industry could be as high as \$120 billion by 2030, with a further \$150 billion in adjustment costs. He warned the resulting increase in power prices could be much higher than the 10-15 per cent predicted by Professor Garnaut.

The most serious longer term consequence, however, of the current state of the debate is the embargo which has been placed by the Victorian government on the development of a brown coal to distillate industry in the Latrobe Valley, an industry which could provide liquid fuel for Australia on the scale of the North West Shelf or Bass Strait.

The coal to distillate process was invented by two German chemists, Franz Fischer and Hans Tropsch in the 1920s, and was used by the Nazi regime and Imperial Japan to provide liquid fuels for their war machines. Germany reached peak production in 1944 at 124,000 barrels per day. Victoria's brown coal is well suited for this technology, since it is sulphur free. The brown coal reserves in Gippsland are vast, and the only barrier to very large private sector investment in such a project is the insistence by the Victorian government, (which stands to gain enormous royalties from such a development), that no emissions of carbon dioxide will be allowed.

Current estimates of the long-term marginal cost of distillate from an modern Fischer-Tropsch process using Gippsland brown coal are typically \$50 per barrel. This is very attractive at a time when world oil prices are moving between \$100 and \$120 per barrel. There is no guarantee of course that oil prices will remain at these levels. But with the Chinese and Indian economies growing at their current rates, and with oil reserves mostly located in politically unstable regions of the world, it would seem that investments of \$50 - \$100 billions in Victoria, provided statutory guarantees against expropriation through regulation or any other mechanism were on the table, would very quickly come into effect.

These facts are not widely known. It is surprising that those companies which have already acquired mining leases with such projects in mind, have kept their ambitions very close to respective chests. If the people of Victoria knew that their State had the energy equivalent of the North West Shelf locked up in the brown coal reserves of Gippsland, and the only thing standing in the way of its development was Green hatred of carbon dioxide, then the political climate would change.

Another strategy adopted by the Greens has been to transform the meaning of the word "market" into its opposite, a tactic which would today invite Orwell's greatest scorn.

A market is a place where property-owning people come to buy and sell their property at prices which are freely negotiated and which they accept as advantageous to their interests. The rules of the market have usually evolved over time, and they operate to ensure that

transactions are free from fraud, and that contracts of sale are honoured. When the State decides to intervene in the rules and operations of a market, the results are usually perverse. For example when the Enron scandal burst in the US, Congress very quickly passed the Sarbanes-Oxley Act which sought to "reform" the listing requirements of the New York Stock Exchange. The main consequence has been the flight of many formerly listed companies to the London Stock Market, which has flourished mightily as a consequence.

Garnaut's so-called market for emissions permits are a modern variation on the old profession of tax-farming. What is being traded here are taxation receipts, and the value of them is determined in the first instance by the State, which is engaging in the most fundamental manifestation of sovereignty; that of taxing its citizens. As the State increases the severity of this tax regime by squeezing the supply of emissions permits, then those who trade in these tax receipts will speculate against the unpredictable actions of the sovereign, who may decide tomorrow that this whole carbon-climate-control thing is nonsense, and abandon the whole project.

Much of Garnaut's thinking and writing is directed towards this problem of sovereignty and sovereign risk. But try as he might, he cannot square the circle. Sovereignty and taxation cannot be separated. Sovereignty and sovereign risk are two sides of the same coin. Ross Garnaut proposes the establishment of some sort of carbon dioxide emissions institution, modelled on the Reserve Bank, (with Garnaut himself as a sea-green incorruptible Governor) which will solve the intractable problem of the readiness of the Sovereign to change his mind because circumstances or fashions change. Such a proposal is evidence of extraordinary naivete.

The same arguments apply to the concept of a "carbon price". "What we need", industry leaders cry, "is a stable price for carbon, so that we can plan for the future with confidence." All of the proposals for international trade in emissions permits begin with the idea that a world price for carbon will emerge; just like the gold price, or the price of copper or silver.

These demands ignore the reality that it is taxation rates that we are talking about. And just as different sovereigns have different ideas about taxation regimes, so they will have different ideas about the desirability of decarbonising their economies through the imposition of swingeing taxes on emissions of carbon dioxide.

On the issue of international agreements on uniform carbon tax regimes, and international trade in emissions permits, Garnaut wants to eat his cake and have it too. He concedes that by itself Australia's contribution to global decarbonisation would be insignificant. But on the other hand he desperately wants us to be a leader in the pack, and he resolutely refuses to acknowledge that the Chinese and the Indians, in particular, are not buying, and will not buy, this tax package, and will certainly not compromise their sovereignty by allowing others to determine their tax regimes.

The Europeans, unaccustomed to such intransigence on the part of the so-called developing world, are threatening trade sanctions against recalcitrant nations who will not impose the carbon tax regimes which the Europeans require. If they proceed down this path they will destroy the WTO, whose predecessor, the GATT, was founded on the sovereignty of the member states to conduct their internal affairs as they saw fit. The WTO is not travelling well; it may be that its use-by-date has passed, and new international trade arrangements will have to be called into being. But that is another story. What matters here is that the EU

is threatening other nations with measures that in the past were seen as a precursor to armed conflict.

But these considerations are not as important as the inconvenient facts which are finally coming into public view. The first is the contradiction between what the climate models predict and what temperature measurements of the troposphere are telling us. There are more than 20 climate models around the world. Every one predicts some degree of warming from increases in atmospheric CO₂ concentrations (although estimates vary greatly) and every one requires significant warming to take place in the troposphere in tropical latitudes, at altitudes of about 10 kilometres (30,000 ft). This phenomenon is known as the greenhouse signature.

There has been an intensive investigation into the actual temperatures at these latitudes and altitudes using radiosonde balloons and satellites. The results are now beyond dispute. There is no warming. None.

This result poses a huge crisis for the IPCC and all those whose reputations and livelihoods are dependant upon it. Do you stick with the climate models, or do you believe the temperature data? This quandary has been kept pretty quiet and it hasn't yet reached the mainstream press. But it will be impossible to keep it under wraps indefinitely; those who are in the know and appreciate the implications are re-positioning themselves. When it finally breaks out many people will be searching for new careers.

The second is much better known; the failure of the planet to warm, despite steadily rising CO₂ concentrations, since 1998. The third is the record breaking fall in global temperature in 2007.

The fourth, and most serious, is the failure of solar cycle 24 to become manifest. Until belief in the IPCC theory of anthropogenic carbon dioxide-climate control became mandatory, the study of solar influences on the world's climate had occupied scientists for at least two centuries. In 1800 William Herschel, the Astronomer Royal, published his famous paper in which he took the wheat prices recorded by Adam Smith in the Wealth of Nations, and found they correlated extremely well with the sunspot record as it was then known. He was probably spurred into this investigation because the Thames had frozen again in London for the first time for nearly a century, an early manifestation of the Dalton Minimum. This period, which began about 1795, and which persisted until 1820, had begun its grim passage throughout all of Europe, where the combination of bad harvests, and then the Napoleonic Wars, caused very great distress. It was coincident with solar cycles 5 and 6, which were of very low intensity. But of greater significance was that solar cycle 4 had been of high intensity and long duration, 13 years, and a period of warmer temperatures and excellent harvests.

Historically, such long-duration, high-intensity solar cycles have been excellent predictors of weak cycles and miserable weather for the next 25-30 years. Why this should be so is an issue over which many scientists, many of them retired or amateur, now argue. But because the correlation is from a past event into a future event, no one can argue that the climate change causes sun-spot activity to diminish. (In his movie Al Gore tried this reverse causation trick in his discussion of the carbon dioxide and temperature curves found in the Vostok ice cores).

In recent weeks the broadsheet press has carried articles which discuss the likelihood of a repeat of the Dalton Minimum. Even the ABC has picked this up and has interviewed Dr Phil

Chapman, an Australian astronaut and student of solar phenomenon, whose article on this topic was published in The Australian on 23 April last.

On April 30, BG (formerly British Gas) launched a \$13 billion take-over bid for Origin Energy, offering a 30 percent cash premium over the market price at the time. The reason for the bid is that Origin has large reserves of coal seam methane (gas which can be extracted from underground coal fields) and that the international market for liquified natural gas (LNG) has grown dramatically in recent years. This means that there is now a world price for natural gas, and that Australian consumers will have to adjust to a serious increase in the prices they have taken for granted for nearly 50 years. Australian consumers pay typically about \$3 per gigajoule for gas, and large contracts (as with gas fired power stations) are written at lower prices. But the world price is more than twice that, so our politicians will soon be faced with an acute dilemma - whether to try to ring-fence Australian prices from international pressures, or to explain to voters in the major cities that paying double or more for their gas-heating and hot water is just part of life which they will have to accept.

In an increasingly cold world this will be no easy task. But there is a way of easing the pain; and that is to promote a massive increase in electricity generation from the brown coal fields of Victoria so that substitution of cheap electricity for increasingly expensive gas can take place.

This episode reminds us of the unpredictability of events. The gas industry, which has been quietly anticipating a boost in sales and production from the shutting down of coal-fired power stations has suddenly been priced out of that market.

In Julius Caesar, Shakespear tells us (through Brutus) that,
There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune;

Tides go out as well as come in and it appears that the global warming tide has peaked and is about to retreat with a roar. There will be frantic attempts to save the doctrine of carbon dioxide control of climate from ignominy. So many scientific, vice-chancellorial, academic, political and business reputations are wholly dependent on the roadworthiness of the global warming cart that the business of repair of that vehicle will become a major activity for them, and a fascinating thing to watch for the rest of us.

The early Christian church, particularly at Jerusalem, faced a serious crisis because Jesus failed to return as he had promised (no dates were given), and in the meantime they had sold their property and given up normal economic life in the expectation that soon all of that would come to an end. As in conflict over other doctrinal issues, St Paul rescued them from their predicament, but the arrival of an undeniably much colder and more miserable world will have the same impact on the passengers in the global warming cart as did the non-arrival of Christ have on the Christians in Jerusalem at the beginning of the Christian era.

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1. Hospodárské Noviny, 12 Feb 2007
2. Financial Times, June 13, 2007
3. Vol 14, 1998, pp 303-312