

Dossier on Climate Change

All the material referenced is available at <http://greenleft.wikispaces.com/>

The dossier is organised to provide background material to help the Socialist Alliance to:

1. Specify a target for greenhouse gas emission reductions
2. Take a position on whether to call on the Australian government to ratify the Kyoto protocols, and
3. Develop its position in relations to such proposals as carbon trading, a carbon tax and carbon rationing.

The dossier begins with references to web-based material, which there is little point in reproducing in full in print, and then includes various articles on the issues under discussion.

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2. Draft Socialist Alliance texts on climate change

How to stop climate destruction

(Draft Socialist Alliance Climate Change Policy Document)

Ben Courtice (Melbourne West)

1 Aims and summary

1.1 Intent

The Socialist Alliance is a new party with its base in community and union activism. We do not have access to academic think-tanks or government research departments. Our policy is based on our best understanding of the various sides in the debate and what we think will work best going by our political principles and the scientific knowledge we have access to. Climate change is an unprecedented threat and any response such as ours is conditional on further scientific data and experience bringing new ideas to light.

1.2 The threat

Socialist Alliance policy is based on avoiding the threat of run-away climate change. As early as 2000 the UK Met Office's Hadley Centre for Climate Change pointed to the likely acceleration of global warming due to "positive feedbacks" which are activated at certain "tipping points" in global warming and atmospheric greenhouse gas accumulation. These feedback mechanisms mean that the more global warming occurs, the harder it is to stop it continuing further and speeding up. According to current research, even an average two-degree global warming risks triggering these positive feedback mechanisms.

The melting of the Arctic sea ice is already occurring, leading to a decrease in heat reflected (by the ice) and warming of the (more heat-absorbent) Arctic ocean. Melting of the Arctic permafrost risks releasing vast amounts of methane, a potent greenhouse gas, equivalent to several years' worth of human greenhouse emissions. Feedback mechanisms such as these, and potentially others not yet predicted or understood, risk throwing the planet onto a roller-coaster of runaway climate change which will undoubtedly cause cataclysmic destruction and starvation, and may make the planet uninhabitable for humans. Current greenhouse emissions mean an average temperature rise of over one degree is unavoidable. Our policy aims to restrict global warming to no more than two degrees as the maximum limit that is possibly sustainable, and the lowest feasible minimum that society can achieve.

1.3 The minimum target

Socialist Alliance supports the Zero Emissions Network goal of a 95% cut to stationary emissions by 2020. We support the research, development and enactment of their plan. Socialist Alliance advocates an emergency mobilisation of the whole world economy and industry to achieve minimum overall greenhouse emissions reductions of 60% of 1990 levels by 2020, and 90% by 2030. These targets are our bottom line and are based on the increasingly dire scenarios presented by climate scientists suggesting that this is the minimum necessary to avoid runaway global warming. Based on the precautionary principle that all possible and likely threats must be avoided if feasible, we recommend the Zero Emissions Network goal as the safest plan to aim for.

1.3.1 These cuts in emissions are entirely possible without seriously compromising the basic health and rights of people. Efficiency measures alone could make a huge cutback. Our first priority should be massively reducing waste energy use, followed with phasing out the remaining fossil fuel use and replacing it with renewable energy sources over the period up to 2030.

1.4 Funding

The Stern report clearly explains how the costs involved in preventing runaway climate change are well worth spending, and the sooner the better. If countries do not fund drastic measures to minimize greenhouse gas emissions, the costs to the economy in the long-term will be exponential. Therefore, even from an economic perspective, it makes sense for the government to fund the policies we are putting forward either directly (through diverting money away from wars, the subsidizing of fossil fuel, road expansion and other harmful industries and increasing corporate taxes) or indirectly (through regulating the corporations to pay for the costs of adapting our economy). Some industries need to be nationalized so that decisions are made in the interests of people and the environment, instead of profits.

1.4 International action

Climate change policy is by definition international.

1.4.1 Australia must sign the Kyoto protocol immediately.

1.4.2 Following from this international pressure must be applied for all nations, especially the industrialised nations, to adopt the goal of 90% reductions by 2030. A new round of climate negotiations must be organised with all sympathetic governments to prepare a global plan and treaty.

1.4.3 All diplomatic and trade measures must be considered to pressure countries to adopt these measures. This includes the options of trade sanctions and embargoes against nations that refuse to take action, as well as favourable agreements with countries that are enacting measures to reduce greenhouse emissions.

1.4.4 Poor nations that have the double burden of responding to climate change and dealing with the destructive legacy of colonialism and economic imperialism must be helped to develop renewable energy resources and to put their economy on a sustainable footing in all senses, not just energy.

1.4.5 Australia must recognize environmental refugees and offer to take in people, especially from drowning countries in the Asia-Pacific region, who are displaced due to climate change impacts.

1.5 Rejecting false measures

1.5.1 Nuclear power is no solution to climate change. It is highly expensive, requires huge resource use to build and fuel (inevitably including more fossil fuel burning), wastes too much water in use, and results in deadly, untreatable wastes as well as the danger of nuclear weapon proliferation. Australia's uranium mining industry must be shut down immediately.

1.5.2 "Clean coal" technology and geo-sequestration are untested and require at least ten years before real implementation according even to their proponents. These ideas exist to provide an excuse for the continued operation of the coal mining industry. Public money currently invested in "clean coal" and geo-sequestration research must immediately be channeled to research and development of energy efficiency and renewable energy generation. Research in the areas advocated by the fossil fuel industry – including geo-sequestration – should be funded by the fossil fuel industry itself and subject to independent scientific evaluation, as recommended by CANA.

1.5.3 Carbon taxes and emissions trading schemes seek to force change by placing costs on greenhouse emissions. These measures are at risk of subversion by loopholes, speculation and lax implementation. Further they allow polluting industries to continue, albeit at a higher price, without guaranteeing the development of renewable energy and efficiency measures. Socialist Alliance supports making polluting industries pay for the transition to sustainability, but advocates the use of nationalisation and democratic planning to place strict controls on pollution instead of market-based schemes.

1.5.4 Individual and consumer measures, such as buying "green" products and reducing personal environmental impact (in the home, etc) should be encouraged in general but cannot be considered as a driving force for the change to sustainability. Individual/consumer action keeps people isolated from one another in their actions, has very limited impact in terms of the products and cuts that are affected by individual decisions, and is open to exploitation by dishonest advertising of "green" products that do not genuinely match the necessary standards for sustainability.

2. Accountability.

The Socialist Alliance believes in the greatest public transparency and accountability. The first measure to address the problem of climate change is to cut away the barriers of corporate and governmental secrecy and red tape to make the facts real to the whole community, so that they may be empowered to act.

2.1 Ownership and accountability

Public ownership of the major sectors of industry is key to directing it in sustainable directions. Market forces chase dollars not sustainability. Public ownership of power and transport industries is key to challenging climate change. This does not simply mean reversing privatisation. Public input is missing from the current bureaucratic system of government. Public ownership must mean complete public transparency and accountability including democratic mechanisms to select and reject plans and administrators for publicly owned companies. Workers in each workplace must be given the opportunity to collectively develop a plan to reduce the business or department's environmental impact, and government bodies must oversee its implementation.

2.2 Carbon life-cycle accounting

Many products and processes are advertised with claims as to their ecological advantages, such as hybrid and electric cars. Taking away the advertising and hype, it is necessary to conduct a scientific study of the major infrastructural and consumer categories to determine their impact on climate change from the initial harvest of resource inputs to

make them, through all stages of research, manufacture and transportation to markets, their intended use, and decommissioning or disposal. The results can be used to make an informed decision as to what constitutes a real reduction in GHG emissions overall and act accordingly.

2.3 Industry must be regulated strictly with the above information used to determine where to make cuts. The information must be put into the public domain and allowed free debate in the community. Workers in polluting industries, customers, and communities affected must be empowered to determine the course of action for closing or updating those industries.

2.3 Education

2.3.1 Climate change education programs must be run in schools, workplaces and communities.

2.3.2 Any technology, such as 'smart meters', which tell people how much electricity their appliance or their house is using at any point in time, need to be introduced to help people monitor their energy use. Studies have shown that these can lead to reduced energy consumption.

3. Power generation

Over one third of Australia's GHG emissions come from burning coal to produce electricity.

3.1.1 Government subsidies must be removed and existing fossil fuel energy sources must be closed down as soon as possible in the order of the most polluting (coal for example) to the least (natural gas). This must be done by implementing a strict reduction in power use (through the other measures in this document). The first step would be to switch base-load power generation over to natural gas as a transitional measure, and only use coal for generation of anticipated peaks (such as very hot days; this plan developed by Zero Emissions Network). Power supply must be maintained to all essential services as a priority, and the community must be involved in deciding what these are.

3.2.1 All realistic measures including wind, solar, solar-thermal, tidal, hydro, geothermal, wave, biomass etc need to be evaluated and implemented on the scale practical to ensure a diverse base of energy generation which will be able to change or adapt to the loss of one component (such as when the wind is not blowing, tidal or solar energy can compensate for lack of wind power).

3.2.2 Intensive research needs to continually develop more effective renewable energy generation techniques and more efficient manufacturing of them.

3.2.3 Renewable energy generation must be decentralised to the extent that this does not seriously compromise efficiency. Measures such as solar hot water and PVC installation should be implemented at the household/building level, wind farms at the locality level, etc. as well as larger facilities like geothermal and solar thermal power stations; all this is to be fed into a single grid.

3.2.4 Energy storage devices should be used to capture excess power generated in peak periods. These could include batteries, uphill water reservoirs for hydro generation, hydrogen production, and so on. These can then be used for backup or portable power supply.

4 Transport

Transport is a major and growing contributor to greenhouse emissions. (16% of Australia's GHG emissions in 2004). Policy in this area also needs to take into account the peak oil situation we are rapidly approaching. We need to audit transport to determine what is necessary, what can be phased out, and what may be transferred to an alternative (less polluting) means of transport.

4.1 Commuter transport

The most obvious transport excess is city commuter transport. Cities need to build public transport infrastructure to meet the minimum requirements that all residents have easy access to regular and reliable public transport for all of their commuting requirements. This means a network system in which arterial transport routes are backed up with connecting services to every suburban area. Services must be every 10 minutes or preferably more frequent in order to minimise waiting times at interchange points. This transport must be free to encourage people to abandon using cars.

4.1.1 Unnecessary travel must be discouraged. Firstly, instead of shopping complexes being vast, centralised and away from public transport, local distribution outlets should be put in every neighbourhood where people can purchase or order their requirements. Travel to work must be rationalised. Many people travel huge distances and long hours simply because they have to take a job where they can find it. A centralised program of swapping jobs, helping people

to relocate closer to their work, and decentralising workplaces where appropriate, could reduce vastly the distance of commuter travel.

4.1.2 We need something here about car transport – government’s mandating higher fuel efficiency standards for all vehicles – or mandating all new vehicles need to be hybrid or electric or a scheme to convert all existing cars to electric (Is this achievable?)

4.1.3 Incentives to encourage bicycle use and walking eg. public bicycles like in Denmark?, city-wide networks of cycle and pedestrian tracks, facilities to take bikes on public transport, and secure parking areas.

4.2 Domestic Freight

Domestic freight is increasing, and increasingly carried by truck. This must be turned around so that rail is the primary means of transportation.

4.2.1 This would include a program of building and upgrading freight rail tracks into and between industrial areas and hubs such as ports.

4.2.2 Interstate and intercity freight should be completely done by rail wherever possible.

4.2.3 Freight rail should be upgraded to electric, including interstate and intercity freight lines.

4.3 Air transport

Air transport should be avoided at all costs except where its speed is absolutely necessary (for example, urgent medical goods, or people with urgent business). This means a regulatory authority to be given power of restricting air travel.

4.3.1 Socialist Alliance supports the development of fast electric passenger train services (and fast freight as required) to bridge the long distances across Australia. These should be available at cheaper rates than existing air travel to replace it for most people’s trips.

4.4 International goods shipping

In accordance with manufacturing policy below, international goods shipping needs to be regulated to avoid unnecessary trade of goods which can be sourced locally. Exports which are necessary for balance of trade (and international aid) need to be identified and prioritised, while trade in goods which harm the environment or are unfair to producers in other countries must be regulated or stopped. For example, as public transport replaces commuter car travel, the import of cars and car components can be ended. The export of food crops like rice which undermine poor peasant producers in south-east Asia (for example) should be stopped.

4.5 Retail needs to be turned into delivery services as much as possible. Warehousing takes far less energy than retail storage and display. Direct delivery removes one step from the chain of supply which is undeniably more efficient. This should be read in conjunction with 4.1.1 above and 5 below.

5 Manufacturing and consumer items

Two major changes need to occur to how manufacturing occurs: Firstly cut out unnecessary manufacturing and make existing manufacturing cleaner and more efficient; secondly to begin manufacturing the infrastructural requirements for a sustainable society.

5.1.1 Unnecessary manufacturing includes products which are not needed at all or are not needed in the quantities which they are currently consumed. Cars are the biggest example. A massive cutback in auto manufacturing (and import) is necessary.

5.1.2 Built in obsolescence and inefficiency are usually incorporated into products in order to force consumers to replace products at unnecessarily short intervals. Industry R&D must find measures to ensure that all products have the maximum of energy efficiency in application, and are made to be as durable as practically possible. This applies from the smallest items like light globes up to the level of building construction and major infrastructure works. Higher energy efficiency standards must be set for a wider range of goods and energy labelling improved so consumers can make informed choices.

5.1.3 The environmental impact of materials must be assessed. For example, wood and steel are vastly less energy intensive than aluminium; concrete is vastly more polluting than bricks; plastics can cause far more pollution than wood and cloth. A transition to low-impact materials needs to be begun immediately.

5.1.4 Repair/recycling industries need to be initiated to end the wasteful throw-away system that consumer products are designed for. Computers are a good example of the huge waste generated by cheap manufacture and built-in obsolescence. While new computers should be designed to get around this, facilities need to exist to repair, find new uses for, or recycle the components of old equipment. Fixing old cars instead of wrecking (and replacing with new cars) is another example. Wide-scale conversion of cars to electric should be encouraged.

5.2 New industries must be built to manufacture the requirements for sustainable living.

5.2.1 Renewable energy sources must be built immediately. The first generation should be used to power the manufacture of more, so that this growth area in manufacturing does not become a growth area in emissions as well.

5.3.1 Besides energy generation equipment, many other items need to be made to start the transition. Huge numbers of public transport vehicles; bicycles; grey-water recycling systems; water tanks and so on. These industries need to be built immediately, in the most efficient and sustainable manner possible at the present.

5.3.2 As old industries are phased out (coal, auto, etc) the workers who work in these industries, and the regions where they are based, must be given the first opportunity to work on decommissioning old infrastructure, building the new industries, and working in the new industry.

5.3.3 Wherever possible, the transition should be accomplished by re-tooling existing plants. Whenever a factory is going out of business, socialists advocate its nationalisation and re-development to make socially useful, ecologically sustainable products. The huge capacity of auto manufacturing should be the base for manufacturing sustainable energy infrastructure.

6 Water, agriculture and the natural environment

Human activity has already placed great stress on the natural resources necessary for the reproduction of life and human society. Climate change will exacerbate this dramatically. Systems need to be in place to protect biodiversity and natural ecosystems while providing a guarantee of food security for the human population.

6.1 Water

Water use is marked by unnecessary waste. Socialist Alliance environment policy already covers many aspects of this. To summarise:

6.1.1 End environmentally inappropriate agribusiness farming in the Murray-Darling river basin. Farming should be for genuine domestic and foreign aid needs. Where farming continues, crops should be grown sustainably. Priority has to be given to the most useful crops rather than the most profitable.

6.1.2 Protect major water catchments from logging and land clearing. Healthy forest ecosystems are essential to water catchment cleanliness and water flow.

6.1.3 Urban water needs a comprehensive plan of stormwater harvesting and waste-water recycling. The use of water-saving devices such as efficient shower heads and no-flush (composting) toilets must be implemented in all new buildings and building products, and incentives developed for retrofitting existing buildings. (*Governments need to fund water tank installation for all homes?*)

6.1.4 Industrial water waste must be audited and the information made available to the public. Mandatory recycling and efficiency laws must be imposed on industrial use of water to reduce or end waste.

6.1.5 Environmental flows must be allowed. Harvesting water (and storm water discharge) must not be allowed to disrupt the natural flows of river systems beyond what scientists consider are the acceptable limits for stability of the riverine ecosystem.

(NOTE: Should Socialist Alliance specify the recycling of sewage to use in industry?)

6.2 Agriculture

Farm production currently relies on unsustainable practices. A new agricultural revolution is needed to make agriculture sustainable.

6.2.1 Industrial agricultural chemical production consumes huge quantities of fossil fuels. These must be ended as soon as possible with a transition to organic farming and carbon-neutral fertiliser inputs (such as recycled sewage).

6.2.2 Industrial farming with chemical fertilisers and pesticides destroys the natural composition of the soil. This means that carbon which would normally be absorbed by the soil humus is instead released into the atmosphere. Once again, cropping must be shifted to organic practices.

6.2.3 Livestock farming creates significant emissions of methane. Livestock farming must be reduced to a sustainable level. *Livestock feed must be sourced from organic sources to ensure that methane emissions are not coming from fossil-fuel fertilisers but from carbon already in the biosphere. ?Does this make sense and is it necessary?*

6.2.4 Food production must be decentralised. This will reduce the amount of energy needed to transport and refrigerate foods. A broader base of production protects food security in the event of natural disasters destroying crops. This should include widespread urban agriculture. Communities need to be involved in the production of their own food to empower them and to facilitate environmental education about sustainability in the community.

6.2.5 Existing farming communities must be assisted with income, resources and training to make a transition to sustainable land care practices and new industries or relocation where farming cannot be continued.

6.3 The natural environment

Biodiversity and the survival of ecosystems must be promoted. Stress caused by global warming threatens a further mass extinction on top of that caused already by human activity to date.

6.3.1 Sensitive and remnant environments must be protected at all costs. This includes native forests, grasslands, riverine systems, and the marine ecosystem. Protection means preventing damage or destruction, so all development for residential, industrial or tourist reasons must be strictly monitored and stopped if doubt exists. Land clearing, especially old-growth logging, needs to stop immediately and the forests preserved for their value as carbon-sinks. (Noting that uncleared forests store up to three times as much carbon as regenerated or plantation forests).

6.3.2 Urban and agricultural spread has already destroyed or nearly destroyed many ecosystems. Regeneration programs must be undertaken to enable remnants of original ecosystems to return and spread. Measures such as bush corridors can be enacted in urban and rural areas to enable ongoing human use of land in conjunction with supporting the natural biodiversity of populated areas.

6.3.3 Endangered species must be protected with the most stringent measures. Introduced pests need to be removed or controlled as much as is possible.

6.3.4 . The Australian landscape has suffered a massive vegetation loss since white occupation. In many regions less than 20% of native vegetation remains. A broad, community based urban and rural land care partnership needs be put in place to urgently mobilise the numbers that would be required for a massive nationwide tree planting program if we are to protect the environment, and Australian agriculture, from the further effects of soil erosion and salination.

7 Community co-operation

Use and ownership of many consumer items from whitegoods to cars to computers is unnecessarily duplicated by the breakup of the community into individual households with little contact with each other. Community kitchens, laundries, offices, tool sharing, car pooling and so forth could drastically reduce the amount of resources needed for one home, and promotes communication and support in the community.

8 New work and changing jobs

Workers must be empowered to take part in the massive changes in the economy so that they can have input into how their jobs change and which new jobs they take up.

This means a massive program of retraining, but also of education and discussion in workplaces about how to make them more efficient, alternative uses, and so on. The experience and knowledge of the workers is an essential resource for directing their work in a sustainable direction. It also is essential that workers do not see their jobs simply sacrificed in the name of sustainability, which will alienate them from the process. Moral and material incentives must be developed where necessary, and full access to the national debate and decision making for workers.

The transition to a sustainable economy will require more workers than are available. There is no reason for the human waste of unemployment in our plan.

Draft for a concise 10-point plan on climate change

Ben Courtice (Melbourne West)

1. Free public transport, upgrade network to enable all urban residents to use it for all their regular commuting.
2. Nationalise the power industry -- from mining & gas to generation & delivery – in order to begin planned phasing out of coal mining and power. Ensure a fair transition plan for coal miner and power station worker communities with retraining and new sustainable industries.
3. Run baseload power from natural gas and/or hydro, not coal, as interim measure until renewable energy can take over. Coal only to be used for predicted energy peaks in short term.
4. Re-tool auto industry to manufacture public transport vehicles, wind turbines, solar hot water, photo-voltaic (solar) cells etc and components to convert existing cars to electric power.
5. Immediately begin construction of wind farms in all feasible areas. Fund research into solar-thermal, wave, tidal and geothermal options with the aim of beginning building as soon as possible.
6. Upgrade interstate train and bus passenger transport. Restrict or tax highly all non-essential air travel.
7. Establish energy auditing department to investigate industrial energy waste and recommend legislation or other measures to end it, including improving or banning wasteful consumer products such as those with built-in obsolescence.
8. Upgrade building code to make the most water- and energy-efficient housing mandatory. Make retrofitting of all feasible measures to existing houses mandatory with lease changes, building renovations etc. and subsidise residents for the costs.
9. Begin an urgent program of re-forestation and protecting biodiversity to ensure a robust biosystem can survive the stress of climate change, and to provide an increased carbon sink
10. Commit to 95% of stationary power emissions reduction by 2020; 60% overall emissions reduction by 2020; 90% overall emissions reduction by 2030. Immediate research into planning for these targets. Initiate an international treaty and mutual assistance program to bring other countries together to meet a target of 90% emissions reductions on 1990 levels by 2030. Isolate recalcitrant countries with trade sanctions etc.

2. Contributions and reprints

A. Background articles and introduction to the issues

Some basics

From Climate Action Network Australia website

What is the Kyoto Protocol?

The Kyoto Protocol is the international plan to reduce climate change pollution. 166 countries have agreed to work within the Kyoto Protocol. It sets targets for industrialised countries to reduce their pollution, and gives them flexibility as to how they can reach these targets. The Kyoto Protocol has established the international carbon trading market. Developing countries participate in the Kyoto Protocol in a number of ways, including through the Clean Development Mechanism. The first commitment period of the Kyoto Protocol runs from 2008 to 2012, and future commitment period targets are being negotiated now.

What is the United Nations Framework Convention on Climate Change (UNFCCC)?

The United Nations Framework Convention on Climate Change (UNFCCC) is a broad statement of principles and objectives to address climate change. Participating governments agree to share information on the amount of greenhouse gas pollution they emit, and on possible solutions to climate change, in addition to providing information and financial support to help developing countries reduce emissions.

The UNFCCC is a voluntary convention, without any binding targets. Once it became clear that under a voluntary system climate change pollution was increasing, rather than decreasing, the Kyoto Protocol was negotiated to ensure a safe climate outcome.

Talk on Climate Change to Victorian State Conference (April 14, 2007)

Ben Courtice (Melbourne West)

Since at least 2000, scientists have warned of climate ‘tipping points’, where a feedback mechanism is triggered that accelerates and deepens global warming. For example, the Arctic ice is melting. Ice reflects sunlight and heat back into space, but the sea that is becoming exposed absorbs the heat. So the Arctic becomes a net storer of heat instead of a reflector. If the Arctic tundra environment thaws, it will release massive amounts of methane gas which has been trapped under it; this will contribute so much greenhouse gases that it will probably tip the climate change from a couple of degrees to an eventual temperature rise of between 5 and 8 degrees. As Nicholas Stern said, if you increase a human’s body temperature by 5 or more degrees, the human dies, and that’s not a bad analogy for the world’s species: up to 90% are expected to become extinct if we hit that level of runaway climate change.

Above 2 degrees, this runaway climate change becomes very likely. It is already a possibility now, with the little 1.4C rise caused so far. By about 2020 we will have reached 2 degrees guaranteed temperature rise, and unless we have by then massively turned around our GHG emissions, we will be heading down the road for more inevitable rises.

Clearly action is needed. The 1990 Kyoto protocol, which Australia has not signed, is rapidly becoming irrelevant as global warming is happening so much faster than ever thought until a few years ago. While EU countries are much further ahead, even their best efforts do not meet the vast reductions that scientists tell us are necessary. The Friends of the Earth report calls for over 90% emissions reduction by 2030. Mark Lynas, an author who has recently published a book basically arguing global warming will mean the end of the human civilisation, concurs and suggests further a reduction of 60% by 2020. Obviously the sooner the cuts occur, the better.

In this context a group of Socialist Alliance members are drafting a policy document, available here in it’s rough draft state, which attempts to take the scientists’ warnings seriously and map out the social consequences of seriously adopting these cuts. There is a tension in trying to develop this. Scientists warnings suggest that 90% cuts in the next ten years could still be too late, so should we adopt that in principle? But how do you do that? We need some measure of a concrete plan.

The social and industrial changes needed are enormous. Our document aims to outline the sort of social re-organisation that we think is necessary to take on the challenge. We can’t be prescriptive about exactly how many

wind turbines and solar power plants get put in and exactly where at this stage, but we do need to call for more research and investment.

Our document is still in draft stage and we encourage feedback from anyone who is interested, not just members. It's not yet a policy, it's a discussion paper to work out a policy.

Reduce, then reuse and recycle

The first step in any realistic plan, while we are waiting for clean energy to come online, is to reduce our energy consumption. Everyone knows there is a lot of waste. Even Malcolm Turnbull has called for replacing incandescent light globes with fluorescent. The problem is, if you want to get really meaningful reductions in energy use, you have to start messing with more fundamental economic structures than your light bulbs.

Australia is the world's biggest coal exporter and uses a lot of coal for its own power generation. Obviously the power and mining companies are going to be threatened if we call for coal power and mining to be phased out. Their response has been the mythical "clean coal" PR drive, but that is just a smokescreen. That's a very big vested interest to have offside.

Coal power can't all be shut down: we need electricity. Until we get a replacement electricity source online, how can we make the massive cutbacks we need? If we look at the inefficiencies by sector, you can pin a lot of blame on specific waste. But what if we decide that a whole sector is a waste? Let's take transport. Transport emissions are over 15% of our total and are growing rapidly. Transport is dominated by air and road. Both are incredibly inefficient. Rail is a better solution, even while it is powered by fossil fuels, until we bring clean electricity and fuels online.

For the sake of this argument, I'll just look at urban transport. Socialist Alliance supports free public transport and a massive extension. Realistically, 95% of city dwellers could have access to reliable public transport quite easily if the investment was made. But if you start to replace road transport with rail and public mass transit networks, what impact does that have on other sectors? The car manufacturing industry and oil industry are going to be interested. If 95% of city dwellers no longer need regular access to a car, does that mean we will be able to cut out most of the car manufacturing industry? Imagine the amount of energy that goes into putting cars onto the roads. Mining the metal, refining the oil and steel, transporting these across the world, manufacture, assembly, transporting the car to market, advertising, building roads, accident insurance, supporting the working life of all the people who do all of this. And of course going to war to secure oil resources.

Making public transport widely available has a huge flow-on effect. This is why Socialist Alliance's campaign on public transport is such an important priority for us. We have some leaflets on this topic from the NSW state election here to look at.

Reductions like this are impossible for a capitalist economy without virtually destroying it. When I listed all the sectors of the "Auto-industrial complex", you see how widespread the system is.

Cars are a symbol of capitalism's wrong social organisation. They are dangerous. They jam up the roads and pollute the air. We work for a year just to pay the price of one.

How much energy goes into making a car? It's much more than the petrol it burns. Conservative estimates put it at 1/3 of the car's total greenhouse output, but the lack of data makes it hard to get a very accurate figure. If you include roads, advertising and so on it may be much more.

You can't just shut down the auto-industrial complex. The multinationals involved run the economy. Even if a clean-energy capitalism is possible, it is only a theory: to reach it, even without considering socialism, you would still have to destroy the existing capitalism.

Workers

If the car manufacturing industry and all its inputs and spin-offs were closed, we would have a lot of unhappy manufacturing workers out of a job. In fact this is already occurring locally, as work is going overseas to places like Germany where they can do it cheaper. As a member of the AMWU, I can report that our union is concerned at the rank-and-file level. One recent meeting had a steward asking the officials, what should we be telling our members to retrain for if they are in this declining industry? That's without climate change even starting to force a change.

If we close down coal mining and power, we have a similar problem: you can't just throw whole communities on the scrap-heap. Like the logging industry, we need to point out to these workers, when the coal industry is inevitably phased out, capitalism will throw them on the scrap heap. Being socialists means we think people can fight for their own future, not wait for the inevitable. Fighting now for sustainable industries means fighting to win the support and involvement of these workers. After all the jobs in decommissioning power stations and mining are finished, we might

be building a big offshore wind farm in Bass Strait for example: a big employment opportunity for the Gippsland coal area.

For that matter, car plants can be re-tooled to build wind turbines, PVCs, solar hot water heaters and so forth. When the US entered WWII, plants were turned around within a year from cars and such to making bombs and missiles. It is do-able. We need to push unions to grapple with this problem, to educate their members and join our fight.

I think the working class also need to be considered as consumers. How do you change the ingrained patterns of consumption that give rise to car culture, conspicuous consumption of luxury electronic goods and so forth? There is a notion of carbon rationing which I will address in a second. But I think we have already answered the question in part. How long does it take to pay off a car? How many hours of work? Many cars cost a year's wage. If you add in petrol, maintenance and registration, that's a lot of money. If you add all that working time to the time spent driving, you suddenly have a very slow car – so many hours spent, just to get to work! But if we are phasing out the need for cars – for one example – we are phasing out the need for all those hours of work spent paying for them. The socialist and union strategy of demanding reduced working hours for workers becomes a logical outcome.

Socialist planning

One of the aims of the Socialist Alliance draft policy is to rehabilitate the notion of economic planning in the battle to save the environment. Most existing plans rely on a combination of regulation (such as carbon taxes), market solutions (carbon trading) and consumer choices but leave the sacred cow of the market untouched.

Socialist Alliance is not in favour of more government bureaucracy, but we are in favour of more economic planning. You can't just leave blind market forces, even with few regulatory fences, to find their own way home. Market forces are only good for chasing dollars, and we would be naive to think they will forget this or they will accidentally save the planet along the way.

We suggest that state or community ownership of the process is a key ingredient to any plan. We need to close the polluting industries: they can't be expected to do that to themselves in a capitalist market. We need to build immediately new, clean technologies: they can't be expected to compete with the entrenched auto-industrial complex in a capitalist market. If an industry refuses to comply, it can be nationalised and run by the government. In fact the power industry should be nationalised immediately: it makes no sense to have an essential service run for corporate profit.

Individual carbon rationing

Friends of the Earth's document is very good in outlining the problem. The most concrete mechanism they offer in it for effecting change is individual carbon rationing. This idea is being seriously investigated by the UK government. The way it works is that each individual has a quota, kept on a kind of credit card, that they expend as they buy ghg-emitting products such as petrol or air conditioners. It's like a parallel currency. If you don't use all your quota, you can sell it to someone with a big car or big house who needs extra. The quota is reduced each year to force the change faster. The idea is that this consumer pressure will work back up the economic chain to stimulate change to investment in clean technology.

Most emissions trading schemes are very weak and not properly policed or thought out: speculation and loopholes undermine their intent and they have achieved almost nothing. Carbon rationing is a new kind of emissions trading scheme; it is being supported by many on the left not just the UK government. The Scottish Socialist Party is supporting it, George Monbiot has written a book to promote it. I am personally sceptical that the scheme will deliver the results itself. If you are going to ration people's carbon, you need to give them alternatives to buy, not wait for the miraculous market adjustment. We must not be afraid of central regulation, even nationalisation.

There are other problems. In this scheme, rich people are assumed to be worse off because they need more carbon credits to pay for their air-conditioned mansions and 4WD monster cars, so they buy spare credits from poor people, which helps poor people with money. But rich people also have a lot more money to convert their cars and houses to clean energy. It's not a flawless scheme.

I think the idea needs to be considered on its merits and I'm not against it necessarily. I'd suggest it's not going to be much use by itself: we need the economic planning approach that I already talked about. But in the context of changing people's daily consumption patterns, I think carbon rationing could play a useful role in helping people make educated choices and understanding the impact of the goods they buy.

Where to?

There are a lot of tasks that we could consider. I'd like to suggest a couple that Socialist Alliance could get involved in.

The first is our policy draft (see climateandcapitalism.blogspot.com/2007/04/australian-socialists-discuss-program.html). We need to make it more concrete. We don't need to retain exclusive ownership. What if other environmentalists want to contribute? Ideally we could come up with a joint green-socialist action plan and ask people to sign on. It doesn't have to be attached to a particular party, or to the word "socialism" even – the aim is to win support for the ideas. We can be imaginative. Can we get unionists or even unions to come behind our climate action plan? MPs? Businesses? We must try this. Socialist Alliance is an alliance because we believe in the power of people putting secondary differences to one side to work on common goals. This applies to alliances outside our own membership, not just within the party.

Secondly, World Environment Day on June 5 could be the next big climate action protest. We would suggest that a rally should demand ending uranium mining and the nuclear industry; investment in renewables; and the rapid phase-out of coal. I think these three demands are broad enough to bring together a wide coalition. Socialist Alliance doesn't want to go it alone: we want to work with everyone on this stuff.

Thirdly, our demand for free and accessible public transport may not be accepted by everyone as readily as the WED proposal but it is important, I think, to keep pushing this radical edge of the movement. Socialist Alliance branches must look for opportunities to educate people on these issues and engage in protest action.

Goals of the Zero Emission Network (ZEN)

1. To contribute to the reduction in humanity's net greenhouse gas emissions to zero and below, to reduce atmospheric greenhouse gases to a level that will enable humanity and our natural environment to thrive and flourish
2. To create a network of existing and new groups to support the global campaign to reduce humanity's greenhouse gas emissions.
3. To provide support for the membership of ZEN to:
 - a. Encourage and educate their membership to understand and participate at a personal, and broader level, in reducing greenhouse gas emissions.
 - b. Adopt means whereby the member groups can reduce their own net greenhouse gas emissions to zero or below.
4. To advocate on behalf of the membership of ZEN in order that the broader community, government, business, industry and individuals adopt the goals outlined in goal 1.
5. To expand understanding of the way greenhouse gases (water vapour, CO₂, methane, NO₂ etc) are produced and released into the atmosphere, how humanity's activities contribute to the amount of emissions and what individuals can do to lower their personal, community and national emissions.
6. To increase the membership and public awareness of ZEN.

Zero-minus-fast: the best target for a safe planet?

Philip Sutton

The emergence of 'tough' greenhouse gas reduction goals

The Kyoto Protocol calls for rich countries to cut greenhouse gas emissions by 5% compared to 1990 levels. The UK, South Australia and Victoria have gone for a 60% reduction by 2050, and California proposes a cut of 80%.

Typically, environment groups have gone for the biggest official goal on offer. The Climate Action Network Australia, representing 30 environment groups, echoes the UK government with a target of "at least 60% below 1990 levels by 2050". Recently, Friends of the Earth UK and journalist George Monbiot have recommended going further again with an average 90% cut for rich countries by 2030.

Choosing the best reduction target

With several 'tough' target on offer, which should we choose? To decide, we have to go back to basics.

We want to sustain people and other species, and to protect them the target has to actually do the job.

We have to choose a prudent risk level. You wouldn't fly in a plane that had more than a 1% chance of crashing. We should be at least as careful with the planet.

Even with greenhouse gases in the air now – 430-490 parts per million (ppm) CO₂ equivalent – ice sheets and glaciers are melting globally, there is serious drought, and extreme weather events and fires have been triggered. The most vulnerable – other species and poor people in developing countries – are struggling with the impacts right now. And this is with a warming of 'only' 0.8°C over pre-industrial temperatures. Even if no more CO₂ is emitted, the current gases will cause at least a further 0.5°C warming.

Biologists are worried that, based on damage already seen, a 1.5°C warming will be really damaging for nature.

Climate systems are surprisingly unstable and the world is on the brink of runaway heating because of 'positive feedbacks'. As things heat, less light is reflected to space, more methane and CO₂ is released into the air (from permafrost bogs, peat bogs, ordinary soils, and drying and burning bushland) and less CO₂ can be absorbed by the oceans and the land.

The result: more heating. A 3-4°C warming is likely to trigger runaway greenhouse heating, most likely keeping going until the globe is 8°C warmer. Such warming has not been experienced for millions of years. Under these conditions, most species become extinct and most people die.

The big impacts from climate change and CO₂ acidification of the oceans come from the impact on ecosystems, extensive desertification and sea-level rise (possibly as fast as one metre per 20 years if Greenland, then the West Antarctic ice sheets, are destabilised).

The earth system is complex and it often doesn't respond in simple ways, and despite growing knowledge, there is still uncertainty. In this situation it is necessary to talk about the probabilities of an event occurring rather than saying this *is* what will happen when X, of Y or Z occurs.

So, applying these ideas, what greenhouse reduction target emerges?

We will use the table to guide us to an answer. Down the left hand column we see atmospheric concentrations of greenhouse gases (expressed in terms of CO₂ equivalent). Then across the diagram, starting with third column from the left, are the probabilities that a particular warming will be exceeded.

In many of the cells there are four probabilities, taken unchanged from the 2006 UK government Stern Review. The four probabilities, running from left to right, illustrate the range of results from different computer models, from the highest to the lowest risk of exceeding a certain level of warming.

In the second column from the left is an indication of the impact of ocean acidification caused by the CO₂ component of greenhouse gases. Up to about 400 ppm CO₂ equivalent, marine species everywhere are able to deposit calcium carbonate to make coral or shells, but after 500 ppm CO₂ equivalent calcium carbonate won't form in oceans across the world and the species die.

In the third last row is the probability of species loss, of all types, for each level of warming. The second last row is the probability of triggering runaway greenhouse heating (source: James Hansen). The final row gives a qualitative impression of the total seriousness of the impacts at each temperature level.

Thus equipped, we can now identify the safe zone within which the things we value can be sustained. Starting with the needs of other species: the British Government target of keeping CO₂ equivalent levels at or under 550 ppm is too high because when gas levels approach this threshold, marine ecosystems will be destroyed through acidification. And the UK/EU target of staying at or under 2°C is too high by at least half a degree. With the greenhouse gases in the air now we have a 50-100% chance of exceeding 1.5°C warming. So to give adequate protection to nature we can see that the current level of greenhouse gases in the air gives an unacceptably high risk of warming and thus of damage.

Focusing now on runaway greenhouse heating, this is the planetary equivalent of crashing a plane. It simply has to be avoided. The risk must be kept well below 1%.

Using the risk data favoured by the UK Stern Review, sourced from the UK Defence Department's Hadley Centre (i.e. percentages second from the left in each cell with four percentages) and looking at the 4°C warming column, we see that there is, at a minimum, a 24% chance of triggering runaway greenhouse heating at 550 ppm CO₂ equivalent, at least an 11% chance at 500 ppm, at least a 3% chance at 450 ppm and at least a 1% chance at 400 ppm. (All four ppm numbers are 'CO₂ equivalents'.)

But note, the atmosphere is now already well over 400 ppm. So right now we have an unacceptably high risk of causing runaway heating of the planet – of 'crashing' the planet.

James Hansen, head of the NASA Goddard Institute, the leading USA climate research organisation, estimates that we have no more than 10 years to physically make the changes to the economy so that the business-as-usual scenario, that triggers runaway greenhouse heating, does not occur. If the business-as-usual warming occurs we have close to a 100% chance of 'crashing' the planet.

Taking all this together, the greenhouse gas levels in the air now pose an unacceptably high risk of damage to nature and an unacceptably high risk of triggering runaway heating. The only way to bring the risk down to an acceptable level is to cut greenhouse gas emissions to zero, to take the excess CO₂ out of the air as fast as possible, and to find environmentally acceptable ways to cool the planet. And the transformation of the economy from a business-as-usual structure to a sustaining structure must be physically accomplished within 10 years.

It is now clear that rich and poor alike must adopt the zero-minus-fast goal if we are to be practical about how we care for people and other species.

Philip Sutton is a member of the Greenleap Strategic Institute (www.green-innovations.asn.au)

Figure 1: What are the chances of *exceeding* a range of temperatures at a particular level of CO₂ equivalent?



NOTES. Temperature probability data in the range (400 <=> 550 ppm and 2°C <=> 5°C is from Stern Review 2006, Box 8.1, Part III, p. 195. The clusters of four percentages are probabilities generated by a range of models that have, from left to right: (a) the highest estimates, (b) The

Hadley Centre ensemble (more recent and towards the higher end), (c) the IPCC TAR 2001 ensemble, and (d) the lowest probabilities. The probabilities for a 1.5 °C warming at 400 ppm CO₂e has been taken from Azar and Rodhe (1997).

The runaway greenhouse warming estimates are based on views expressed by US climate scientist James Hanson. ‘Runaway’ warming is defined here to mean a temperature rise to a new quasi stable climate state, driven by positive feedbacks that become big enough for a time to become self-reinforcing, even if human climate forcings are stabilised.

The acidity rating (for oceans) is from Ken Caldeira, Carnegie Institution, Stanford (pers. comm.)

According to Prof. Danny Harvey, University of Toronto, the *current* (late 2006) level of carbon dioxide equivalent is: *~490 ppm*

Stern figures don't add up for world's poor

Christian Aid (South Africa)

30.10.06

Christian Aid today (Monday, 30 October) broadly welcomed the Stern Review on the Economics of Climate Change, but warned that even if its conclusions were accepted, millions of poor people would still be exposed to an unacceptably high risk of disease, drought and famine.

“Talk of economic dangers is all very well but a real danger still remains for poor people in the developing world whose futures depend on our willingness to act,” said Andrew Pendleton, Christian Aid’s senior climate change analyst.

“If we follow the report’s conclusions, we may avert economic bankruptcy but we will still be teetering on the brink of moral bankruptcy.”

Mr Pendleton welcomed the report’s main message that dealing with climate change was wiser than delaying, but said that Stern’s benchmark of economic feasibility was incompatible with the urgent needs of poor people.

“We are concerned that the Stern Report has dismissed stabilising global emissions at a level of CO₂ and other equivalent greenhouse gases (CO₂e) of 450 parts per million as too expensive.

“But in reality poor people are already struggling to cope with existing climate change as a result of an atmosphere polluted with 430ppm of CO₂e. At Stern’s levels (550ppm of CO₂e), large parts of the developing world would still be exposed to a much greater risk of disaster and misery,” Mr Pendleton said.

“Stern’s figures mean that the world’s average temperature would almost certainly increase beyond the two degree mark that most scientists agree is safe. This could condemn to death millions of poor people on the front line of climate change,” said Mr Pendleton.

Renewables: Can they kick it? Yes they can

Zane Alcorn (Melbourne Branch)

Despite Australia experiencing its worst drought in recorded history, the Liberal government continues to downplay the seriousness of climate change.

On April 23, Prime Minister John Howard outlined his “2020 vision” of Australia, and took the opportunity to describe the broad movement demanding urgent action on climate change as being “misguided at best, and misleading at worst”.

He also claimed that renewable energy was unreliable and could thus only ever account for a small portion of Australia’s energy needs.

This blatantly false assertion ignores the reality of various countries around the world who derive a large percentage of their national baseload energy requirements from reliable, emissions free renewable power.

From Cuba’s biomass power plants, providing up to 30% of their power, to Hawaii or Icelands majority geothermal power, to Spains wind farms- which recently eclipsed all other sources of power (including coal and nuclear) to provide 27% of their grid’s needs- renewables are far more reliable than Australia’s stone age government would suggest.

But what would a renewables-based Australian grid look like? And how soon could it be built? This week *Green Left Weekly* breaks the media blackout on renewables to create a graphic sketch of what a green power grid in Australia could look like- using predominantly off the shelf renewables, plus some near-commercial technologies.

This article assumes that a mass movement against climate change sees a Socialist Alliance government (perhaps in coalition or collaboration with an expanded Greens presence) elected in the 2007 elections. Unlike the Liberals and Labour, *this* radical government *is* prepared to smash the profits of the big coal (and uranium) miners by investing heavily in the only feasible source of low or zero emissions electricity- renewables.

A major part of the new government's election mandate is to take radical action to reduce Australian carbon dioxide emissions, and one facet of this mission is to rapidly refit the stationary (power station) sector to have near zero emissions.

BHP Billiton and Rio Tinto are nationalised, freeing up a massive source of coal revenue to (ironically enough) start to build alternatives to phase out coal power and exports...

The government starts reorganising the economy around centralised democratic planning, and develops a 'three phase' program to reduce stationary emissions to near zero levels by 2020.

Phase one, starting in 2008, would entail the establishment of several large solar photovoltaic and wind turbine factories around Australia, as well as associated component factories.

In some cases existing factories would be retooled to produce solar panel or turbine components. As these factories are being built, locations for new windfarms would be sought with the explicit input of community groups, councils and wildlife authorities.

An expanded renewable energy division would be commissioned at the CSIRO with the task of immediately fine tuning solar thermal technology for mass production, as well as developing hot dry rock geothermal technology for immediate large scale use.

Further development of wind, solar photovoltaics, biomass and biogas, thermal chimney, wave, tidal and other renewables would also be a top priority of the renewables division. Strategies for upgrading the Australian grid to cope with the less centralised dynamics of being renewables based would be commissioned, and the CSIRO renewables division would be empowered to build full size prototype generators.

Construction of plants would begin in 2010.

Several large new gas fired power stations would be built around Australia, replacing existing coal fired plants and providing flexible backup for the pending renewables network.

Large windfarms would be built and linked into the grid, and heavily subsidised photovoltaics made available for workers homes, and mandatorily sold to large businesses and factories.

Biomass processing plants and distilleries would be built in all major cities and in rural centres where there is a large amount of agricultural waste generated. These plants would extract methane, biodiesel, ethanol and combustible biomass/charcoal from fermented vegetable and agricultural waste products and manure. A strong emphasis would be placed on using existing waste products to produce biofuels and biomass, rather than growing crops explicitly for these purposes.

Biogas harvesting sewage treatment plants would also be built, with treated sewage irrigating large hemp plantations. The hemp could be used for textiles, building products and biomass, whilst the biogas (methane) harvested from the sewage and biomass plants could be fed into gas fired power stations.

This first phase would be completed by around 2014, and would supply 20% of Australia's baseload requirements with wind power (and up to 35% during production peaks) and would supply around 10% of daytime baseload requirements with solar photovoltaic power. This first wave of renewables would be backed up by gas power plants providing up to 25% of baseload requirements, and would allow about a third of Australia's coal fired power stations to be permanently phased out. Victoria's dirty LaTrobe valley brown coal fired power stations, and the oldest and least efficient coal plants in NSW, would be amongst the first plants to be retired.

Phase two, from 2014 to 2017, would see the construction of solar thermal concentrating plants with molten salt heat storage to provide for a further 10% of Australia's baseload requirements. A further 10% of baseload power would be supplied by hot dry rock (HDR) geothermal plants. Another 5% of baseload would be provided by new gas plants, and 5% by a further rollout of solar photovoltaics. Biomass plants, either new or in the form of reconditioned coal plants, would provide for a further 10% of baseload requirements. Another 2% average baseload of windfarms would be built.

Smart meters would be installed in homes, offices and factories to allow individual units such as air conditioners to be switched on or off by a centralised grid regulator en-masse to shed power load during peaks in electricity use (currently, since smart meters are not in use, whole suburbs occasionally need to be shut down during demand peaks

such as heat waves). This second phase of the renewables revolution would allow half of Australia's remaining coal fired power stations to be phased out.

By this stage the wind turbine and solar panel factories would be producing a substantial surplus of panels and turbines which could be traded internationally, allowing a major scaling back of coal exports.

Phase three, from 2017 to 2020, would rely partially on the refinement by the CSIRO renewables division of some previously more experimental technologies (it should be noted that prototypes of these generators do exist and that these technologies are much more logical a path to develop than "clean coal"). Solar chimney plants would be built providing 3% of baseload requirements, wave plants to account for an average 2% of capacity, and tidal plants to account for another 2%. Solar thermal plants with molten salt heat storage would be built to provide another 7% of baseload requirements, another 2% of baseload would be provided by wind, and a further 5% of peak daytime power would be supplied by a third rollout of solar panels. Biomass, either new or as reconditioned coal plant would provide another 7%, and HDR geothermal would provide another 5% of baseload. A further 5% of gas fired baseload would also be built.

At this point, Australia could phase out its remaining coal fired power stations and would have essentially a zero emission power grid. One working coal fired plant may be retained for nostalgic/historic purposes.

Existing hydro electricity would provide about 9% of the grid's baseload requirements. Together with the installed gas, geothermal and biomass plants,

This segment of the grid would provide up to 74% of peak baseload capacity- whenever required, 24 hours a day, 365 days a year.

The gas and hydro sectors (and to a lesser extent the biomass) can also be quickly and easily ramped down and shut off, meaning that for much of the year (and especially during the day when the solar thermal plants and solar panels are at maximum output), the grid can be running on 100% green renewable energy.

The 17% of the grid supplied by solar thermal power may drop back to 8% at night when the molten salt backup is running, and the 3% thermal chimney may drop back to 2% at night when running off the earth's heat and not the sun. Nonetheless another 10% of round the clock power could be provided, taking the 24hour reliable baseload total to 84%.

The wave and tidal power units are more of an unknown quantity, but may contribute a small percentage more to the round the clock baseload available.

In summer, a solid 20% of baseload would be supplied through the hottest part of the day- between 11am and 3pm- by solar photovoltaic panels. The beauty of solar panels (and solar thermal plants) is that they produce the most power when air conditioners are sucking the most power out of the grid- on long hot days.

This leaves wind power, which has an installed peak capacity of over 50% of the grid's requirements, and whilst it would almost never produce anywhere near its full capacity, it could certainly be built to quite reliably provide nearly a quarter of baseload needs around the clock.

Sometimes the wind farms would produce tremendous amounts of energy- 30- 40% of national grid requirements- at which point the gas and biomass plants would be ramped down to make way for the extra wind power available.

A large portion of essential water and sewage pumping could be pumped off peak using wind power, and similarly water could be pumped back up hydro electric dams to be recycled during periods of peak demand. Desalination plants and hydrogen producing electrolysis plants could be built specifically to soak up peaks in wind energy production; the water has obvious uses and the hydrogen can be blended with natural gas to run gas fired power stations and gas powered vehicles.

The gas plants could run on a cleaner blend of regular natural gas with 25% biogas and 15% hydrogen, resulting in lower particulate emissions and around a third less net CO₂ production than straight natural gas.

Initially there may be some rare power shortages, and if frequent enough this mean that another one or two coal stations may need to be kept running whilst another couple of gas fired plants are built. However based on working examples of large scale wind, geothermal, solar thermal, and biomass plants around the world, one can safely assert that building a national grid to consistently and reliably run on over 70% (and at times up to 100%) renewables is already, today, a very practical possibility.

Building a near zero emissions power station network would cost somewhere between \$50-90 Billion and would create a renewables exports stream worth \$5-10Bn per annum.

The project would directly employ upwards of 150,000 people.

Importantly, a precedent would be set in how to slash emissions, and an example would be made for how fossil fuel exporters can establish an alternative source of trade. Australia would reverse its current position to become an authoritative voice in the global emissions reduction drive, and would also be in a position to supply aid to developing countries in the form of renewable energy.

The above scenario describes a hypothetical crash program for virtually eliminating stationary emissions in Australia in less than 15 years. It is an ambitious target informed by a scientific understanding of the seriousness of climate change, and assumes that historic massive productivity drives (such as wartime military manufacturing) could be emulated for the peaceful and socially essential task of stopping climate change.

Of course, this is merely a possible *scenario* for a large and immediate overhaul of the grid to reduce stationary emissions. This may be a practical basic strategy but is by no means a blueprint of exactly what *must* happen. Developments in technology may mean that another technology, such as solar photovoltaics, solar thermal, geothermal, or biomass may play a larger role in the struggle to phase out dirty coal than in the aforementioned strategy. Collective organising would entail key input by those unions who oversee the manufacturing and installation of solar and wind modules, and also the construction of the biomass refineries and gas fired, geothermal and solar thermal power stations. This, along with the participatory planning input of local councils, would determine a path of least resistance in cutting emissions. This plan would be distinct to Australian conditions, and would be regionally distinct city by city and town by town based on the skills of each participating community, and the available local infrastructure. The need to provide alternative work for coal workers, and the most effective and practical local contribution to complement the wider effort would also be key goals. To reiterate- the actual revolutionary carbon cutting effort would likely be *substantially different* to the aforementioned strategy. This is to be expected and is inherent in the nature of democratic socialist planning, which when functioning correctly organically determines a “best path” to achieve social goals such as massive emission cuts.

Sustainability not as profitable as business as usual

Sustainability is not as profitable as business as usual (at least not in the immediate term, which is the primary concern of capitalists). Projects whose full worth becomes manifest over a twenty, thirty, or even fifty year period, are too “risky” for capitalists to invest in. They do not provide enough short term return on investment. A recent article in the Sydney Morning Herald illustrated this point with reference to the Sydney harbour bridge, claiming it would not have been built as the product of either a private tender, or even a “Public Private Partnership”. It was simply too massive and long term a project. The bridge did not generate a positive cashflow from tolls until 28 years after its construction. Of course in retrospect the bridge was a worthy investment, which in its 75th year continues to be a vital arterial channel of car, bus, truck and rail traffic.

Like the harbour bridge, a genuine restructuring of the Australian grid to slash emissions- incorporating a range of complementary renewable energy technologies- simply will not return profits after 5-10 years. To a capitalist, the concept of investing tens of billions of dollars to “keep the planet inhabitable” is insane- pure lunacy- if it means foregoing profits on their investment for longer than this mystical 5-10 year period. Longer term investments are “not competitive” (with other investment opportunities) and ‘too risky’. Herein lies a crisis. With or without a “carbon trading scheme”, capitalists simply will not invest in renewables on the scale required to halt climate change. There is no way of dressing sustainability to make it look like a short term bonanza. It isn’t- it’s a long term, strategic investment for humanity, and will need to be a global effort.

Capitalists would be contradicting their most fundamental game plan-which is to generate capital- by investing in renewable energy, regardless of whether they recognise it as essential. The war on climate change must therefore be a major state project, as it simply *will not* emerge from the private sector. Class consciousness and climate change: a “razor thin precipice”

There is a whole world of renewable energy infrastructure waiting to be constructed. The arsenal for the war on climate change already exists and has immense scope for further technological advancement to make it more efficient, simpler, and cheaper. All that is missing are the mass movements and the political willpower to make it happen. Already there are large grassroots rumblings, with various climate change groups being established and finding out for themselves what is required politically and which approaches (like “individual choice” measures) are basically dead ends. But the movement is still not very large or organised. Perhaps a string of extreme weather anomalies such as our drought may be what finally sees the reality of climate change ignite a mass working class campaign to cut emissions. The intuitive clash between the redundant carbon enriched ruling class and the incumbent proletariat, acting to ensure our very survival, appears to be a battle which will be played out upon a razor thin precipice. On one side, a sustainable and equitable new society- and on the other, an uninhabitable planet, being slowly boiled until it can no longer support life.

B. Carbon trading, carbon taxes and carbon rationing

Carbon trading won't work

Michael K. Dorsey

April 1, 2007

Economists, some environmentalists and a growing gaggle of politicians are pushing a grand strategy that a market mechanism—known as “carbon cap and trade”—can rescue us fastest from a climate catastrophe. But early evidence suggests that such a scheme may be a Faustian bargain.

Gov. Arnold Schwarzenegger is one of the chief proponents of the market view. He has joined the governors of Washington, Oregon, New Mexico and Arizona to create the Western Regional Climate Action Initiative, which “sets the stage for a regional cap-and-trade program” that he hopes will serve as a model for a national program. The Kyoto Protocol, which went into effect in early 2005 (but which the United States has not signed), also endorses this approach.

Carbon cap and trade works this way: A group of nations (signatories to the Kyoto Protocol) or a group of states (the five Western states in Schwarzenegger’s plan) cap their carbon emissions at a certain level. Then a government agency, such as the European Union or the California Environmental Protection Agency, issues permits to polluting industries that tell them how much carbon dioxide they are allowed to emit over a certain time.

Companies unable to stay under their cap can either buy permits, or “emission credits,” on a trading exchange, which allows them to pollute more, or they will face heavy fines for exceeding their carbon dioxide targets. Firms that are able to come in under their caps can sell their excess credits on the exchange. Thus the right to pollute is a commodity bought and sold in a market.

The idea of trading pollution rights was part of the reauthorized 1990 Clean Air Act. The program successfully reduced the amount of sulfur dioxide emissions, which cause acid rain, largely because the sources were few enough (about 2,000 smokestacks in the Midwest) that they could be monitored effectively and because there was a national system, administered by the federal Environmental Protection Agency, to enforce the legally required limits, or caps.

Carbon trading on a global scale, however, amounts to an untested economic experiment. The most ambitious carbon-trading experiment to date began in the European Union in 2003. About 9,400 large factories and power stations in 21 member states were targeted, and the EU Greenhouse Gas Emissions Trading Scheme was established to trade pollution rights.

In January 2005, the EU governments distributed carbon credits—permits to pollute—to the companies and power plants. The credits were based in large part on what the firms estimated their annual carbon dioxide emissions would be. Because these credits were given out, not auctioned off, the firms did not pay for their pollution. Yet they stood to make money by selling them.

The EU’s official accounting of the companies’ emissions, released in April 2006, revealed that the companies’ and power plants’ actual emissions came in below estimates. Some said the firms had inflated their earlier emissions estimates, and thus all had credits to sell. This situation produced a surplus.

Once it was known that the number of available permits exceeded demand, prices slumped. Indeed, fear that there are too many permits for sale (combined with concerns about the EU’s regulatory shortcomings) have effectively collapsed the market. A March 2007 report from Deutsche Bank Research noted that “many EU nations are still a long way from delivering on their Kyoto Protocol commitments to reduce carbon dioxide emissions.”

Researchers at Open Europe, an economics think tank in Britain, recently issued a report on the experiment. They concluded that the EU Greenhouse Gas Emissions Trading Scheme represents “botched central planning rather than a real market.” As a result, the report said, carbon trading has not resulted in an overall decline of the EU’s carbon dioxide emissions.

Worse, the early evidence suggested that the trading scheme financially rewarded companies—mainly petroleum, natural gas and electricity generators—that disproportionately emit carbon dioxide. The pollution credits given to the companies by their respective governments were booked as assets to be valued at market prices. After the EU carbon market collapsed, accusations of profiteering were widespread. In fall 2006, a Citigroup report concluded that the continent’s biggest polluters had been the winners, with consumers the losers.

Larry Lohmann, who works with the Corner House, a research organization in Britain, argues that carbon trading is little more than a license for big polluters to carry on business as usual. For instance, the Greenhouse Gas Emissions Trading Scheme was further weakened by provisions that allowed big polluters to buy cheap “offset” credits from abroad. A British cement firm or oil company that lacked enough EU permits to keep on polluting could make up the shortfall by buying credits from, say, a wind farm in India or a project to burn landfill gas to generate electricity in Brazil. “Such projects,” Lohmann said, “are merely supplementing fossil fuel ... not replacing it.”

These problems may soon infect the cap-and-trade system of the five Western US states. In July 2006, Schwarzenegger and British Prime Minister Tony Blair announced their intention to join together to address global warming, possibly by linking emerging markets for pollution credits in the US with established ones in Europe.

US industry and environmental leaders recently joined together under the catchy name USCAP, for US Climate Action Partnership. Among the participants are Alcoa, Caterpillar, Duke Energy, DuPont, General Electric, Pacific Gas & Electric, the Natural Resources Defense Council and the Pew Center on Global Climate Change. The group called for some form of carbon cap and trade, but its reduction targets, in effect, would keep atmospheric carbon dioxide at roughly current levels over the next five years.

The EU experience doesn't augur well for the effectiveness of a global carbon-cap-and-trade scheme in a world characterized by growing economic inequality and enormous differences in governmental capacity to provide oversight, let alone regulation. The risk is that by the time it's apparent such a scheme is not working, extreme climate change will already be wreaking havoc.

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Carbon trading: a corporate scam

Patrick Bond, Rehana Dada and Graham Erion

12 January 2007

With climate change posing as one of the gravest threats to capital accumulation - not to mention humankind and our environment - in coming decades, it is little wonder that economists such as Sir Nick Stern, establishment politicians like Chancellor of the Exchequer Gordon Brown and US Democrat Al Gore, and financiers at the World Bank and in the City of London have begun warning the public and, in the process, birthing a market for carbon dioxide (CO₂) emissions.

The idea is to sell the right to continue polluting in the North, in the hope that more efficient energy systems can be incentivised through “Clean Development Mechanism” (CDM) offset projects in the Third World.

This was the key theory motivating capitalist states' support for the Kyoto Protocol and, since February 2005, when the protocol was ratified by Russia and formally came into effect, a great deal more money and propaganda have been invested in the carbon market, including at a major Nairobi climate conference last November.

Rather than forcing countries, or firms, to reduce their own greenhouse gas emissions, Kyoto Protocol designers created - from thin air - a carbon market and gave countries a minimal reduction target (5% from 1990 emissions levels, to be achieved by 2012). They can either meet that target through their own reductions or by purchasing emissions credits from countries or firms that reduce their own greenhouse gases beyond their target level.

But as Larry Lohmann from the British NGO Cornerhouse and the Durban Group for Climate Justice remarked: “The distribution of carbon allowances [the prerequisite for trading] constitutes one of the largest, if not the largest, projects for creation and regressive distribution of property rights in human history.”

Big oil companies, particularly, win property rights to pollute at the level they always have, instead of facing up to their historic debt to the Third World for using its atmosphere as a “sink”, a function that the UN estimated was worth US\$75 billion annually in 2000.

South Africa is a good case study of abuses, for in mid-2005, Sasol, one of the country's largest companies, admitted its gas pipeline project proposal to the CDM bureaucracy lacked the key requirement of “additionality” - i.e., the firm doing something (thanks to a lucrative incentive) that it would not have done anyway - thus unveiling the CDM as vulnerable to blatant scamming.

At Durban's vast Bissasar Road rubbish dump, Africa's largest landfill, community protests against ongoing carcinogenic emissions have derailed the World Bank and municipal state's plans to market a methane-capture project as a CDM.

According to Sajida Khan, a cancer victim leading the fight: “The poor countries are so poor they will accept crumbs. The World Bank knows this and it is taking advantage of it.”

Similar protests across the Third World have targeted destructive CDMs such as tree planting at Brazil’s Plantar industrial timber plantation, and in Indian communities where mass demonstrations are raising the profile of the dangerous market.

Carbon trading may also suffer classic contradictions of capitalist markets, such as volatility, overproduction and manipulation. In April 2006, Brown made a strong pitch at the United Nations “for a global carbon trading market as the best way to protect the endangered environment while spurring economic growth”.

But 10 days later, the European Union’s emissions trading market crashed thanks to the over-allocation of pollution rights, and the carbon spot market price lost more than half its value in a single day, destroying many CDM projects earlier considered viable investments.

Guardian columnist George Monbiot recently explained why schemes like tree-planting are so dubious: “While they have a pretty good idea of how much carbon our factories and planes and cars are releasing, scientists are much less certain about the amount of carbon tree planting will absorb. When you drain or clear the soil to plant trees, for example, you are likely to release some carbon, but it is hard to tell how much. Planting trees in one place might stunt trees elsewhere, as they could dry up a river which was feeding a forest downstream. Or by protecting your forest against loggers, you might be driving them into another forest. In other words, you cannot reasonably claim to have swapped the carbon stored in oil or coal for carbon absorbed by trees. Mineral carbon, while it remains in the ground, is stable and quantifiable. Biological carbon is labile and uncertain.”

The main force for a genuine alternative to capitalism’s fake market mitigation strategy will be public pressure. With Third World communities and progressive environmentalists - especially the Durban Group for Climate Justice - seeking and finding allies serious about the climate crisis, there will be fewer opportunities for Nick Stern and Gordon Brown to sell bogus market solutions to capital’s pollution problems.

[The authors are editors of a new book *Climate Change, Carbon Trading and Civil Society*, available from Rozenberg Press, Amsterdam.]

From: *Comment & Analysis*, Green Left Weekly issue 694 17 January 2007.

No to carbon trading: make the polluters pay

Tim Stewart and Pip Hinman

22 November 2006

Glenn Albrecht correctly identifies coal as the biggest contributor to greenhouse gases. But his support for a type of carbon credit scheme, whereby the rest of the world pays Australia not to mine its coal, implies confidence that the market will correct itself. However, the decisions made over the last 100 years of capitalism are precisely what has led to today’s climate crisis.

Getting dirty industry to clean up its act can and has to be a partial solution. But carbon trading schemes won’t achieve that. In fact, carbon credits, or tradeable pollution rights, entrench “business as usual” for the dirtiest industries. Giving corporations the “right to pollute”, or the ability to buy pollution rights, might encourage some efficiencies, but it will not force the radical departure from coal and oil that we need.

According to Dick Nichols, author of *Environment, Capitalism and Socialism* (Resistance Books, 1999), in theory a market-based mechanism could have an impact—if the total quota is small enough and the price of buying extra quotas (i.e. the right to pollute) is high enough. “However”, he adds, ‘the difficulties encountered with Kyoto and in establishing a Europe-wide system of tradeable quotas reveal a huge gap between the theory and practice.

“In the European case, the total level of tradeable carbon quotas has been increased by harsh pressure from business. It has now reached the point where it is having a negligible impact on greenhouse gas emissions.”

Carbon trading—a critical conversation on climate change, privatisation and power, released on October 4 by the Sweden’s Dag Hammarskjöld Foundation, the international Durban Group for Climate Justice and the Britain-based NGO The Corner House, argues that carbon trading has actually slowed the social and technological change needed to cope with global warming by unnecessarily prolonging the world’s dependence on oil, coal and gas ().

It argues that carbon trading “dispossesses ordinary people in the South of their lands and futures without resulting in appreciable progress toward alternative energy systems”. Editor Larry Lohmann believes: “The huge blocks of tradeable emissions rights handed out to Northern polluters allow them to profit from business as usual, yet the market is not promoting alternative energy in the South, either.”

This is because most of the carbon credits being sold to industrialised countries come from polluting projects that do nothing to wean the world off fossil fuels, such as schemes that burn methane from coalmines or waste dumps. The bulk of fossil fuels must be left in the ground if climate chaos is to be avoided, the book warns.

Jutta Kill of Sinks Watch argues in the book that carbon trading “impedes the further development of already-existing positive approaches such as conventional regulation, public investment in energy alternatives, taxes, and movements against subsidies for fossil fuel extraction”. The authors conclude that carbon trading schemes “cannot eliminate the need for hard decisions and hard political organising”.

In the United States, where carbon trading schemes have been in place for years, there have been some efficiency gains in some industries. But there has been no fundamental change in the carbon-producing industries due to their purchase of “off-site carbon reduction schemes”, such as investing in carbon dioxide-absorbing tree plantations somewhere else on the planet.

The costs of any carbon trading schemes are also more likely to be passed on to the consumer. There will be little choice for the millions of homes and businesses connected to the coal-powered electricity grids in NSW, Victoria and Queensland but to shoulder this “environmental levy”.

Environmentalists’ primary concern should not be to guarantee the “rights” of corporations to pollute, but to push for the necessary transformation to clean fuels. This means putting society’s needs ahead of corporations’ drive for profits.

Coal is the most carbon-intensive, or dirty, fossil fuel. It is also the most abundant. According to the Worldwatch Institute, coal releases 29% more carbon per unit of energy than oil and 80% more than natural gas, and it accounts for 43% of annual global carbon emissions—approximately 2.7 billion tons.

The Australian Coal Association estimated that in 2005 Australia’s coal industry produced 30% of the world’s total coal, making \$24.5 billion for mining companies and employing around 25,000 people. Using the same economic modelling as the UK Stern report, which attempted to put a cost on the impact of climate chaos, the November 2 *Sydney Morning Herald* calculated that “Australia is exporting at least \$61.5 billion worth of climate change every year in the form of coal shipments”, a figure that is set to rise with the push for new mines and bigger coal loaders.

There is no question that coal needs to be phased out. This can only sensibly be done by reducing overall energy consumption while phasing in renewable energy systems, and retraining and redeploying workers who have relied on the coal industry.

The *Age*’s analysis of the federal budget found that polluters will receive \$8 billion in subsidies in the 2006-07 financial year. Just \$280 million was allocated to activities that directly reduce emissions. Compensation and retraining for displaced workers is a much better use of our tax dollars than paying carbon credits to dirty industries.

Cuba, an impoverished country suffering under a punishing US economic embargo, has shown the rest of the world how it is possible to make this rapid transition. This year, Cubans have been taking part in energy conservation programs as part of the “Year of the Energy Revolution”. Thousands of social workers have been visiting homes to compile energy inventories of appliances, educating people on energy efficiency and placing people on building priority lists.

Cuba is also decentralising its power system, and supplementing regional plants with solar and wind power. There has been a proliferation of urban gardens and rural organic farms, bringing food closer to where it is needed and lessening the reliance on fossil-fuel transport infrastructure.

This is the level of national and local organising required if we are to force the radical change needed to avert a calamitous build-up of greenhouse gases.

From: *Comment & Analysis*, Green Left Weekly issue 691 22 November 2006.

Carbon trading: an essential tool in the greenhouse struggle

Mark Diesendorf

6 December 2006

In their article “No to carbon trading: make the polluters pay” (*GLW*

691), Tim Stewart and Pip Hinman argue against the use of carbon pricing in general, and emissions trading in particular, as an important tool for reducing Australia’s greenhouse gas emissions.

Their argument against carbon pricing is that the costs will be passed on to consumers. This is inevitable and, I suggest, essential. Without a price signal, how can renewable energy sources compete with dirty coal? Without pricing that reflects the true environmental and health costs of greenhouse pollution, industries will continue to choose the cheapest and dirtiest energy sources and members of the public will continue to live in a state of illusion and waste energy by using plasma TVs, air conditioners, SUVs and electric hot water systems.

State governments can protect low-income earners from the price increases resulting from carbon pricing by introducing regulations and standards for buildings, appliances and equipment and schemes to assist people to reduce energy wastage. With a combination of higher energy prices and less energy consumption, there is no reason why energy bills would increase at all.

There are two principal types of carbon pricing: carbon taxes and emissions trading schemes. Carbon taxes set a price for carbon, while creating some uncertainty about the amount of emissions reduction those prices (together with other measures) will achieve. They are administratively simple.

The most effective kinds of emissions trading schemes cap emissions at a level below the actual emissions, allocate only sufficient emissions permits to meet that cap, and then allow industries to trade in permits. They are not simply licences to pollute. Emissions trading has been very effective in reducing some air pollutants in the US. Emissions should be monitored and enforced, and the size of the cap reduced in steps every few years, thus ensuring that the value of permits, and hence their price, gradually increase until cleaner alternatives become cost-effective.

With emissions trading, there is certainty about the quantity of emissions and uncertainty about the future price of permits. Emissions trading schemes are a combination of regulation and market mechanisms, and are administratively complex. Therefore, they offer more opportunities for cheating than a carbon tax. The key foci for political battles are the size of the cap and the method of allocating permits.

In the first phase of the European Union’s emissions trading scheme, all permits were allocated to existing greenhouse polluters and this, together with the over-allocation of permits by some governments, has led to teething problems. In my view, initially at least, one quarter of the emissions permits should be auctioned, and this fraction should be increased in steps each time the cap is reduced. This will allow cleaner energy industries to enter the market and compete with the dirty industries.

To reduce greenhouse gas emissions substantially, we need a combination of different measures: carbon pricing, directed government funding of alternatives, regulations and standards, organisational change, education and information. Each of these elements is necessary, but not sufficient. Emissions trading schemes, properly constructed, are neither a licence to pollute nor a means of “unnecessarily prolonging the world’s dependence on coal, oil and gas”. Climate change is accelerating and we cannot afford to delay our response until the fall of capitalism.

Dr Mark Diesendorf teaches at the Institute of Environmental Studies at the University of New South Wales. From: Comment and Analysis, Green Left Weekly issue 693 6 December 2006.

Carbon taxes or a carbon ration?

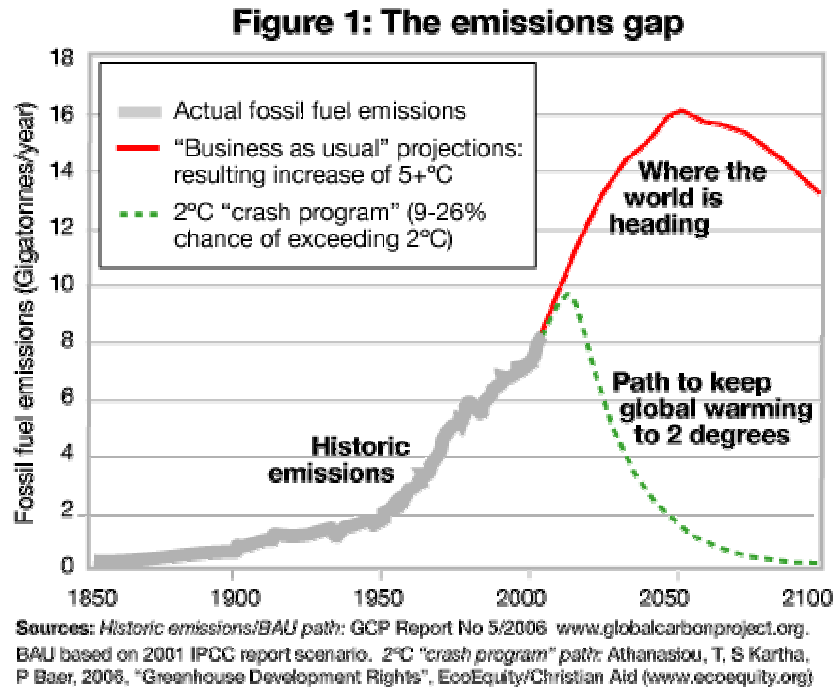
David Spratt

The global mean temperature has risen 0.8°C since the late 1880s, but due to ‘thermal imbalance’ there is a latent temperature rise still to come of about 0.6°C, which will result in a rise of 1.4°C for the present level of atmospheric greenhouse gases.

It is widely considered that warming should be kept well below 2°C to avoid triggering irreversible, dangerous climate change. NA Socialist Alliance's James Hansen says that "global warming of more than ~1°C, (above the 2000 temperature of 0.7°C to 1.7°C) will constitute "dangerous" climate change as judged from likely effects on sea level and extermination of species" (Hansen et al, 2006). Taking thermal inertia into consideration, we are now effectively just 0.3°C from 1.7°C. Time is very short.

Today global atmospheric carbon emissions average around 1.27 tonnes per person; in Australia the rate is 5.63 tonnes. In comparison, the earth's current capacity to absorb carbon is 0.62 tonnes per capita, estimated to decrease to 0.32 tonnes by 2030. That is, Australia's present per capita emissions are eighteen times the earth's carbon sink capacity of 2030!

Modelling in the recently released "High Stakes" report (Baer and Mastrandrea 2006) provides a "2°C crash program" scenario which shows carbon emissions "peaking in 2010 and dropping off at a resolute 4% per year, thus keeping atmospheric carbon concentrations below 420ppm. Yet, even with this almost inconceivable effort, we would still be exposed to an alarming 9-26% risk of exceeding 2°C" (see Figure 1).



The current greenhouse gas levels pose an unacceptably high risk of damage to nature and of triggering runaway heating and must be reduced from their current level. This requires carbon emissions to be substantially less than the earth's carbon sink capacity, so that atmospheric carbon dioxide levels can be drawn down substantially. Thus Australia needs to:

- immediately stabilize emissions at their current level;
- set a target of reducing total emissions by over 90% by 2030-40; and
- set an annual and enforceable reduction target of at least 4%.

For a strategy to be effective, it must deal with reducing total demand for carbon emissions, either by placing a price (tax) on carbon emissions sufficient to drive down demand, or setting a total emissions target or budget that decreases over time and is enforced by a system of carbon rationing that sets a price by balancing supply and demand.

For a price or tax on carbon to be effective, it is essential that the tax apply to all carbon emissions. Any sector with a capacity to escape carbon pricing can derail the outcome. Carbon trading schemes that deal with emissions from only some sectors cannot, by definition, produce the emissions outcome that the science dictates.

For example, for air travel, the fastest growing sector of global carbon emissions, there are few available low-carbon substitutes. The federal transport department projects air travel emissions for domestic and international (fuel uplifted in Australia) flights to increase to 21849 Gg CO₂ or 5.98 million tonnes carbon by 2020. At that time the estimated population will be 24 million, so that average air travel emissions for fuel uplifted in Australia will be around 0.25 tonnes carbon per capita. Aircraft emissions have a radiative forcing effect of 2.7 (that is the total warming effect of aircraft emissions is 2.7 times as great as the effect of the carbon dioxide alone emitted at ground level) so effective

total air travel emissions by 2020 will be 0.67 tonnes carbon per person (compared to a carbon sink capacity in 2030 of around 0.32 tonnes carbon per capita). So, air emissions alone in Australia would exceed our total carbon budget well before 2030

Put simply, a carbon tax increases the price of goods with carbon content to the point where:

* there is technological substitution because the no/low-carbon good has a lower end-price: for example, renewable for carbon-generated electricity, different transport choices as the relative costs of transport modes change.

* more energy efficient technologies in the house, office and industry become a rational economic choice as the cost of stationery energy rises (solar hot water, natural ventilation for air conditioning, etc). The Energy Efficiency and Greenhouse Working Group noted in 2003 that “Significant potential for energy efficiency to improve further... improvements of 15-35% are achievable under conservative assumptions of only existing technology being available, and that the change must pay for itself within four years.”

The incidence and social impact of a carbon tax is a key issue in considering how the socially regressive impact of a carbon tax might be alleviated by social policies or tax changes that re-distribute some or all of the revenue from a carbon tax.

The 2006 CSIRO report on energy, “The heat is on”, provided a number of scenarios aimed at stabilizing CO₂ at 575 ppm by 2100 ‘through the introduction of a globally harmonised carbon tax from 2030’. This is aimed at producing a reduction of 35% in emissions compared to the “business as usual” emission scenario. Whilst the targets are ludicrously high, the results are instructive. Scenarios 2a which assume carbon capture and storage (CCS) technology is available produces a carbon price by 2050 of 2005 A\$99/tCO₂ or \$361 per tonne of carbon. Scenarios 2b which assumes no CCS is available produces a carbon price by 2050 of 2005A\$157/tCO₂ or \$573 per tonne of carbon.

The Stern report introduces a cost/benefit analysis that compares the marginal cost of abatement with the social cost of carbon. That is, at what rate should a carbon tax be set so that the cost of the tax is lower than the future cost of abatement. It’s an odd approach if you are talking about catastrophic climate change for which no abatement is possible, but Stern derives a figure of US\$85/tCO₂, or approx A\$397 per tonne of carbon (Stern 2006b: xvi).

At present electricity from wind power is 40-50% more expensive than conventional power. Averaging the emissions factors between existing and new capital stock for electricity generation, and assuming that the relative capital costs of conventional and renewable generation technologies stay at current levels, it can be demonstrated that the following rates are necessary to make green energy an equally rational economic choice to carbon-fired electricity: black coal \$183 per tonne of carbon; brown coal \$247 per tonne of carbon; natural gas \$421 per tonne of carbon.

All of which suggests that for a carbon tax to have a significant impact on emissions, it would need to be multiples higher than the figures being talked about in Australia today for emissions trading: around \$300-\$400 per tonne of carbon, not the \$20-35 being mooted. And in the end it seems very unlikely that such a tax could force down emissions by the 90% plus that is necessary.

The alternative is carbon rationing with 21st century technology. The British environment minister David Miliband says ‘the challenge we face is not about the science or the economic ... it is about politics’. Carbon rationing, he says, “limit the carbon emissions by end users based on the science, and then use financial incentives to drive efficiency and innovation” and are necessary because “essentially, by 2050 we need all activities outside agriculture to be near zero carbon emitting if we are to stop carbon dioxide levels in the atmosphere growing” (Miliband 2006). Currently reports are being prepared for the British government on how carbon credits might be implemented.

Carbon rationing works as follows:

- An authority independent of government, like the Reserve Bank, sets a total carbon emissions budget for the country each year, which is decreased by three or four percent each year in a series of downward steps; in a decade emissions have been cut by 30 or 40 per cent.
- Because households are responsible for about 34 per cent of emissions, 34 per cent of the carbon budget is made available free of charge as an equal “carbon credit” (or ration) for each citizen on an electronic swipe “carbon card” which would be used to draw on an individual carbon credit balance each time household gas and electricity, petrol and air tickets are paid for. Unused credits can be sold.
- For minor amounts of energy embedded in commodities purchased such as food and personal services, the carbon ration will already have been paid by the manufacturer, and its cost built into the end price for the consumer.
- If a person lacks the carbon credits to cover a purchase or is an overseas visitor without a carbon credit, he or she could buy on the “spot” market at the point of sale.

- The balance of 66 per cent would be auctioned to business and government in a market where the price would rise and falls such that the business and government demand for carbon emissions would not exceed the budget target for business carbon emissions.
- The change would be rapid and effective: suddenly renewable electricity would be cheaper than coal-fired power, everyone would want solar hot water and better insulated houses, the madness of excessive use of private cars would be rationalised, stores and offices would be lit by natural light and skylights rather than floods of lights. We might even slow down a little and reduce our madly stressed lives, planning our movements for the day before we leave home. We would be more likely to consume what we need, rather than what we want.
- Because both individuals and businesses can trade their carbon credit within the overall national carbon emission target, there is a financial incentive to switch rapidly to low-carbon technologies and for low-carbon innovation. If a new technology needs less of your ration, it will become more attractive, and business has an incentive to make long-term, low-carbon investment decisions.
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From Dissent Magazine, number 23, Autumn/Winter 2007

Carbon rationing as a fair alternative to green taxes

Scottish Socialist Party 2007 Scottish elections manifesto

The Scottish Socialist Party is a pro-environment party which is prepared to face the truth.

We have a responsibility not just to those who inhabit the planet today, but to future generations as yet unborn who will inherit the planet tomorrow.

The natural resources of the earth are not ours to devour. Nor can we allow climate chaos to spiral out of control.

We recognize that we cannot continue as before, sleepwalking towards the abyss. The SSP is in favour of a political war against global warming.

In the long term, a socialist Scotland could become Europe's cleanest, greenest nation, a model for the wider world.

We could, for example, close down RAF bases, whose 121 aircraft are responsible for 40 per cent of all air travel emissions in Scotland.

And by converting fossil fuelled power stations to renewables, Scotland's carbon dioxide emissions would be reduced by 35 per cent.

But the war against global warming cannot be suspended until we put in place a rational economic system that puts people and planet before profit.

Immediately, we need to reduce Scotland's carbon emissions by three per cent a year, as part of our national contribution to tackling the global crisis that stares us in the face.

At the same time, the SSP believes that the mission to reduce Scotland's carbon footprint must be based on social justice. If resources are finite, they should be allocated equally and rationed accordingly, irrespective of income.

Many well-intentioned environmentalists argue in favour of carbon taxes, congestion charges, flight surcharges, road tolls and fuel price increases as a means of restricting personal carbon use.

However, this guarantees that the burden of sacrifice will be borne disproportionately by those on lower incomes.

Rationing by price will not deter the more prosperous classes from consuming valuable carbon. Instead, it will increase existing inequalities, and potentially even drive those on lower incomes into the camp of the anti-environment lobby.

The Scottish Socialist Party believes that the fair and equitable way forward, nationally and internationally, is to allocate businesses, organisations and individuals an annual quantity of carbon credits, which can be used to buy gas, electricity, petrol, air flights and other forms of carbon.

These could then be used or sold as required. A carbon rationing scheme, along with our other policies, including free public transport, could assist Scotland in meeting and surpassing an annual carbon reduction target of three per cent, without the need for draconian taxes.

Carbon allocations should be worked out fairly, taking into account special circumstances such as climate variation, poorly insulated housing, and geographical position.

Certain caveats would apply, such as increased carbon allowances for those in remote areas with sparse transport links, or 100 per cent grants for insulation for those with energy inefficient homes.

We do not pretend that there is a ready-made scheme which could be applied immediately.

The SSP will campaign for the Scottish Parliament to set up, as a matter of urgency, a special commission including experts and representatives from the different sectors of society to develop a carbon rationing scheme which have the dual aim of, firstly, driving down greenhouse emissions by at least three per cent a year, and secondly redistributing resources to the less well-off.

Carbon taxes or a carbon ration?

Gar Lipow

David Spratt said: “...around \$300-\$400 per tonne of carbon, not the \$20-35 being mooted. And in the end it seems very unlikely that such a tax could force down emissions by the 90% plus that is necessary.”

And if a carbon rationing scheme works it force prices up by exactly the same amount. You can accomplish everything a rationing scheme would accomplish by the following steps:

- 1) Impose a tax
- 2) Rebate the revenues from the tax back to the citizenry
- 3) Have two automatic ratchets. One a schedule which gradually forces rates up to \$400 or so per tonne over the course of a decade. And another which forces the rate up faster than that if reductions don't come quickly enough.

Instead of carbon rationing at 21st century technology, that would be a carbon tax and 21st century technology.

I have a secret for you. Neither a tax nor a rationing scheme nor any other pure market based scheme will solve the problem. Every single person who looks seriously at climate chaos agrees you will need non-market supplements. Stern supports regulation. The CERES group supports public initiatives. And these are the conservatives. The moderates, liberal and leftist all realize you need both. (Joe Romm, and Ross Gelbspan among the moderates, George Monbiot among the leftists).

No rationing scheme or carbon tax will build trains to replace trucks and cars. No rationing scheme or tax will stop deforestation or turn agriculture from an emissions source to an emission sink. No rationing scheme will build HVDC lines which will be required to make renewable electricity from variable sources (such as wind and sun) reliable without huge storage expenses.

From the Grist web site at <http://gristmill.grist.org>.

Climate solutions of the rich and powerful

Gar Lipow

An influential group of CEOs, senior officers and trustees of institutional investors, asset managers, and corporations called for action on climate change back on March 19. It's a good thing the rich and powerful in the US are starting to recognize that action must be taken. But as should be expected, what they call for is the minimum they think they can get away with rather than what is needed.

1. The government must establish a mandatory national policy that will stabilize and then reduce national greenhouse gas emissions economy-wide. The policy should include a target for sizeable, sensible, long-term reductions in greenhouse gas emissions in accordance with the 60-90% reductions below 1990 levels by 2050 that scientists and climate models suggest are urgently needed to avoid dangerous climate change.

The evidence is overwhelming that greenhouse gas reductions must take place much more quickly than this. Paul Baer and Michael Mastrandrea give an excellent explanation of this in their November 2006 paper "High Stakes: Designing emissions pathways to reduce the risk of dangerous climate change". If we take that long, there is a high risk of hitting a dangerous and uncontrollable feedback cycle.

My personal take: dangerous amounts of global warming have already occurred, and more is locked in. At this point, we are trying to preserve enough agricultural capability to save our technical capacity as a civilization.

If we put enough labour into it, we can feed the world even in the worst scenarios. But the reason we have things like engineers and computer programmers and journalists and economists is that we *don't* have to spend all our time growing food. Not all our population is going to be in the labor force. So if it takes one in three people to produce food, and most of the rest to perform other vital functions like clothing, shelter, basic tool making, child care, and so on, that doesn't leave a lot of spare capacity to maintain education or perform the kind of intellectual labor a technical civilization requires.

Our goal has to be 90 to 95 percent reductions in the US—over 20-25 years, not 50.

Such ambitious long-term targets not only improve the odds of avoiding the worst impacts from climate change, but also enable businesses and investors to make investments with a known long-term planning horizon. Wherever possible, this national climate policy should include mandatory market-based solutions, such as a cap-and-trade system, that establish an economy-wide carbon price, allow for flexibility, and encourage innovation. However, we recognize that other regulations and policy tools may be most effective in some areas. The policy should not disadvantage businesses that have acted early to reduce their emissions.

We've discussed carbon taxes vs. carbon trading on Grist. In the larger world, it is becoming more and more widely understood that carbon taxes are simpler, more transparent, more effective, and less subject to gaming than carbon trading. Trading and taxing are theoretically equivalent. In the abstract, you can do anything with one you can do with the other. But in practice, trading let you hide what is going on a lot more easily than taxes.

For the rich and powerful, this is a feature, not a bug. Both trading and taxes discourage emissions by putting a price on those emissions—a price ultimately passed on to consumers. A Kyoto-style trading system that gives large numbers of permits away captures little of this price increase, which means it cannot be returned to ordinary citizens, thus making it regressive in effect. It hits ordinary people more than the rich, and tends to reduce consumer demand.

With cuts large enough to substantially drive up prices, you risk recession or even depression. If you want to avoid both massive injustice and serious economic consequences, you need somehow to return most of the price increase to ordinary people. I'm going to do another post on best way to do this.

2. The government must take action to stimulate deployment and uptake of new and existing technologies. Simply putting a price on greenhouse gas emissions through market mechanisms like a cap-and-trade system will not be enough. The government should therefore realign other national energy and transportation policies to achieve climate objectives, including a range of policy measures to provide the financial incentives that are needed to stimulate research, development, and deployment of cleaner, more efficient technologies at the scale necessary. The government also must

eliminate misaligned incentives and barriers to taking action. The government has an important role to play in assisting the private sector in deploying existing large-scale energy, fuel, and transportation technologies to reduce emissions in the near-term, and in supporting research and development of new technologies that will be needed in the longer-term. To stimulate rapid deployment of new technologies, the government will need to provide transitional incentives and support. Such an approach should not pick technological winners, but rather should aim to bring forward a portfolio of technologies that both enable reductions in greenhouse gas emissions and promote America's energy security.

As with everyone who seriously looks at what it will take to lower emissions, the CERES group understands that putting a price on carbon will not by itself reduce emissions on the scale needed. We need public initiatives and old-fashioned rules and regulations. Naturally, as representatives of the rich and powerful, CERES does not mention the latter; they want lots and lots of carrots but none of those nasty old sticks. "Bribe us to do what is right. Don't tell us what to do with the money."

3. The Securities and Exchange Commission and other financial regulatory bodies must assist both businesses and investors by better defining the material issues related to climate change and clarifying what companies should disclose on climate change in their regular financial reporting. This will help investors understand the risks and opportunities that businesses face -- and will help them determine with more accuracy the level of climate risk and opportunity in their investment portfolios--as America leads a global transition to a clean energy economy.

I suspect that what CERES is looking for here is a way to limit liability. Climate change is a known risk, and has been for some time. I wonder if some CEOs, corporations, and investment trusts already have liability for not having taken adequate precautions to deal with the risk, or for not having disclosed known risks. Paper trails tend to arise no matter how careful people at the top are -- underlings want documentation that they were following orders rather than acting on their own initiative.

Bottom line: We need to do more than CERES proposes, and do it faster.

Capital to the Capitol: Investors and Business for US Climate Action . March 19, 2007, Washington, D.C. *Imperatives of Climate Risk and Opportunity: A Call to Action from Leaders in Investing and Business.*

Baer, Paul and Michael Mastrandrea High Stakes: Designing emissions pathways to reduce the risk of dangerous climate change (PDF). Institute for Public Policy Research. November 2006.

From the Grist web site at <http://gristmill.grist.org>.

Doing carbon taxes right

Gar Lipow

With the policy summary of the IPCC WGII report out, this is a good time to concentrate on policy. Any effort to lower emissions has to put a price on carbon and other greenhouse sources. As I think extensive discussion has shown, a carbon tax is the best way to price emissions, and to price the destruction of carbon sinks.

One advantage of carbon taxes (and auctioned permits as well -- close enough to a carbon tax for practical purposes) not often noted is that it they produce revenue that can be directed back to consumers. This is an important contrast to the Kyoto system, where large numbers of permits were given away to big polluters. As with any method of raising the price of carbon, ultimately the cost was passed on to consumers. But with the permit giveaways, the consumer did not recover any of those costs.

On a small scale, this is merely painful and unfair. But suppose this was done with a large-scale rise in emission prices -- one that increased the prices of consumer goods by 25 or 50 percent? Not only would this cause direct suffering, the odds are pretty good that reduced consumer demand would cause at least a recession, with a real risk of world-wide depression. You need to return some the costs to consumers, not only on moral grounds but on Keynesian ones -- to avoid a precipitous drop in overall demand.

I will add that when you talk about a drop in consumption for poor people, you are talking not just suffering but death. Even in the rich nations, there people poor enough that cutting their real income by a third or half will kill some of them. Cut the income of people in poor nations already living on a few dollars a day, and you are talking slaughter.

Gifted the money to the rich (as permit giveaways or income tax cuts do) does not solve this. The rich cannot, by themselves, keep consumption from falling. And for you supply-siders, additional capital made available from such cuts or giveaways would not provide stimulus to make up for what would be a demand-led downturn. So a carbon tax or auctioned permit system lets you avoid serious economic consequences a permit giveaway would provoke -- providing the money is directed in a way to benefit large numbers of people.

Most people proposing a carbon tax understand this. That is why you have proposals to use the money to reduce payroll taxes, or to fund school programs, or fund a clean energy program; use the revenue in ways that probably benefit large numbers of people; the result is not only more fair (benefiting people who otherwise would be hurt) but provides the stimulus to avoid a downturn.

However, I still see a political problem with such programs: they tend to benefit narrower groups than are hurt by them -- either demographically or over time. Payroll tax cuts do nothing for retired people (many of whom are either poor or on the edge of poverty and would be deeply hurt by utility and other price increases), nor the non-working disabled. Additional funding for schools provides no immediate benefits to families without someone attending those schools -- the old again, as well as single people. Remember these taxes distribute pain to just about everybody, so distributing benefits to a smaller number is political suicide.

In addition, in the long run, revenue from these taxes will decline. Their whole point is to discourage consumption. Of course they will be phased in gradually via escalator clauses; so even as emissions decline, revenues will rise for a while. But past a certain point, that will change. The tax will be fully phased in, and revenue will decline. It is not a good idea for things like social security or school funding to depend on declining revenue sources. When the time comes to replace those revenues, I guarantee conservatives will use the opportunity to push for funding cuts instead.

What about using carbon tax revenues for a clean energy fund? It answers one objection: such a fund would ultimately benefit everybody. But it replaces it with a question of timing. Efficiency improvements and clean energy sources can be put in place quickly, but not at the same rate as a carbon tax is put into place. So the benefits would trickle in much more slowly than the costs. Most people would see higher energy bills long before efficiency means lowered them again.

As an example, think of climate control improvements in existing buildings -- perhaps the single thing that could be implemented most quickly. Imagine a package: attic and floor insulation, weather sealing, window insulation kits, insulated curtains or shutters. Now here is the problem: there are only so many people skilled at doing energy audits and installing this kind of package. You can train some, but recently trained workers without experience are not who you want installing insulation in your home. Training would need to be done at a slow enough rate that trainees could be absorbed into experienced teams and gain experience themselves before new trainees were added. Even a crash program for every home the US (minus those with climate control efficiency measures already in place) would realistically take between four and ten years (at minimum) if you wanted quality work.

So the only way to use the revenue from a carbon tax or auctioned permit system would be to return that revenue directly to the residents of the region that levied it. Everyone who bore the costs of a carbon tax would benefit from it, in about the same time frame. Because higher income people tend to cause more greenhouse emissions than poor ones, such a refund system would be slightly progressive net -- providing most people with more income than the carbon tax increased their costs. Once in place it would be popular; everyone likes getting checks; see also Alaska.

A long term advantage to this is less resistance to incremental raises. Higher carbon taxes would mean larger checks. So you could build both scheduled increases and automatic ratchets that respond to emissions declining less than scheduled.

Yes, we would still need a clean energy fund. But we could fund it from something other than a carbon tax. Everyone who has looked seriously at what it would take to solve global weirding has realized it will take more than putting a price on carbon. George Monbiot, Joe Romm, the Stern report, the CERES group, and RMI are examples. Note that this transcends ideology. Monbiot is somewhat left, Stern and the CERES group are conservative. I'd describe both Joe Romm, and the RMI as centrists. My next post on this subject will deal with what policy will be needed beyond a carbon tax.

From the Grist web site at <http://gristmill.grist.org>

Beyond carbon taxes

Gar Lipow

My last article made the point that in fighting climate chaos, only a refundable carbon tax, one that returns revenues directly to the population, mitigates regressivity in way that benefits those hit hardest by such a tax.

It concludes by pointing out that just about everyone who pays serious attention to the problem of climate chaos concludes that carbon taxes or cap and trade systems -- methods of putting a price on carbon -- cannot by themselves solve the problem. This post will explore in a bit more detail what additional measures can help reduce emissions.

We could institute rule-based regulations in the following areas:

- **Building regulations.** Many Scandinavian and European nations have been successful with regulations specifying maximum climate-control energy use for both residential and commercial buildings. Such regulations include comfort standards, so that goals are not achieved by frying or freezing building inhabitants, and air-quality standards, so they are not achieved at the expense of health. I would suggest the rules apply per person rather than per square foot -- thus avoiding blowback from more efficient but larger buildings.
- New buildings would be an exception to the “ratcheting”; there is no reason any new building should produce more than 10 to 20 percent of the per capita emissions of typical contemporary American buildings. Retail and industrial buildings would not be so easy to regulate; energy-intensive equipment used in such contexts would make uniform standards impractical. This, of course, is why a price on carbon is needed; so that regulation may be confined to areas where we know what results are desirable and we may avoid micromanagement.
- **Transportation standards.** There is no reason we can’t specify maximum emissions per passenger mile, and emissions per freight ton.
- **Standards for industrial equipment and appliances.** I’d suggest using Japanese style dynamic scoring for appliances and equipment. Start out with reasonable standards, without worrying too much whether they are too weak or not. But have in place a rule that the most efficient appliance or piece of equipment in a certain class becomes the new minimum standard. In other words, best available technology becomes the minimum. Standards will continually ratchet up, and emissions down.
- **Agriculture and forestry.** Require that agriculture and forestry at minimum be carbon neutral -- that is, sequester carbon equivalent to greenhouse emissions. Provide subsidies for sequestration substantially beyond this, measured conservatively and with margins of error. Don’t allow sales of credits, but provide the subsidies in cash. This ensures that any errors are isolated; because soil sequestration is not being used as an excuse for, say, burning coal, measurement errors don’t cascade into greatly increased emissions.
- **Electrical generation.** Require all new power plants to be low carbon. Require all electrical utility districts to reduce total greenhouse emissions by three to five percent each year. It is time we started shutting down coal-based power plants.
- **Limit emissions from planes separately from other caps or taxes.** Otherwise they will drive the automatic ratchets of carbon taxes (or the price of permits) to astoundingly high levels.
- **Regulate the 18 greenhouse gases that exist in addition to CO₂, CH₄, and N₂O separately.** Require phasing out where possible, recycling and recovery where not. They are all used in specialized enough applications that direct regulation is possible. Even for methane, taxes or permits aside, we could at least outlaw unflared emissions, and require recovery for use where it could be done for under a certain cost.
- **Public investment in mature technologies that would reduce the difference between base and peak demand, reduce seasonal peaks, and make base requirements a larger percent of total demand.** These would include:
 1. High Voltage Direct Current (HVDC) transmission lines that would connect diverse power sources and cooling and heating climates.

2. The electraneet, which would shift demand to when the grid could most easily handle it -- to the extent possible. This includes smart appliances, and also using phase-change materials, thermal mass, or natural zeolites to store heat or cold generated off-peak for on-peak use.
3. Electrical storage, which can even out variable sources and let plants optimized for base loads provide some peaking power as well, without wasting capacity.

Note that these are no-regrets investments. There is no low-carbon power source on the market or in the pipeline that would not benefit from lower peaks, and from more demand becoming base demand; wind, nuclear, solar all would gain. Similarly, the same storage that would let wind supply base loads would let nukes supply peaking capability without wasting expensive capital. No I do *not* think nukes are a good idea -- but the point is that these investments are good ones even if I am wrong.

- **Shift subsidies from cars and trucks to rail.** No, rail can't go everywhere. But it is competing with one hand tied behind its back. Build light rail to get passenger traffic off the heavy rail tracks. Stop subsidizing trucking with fuel taxes collected from passenger cars, and from all types of rail. Stop making federal funds available for highways on better terms than they are available for rail. Shift as much freight as possible to heavy rail, and as much commuter and in-city passenger traffic as possible to light rail.
- **Provide a clean energy development fund to help subsidize efficiency and solar space and hot-water heating in existing buildings.** Provide smaller subsidies for new buildings.
- **Solar cells: finance a billion-dollar plant to break the chicken/egg deadlock.** Solar cells are expected to take decades to reach price parity with fossil fuels. The problem is not technology, but scale. Because the market is too small, no one wants to build a large enough plant to take mass produced cells with the full economy of scale required to bring the price down. Because the price is too high, no one wants to purchase cells in the quantity required to bring the price down. So long as such a subsidized plant brought solar cell prices down enough, and created the needed market, it would not matter if the technology chosen was less than optimum. Once the market was created, if technology existed to offer better quality for the same price, or the same quality at better prices, private industry would take advantage of the opportunity to out-compete the plant -- in spite of its one-time subsidy. In all probability, that is exactly what would happen. The subsidized plant would in essence act as a sacrificial lamb -- breaking the deadlock, then being devoured by predators. That is why no private company wants to be the first without subsidy.

How do we pay for all these things if, as I've proposed, money from the carbon tax or permit auctioning is returned to the public? We have lots of alternatives, any one of which could provide sufficient funds:

- Use some of the ~\$500 billion per year we spend on our military. Clean energy will contribute a lot more to our national security than stupid wars and empire building.
- Recover some of the tax cuts we've given the rich from the Reagan presidency forward. None of these tax cuts ever bought us higher rates of growth than the Kennedy era.
- Put a Tobin tax on currency speculation.

Remember that, as David Roberts noted, global warming is both too big and too small an issue. He was talking about time scale. But I also think most of what needs to be done to fight global warming will have to be done for reasons other than fighting global warming.

For example, people in the US won't support cuts in the military just to pay for clean energy (or any other good cause). But if we as a nation can get over the deep streak of cowardice 9/11 aroused -- especially in people who were far from Ground Zero -- maybe we will get sick of empire, and decide to lift our foot off the world's neck.

I don't think the 'tax=evil/profits=good' prejudice will ever lift just because we need clean energy. But maybe people will eventually notice that there are things governments can do better than large corporations; at that point, maybe a blinding flash of insight will occur: if Exxon has to pay slightly higher taxes to finance those things, that is a worthwhile sacrifice. Clean energy is one of the things Exxon's noble sacrifice can pay for.

Eventually I will do a follow-up post on the politics of fighting global warming. Because I want to get back to writing about technology, that will be postponed a while.

From the Grist web site at <http://gristmill.grist.org>.

C. Articles on the Kyoto protocol

Joel Kovel opposes call to sign Kyoto

Toronto, March 4, 2007:

Joel Kovel, author of “The Enemy of Nature” and co-author of “The Ecosocialist Manifesto,” spoke in Toronto last night. His talk, “A Very Inconvenient Truth: The Left After Kyoto,” was sponsored by the Ontario Public Interest Research Group, Socialist Project, New Socialist Group, and Canadians Against Israeli Apartheid.

There were 60 or so in the audience. Many were from established green and socialist groups, but there were quite a few faces I didn’t recognize.

The meeting was opened by Nadia Daar, Chair of the OPIRG-Toronto, and Kovel was introduced by Greg Albo of Socialist Project.

Kovel spoke for about 45 minutes. Early in the talk he made a particular point of introducing me from the audience and praising the Climate and Capitalism website. He later told me that he ‘tells everyone’ to get on the C&C mailing list. (Anyone who wants to take that advice should go to www.climateandcapitalism.blogspot.com and enter your email address in the form on the right.)

He said that he has written a second edition of “The Enemy of Nature” which should be published later this year. The basic ideas are the same, but events since it was published in 2002 make it both more essential and more possible to build an ecosocialist movement now. We can now see more clearly ‘towards ecosocialism’ even though the details are still unclear.

An ecosocialist society would be based on two fundamental principles – Marx’s view of socialism as a society based on the free association of labor, and “ecocentric values” that recognize that humans are not superior to nature but part of it. He described this as “old- fashioned Marxism.”

A movement for ecosocialism must be built on people grasping intellectually and emotionally that capitalism is ecocidal, and that global warming may have catastrophic effects in our lifetimes. We must neither minimize the danger nor panic at the prospect, but work to end capitalism.

It is now evident that the struggle against global warming is both the pathway towards ecosocialism, and the key issue that must inform our practice.

He argued that there are three types of ecological “interventions” – those that strengthen capitalism, those that propose or implement positive democratic changes within this system, and those that directly assault the system.

In the first category he placed the Kyoto Accord, which has no redeeming characteristics. Kyoto’s two central principles are Emissions Trading and Clean Development Mechanisms. Neither actually works – and both give control over the “clean up” to the very corporations that are doing the damage. Kyoto is an entirely pro- capitalist, pro- imperialist scheme, and socialists cannot support it in any way.

The second category included such things as carbon taxes and investment in renewable energy. We should support them but demand that implementation be placed under democratic control.

The third type of intervention, direct assaults on the system, is taking place primarily in the Third World. As examples he cited peasant movements against the oil industry in the Niger Delta and Costa Rica, and to Evo Morales nationalizing resources in Bolivia. Cuba provides an excellent example to the world, and the Cuba- Venezuela axis is ‘very important and powerful.’ Chavez is consciously intervening to weaken the oil interests in Venezuela.

We have to support such movements to fight the global oil regime. We must say to them that “We are with you,” but for that to be really true, we need to change the system here so that we do not depend on the resources of third world countries.

The discussion period, which ran about an hour, was dominated by the issue of whether socialists should support the Kyoto Accord.

John Bell of the IS argued that if socialists condemn Kyoto, we will be on the sidelines, isolated from mass sentiment for reducing greenhouse gas emissions. He said that Kyoto has a positive side, in particular the fact that it focuses on the need for the advanced countries (ie, not China & India) to cut emissions,

He argued for the demands that have recently been advanced in Socialist Worker: “Canada must honour its Kyoto commitments and, to do that, the tar sands development must be stopped.”

Ernie Tate of Socialist Project argued strongly that we should oppose Kyoto. If we think it is wrong we must tell the truth, and trust the people to understand and support it. He said we could call for democratic nationalization of energy industries.

I suggested that most Canadians who say the government should “implement Kyoto” simply mean that greenhouse gas emissions should be reduced – they’ve never heard of Emissions Trading or Clean Development Mechanisms. That is a positive sentiment that we can support while explaining why we oppose the Kyoto mechanisms.

In his summary, Kovel reiterated his firm opposition to any support of Kyoto. It won’t reduce emissions, and it involves playing with the devil. Including support for Kyoto in our mix of demands is unacceptable.

He finished by reasserting the need to find a balance between urgency and panic, in order to build an effective movement.

Kyoto’s Clean Development Mechanism: global warming and its market fix

By Mark Rainer

January 13, 2007

Recent developments have exposed a UN greenhouse gas emissions trading program as a lucrative source of profits. The program has hindered investment in technologies that would contribute to a long-term decline in the emissions that cause global warming.

The emissions trading program, called the Clean Development Mechanism (CDM), began its operation in December 2003 and is one part of the Kyoto protocol. Under the protocol, “Annex 1 countries” (including Canada, Japan and the more economically developed countries of Europe) have pledged to reduce their greenhouse gas emissions to an average of 5.2 percent below their 1990 levels by 2012. So-called developing countries (“non-Annex 1 countries,” including China and India) are not bound to reduce their greenhouse gas emissions.

The stated rationale for the CDM is to encourage sustainable development in non-Annex 1 countries, and to lessen the burden of Kyoto-bound countries in meeting their reduction targets. Under the CDM, this is to be accomplished through the coordination of emission-reduction projects in non-Annex 1 countries, such as China and India.

CDM projects generally operate on a profit basis with details of funding and distribution of profits to be worked out among the participants—including companies and banks in Annex 1 countries as well as companies or governments in non-Annex 1 countries. Projects must be based on an approved methodology, that is, a means of reducing greenhouse gas emissions and a means of monitoring and confirming such reductions.

Once a project is approved by the CDM Executive Board and the Designated National Authorities, credits are issued to the participants in Annex 1 countries based on confirmed reductions. These credits can in turn be used to meet Kyoto targets or can be sold on the carbon market. This is an attractive option for companies in Europe and elsewhere because it is often cheaper to sponsor these projects than to reduce emissions at their own companies.

While the CDM has generated many carbon credits, and thus lessened the burden of Kyoto-bound countries, it has failed to truly encourage sustainable development. Predictably, the most popular CDM projects are those that yield the greatest profits for the participants. Projects that consider the development of sustainable alternative sources of energy are among the least popular in terms credits issued. The discouragement of renewables has much to do with the way credits are issued and the economics of CDM projects.

Credits are issued according to the “global warming potential” of the particular gas reduced. For example, reducing a tonne of methane would have the same effect as reducing 23 tonnes of carbon dioxide over a 100-year period. Certain greenhouse gasses such as HFC-23, also known as fluroform, have a much larger global warming potential. One tonne of HFC-23 in the atmosphere is equivalent to 11,700 tonnes of carbon dioxide in the atmosphere over a 100-year period.

The issuing of credits based on global warming potential has strongly skewed the economics of the CDM toward reduction projects with high potentials and low costs. For a modest initial investment and small operating costs, these projects generate a large number of credits annually. This means that there has been little investment in alternative energy projects, which tend to be capital intensive and therefore have lower profit potential.

From statistics gathered from the CDM web site, of the 467 projects currently registered, 15 large projects stand to earn 68 percent of the yearly issued credits. Ten of these projects concern the destruction of HFC-23, a byproduct of HCFC-22 production. HCFC-22 is a refrigerant, and is to be phased out under the Montreal protocol since it depletes the ozone layer. These 10 projects stand to earn half of the yearly issued credits as part of the CDM program. For the projects that destroy HFC-23, a process done voluntarily by many large HCFC-22 chemical manufacturers, the participants stand to reap huge profits.

Thus the bulk of credits issued relate to the production of a chemical whose production must be eliminated anyway.

According to a study commissioned by the UN, only \$4 million is required to upgrade an HCFC-22 production facility with annual operating costs of \$250,000. Assuming the 2006 average market price of \$10.5 a credit, there is about \$563 million a year to be derived from the 10 currently registered HFC-23 projects. The participants, including companies as well as large banks and corporations from the European Union and Japan, no doubt stand to gain substantially, even after the assorted fees and portions going to governments are taken into account.

That the CDM is seen mainly as a cheap source of credits to trade on the carbon market is exemplified by its participants, many whom have significant interests in the fossil fuel industry. The non-profit group CDM Watch noted in a report published in December 2004, "Market failure": "Strikingly, some of the most prominent participants in the CDM like BP, Statoil, Mitsubishi and the World Bank are simultaneously engaged in fossil fuel projects that directly stymie the stated intent of their CDM projects. The World Bank is currently the biggest single player in the CDM and one of the most enthusiastic promoters of a carbon market as a means of addressing climate change. Yet the US\$410 million that it manages through its six carbon funds (which invest in CDM and JI projects) is less than the US\$500-600 million it provides annually to fossil fuel extraction projects, and about one sixth of its total 2003 financing for fossil fuel related projects, estimated to be US\$2.5 billion."

The situation in China illustrates the failure of the CDM. The World Energy Outlook for 2004 estimates yearly carbon dioxide emissions will rise to 4,386 million tonnes in the year 2010, a 91.6 percent increase over 1990 levels and about 16 percent of the world's total expected emissions for 2010. Of the major sources, 77 percent of these emissions will come from the burning of coal, 20 percent from the burning of oil and 3 percent from the burning of natural gas. In 2010 fossil fuels will constitute the source of 89 percent of China's power production and heat plants.

Of the 35 CDM projects based in China, 23 concern the development of power from non-carbon-based renewable sources (wind, hydroelectric). However, the combined yearly emissions reductions, the equivalent of about 2 million tonnes of carbon dioxide, constitute a tiny fraction of China's expected emissions—just .05 percent of China's expected carbon dioxide emissions in 2010. The CDM does nothing to effect a major shift in China or elsewhere away from fossil fuel consumption.

Several other factors have combined with the CDM to lessen the effectiveness of the Kyoto protocol. The Kyoto protocol arose out of the United Nations Framework Convention on Climate Change (UNFCCC). Negotiated in 1997 and coming into formal effect in 2005, the Kyoto protocol is the first international treaty to address global warming. The United States played a large role in the Kyoto negotiations, insisting on the market-based "flexible mechanisms," such as the "cap and trade" system and the CDM.

Among parties to the UNFCCC, participation is voluntary. Two of the largest polluters per capita, the United States and Australia, have not ratified the protocol. For countries that do participate, there are no real enforcement mechanisms.

Countries that exceed their cap must make up the difference plus an additional 30 percent and are barred from selling credits on the carbon market. However, a government may decide it is less burdensome to simply withdraw from Kyoto. Canada's former environmental minister, Rona Ambrose, announced in April of last year that it would be impossible for Canada to meet its Kyoto targets, citing close to a 30 percent increase in greenhouse gas emissions over 1990 levels. In May the Conservative government cut the Canadian government's funding for Kyoto compliance, signaling a likely withdraw from Kyoto.

Kyoto's distribution of emission allowances to countries based on 1990 levels has raised some concerns, especially in the case of Russia, whose emissions have significantly dropped as a result of the economic decline following the

collapse of the Soviet Union. As a consequence, it is expected that Russia will have a large surplus of credits to trade on the carbon market, lessening the effect of Kyoto.

Moreover, Kyoto's fixed allowances divided among industrialized states fail to reflect the increasingly dynamic, globalized and interconnected nature of production and the emergence of India and China as major economic forces. While China and India are exempt, they are the host to transnational corporations, many of which originate in Kyoto-bound countries. Another scenario, not suggested by promoters of "cap and trade" carbon markets, is that transnational corporations could shift some of their more polluting operations to developing countries where there is no regulation of greenhouse gas emissions.

The net result is that Kyoto fails even as a modest proposal to reduce greenhouse gas emissions and hence address the serious and pressing problem of global warming. According to the World Energy Outlook for 2004, yearly carbon dioxide emissions will continue to rise to 27,817 million tonnes in the year 2010, a 38.9 increase over 1990 levels, even were all existing policies to reduce emissions implemented.

The failure to act could be catastrophic. The effects of human-induced global warming are becoming increasingly visible, with 2006 being the warmest year on record for the United States. Global temperatures have increased by 0.6 degrees Celsius over the last three decades, and 2007 is expected to be the warmest on record. NASA's Goddard Space Flight Center reported late last year a significant decline in maximum sea ice cover in 2005 and 2006 of 6 percent per year, whereas previously it remained stable. Also, it was recently reported that the Canadian Ayles Ice Shelf has broken free, one of six major ice shelves in Canada's Arctic.

The ineffectiveness of the Kyoto protocol stems from the fact that it attempts to reconcile environmental measures with the nation-state system and the demands of private profit and corporate competition. What is increasingly demonstrated—through the negotiations of the Kyoto protocol, the operations of the CDM and the carbon market—is the domination of capitalist interests over the public's interest in the protection of the environment and the need for a truly integrated and international plan to confront the problem of global warming.

From the World Socialist Web Site

Global warming: looking beyond Kyoto

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Al Gore's documentary *An Inconvenient Truth* has helped focus attention on the threat posed by fossil-fuel driven climate change. Gore's film was met with a predictable barrage of criticism by right-wing pundits. For example *Herald Sun* columnist Andrew Bolt wrote in a September 13 article that the "former US vice-president's ludicrous scaremongering contains exaggerations, half-truths and falsehoods".

However Bolt and his ilk are increasingly isolated. Over the last decade, the framework of the debate on climate change has shifted, with so-called "greenhouse sceptics" increasingly rare.

A GlobeScan opinion poll of people in 30 countries conducted between October 2005 and January 2006 found that a large majority believe that global warming is a serious problem. A Lowy Institute poll released on October 4 found that climate change is seen as one of the top three threats to Australia's vital interests in the next 10 years.

In 1997, PM John Howard said, "There is ... quite a bit of debate about the science, so far as greenhouse effects are concerned, and it's not all one way. It is not all—how should one put it—the apocalyptic view of the world and of life." But on the October 15 *60 Minutes* Howard talked about living in "an age where we're worried about global warming" (of course he was arguing that climate change is a case for Australia developing nuclear power "because it's clean and it doesn't emit greenhouse gases").

Although it's good news that the terrain of the "debate" has decisively shifted from whether global warming is happening and is a problem to the question of solutions (even if in Howard's case it's a non-solution like nuclear power), the bad news is that in the meantime more evidence has emerged that paints a terrifying picture of the scope, speed and impact of climate change.

Of major concern to climate scientists are findings that the Arctic ice cap is melting faster than expected. According to a September 26 *Bulletin* article by Tim Flannery, although the Arctic ice cap has been melting at a rate of 8% per

decade since the 1970s, resulting in thinning of the sheet and a loss of one quarter of its surface, during the summer of 2005 the melting accelerated, resulting in the loss of 300,000 square kilometres of ice.

The results of the monitoring of winter ice are no more heartening. According to Gretchen-Cook Anderson of NASocialist Alliance's Goddard Space Flight Center, Arctic winter ice has been retreating at a rate of 1.5% per decade since 1979. However, over the last two years the ice has retreated by 6% each winter—40 times faster than in previous years. Flannery speculated that this could be as a result of the Arctic Ocean passing “an important thermal point and ... retaining the warmth it gains from the 24-hour summer sun”, which could trigger the collapse of the Arctic food chain and destabilise the Earth's heat balance.

Possibly the gravest warning so far about global warming's speed was given by NASocialist Alliance scientist James Hansen at the Climate Change Research Conference in California on September 13. Hansen said that the world has “at the most” a decade in which to stem climate change, warning that a “business as usual” approach would raise global temperatures by 2-3°C, producing a “different planet”.

Melting icecaps will raise sea levels by between 10 and 25 metres forcing millions to seek refuge, increasingly violent weather patterns will cause major destruction and as the land dries up bushfires will be more frequent.

A 2°C rise in temperature will raise sea levels, inundating low-lying countries in the Asia Pacific region and create up to 150 million refugees by 2070, a CSIRO report released in October predicted.

But the challenge posed by global warming has been met primarily with criminal inaction from the governments of the two highest per capita greenhouse gas polluters—Australia and the US. Both countries have refused to sign on to the Kyoto Protocol, citing as “unfair” the fact that Third World nations are not bound to reduce greenhouse emissions and possible economic damage caused by the agreement.

Instead of promoting green technologies like solar, wind and hydro power, the Howard government is pushing “clean coal”—an attempt to rehabilitate a polluting industry on the basis of unproven technology—and nuclear power—low in greenhouse efficiency and high in environmental and human impact (though with wonderful profit margins thanks to the massive government subsidies needed to make it viable)—as solutions to climate change.

Forcing climate renegades like the Howard and Bush governments to sign on to Kyoto has been a natural and useful focus of these movements. However the severity of the threat posed by climate change means that on its own Kyoto isn't enough.

According to *New Scientist*, the treaty's range of loopholes and scams will mean that even if the industrialised countries achieve Kyoto's reduction of 5.2% below 1990 levels by 2012 on paper, the real-world reduction will be more likely to be 1.5%.

A September 21 British *Guardian* article by George Monbiot argued that atmospheric carbon concentrations need to be stabilised at the current level in order to avoid a 2°C temperature rise that will send the Earth's climate spiralling out of control. This would mean that the industrialised nations would need to cut emissions by 90% by 2030.

Not only does Kyoto not go anywhere near mandating the kind of greenhouse emission cutbacks that are needed, it also relies upon carbon-trading schemes that have proven ineffective in curbing emissions.

One of the first major tests of Kyoto's carbon trading has been the European Union's Emissions Trading Scheme, which has been an almost total failure. The ETS is a carbon-trading market that includes all 25 EU member-states. Earlier this year the ETS market crashed as a result of member EU governments setting lax national emission targets, meaning that high-polluting industries could continue with business as usual and had no need to buy carbon credits.

By May 2006 the market price of permits had dropped to 10 euros per tonne, down 20 euros from April. In another indication of the ease with which corporate interests undermine “market mechanisms”, on June 28 Germany announced that it would exempt its coal industry from any Kyoto requirements.

Some of the harshest criticisms of Kyoto are of its “Clean Development Mechanism”. CDM allows First World countries to avoid reducing their emissions by investing in projects in the Third World that reduce emissions of greenhouse gases (GHGs). The amount of GHGs that are theoretically reduced by the projects are transferred into credits that First World countries can buy to allow their companies to continue a pollution-as-usual approach.

Participants at the first anti-carbon-trading conference, held in South Africa in October 2004, issued a statement declaring: “As representatives of people's movements and independent organisations, we reject the claim that carbon trading will halt the climate crisis. This crisis has been caused more than anything else by the mining of fossil fuels and the release of their carbon to the oceans, air, soil and living things. This excessive burning of fossil fuels is now jeopardising Earth's ability to maintain a liveable climate ...

“Carbon trading will not contribute to achieving this protection of the Earth’s climate. It is a false solution which entrenches and magnifies social inequalities ... “giving carbon a price” will not prove to be any more effective, democratic, or conducive to human welfare, than giving genes, forests, biodiversity or clean rivers a price. We reaffirm that drastic reductions in emissions from fossil fuel use are a pre-requisite if we are to avert the climate crisis.”

However the kind of “drastic reductions” in fossil-fuel emissions that are required have barely even registered on the policy agendas of governments like Australia’s.

The degree to which the Howard government and the Bush regime in the US have shifted rhetoric on climate change reflects the cracks in the political and corporate elite over climate change. Those who now see global warming as a threat to the stability of capitalist economies, and, therefore, a threat to corporate profit, reflect an increasing body of elite opinion (as, indeed, is reflected by Gore).

But the kind of changes that are urgently needed—severe restrictions on greenhouse emissions, massive investment in public transport and renewable energy sources, access to clean technology for poor nations, and the eradication of the First World/Third World divide—will mean cutting into the “right” of corporations to profit at the expense of the environment. Governments that rule on behalf of the corporate rich, like Howard’s, will only take these steps—which are needed now—under pressure from a strong, grassroots environment movements.

However the global warming crisis also raises questions about the sustainability of the capitalist economic system. The economic competition that is so fundamental to capitalism drives corporations to maximise their profits no matter what damage is done to the environment or face ruination at the hands of competitors, and the anarchy of the so-called “free market” renders impossible a rational allocation of resources on the basis of social need.

Renowned socialist environmentalist John Bellamy Foster explained in the October 2005 *Monthly Review*: “The main response of the ruling capitalist class when confronted with the growing environmental challenge is to “fiddle while Rome burns.” To the extent that it has a strategy, it is to rely on revolutionizing the forces of production, i.e., on technical change, while keeping the existing system of social relations intact ...

“In stark contrast, many environmentalists now believe that technological revolution alone will be insufficient to solve the problem and that a more far-reaching social revolution aimed at transforming the present mode of production is required.”

Foster argued that environmental sustainability was achievable only through radical social change: “The creation of an ecological civilization requires a social revolution ... It must put the provision of basic human needs—clean air, unpolluted water, safe food, adequate sanitation, social transport, and universal health care and education, all of which require a sustainable relation to the earth—ahead of all other needs and wants.”

“Such a revolutionary turn in human affairs may seem improbable But the continuation of the present capitalist system for any length of time will prove impossible—if human civilization and the web of life as we know it are to be sustained.”

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