

# **RESPONSE FROM THE GREEN PARTY OF ENGLAND AND WALES TO “THE ECONOMICS OF CLIMATE CHANGE”**

## ***THE USE OF ECONOMIC POLICY INSTRUMENTS IN MITIGATING CLIMATE CHANGE***

Climate change is unlike other environmental problems in several ways. It is caused by global warming due to the enhanced greenhouse effect. It is the greatest threat to our planet other than a nuclear holocaust, a threat worse than terrorism according to the UK government's chief scientist Sir David King.

It is also unusual in that the pollutants responsible for it, the greenhouse gases, take a very long time to take effect. Due to the inertia in the climate system, there is a time lag of several decades between emissions of carbon dioxide, responsible for about three quarters of climate change, and the effect on climate.

Carbon dioxide is also exceedingly long-lived in atmosphere, with a lifetime of 200 to 450 years. This means that any actions we take to reduce carbon dioxide to mitigate climate change will have a small effect during the lifetimes of most people alive today, although they will have a considerable effect on the lives of future generations. This gives rise to issues of intergenerational equity, which further complicate efforts to deal with climate change. We shall discuss this further when discussing cost benefit analysis.

Carbon dioxide concentrations in the atmosphere have now reached the level of over 380 parts per million (ppm) and the rate of increase appears to be accelerating. The critical threshold of 400ppm may be reached within the next decade. And the “point of no return” threshold of 500ppm within this century, leading to major upheaval of natural systems and states, including the melting of icecaps and following that, large sea level rises that will inundate low lying areas, including major cities.

It might be said that the greater the responsibility for climate change, the lesser the suffering experienced, and the lesser the responsibility, the greater the suffering. Thus those greatest in responsibility, wealthy humans in developed countries who are alive now, will suffer very little, if at all; they may even see some benefits from milder weather and increased crop growth due to fertilisation with carbon dioxide. Those with no responsibility whatsoever, such as future generations of animals like the polar bear, which will become extinct in the wild in a few decades as its habitat is destroyed by global warming, bear the greatest cost.

In between these two extremes, poor people in developing countries will suffer the most amongst human beings. They also bear little responsibility for the problem, as they do not tend to burn large quantities of fossil fuels, the main source of carbon dioxide, accounting for 61% of emissions. (They may however contribute to deforestation, which contributes 18% of carbon dioxide emissions, if they have nowhere to grow their crops other than forested areas because they have been driven off their land by multinational corporations intent on farming it for a profit, or simply because population growth has forced them to take over the forest for agriculture as other people are occupying all the available farmland).

Another complication is the great uncertainty over the effects of greenhouse gases such as carbon dioxide. Climate scientists have produced a variety of estimates of the effects of doubling carbon dioxide (the ‘climate sensitivity’). The Intergovernmental Panel on Climate Change gave an estimate of 1.4 C to 5.8 C in its last assessment report in 2001, but since then the Climate Prediction project based in Oxford University has estimated that climate sensitivity could lie anywhere between 1.9 C to 11.5 C.

These factors make the usual neoclassical economists' prescription of leaving the problem to market forces much less likely to be effective. The atmosphere is normally thought of as common property, because rights to its use (in this case as a sink for greenhouse gases) are non-excludable. Even were property rights to the atmosphere to be somehow allocated to individuals, the recommended

solution of using the common law to sue for damages would not be effective, since there are an extremely large number of polluters (virtually everyone in the developed world, and most of those in the developing world as well) and an enormous number of victims, which include those too poor to sue, non-human forms of life, and those not yet born.

There has also been a failure in the developed, most polluting, economies, to decouple emissions from economic growth. Whilst the relationship between the two is not linear, growth in the UK for example, particularly in the transport sector, has led to increased emissions. Successive Government's drive for growth has led to increased energy demands. The fact that the current Government is still on target to meet its Kyoto targets is largely due to changes in the energy generation industry in the 1990s (the "dash for gas"). UK CO<sub>2</sub> emissions are currently rising.

If market forces cannot provide a solution to climate change, another solution, which does involve some form of government intervention, must be found. One approach commonly recommended by economists is cost benefit analysis (CBA) but this is an inadequate tool for a number of reasons. Some things may not be costable (at least not legitimately); these include the value of life, either human or non-human; the beauty of a landscape; or other aspects of quality of life. Climate change is likely to make a high percentage of animal and plant species extinct, and will lead to loss of life and livelihood for many people.

The fact that there are a number of possible feedback mechanisms which could cause climate change to spiral out of control leading to a runaway greenhouse effect which could lead to the death of billions of people, and that scientists have little idea at what concentration of greenhouse gases these will be triggered, also makes it inadvisable to use CBA as a policy tool.

It is not possible to assess the damages, such as damage to property, which are normally costed in CBA anyway, because the uncertainty over the future impacts of climate change is enormous. The Royal Commission on Environmental Pollution (RCEP), in their evidence to the Stern Review on the economics of climate change, have stated, "*In the Royal Commission's view cost-benefit analysis (CBA) is not an appropriate method through which to seek to determine climate policy goals.*" They cite studies by DEFRA pointing out that there are three orders of magnitude difference in estimates of future costs, there is no certain upper limit, and no best estimate.

The RCEP also underline that most damages will affect poor people in poor countries, and that even when a weighting is used to attempt to account for this, it is essentially arbitrary, and weightings are not normally used anyway, so that CBA values the lives and property of rich people more than those of poor.

The fact that there is a time lag of decades (for the climate system to adjust to increased greenhouse gas pollution) to millennia (for ice sheets to come into equilibrium with a warmer temperature) in the response to climate change means that those most affected are future generations. The mechanism used in dealing with this in CBA is discounting, but it is impossible to use discounting over such long time periods. Even very small positive discount rates lead present generations to disregard the interests of future generations – even ignoring the permanent end of civilisation and mass starvation. But having a discount rate of zero, which might be supposed to be neutral between the present and future generations, means the interests of future generations completely outweigh those of the present, for if this were the case then the tiniest increase in future consumption would have infinite present value. The discounted utility model does not even fit the empirical evidence on how individuals behave over short time periods, and there is no evidence for a single stable discount rate, with different studies giving widely different results (DeCanio, 2003). The final criticism of the application of CBA to climate change is that it affects future individuals, yet they have no say in decision-making. We do not believe such an inequitable approach is morally justified, though the RCEP believes that it has a role in providing estimates of the relative cost effectiveness of various schemes proposed to mitigate climate change.

Other means of dealing with climate change are pollution charges and trading. Pollution charges have the advantage that there is a continuous incentive to innovate to reduce pollution, whereas with pollution permits, innovation will merely lower the price of traded permits. However, one advantage of tradable permits not shared by pollution taxes is that the exact level of emissions can be specified, since only emissions for which permits are available occur, unless people are able to somehow emit illegally. This is extremely difficult with carbon dioxide, because the purchase of the fossil fuels, which are the source of most emissions, is very tightly controlled, as they are already mostly subject to taxation.

Whatever means Britain chooses to mitigate climate change by reducing carbon dioxide emissions, and however effectively it achieves this aim, will be of little benefit unless other countries also play their part. This means that we must have some sort of international agreement, and a start has been made on this with the coming into force of the Kyoto Protocol in February 2005. The Kyoto Protocol itself has been widely recognized as inadequate, partly because the emissions cuts it demands (5.2% by 2008 – 2012) are far too small, partly because even these are unlikely to be met, and partly because only developed countries (“Annex I countries”) are included in these cuts in the first phase of the scheme.

Negotiations have now commenced on cuts beyond 2012, despite the best efforts of the USA to block them. It is vital they succeed in setting much higher targets for emission reduction, and that they include the developing countries, especially large developing countries such as China, India and Brazil, which are already making substantial contributions to the total of greenhouse gas emissions, China and India because of their rapid industrialization which is largely dependent on coal as a source of energy, and Brazil because of its deforestation of the Amazon, which leads to large emissions of carbon dioxide when the trees are burned and because of the ongoing loss of the huge CO<sub>2</sub> sink provided by the forest.

International negotiations are beset with difficulties, because each country attempts to achieve the greatest allowable emissions for itself. The Kyoto Protocol, because it was a result of political horse-trading, produced very different emissions targets for different countries, with some even being allowed emissions increases. Kyoto also relied on grandfathering, where the amount of emissions allowable depended on past emissions, so that those bearing the greatest responsibility for global warming would be allowed the highest emission levels. It is unlikely that the same process, if followed for the post-2012 period, will lead to sufficiently demanding targets to save the planet from the potential of a runaway greenhouse effect.

In such circumstances another framework is needed. The problem is essentially a moral one, where each country must end its own self-interest in favour of the common good. Without equity it is difficult to see any common solution to emission reductions arising. The form of equity which has been widely recognized as a possible solution is equal per capita emissions. One proposal following this moral principle is Contraction and Convergence, proposed by the Global Commons Institute (Meyer, 2000). This involves contraction of global emissions of carbon dioxide, and eventual convergence on an equal per capita emissions right. Trading of pollution permits based on these rights would be allowed, and would result in a net transfer of wealth from developed countries (who emit more than their share) to developing countries (who emit less than their share).

One possible problem with this (and with any scheme involving trading of pollution permits for money) is that, as money is essentially created, and the US dollar is, at present, the internationally accepted currency, the Americans can merely print money to buy the permits necessary to continue emitting an excessive amount of carbon dioxide. Meyer supports Douthwaite's (2000) proposal for an Emissions Backed Currency Unit (EBCU) to replace the US dollar as the international currency unit as a means of overcoming this problem.

The Brazilians have proposed an alternative in which nations are allowed equal per capita cumulative emissions, so countries with a long history of industrialization, such as Britain, must make the deepest per capita cuts whereas more recently industrialized countries make smaller reductions.

Athanasίου and Baer (2001) do not believe this approach is politically feasible. It may be argued that Contraction and Convergence is not politically feasible either, especially as the USA have stated that the American way of life is not up for negotiation (President George Bush, Rio Earth summit, 1992). But it is difficult to imagine any other solution, especially given the large and rapidly growing emissions of China and India, who are unlikely to agree to any framework which allows an American the right to emit more pollution than a Chinese or an Indian person.

The Kyoto Protocol contains various market-based mechanisms for minimizing the cost of climate change mitigation – trading of allowances, so that countries failing to meet their emissions reduction targets may purchase allowances of other countries which over-achieve theirs; joint implementation, in which countries contribute to greenhouse gas abatement projects in other annex I countries; and the clean development mechanism (CDM), involving payments for greenhouse gas abatement in developing (“Annex II”) countries.

As mentioned above when discussing Contraction and Convergence, countries can merely print money to pay for emissions rights purchased from other countries, and the EU initially stringently resisted their inclusion in the Kyoto Protocol, but accepted them to keep the USA in the negotiations. When the USA withdrew from the Protocol anyway, the market-based mechanisms were retained, and the EU adopted an emissions trading scheme of its own (the EU ETS).

One major flaw with this is that the emissions allowances were given away free, either under a benchmarking scheme or by being grandfathered. The scheme is also partly downstream, so that large emitters are included in the scheme, and small ones are not. This has led to an increase in profits for the large emitters, who were given free emission allowances, and given them an unfair competitive advantage over small emitters not included in the scheme.

Keats Martinez and Neuhoff (2005) have shown that the welfare effects of grandfathering rather than auctioning pollution permits are negative, and recommend a drastic reduction in allowances given away for free so that the value of the property rights associated with such allowances is captured by society, which can use the revenue for reducing distortionary taxes, or for subsidizing climate change mitigation, for instance by funding research and development for renewable energy. They carried out a modeling exercise to prove that a far greater proportion of allowances could be auctioned without affecting the value of power companies’ existing assets. The UK government intends to auction allowances in the next phase of the scheme from 2008– 2012, but the German government has stated that they will continue to give away allowances for free.

Another defect of the scheme is that only some sectors are covered. The aluminium and chemicals sectors were omitted because they complained that inclusion would undermine their international competitiveness. The aviation sector was also excluded, though it may be included in the second phase.

These various flaws in the EU ETS are all due to lobbying by large corporations, who have effectively captured most of the value of the property rights which are conferred by emissions allowances. If these flaws are to be rectified a countervailing force must be mobilized to counter this. We propose that one possibility is for public opinion to fulfill this role – the EU states are, after all, all democracies, and so should, theoretically, be susceptible to pressure from their electorates.

The problem with this suggestion is that the electorate know very little of the EU ETS. It is a highly esoteric subject, and not one which features in the news media. But there is a possibility of changing this; Douthwaite (2006) has recently proposed an extension of the EU ETS, with all adult individuals in the EU being given allowances for all carbon emissions in the EU on an equal per capita basis. They would then be free to sell them to energy brokers such as banks, who would resell them to energy producing and importing companies, creating a market in emissions allowance permits. The only allowances on the market would be those originally given free to every adult EU resident. The possibility of receiving something of value (emissions allowances) from the government would

motivate people to support this scheme rather than the current one in which most emissions allowances are given away free to large corporations.

The scheme would be highly redistributive, which would help to offset any rise in the price of energy, goods or services arising from the cost to energy companies of purchasing the emissions permits at auction. There is reason to believe the costs to the individual would not be substantial, as the increased costs would motivate investment by businesses in energy efficiency and renewables. It does have one possible drawback, in that it may put up energy costs for some of those in fuel poverty who live in houses which are very difficult to insulate. This may impact especially on poor pensioners, who must keep warm to avoid hypothermia and tend to spend most of their time at home. Additional policies would need to be introduced to mitigate such effects.

It would facilitate an equitable agreement on trading international emissions if Britain were to be able to set an example to the rest of the world by adopting an equitable and comprehensive emissions trading programme of its own. The emissions that it trades at present are only a fraction of its total emissions, and various proposals have been made for more comprehensive schemes. A workshop on trading and taxing at the UK Energy Research Centre in November 2005 discussed a number of possibilities.

(see <http://www.ukerc.ac.uk/content/view/110/57>)

Dresner supported an upstream auction of emissions permits to energy importers and producers, with the revenue being recycled by governments. He favoured this scheme precisely because of its invisibility, being mindful of the fuel protests of autumn 2000, which brought to an end the fuel duty escalator, thus contributing to the increased growth of traffic (and emissions) since.

In contrast, Starkey presented details of a scheme (domestic tradable quotas) at this workshop allocating the rights (in the form of a carbon quota) for those emissions over which individuals have direct control to all adults on an equal per capita basis. This has the advantage mentioned for Douthwaite's scheme that it is broadly redistributive, but has the same disadvantage that it would make some in fuel poverty even worse off.

## **Conclusion**

The Green Party supports emissions trading schemes in principle as the most effective way of achieving the drastic emissions cuts necessary to avoid dangerous climate change, but the devil is in the detail, so recommends more research into the feasibility and relative merits of the various emissions trading schemes proposed.

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