Why is the UK government failing on climate change?

The current UK government has failed to stay on track to deliver on its pledge to cut carbon dioxide emissions by 20 per cent by the year 2010. The target has now been reduced to 16 per cent and with carbon emissions actually 3 per cent higher in 2006 than they were in 1997 the prognosis is not healthy[1, 2]. Tony Blair states that climate change is the greatest threat we face, says tackling the causes of climate change are a priority for his government and that he is going to exercise international leadership on the subject[3]. What is required is a massive investment in renewable energies, internalisation of environmental costs, a switch of funding into public transport instead of more roads and expansion, a more coherent planning and housing policy and more energy efficiency[3]. Instead our government is backing massive expansion in the aviation industry and embarking on major new road building programs, while Gordon Brown has frozen the rise on fuel duty, road tax, and climate change levy[2]. Why is this occurring? Why are the changes that green voters are calling out for failing to be implemented and the business-as–usual model prevailing?

Those among us on board with the need to take radical action to cut carbon emissions are currently a minority. The First Past the Post (FPTP) electoral system that operates in the UK frequently results in minority groups being under represented in Westminster. The FPTP system is referred to as a system of simple plurality, this means that a candidate need only gain one more vote than the next placed candidate in order to win the seat, they do not need to gain an overall majority of the votes. As FPTP is not a proportional system, the overall number of votes for a party does not accurately translate into the number of seats they win. The votes for a minority party in a constituency where the seat is not won outright are 'wasted votes' because that party gains no representation in that constituency. The idea behind this system of voting was to produce strong and stable governments who can make decisions and implement the objectives set out in their manifesto with ease and yet Blair's government appear to be failing to meet their commitments.

Perhaps the problem is that the majority of voters in the UK are currently unlikely to support a government that follows through on carbon cutting objectives with measures that may impact on their lifestyle? Colin Challen (Chairman of the All-Party Parliamentary Climate Change Group) proposes that political parties today appear imprisoned by their 'political Hippocratic oath: we will deliver unto the electorate more goodies than anybody else'[4] Such an oath was only ever achieved by consuming ever larger proportions of the world's resources. Indeed it is the growth in industry from 1997 to 2006 that has resulted in a rise in green house gas emmisions[2]. The continued pursuit of economic growth at the cost of emissions targets is unsustainable. The business-as-usual model must be abandoned. After all, no amount of economic growth is going to pay for the damage caused by climate change[2]. Furthermore, cutting omissions need not spell economic disaster for all. For example energy efficiency has a positive impact to the growing number suffering fuel poverty. Colin Challen states that we need to base policies on how much carbon we can afford to emit on a program of emissions that is aimed to stabilise global atmospheric CO2 levels at a 'safe' level. He advocates the proposal of contracting our carbon emission to converge on a per-capita shared emission rights as proposed by the Global Commons Institute[2].

For this to be achieved there must be carbon rationing at an individual, industry and national level. However, the MP shows no indication that he would be willing to take such radical steps that he perceives would be damaging in the opinion polls. The PM has been quoted as saying "Legally binding targets make people very nervous and very worried" [3]. It is likely that moves that require sacrifice on the part of the individual member of the public require a cross party consensus to remove the issue of short term political gain. Essentially they need to be depoliticised. There are positive moves in this direction with the creation of the All-Party Parliamentary Climate Change Group which aims to build a political consensus on ways of dealing with climate change would give ministers the political space to develop the policies required[2].

Political action will never be sufficient to save us from the effects of climate change, grass-roots action is essential. Nor do people need a government to tell them to reduce their carbon emissions, or to tell them to persuade their friends to do the same. But a binding legislative framework has a role to play to ensure that get where we need to be fast enough and our current political system is failing to provide such leadership. Some issues are not served well by an editorialiser political system. Climate change is one of them[5].

[1] Government ducks climate change challenge. *World Wildlife Fund*. www.wwf.org.uk/news/n_0000002771.asp
[2]McCarthy, M. 2006. Global warming: your chance to change the climate. *The Independent*, March 28.
[3]Lucus, C. 2005. Can Politics save us from climate change? *Climate Outreach and Information Network.* coinet.org.uk/perspectives/Lucas
[4]Challen C. 2006. Colin Challen: We must think the unthinkable, and take voters with us. *The Independent*, 28 March.
[5] A political system failing to rise to the challenge. *The Independent,* 28 March 2006.

Some Government and 'Private Sector' initiatives on Climate Change

As the old anarchist saying has it, when the shit really hits the fan, capitalism will re-brand itself and sell itself as the solution to the problems it has created. There is a bewildering ecosystem of state, semi-state, trade association and private companies out there, each fighting for its niche. It's also worth remembering that some capitalists- insurance bods for example- are trained to think about the future, and aren't all victims of the ideology that drives the CBI. What might save us, me and you, is if the ICC love their children too. So, while some business leaders can only see 'red tape', others see Government regulation as a way of forcing dirty companies to come up to their level. The carpet cleaning guy in the documentary "The Corporation" was a good example of the latter.

The following descriptions are ripped from the outfits' own web-pages, so to hell with your blood pressure and take a pinch of salt or three… Some of these are doing really good work. We leave it to you to figure which for yourself. There are plenty of other groups out there, and it will be mildly amusing to see which grow and which die as the "oh fuck" moment approaches…

DEFRA, bless it, has written another turgid booklet written in Whitehall-ese that you can use as a draft excluder or else roll up and beat yourself to death with. It's full of shiny promises about transport bills and Joined-Up thinking and boasts about targets (that will be missed, as sure as eco-catastrophe follows day). You can find it here;

www.defra.gov.uk/ENVIRONMENT/climatechange/uk/ukccp/pdf/ukccp06-pt1.pdf

"On 11 May, Defra announced the selection of 9 new youth climate change champions. The winners were chosen from more than 600 entries following a competition asking them to use different types of media to communicate the threats of climate change in their regions. The champions will spend a year "in office" spreading the word about climate change to their region through local activities and engagements. They will also go on a fact-finding tour to Switzerland to witness the visual effects of climate change at the Gurschen glacier."

Meanwhile, back in Westminster, there is the much more useful All-Party Parliamentary Climate Change Group, led by the redoubtable Colin Challen. It exists "to raise awareness of the threat of climate change and to promote policies which counter that threat."
www.publications.parliament.uk/pa/cm/cmparty/060512/memi172.htm

And que sera, www.sera.org.uk
SERA believes that environmental justice is essential for social justice, and that this principle must be the driving force for the third term Labour government. SERA are pioneers in bridging the social and environmental movements to produce common solutions to major issues facing the UK today. Our aim is to promote sustainable environmental policies within government and the Labour Party. SERA uses its experience of MP and ministerial dialogue to encourage parties with an interest in the environment to further environmental politics.

www.environment-agency.gov.uk/business/
All businesses have some impact on the environment. They emit pollution, produce waste and use resources for power. Use these pages to find advice, guidance and information on current and forthcoming regulations. They also contain sector specific technical guidance and information on how and why we regulate you.

www.thebep.org.uk
The Business Environment Partnership (BEP), was established in 1998 to provide free and subsidised assistance with environmental management to small to medium sized businesses throughout Scotland.

and its English Equivalent

www.envirowise.gov.uk
Envirowise offers UK businesses free, independent, confidential advice and support on practical ways to increase profits, minimise waste and reduce environmental impact.

www.bitc.org.uk
Business in the Environment inspires companies to work towards environmentally sustainable development as a strategic, mainstream business issue. As a business issue, environmental strategy represents a fundamental progression beyond regulatory compliance towards integrating environmental issues into mainstream business planning and decision making. This integration must be achieved in a way that meets core business needs and improves a company's impact on the environment and natural resources on which our global economy depend.

www.cpi.cam.ac.uk/bep/
The Prince of Wales's Business & the Environment Programme offers an outstanding opportunity for business leaders and opinion-formers to debate the business case for sustainable development, in consultation with leading international figures in the field.

www.cpi.cam.ac.uk/bep/clgcc/index.htm
The Corporate Leaders Group on Climate Change (CLG) brings together business leaders from major UK and international companies who believe that there is an urgent need to develop new and longer-term policies for tackling climate change. The first output from the group was a letter to the Prime Minister in the run up to the G8 Summit in Gleneagles. The letter argued that investing in a low-carbon future should be "a strategic business objective for UK plc as a whole" and pointed out that at present "the private sector and governments are in a 'Catch 22' situation with regard to tackling climate change, in which governments feel limited in their ability to introduce new climate change policy because they fear business resistance, while companies are unable to scale up investment in low carbon solutions because of the absence of long-term policies".

www.tomorrowscompany.com
"A future for business that makes equal sense to staff, shareholders and society." Our vision is to create a future for business which makes equal sense to staff, shareholders and society. Tomorrow's Company was established in response to the demand from businesses involved in the RSA Inquiry for an organisation to carry forward the work started by the Inquiry. Sponsored by our friends at BP (see back cover of Time Up)

www.carbonneutral.com
Every organisation – from services to manufacturing - produces global warming gases. Product manufacturing, shipping and logistics, of course – but also offices, car fleets, corporate travel, conferences, communications material, for example. Each of these contributes to climate change.
The CarbonNeutral Company helps businesses to fully understand the opportunities, as well as the risks, presented by carbon emissions. We then work together with companies to develop reduction, avoidance and offset programmes to meet agreed commercial objectives.

WE ARE NOT MAKING THIS UP
http://www.carbonneutral.com/shop/results.asp?cat1=Celebrity%20Promotions
All Celebrity Forests; Top bands and celebs have chosen to support forestry projects with The CarbonNeutral Company - to create great green spaces and help protect the climate. You can get involved - dedicate a tree (as a gift or for yourself) and we'll send you a personalised certificate with band identity and a forest map.

www.est.org.uk
Energy Saving Trust: A non-profit organisation, funded by the government and the private sector. Set up after the 1992 Rio Earth Summit, we have two main goals; To achieve the sustainable use of energy & to cut carbon dioxide emissions, one of the key contributors to climate change

www.carbontrust.co.uk
Energy prices are rising fast but energy use can be reduced – and the Carbon Trust can help you do it.
We help organisations of all sizes to cut their energy bills with practical advice, free publications, interest free loans, and on-site surveys.

www.groundwork.org.uk
Groundwork is a federation of Trusts in England, Wales and Northern Ireland, each working with their partners to improve the quality of the local environment, the lives of local people and the success of local businesses in areas in need of investment and support.

www.ukcip.org.uk/
The UK Climate Impacts Programme (UKCIP) provides scenarios that show how our climate might change and co-ordinates research on dealing with our future climate. UKCIP shares this information, free of charge, with organisations in the commercial and public sectors to help them prepare for the impacts of climate change.

European info can be found at
www.foeeurope.org/climate/european_policy.htm
Climate change: What the European Union does

From wikipedia; The **European Climate Change Programme** (ECCP) was launched in June 2000 by the European Union's European Commission. The goal of the ECCP is to identify, develop and implement all the necessary elements of an EU strategy to implement the Kyoto Protocol. All EU countries' ratifications of the Kyoto Protocol were deposited simultaneously on 31 May 2002.The European Union Greenhouse Gas Emission Trading Scheme (EU ETS) is perhaps the most significant contribution of the ECCP, and the EU ETS is the largest greenhouse gas emissions trading scheme in the world.In 1996 the EU adopted a target of a maximum 2°C rise in average global temperature

www.euractiv.com/en/
EurActiv.com is the independent media portal fully dedicated to EU affairs. EurActiv has an original business model, based on five elements (corporate sponsoring, EurActor membership, advertising, EU projects, and content syndication). It is well funded and the content usage is free.

Beyond Kyoto: The case for a Global Climate Community

The climate crisis is the most serious threatening humanity. In *Our Final Century: A Scientists Warning: How terror, error, and environmental disaster threaten humankind's future in this century* (2003), Sir Martin Rees, the UK Astronomer Royal, has written that "human-induced pressures on the global environment" have put humanity "more at risk than at any earlier phase in its history." He gives us only a 50/50 chance of survival. In *A Guide to the End of the World* (OUP, 2003), Professor Bill McGuire warns that "It is now inevitable that we and our descendants are going to face a long and hard struggle as our temperate world draws to a close and we enter the time of hothouse Earth".

All efforts to promote prosperity, tackle world poverty or strengthen international security will be wiped out if climate change continues at the present rate. The cost of climate damage is rising by over 10% a year, three times the rate of economic growth. Some small island states face complete extinction. Many densely populated areas will be devastated by storms, floods, drought or fires. Hundreds of millions could flee low lying coastal areas and arid land to find refuge elsewhere in the world.

In this context, the Kyoto Protocol was a significant political step, but utterly inadequate environmentally. Since it is unlikely that the US government will take effective action, developing countries and the EU need to take the initiative. We propose that the rest of the world should create a "climate community" with a legally binding framework for managing CO2 emissions: just as the European Union started with a coal and steel community of six states, so a climate community could start with key developing countries and the EU. It would be based on a legally binding agreement to allocate CO2 emissions within a global framework of contraction and convergence (C&C) to equal per capita rights. Contraction and convergence is the framework developed by the Global Commons Institute and recommended by the UK Royal Commission on Environmental Pollution, Prof. Bill McGuire, Sir John Houghton (co-chair of the IPCC) and many others as the most likely basis for a long term solution to the climate crisis.

The allocation of carbon emissions are a critical **constitutional principle**, because they determine people's rights to the global commons. Emissions rights are already a tradable property with monetary value. But only countries with quantifiable commitments under the UNFCCC have any rights to this new form of property now being created. Under the Kyoto Protocol these have been allocated on a historic and highly unequal basis between industrial countries (Annex 1). Developing countries have so far excluded themselves from this process, for understandable reasons. But there is a real danger that, like the native peoples of America, they will be marginalised from the high level political decisions on how carbon emission rights are allocated because they do not have ownership rights to carbon emissions.

A full explanation of contraction and convergence is available at **www.gci.org.uk**, with animated diagram showing the effect of different convergence dates on total allocations of carbon between Annex I and non-Annex I countries: **www.gci.org.uk/images/Animation3.gif**

An equitable allocation of emissions rights is more likely to last over the long term. It gives industry a predictable framework to phase out fossil fuels. A well-regulated system of emissions trading would create flexibility and economic incentives to cut emissions in a cost-effective way.

Developing countries could be the main beneficiaries of emissions trading within a Global Climate Community, providing income for investment in sustainable development. But they must be involved in laying down the ground rules to ensure that their needs are fully taken into account.
The benefits of markets in sustainable energy and emissions within the Climate Community will be increasingly attractive to US companies, who will put pressure on the US to join it. As climate damages rise in the US, political pressure to join will also grow. John Dutton, Dean Emeritus of Penn State's College of Earth and Mineral Sciences, estimates that $2.7 trillion of the $10 trillion U.S. economy is susceptible to weather-related loss of revenue.
Contraction and convergence also meets US demands for all countries to accept limitations on emissions, as set out in the Byrd-Hagel resolution, as well as more acceptable to developing countries.
Such an initiative should be taken jointly by countries in the North and South, such as Brazil, India and democratic nations of Africa in the South, and Canada, the EU, Japan and New Zealand in the North.
Developing countries may be sceptical of taking part in such an alliance, since the North is the main cause of climate change. But they are also hardest hit by climate change and would be the greatest beneficiaries of a Global Climate Community. As founder members, they would be in a strong position to shape the ground rules to ensure that their concerns are fully addressed.

What might a Global Climate Community look like?

A group of countries, North and South, should form a "coalition of the willing" within the UNFCCC, to agree a long-term legally binding agreement to stabilize greenhouse concentrations at a safe level through a process of Contraction and Convergence. This requires agreement on

a scientifically based concentration target;

a global emissions budget derived from this concentration target;
allocations of annual emissions quota based on contraction and convergence to equal per capita levels by a future date to be negotiated;
an emissions trading regime to maximise efficiency and transfer resources to poorer countries whose emissions quotas exceed their needs
enforcement mechanisms and penalties for countries exceeding their annual allocations.

"Empty chairs" i.e. annual emissions budgets, would be determined for countries that do not join at first. Countries could join the Community at any point, provided they accepted its conditions. The hope must be that the new global emissions market will eventually provide an incentive for the US to join.

The Community will need to set up **institutions** which can:

monitor and ensure that commitments are met;

take effective and accountable decisions;
secure a stable currency and payments regime for emissions trade;
settle disputes fairly and ensure adequate transfer of resources from rich to poor countries.

It will need a Council of Ministers, perhaps a smaller body representing regions and meeting more frequently; a judicial mechanism, and since it will have massive implications for everyday life and economies within the Community, a parliamentary element to ensure that its decisions are accountable, equitable and effective. In short, it would need institutions to apply the rule of law.

To be effective, the Community should include a critical mass of major developing and developed countries as equal members from the start, such as Bangladesh, Brazil, Canada, the EU, India, Japan, Mexico and the Africa group.

The founding group of countries would lay down the ground rules, creating a powerful incentive for countries to be part of the initial group. But only countries committed to the principles of equity, the rule of law, global emissions reductions and the stabilisation of atmospheric concentrations of greenhouse gases should be part of the initial group. Other countries may be associate members.

As climate damages rise and the Community cuts emissions among its members, it will become a magnet for other countries seeking to join, just as most states of Europe are now joining the EU.

Titus Alexander info@cewc.org (Council for Education in World Citizenship)

Pollution trading

- This article was found on the Carbon Trade Watch website, http://www.carbontradewatch.org, accessed on 30/07.2006. There are several excellent longer articles on carbon trading on this website, including *Carbon trade and climate colonialism: the new trade in greenhouse gases* on http://www.carbontradewatch.org/pubs/cns.pdf.

Under the Kyoto Protocol the 'polluters' are countries that have agreed to targets for reducing their emissions of gases in a pre-defined time period. The polluters are then given a number of 'emissions credits' equivalent to their 1990 levels of emissions minus their reduction commitment. These credits are measured in units of greenhouse gases, so one ton of CO2 would equal one credit. The credits are licences to pollute up to the limits set by the commitment to achieve the average reduction of 5.2 per cent agreed in Kyoto. The countries then allocate their quota of credits on a nation-wide basis, most commonly by 'grandfathering,' so that the most polluting industries will receive the biggest allocation of credits. In this system it pays to pollute.

Several possibilities then exist:

1. The polluter does not use its whole allowance and can either save the remaining credits for the next time period (bank them), or sell the credits to another polluter on the open market.

2. The polluter uses up its whole allowance in the allotted time period, but still pollutes more. In order to remain in compliance, spare credits must be bought from another polluter that has not used up its full allowance.

3. The polluter can invest in pollution reduction schemes in other countries or regions and in this way 'earn' credits that can then be sold, or banked, or used to make up shortfalls in its original allowance.

Credit-earning projects that take place in a country with no reduction target (mostly in the 'developing' world) come under the contentious rubric of the 'Clean Development Mechanism' (CDM). There have already been signs that traditional Overseas Development Aid (ODA) given by developed countries will be used to fund CDM projects. Instead of building wells, rich countries can now plant trees to 'offset' their own pollution. Projects which take place in countries with reduction targets come under Joint Implementation (JI). For example, an energy efficiency program in Poland funded by a UK company could qualify. It appears that JI projects will mainly take place in Eastern Europe and Russia, where equivalent reductions can be made more cheaply as costs and regulatory standards are lower.

Both CDM and JI projects can be of different kinds: monoculture tree plantations, which theoretically absorb carbon from the atmosphere ('carbon sinks'); renewable energy projects such as solar or wind projects; improvements to existing energy generation; etc. The amount of credits earned by each project is calculated as the difference between the level of emissions with the project and the level of emissions that would occur in an imagined alternative future without the project. With such an imagined alternative future in mind, a corporate polluter can conjure up huge estimates of the emissions that would be supposedly produced without the company's CDM or JI project. This stratagem allows for a high (almost limitless) number of pollution credits that can be earned for each project. It allows the company to pollute more at other sites, to sell its credits to other polluters, or to engage in a combination of these lucrative tactics. Its long-term consequences are (1) increased greenhouse gas emissions and (2) increased corporate profit obtained from their production.

There is yet another provision in emissions trading that introduces increasing levels of complexity and confusion: the pollutants are interchangeable. In effect, a reduction in the emission of one greenhouse gas (e.g. carbon dioxide) enables a polluter to claim reductions in another gas (e.g. methane). Thus, progress in "cleaning up" the atmosphere might appear to be going forward, while closer scrutiny reveals that no actual improvement is taking place.

Don’t be CO2nned

by Adam Ma’anit. This article was found on http://www.carbontradewatch.org/news/catoffsets.html, accessed on 30/07/2006.

As we begin to face the prospects of a world utterly distressed by climate chaos, many of us are beginning to ask what we can do to be part of the solution. Organisations like CAT have long led the way in promoting the renewable energy revolution we so desperately need as part of a collective vision of a fossil-fuel-free future. Some might argue that the new ‘carbon offset’ industry, typified by outfits such as Oxford-based Climate Care, are playing a part in that revolution. They purport to do this by linking the emissions we create from our over-consuming lifestyles in the privileged North with supposedly climate friendly projects in the Global South. It is, on the face of it, a seductive proposition.

It is also a highly contentious one.

The sales pitch from companies such as Climate Care relies heavily on the charitable impulse of their clientele. Their marketing is reminiscent of the controversial child sponsorship schemes of the early 80s, when some charities’ campaigns suggested that all one needed to do to prevent hunger and disease was ‘sponsor a child’ (or, in the case of climate change, ‘a tree’, ‘a stove’, etc.) and everything would be OK. Don’t worry about analysing the real reasons for child poverty in the South and what really needs to be done to solve it, (or what the real reasons for climate change are and what really needs to be done to solve it). Don’t look at the economic policies of the World Bank and the IMF, corporate plunder of the world’s resources, Northern over-consumption and global inequality. No just sponsor this child in Guatemala (this lighting project in Kazakhstan) and ease your conscience.

The carbon offset industry not only relies on this fundamental disconnect – it nurtures it.

Their appeal is so great simply because they require us to take no meaningful action other than to buy their services. One company, Climate Friendly, guarantees: ‘In 5 minutes and for the cost of a cappuccino a week, you can go climate neutral now.’ The Government is sold on the idea, and has promised to ‘offset’ all its official flights beginning, fittingly, on April Fools Day.

The overall effect of the industry is to make it even harder to persuade people to actually ‘reduce’ their emissions from source. As Jutta Kill from environmental group FERN states: “The only meaningful solution to the climate crisis is a swift switch to low carbon economies. Not easy, but also not impossible – if only we found the courage to give it a real try. And that’s what the illusion of ‘offsetting’ carbon emissions prevents.”

Soumitra Ghosh, from the National Forum for Forest Peoples and Forest Workers in India, who are fighting offset projects in their country agrees. “We have nothing against planting trees or people helping communities in ‘poor’ countries. But if such actions mean that ‘actual’ and measurable emissions of greenhouse gases would continue as usual under the safe cloak of ‘offsets’ and some people would earn dollars and euros out of such supposedly ‘green’ and ‘environmental’ actions, perhaps it’s time to tear the cloak, once and for all.”

Carbon offsets undermine effective action against climate change. They send the wrong signals to high polluters and work against the goals of climate justice. Many offset projects are also highly contentious and are actively opposed by communities in the Global South. Rather than funding some dubious offset projects to absolve our climate sins, we should be focusing on the one thing we know must happen if the worst excesses of climate chaos are to be avoided – reductions at source. Fly less, buy less, regulate polluters and support communities affected by pollution and climate change. The real solution to climate change is social change. Don’t be CO2nned by the offset industry.

The July 2006 issue of New Internationalist took a close and critical look at the Carbon Offsets industry. Log on to www.newint.org and think about subscribing!

The author of this article and several people quoted in it will, all being well, run workshops at the Camp for Climate Action.

Carbon Capture and Storage

We asked the Tyndall Centre (www.tyndall.ac.uk) a series of questions. They kindly replied with the following answers. Not all their answers are beyond debate, but then, is anything?

Basic background to carbon storage / geological sequestration

1. What is carbon storage/geological sequestration?

Carbon Dioxide Capture and Storage (CCS) involves extracting CO_2 from industrial processes, before it is emitted to the atmosphere, transporting the CO_2 by pipeline and then injecting into a suitable reservoir for very long term / permanent storage.

2. From what sources of CO_2 could omissions be captured and stored?

Current technology enables CO_2 to be captured from large scale industrial processes such as electricity generation from fossil fuel combustion.

3. Approximately how much could total CO_2 omissions released into the atmosphere be reduced by use of carbon storage?

In terms of how much of the CO_2 emissions could be captured, roughly 30% of our current CO_2 emissions comes from large scale power generation that would be suitable for capture. This percentage could be greater if there was a move towards Hydrogen production (e.g. for use in the transport sector) from fossil fuels. There is an energy penalty (about 10%) associated with CCS – that is the energy required by the CCS process.

Storage sites

4. What types of sites would be used to store the CO_2?

In the UK the main storage sites likely to be used are all offshore; these are disused oil and gas fields, and saline aquifers (which are deep geological formations occurring at least 800m below the sea bed). There is also a technique known as Enhanced Oil Recovery in which CO_2 is used to extract more oil from an oil field nearing the end of its lifetime, leaving CO_2 in the oil field once it is depleted.

5. What is the availability of viable sites in the UK?

There is a large capacity in the UK using each of the above types of storage site.

6. Obviously space to store CO_2 is finite, how soon would we run out of suitable locations?

This obviously depends on how much CO_2 is stored each year, how our energy consumption and fuel mix changes in the future. However, based on current emissions, if we were to capture the all of the CO_2 from the power generation sector there is storage capacity in the UK for more than 100 years – based on current power sector emissions (which will of course change).

CO_2 storage and safety

7. What are the potential negative effects of CO_2 storage on the local ecosystem in which the CO_2 is stored or if stored CO_2 were to leak?

CO_2 is not explosive but if CO_2 were to leak from an onshore pipeline into a land formation that did not allow the CO_2 to disperse it could lead to asphyxiation of humans and other animals. There may also be localised impacts on plant communities. However leaks from pipelines are likely to be quickly detected and fixed so there is unlikely to be any long term impact.

Leakage from a geological storage site could be via the injection well or through a geological route – although both are considered to be small risks. If CO_2 were to leak in to the ocean it would cause an increase in acidity which could have a negative impact on ocean ecosystems (although increased atmospheric CO_2 is also leading to increased ocean CO_2 concentrations, which is impacting marine life).

8. How would leaking CO_2 be monitored and managed?

There are various geological techniques that have been developed in the oil and gas industry that could be used.

Technology

9. Is the technology required for CO_2 available yet?

Yes. All the necessary technology has been used in a commercial context although bringing the capture, transport and storage stages together is new. There are several demonstration CO_2 storage projects currently in operation around the world – including one below the North Sea (off Norway).

10. There may be fears that research resources will be diverted into this area at the cost of renewable technologies, do you think this will be the case?

This is very hard to say as it is a political decision. Current emphasis is on a portfolio of approaches – including renewables. Where there may be competition between power generation technologies is between CCS and nuclear – since both deliver large CO_2 reductions from large scale centralised power generation.

Public and stakeholder opinion

11. Do you think there is danger of CO_2 storage being pushed as an option by the stakeholders with a vested interest to see the continued consumption of fossil fuels?

This is difficult to answer and depends on your viewpoint – you could see it as the energy companies trying to clean up their act. Companies are not currently obliged to make these sorts of cuts in their emissions but it will be up to them to develop the technologies when emissions reductions are required. We are currently dependent on fossil fuels and we need to make large CO_2 reductions urgently. It is very unlikely that we (on a global scale) could reduce fossil fuel use on a large enough scale to have significant impact on CO_2 emission in the short term, in which case CCS can help make large reductions in CO_2 emissions.

12. Some people would view the 'dumping' of our waste CO_2 as further consumption and degradation of plant earth; do you believe that carbon storage has a role to play in a sustainable future?

In the long term we have to move towards more efficient and low or zero carbon energy use without reliance on fossil fuels (and hence without recourse to CCS). However, as CCS enables us to make large reductions in CO_2 emissions in the near term then yes it could have a role to play.

13. Energy is required to capture and store the CO_2 therefore more CO_2 is produced for each unit of energy produced; is carbon storage not then a 'backwards step'?

It is true that CCS effectively reduces the efficiency of conventional energy production but the CO_2 emissions to the atmosphere per unit energy produced may be 80% less (CO_2 avoided).

14. From your work with citizen panels and stakeholders do you perceive there being a danger that carbon storage will be viewed by some as a 'fix all' that means there is no need to reduce the amount of CO_2 produced?

This was a concern that was raised during our citizen panels. The reality however is that there is no 'fix all' for Climate Change – CCS cannot bring us to a point of zero emissions and the pressure to find alternatives to fossil fuels remains.

Nu-killer Energy

The good news for campaigners is that climate change is now firmly on the political agenda, and that the powers-that-be agree with us in principle that we have to act now to stop it. The bad news is that the nuclear industry, which has been in decline in this country up till now, is using the climate crisis to promote nuclear power as a solution. It seems to have worked. The government announced in the Energy Review in July that new nuclear power stations would definitely be part of the UK's energy mix in the near future.

The even worse news is that some prominent environmentalists agree with the nuclear industry, taking the view that overwhelming urgency of the climate change threat justifies building more nuclear power plants.

The idea that we face a 'lights-out' situation or climate change, if we don't have nuclear power is a myth promoted by industry and seized on by the government to duck the inevitable - a massive reduction in energy demand.

Nuclear power undermines genuine solutions to climate change

Nuclear power is not carbon-free when the entire life cycles of the power plants and the waste generated are taken into account. In comparison to renewables, where the source of the energy is free at the point of generation, the process of nuclear power production is dependent on imported uranium as its fuel. Ores have to be mined; the uranium is then extracted from the ores, and processed into fuel rods which are then transported to the power plants. Mining processes, transportation, and the building and decommissioning of nuclear power stations all use oil and thus carbon emissions are produced. It is estimated that Australia's largest uranium mine, Olympic Dam at Roxby Downs, contributes 8% of South Australia's CO_2 emissions.

Though nuclear power generation does emit less carbon dioxide, when this is viewed in the context of our overall emissions, its contribution to stopping climate change is minimal. Nuclear power currently generates about a quarter of our electricity. Yet electricity generation is responsible for less than a third of the CO2 emissions in the UK. So even if we doubled nuclear power in the UK it would only reduce greenhouse gas emissions by 8%

Further, nuclear power relies on a finite resource. The supply of high-grade ore, currently being used by the nuclear industry, is limited. It is generally estimated that there are only 50-60 years left of these kind of ores at the current rate of use . Lower grade ores are available but also limited. Increasing the use of low-grade uranium ores would increase the energy costs of mining, milling and refining, and increase carbon emissions.

Experience shows that investment in nuclear power prevents funding going to renewables and energy efficiency measures, what economists call an "opportunity-cost." Also, supporting the nuclear industry will undermine commercial investment in renewables. A British nuclear industry would need massive subsidies (despite government claims to the contrary) and these subsidies ought to go to creating a clean energy future. If the nuclear industry didn't need government financial and political support they could put in applications to build power plants today. The reality is that no private sector company can take the risks involved. Without taxpayer subsidy and underwriting there is no profit in nuclear power. Further, in the longer term, nuclear power relies on a centralised grid system, and as will be shown elsewhere, we must decentralise our energy production and distribution in future decades. As the Sustainable Development Commission puts it 'Nuclear would lock the UK into a centralised energy distribution system for the next 50 years when more flexible distribution options are becoming available… and undermine the drive for greater energy efficiency.'

A new nuclear programme would also give out the wrong signal to consumers and businesses, implying that a major technological fix is all that's required. In fact, we need to seriously reduce demand and change our lifestyles, as well as taking urgent action on energy efficiency.

Nuclear power is a risk not worth taking in terms of reducing our emissions, when you look at energy efficiency measures. For example a programme to replace normal light bulbs with energy efficient bulbs would save the equivalent electricity output of one nuclear power station. Further going nuclear places more yet more power into the hand of large corporations.

Nuclear power is filthy

Nuclear power generation may not produce much carbon, in comparison with oil or gas, but what it does produce is deadly. Radioactivity even at low-levels can cause cancers, leukaemias, birth defects and other health problems and disastrous environmental effects for thousands of years.

Our nuclear power plants have been around for 50 years, yet there is no solution to the problem of nuclear waste. By the time Britain's current nuclear reactors reach the end of their lifespan, they will have produced enough nuclear waste to fill the Royal Albert Hall five times over – including all of the most dangerous waste.

Very low-level radioactive waste is dumped in landfill or spewed into the air and sea (due to Sellafield, the Irish Sea is the most radioactive in the world, and there are objections to Sellafield at the highest level in Ireland). For more information about low-level radiation and its consequences to human health and the environment see www.llrc.org.

Intermediate level waste is stored across the UK, and along with high level radioactive waste, awaits a plan for long term management. We cannot 'get rid' of radioactive waste; some of it will remain radioactive for thousands of years. Dumping it means relinquishing control of it so that it may enter the biosphere in the future. How can we contemplate new nuclear power stations creating even more of this waste? We are leaving a deadly legacy for future generations.

Uranium mining is a dirty industry, and many mines are on the land of indigenous people, resulting in displacement and toxic health effects in local populations.

Nuclear power is unsafe

Accidents
Since human and technical errors can never be fully ruled out, although the probability of another catastrophic nuclear power plant accident such as Chernobyl may be very low, there is still always the smallest chance that such an accident will happen again. In the case of Chernobyl, human costs have been very high. Radiation scientists are arguing that cancers caused by this accident may result in 30,000- 60,000 deaths, an even greater number of fatalities than the 4,000 already estimated in a report by the IAEA and World Health Organization. Just in the UK, thousands of miles away, more than a thousand infant deaths may have been caused by the Chernobyl fall-out. Anyone who thinks that nuclear is worth the risk should examine the consequences of Chernobyl – a good place to start is a photo essay by Paul Fusco http://www.magnuminmotion.com/essay_chernobyl/

Even less serious accidents can cause considerable financial costs. In April 2005 Thorp nuclear reprocessing plant at Sellafield was shut after the discovery of a leak of 20 tonnes of highly radioactive liquid from used nuclear fuel, which went unreported for nine months. The cost to the taxpayer of the Thorp leak is said to be more than £300 million. We will never know the cost to human health and the environment.

However, it is not just the potential of accident at nuclear power stations that must be considered. Trains carrying spent nuclear fuel flasks travel across the country on the same lines as freight and passenger routes from the plants to Sellafield where the fuel is reprocessed, passing through built-up areas. A simple rail accident could have devastating consequences.

Terrorism and nuclear weapons proliferation
Nuclear power is inherently unsafe. It involves highly radioactive materials that can also be used to make devastating weapons.

Depleted uranium, a by-product of the nuclear industry is used to make deadly radioactive weapons, whose effects are indiscriminate and long-lasting (for more see www.cadu.org.uk). The proliferation of nuclear weapons is inextricably linked to nuclear power by a shared need for enriched uranium, and through the generation of plutonium as a by-product of spent nuclear fuel. In this country nuclear power and nuclear

weapon are not so directly linked any longer, as there is a stockpile of weapons grade material, obviating the need to produce more. The same is not true elsewhere.

Climate change is a global problem and requires a global solution. We cannot in this country put forward nuclear power as a way of lowering greenhouse gases and then expect other countries around the world not to follow suit. Although clearly not all countries with a civil nuclear programme are intending to create weapons, however it is widely acknowledged that a number of nuclear weapons programmes have started from supposedly civil nuclear operations. Proposing nuclear power as a solution to climate change would not just encourage the spread of an environmentally hazardous technology, but also the spread of the ability to make nuclear weapons.

Nuclear power also presents opportunities for terrorist attacks. Nuclear sites themselves would be targets designed to wreak maximum long term havoc The nuclear trains mentioned above are also at risk. According to an independent review produced by nuclear expert John Large, analysing possible accidents and acts of terrorism on these routes, a successful attack could spread radioactivity over 100km and cause over 8,000 deaths. The review also concluded:

'Even casual observations suggest that the physical security accompanying the spent fuel trains is minimal, the staffing is by regular railway personnel and there is no special security or police in attendance, and at the off-site railheads full flasks of spent fuel can be left standing in the open for several hours.'

Further, a global expansion of the use of nuclear power will of course mean increased stockpiles of radioactive materials and waste in general and thus the increased risk of some of that being diverted and used by terrorists in a dirty bomb.

Nuclear power is expensive

The fact that nuclear power is also an incredibly expensive technology fades into insignificance when faced with the long term dangers to life and the environment. However, it is worth pointing out that the nuclear industry has always been massively subsidised by the British public. Sizewell B, the UK's most recent power station cost the taxpayer around £3.7 billion to install. A new generation of nuclear power stations can be built only with taxpayers' money: the private sector won't carry the risk. Financial institutions will not take the risk of investing in new nuclear power stations. In March 2005 UBS, a leading banking and financial services group, put it this way, 'endorsing new nuclear is, to an extent, a potentially courageous 60-year bet on fuel prices, discount rates and promised efficiency gains.' UBS also comments that the recent revival of political support would be unlikely to survive any significant technical incident that resulted in renewed popular concern.

In an age of terrorism it is not just 'technical incidents', in other words nuclear accidents, which might have this effect. No reliance can be placed on investment programmes which could be abandoned as a result of events anywhere in the world over which the investor has no control.

Added to the significant costs of nuclear new build (not to mention the costs to the taxpayers of the various accidents, spillages, safety closures etc.) are the astronomical costs of decommissioning. It is estimated that decommissioning the current ageing power stations could cost more than £56 billion. Plus there's the unknown and never-ending costs of nuclear waste management.

Conclusion

The nuclear lobby has thus far been extremely successful in rejuvenating a dying industry by proposing a techno-fix for climate change. In fact, as one commentator put it, if climate change hadn't existed, the nuclear industry would have had to invent it. By portraying our only choice as one between climate disaster or at least a lights out situation, and nuclear power, the government and industry have managed to some degree to persuade the public to accept something that would otherwise have been unacceptable. It is our duty as people active on the climate change issue to disabuse people of the engineered hope of a "nuclear solution" to climate change, and to do everything to stop a split among our networks around the nuclear issue. We must make it crystal clear that we want neither nuclear nor climate change, while preparing for a new generation of anti-nuclear protests.

There is a familiar car sticker which pictures a smiling sun wreathed in the words 'Nuclear Power? No thanks.' From the tone of the answer, one might think the question posed had been 'More Sherry?' rather than 'Destruction of life on earth?'. But the multinational commercial interests and the governments that serve them are unlikely to listen to this genteel reply because they never asked a question in the first place. The persistent faith of the middle-class in politeness is perversely inappropriate in a world which it governs largely through the ruthless pursuit of political and economic power. The car sticker, with its cheerily inane smile, makes the mistake of suggesting that a choice has been offered. It hasn't.

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Consuming Passions The Dynamics of Popular Culture
Judith Williamson Marion Boyars London 1986.

Drax – a clean and friendly coal-fired power plant?

Drax is the largest single emitter of carbon dioxide in the UK, emitting 20.8m tonnes a year. This is more than a quarter of the total CO_2 emitted by all Britain's motorists. It is the biggest coal-fired power station in Europe, more than twice as big as any other power station in the UK. Drax provides 7% of the UK energy needs, burning nearly 10 million tonnes of coal a year.

Drax is an efficient coal-burner

Coal generates more CO_2 per unit of electricity than any other fuel. Proudly being the least polluting coal power station is like proudly being the least murderous serial killer. This might sound like overstating the case, but wilful climate change is indeed mass murder.

Drax burns 13 million tons of coal a year. There's nothing clean about that. Burning coal has no place in a society that wants to avoid catastrophic climate change.

Drax is using biofuels

Drax's use of biofuels peaked at 2.5%. In March 2006 they slashed it by 90%, so it's now 99.75% coal. (source: Melanie Wedgbury, Drax External Affairs manager, 20 June 2006)

More to the point, there isn't enough land to replace coal with biofuels. With an increasing world population we need land to grow food rather than electricity, much of which is wasted. We need to reduce consumption and stop burning fossil fuels.

Drax wants to reduce emissions but is waiting for a new regulatory framework to give incentives

They are *attacking* the existing regulatory framework, taking legal action against the European Union to try to get an increase in their already massive emissions allowances.

It's absurd to say 'we know we shouldn't do this thing, but we will continue to do it until someone forces us not to'. As a FTSE100 company, Drax could easily afford to invest in cleaner technology without waiting for the 'new regulatory framework', if such technology existed. The fact that it doesn't do shows its claims to responsibility are spin and lies. There's no such thing as 'clean coal'.

We need a diverse mix of power sources.

Coal is already the largest source of electricity (around half). (source:http://www.num.org.uk/) Increasing the largest source is not about increasing diversity but reducing it.

We do indeed need a diverse mix of power sources. But all of them sustainable, most of them decentralised, and none of them fossil fuels that threaten the continuation of life on this planet. We need a future without places like Drax if we are to have any future at all.

Drax is a major employer

More people would be employed implementing sustainable energy and energy efficiency measures. Jobs that result in mass extinction and the deaths of millions are jobs that should end today.

9 reasons to come to The Camp for Climate Action in Megawatt valley: Heart of coal country and home of Drax power station.

1). Because Drax is the single biggest source of CO_2 emissions in the UK
It's us or Drax, if we want a future Drax and places like it have to go. A thousand ton train load of coal every hour, every day feeds the engine room of this landlocked Titanic. Over 20 million tonnes of CO_2 are emitted every year.

2) Because coal consumption is increasing: King Coal is ready for a return to power.
Even as atmospheric temperatures rise, here in the UK power generation using coal is expanding. It went up 3% last year as power stations switched from high-price gas to cheaper coal. Globally, coal-fired generation is expanding massively. Between them China, India and the US are planning to build a staggering 850 new power stations over the next decade.

The growth economy must have access to cheap energy if it is to continue expanding (plus an expanding pool or intensification of labour). Economists and technocrats argue that as oil prices rise this will both intensify the search for new oil and bring about a switch to other fuels. The other fuel they're increasingly talking about is coal, which is hugely abundant. There is little doubt, if a new era of capitalist expansion is based on a shift to coal, we're toast.

There is an alternative: renewables, relocalisation and a massive reduction in energy use. Fossil fuel consumption could be reduced in line with contraction and convergence models that merge individual levels of emissions across the globe at a sustainable level. Using less energy and having lower levels of material consumption doesn't mean falling living standards. Making these choices is hard when society is organised around speed and consumption (not having a car is difficult when public transport is crap and the roads are too dangerous to cycle on, eating organic food it virtually impossible without a large income). A movement which is calling for reductions in energy use will have to challenge what is meant by 'quality' of life, by 'development' and 'living standards'? Is eating food from the area you live in worse than consuming a highly packaged chemically grown

alternative flown in from another continent? Is walking or cycling to a market nearby worse than a drive through grid locked streets to a distant hypermarket? Is producing energy locally and sustainably somehow worse than fighting wars of occupation to secure the very resources that are destroying the ecology of the planet anyway? The things that really matter, things like health, learning, friendship and community require few if any fossil fuels inputs. In fact most times the growth economy gets in the way, undermines and at worst destroys these very things. The things we do want and need could be made to last, they could be repairable and shared more.

A shift to a coal-based economy may or may not be possible but any attempt to take us down that route will mean catastrophic climate change is all but inevitable. The Camp for Climate Action is part of the movement for a radically different alternative.

3) Because Drax is the 'cleanest' power station in the UK and it's time to expose the myth of 'clean coal'.

Drax makes the claim that it's the cleanest power station in the UK and it's true it burns coal more efficiently than others. But Drax produces over 20 millions tons of CO_2 emissions per year, the equivalent emissions of around half all of the UK's cars over the same period. That some people are willing to describe this as clean energy production shows how hollowed-out ideas and practices of sustainability have become. There is no such thing as clean or dirty CO_2 there are just limits to how much we can safely emit and Drax and the system it is part of take us far far above them.

The coal industry is pinning its hopes for expansion on two possible so-called 'clean' solutions. The first is carbon sequestration, also known as carbon capture and storage (the geological burial of CO_2 gases). Carbon capture and storage means stopping the CO_2 getting into the atmosphere and causing climate change by extracting and condensing the CO_2 into liquid form and pumping it underground. This is currently an experimental technology, being tested at three sites worldwide. Putting aside the problem that it is just an experimental technology and that we require action now, there are still a number of profound questions to be asked of carbon sequestration.

- Maybe it would be safe. If natural gas can stay underground for millions of years why shouldn't we be able to use those spaces again. But we can't be sure and yet again we would be using the only planet we can live on in yet another cross-generational global experiment with no clear outcomes and many risks. The earth isn't a petri dish, it's our home – let's start treating it like one.
- It's only viable in certain parts of the world with access to old oil and gas wells. Three of the biggest producers and consumers of coal - Australia, India, and China - have very few suitable geographical features.
- We are producing huge volumes of greenhouse gases and there are serious questions about how much space for storage there is.
- It's mainly promoted by those hoping to sell the gas to oil companies wanting to squeeze more oil out of depleted wells. This is the same mad logic that sees in the melting Arctic not tears of loss but new opportunities for oil exploration.
- Is this the desperate last gasp of an economic system that is unwilling to question the idea of continuous growth. A system that puts itself and its continuity before all else as it yet again tries to shield us from deadness of its values with the mirage of its technology?

The second 'clean' coal technology is Integrated Gasification Combined Cycle (IGCC) generation technology, which is a far more efficient way of burning coal in the generation process. Certainly in winter, without major investment in peoples homes something is going to have to be burnt to provide heating. Community scale IGCC plant could (if it becomes viable soon enough) provide combined heat and power generation at emission levels that would also meet radical reduction targets.

However, given that goal of the growth of the economy is endless growth, there is an overwhelming danger or intrinsic dynamic that means increased efficiency, such as IGCC gives, means lower cost and thus increased demand.

4) Because we need to talk about the future of work.
Drax employs as few people as possible to endlessly increase 'efficiency'. The two thousand recently-laid off Selby miners were just factors of production casually cast aside to make space for cheaper imported coal. No doubt The Camp for Climate Action will be accused of wanting to put local people out of work. We don't. We're pushing for more options than just dole or working for climate destroyers like Drax. Decentralised, renewable energy systems would create twice to three times the number of permanent jobs per watt hour of energy produced. The solutions to climate change and oil depletion lie in challenging the cold logic of globalisation with a process of relocalisation and a new look at the role of work. We have to do more than replace the exploitation of the power station with the exploitation of the wind turbine factory.

5) Because it's essential we show solidarity with other grassroots struggles for climate and social justice and against the coal industry.
Last year six Chinese peasant farmers were killed whilst being evicted from a protest camp on the site of a proposed coal-fired power station. In western Venezuela indigenous people are now fighting coal industry expansion on their ancestral lands. This is for export to power stations, as Venezuela has abundant oil. Similar struggles are happening the world over as coal production and use expands. Many of those within the political mainstream argue that the fight against global poverty requires full steam ahead with further impositions of the global free market. Opposed to this are the many millions who are fighting this process of enclosure because it is the main cause of disempowerment, insecurity and poverty. Economic globalisation is also short hand for increased emissions given that it must be built on both increasing volumes and velocities in the movement of commodities. On the far right, groups such as the BNP see oil depletion as their opportunity to build a localisation that is racially pure. Our push to relocalise can be the opposite, a celebration and practical expression of a global movement that is the polar opposite of the right's attempt to sow the seeds of fascism in the turned ground of the energy crisis.

6) Because now is the time for a shift to decentralised energy production.
We certainly need to produce some energy. The question is how? The national grid is old and needs to be replaced. This is a historic opportunity to move to a more decentralised model that is more responsive to the needs of people where they live whilst having a far lower impact on the local and global environment. Conventional power stations waste nearly two thirds of their energy as waste hot water and in transmission losses. Decentralised systems such as combined heat and power generation use this water for community heating and because of the lower voltages and the smaller transmission distances involved these systems also have far lower transmission loses. The camp will highlight these new possibilities.

7) Because it's a crazy idea and we need to disrupt 'business as usual'.
Madness is a matter of perspective. Closing down Drax might be a crazy idea but does the inactivity and blindness of the economic mainstream leaves any alternative? With the potential of catastrophic climate change on the horizon, is normality sane? The gridlocked motorways rumbling toward oil depletion, green beans flown direct from starving Kenya, the soulless spread of suburbia, the invasion of Iraq? Tony Blair's inane comments that climate change can be talked with out affecting our lives in any way? Our actions need to reflect the magnitude of the situation we face; we need to challenge the fallacy that confronting and changing the status quo is bad, because in fact mounting this challenge is essential. Closing down a power station is a reasonable and necessary response to our predicament – it's not enough, but it's a start.

8) Because we don't have time to wait.
It has been shown that because CO_2 remains in the atmosphere for a long time (most for decades, some for a hundred years, and a small amount for 100,000 years), that cutting emissions now has a much greater impact than waiting and then cutting. The industry and government will claim that power stations like Drax will not be built again at the end of their working lives, in around twenty years' time. But waiting is not an option. At current levels of emissions we are facing at least a 3 degree C temperature rise this century, possibly much higher. Predictions from leading scientists of the effects of a 3 degree C rise include (i) 1-3 billion *additional* people facing water stress, (ii) 97% loss of coral reefs, (iii) malaria risk extends to cover hundreds of millions more people, (iv) 400 million deaths from hunger, (iv) destruction of the Amazon rainforests, (v) 60% of world population faces threat of Dengue fever (up from 30%), (vi) 50 % of worlds nature reserves unable to fulfil conservation goals. (vii) many ecosystems will collapse, along with their services to humans such as clean water.

Those worst affected will initially be the world's lowest emitters: people in the global south and the poor, but it won't be long before a crisis of this magnitude sucks in the complacent west. Even if we believe that there will be no new build coal-fired power stations, without our help Drax won't be closing for around twenty years. We have to make global cuts in emissions of roughly 60% per capita by 2030. If emissions are to be distributed evenly, this means that the UK's need to be cut by almost 90% over the next 25 years. If we let Drax and other power stations like it run to the end of their working lives, then we will be left with an impossibly short time window to sort things out. The decommissioning process must start now, and we are starting it.

9) Because power is not just the stuff of furnaces, turbines, fuel rods, transistors and cables. It's about struggle and resistance, it's a choice and a challenge. It's about the future, it's about now, and dare we say it, it's about fear, anger and love. As someone once said,

"TAKE BACK THE POWER"

(and use less of it!)

A note for promoters of nuclear power.

The Camp for Climate Action is against nuclear power. Using climate change and the threat is poses to future generations as the foundation of a lobbying exercise to relaunch nuclear power is one of the most insidious and cynical examples of Greenwash so far.

Why should those concerned about climate change and the fossil fuel economy should oppose nuclear power.

- Nuclear power will tie us into a centralised energy system for decades to come. No matter the governments denials building nuclear power stations will undermine attempts to build renewables and the decentralised energy systems that are essential for a low carbon future.
- We need to shift to a energy paradigm that has energy reduction right at its centre nuclear power is the beating heart of the opposite view.
- It would be bizarre and wrong to try solving one problem we are causing future generations (the collapsing climate) by intensifying another (radioactive waste disposal).
- Given the problem of proliferation and the limited size of uranium reserves, even if nuclear power where right for all the other reasons it would remain only a 'solution' for a few wealthy western nation and thus no solution at all.

Of course, some people believe in the potential of clean coal. For a useful summation of those beliefs, see a recent report by the National Union of Miners "The role of Britain's Deep-Mined Coal Industry for Supplying our Future Energy Requirements and a Cleaner Environment" www.num.org.uk/?p=publications#