



Europe's dirty secret:

Why the EU Emissions Trading Scheme isn't working



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Foreword

The revival of the EU Constitution under a new name has given an unexpected prominence to the question of the EU's role on the environment. Supporters of the text have repeatedly fallen back on the argument that, whilst the Constitution may have been rejected by voters in France and the Netherlands, treaty change is still urgently needed to allow the EU to 'take action' against climate change. But that is simply not true. The new treaty will contain some nice new words about combating climate change, but it will not give the EU any new powers to do something about it. Those who claim differently are either engaging in a PR-exercise or have not read the treaties. Or possibly both.

In fact, the EU already has powers to act on global warming. Politically informed people would even know that it already has a policy. And if the new version of the EU-Constitution is adopted the EU will not get any new powers to deal with the problem.

So the real problem with global warming is not that the EU lacks a Constitution. The real problem is that the EU's policy on climate change doesn't work.

British Foreign Secretary David Miliband has on many occasions spoken of the need for the EU to be seen as an "Environmental Union", arguing that the European leaders should try and tap popular concern over transnational issues such as global warming as a means of bolstering flagging support for the "project" across the continent.

There has so-far been limited questioning of the hazy assertion that the EU is good for the environment. This new study from Open Europe attempts to challenge this claim, arguing that real environmentalists should be very sceptical indeed of the EU's record on this area. The paper takes a close look at the EU's Emissions Trading System and argues that the existing policies in this area are fundamentally flawed.

The Emissions Trading Scheme (ETS) is supposed to be the EU's main policy tool for reducing emissions. But so far, it has been an embarrassing failure. In its first phase of operation, more permits to pollute have been printed than there is pollution. The price of carbon has collapsed to almost zero, creating no incentive to reduce pollution. Across the EU, emissions from installations covered by the ETS actually rose by 0.8%.

The Commission insists that it has learned its lesson, and has reassured us that in the second phase of the scheme, which runs from 2008 to 2012 will work better because it has clamped down on the over allocation of permits by member states.

Open Europe argues however that in fact things have gone backwards for the ETS. In the second phase of the ETS member states will be able to "import" external Kyoto "credits" from developing countries in order to meet their targets for reductions. This might be unobjectionable if these 'imports' reflected real emissions cuts. But these credits have already been exposed as highly flawed, and often fraudulent. They don't always reflect absolute reductions in emissions, whilst many of these credits are generated from projects in developing countries that would have happened anyway. Such credits actually mean increased pollution.

Furthermore, many credits will be generated through a system which allows polluters to bag massive profits for very little effort. Unsurprisingly, the main beneficiaries will be large, highly capitalized firms with the capacity to attract the attention of speculative investment in potentially

lucrative 'green' projects. Meanwhile, community level development will be sidelined, and sub-Saharan Africa will see just 4% of total investment from Kyoto credits.

The Open Europe report finds that it is highly likely that the majority of CO2 reductions in the next ETS phase will be simply 'bought in' through these imported permits. That means the ETS won't reduce emissions in Europe, and won't encourage companies to invest in low carbon technology – surely the main purpose of any serious climate change policy?

The report concludes that far from creating a credible basis for EU level action on climate change, the ETS has instead established a web of politically powerful vested interest groups, massive economic distortions and covert industrial subsidies. It will do practically nothing to fight climate change. It's good news for the traders and the large firms who will reap tens of billions of euros worth of profit through emissions trading. It's less good news for those who will suffer the consequences of global warming.

The EU believes the ETS can become the hub of a future global carbon market, and indeed has staked considerable political capital on the success of the scheme. However, it is proving difficult enough at present to even agree on overall international targets for emissions reductions: trying to also agree on the policies to meet them would be an impediment to reaching agreement.

Open Europe's paper argues that international action (whether through the EU or on a larger scale) should focus on setting tough and enforceable national targets for greenhouse gas reduction, but should leave decisions on how to reach those binding targets up to individual countries. This approach would give national governments the flexibility to explore alternatives to emissions trading – most notably green taxes – as part of their strategy for combating climate change.

Behind the idea of emissions trading lies the unspoken dream of preventing global warming on the cheap. The EU would very much like to be seen as doing something about global warming. And the ETS is a politically inexpensive way of making that impression. Unfortunately, as this study shows, the system looks more and more unlikely to succeed.

The EU doesn't need an EU-Constitution to fight climate change - it simply needs the political will to develop policies that work.

Max Andersson, Green Party Member of the Swedish Parliament



Executive summary

Phase one of the EU's Emissions Trading Scheme was a failure

- The first phase of the EU's Emissions Trading Scheme (ETS), which runs from 2005 to 2007 was a failure. Huge over-allocation of permits to pollute led to a collapse in the price of carbon from €33 to just €0.20 per tonne, meaning that the system did not reduce emissions at all.
- Worse still, since some countries (such as the UK) had set tough quotas on emissions, and others set lax targets, the system acted as a wealth transfer mechanism, effectively subsidising polluters in states which were making little effort by taxing states with more stringent allocations. Overall there are about 6% more permits than pollution. However the UK has to buy about 22 million tonnes worth of permits a year, while firms in France and Germany could sell off a surplus of around 28 and 23 million tonnes respectively.
- Finally, the ETS in phase one was not a real market – instead of auctioning off permits to pollute, member states allocated them free of charge to companies based on how many the government believed they needed. This created severe distortions. Large companies which lobbied for more permits than they needed were able to sell them on at a profit. Other institutions – particularly smaller institutions like hospital trusts – proved less effective at lobbying. They got too few permits and therefore had to pay into the system.
- As the cross-party Commons Environmental Audit Committee noted: “there is little or no evidence that Phase I is leading to any cutbacks in actual emissions at all, whether in the UK or elsewhere in the EU.” In its first year of operation (2005 to 2006) emissions covered by the ETS rose 3.6% in the UK, and rose by 0.8% across the EU as a whole.
- Defenders of the system stressed that these were just ‘teething problems’. It was hoped that pressure from the Commission would succeed in making member states set caps for the second phase (2008-2012) which would be tight enough to build a workable market in carbon. The goal is to impose a stable “cost” on carbon emissions sufficient to incentivise investment in cleaner technologies, and eventually moves towards a low carbon economy.
- At first glance the second phase of the ETS will indeed create some ‘scarcity’ in allowances to pollute. In other words, there should be fewer permits to pollute than there is pollution in the EU. Indeed, member states agreed to make further reductions in their overall cap as the result of pressure from the Commission. Supporters of the system have argued that this shows why a strong European Commission is needed, and argue that the system will now start to work.

Are things really going to be better in phase two?

- However, in an important respect the system has actually gone backwards. Unlike in the first phase, in the second phase member states will be able to “import” Kyoto “credits” in order to meet their targets for reductions.
- In order to get a speedy agreement on a piece of legislation which allows the import of these Kyoto credits (the Linking Directive¹) before the 2004 European elections, it was agreed that member states would be able to decide for themselves how many permits they

¹ 2004/101/EC

would import. Professor Catrinus Jepma argues that “The Linking Directive was clearly a political compromise to enhance acceptance of the EU ETS.”²

- Collectively, member states have set themselves import allowances which are more than enough to cover all the likely scarcity in the system. The World Bank estimates that the overall scarcity of permits in the second phase will be around 1.2 billion tonnes of CO₂. But EU member states have allowed themselves to import about 1.3bn tonnes worth of credits to meet this target. The UK, Spain, Finland and Italy are the only member states so far to set a target which cannot be met entirely by imported credits, if we compare allocations with 2006 verified emissions.
- As the UK House of Commons Environmental Audit Committee has noted, **“the Government is allowing for, and expecting, two-thirds of the headline carbon savings it has announced as resulting from Phase II to take place, not just outside the UK, but outside the EU... In fact, the effects of such credits on UK installations will – indirectly – be even higher than this, because other Member States have set higher limits on the use of such credits within their National Allocation Plans.”**³
- **This means it is likely that a majority (if not all) of the “reductions” which are being made as a result of the system will take place outside the EU.** The British Government has budgeted for just one third of the required “effort” in the UK to be made domestically, the remainder being met with Kyoto credits. The Government has said that the UK’s limit on imports of Kyoto project credits “represents around two-thirds of the difference between business as usual emissions and the total cap (ie. the level of effort in the UK), thereby balancing the need for domestic action with the benefits of investing in overseas projects.”⁴ However, across the scheme as a whole there is no such “balance”: other member states have set higher import quotas. They will be able to import more than enough credits to cover their own scarcity and then sell them on to UK firms (at a profit). So even the UK and other members with tighter import quotas should be able to cover all their reductions with imports via other member states. Therefore, even for the UK, in theory there would not need to be any domestic emissions reductions.
- Kjetil Røine, Carbon Market Research Manager at Point Carbon, has said that “we do not expect that the credit limits will be the constraining element for the CER/ERU inflow to the EU ETS... The overall picture is that there seems to be nearly sufficient supply of credits to meet the estimated shortage in the EU ETS over the first Kyoto period” [i.e. to 2012].⁵ A recent report from WWF, focussing on the nine member states with the highest emissions levels, said that between 88% and 100% of emissions reductions in these states could be bought in through use of Kyoto credits.⁶
- **The Commons Environmental Audit Committee has noted that “it is theoretically possible the EU ETS might not be responsible for any emissions reductions within the UK at all.” The Government’s response to the Committee report states that “The Committee’s theoretical observation is correct”.⁷**

² *Joint Implementation Quarterly* (April 2007)

³ House of Commons Environmental Audit Committee, Second Report, *The EU Emissions Trading Scheme: Lessons for the Future* (01.03.07)

⁴ Government Response to the Environment Audit Committee, Second Report of Session 2006-07, *The EU Emissions Trading Scheme: Lessons for the Future*

⁵ Røine, K. “CDM/JI supply: Will there be enough?”, *Carbon Market Europe*, Point Carbon (1 June 2007)

⁶ WWF, *Emission Impossible: access to JI/CDM credits in phase II of the EU Emissions Trading Scheme* (June 2007)

⁷ Government Response to the Environment Audit Committee, Second Report of Session 2006-07, *The EU Emissions Trading Scheme: Lessons for the Future*

- The process of negotiating the National Allocation Plans for phase 2 showed the limits on the Commission's ability to crack down on over-allocation by the large member states. In particular, Germany accepted a reduction of its total emissions cap of 28.9 MT only in return for an increase in its Kyoto credit import quota of 32.8 MT – so in reality, while the Commission looked tough, the overall cap was actually weakened during the negotiations.

Kyoto credits: are we getting real reductions for our money?

- In principle, it would be unobjectionable for reductions to take place elsewhere in the world if this meant they could be achieved at lower cost. However in practice there are a number of serious problems. The Kyoto credit system is failing to deliver significant reductions in emissions in return for the huge funds that are being channelled into it, due to a number of important flaws in the system.
- **Reducing emissions or subsidising pollution?** Kyoto credits are not awarded for absolute emissions reductions, but rather on the basis of avoidance of even higher emissions that would otherwise have occurred, so many of the credits are awarded to environmentally harmful projects. Project credits do not generally deliver 'clean development' – the original rationale behind the mechanism. Only 2% of credits so far issued originate from renewable energy projects.
- Indeed, Kyoto credits are often awarded to projects that are already happening anyway. This is known as a lack of "additionality" in the jargon. For example, the Xiaogushan dam in China was awarded US\$30m worth of credits, even though construction of the dam had been long underway, was nearing completion, and had already been given loans by the Asian Development Bank. The Jindal metal plant in India, the largest sponge iron plant in the world, is an example of a programme claiming carbon credits for technology that would have been installed anyway. A study by a UN advisor in India concluded that a third of projects he surveyed did not provide additionality.
- Without additionality, investment in projects like Jindal simply means subsidising the expansion of emissions-increasing activity. A more extreme version of this problem could be described as "moral hazard" – unscrupulous companies are given an incentive to create pollution in order to be paid to clean it up; for example to open a factory which produces exotic greenhouse gasses.
- Sanjeev Kumar, ETS coordinator at the WWF, warns that: "instead of paying to reduce global greenhouse gas emissions, poor quality CDM projects means that we pay to increase emissions. In a carbon constrained world, this insanity cannot continue."⁸
- **Around half the money spent on Kyoto credits to date has been awarded to projects to clean up so-called "exotic" greenhouse gasses – many of which are scams.** A particularly striking example, revealed in a study by Stanford University economist Michael Wara, relates to chemical factories producing the HFC-23 gas. These installations can reduce their emissions with a simple piece of equipment known as a scrubber, which generally costs a few million dollars. However, since HFC-23 is so potent (one tonne of the gas being equivalent to 11,700 tonnes of carbon dioxide) companies that install this equipment are eligible for tens of thousands of carbon credits for reducing just a few tonnes of the gas. This means that HFC-23 projects have received more credits than any other in the carbon markets so far.

⁸ Point Carbon, *Carbon Market Europe*, 15 June 2007

- HFC-23 projects that will have cost no more than €100m to carry out have absorbed €4.6bn of the funds spent on such credits. There is even evidence to suggest that production of this gas has increased in response to the prospect of lucrative profits to be made through this loophole in the system.
- The Commons Environmental Audit Committee concluded that there was “compelling evidence” that such projects “should be subject to serious doubt.” The UN has promised to clamp down on such scams, and has attempted to restrict credits for HFC-23 projects. However, there is already evidence that speculators have moved on to other high-value exotic greenhouse gasses.
- **Kyoto credits are not even reaching the poorest countries.** The vast bulk of investment in Kyoto projects is being channelled towards India and China. Sub-Saharan Africa remains marginalised, set to generate just 4% of total credits. Meanwhile, the Chinese state will enjoy increased revenue flows as a result of the Kyoto mechanisms. Most of the world’s HFC 23 production is located in China, and Beijing has imposed a 65% export tax on this type of project. Analysts have predicted a potential annual revenue stream of up to \$2.25 billion.⁹ Beijing has made no commitment that this money will be reinvested in projects that cut carbon.¹⁰
- **Paying for reductions elsewhere means losing several of the benefits of reducing domestic emissions.** Even if the Kyoto system was delivering emission reductions, it might be worth noting that paying for emissions reductions elsewhere means that the countries paying lose several of the side benefits of reducing their own energy use and emissions. For example, paying for reductions elsewhere will not increase member states’ energy security. It also means losing a demonstration effect – showing the rest of the world that it’s possible to break the link between growth and rising emissions.

Undermining the ETS without getting reductions elsewhere?

- Worse still, the Kyoto mechanisms themselves could be swamped by a huge oversupply of permits. It is quite possible that supply of credits in the 2008-12 period will exceed demand, a scenario which would lead to very low carbon prices.
- Given member states’ generous Kyoto credit import allowances, the price of carbon in the EU ETS is set to be driven largely by the price of Kyoto credits. So a low price for Kyoto credits would mean the price of carbon in the EU system would again fall to a level which does not reduce emissions. Indeed, the uncertainty generated by the complexity of these interacting systems is itself likely to lead to a more volatile carbon price - and therefore make it difficult for firms to plan to invest in reducing emissions.
- Jepma argues that because of the structural weaknesses in the ETS, and the predicted oversupply of Kyoto credits, phase two could well go the same way as phase one: “Sadly enough, the Linking Directive rules for the EU ETS second phase are such that the expected net demand under the EU ETS scheme can easily be met through JI and CDM credits (in fact, the accepted limits to using JI and CDM credits under the ETS are so wide that most installations can most likely cover any deficits through these credits). Through the Linking Directive, low credit prices under the Kyoto Protocol will push down second

⁹ <http://www.adb.org/media/Articles/2006/10594-PRC-CDM-potential/>

¹⁰ Point Carbon (08.06.07)

phase EU ETS prices. Also for the EU the opportunity to put real prices on carbon will then be lost.”¹¹

- Jepma’s calculations from April 2007 suggest that there will be a supply of around 5.75 billion tonnes worth of credits coming onto the market, while there is only going to be demand for 3.5 billion tonnes’ worth. This suggests that prices for Kyoto credits will fall to a very low level unless sellers form some kind of cartel. Jepma concludes that: “there are fairly strong arguments to support the view that even during the Kyoto Protocol’s commitment period (which coincides with the EU ETS 2nd phase), a similar pattern of slightly rising but eventually almost collapsing credit prices may take place.”¹²
- This will drag down the price of carbon within the EU. In its 2003 impact assessment¹³ looking at the effect of linking to the Kyoto mechanisms, the Commission suggested that importing 12.7% of emissions would reduce the price of carbon in the ETS from €26 to €4.8 – even without considering the effect of the huge oversupply of Kyoto credits which has emerged. In practice the EU as a whole will be able to import up to 13.6% of its emissions.

Still not a real market in phase two

- In phase one, power generators are believed to have made over £2bn in the UK alone in windfall profits by passing on the notional cost of carbon to consumers,¹⁴ having been given permits for free. Extraordinarily, auctioning of permits still has not been properly utilised in phase two. In fact, auctioning is restricted to 10% of the total, and only around 1.5% of permits will be auctioned in practice (7% in the UK). Having the government decide how much effort each firm should make defeats the whole point of running a trading system.
- Worse still, member states are using free allocations to deliver subsidies to polluting industries – particularly coal. As Economist Karsten Neuhoff notes: “Any free allocation represents a subsidy – and where only fossil-fuel generation is subsidized, this distorts investment choices in favour of fossil-fuel generation. Where coal receives a higher allocation than gas, the investment choice is, in addition, distorted towards coal. The level of such subsidies under proposed second-phase NAP is so high that the construction of coal power stations is more profitable under the ETS with such distorting allocation decisions than in the absence of the ETS.”¹⁵
- The Carbon Trust argue that “The fact that new emitting sources get free allowances but zero-carbon power sources do not obviously weakens incentives to invest in the latter. This problem is exacerbated by specific details in many of the plans. Most notably, the German NAP offers unlimited ‘technology specific’ free allowances to new power stations, so that coal power stations get about twice as many as gas, and adds a ‘load factor’ correction, in which the most polluting plants (lignite) are granted an *additional* 10% more allowances, officially on the grounds that they are expected to operate more... many countries offer such fuel-specific subsidies for new entrants, but Germany is unique in the scale of subsidy offered to the most polluting ones.”¹⁶

¹¹ Jepma, C. “Credit prices down the drain?” *Joint Implementation Quarterly* (April 2007)

¹² *Joint Implementation Quarterly*, (April 2007)

¹³ European Commission, *Impacts of Linking JI and CDM credits to the ETS*, May 2003

¹⁴ Reported in *Sunday Times* (03.06.07)

¹⁵ Neuhoff, K. et al., “Implications of announced phase II national allocation plans for the EU ETS”, *Climate Policy* 6 (2006)

¹⁶ Carbon Trust, *EU ETS Phase II allocation: implications and lessons* (May 2007)

- As analysts have noted, this degree of free allocation gives few incentives for emissions reductions amongst new installations entering the ETS. In fact, this aspect of the system creates perverse incentives for greater investment in polluting technologies such as coal, rather than encouraging a shift to cleaner energy sources.
- Real markets have the advantage that central planners don't need to collect lots of information. However the ETS requires firms to monitor and verify their emissions. Firms will have to pay for such certification, and generally have to employ outside experts to verify their emissions.
- The ETS is costly to comply with. We estimate administration costs of around £65m for the UK alone over phase two.
- Small installations suffer disproportionately in complying with the ETS. For example the UK's phase two national allocation plan (NAP) still includes a very large number of smaller installations. These represent 43% of the total number of installations in the scheme, yet account for just 1% of the total emissions. For smaller players pure admin accounts for a large proportion of the total costs. For example the phase one of the ETS cost the NHS around £6m, £1.5m of which was administrative costs.

What's the net effect? What's the best case scenario?

- It is quite possible that the second phase of ETS will again fail to put a serious price on carbon. EU and Kyoto carbon prices may fall to very low levels, leading to no meaningful reduction in emissions.
- To see what the system might look like if it did work, we could assume that (a) the oversupply of Kyoto credits is solved or that (b) either member states do not use their import quotas or have higher than expected emissions. What would the system achieve if a meaningful price is realised?

Winners and losers in phase two

- The price of carbon in phase two is difficult to predict – itself a reason why the system is unlikely to deliver reduced emissions. To repeat – there are good reasons to think that phase two will once again fail to put a serious price on carbon. This makes it difficult to put an exact cost on the different levels of “effort” member states are making.
- However, the table below gives indicative estimates of the relative effort different member states will need to make under phase two of the ETS, on the basis of the gap between 2006 emissions and the phase two cap. We then assume that the various problems described above are solved and a meaningful price is achieved, to work out how much this would then cost.

	Required total reductions % of 2006 emissions, adjusted for new entries (negative numbers are surpluses)	Kyoto credit use % of 2006 emissions, adjusted for new entries	Domestic Reduction % of 2006 emissions	Cost per year (low carbon price) €M (negative numbers are profits)	Cost per year (high carbon price) €M (negative numbers are profits)
Austria	5.2	9.5	-4.3	14.1	25.1
Belgium	2.5	8.2	-5.7	12.6	22.5
Cyprus	-3.4	10.3	-13.3	-1.5	-2.7
Germany	7.2	18.6	-11.4	293.2	523.6
Estonia	-2.6	0.0	-2.6	-5.2	-6.3
Spain	18.1	16.4	1.7	308.8	519.4
France	-3.1	13.9	-17.1	-68.0	-80.3
Greece	1.3	8.9	-7.6	7.6	13.5
Hungary	-5.9	10.6	-16.5	-20.1	-26.9
Ireland	-2.8	10.3	-13	-5	-9
Italy	13.7	12.9	0.8	277.8	477.2
Luxembourg	0.0	10.0	-10.0	-0.8	-0.5
Malta	4.1	<i>tbd</i>	4.1	0.8	1.4
Netherlands	1.5	9.9	-8.4	10.9	19.5
Poland	2.9	9.7	-6.8	54.6	97.5
Sweden	-3.4	10.4	-13.8	-7.6	-13.5
Slovenia	6.1	14.8	-8.7	4.5	8.1
UK	13.6	6.9	6.7	490.7	677.4
Finland	16.4	8.4	8.1	93.5	129.2
*Portugal	-	-	-	-	-
†Slovakia	-13.6	8.0	-21.6	-39.7	-60.5
*Denmark	-	-	-	-	-
†Lithuania	-33.3	11.9	-59.9	-18.4	-32.9
†Latvia	26.7	5.6	16.4	6.6	11.8
†Czech	-3.8	10.4	-14.2	-26.9	-48.0

*These countries did not at the time of writing have their national allocation plans approved by the Commission.

†For these countries, data produced serious inconsistencies in results.

- Because companies in different member states are subject to different levels of stringency in their overall emissions caps and their entitlement to use (cheaper) Kyoto credits, there will be differentiated levels of 'effort' they need to make in order to comply with the ETS. This means economic distortion will occur. As in the first phase of the ETS, these distortions act as an effective subsidy to companies in countries that have not chosen to impose ambitious emissions caps, transferring wealth away from countries which have. The UK will suffer amongst the highest costs in Europe in absolute terms in order to comply, largely as a result of its smaller project credit entitlement and relatively tough overall target. Germany, despite emitting 75% more CO₂ than the UK, will pay less.
- In fact, the UK, Spain, Finland, and Italy, because they cannot meet their target entirely by imported credits, are likely to face even higher costs, while the costs for other member states will be lower. This is because firms in other member states will be able to carry out a profitable "carry trade" – importing cheap Kyoto credits, while selling off their surplus EU credits (which are more expensive) to the UK, Spain, Finland, and Italy. One market trader

has described the process as “in essence, free money”¹⁷ for participants in a position to sell Kyoto credits; others might see it as a covert subsidy mechanism.

- Over five years, we estimate the second phase of the ETS would cost the UK £1.6 to 2.3bn. As a proportion of GDP, Spain and Finland will need to spend the most. Across the EU, we estimate that if the system does work it will mean costs across the EU of between **€15 to 20bn**, excluding administrative costs. Around €8.5 to 15bn of this expenditure would be directed towards Kyoto projects, many of which are subject to the serious deficiencies set out above; around €3.2 to 5.7bn of such investment from the ETS would be spent on exotic gas capture projects. This is clearly not an effective use of resources in tackling climate change. Even under this optimistic scenario, we could expect just one quarter of emissions reductions to be domestic. The other three quarters would come through Kyoto credits.

If the ETS does work, instead of increasing energy security, it will make the EU more dependent on Russian gas

- If the ETS does have an impact, one perverse effect may be to increase the dependence of the EU on Russian gas.
- The most significant reduction in emissions can only come about as the result of long term decisions to invest in cleaner machinery, which requires a high, stable and predictable long term price on carbon. However, because there is some excess capacity, the electricity sector is able to respond to some degree in the short term to changing carbon prices by switching some production from burning coal to more gas, which is cleaner. This does not change the long run trend of emissions growth, but can vary emissions up or down relative to their trend path.
- For this reason a report by McKinsey for the European Commission finds that if the ETS does lead to any significant price for carbon, one of its main effects is going to be to lead to a substantial increase in the EU's dependence on Russian gas. At a carbon price of €20 a tonne the study predicts that the EU ETS will have increased the EU's imports of gas by just under 30% by 2020. The report for the Commission predicts that the share of the EU's electricity generated by gas-burning power stations will go from 23% in 2005 to 45% in 2020.

Can EU emissions trading be made to work?

- Emissions trading is still widely viewed as a cost effective and efficient way of reducing greenhouse gas emissions. Carbon trading schemes attempt to impose a cost on carbon sufficient to incentivise investment in cleaner technologies and thereby a shift towards a lower carbon economy. For many free marketers, the fact that some environmentalists object to trading schemes on non-economic grounds strengthens their view that emissions trading is the right way forwards.
- The current state of the debate is that “teething problems” with trading can and will be solved. However, while some problems with the ETS are contingent on particular decisions which could be reformed, some of the problems which are emerging are more fundamental.

¹⁷ *Point Carbon* (11.07.07)

Reformable aspects

- **Lack of auctioning.** As long as permits are allocated and not auctioned the system is not going to be worth having. As well as unintentional distortions caused by the handing out of free permits, there is clear evidence that the system of free allocations is very vulnerable to lobby group pressure, and is also being deliberately used to provide covert industrial subsidies to polluting industries. The very complexity of the system enables and encourages this.
- In theory the system could be reformed so that 100% of permits were auctioned. However, given that only 1.5% of permits are being auctioned in the second phase there is clearly political resistance to this. It may take a very long time to get agreement to move to full auctioning in the system. This would cut across the member countries' stated goal of reducing emissions urgently.
- **Too many small installations.** At present too many small installations are included. In the UK, 43% of the firms (all facing large admin costs) are producing just 1% of emissions in the system. The cost of including these smaller installations will outweigh the benefits. This could be remedied by raising the threshold for inclusion. However, the Commission has said it will not even look at this issue until after phase two. Again, it may be difficult to get agreement among the 27 to solve this problem in the near term.

More fundamental problems

- **Uncertainty and the lack of a long term price.** Two aspects of the system make it difficult for firms to plan to make the long-term investments needed to reduce emissions. Firstly, the instability of the carbon price in the system (gyrating wildly between €33 and €0.20 in phase one) and secondly the short trading periods. Both are fairly structural problems.
- For example, at the moment there is no way to know what will happen after phase two (it is difficult enough to know what will happen *in* phase two). A November 2005 survey by McKinsey and Ecofys for the European Commission found that 93% of businesses wanted the trading period extended to ten years or more. However, governments are unlikely to agree to this as it means that caps can only be revised down every ten years, and so the path of emissions reductions would have to be very gradual (which is why none of the Government bodies surveyed agreed with this idea).
- However, without certainty firms cannot plan to reduce emissions. As a spokeswoman for Drax power station (the UK's largest emitter) put it: "Drax has six units, it's like having six mini-power stations on one site. We have one unit out now for repairs, it's next going to come out in 2011 because we only repair every four years. So the problem for us is that if there is no carbon price beyond 2012, why would we invest the next time we take that unit out, in a big amendment to that unit, or a big technology upgrade that would reduce our carbon, if we have no confidence that there is a price beyond that?"¹⁸
- Volatile prices within trading periods also de-incentivise investment. Professor Tom Burke at Imperial College London argues that emissions trading "produces very volatile signals for investors as to what they need to do". He believes that trading will only "affect things at

¹⁸ BBC Politics Show, 3 June 2007

the margin”, but far more effective action – involving public expenditure and regulation – would be necessary to make a serious effort against climate change. He said, “the point about markets is that prices change and are volatile as behaviours change. If you want investment made over 30, 40, 50 year periods, then you need a signal that’s much stronger”.¹⁹

- While some volatility in phase one was the result of particularly bad allocation because there was little data, the problem of getting the ‘right’ allocation is also fundamental in many ways, and so volatility is likely to continue.
- **Getting the allocation ‘right’.** Setting a target which is neither too tight nor too loose may not be easy. It involves making a series of guesses about future economic growth, future energy prices, and changing technology over a period of several years. If policymakers get it wrong they cannot correct their mistakes until the next period. The negotiations over phase two ETS have demonstrated that bureaucracies are generally not well positioned to judge what caps should be imposed on participants, whilst participants have a strong incentive to exert pressure on the bureaucracy in order to affect these decisions to their advantage.
- **“Gaming the system.”** Since emission allocations in the ETS are effectively assets with total values in the order of hundreds of billions of euros (with state action being the key driver of the prices of these assets), it is hardly surprising that lobby group and member state pressure has been intense. Unlike in a single country emissions trading system, in the EU scheme member states have a powerful incentive to set loose caps as this will result in a large transfer payment from member states which set tighter caps.
- One clear example of this was the fierce wrangling over Germany’s national allocation plan, which meant that a cut in this country’s overall cap was ‘traded off’ for a much larger allowance of Kyoto credit imports: a 164 million tonne increase.
- **Do you really get a ‘single price’ for carbon?** The stated goal of the ETS is to reduce economic distortions by having a single price for emissions which ensures that emissions reductions are made in the cheapest way possible. This is obviously not the case at present but even if the EU moved to 100% auctioning within the ETS, the ETS carbon price does not cover the whole economy. The ETS does not even directly cover some large industries, like the production of chemicals, aluminium and minerals, coal mining, natural gas leaks, refrigeration and air conditioning, semi-conductor manufacture, food and drink, or oil and gas flaring. In the case of industries like aluminium it was felt that this would simply shift such production overseas. More importantly, ETS does not cover the majority of the economy: the household sector, surface transport, agriculture etc.
- Although there is discussion about including other sectors there are practical limits to how widely the ETS could be expanded - particularly to the household sector and transport. If the carbon price were high, this incomplete coverage would cause distortions. For example it might become rational to shut down a large, efficient hospital boiler which would be included in the scheme, and replace it with many small inefficient electric fires - which would then not face the ETS carbon price.
- **Avoidability.** Unlike alternative emissions reducing policies (e.g. subsidies for domestic renewables), the ETS would have a serious problem of avoidability even if the carbon

¹⁹ BBC Radio 4 Today Programme 7 June 2007

price reached a significant level. Firms can move production to just outside the EU and then export their products into the EU having avoided ETS. While some plants and firms are clearly not mobile in this way, others will be.

- The report on phase two of the ETS carried out for the Commission by McKinsey suggested that this would be a problem in several sectors. It noted that "The additional costs of about 17% on the marginal unit of steel production may create an incentive to shift marginal production into regions without those costs." It found that "the possibility of production shifts and CO2 leakage in the cement industry is real", and noted that the cost of the ETS to the industry "is roughly equal to freight costs from northern Africa or the eastern European countries outside the EU." For aluminium production, even though it is not covered directly, "the probable large indirect cost increase resulting from the EU ETS is not covered by any free allowances. This might accelerate a migration of primary aluminium to countries with lower electricity cost."
- **ETS interacts with, and may cancel out, other climate policies.** The ETS is not the only climate policy being pursued by governments and indeed it cannot be. Yet its interaction with other tax and subsidy policies has the potential to cancel out their intended effects. If for example, member states subsidise the large scale building of renewable power plants, then the effect will simply be to reduce the price of carbon in the system (and therefore increase emissions elsewhere). The goal of the ETS is to make efficiency gains by avoiding distortions – but other climate policies are at the same time effectively trying to pre-empt the operation of the market and artificially tilt investment in their favour. A whole range of other taxes, subsidies, and regulations mean that the goal of a completely undistorted market may be a mirage.

Don't you need global emissions trading to have effective global action?

- The attempt to create a global carbon market and a "global price for carbon" through trading is unlikely to be successful. International action should focus on setting tough and enforceable national targets for greenhouse gas reduction. How to reach those binding targets should be up to individual countries.
- At present it is proving difficult to even agree the overall targets. Trying to also agree on the policies to meet them would be likely to impede agreement – particularly given that countries like China favour radically different approaches. An intergovernmental agreement is politically a more plausible successor to Kyoto than the creation of a single supranational trading system.

A review of phase one – why the ETS has not cut emissions (2005-2008)

European politicians often speak of the importance of the EU 'taking the lead' on climate change, setting an example to the world by means of what is presented as an ambitious emissions reductions strategy. The EU's Emissions Trading Scheme (ETS) is seen by many as a key vehicle for the achievement of this goal. Former UK Environment Minister David Miliband, for instance, has hailed the ETS as "the most innovative and efficient method yet invented for reducing carbon emissions".²⁰

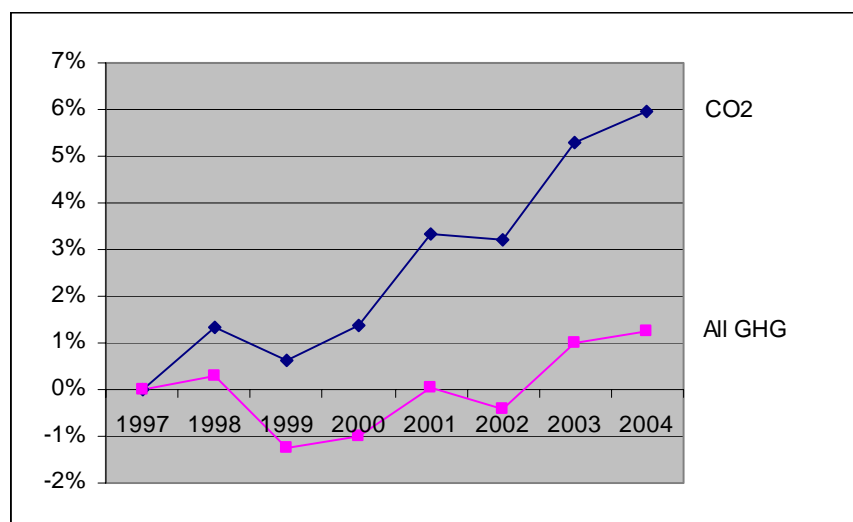
However, it is widely acknowledged that the first phase of the ETS, which runs between 2005 and the end of 2007, has failed to provide either a workable market in carbon, or reduced emissions. Loose targets set by EU members led to an over-allocation of carbon permits – i.e. there were more permits issued than actual emissions.

When the over-allocation became apparent to markets in 2006, EU phase one carbon markets collapsed: the price of carbon plummeted from €30/tonne to €8.5/tonne within 3 weeks from the end of April 2006. The current price of phase one carbon permits, languishing at under €0.2/tonne, reflects little more than the transaction costs of the permits. Francisco Blach, head of commodities research at Merrill Lynch summed up investor pessimism: "There are too many permits, so in reality they should be worthless."²¹

As a result there is no incentive to reduce emissions. Emissions covered by the ETS rose 3.6% in the UK in the first year, and rose by 0.8% across the EU as a whole.

Furthermore, large disparities between different member states' targets led to a wealth transfer effect, meaning that countries such as the UK, which set tough emissions caps, were punished, whilst those that set lenient caps were rewarded. Open Europe has estimated that UK firms had to buy £470m worth of permits from rivals in other member states in 2005, whilst no meaningful reduction in emissions has occurred.²² The ETS covers large industrial installations which account for just under half of all CO₂ emissions - 46% of UK emissions, so its failure will have a significant effect on the EU's ability to hit its Kyoto target.

Overall, EU emissions have not been curbed since the Kyoto treaty was signed in 1997. Under current policies the EU-15 will certainly not meet its Kyoto target of reducing greenhouse gas (GHG) emissions by 8% on 1990 levels by 2012. But on current trends, emissions in the EU-15 will have actually increased by 5% by 2030.²³



²⁰ *Guardian* (22.06.06)

²¹ *FT* (02.11.06)

²² Open Europe, *The High Price of Hot Air* (02.07.06)

²³ EC Communication, *An Energy Policy for Europe* (03.01.07)

Claims that the ETS has led to emissions ‘reductions’ are misleading and politically driven

- The British government has made no secret of attempting to use the issue of the environment as a means to the end of promoting greater public enthusiasm for the EU “project”. Former Environment Secretary David Miliband argued, “Europe needs a new *raison d’être*. For my generation, the pursuit of peace cannot provide the drive and moral purpose that are needed to inspire the next phase of the European project. The environment is the issue that can best reconnect Europe with its citizens and re-build trust in European institutions. The needs of the environment are coming together with the needs of the EU: one is a cause looking for a champion, the other a champion in search of a cause.”²⁴
- In this light, the UK government has been keen to promote European level action on the environment, such as the Emissions Trading Scheme, and indeed has even claimed that the first phase of the ETS contributed to 4.6 million tonnes of CO₂ reductions in Britain. Miliband has said:

“The effect of the very first year of the EU ETS is notable. Emissions trading is the most important and effective way of pricing carbon in the economy, which ensures that industry takes full account of the cost of carbon dioxide, and provides a financial incentive for industry to reduce emissions. Carbon trading will increasingly become a key tool in the international community’s response to climate change and is already a vital part of the UK’s policy response.”

- Miliband has also claimed that UK emissions, when ETS is included, were 27 million tonnes less than the actual figure:

*“our greenhouse gas emissions are 15.3 per cent below 1990 levels - 18.8 per cent when the effect of the EU Emissions Trading Scheme is taken into account... With emissions trading, we will almost double our Kyoto target, with an estimated 23.6% reduction in greenhouse gases on 1990 levels by 2010.”*²⁵

- However, as the Commons Environmental Audit Committee points out, such statements are highly misleading, as there is little evidence that the ETS has led to any reductions at all:

“...the Government announced that the UK’s National Allocation Plan was imposing a reduction on Business As Usual levels; for Phase I this was stated to be a cut of 8% or 4.6MtC. However, as we have seen, there is little or no evidence that Phase I is leading to any cutbacks in actual emissions at all, whether in the UK or elsewhere in the EU. Rather, it would seem that where UK-based firms have exceeded their allocations and bought allowances on the market, this has largely come from the general excess of allowances in Phase I; or in other words, they are simply buying “hot air”... the Government itself recognises that, while it did indeed impose a cap on UK installations at a level roughly 4.6MtC below Business As Usual projections in Phase I, this shortfall is essentially being made up by buying hot air – i.e., the overall

²⁴ Miliband D. “Towards an environmental union”, October/November 2006 – *Centre for European Reform Bulletin* (Issue 50)

²⁵ Defra Press Release (31.01.07)

*surplus of allowances allocated to industries in excess of need – and is not actually reducing CO₂ emissions at all.*²⁶

- The Committee argue that “If it is indeed the case that these ‘savings’ are entirely notional – in other words, that they simply reflect a cutback from Business As Usual projections, and have not actually made any impact on UK emissions in reality – the Minister must explain why he failed to make this clear in his evidence to us; and the Government should immediately stop using this figure, and issue corrections to all official uses of it.”
- The Government has said that the ETS is “the cornerstone of the Government's policy framework to tackle climate change.”²⁷ Clearly, a great deal has been staked on the success of this policy instrument.
- The Committee go on to note that, bearing in mind the “political capital” the government have made in promoting the contribution of the EU ETS towards the UK's emissions reduction targets, “the Government has a democratic duty to be more transparent in its reporting of progress against this and future targets. As it stands, presentation of the UK's progress towards its carbon reduction targets is apt to mislead.”²⁸

Will there be any improvement in phase two of ETS? (2008-2012)

- Phase two of the ETS begins in 2008, running through to 2012. The Commission is trying to avoid the problems of phase one through attempting to enforce more stringent caps, intended to create scarcity in carbon supply and thereby incentives to reduce emissions. Miliband argues that, “The first phase of the EU ETS was designed as a learning phase, and important lessons have been applied to the second phase. The European Commission's decisions on Phase II National Allocation Plans show a clear determination to ensure scarcity in the carbon market and to use the ETS to drive down carbon dioxide emissions in line with the EU's Kyoto targets.”²⁹
- However, the potential ‘reductions’ in emissions are unlikely to provide the implied necessary level of *domestic* abatement they suggest. In fact, most or all of the “reductions” will be bought in from outside the EU. The lack of long term price signal – a fundamental flaw in the present ETS system – is likely to mean that if carbon abatement does occur, this will not contribute significantly towards reducing the overall carbon intensity of European economies, but rather will rely on purchased ‘carbon credits’ imported from outside the EU.
- Other regions are watching the ETS carefully as an example for their own possible policy implementations in combating climate change, particularly given the imminence of post-Kyoto negotiations. Unfortunately, the second phase of the Scheme – on account of not sufficiently incentivising longer-term low carbon investment in Europe – is unlikely to persuade other large emitters to follow suit.

²⁶ House of Commons Environmental Audit Committee, Second Report, *The EU Emissions Trading Scheme: Lessons for the Future* (01.03.07)

²⁷ *Ibid.*

²⁸ *Ibid.*

²⁹ *FT* letter (30.04.07)

Not cutting our emissions – but paying for “reductions” outside the EU

- The 2004 Linking Directive allows certificates of emission reductions from emerging economies to be traded within the European carbon market, the so-called “flexible mechanisms” of the Kyoto Protocol. The Kyoto Protocol requires developed countries that have ratified the text to reduce their greenhouse gas emissions by an average of 5% on 1990 levels by 2012. The joint target for the EU-15 as a whole is 8%. Commitments towards meeting Kyoto reductions not achieved through domestic emissions abatement in the developed (or ‘Annex 1’ countries) will be taken up by importing Clean Development Mechanism and Joint Implementation (CDM/ JI) permits from developing and middle income countries (‘non-Annex 1’ states). “Certified Emissions Reductions” (CERs) for CDM projects, or Emissions Reduction Units (ERUs) for JI projects, are awarded for projects in non-annex 1 countries according to the amount of greenhouse gas emissions they avoid as a result of the project. The credits are then sold to governments and companies in Annex 1 countries, and count towards their required Kyoto emissions reductions.
- When the Linking Directive was originally proposed, a cap was placed on the number of Kyoto credits that could be imported into the ETS. This would originally be set at 6% of the total cap (meaning just 25% of *reductions* would be achieved outside the EU). The Commission introduced this provision in order “to ensure complementarity under the Kyoto Protocol in respect of the Community scheme and to preserve the overall objective of the Community scheme to achieve emission reductions within the EU”.³⁰ However, the principles behind the cap quickly became undermined by the pressures of legislating to timetable and lobby group influence, as Natalia Gorina and Alexandre Marty at consultancy ICFI explain:

“The rationale for this cap was the so-called ‘supplementarity’ principle, the requirement that most of the overall reduction target is met through domestic action and the remainder through Kyoto mechanisms. However, the ‘cap proposal’ was subject to strong criticisms. Environmental NGOs battled for no linking at all as it would discourage domestic emissions reductions, while industrial associations demanded no cap on carbon credits, as this would reduce the cost-efficiency of the ETS. A compromise needed to be struck quickly, before the European parliamentary elections in June 2004 and to make the Linking Directive operational for the start-up of the ETS in January 2005. The easiest and quickest compromise was to delegate the cap decisions to member states. That compromise led to what we see now: complexity and market fragmentation, in which the commercial implications are not immediately obvious.”³¹

- As Greenpeace argues, this issue is not purely of commercial significance, but a potential threat to the environmental integrity of the ETS: “The only way that the EU can send positive political signals internationally is by demonstrating that it intends to deliver real emission reductions at home and to protect the environmental integrity of the Kyoto Protocol. International negotiations and the climate have nothing to gain from the new loopholes that [the Linking Directive] is creating.”³²

³⁰ EU Commission, *Staff working paper on the directive of the European Parliament and Council amending Directive establishing a scheme for greenhouse gas allowance trading within the community, in respect of the Kyoto Protocol's project-based mechanisms* (23.07.03)

³¹ Gorina, N. & Marty, A. “Trading around the caps” *Environmental Finance* (November 2006)

³² Greenpeace, Position Paper, “Seven reasons to reject the Linking Directive” (24.10.03)

- Although the EU Commission has been keen to emphasise the setting of 'tougher' national targets for phase two, these are not as ambitious as they first appear on account of the generous allocation of Kyoto credits. Comparing the cap set in phase one and that set in phase two against 2006 verified emissions data indicates that, although scarcity will be higher in phase two, the net required *domestic* emissions reductions will be very small or non-existent. Of course, further EU domestic reductions may occur as 'business as usual' emissions increase, but the overall result would only be to offset this rising business as usual baseline, much (or all) of which could be covered using imported credits.
- Despite the principle of supplementarity, there are in practice very limited constraints on the quantities of Kyoto credits that can be imported to the EU. We estimate that the total entitlement for Kyoto credits for the ETS is more or less equal to the likely overall scarcity, meaning that the entire shortfall could be covered by project credits if supply of these were high enough.³³ The World Bank notes that "The Commission assessed NAPs for imports of carbon assets (including planned and substantiated governmental purchases) ostensibly with a view to limit imports to no more than 50% of the 'expected distance to target' for each Member State. According to the vast majority of analysts, this does not place any practical constraints on the demand for CDM/JI from EU installations." Given analyst estimates of numbers of credits that are likely to be imported into the scheme (1,000 to 1,200 MtCO₂e over 2008-12), the lack of restrictions on imports "means that installations, using credits from CDM and JI, could be in a balanced position or a marginally short one."³⁴
- In a more recent analysis piece, Kjetil Røine, Manager at Carbon Market Research at Point Carbon predicted that all of the scarcity created in phase two could well be covered through imported credits. He argues that the supposed limits on external credit use in the phase two NAP will probably not be relevant: "we do not expect that the credit limits will be the constraining element for the CER/ERU inflow to the EU ETS... holding all other factors constant, the CER/ERU supply to the EU ETS could be up to 1,300 Mt... This makes the conclusion that there will be sufficient CER/ERU supply to meet the EU ETS demand even more robust." He concludes that – depending on how events play out in the run-up to 2013 – "there seems to be nearly sufficient supply of credits to meet the estimated shortage in the EU ETS over the first Kyoto period [which coincides with phase 2 ETS]".³⁵
- The supplementarity principle exists in order to ensure the developed world takes responsibility in tackling climate change – working on the basis that because industrialised nations have historically been the biggest polluters, they should be the ones to take the lead in tackling climate change. This principle has been seriously undermined by the EU's current policies, effectively allowing Europe to shirk its responsibility to reduce domestic carbon intensity and absolute emissions levels. This section will explore how linking the EU ETS with the Kyoto trading mechanisms has created significant market uncertainty, as well as introducing the risk of an oversupply of credits into phase two, decreasing the pressure for real emissions reductions in Europe.

³³ If total scarcity is 1,400Mt, this could almost be entirely covered by around 1380Mt of credits eligible for import.

³⁴ World Bank, *State and trends of the carbon market 2007*

³⁵ Røine, K. "CDM/JI supply: Will there be enough?", *Carbon Market Europe*, Point Carbon (1 June 2007)

i) Will 'hot air' from Russia undermine carbon markets?

- Because Russia and a number of other former Soviet bloc countries experienced recession and a large number of industrial shutdowns in the period following the collapse of communism, their emissions were far below the 1990 baseline when they ratified the Kyoto Protocol in 2004. As their Kyoto commitments are generally to hold emissions level relative to that baseline, or to make only modest reductions, this in practice gives these countries a surplus in terms of their 'right to pollute' – this has become known, rather notoriously, as 'Russian hot air'. Since International Emissions Trading, enshrined in the Protocol, allows signatories to trade their surplus emissions with one another, this could prove to be a significant factor affecting the emerging global carbon markets – to which the EU ETS is linked.

Kyoto credit supply and demand (Jepma 2007)	
Projected supply	5.75bn
CDM	2.90bn
JI	0.15bn
AAUs (restricted sale)	2.70bn
Projected demand	3.50bn
Net surplus of credits	2.25bn

- Edwin Woerdman of the University of Groningen notes that "it is well-known that 'hot air' will be traded under the Kyoto Protocol, which is considered to be one of the most important effectiveness problems of emissions trading systems. If the official emission ceiling in a country is higher than its business-as-usual emissions, it can sell pollution rights without having to reduce emissions. The trading of this hot air not only was, but still is seen as an environmental problem by various scientists, policymakers and NGOs."³⁶
- Writing in April 2007, with the shape of phase two coming into clearer focus, Professor Catrinus Jepma of Amsterdam University argued that the 2008-2012 Kyoto commitment period will be "characterised by a structural oversupply of credits" on account of the estimated influx of some 2.7bn tonnes of Assigned Amount Units (AAUs) from the former Soviet bloc. He said that "This can only lead to potentially volatile, but eventually low, if not very low, credit prices during the commitment period of the Kyoto Protocol. If this would happen, the Kyoto Protocol can, with hindsight, be characterised as a lost climate policy decade during which the opportunity to put a serious price on GHG emissions has been missed."
- Jepma explains how this oversupply of credits risks 'spilling over' into the EU ETS, noting that restrictions on CDM and JI use in the EU are far too lenient to prevent market dilution: "Sadly enough, the Linking Directive rules for the EU ETS second phase are such that the expected net demand under the EU ETS scheme can easily be met through JI and CDM credits (in fact, the accepted limits to using JI and CDM

³⁶ Woerdman, E. 'Hot Air Trading under the Kyoto Protocol: An Environmental Problem or Not?', *European Environmental Law Review* 14 (3), pp. 71-77. (2005)

credits under the ETS are so wide that most installations can most likely cover any deficits through these credits). Through the Linking Directive, low credit prices under the Kyoto Protocol will push down second phase EU ETS prices. Also for the EU the opportunity to put real prices on carbon will then be lost.”

- Jepma suggests that this situation has arisen as a result of attempts to secure political agreement amongst EU member states, who were keen to secure rights to cheap imported credits, rather than having to make potentially costly reductions at home: “The linking directive was clearly a political compromise to enhance acceptance of the EU ETS.”³⁷
- Woerdman believes that the environmental compromise at Kyoto was also the product of political maneuverings, and was seen by EU negotiators as a necessary sacrifice, intended as a “bribe” to secure Russian ratification of the symbolically important Protocol: “the withdrawal of the US from the Kyoto Protocol changed the game and seems to have increased the acceptance of hot air by the EU and the green NGO community as a ‘necessary evil’ to keep Annex B Parties such as Japan and the Russian Federation on board of this international environmental agreement...EU officials have more or less accepted that hot air will be traded as a ‘bribe’ for ratification by hot air countries such as the Russian Federation.”³⁸
- Some believe that it is unlikely, however, that the former Soviet states will simply flood the market with all their excess AAUs. Natalia Gorina of ICF Consulting estimates that there are 5.3bn tonnes of surplus emissions credits potentially available from these countries for the 2008-2012 period: “if all available hot air enters the market, AAU supply would outstrip global demand for carbon instruments and the price of AAUs would fall to zero.” She argues that “This scenario is unlikely, however, because this would result in hot air sellers receiving low or no revenue from AAU sales. Instead, they would be likely to act strategically by selling a restricted amount of AAUs and by banking some for the post-2012 period. The model shows that hot air countries would maximise their revenues by selling around 20–30% of their surplus AAUs in the market, depending upon the demand-side scenario.”³⁹
- Nonetheless, if this scenario of restricted sales were to come about, supply of credits from the former Soviet states would still be in the region 1-1.6bn tonnes – a very significant dilution in global carbon markets.
- Other than the risks of an oversupply contributing to very low carbon prices, sellers of AAUs also face an obstacle in that many governments will not agree to buy hot air, conscious that such a move would be politically damaging. Canada and many large European government buyers (including Germany and the Netherlands) have said they are unwilling to spend taxpayers’ money on hot air. However, Kyoto compliance is still a pressing concern for most of these governments (although Canada is wavering on its Kyoto commitments) meaning there are other options that have been considered for ‘greening’ Russian hot air, discussed in the box below.

³⁷ *Joint Implementation Quarterly* (April 2007)

³⁸ Woerdman, E. (2005), “Hot Air Trading under the Kyoto Protocol: An Environmental Problem or Not?” *European Environmental Law Review* 14 (3), pp. 71-77.

³⁹ Gorina, N. “Cooling down hot air”, *Environmental Finance* (May 2006)

'Greening' Russian hot air: a source of credit supply?

a) Green Investment Scheme (GIS)

The Green Investment Scheme essentially works by earmarking funds used for the purchase of AAUs for investment designed to curb emissions. Both Russia and Ukraine are actively pursuing the GIS option. By 2010 Russia expects to have implemented its first GIS deals. Japan, Italy and other European countries have expressed interest in GIS deals with Ukraine and Russia. GIS credits cannot be used directly in the EU ETS.

b) Joint Implementation (JI) Track 1

Another option for greening AAUs is the use of 'Track 1' of Kyoto's Joint Implementation mechanism (JI Track 1). Whilst those countries that have not met certain UN eligibility criteria will be required to adhere to the Track 2 procedures, which are similar to the more rigorous procedures for CDM projects, others, such as Russia, can make use of Track 1, where verification is far less stringent, and does not have to be conducted by an accredited third party. Although such projects need to substantiate additionality⁴⁰, Track 1 leaves much more up to the host nation. JI credits are eligible for direct use in the EU ETS.

Russia has the largest estimated potential of the development of JI credits, but projects have been halted because Moscow has yet to adopt the domestic legal framework for how to approve projects. This legislation is expected to be in place soon, which has caused European and Japanese firms to cast their eyes on the Russian JI market.⁴¹

- Russia will seek to engage in the potentially lucrative global carbon markets. Gazprom has announced that it will seek to sell carbon credits to European buyers, effectively in order to offset the carbon produced by the Russian gas they are using. It is even considering selling gas and carbon credits as a 'package' to customers in the west.
- In January 2007, Gazprombank, part of the Gazprom Group, and Dresdner Kleinwort announced a joint venture investing in emissions reductions projects, which analysts estimate could potentially generate up to 1bn tonnes worth of credits. Should such quantities materialise, this would put significant downward pressure on the price of carbon in the ETS.
- Many Russian industrial plants are very old and carbon intensive, meaning that even modest (and therefore cheap) technological improvements can yield great reduction in carbon emissions. Gazprom believes it can exploit such techniques to add value to natural gas sales to European firms. Point Carbon estimate that Gazprom has the potential to reduce its emissions by fixing leaks and overhauling its compressors, which could generate up to €2bn through carbon credits.⁴² Philip Dewhurst, a spokesman for Gazprom Marketing & Trading, comments that "Russia is the Saudi Arabia of carbon. There is a tremendous bank there. Gazprom is in this business for the long term."⁴³

⁴⁰ Additionality is a key condition for Kyoto projects stating that the improvement would not have taken place without the additional investment.

⁴¹ *Point Carbon* (27.04.07)

⁴² *FT* (16.01.07)

⁴³ *IHT* (25.04.07)

- Even if there is not a large supply of credits from Russia, it is possible that the Kremlin can still use this to its strategic advantage. If ETS participants cannot use Kyoto credits to comply with their targets, this may force the market to choose the next cheapest option for registering emissions reductions: coal to gas switching. However, if coal to gas switching is triggered, gas dependency on Russia will be increased.
- The ability to generate cheap carbon credits is therefore effectively another strategic asset at the Kremlin's disposal. Gazprom and the Russian state have considerable sway over supply of both carbon and natural gas to Europe. A great deal may depend on the extent to which Russia can persuade Ukraine and other smaller 'hot air' countries to fall into line in imposing cartel-like control on carbon supply, effectively organising a 'carbon OPEC'. If the Kremlin is unable to do this, the scenario of hot air oversupply becomes more likely.
- In the longer term, emissions targets for 2020 set out by the EU will contribute further to gas dependency, strengthening the hand of the Russian state. As a recent report for the EU Commission by McKinsey and Ecofys noted, "In order to keep emissions in the power sector constant until 2020 – which is a rather conservative assumption and probably not strict enough – a massive shift is needed from coal to gas fired electricity production." At a carbon price of €20 a tonne, the study predicts that the EU ETS will have increased the EU's imports of gas by just under 30% by 2020. The report for the Commission predicts that the share of the EU's electricity generated by gas-burning power stations will go from 23% in 2005 to 45% in 2020.⁴⁴

ii) The oversupply of Kyoto credits; Canadian reluctance to comply with Kyoto could create problems for the ETS

- US withdrawal from the Kyoto Protocol led to a sharp diminution in potential demand for emissions reduction credits. Canada now looks to be following suit, albeit in a more partial and ambiguous manner. On April 27 2007, Ottawa announced that it would adopt unilateral carbon intensity-based targets, and separate targets for absolute emissions reductions of 150Mt by 2020. The proposals would mean that Canada will not meet its Kyoto targets. Although Canadian firms will be able to use Kyoto credits for compliance, this demand is not expected to materialise before 2010 and is likely to remain small. If Canada was to comply with Kyoto, this would contribute to demand for at least 1bn tonnes of credits over the Kyoto commitment period, according to Point Carbon,⁴⁵ meaning that its exit could be a major loss.
- It is unclear how the Canadian proposals can be reconciled with the Kyoto mechanisms, in any case. Per Lekander, an analyst at UBS, believes Canada could have problems participating in CDM without achieving the Kyoto target during the 2008-2012 compliance period. "Either you buy the whole bag or you are not in," he said.⁴⁶
- Yvo de Boer, Executive Secretary of the UN body that oversees the Kyoto Protocol, said there was some confusion over Canada's commitment to Kyoto, and subsequent international agreements: "The question is how this new commitment or the new policy objective relates to the international commitment or international

⁴⁴ McKinsey & Ecofys, EU ETS Review, Report on International Competitiveness (December 2006)

⁴⁵ Point Carbon (01.05.07)

⁴⁶ Point Carbon (01.05.07)

undertaking Canada has made with the Kyoto Protocol, and also how it fits into the debate about longer term action that's currently under way".

- Given that a change in government in Ottawa could potentially shift Canadian policy on Kyoto yet again (the opposition Liberal Party are vigorously opposed to the government's plan), it seems clear that this situation creates considerable uncertainty on the demand side for Kyoto credits. Since this potential Canadian demand for credits would be effectively competing with demand from the EU ETS (as a result of the Linking Directive), reduction in the former can only lead to lower prices for carbon, and lower levels of domestic abatement in the EU. On the other hand, increased Canadian demand will mean higher carbon prices in the ETS.

iii) Even if Kyoto credit supply remains small, and demand is high, the majority of EU 'reductions' would still be imported

- Even if we work on optimistic grounds – assuming that there is no oversupply of credits from the former Soviet states, and that there will be relatively strong government demand for credits – we predict that only 300-370Mt in CO₂ reductions will occur in the EU over the 5 year trading period as a result of scarcity created by emissions trading.⁴⁷ This compares with imports of Kyoto credits of around 1000Mt.
- The estimates under this optimistic scenario suggest that just a quarter of emissions 'reductions' would actually occur in the EU. The fact that the remaining commitment, representing the majority of supposed emissions reductions, would be taken up by Kyoto credits clearly goes against the agreed principle that emissions reductions outside Europe should be merely "supplementary" to those within Europe.⁴⁸ The UK government freely admits that the majority of reductions will be achieved outside the EU. Ian Pearson, former Minister for Climate Change and the Environment noted in regard to the second phase of the scheme that "What we are saying though, within the overall level of effort, is that one third of the effort will have to come from within the scheme itself and only a maximum of two thirds will come from outside the scheme through the Clean Development Mechanism."⁴⁹ The Government later said the UK's 8% limit on project credits "represents around two-thirds of the difference between business as usual emissions and the total cap (ie. the level of effort in the UK), thereby balancing the need for domestic action with the benefits of investing in overseas projects."⁵⁰
- Offsetting European emissions with Kyoto credits does not necessarily provide an absolute reduction in global emissions, as these external permits give credit to avoidance of emissions, rather than a finite cut on existing levels. If we accept the reality of rapid economic growth in many developing countries, it is reasonable to also accept that emissions there will necessarily increase.

⁴⁷ The World Bank's *State and trends of the carbon market 2007*, after conducting around 50 interviews with carbon market players, notes that "There is a consensus emerging among market analysts that the expected shortfall in the EU ETS Phase II is likely to be in the range of 0.9bn to 1.5bn tCO₂e." Our predictions put the shortfall at around 1.4bn tonnes, thereby making an above average projection for expected scarcity. The World Bank also believe that Kyoto credit supply will be between 1-1.2bn tonnes – we assume a lower-range supply of around 1bn. Both of our assumptions push the level of required abatement higher.

⁴⁸ As outlined in the 2001 Marrakech agreement: "the use of the mechanisms shall be supplemental to domestic action and that domestic action shall thus constitute a significant element of the effort made by each Party". Decision 15 of the Conference of the Parties 7th session (15/CP.7)

⁴⁹ Ian Pearson, Evidence to Environmental Audit Committee (12.12.06)

⁵⁰ Government Response to the Environment Audit Committee, Second Report of Session 2006-07, The EU Emissions Trading Scheme: Lessons for the Future

- Given that emissions in Europe are still exhibiting an upward trend (projected to continue on current policies), moving towards a low-carbon economy – which requires a fundamental systemic shift in the continent's industrial base – should lie at the root of climate change policy in Europe. The current ETS does not address this central concern, as such limited domestic reductions (achieved through coal to gas switching in power-generation) can only offset the trend path of increasing emissions.

- WWF argues that:

“Access to significant volumes of cheap credits from overseas could disincentivise investment in clean technology development in the EU and slow down innovation. It also raises concerns regarding the polluting nations of the north transferring responsibility for tackling climate change to the developing world - and is in clear breach of both the Linking and the ETS Directives. These require that any use of project credits must be supplemental to domestic action e.g. that a significant proportion of the effort required to reduce emissions, which could be taken to mean 50% or more, should take place at home.”⁵¹

- The Commons Environmental Audit Committee notes that this EU-wide trend will be reflected in the UK context:

“...the Minister was keen to point out that the Government was limiting the use of CDM and JI credits within the UK NAP. Indeed, their use will be limited, to 8% of the UK's total cap. However, this is still a significant amount, representing some 5.3MtC⁵²; and this figure has been worked out by the Government specifically because it corresponds to two-thirds of what it describes as "the effort in Phase II", or in other words the cutback of 8MtC from BAU projections.

To be clear, then, the Government is allowing for, and expecting, two-thirds of the headline carbon savings it has announced as resulting from Phase II to take place, not just outside the UK, but outside the EU – and probably in the form, not of carbon dioxide, but of carbon-equivalent greenhouse gases. In fact, the effects of such credits on UK installations will – indirectly – be even higher than this, because other Member States have set higher limits on the use of such credits within their National Allocation Plans.”⁵³

- **The Committee goes on to say that “it is theoretically possible the EU ETS might not be responsible for any emissions reductions within the UK at all.” The Government’s response to the Committee report states that “The Committee’s theoretical observation is correct”.**⁵⁴
- Kyoto credits should (in theory) help emerging economies develop in a less pollution intensive way. However, they are open to widespread abuse – diluting EU carbon markets, often without contributing to combating climate change – and are more

⁵¹ WWF, *Use of CDM/JI Project Credits by participants in Phase II of the EU Emissions Trading Scheme – A WWF summary of the Ecofys UK report* (November 2006)

⁵² This is equivalent to 19.14Mt of CO₂ or CO₂ equivalent, the UK's Kyoto credit import limit.

⁵³ House of Commons Environmental Audit Committee, Second Report, *The EU Emissions Trading Scheme: Lessons for the Future* (01.03.07)

⁵⁴ Government Response to the Environment Audit Committee, Second Report of Session 2006-07, *The EU Emissions Trading Scheme: Lessons for the Future*

environmentally costly than EU emissions trading credits, which only reward *absolute* cuts in emissions. The environmental standards applied to the issuance of Kyoto credits, together with the large volumes available to EU polluters, constitute a significant weakening in the environmental effectiveness of the Emissions Trading Scheme, as described below.

Why Kyoto project credits will undermine domestic action but won't deliver clean development

- The IPPR has already highlighted the potential problems associated with a “leaky” carbon market under the EU ETS, caused by the introduction of CDM/ JI permits from outside the EU.⁵⁵ CDM/ JI projects give credit for emissions that are avoided (ie. reduced below the level that would have otherwise occurred), not necessarily for absolute emission reductions. These projects often do not translate as concrete investments in renewable energy – in fact, only one quarter of credits generated from the CDM before 2012 are expected to be from renewables, and only 2% of credits so far issued originate from such schemes.
- The central idea behind Kyoto permits is that they should help emerging economies develop in a less pollution intensive way, channelling investment from the developed world towards pro-development, sustainable projects. The mechanism is also designed to allow the economics of emissions reductions to be played out on a global level, encouraging the process of emissions cuts to take place wherever costs are lowest.
- Large demand for Kyoto credits is expected to be created by the Emissions Trading Scheme. Many credits will also be bought up by non-EU ETS players, such as national governments in the EU, Japan and Canada, as this process contributes towards their meeting of Kyoto targets. As governments find it increasingly difficult to hit Kyoto targets, they will increasingly come to rely on buying up credits from overseas.
- CDMs and JIs may have some positive effects together with many negative features (discussed below). In any case, the large numbers of such permits admitted to phase two of the ETS nonetheless risk providing an overall disincentive to longer-term investments in low carbon technology within Europe.

i) Kyoto projects are often harmful in environmental terms

- Project based Kyoto measures have come under strong criticism on the basis of their lack of “additionality”, and for harming the environment in other ways. Additionality refers to the principle whereby a project should be entitled to CDM status on the condition that it would not otherwise take place without the funding provided by carbon trading. The Jindal metal plant in India, the largest sponge iron plant in the world, is an example of a programme claiming carbon credits for technology that would have been installed anyway. The company (JSPL) is planning further expansion, a process which has drawn accusations of land-grabbing, as well as causing intensive air, soil and water pollution in the local area. Kevin Smith of Carbon Trade Watch argues that “The CDM is not only providing financial assistance

⁵⁵ Gibbs, T. & Retallack, S. *Trading up – reforming the European Union's Emissions Trading Scheme*, IPPR (December 2006)

to JSPL in making this expansion, but also providing them with green credibility for being at the forefront of the emerging carbon market.”⁵⁶

- Axel Michaelowa, an advisor to the CDM board, claims that around one third of the 50 projects he surveyed in India were not “additional”, and therefore should not have been eligible for carbon credits. Despite having warned the board of his concerns about Jindal’s activities, the board still approved the projects. Another example is the Xiaogushan dam in China. The project was awarded US\$30m worth of credits, even though construction of the dam had been long underway, was nearing completion and had already been given loans by the Asian Development Bank. In this way, CDM credits can be sold into the ETS, driving down carbon prices, even if the related projects are not contributing to “additional” emissions reductions. Without additionality, investment in such projects is effectively subsidising more pollution in the developing world, whilst allowing firms in the developed world to increase their own pollution at low cost.
- Patrick McCully, Executive Director of environmental NGO International Rivers Network argues, “the UN panel that governs the scheme is being deceived by developers and consultants into giving away many millions of credits to schemes that would very probably have been built anyway, and so do not avoid any carbon emissions. Worse, these credits will then be ‘cashed in’ by their European and Japanese government and corporate buyers, allowing them to avoid their commitments to reduce their own emissions.”⁵⁷
- An investigation for the Guardian cited a “senior figure” in the CDM process who estimated that up to 20% of the carbon credits being generated through the mechanism were faulty. This does not just include concerns over additionality, but instances of “conjuring up numbers when projects on the ground failed to provide them”, and problems with incompetence and possible abuse amongst validating and verifying companies. A separate investigation for Down to Earth magazine suggested that a major UK accounting firm, Ernst and Young, had produced highly flawed formal reports on projects in India. There are also problems with projects trapping landfill gas (the third biggest CER generator), as it is tempting to exaggerate how much methane a pile of rubbish is producing.⁵⁸
- There are further examples of CDM projects which, whilst complying with criteria on emissions, contribute to other forms of non-sustainable environmental degradation, such as soil and water pollution. The environmental case for large dam projects is also a matter of some controversy, given their often disruptive and negative effects on water resources.⁵⁹ Dams are believed to contribute to around 4% of the total warming impact of human activities (higher than annual carbon dioxide emissions from the burning of fossil fuels in the US), yet are still eligible for Kyoto credits.⁶⁰

⁵⁶ Smith K, “Pollute and Profit”, Parliamentary Brief Magazine (May 2007)

⁵⁷ Letter to *FT* (13.02.07)

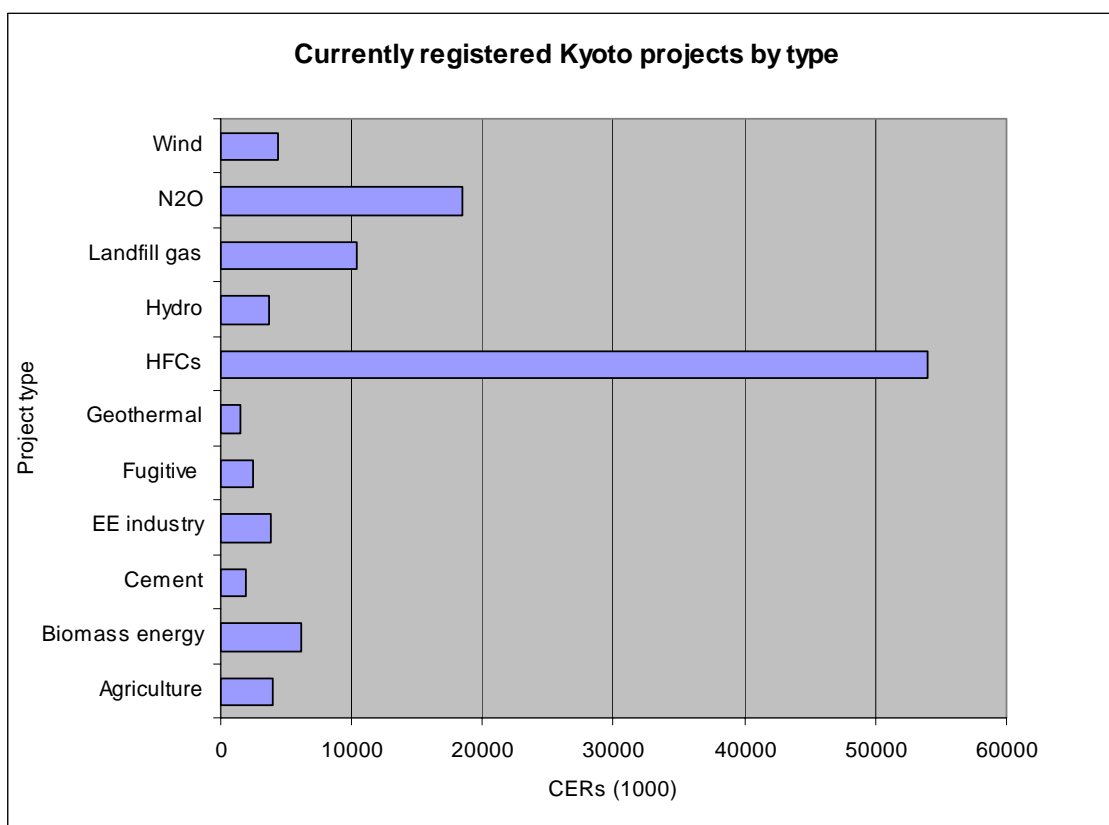
⁵⁸ *Guardian* (02.06.07)

⁵⁹ Channel 4 news bulletin (07.02.07); reported by *Point Carbon* (06.02.07)

⁶⁰ *Point Carbon* (10.05.07). The emission of methane from large dam projects occurs as a result of decomposing organic matter in reservoirs.

ii) **Serious loopholes create massive distortions in carbon markets, divert investment from green technologies, and do not aid development**

- The Kyoto permit system awards funding on the basis of quantity of CO₂ equivalent reductions achieved, but often this is not related to the true cost of making those reductions. A particularly striking example, revealed in a study in *Nature*, relates to chemical factories producing the HFC-23 gas. These installations can reduce their emissions with a simple piece of equipment known as a scrubber, which generally costs a few million dollars. However, since HFC-23 is so potent (one tonne of the gas being equivalent to 11,700 tonnes of carbon dioxide) companies that install this equipment are eligible for tens of thousands of carbon credits for reducing just a few tonnes of the gas.



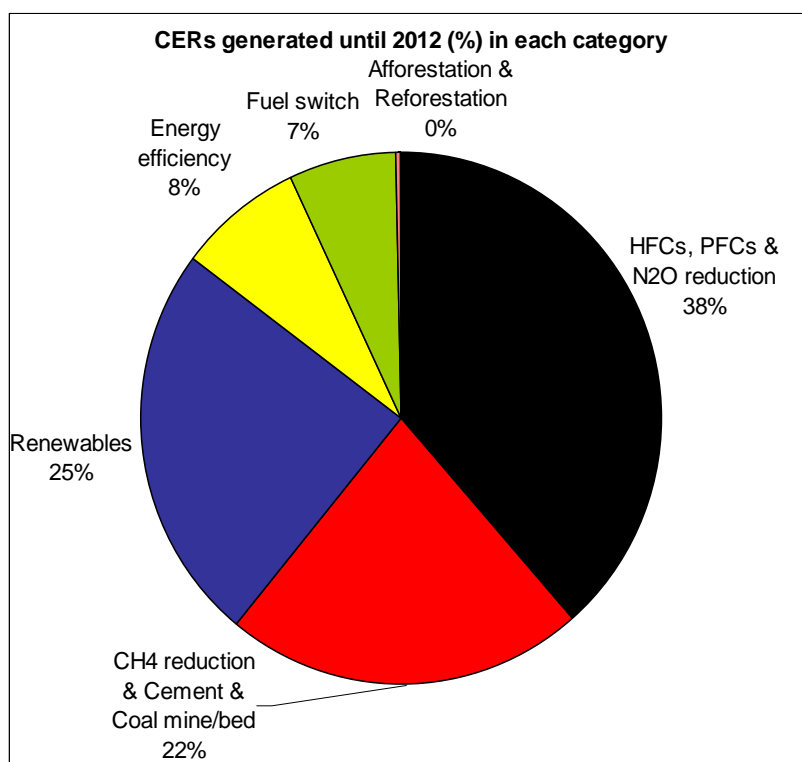
- This means that HFC-23 projects have received more credits than any other in the carbon markets so far. Total projects that should have cost no more than €100m have wasted €4.6bn.⁶¹
- The author of the study, Michael Wara, suggests that this loophole creates perverse incentives to produce even more of this gas, and there is evidence to suggest this has already happened: "HFC 23 emitters can earn almost twice as much from the CDM credits as they can from selling refrigerant gases – by any measure a major distortion of the market."⁶² The development gains of such large scale 'end of pipe' capture of gases are very limited, delivering no real benefits in terms of

⁶¹ *FT* (08.02.07)

⁶² Wara, M. "Is the global carbon market working?" *Nature* (vol 445, p 595) 8 February 2007

improvements in energy supply, job creation or infrastructure. As the graphs⁶³ show, HFC capture projects are currently the largest single source of registered CERs, and will remain so over the course of the Kyoto commitment period. If HFCs and other 'exotic gas' capture projects are aggregated, these account for 67% of currently registered CERs, and will account for 38% of all CERs generated up to 2012, compared with figures for renewables of 20% and 25% respectively.

- The necessary money could have been provided by other funders (such as development banks or aid funds) in the first place, and the wasted money invested far more efficiently on renewable energy projects. To make matters worse, the unnecessarily large numbers of extra credits awarded for HFC-23 projects will further dilute European markets. The UN, reacting to reports of big profits, has now ruled that only HFC factories built before 2004 can qualify for CDM investment. However, an investigation by the FT has shown that the investors have simply shifted their focus to nitrogen oxides (NOx), another potent greenhouse gas, 310 times more powerful than CO₂. In 2006, hardly any NOx projects were registered, but by September 2006 they accounted for about 11% of the emissions credits set to be issued.⁶⁴



- The eligibility of such projects under the CDM effectively provides another subsidy mechanism for large-scale polluters in the developing world, enabling them to expand further and pollute more. In the 2006/07 financial year, SRF, an Indian industrial and textiles company based in India, made €87m from the sale of carbon credits, generated through HFC-23 destruction. Ashish Bharat Ram, the managing director, told the Economic Times that "strong income from carbon trading strengthened us financially, and now we are expanding into areas related to our core strength of chemical and technical textiles business".⁶⁵

- The Commons Environmental Audit Committee argues, in reference to the issue of "exotic gases", that "Despite [this type of project] being allowed both under Kyoto and under the ETS Directive, we have for some time heard compelling evidence to

⁶³ Fenhann, J. UNEP Risø Centre (01.02.07)

⁶⁴ FT (27.04.07)

⁶⁵ Smith, K. "Pollute and Profit", Parliamentary Brief Magazine (May 2007)

suggest that the worth of some of the projects financed under these Kyoto mechanisms should be subject to serious doubt.”⁶⁶

- Michael Wara gives his overall assessment of the CDM system:

“...the CDM has primarily proffered an exchange of CO2 reductions in the developed world for reductions of various non-CO2 gases in the developing world. Furthermore, because the price paid for reductions has become tied to the major developed world cap and trade market, the European Union Emissions Trading Scheme (“ETS”), a CO2 only market, the price paid is between 10 and 100 times greater than the cost of most of these reductions...The CDM is neither functioning well as a market for emissions reductions nor is it a successful subsidy. As a result, it is creating skewed but powerful political institutions and interest groups whose interests are not aligned with the ultimate goals of either the UNFCCC or the Kyoto Protocol...The CDM fails as a market because it has animated accounting tricks that allow participants to manufacture CERs at little or no cost. It fails as a subsidy because the developed world has had to purchase these emissions reductions at an extremely high premium that bears no relation to their cost. The CDM, even as it is supplying CERs to developed world parties to the Kyoto Protocol at prices that are less than they would otherwise have to pay, is an excessive subsidy that represents a massive waste of developed world resources.”⁶⁷

- The scale of Kyoto project investment is immense. The current pipeline is expected to yield around two billion tonnes worth of credits, the value of which would equate to around €20bn at current market prices.⁶⁸ Looking at individual projects, a single HFC capture scheme in India⁶⁹, which has attracted a consortium of European investors including Shell, EDF, Barclays, BNP Paribas and Enel, is set to generate 32.6 million tonnes of credits before 2012. This is roughly equivalent to the total annual emissions of Austria in sectors covered by the ETS; it would cover the annual shortfall of Italy, if we work from the basis of 2006 verified emissions against the current cap. The biggest CDM project of all is the Zhonghao New Chemical Materials plant in China⁷⁰, also based on HFC capture, which will generate nearly 70 million tonnes worth of credits up to 2012. This is equivalent to the total annual greenhouse gas emissions of Sweden. 53% of all existing CERs come from six enormous projects engaged in HFC 23 destruction.⁷¹
- China, where most of the world’s HFC 23 production is located, has imposed a 65% tax on this type of project, effectively meaning that CER purchasers in the west are contributing to the Chinese government’s coffers. “It is estimated that China could generate CER credits of between 150 to 225 million tons of carbon dioxide equivalent per year,” says Anthony Maxwell, an Environment Specialist at the Asian Development Bank. “This represents a potential annual revenue stream of up to

⁶⁶ House of Commons Environmental Audit Committee, Second Report, *The EU Emissions Trading Scheme: Lessons for the Future* (01.03.07)

⁶⁷ Wara, M. “Measuring the Clean Development Mechanism’s development and potential” Working paper # 56, Stanford University (July 2006)

⁶⁸ Point Carbon’s CDM & JI Monitor (May 2007) notes a price for primary CERs of €9-11.

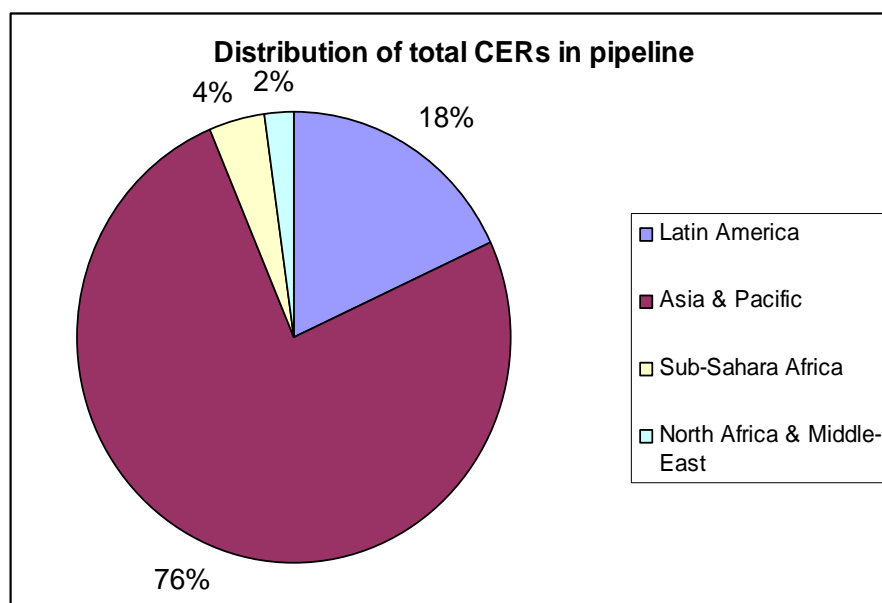
⁶⁹ GHG emission reduction by thermal oxidation of HFC 23 at refrigerant (HCFC-22) manufacturing facility of SRF Ltd (CDM0134).

⁷⁰ Project for HFC23 Decomposition at Changshu 3F Zhonghao New Chemical Materials Co. Ltd. (CDM0472)

⁷¹ Fenhann, J. CDM pipeline, UNEP Risø Centre (01.02.07)

\$2.25 billion” he estimates.⁷² This might be acceptable if the money were ring-fenced for re-investment in clean technology, but the Chinese government has said that credits would be used for a range of activities other than projects that cut carbon.⁷³

- Despite the nomenclature of the Clean Development Mechanism, the true development benefits of the Kyoto mechanisms are open to question. The Least Developed Countries of Africa, arguably those which stand most to gain in development terms from the CDM system, have been sidelined by the process. Most of the investment in CDM projects has been absorbed by large developing countries, such as China and India. Sub-Saharan Africa is expected to account for a negligible proportion of overall investment (approx. 4%), most of which will be directed towards Nigeria and South Africa.⁷⁴



- This situation is to a large extent created by design flaws in the CDM rules, as the World Bank note: “in Uganda or Zambia, just around 10% of the country’s population has access to the grid for electricity. Yet, a clean, grid-connected electricity project in such a country has to demonstrate under CDM rules that it displaces ‘carbon-intensive’ electricity on its grid; the fact that it derives mainly power from clean hydro sources is seen as a reason for it not to receive credits for proposed new clean energy sources. This unintended consequence unnecessarily punishes the poorest people in poor countries, who can least afford to use expensive diesel, kerosene or fuel-wood for their basic needs... No approved methodology exists as yet through which countries with such obvious energy needs such as these can be rewarded for clean development.”⁷⁵

⁷² <http://www.adb.org/media/Articles/2006/10594-PRC-CDM-potential/>

⁷³ *Point Carbon* (08.06.07)

⁷⁴ Fenhann, J. CDM pipeline, UNEP Risø Centre (01.02.07)

⁷⁵ World Bank, *State and trends of the carbon market 2007*

- Larry Lohman of environmental and human rights NGO The Corner House sees fundamental problems with the entire market logic of the Kyoto project system: “The biggest offset buyers want cheap carbon credits, and lots of them. The most reliable providers will be big, highly-capitalised firms or agencies in a position to hire carbon consultants and accountants, liaise with officials or pay the fees needed for UN registration. Carbon-saving schemes that take the trouble to respect community rights, on the other hand, tend to be fiddly, expensive, low-yield, or difficult to implement politically.”⁷⁶

iii) **Greater market uncertainty, and downward pressure on EU permit prices**

- It remains the prerogative of the project’s host country to decide whether or not a project meets that country’s sustainable development objectives, which predictably vary greatly between different countries. The projects are then subject to approval at an international level by the UN CDM Board, who may choose to make changes. This makes it difficult to predict exactly how many CERs will be supplied, as well as leading to a range of prices for CERs. Given that the CDM Board may alter the baseline used to calculate a given project’s emissions, the amount of credits generated by that project may not be as high as expected. According to the OECD, this “highlights the non-negligible risk that the proposed revenue flow generated by a project’s credits will not materialise.”⁷⁷
- As discussed above, it is still uncertain how many Kyoto credits will be available before 2012. UBS suggests that the supply of CDM permits “creates significant uncertainty” for phase two, and believes that the possibility of an oversupply could be enough to push demand for ETS carbon permits below the threshold required to trigger fuel substitution.⁷⁸ Economist Karsten Neuhoff, Senior Research Associate at Cambridge University, argues that “With uncertainty over future demand for JI and CDM credits from Canada, Japan, other Annex I countries, and governments of the EU Member States themselves, some market participants anticipate that the European market could be flooded by these allowances to such an extent that the EU allowance price would plummet.”⁷⁹
- Aside from CDM supply, another reason for market uncertainty is lack of clarity over actual ETS sector emissions levels. As Neuhoff argues, it is far from certain whether phase two of the ETS will create adequate scarcity of allowances and “robust” trading prices for carbon. This remains unpredictable given variables such as changes in fuel prices, uncertainty over actual emissions levels, and CDM/JI supply – all of which determine the overall scarcity of carbon. As the World Bank notes “the computation of the shortfall is a dynamic, ever-changing process, impacted by each analyst’s view of technology diffusion, of fuel prices, of allowance prices, of weather and other variables. There is inherently uncertainty in such projections as each analyst projects improvements of intensity as a measure of the extent to which economic growth is likely to be decoupled from growth in carbon emissions.”⁸⁰

⁷⁶ Lohman, L. “Carbon offsets not welcome here” www.ClimateChangeCorp.com (27.02.07)

⁷⁷ Ellis, J., Corfee-Morlot J., & Winkler, H., *Taking Stock of Progress under the Clean Development Mechanism (CDM)* (15.06.04)

⁷⁸ UBS research (05.01.07)

⁷⁹ Neuhoff, K et al., “Implications of announced phase II national allocation plans for the EU ETS”, *Climate Policy* 6 (2006)

⁸⁰ World Bank, *State and trends in the carbon market 2007*

Key variables affecting carbon prices

EU emissions baseline	Supply of CDM and JI credits	Demand for Kyoto credits	Fuel prices	The actions of former Soviet states
<p>The emissions baseline is the presumed counterfactual to what would happen if there were no emissions abatement policies in place. The baseline is driven by factors ranging from consumer demand to weather to fuel prices, and is therefore subject to variation.</p> <p>The baseline is crucial because it determines the level of scarcity that will be created by the emissions caps, and hence demand for credits.</p>	<p>The current pipeline for project based credits shows around 2bn tonnes worth of such permits for delivery before 2012.</p> <p>Some of these projects may not be approved, whilst the anticipated credits may not be granted by the UN CDM board. On the other hand, more projects could be proposed in the coming years. Negotiations on the post-Kyoto framework will be pivotal. If credits can be used after 2013, this will encourage more project investment before this date.</p>	<p>Kyoto credits will be bought by governments of EU states, Canada and Japan (as well as ETS participants) in order to help bring them into line with their Kyoto targets.</p> <p>The level of demand will depend upon a) political factors, such as whether these governments choose to adopt domestic reduction measures, and b) how far emissions levels in these states increase in the run-up to 2013.</p>	<p>The coal/ gas price ratio is crucial in making predictions on whether power generation will shift from cheap, carbon intensive coal, to cleaner, but more expensive gas.</p> <p>Carbon emissions must be sufficiently expensive to provide an incentive for coal to gas fuel shifting, by making it more costly to burn coal.</p>	<p>In theory, there is a potential supply of Assigned Amount Units (AAUs) from former Soviet bloc countries of around 7bn tonnes⁸¹.</p> <p>However, it is likely that these credit suppliers will use cartel-like behaviour to limit supply in order to maintain higher prices – if sufficient numbers of projects get off the ground.</p> <p>Release of credits will also be affected by the outcome of negotiations on the post-Kyoto framework. If these states can ‘bank’ their AAU’s for future phases, they may choose to do so.</p>

- The involvement of CDMs/JIs in the ETS – irrespective of the environmental merits of the projects that generate them – does introduce an element of further uncertainty into an EU trading system already affected by uncertainty. As the Carbon Trust

⁸¹ See Haites, E. “Estimating the Market Potential for the Clean Development Mechanism: Review of Models and Lessons Learned”, *PCFplus Report* (19.06.04); and Climate Change Capital estimates 2005

argue, “The allocations may be (virtually) settled, the prospect of a completely “dead” market largely removed, and the Phase II forward price steady; but the reality remains one of huge uncertainty about the actual evolution of carbon prices out to 2012.”⁸² The following section explores how this lack of certainty has a detrimental impact on green investment.

Lack of long term price signal: a fundamental problem of ETS phase two

- As Kris Voorspools at Fortis Bank notes, the phase two domestic emissions reductions he predicts (around 80-100Mt per year achieved through coal to gas fuel switching – which assumes a relatively limited availability of Kyoto credits) are not likely to be permanent solutions, and do not reduce the overall carbon intensity of the European economy. They merely offset existing emission growth trends within finite limits, without actually curbing emission increases. He argues that, “Fuel switching in itself cannot curb emissions, it can merely displace the annual emissions evolution curve up or down by 100Mt.” He goes on to say that “to significantly curb the trend in emissions growth in the longer term, a different price signal is needed. This long-term price signal needs to provide an incentive to invest in technologies with a lower carbon intensity.”⁸³ It is clear that the present system is not delivering that incentive.
- It is possible that if ETS phase two works, and Kyoto markets do not suffer a credit oversupply, there will be some temporary emissions reductions within Europe, but this is of limited value if there is no incentive provided for a more fundamental realignment to Europe’s industrial base in moving towards a low carbon economy. This means that emitters – especially power generators – are highly unlikely to invest in longer term pollution-cutting projects.
- The drawn-out political wrangling over NAPs for phase two will also have a negative impact on price stability, acting as a further inhibitor to low-carbon investment. With such short notice given in respect to emissions caps, it is very difficult for businesses to make long-term plans for new investments. Legal action by Poland, Slovakia and the Czech Republic against the Commission’s NAP decisions damages market certainty further. As McKinsey and Ecofys argue: “a big short-term issue for all industries is the real and perceived uncertainty about the future rules and settings of the EU ETS (and the national allocation plans), which makes it difficult for companies to decide on any long-term commitments to new investments or long-term contracts.”⁸⁴
- Without certainty, firms cannot plan to reduce emissions. As a spokeswoman for Drax power station (the UK’s largest emitter) puts it: “Drax has six units, it’s like having six mini-power stations on one site. We have one unit out now for repairs, it’s next going to come out in 2011 because we only repair every four years. So the problem for us is that if there is no carbon price beyond 2012 why would we invest the next time we take that unit out, in a big amendment to that unit, or a big technology upgrade that would reduce our carbon, if we have no confidence that there is a price beyond that?”⁸⁵

⁸² Carbon Trust, EU ETS Phase II allocation: implications and lessons (May 2007)

⁸³ Voorspools, K. “The bottom line”, *Carbon Finance* (Dec 2006/ Jan 2007)

⁸⁴ McKinsey& Ecofys, EU ETS Review, Report on International Competitiveness (December 2006)

⁸⁵ BBC Politics Show (03.06.07)

- Continuing uncertainty over what will happen in phase III of the ETS is perhaps the biggest factor in the lack of long-term price signal on carbon, making it less attractive for affected companies to make carbon-reducing investments with any long-term view. In fact, present structures could create incentives to do the opposite.
- Neuhoff has highlighted a potentially serious problem with the EU ETS – “early action”. Phase two allocations are being decided on the basis of 2006 emissions. This could create problems if the same approach is adopted for the post-2012 plan, as firms will anticipate reductions tied to emissions levels. This erodes the incentive for them to reduce emissions; in fact, if allocation of future permits is tied to historic emissions (as has been the case in many NAPs so far) this may create a perverse incentive to increase emissions, so as to secure larger allocations in future trading schemes.⁸⁶ In an earlier study on multi-period trading schemes, Sven Bode argued that “we found that seller and buyer have an incentive to increase output in the first period to a certain degree in order to get more allowances in the second one and thus to reduce total costs over both periods.”⁸⁷ Early action reflects fundamental design flaws in the EU ETS, undermining market confidence in future scarcity, thus distorting further long-term carbon price signals.

High costs and intra-EU economic distortions

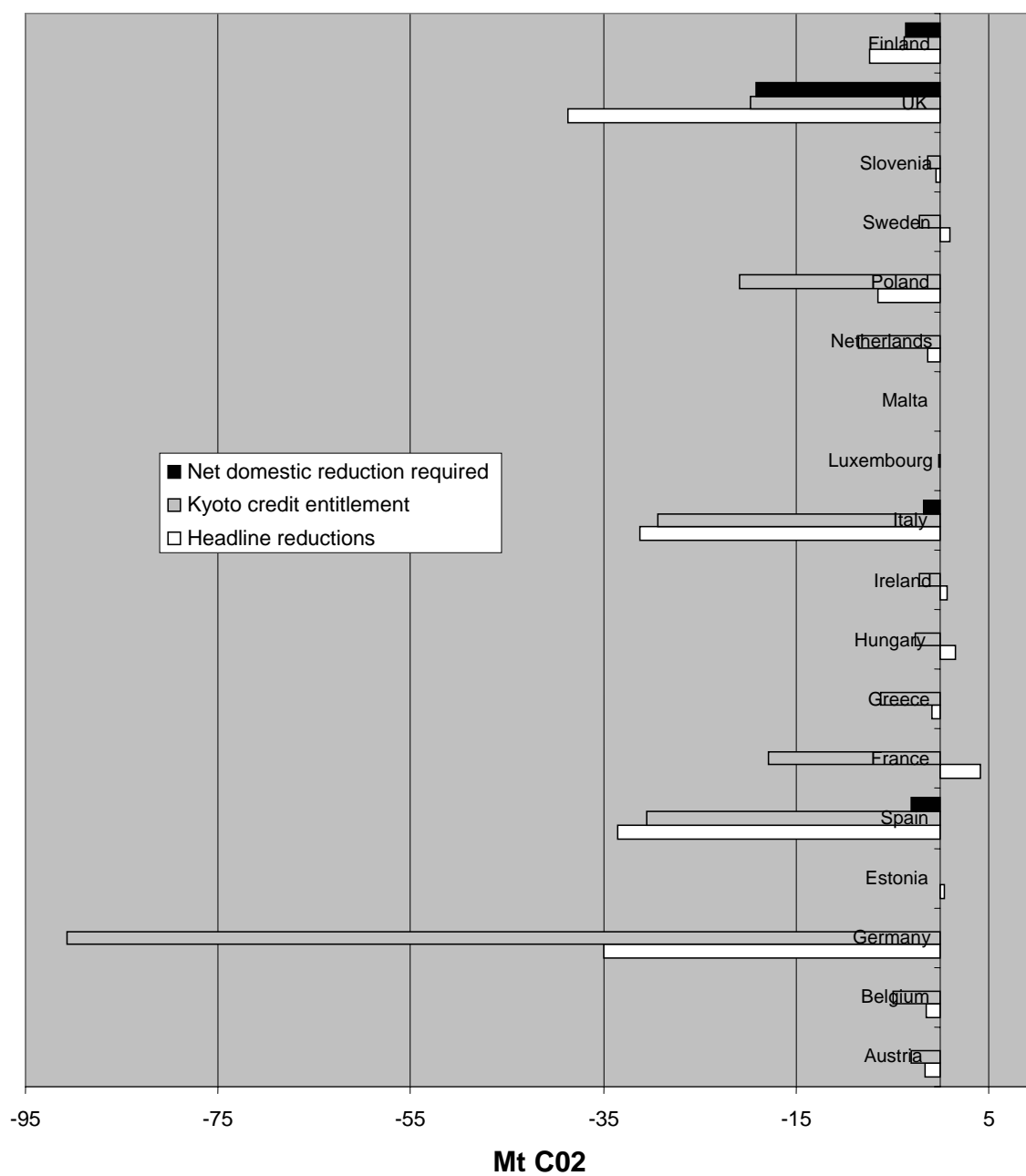
i) Large divergence between allowances and Kyoto credit entitlements for companies in different member states

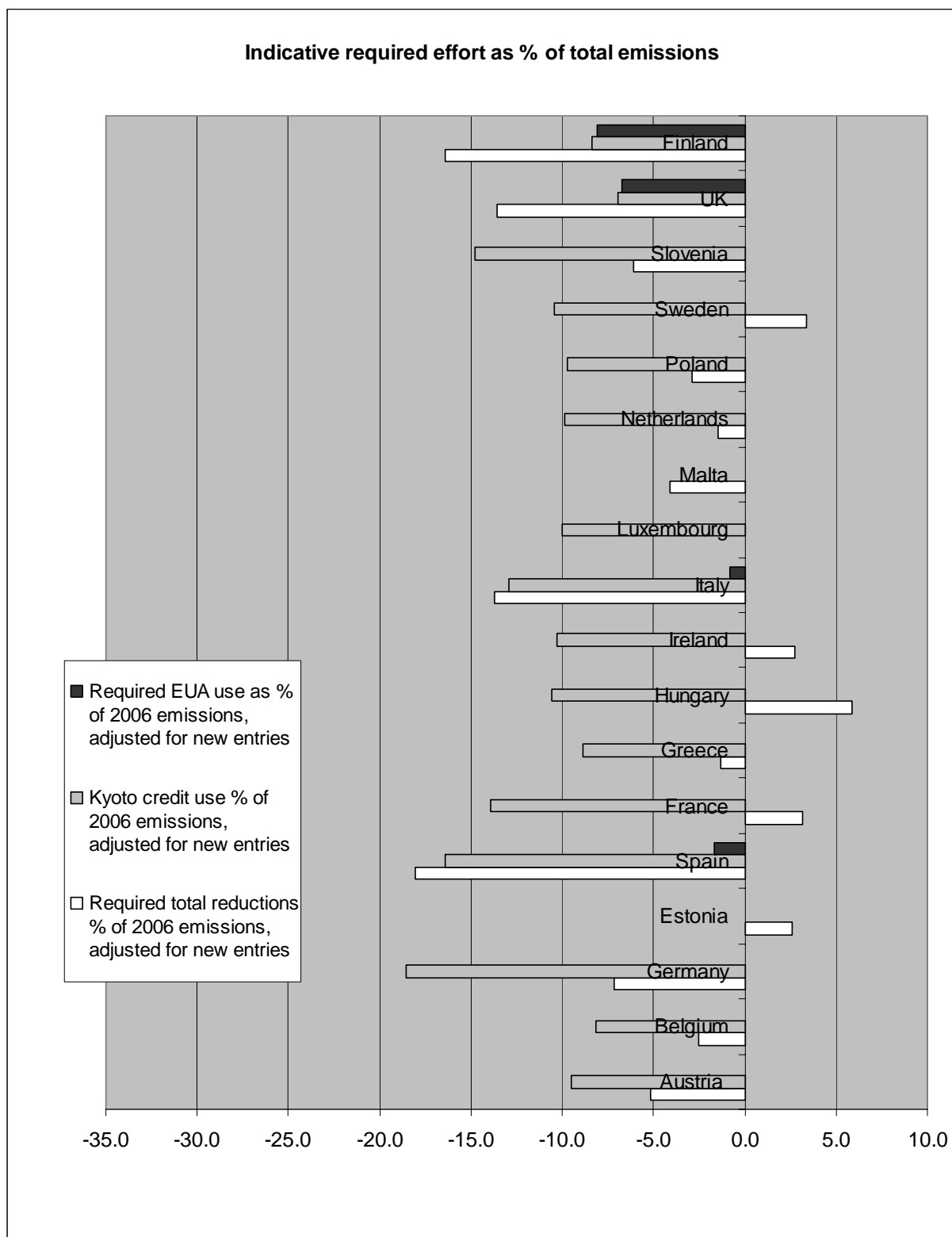
- Because companies in different member states are subject to different levels of stringency in their overall emissions caps and their entitlement to use (cheaper) Kyoto credits, there will be differentiated levels of ‘effort’ they need to make in order to comply with the ETS.
- Gorina and Marty argue that “Distortions exist for companies located in different countries. Installations that receive a stringent allocation of allowances coupled with a low cap on the use of carbon credits are those most adversely affected.” The graphs below attempt to predict indicative relative ‘effort’ for different member states, based on national caps vs 2006 verified emissions, adjusted for new entrants for ETS phase two. These estimates work on the assumption that the ETS works as planned, and that there is a limited supply of credits from the Kyoto markets.

⁸⁶ Neuhoff, K. “The Decision of the Commission – one important step forward”, www.climatestrategies.org (08/12/06)

⁸⁷ Bode, S. “Abatement Costs vs. Compliance Costs in Multi-Period Emissions Trading – The Firms’ Perspective”, Hamburg Institute of International Economics (2003)

Indicative required reductions for ETS emitters & project credit entitlement





- Working on this basis, large emitters such as Germany, Italy, France and Spain would be able to cover all or almost all of their shortfall with Kyoto credits (subject to supply), whilst the UK having set tougher targets, would not. As Gorina and Marty note, a “trading opportunity” exists where, even if Kyoto credit supply is insufficient to cover the shortfall of the ETS, firms in those countries with higher Kyoto credit allowances would still be able to cover their own emissions with (cheaper) Kyoto permits, and could then sell on (more expensive) EU emissions permits (EUAs) to rivals in member states with stricter limits, thus making a profit.⁸⁸ This is confirmed by Louis Redshaw, head of environmental markets at Barclays Capital: “Customers are looking at selling their allowances and buying back CERs and, depending on the market at the time, being paid €5.00 to €7.00 to do so. There is a growing perception that CERs are becoming risk free and, because you can use them for compliance, it is, in essence, free money.”⁸⁹
- As in the first phase of the ETS, these distortions act as an effective subsidy (indeed, “free money”) to companies in countries that have chosen not to impose ambitious emissions caps, transferring wealth away from countries which have. The UK will suffer amongst the highest costs in Europe in absolute terms in order to comply, largely as a result of its smaller project credit entitlement and relatively tough overall target. Germany, despite emitting 75% more CO₂ than the UK, will pay less.

Indicative relative national costs of ETS phase two – 2006 expanded verified emissions vs phase two caps⁹⁰

Country ⁹¹	Cost €M (lower carbon prices) ⁹²	Cost €M (higher carbon prices) ⁹³
Austria	14.1	25.1
Belgium	12.6	22.5
Cyprus	-1.5	-2.7
Germany	293.2	523.5
Estonia	-2.6	-4.8
Spain	308.8	519.4
France	-68.3	-80.6
Greece	7.6	13.5
Hungary	-25.5	-30
Ireland	-5.	-9

Italy	277.8	477.1
Luxembourg	0	0
Malta	0.8	1.4
Netherlands	10.92	19.5
Poland	54.6	97.5
Sweden	-7.6	-13.5
Slovenia	4.5	8.1
UK	490.7	677.4
Finland	93.5	129.2
Annual total	1400	2260
Five year total	7000	11300

⁸⁸ Gorina, N. and Marty, A. “Trading around the caps” *Environmental Finance* (November 2006)

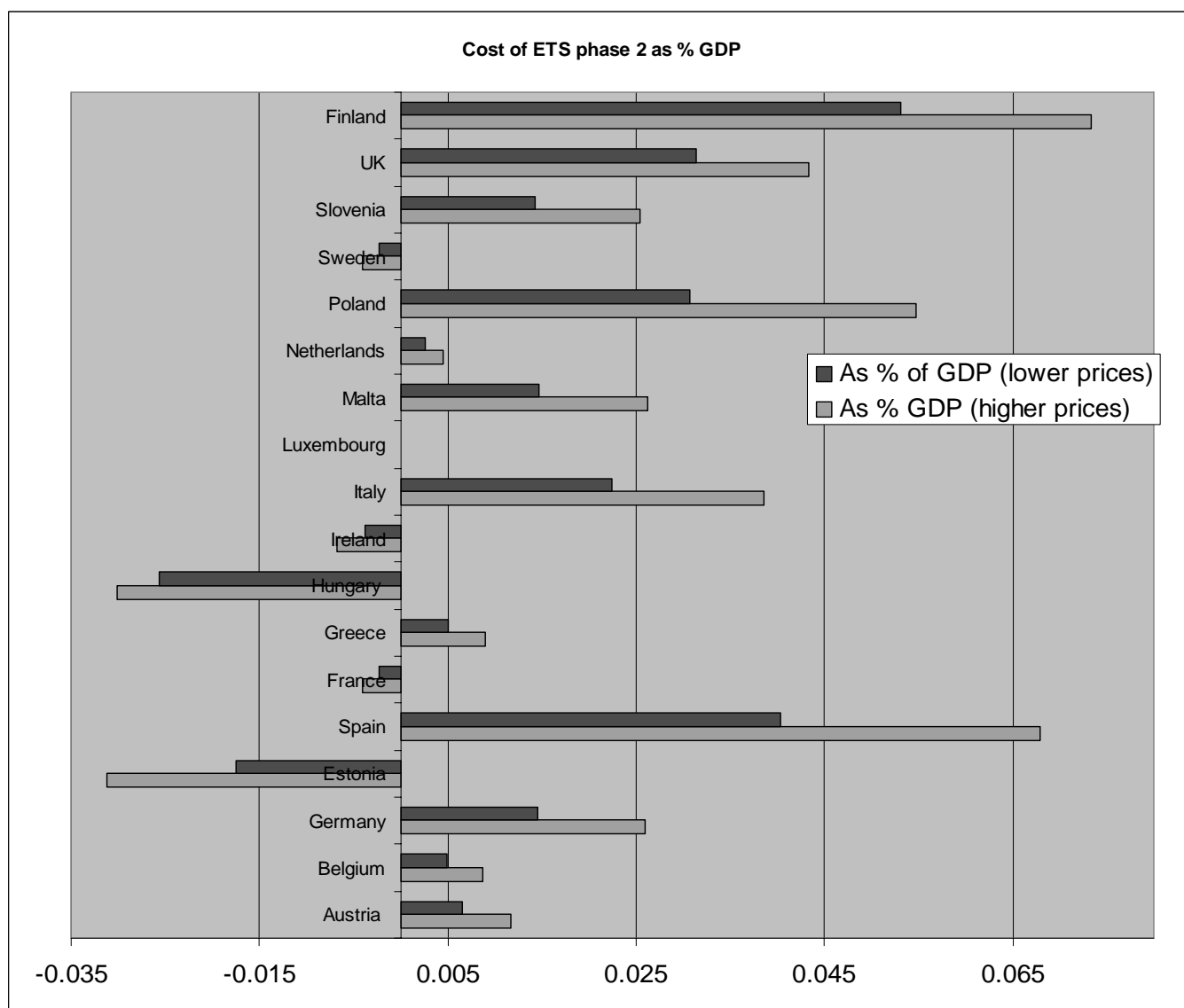
⁸⁹ *Point Carbon* (12.07.07)

⁹⁰ Countries marked in grey did not at time of writing have NAPs approved by Commission – we use estimates for caps from Fortis Bank research (January 2007)

⁹¹ Costs for Slovakia, Denmark, Portugal, Cyprus, Czech Rep., Latvia and Lithuania are not estimated on account of incomplete/inconsistent data, or NAPs not having been finalised at time of writing.

⁹² Assuming cost of Kyoto credit of €8.40 and EUA at €17 - these were average prices over 2006 (World Bank)

⁹³ Assuming cost of Kyoto credit of €15 and EUA at €20 (figures used in UK DEFRA RIA)



- Working on this methodology, over five years, the second phase of the ETS would cost the UK £1.6 to 2.3bn, although this remains highly dependant on carbon prices and other factors. The lower limit of these costs is in line with the UK Government's estimate, contained in Defra's Regulatory Impact Assessment, which suggests costs of £1.6bn.⁹⁴ To this can be added estimated administrative costs of £65m for the five year period.⁹⁵ Across the EU, total costs would be in the range of €6.7-11bn. As a proportion of GDP, Finland and Spain will need to spend the most.

⁹⁴ Defra, *EU Emissions Trading Scheme Phase Two Overarching RIA* (February 2007). This document estimates the cost of buying in permits from overseas at £183m pa (or £915m over phase two). Unfortunately, the RIA does not directly attempt to quantify the cost of the UK's domestic abatements, instead choosing to refer to the need for an 11Mt reduction at an assumed cost of €20/tonne. This implies an additional £750m cost for the five year trading period ($11\text{m} \times 20 \times 5 = \text{€}1110\text{m} = \text{£}750\text{m}$), meaning a total of around £1.6bn.

⁹⁵ Based on cost curve from Open Europe NHS FOI responses, plotting cost of administration per tonne/CO₂ against emissions ($y = 10038x - 0.6688$).

ii) **EU-wide costs of €15 – 20bn – if it works**

- However, the above methodology cannot fully take into account the baseline emissions *growth* likely to occur in ETS phase two. The World Bank's *State and trends of the carbon market 2007*, following around 50 interviews with carbon market players, notes that "There is a consensus emerging among market analysts that the expected shortfall in the EU ETS Phase II is likely to be in the range of 0.9bn to 1.5bn tCO₂e." Yet the shortfall created by running the expanded 2006 verified emissions figures against phase two caps would only create a scarcity of around 780 million tCo₂E – clearly a long way below predictions, including those of Open Europe, which puts the EU-wide shortfall just below 1.35bn tonnes. Under the 780Mt scarcity scenario, Kyoto credit entitlement exceeds national scarcity in all member states except the UK, which would make compliance cheaper. This indicates that *if phase two can put a serious price on carbon*, the predicted national costs – outlined above, are probably underestimates. Therefore, if the ETS does create the levels of scarcity predicted by most observers, and if supply of Kyoto credits remains limited – the costs would be far higher. The precise costs remain difficult to predict, given the range of variables and uncertain prices of carbon. Below is a summary of our estimates, *which work on the assumption that supply of external credits to the ETS remains limited*:

Projected scarcity 2008-12	Total costs (high carbon prices) €m	Total costs (lower carbon prices) €m
Very low scarcity (0.78bn tCo ₂ e)	11300	7000
Low scarcity (0.9bn tCo ₂ e)	13500	7600
Mid range scarcity (1.2bn tCo ₂ e)	19000	11800
Open Europe estimated scarcity (1.35bn tCo ₂ e)	22000	14000
High scarcity (1.5bn tCo ₂ e)	25000	16900

- Although considerable uncertainty remains, the above estimates suggest that **EU-wide costs in the region of €15 – 20bn** (£10 – 13.5bn) over the five year period are realistic. The Commission's 2003 impact assessment suggests costs of €11 – 14bn.⁹⁶ Is this a price worth paying to fight climate change? Working on the basis that (if supply of external credits to the ETS remains fairly low) around 1bn tCO₂e of emissions 'reductions' would be imported in the form of Kyoto credits. This implies that €8.5 – 15bn of this expenditure would be directed towards Kyoto projects, many of which are subject to the serious deficiencies set out above. No more than a quarter of this investment in CDMs is likely to go towards renewable energy projects, a sustainable form of development that equates to real emissions cuts. Given that such huge amounts of investment will be wasted on exotic gas capture projects (probably around €3.2 – 5.7bn from the ETS), the system established by the ETS and the linked Kyoto carbon markets is clearly not a rational or effective use of developed world resources in combating climate change.
- As it is difficult to estimate how emissions growth will be distributed between member states, it is uncertain how much the estimates for individual national costs will have to be revised upwards from those listed above, should the scenario described above occur.

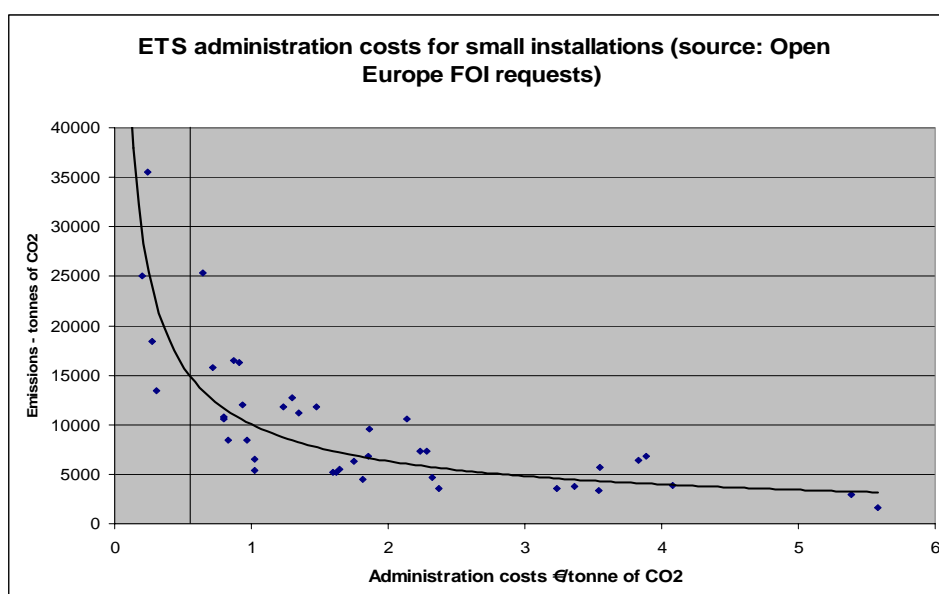
⁹⁶ EU Commission, *Staff working paper on the directive of the European Parliament and Council amending Directive establishing a scheme for greenhouse gas allowance trading within the community, in respect of the Kyoto Protocol's project-based mechanisms* (23.07.03).

iii) Could increase future burdens for non-ETS sectors

- The net result of failing to significantly reduce overall carbon intensity amongst the large installations included within the ETS will mean that if the EU attempts to meet its notional targets for cutting real, domestic emissions, the burden of investing in cleaner technology will fall in other areas of the economy, where it is likely to be proportionately more expensive to achieve this goal.
- As has been argued in many previous studies⁹⁷, the costs of emission abatements in the traded sector are lower than those in the rest of the economy. This implies that the sectors of the economy covered by the ETS should actually be contributing proportionally more to absolute reductions in Europe's emissions, rather than less, as was the case in phase one ETS, and will remain the case in phase two.

Irrational allocation remains – small installations suffer disproportionately

- Data obtained by Open Europe through Freedom of Information requests to NHS hospitals suggests that the costs of compliance with the EU ETS are inversely proportional with the size of the installation. In relative terms, small installations therefore pay more. The total costs to the NHS were nearly £6m (€8.5m) in phase one, around £1.5m of which were administrative costs. Our survey shows that very small installations – generally those producing below around 15,000 tonnes of CO₂ per year – suffer particularly disproportionate compliance costs compared to other installations above this threshold.
- If we analyse the UK's phase two national allocation plan in its entirety, we see that a very large number of smaller installations (those emitting below 15,000 tonnes of CO₂) are included in the scheme) 454, or 43% of the total. Yet these installations account for just over 3Mt of CO₂, out of a total of 281Mt. This is equivalent to just over 1% of UK ETS emissions.



⁹⁷ Including Böhringer et al. 2005; Böhringer et al. 2006; Criqui, Kitous 2003; or Peterson 2006)

- The UK Government has publicly admitted this problem, and indeed has tried to relax the requirements of the ETS Directive in order to allow smaller installations to opt out of the scheme in phase two.⁹⁸ However, the overall number of UK installations involved in the EU ETS has remained fairly constant: 1,062 installations were involved in ETS phase one, whilst 1,065 were involved in phase two. As noted above, there are still very large numbers of small emitters, accounting for a tiny proportion of overall emissions, who remain within the scheme.
- As Cédric Philibert and Julia Reinaud of the International Energy Agency note, “Emissions trading is cost-effective only in effective markets. High transaction costs and various market failures may reduce the cost-effectiveness of emissions trading schemes.” Lowering transaction costs will promote greater scarcity in emissions trading markets. Tietenberg writes that “the evidence seems to suggest that, by lowering compliance costs, tradable-permit programmes facilitate the setting of more stringent caps.” Therefore, making carbon abatement cheaper is not only economically desirable, but also environmentally desirable. Abatement within a given economy is likely to be more effective and far reaching if the costs are reduced as far as possible.
- The economic case for lowering transaction costs is strong, yet the EU ETS in its first two phases has not taken account of the negative effects of including large numbers of small emitters in a scheme characterised by heavy administrative burdens, reflecting the lack of proper cost-benefit analysis that underpins the scheme.

Relocation and avoidability – an environmental and economic problem

- There is little evidence to suggest that the EU emissions trading scheme has so far caused business to relocate offshore. However, since phase one was over-allocated, this lack of evidence is not particularly relevant. Tighter allocations in phase two are likely to give a far clearer picture as to whether the European trading scheme could create incentives for business to move overseas.
- The risks of competitive disadvantage are not distributed equally amongst installations involved in the ETS. For certain industries able to pass through the cost of carbon (for instance power generators), involvement in carbon trading is not so much of a problem. Indeed, firms in Britain are believed to have made £2bn in windfall profits through phase one of the ETS.⁹⁹ However, there is some risk of a transition of production away from the EU among certain industrials as a result of the ETS. Firms could reduce their production, so that their emissions slump below their allocated levels. They could then sell the excess permits and use their savings to invest elsewhere. According to Cedric Philibert and Julia Reinaud:

“Emissions trading has the potential to significantly affect the prices of electricity and thus the price of energy intensive products. Furthermore, international trade in goods which are energy intensive tends to favour the economies of non-participants in an international trading scheme. Key effects on non-participants have been examined in many models. One consequence of carbon control is that carbon-intensive economic

⁹⁸ Defra, ETS Phase two Overarching Regulatory Impact Assessment (August 2006)

⁹⁹ Reported in *Sunday Times* (03.06.07)

*activity may have an incentive to migrate from countries where it is penalised to non-participative countries where production may become more profitable. Clearly, however, costs associated with greenhouse gas abatements will only be one element amongst many others in firms' decisions about where to locate their activities and investments. But for some energy intensive industries at least, carbon costs may become more important as the cuts get progressively deeper."*¹⁰⁰

- According to the Carbon Trust, a €25/tonne cost of CO₂ could lead to price rises of 7.3% in the steel industry. Steel accounts for 10% of emissions in the EU ETS. Given the small margins and ongoing global consolidation of this industry, the possibility of multinationals adjusting their levels of regional activity as a result of carbon prices is very real.
- A report for the EU Commission by McKinsey and Ecofys notes that "the increase in pressure in the direction of potential production shifts might be significant for some industries in international competition. With the allocation of CO₂ allowances based on historic emissions – which is largely the case in the current EU ETS – the marginal cost increase can be very significant."
- The report also singles out steel, but puts the marginal costs higher than the Carbon Trust estimates, and believes the sector may be pushed offshore. The study works on the basis of a €20/tonne price of carbon: "In the steel sector, the integrated production route (BOF) is expected to be impacted in its competitiveness. In some cases, production might be relocated to other areas. The situation could worsen over time given the usual continuous de-bottlenecking of capacity that might not be covered by free allowances. The additional costs of about 17% on the marginal unit of steel production may create an incentive to shift marginal production into regions without those costs."
- The report notes that "the possibility of production shifts and CO₂ leakage in the cement industry is real", and finds that "the impact on the cost of the marginal unit of production in the cement industry is very significant at over 36% or 12 Euro per ton of cement, which is roughly equal to freight costs from northern Africa or the eastern European countries outside the EU to Antwerp", meaning production could be relocated to these areas.
- Aluminium production as a sector is currently excluded from the ETS on account of its high exposure to international competition. However, the indirect cost of higher electricity prices could nonetheless harm the future of this industry in Europe: "Primary aluminium production is under heavy pressure in the short and mid term, because the probable large indirect cost increase resulting from the EU ETS is not covered by any free allowances. This might accelerate a migration of primary aluminium to countries with lower electricity cost and/or higher CO₂ efficiency", notes the report.¹⁰¹
- Relocation of business to other parts of the world would not only be an economic loss to Europe, but also an environmental loss globally, as industry moves to regimes with less stringent emissions controls.¹⁰² In addition, this relocation would

¹⁰⁰ Philibert, C. & Reinaud, J. "Emissions Trading: Taking Stock and Looking forwards" International Energy Agency/OECD, (2004) pg.21

¹⁰¹ McKinsey & Ecofys, EU ETS Review, Report on International Competitiveness (December 2006)

¹⁰² See CEPS, *The EU ETS – Taking stock and looking ahead* (April 2006)

drive down carbon prices in Europe, as a result of decreased overall scarcity in the ETS. It would also raise the risk of prompting the EU to move towards imposing higher tariffs on goods in countries deemed to be 'slacking' on fighting climate change, as has been suggested by the French government. This could open the possibility of serious abuse of 'green' trade barriers by protectionist interests, and damage the scope for future international cooperation on climate change, as the Stern Review has argued.¹⁰³

Auctioning still has not been properly utilised: problems of free permit allocation will continue in phase two

- In phase one of the ETS, the allocation of free permits allowed power generators to make windfall profits, originally estimated at €800m-€1bn in the UK alone in phase one. Across the EU, this figure was estimated at €6-8bn.¹⁰⁴ However, more recent figures from Point Carbon estimate far higher UK-only costs of £2bn over phase one.¹⁰⁵
- The lesson learnt from phase one should have been that the more the system moves towards non-free allocations, the less likely it becomes that power-generators will try to take advantage of the system in the manner they have in the past. If power generators have to pay for more of their allowances, they may be more willing to reduce their emissions.¹⁰⁶ More auctioning provides stronger incentives to reduce emissions towards a "zero carbon" baseline, as opposed to simply moving them below the free allocation limit, or passing costs on to customers without investing in improvements. The IPPR recommends an eventual target of 100% auctioning.¹⁰⁷
- However, ETS phase II does not address this issue. In fact, it places a 10% upper limit on the numbers of allowances that can be auctioned in theory, and even fewer have been in practice – just 1.5%. This means that a negligible number of permits will be auctioned between 2008 and 2012. Neuhoff argues that not only are differential levels of free allocation between member states distortive, but they also represent a subsidy to coal generation: "Any free allocation represents a subsidy – and where only fossil-fuel generation is subsidized, this distorts investment choices in favour of fossil-fuel generation. Where coal receives a higher allocation than gas, the investment choice is, in addition, distorted towards coal. The level of such subsidies under proposed second-phase NAP is so high that the construction of coal power stations is more profitable under the ETS with such distorting allocation decisions than in the absence of the ETS."¹⁰⁸
- The Carbon Trust argues that "By far the biggest potential for the EU ETS to generate perverse incentives is in the allocations to new entrants, through the 'New Entrant Reserves'. The fact that new emitting sources get free allowances but zero-carbon power sources do not obviously weakens incentives to invest in the latter. This problem is exacerbated by specific details in many of the plans. Most notably,

¹⁰³ *Stern Review: the economics of climate change*, pp. 486-487

¹⁰⁴ German Environment Ministry, cited in Smith K. "Pollute and Profit", *Parliamentary Brief Magazine* (May 2007)

¹⁰⁵ Reported in *Sunday Times* (03.06.07)

¹⁰⁶ Deutsche Bank Research (06.03.07)

¹⁰⁷ Gibbs, T. & Retallack, S. *Trading up – reforming the European Union's Emissions Trading Scheme*, IPPR (December 2006)

¹⁰⁸ Neuhoff, K. et al., "Implications of announced phase II national allocation plans for the EU ETS", *Climate Policy* 6 (2006)

the German NAP offers unlimited 'technology specific' free allowances to new power stations, so that coal power stations get about twice as many as gas, and adds a 'load factor' correction, in which the most polluting plants (lignite) are granted an *additional* 10% more allowances, officially on the grounds that they are expected to operate more.... many countries offer such fuel-specific subsidies for new entrants, but Germany is unique in the scale of subsidy offered to the most polluting ones."¹⁰⁹

- The Commons Environmental Audit Committee expressed its disappointment over the auctioning regime, arguing:

*"One decision on the shape of Phase II, which will have a profound effect on its efficiency and effectiveness, and with which we are signally disappointed, was taken long in advance: the maximum limit of allowances which can be auctioned. Under the ETS Directive, a maximum of only 10% of allowances can be reserved for auction in Phase II, rather than being allocated to firms for free. We believe it was wrong of Member States and the Commission to impose such a restrictive limit on auctioning in Phase II. In our view, auctioning allowances should lead to more accurate allocations, reduced public costs and bureaucracy, and greater internalisation of environmental costs in business decisions. In sectors where there are not strong concerns as to the effects on competitiveness of requiring firms to purchase their allocations upfront, we strongly support 100% auctioning. In auctioning 7% of its Phase II NAP, the Government is doing far more than any other Member State in this Phase, but this level is still far less than the participants could withstand and which would be good for the Scheme as a whole."*¹¹⁰

Emissions trading remains vulnerable to gaming

- The huge size and complexity of the ETS makes it vulnerable to pressure from industrial lobby groups, particularly in strategic industries with strong ties to government. As the Carbon Trust note, "Phase I had shown the huge potential financial value of emission allowances – against a background of prices exceeding €20/tCO₂, it was plain that governments were allocating assets worth probably more than €200bn in total. Not surprisingly, they were subject to huge lobbying pressures."¹¹¹ As well as the established industrial lobby groups, there are now bodies specifically representing those with a stake in the carbon trading industry, the most prominent being the International Emissions Trading Association, which represents project developers, intermediaries, financial institutions, brokers involved in a new economic activity as a result of the greenhouse gas market, together with "industrial organizations that will want to use CERs to meet existing or future regulatory constraints."¹¹²
- The power sector has been particularly adept at exerting influence in carbon markets; having secured overgenerous allowances in phase one, utilities firms simply passed the costs of buying new credits on to consumers, making huge windfalls from the scheme. In the UK alone, analysis by IPA Energy Consulting Ltd carried out for the DTI estimates the potential for an increase in generator profit in

¹⁰⁹ Carbon Trust, *EU ETS Phase II allocation: implications and lessons* (May 2007)

¹¹⁰ House of Commons Environmental Audit Committee, Second Report, *The EU Emissions Trading Scheme: Lessons for the Future* (01.03.07)

¹¹¹ Carbon Trust, *EU ETS Phase II allocation: implications and lessons* (May 2007)

¹¹² www.ieta.org

phase I of £800 million a year, implying a maximum of a 25% uplift on energy prices.¹¹³ The second phase has seen continued lobbying pressure on national governments – particularly Berlin – attempting to secure lax emissions caps and other concessions to industry.

Carbon taxes vs carbon trading: the debate

Trading, as a market based solution, should allow emissions abatement to take place where it is cheapest. It also enables policy-makers to make a rational assumption on the level of abatement that will occur, based on the scarcity of allowances created by the trading system. On the downside, it is becoming increasingly clear that emissions trading is open to gaming and lobby group pressure. The huge size and complexity of the ETS makes it particularly vulnerable in this respect. It could be argued that trading has been adopted as a policy partly for this reason – because it is more politically palatable than taxation. Put simply, it was the easier choice.

Taxation has the advantage of delivering less predictable levels of emissions abatement at a definite cost, and therefore allows companies to judge accurately how much they will need to invest in order to cut their emissions (and hence save money). Trading is less likely to deliver this long term price signal (the ETS has so far been marred by huge volatility), meaning it is questionable how effective it is in stimulating long term 'green investment'.

- In phase II, it is already evident that powerful lobbying has had important effects on the national allocation plan of Germany, Europe's largest economy and largest source of emissions. One highly important concession made to Berlin was guaranteed free permits for new power plants, described in more detail in the previous section. Deutsche Bank notes that for Germany, "The NAP 2 contained only a few incentives for switching to less CO₂-intensive sources of energy e.g. from coal to gas) as part of the modernisation of Germany's outdated power plants that will occur over the next few years. New power stations are to be allocated the emissions allowances they require for standard operation absolutely free of charge regardless of the fuel they use."¹¹⁴ As the Carbon Trust have noted, free permit allocation to new entrants effectively provides positive incentives for the construction of new high-pollution installations. Germany's NAP is one of the main offenders in this regard. They argue that:

*"Essentially, what is happening here is that whilst the EU ETS was designed with the intent to reduce CO₂ emissions, in many Member States the details of implementation have been negotiated between industries and Ministries that had other objectives, and whose main priority was to minimise any resulting pressure on their industries to change: they appear to have regarded their job as protecting 'business as usual' from the effects of a carbon price in Europe. In some countries, particularly concerning new investments, they succeeded to a remarkable degree."*¹¹⁵

- Germany will also be allowed to import more Kyoto credits than originally proposed. Following a dispute between the European Commission over the country's phase two national allocation plan (NAP), Berlin agreed to accept a 2.5 per cent cut in its

¹¹³ Environmental Audit Committee (05.07.06)

¹¹⁴ Deutsche Bank Research, *EU Emissions Trading – Allocation battle intensifying* (06.03.07)

¹¹⁵ Carbon Trust, *EU ETS Phase II allocation: implications and lessons* (May 2007)

proposed CO₂ emissions allocation in return for an increased limit on the number of CERs that can be imported. Instead of the original 12 per cent limit on these imports, the government and German companies liable under the EU ETS will be able to meet the overall national emissions target by purchasing up to 20 per cent of their allocation from credits generated under the CDM and JI mechanisms. As Point Carbon notes, “This means that German operators can purchase 90.6 million CDM/JI credits in the market, instead of the 57.8 million allowed under the previous version.”¹¹⁶ This means 164Mt extra over 5 years. Again, this clearly goes against the principle that overseas project credits should merely be “supplemental” to domestic emissions reductions, and makes it far more likely that EU installations will be able to cover any shortfall through use of external credits.

- The negotiations over Germany’s NAP say a great deal about the underlying problems associated with emissions trading, and its vulnerability to manipulation by rent-seeking interest groups. This is not a problem likely to be resolved through greater centralisation of national allocation plans, as some have suggested (for example, the IPPR). Further centralisation will not make the system immune to the underlying problem of lobby group pressure, and corporatist interests seeking to profit at the expense of both the wider environmental interest, and that of the European economy. In fact, poor transparency in EU decision making, together with a well established existing lobbying ‘infrastructure’ in Brussels could even make the problem worse.
- There may be more fundamental problems associated with handing permit allocation decisions to bureaucrats, which is by definition necessary in ‘state constructed’ markets such as those for carbon. John Kay, writing in the FT noted that, “when a market is created through political action rather than emerging spontaneously from the needs of buyers and sellers, business will seek to influence market design for commercial advantage.”¹¹⁷
- The Carbon Trust argues that: “The politics of implementation inevitably involve a risk of what social scientists call ‘regulatory capture’, in which industries effectively control their regulators; by establishing a close relationship particularly with industry ministries, they seek to adjust rules of implementation so that they can carry on with ‘business as usual’, or better. That in essence is the story of Phase II implementation details in much of Europe.”¹¹⁸
- Catrinus Jepna of Netherlands-based climate change NGO Foundation JIN summarises the structural weaknesses in the present system of bureaucratic allocation of emissions caps:

“... the allocation process is the weak spot of the trading scheme and hard to be done correctly, because: bureaucrats/politicians who take decisions about allocations, suffer from information asymmetry as the best information about realistic allocations is with the installations, not with them. The management of the installations knows which mitigation technologies can be introduced, are available, in the pipeline, etc., or what their investment plans are; bureaucrats can only guess... it is not in the installations’ interest to provide the bureaucracy with all such

¹¹⁶ Point Carbon, *Carbon Market Europe* (23.02.07)

¹¹⁷ FT (08.05.06)

¹¹⁸ Carbon Trust, *EU ETS Phase II allocation: implications and lessons* (May 2007)

information. Instead, they have an incentive to show that emission reductions will be very difficult to realize and costly.”

- Traders are another group with an incentive to influence carbon markets for their own gains. Alongside the established specialist carbon funds, hedge funds and other institutional investors are expected to invest heavily in carbon credits, especially after carbon credits held in offshore accounts now benefit from tax breaks announced in the UK's 2007 budget. Jepma argues that:

“Credit traders want to do business. At the start of a scheme, they leave market players with the impression that credits are scarce and thus induce nervous players to buy credits early in order to be sure about compliance later on. The players ‘with the strong nerves’ will probably wait until prices have been driven up sufficiently for their credit sales, but once prices start falling, they may fall over each other and make prices collapse. We have seen this process happening during the first phase of the EU ETS.”

- Jepma concludes that because of the structural weaknesses in the ETS, and the predicted oversupply of Kyoto credits, phase two could well follow the same path as phase one: “there are fairly strong arguments to support the view that even during the Kyoto Protocol's commitment period (which coincides with the EU ETS 2nd phase), a similar pattern of slightly rising but eventually almost collapsing credit prices may take place.”¹¹⁹
- Trading systems on the model of the ETS need to take place on a phase by phase basis. Longer phases should facilitate investment decision making; at the moment there is no way to know what will happen after phase two (it is difficult enough to know what will happen *in* phase two). But on the other hand, it is necessary to progressively lower the overall cap between phases in order to maintain scarcity, meaning that phases cannot be too long. Short phases also enable regulators to correct problems with the system with greater agility. A November 2005 survey by McKinsey and Ecofys for the European Commission found that 93% of businesses wanted the trading period extended to ten years or more. However, governments are unlikely to agree this as it means that caps can only be revised down every ten years, and so the path of emissions reductions would have to be very gradual (which is why none of the Government bodies surveyed agreed with this idea).¹²⁰
- This dilemma, together with existing volatility within a given trading phase, poses more fundamental questions over the ability of emissions trading systems to effectively deliver incentives for green investment through delivery of a firm price on carbon. Critics see this as an important flaw. Professor Tom Burke at Imperial College London argues that emissions trading “produces very volatile signals for investors as to what they need to do”. He believes that trading will only “affect things at the margin”, and more effective action – involving public expenditure and regulation – will become necessary to make a serious effort against climate change. He said, “the point about markets is that prices change and are volatile as behaviours change. If you want investment made over 30, 40, 50 year periods, then you need a signal that's much stronger”.¹²¹

¹¹⁹ *Joint Implementation Quarterly*, (April 2007)

¹²⁰ “Review of EU Emissions Trading Scheme: Survey Highlights.” November 2005. McKinsey & Company, Ecofys

¹²¹ Interview, BBC Radio 4 Today Programme (07.06.07)

Looking forwards: what future for the ETS?

- The EU's January 2007 Energy Policy for Europe urges member states to make ambitious cuts in greenhouse gas emissions through a "post-industrial" revolution – the Plan envisages a 20% unilateral cut in emissions on 1990 levels, or 30% if conducted in concert with other major economies. In March 2007, EU leaders stated the bloc's commitment towards "transforming Europe into a highly energy-efficient and low greenhouse-gas-emitting economy", formally committing themselves to these targets.
- However, it is clear that if the EU is serious about tackling climate change, far more effective policies will be necessary in order to ensure that emission reductions take place at home, and are not simply bought in from overseas. The EU Commission (like the UK Government) at this stage seems committed to emissions trading as its main strategy for combating climate change beyond 2013, arguing that "Emissions trading schemes will be a key tool to ensure that developed countries can reach their targets cost-effectively."¹²² This apparent inflexibility may stem from the political capital that has been staked on the ETS to date, or the fact that trading systems are more politically 'safe' than alternatives, such as taxes. Yet, as has been argued, the system is hampered by serious design flaws. This will not be solved through further centralisation – whether the allocation process is undertaken at national or EU level does not alter the underlying problem seen so far in both phases of the ETS – bureaucracies are generally not well positioned to judge what caps should be imposed, whilst participants will generally exert pressure on the bureaucracy to affect these decisions.
- As long as permits are allocated and not auctioned, the system is not going to be worth having. As well as unintentional distortions caused by the handing out of free permits, there is clear evidence that the system of free allocations is very vulnerable to lobby group pressure, and is also being deliberately used to provide covert industrial subsidies to polluting industries. The problems with the present system – most notably the level of lobby influence – can be mitigated through moves to 100% auctioning, but this may take some time to happen, and is likely to face political resistance. Improvements could also be made by raising the threshold for inclusion in the ETS, so that so many small installations are not drawn in.
- Setting the issue of auctioning aside, getting the overall allocation of permits 'right' is not easy. It involves making a series of guesses about future economic growth, future energy prices, and changing technology. Misjudging these variables will mean harmful price volatility, the possibility of overallocation (as in phase one), or of levels of scarcity so high as to be economically harmful.
- It should also be considered that the ETS is not the only climate policy being pursued by governments and indeed it cannot be. Yet its interaction with other tax and subsidy policies has the potential to cancel out their intended effects. If for example, member states subsidise the large scale building of renewable power plants, then the effect will simply be to reduce the price of carbon in the system (and therefore increase emissions elsewhere). The goal of the ETS is to make efficiency gains by avoiding distortions – but other climate policies are at the same time effectively trying to pre-empt the operation of the market and artificially tilt investment in their favour.

¹²² EC Communication 5422/07, pg.9

A whole range of other taxes, subsidies, and regulations mean that the goal of a completely undistorted market may be a mirage.

- The distorted incentives and powerful political interests created by the ETS and linked Kyoto mechanisms continue to act as barriers to meaningful action on climate change. If trading is to be continued as a policy, it seems certain that current 'leaks' threatening to flood the market with external credits must be rectified and longer term price signals are established within the traded sectors. Yet Europe must also explore the viability of other policy options for emissions reduction, most obviously taxes. Otherwise, the mooted "post-industrial" revolution in Europe will remain little more than a pipe dream.
- The attempt to create a global carbon market and a "global price for carbon" through trading is unlikely to be successful. The costs of dealing with the effects of climate change will not be distributed equally (Bangladesh will suffer far more than Russia, for instance), whilst a global consensus on how to share the burden of abatement policies is still a long way off. The current Kyoto framework has been crippled by the imbalances created by large emitters opting out (such as the US), and ratifiers backsliding on their commitments (especially Canada). International action should focus on setting tough and enforceable national targets for greenhouse gas reduction. How to reach those binding targets should be up to individual countries.
- There are many who see the ETS as the starting point for a global carbon trading market. However, the problems of allocation seen in the ETS offer a sobering insight into how this could be magnified in the context of negotiating such a global system. The huge imbalances in the current Kyoto system also add to this impression – clearly, factors such as the settlement upon the 1990 baseline were politically motivated, intended as a way of buying Russian support for the Protocol. In current talks on the successor to Kyoto, it is proving difficult enough for major polluters to even agree the overall targets. Trying to also agree on the policies to meet them would be likely to impede agreement – particularly given that countries like China favour radically different approaches. An intergovernmental, target-based agreement is therefore politically a more plausible successor to Kyoto than the creation of a single supranational trading system.

Annex

National Allocation Plans and verified emissions for phase one and phase two ETS

<i>Member State</i>	<i>1st period cap</i>	<i>2005 verified emissions</i>	<i>2006 verified emissions (adjusted for new entries)</i>	<i>Proposed cap 2008-2012</i>	<i>Cap allowed 2008-2012</i>	<i>Allowed CDM/JI limit (%)</i>	<i>Kyoto credit entitlement</i>
Austria	33	33.4	32.4	32.8	30.7	10	3.1
Belgium	62.08	55.58	60	63.33	58.5	8.4	4.9
Cyprus	5.7	5.1	5.3	7.12	5.48	10	0.5
Czech	97.6	82.45	83.6	101.9	86.8	10	8.68
Estonia	18	12.62	12.4	24.6	12.7	0	0
Finland	45.5	33	45	39.6	37.6	10	3.76
France	156.5	131.3	128.8	132.8	132.8	13.5	17.9
Germany	499	474	488	482	453.1	20	90.6
Greece	74.4	71.3	70	75.5	69.1	9	6.2
Hungary	31.3	26	25.4	30.8	26.9	10	2.7
Ireland	22.3	22.4	21.7	22.6	22.3	10	2.2
Italy	223.1	225.5	227	209	195.8	15	29.4
Latvia	4.6	2.9	2.9	7.7	3.43	10	0.34
Lithuania	12.3	6.6	6.7	16.6	8.8	20	1.76
Luxembourg	3.4	2.6	2.7	3.95	2.7	10	0.27
Malta	2.9	1.98	1.98	2.96	2.1		0
Netherlands	95.3	80.35	87.1	90.4	85.8	10	8.58
Poland	239.1	203.1	215	284.6	208.5	10	20.9
Slovakia	30.5	25.2	27.2	41.3	30.9	7	2.2
Slovenia	8.8	8.7	8.84	8.3	8.3	15.76	1.31
Spain	174.4	182.9	185.9	152.7	152.3	20	30.46
Sweden	22.9	19.3	21.9	25.2	22.8	10	2.28
UK	245.3	242.4	284.96	246.2	246.2	8	19.7
Total for approved NAPs	2102.28	1943.58	2039.40884	2094.84	1903.1	13.60%	257
Denmark	33.5	26.5	34.2	24.5	22	10	2.2
Portugal	38.2	36.4	33.1	37.9	34.3	10	3.4
Total for all NAPs	2179.68	2011.58	2107	2164.36	1960	13.5	265
Over 5 years				10821.8	9802	13.5	1326

All figures MtCO₂eq., last updated 30.07.07 Those in grey are estimates, given that two NAPs had not been approved at time of writing.

Projected effects of phase two ETS

	If Kyoto credit supply is limited to 1300mt¹²³
Total projected annual emissions baseline ¹²⁴	2226
Total projected emissions for 5 years	11130
Five year total permitted emissions	9802
OE projection of total shortfall for phase 2	1328
Average annual shortfall for phase 2	267
Estimates CER/ ERU supply for 5 years	1300
Total shortfall for 5 years, after Kyoto credit imports	35
Required annual ETS sector domestic abatement	7
% shortfall achieved in EU	2.1
% shortfall achieved through Kyoto mechanisms	97.9

¹²³ Projection by Point Carbon (June 2007)

¹²⁴ From Neuhoff, K. et al., *Emission projections 2008-2012 versus NAPs II* (26.09.06). Average of business as usual projections under no ETS scenarios; new entrants not included.

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