Globethics Repository



Carbon Trade: When the cap does not fit – Cap and trade and the failure of the EU Emissions Trading Scheme [Chapter 3 of "Critical Currents", issue 7, Nov, 2009 "Carbon Traiding - How it works and why it fails"]

This page was generated automatically upon download from the Globethics Repository. More information on Globethics see https://www.globethics.net. Data and content policy of Globethics Repository see https://repository.globethics.net/pages/policy.

Item Type	Article
Authors	Gilbertson, Tamra;Reyes, Oscar
Publisher	Dag Hammarskjöld Foundation
Rights	With permission of the license/copyright holder
Download date	2026-11-12 04:50:44
Link to Item	http://hdl.handle.net/20.500.12424/175674

3 » When the cap does not fit – Cap and trade and the failure of the EU Emissions Trading Scheme

The European Union Emissions Trading Scheme (EU ETS) is the world's largest carbon trading scheme, and the longest established cap and trade carbon market.[1] It also serves as a model for similar cap and trade schemes that are proposed in the USA, Australia and other industrialised nations.[2] For these reasons, it is the main focus of this chapter, the aim of which is to demystify claims that emissions trading is working now or will improve with age. The EU ETS also has a considerable bearing on how the global carbon trade works and is shaping up for the decades ahead. For each year of its operation, the EU ETS has continued to enclose and privatise the global atmospheric commons – awarding property rights to polluting companies based in the industrialised nations at the expense of the South.

1 World Bank Report, 'State and Trends of the Carbon Market 2009', World Bank, Washington DC, 2009.

2 The exact number was 11,359 in 2008, 213 fewer than in 2007 as a result of some smaller installations being withdrawn from the scheme. Norway, Liechtenstein and Iceland (which are not EU members) joined the EU ETS in 2008, but no installations in Norway yet report as part of the scheme. See European Commission (DG Environment), 'Emissions trading: EU ETS emissions fall 3% in 2008', 15 May 2009, http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/794&format=HTML&aged=0&language=EN&guiLanguage=en

The EU ETS has contributed significantly to a process of shifting responsibility outside of Europe's borders for the historical legacy of creating climate change. Cap and trade presents itself as a system designed to make it cheaper for corporations to reduce their carbon emissions, the idea being that governments give out a limited number of permits to pollute; the scarcity of such permits should encourage their price to rise; and the resulting additional cost to industry and power producers should then encourage them to pollute less. The empirical evidence presented here, however, suggests that the incentives created by the scheme work very differently – awarding profits to polluters and encouraging continued investment in fossil fuel-based technologies while disadvantaging industry focused on transition away from fossil fuels. This is not an arbitrary product of misapplied rules, we will show, but a product of how these markets reinforce existing power relations and hiatuses in economic decision-making.

Shifting the burden

The basic commodity traded within the EU ETS – carbon permits known as European Union Allowances (EUAs) – are allocated

through political intervention. The EU ETS covers approximately 11,500 power stations, factories and refineries in 30 countries which include the 27 EU member states, plus Norway, Iceland and Lichtenstein. These account for almost half of the EU's CO_2 emissions, covering most of the largest single, static emissions sources, but excluding direct emissions from road transport, aviation, shipping, agriculture and forestry.[3]

The starting point for this allocation process was an agreement within the EU to ratify the Kyoto Protocol, which set 1990 as the 'baseline' against which emissions are compared. The original 15 EU members, in Western Europe, were expected to reduce their greenhouse gas emissions by 8 per cent compared to 1990 levels by 2012.

At the outset, the expectation for each EU country was re-adjusted according to a Burden Sharing Agreement, which allowed some countries to continue increasing their emissions – by up to 27 per cent in the case of Portugal – while others were given stricter limits, most notably the UK and Germany, which are the two largest economies within the EU.

Burden sharing is usually presented by the EU as a redistribution of obligations to help poorer countries grow their GDP, while the richer states bear the brunt of reduction requirements. The 'tough' obligations on the UK and Germany take advantage of considerable reductions that were achieved before the start of the EU ETS, however. In the case of the UK, the power sector saw a significant shift in capacity from coal to gas in the early 1990s after most of the country's coal mines were closed, while in the case of Germany, the most significant drop in emissions came about through the closure of industry in the former East Germany after the country's unification in 1990.[4]

Moreover, the inclusion of the 12 Central and Eastern Europe countries that have joined the EU since the original Burden Sharing Agreement was made have considerably eased the commitments required of Western European states under the EU ETS. This bloc of countries has considerably overachieved on its Kyoto targets (which take 1990 as a baseline year) as a result of the economic collapse and industrial restructuring that took place after the fall of the Berlin Wall in late 1989. The EU ETS serves to re-distribute this surplus (commonly called 'hot air', since it does not represent a reduction on the basis of proactive policy adjustments to tackle climate change), making it easier for countries in Western Europe, which have increased their

3 EU Commission (DG Environment),'Questions & Answers on Emissions Trading and National Allocation Plans', 8 March 2005, http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en

4 The claims made in UN statistics on carbon emissions do not accurately reflect the full impact of a country's emissions. Setting aside the considerable 'outsourcing' of emissions achieved by production elsewhere (e.g. in China for a UK consumer market), there are numbers of other holes. In 2005, for example, the UK government reported emissions of 656 million tonnes of CO_2 to the UN. However, its own national environmental accounts showed emissions for that year of 733 million tonnes of CO_2. The main difference lies in the fact that UN data excludes aviation and shipping, which have been amongst the fastest growing sources of UK CO_2 emissions. See John Vidal, 'Government figures hide scale of CO_2 emissions, says report', *The Guardian*, 17 March 2008. A secondary factor in the German case has been a more proactive renewable energy policy, in particular through the use of 'feed in' tariffs. See European Environment Agency, *Greenhouse Gas Emission Trends and Projections 2008*, EEA, Copenhagen, 2008; Gwyn Prins and Steve Rayner *The Wrong Trousers: Radically Rethinking Climate Policy,* London School of Economics, London, 2007, p.16.

emissions, to make the on-paper 'reductions' required of them.

Baseline bingo

The overall cap is only the start of the EU ETS allocation process. It sets the scale of the commitments to be made, but says little about how that will be achieved in practice. The next, and most significant, step of the process is for each country to agree on a National Allocation Plan (NAP). These Plans allocate targets for all of the individual power plants, factories and other industrial sites included in the scheme, which add up to an overall 'cap' for heavy polluters in each country.

The method chosen for allocating emissions varies considerably between countries, and is currently agreed through a complex negotiation among the European Commission, the executive branch of the European Union, and its member governments.[5] However, in the third phase of the scheme, which runs from 2013 to 2020, this will be replaced by an overall EU-wide allocation. Proponents argue that this makes the scheme more coherent, which should make it more effective. However, greater consistency is not necessarily a marker of greater environmental effectiveness.[6]

Despite the variations, a few trends in how emissions allowances are allocated have been clear from the outset. As Jos Debelke, deputy director general of the EU's Directorate General for Environment, which has overall responsibility for administering the scheme, puts it, 'the basic principle has...been to allocate free allowances based on historical emissions, with the negative effect of favoring less efficient facilities.'[7] In other words, the largest allocations have gone to what have historically been the worst polluters.

A second key trend has been a more stringent allocation of allowances in the power generation sector than for the other industries covered by the scheme. The rationale for this is that energy companies can pass any cost incurred for the scheme on to their consumers, whereas other industries may face increased international competition from outside the EU if it imposes greater costs upon them. This cost 'pass-through,' as we shall see, has actually proven to be highly profitable for the power companies. The flip side of the coin is that the allocations for other industries have been far more lax – awarding them more permits than they need to cover their actual emissions, and the ability to profit from selling this surplus. This is symptomatic of a

5 The Commission applies the rules governing the EU ETS, but these rules themselves are agreed through a legislative process involving the European Parliament and Council (the latter being the representative of national governments within the EU system). Once these are agreed, they need to be passed into European legislation. The Burden Sharing Agreement that saw the EU agree, collectively, to ratify the Kyoto Protocol was signed in 2002. The Directive that established the EU ETS was agreed in 2003. A further Linking Directive was passed in 2004. This was subsequently revised, with a new Directive agreed in December 2008 as part of a broader EU Climate and Energy Package. See European Union, 'Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community', 26 March 2009, http://register.consilium.europa.eu/pdf/en/08/st03/st03737.en08.pdf

6 See Belen Balanya Ann,Doherty,, Olivier Hoedemann, Adam Ma'anit and Erik Wesselius, *Europe INC: Regional and Global Restructuring and the Rise of Corporate Power*, Pluto Press, London, 2004.

7 Jos Debelke, 'Written statement to Hearing by the Senate Committee on Finance on "Auctioning under Cap and Trade: Design, Participation and Distribution of Revenues"', 7 May 2009, p.6.

third key trend – an overall surplus of permits within the scheme, exacerbated by the ability to use large numbers of carbon offsets, which has further inflated its 'cap' on emissions.

Throwing their caps over the mills

There is clear evidence in the first phase of the EU ETS that too many emissions permits were handed out across the five sectors covered by the scheme: power and heat generation, oil refineries, metals, pulp and paper, and energy-intensive industry (including cement and lime sectors).

When the first emissions data for the scheme was released in April 2006, it showed an overallocation of 4 per cent.[8] The price of carbon permits collapsed as a result and never recovered. From a peak of around €30, the price slid below €10 in April 2006, and below €1 in the spring of 2007.[9]

As the UK Parliament's Environmental Audit Committee reported in October 2007: '[M]ost observers believe that too many allowances to emit carbon have been allocated in phase 1, meaning there is overall little or no incentive for firms to cut back on their emissions, and thus that the entirety of this phase is likely to be ineffective in driving down emissions.'[10]

Nor was it just the first year of the scheme that was overallocated. The following table uses EU data to compare the caps (allocations) and the actual (verified) emissions for the first phase of the EU ETS.[11]

Overallocation in EU Emissions Trading phase 1

	2005	2006	2007	Total
Allocation	2096.4	2071.8	2153.1	6333
Verified emissions	2014	2035.6	2164.7	6121.9
Over allocation	82.4	36.1	11.6	130.1
% Over allocation	4.1	1.8	0.5	2.1

Source: EU Community Independent Transaction Log. Emissions figures in oooos MtCO2 e

The table clearly shows that the EU ETS consistently allocated more permits to pollute than the actual level of pollution taking place in its first phase. At the end of phase 1, emitters had been permitted to emit 130 million tonnes more CO_2 than they actually did, a surplus of 2.1 per cent.

The EU's own explanation of the first phase of the scheme seeks to present failure as success, claiming: 'The first trading period successfully established the free trading of emission allowances across the EU, put in place the necessary infrastructure and developed a dynamic carbon market.'[12] But even the EU acknowledges, understatedly, the failure to reduce emissions, which it explains away in the following terms:

> The environmental benefit of the first phase may be limited due to excessive allocation of allowances in some Member States and some sectors, due mainly to a

8 European Environment Agency, *Application of the Emissions Trading Directive by EU Member States – reporting year 2008*, EEA, Copenhagen, January 2009, p.14.

9 *Ibid*.

10 Environmental Audit Committee, 'Eighth Report: Impacts of Phase I on UK emissions', 16 October 2007, http://www.publications.parliament.uk/pa/cm200607/cmselect/cmenvaud/1072/107205.htm

11 Community Independent Transactions Log, http://ec.europa.eu/environment/climat/emission/citl_en.htm. Each number is calculated on the basis of the exact figure, but the table displays rounded figures.

12 EU Commission (DG Environment), 'Questions and Answers on the revised EU Emissions Trading System', 18 December 2008, http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796

reliance on emission projections before verified emissions data became available under the EU ETS. When the publication of verified emissions data for 2005 highlighted this 'overallocation', the market reacted as would be expected by lowering the market price of allowances.[13]

Was the initial overallocation in the EU ETS merely a technical hiccup resulting from a lack of available data? A comparison with other emissions trading schemes casts serious doubt on this view, with the experience of the United States Acid Rain Program, the Los Angeles Region Clean Air Market (RECLAIM), the Chicago Emissions Reduction Market System (ERMS) and the Regional Greenhouse Gas Initiative all showing a similar level of generosity to polluters at the outset.[14]

A more plausible explanation of the generous allocation of permits to polluters over and above their *actual* levels of pollution can be found when the corporate influence on the allocation process is factored in. As the economist John Kay, writing in the *Financial Times*, put it, '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'.[15] The record of the first phase of the EU ETS shows how this interaction played out – with companies affected by the scheme claiming that it would adversely affect their 'competitiveness' – an argument that had a receptive audience at the ministries responsible for allocating permits.[16]

What's wrong with banking?

Various advocates of emissions trading have claimed that the price volatility within the first phase of the EU ETS was exacerbated by the fact that the credits could not be banked for use in the second phase.[17] True, EUAs' limited shelf life reduced their value, yet had banking been allowed in the first phase of the EU ETS, the carrying over of an excess 211 million allowances would have kept bogus 'reductions' in the system for years to come. Despite this obvious drawback, the EU has lifted the restrictions on banking in subsequent phases of the EU ETS. The proposed Waxman-Markey cap and trade scheme in the US also allows the banking of credits.[18]

13 *Ibid*.

14 Lesley McAllister, 'The Overallocation Problem in Cap-and-Trade: Moving Toward Stringency', *Columbia Journal of Environmental Law*, San Diego Legal Studies Paper No. 08-076, 2008, http://ssrn.com/abstract=1276405; Michael Grubb, 'Reinforcing carbon markets under uncertainty', *Climate Strategies*, Cambridge, 4 March 2009, p.1.

15 John Kay, 'Why the key to carbon trading is to keep it simple', *Financial Times,* 9 May 2006, http://www.johnkay.com/in_action/441

16 European Union, 'Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC', October 2003, article 7, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32003L0087:EN:NOT. Article 7 emphasises the avoidance of 'distortions in competition' as a key criterion to be considered when deciding upon how permits should be allocated.

17 A. Denny Ellerman and Paul L. Joskow, *The European Union's Emissions Trading System in Perspective*, Pew Center on Global Climate Change, Cambridge MA, May 2008, p.41.

18 *American Clean Energy and Security Act*, Washington, 16 May 2009, p.431, http://energycommerce.house.gov/Press_111/20090515/hr2454.pdf. Unlimited banking is established as a basic principle, although the legislation leaves open the possibility that the regulator of the scheme can set limits to establish when a credit 'expires.'

The capacity to bank credits is also a problem in relation to the Kyoto Protocol. Through a combination of 'hot air' credits – post-1990 reductions from Ukraine, Russia, Central and Eastern Europe – and the US non-ratification of the Kyoto Protocol, there is likely to be a significant surplus of Assigned Amount Units (AAUs, Kyoto reduction units) by 2012. The banking of such credits would represent a serious loophole in any post-2012 global climate agreement, allowing historical reductions as a result of economic decline and restructuring in the former Soviet bloc to be counted as equivalent to future domestic actions by the rich, industrialised nations.[19]

The widespread use of banking clearly signals the 'diametrically opposed motivations' of carbon trading, as Jutta Kill of the Forest and European Union Resource Network (FERN) explains: 'The principles of trading require good liquidity and thus advocate for banking, but the principle of reducing emissions would advocate against banking as it delays the transition [away from fossil fuels]. The fact that banking is expanding is a sign that carbon trading is taking on a life of its own, decoupled from...the climate objective used as the justification for setting it up.'[20]

Windfall profits

A further major criticism levelled at the first phase of the EU ETS is that it generated huge 'windfall profits' for power producers, helping them to make large unearned financial gains as a result of flaws in the rules rather than any proactive measures taken to reduce emissions through structural changes. Exact figures for the whole scheme are difficult to ascertain, since they would require a far higher degree of transparency in financial reporting by energy companies than is currently the case, but various estimates have been made.[21]

An inquiry by the UK Parliament's Environmental Audit Committee found that '[it is widely accepted that UK power generators are likely to make substantial windfall profits from the EU ETS amounting to £500 million a year or more'.[22] The German environment minister cited figures from his own ministry which showed that the four biggest power producers in his country – Eon, RWE, Vattenfall and EnBW – would reap profits of between €6 billion and €8 billion from the first phase of the scheme.[23] Even Jos Debelke, deputy director general of the EU's Directorate General for Environment, acknowledges that 'due to its ability to pass on full costs, including the opportunity costs of allowances that were received for free, there were significant 'windfall profits' to the power sector.'[24]

19 EU Commission (DG Environment), 'Towards a comprehensive climate change agreement in Copenhagen – Extensive background information and analysis, Part 2', Brussels, January 2009, p.23. Russia is currently 29 per cent above its Kyoto Protocol target, while Ukraine was 55 per cent over its target, according to 2005 data (both countries had a 0 per cent reduction target on 1990 levels).

20 Personal communication, 14 September 2009.

21 J. Sijm, K. Neuhoff and Y. Chen, 'CO_2 cost pass-through and windfall profits in the power sector', *Climate Policy*, vol. 6, no. 1, 2006, pp.49-72. Empirical studies on Germany and The Netherlands show opportunity cost pass-through rates vary between 60 per cent and 100 per cent for the wholesale electricity market.

22 UK Department for Food, Environment and Rural Affairs, 'Government Response to the Environmental Audit Committee Fourth Report of Session 2004-5', p.6.

23 Kevin Smith, 'Profiting From Pollution: the G8 and climate change', *Red Pepper*, June 2007.

24 Jos Debelke, *op. cit., supra*, note 7.

At first glance, this seems somewhat contradictory and cryptic. How can polluters profit when the value of the credits in the scheme fell to almost nothing? And what are 'opportunity costs' anyway?

The answer lies in how energy companies account for the costs of the EU ETS. The costs that are indirectly passed on to consumers through an increase in wholesale energy prices do not reflect what carbon credits *actually* cost, but rather what the companies assume they could cost. This leaves considerable scope for overestimates: first, by assuming a larger than necessary need to buy permits or credits; second, by assuming that there will be a high carbon price; and third, by assuming the costs of replacing EUAs, irrespective of their actual use of offset credits which have consistently commanded lower prices. Yet if these assumptions turn out to be over-generous, the surplus is more often pocketed as profit than returned to the consumer.

The 'opportunity cost' of the EU ETS refers to an economic calculation that is made once carbon has been registered as an asset on the company's books. Irrespective of the fact that most carbon permits were given out for free, the power companies treat them as having monetary worth.[25] They then seek to maximise the value of these permits – so while the cost passed on to consumers approximates to the cost of reducing emissions in accordance with a cap, what the company actually does is whatever it considers to be cheapest – which may be to buy EU ETS permits from other installations in the scheme, or buy offset credits instead. By this means, power companies 'generate large net profits at the expense of their customers – including other sectors in the EU ETS'.[26]

It may be assumed that this 'pass-through' profiteering would at least have one positive environmental side effect – increasing the electricity prices for industrial users, and so helping to limit their output. This has not tended to be the result, however. For the most part, costs are passed through to households and small consumers, whilst the bargaining power of the larger industrial users ensures that they are relatively insulated. These industries are also generously compensated in other ways by the EU ETS, as the Carbon Trust points out: '[T]he tendency to give energy intensive sectors almost everything they project they need, in an attempt to compensate for this [pass-through cost], weakens the incentive effect.' [27]

Playing at the margins

Despite all of these fundamental failings, it has nevertheless been claimed that the EU ETS did result in a few emissions reductions. This argument is based on data showing that the power sector as a whole needed to purchase some credits, and that a few countries, most notably the UK, had a deficit of permits across the whole 2005-2007 period.[28] But it is actually quite misleading to aggregate the results in this way, because the overall shortfall of permits is explained away by a handful of large coal-fired power stations which needed to buy additional pollution rights, while the vast majority of individual installations had a surplus of permits.

25 A. Denny Ellerman and Paul L. Joskow, *op.cit., supra*, note 17, p.16. Windfall profits in part arise from the difference between an 'opportunity' cost (the price permits might be sold for) and an 'acquisition' cost (what the company paid for the permits, which is typically zero at present).

26 The Carbon Trust, *EU ETS Phase II allocation: implications and lessons*, London, May 2007, p.12.

27 *Ibid*.

28 Frank Convery, Christian De Perthuis and A. Denny Ellerman, 'The European Carbon Market in Action: lessons from the first trading period', *MIT Working Paper,* March 2008, pp.30-32. web.mit.edu/globalchange/www/ECM_InterimRpt_Marcho8.pdf

Proponents of the EU ETS argue that flexibility in transfers of permits across national boundaries within the EU and between different sectors is the fundamental strength of the scheme, providing the 'flexibility' for reductions to be achieved at the lowest cost. In practice, though, this has offered an 'escape hatch' for companies in the wealthier nations to avoid making any reductions by buying permits that are overallocated elsewhere.

The effect was relatively understated in the first phase of the EU ETS, because the whole scheme was overallocated, but there was still a significant proportion of cross-border trade. The UK was the largest importer, with a net import of 17 per cent of its EUA permits, while Lithuania was a net exporter of 33 per cent of its surplus to other countries.[29]

In the UK case, the 'shortfall' of permits amounted to a few of the largest and dirtiest power stations needing to reduce emissions or purchase extra allowances. They universally chose the latter route. For example, 'the surrender data for one of the coal-fired power plants in the UK that was most short of allowances show that it acquired permits from long installations in 19 of the 24 other EU Member States'.[30]

The Lithuanian surplus also conceals an instructive story. The EU demanded the closure of Ignalina, a nuclear power plant with a similar design to Chernobyl, for safety reasons. Lithuania responded by claiming that the replacement power generation capacity would come from dirty coal plants instead, and that it should therefore gain extra allowances.[31] By overstating the CO_2 emissions increases that would result from the closure of Ignalina, Lithuania gained a large surplus of permits, which were then sold on and treated as 'emissions reductions' in the UK and other countries.[32]

This problem was compounded by a more general overallocation, as the Lithuanian National Audit Office concluded: 'In Lithuania only 3 installations out of 93 emitted more CO_2 than they received allowances in 2005. Such a situation formed an attitude of Lithuanian enterprises towards the emissions trading scheme as some kind of European Union Assistance, not as an obligation.'[33]

29 R. Trotignon and A. Denny Ellerman, 'Compliance Behavior in the EU-ETS: Cross Border Trading, Banking and Borrowing', 2008, p.9, web.mit.edu/ceepr/www/publications/workingpapers/2008-012.pdf . The UK Parliament's Environmental Audit Committee has pointed out clearly the misleading reporting that follows from this: 'A Defra [Department for Environmernt, Food and Rural Affairs] press release from January 2007, for instance, reported that actual emissions for the whole of the UK were 554.2 $MtCO_2$ in 2005, some 6.4 per cent down on 1990 levels; but that "Adjusted for emissions trading, UK CO_2 emissions in 2005 were about 527 million tonnes – approximately 11 per cent lower than 1990 levels." To reflect the impacts of the EU ETS in this case, then, the Government has subtracted 27 $MtCO_2$ from the actual figures for emissions from the UK for that year. Our first concern here is that buying emissions credits from other countries does not *necessarily* translate into cutting emissions – whether in those countries, or in fact anywhere.' See Environmental Audit Committee, *op. cit., supra*, note 10.

30 Convery et al., *op. cit., supra*, note 28, p.12.

31 Ignalina operates two units, one of which was scheduled for closure between 2005 and 2007, and a second scheduled for closure by the end of 2009.

32 Lithuania saw the opportunity for an even larger loophole in the second phase of the scheme, arguing that a special 'reserve' be allocated for this closure. The EU Commission challenged this aspect of the Lithuanian NAP. In response, Lithuania has taken the EU Commission to the European Court.

33 National Audit Office of the Republic of Lithuania, 'Evaluation of the allocation and trading scheme of greenhouse gas emissions allowances', October 2007, p.11.

Phase 2: surviving the crash test

The most common way to insulate optimistic assumptions about emissions trading from the dismal failure that was the first phase of the EU ETS is to present it as simply a 'trial' or a 'learning by doing' phase, with subsequent adjustments assuring that its limitations will not be repeated.[34] Supporters of the scheme claim that caps are now far tighter – although, as we will show, this claim is disingenuous because the volume of offset credits that can be traded within the scheme is so great that it actually requires no domestic emissions reductions to take place.

Stress is laid on the fact that a market was established, while brushing over the awkward fact that it failed to reduce any emissions. But if you run a crash test and the vehicle collapses in a heap, it is generally unwise to declare this a success and try to drive a larger vehicle faster the next time out. This is however precisely what is happening with the second phase of the EU ETS. Running from 2008 to 2012, the scheme involves five new countries, and some additional sectors – including glass, mineral wool, integrated steelworks and offshore oil and gas flaring. France, The Netherlands and Norway have also included nitrous oxide (N_2O), a greenhouse gas not considered in the first phase of the ETS, in their allocation plans.

Same trick, different phase

It is true that some of the early tricks to help polluters avoid their obligations cannot be repeated. Better data now exists on emissions, making it hard to overstate levels again. But the underlying susceptibility to industry lobbying remains backed up by the 'national interest' that EU governments perceive in setting their caps as low as possible.

Most EU countries continued to allocate allowances based on historic emissions, disproportionately rewarding heavy polluters, while even larger profits are projected from the 'pass-through' of costs in the power sector than in the first phase.[35] Research by market analysts Point Carbon and WWF, for example, calculated that the likely 'windfall' profits made by power companies in phase 2 could be between €23 billion and €71 billion.[36] They also found that these profits tend to be concentrated in 'countries with emissions intensive (coal) plants setting the price the majority of the time', because this implies an assumption that the 'normal' state of affairs is to pollute a lot, and so sets a very loose standard against which all other activity is judged. As a result, the scheme encourages a continued reliance on coal in precisely the countries where proactive structural changes in energy production

34 A. Denny Ellerman and Paul L. Joskow, *op.cit., supra*, note 17; and Commission Draft Directive Jan 2008.

35 Karsten Neuhoff, Markus Åhman, Regina Betz, Johanna Cludius, Federico Ferrario, Kristina Holmgren, Gabriella Pal, Michael Grubb, Felix Matthes, Karoline Rogge, Misato Sato, Joachim Schleich, Andreas Tuerk, Claudia Kettner, Neil Walker, 'Implications of announced phase II national allocation plans for the EU ETS', *Climate Policy*, no. 6, 2006, pp.411-422.

36 Point Carbon, WWF, *EU ETS Phase II – The potential and scale of windfall profits in the power sector,* March 2008, http://assets .panda.org/downloads/point_carbon_wwf_windfall_profits_mar08_final_report_1.pdf. A further report by Ofgem, the UK government regulator, suggested that UK power companies alone would gain GBP 9 billion in windfall profits from the scheme; see National Audit Office, *European Union Emissions Trading Scheme,* NAO, London, March 2009, p.47.

should be made most rapidly to avert dangerous climate change.[37] Far from setting a carbon price that makes coal uncompetitive, then, the EU ETS is supporting a continued reliance upon it as a power source.

New entrants

New Entrant Reserves (NERs) within the EU ETS are supposed to ensure that installations entering the scheme for the first time are not disproportionately affected by it. However, the allocations for new entrants actually allow for significant growth in emissions and expansions in fossil fuel extraction. A study by the UK Carbon Trust found that the NERs of The Netherlands, Belgium and France in the second phase of the EU ETS would allow them to expand their emissions beyond their Kyoto Protocol targets.[38]

The allocation of free allowances to new entrants offers a subsidy to polluters that cleaner energy sources cannot access. The rules set out in some NAPs exacerbate this problem – most notably, in Germany, which offers 'technology-specific' allowances that give new coal power stations about twice as many as gas, and further adds a 'load factor' correction, meaning that the most polluting plants (lignite) are granted an additional 10 per cent more allowances than less greenhouse gas intensive means of fossil fuel based energy production.[39] The UK Carbon Trust has warned: 'This implicit subsidy creates perverse incentives to construct new, high emitting facilities that would last for decades.'[40]

The UK, meanwhile, chose to define 'new entrants' to include 'installation modifications to enhance the recovery of offshore oil and gas reserves'.[41] One of the largest 'new' entrants to date is the Fawley Power Station, which was allocated 3,340,309 permits in 2008 for the second phase of the scheme.[42] The station, which opened in the 1960s, runs on heavy fuel oil – and verified emissions data show that it has received a massive overallocation.[43]

Carbon crunch

The fundamental problem of 'overallocation' remains, and has been exacerbated by the financial crisis. In May 2009, the EU reported that emissions for sectors covered by the scheme were '3.06 per cent lower than the 2007 level', claiming that this was 'partly due to businesses taking measures to cut their emissions in response to the strong carbon price that prevailed until

37 *Ibid.*, p.2.

38 The Carbon Trust, 'EU ETS hits crunch time', 7 November 2006, http://www.carbontrust.co.uk/News/presscentre/2006/071106_euets.htm

39 The Carbon Trust, *op. cit., supra* note 26, p.14.

40 *Ibid.*, p.3.

41 UK Department for Business, Enterprise and Regulatory Reform (BERR) 'New Entrant Reserve (NER) for Phase 1 of the EU ETS (2005- 2007) – Q&A', www.berr.gov.uk/files/file27005.pdf, p.1.

42 See UK Environment Agency, *EU Emissions Trading Scheme: Summary Report on Applications to the New Entrant Reserve for Phase II of the Scheme (2008 – 2012),* 3 August 2009. http://docs.google.com/gview?a=v&q=cache:FlnuAbU2Y0IJ:www.environment-agency.gov.uk/static/documents/Business/090803_Phase_II_NER_Report.pdf+fawley+Summary+Report+on+Applications+to+the+New+Entrant+Reserve+for+Phase+II+of+the+Scheme+(2008+-+2012)&hl=en&gl=uk

43 The EU's official ETS data source, the Community Independent Transaction Log lists an allocation of 706,633 for 2008, compared to verified emisisons of 199,913 – see European Commission, '2008 Compliance Data (extract from CITL 12/06/2009 incl. VE for Bulgaria)', http://ec.europa.eu/environment/climat/emission/pdf/vesu2008public.xls

the economic downturn started'.[44] A closer examination of the numbers shows this to be disingenuous. The EU's figures show an overall reduction in emissions of around 50 million tonnes, but these figures were inflated by over 80 million tonnes of CDM (and a few JI) credits. In other words, more than the entire claimed 'reduction' was covered by carbon offsets generated by projects outside of Europe.

The repeated failure of the scheme was exacerbated by the economic downturn. A price collapse in early 2009 was triggered by the expectation that the number of permits would again exceed the need to reduce emissions. EUA prices peaked at €31 in the summer of 2008, then crashed to €8 in February 2009 before recovering slightly (to around €14 in September 2009).

What happened, in essence, was that allocations for the second phase of the scheme were made on the assumption that European economies would keep growing. The recession has reduced output and power consumption, leaving companies with a surplus of permits. Since these were mainly given out for free, the net effect is directly opposite to the scheme's intention: polluting industries are offered a lifeline in the form of the option of cashing in their unwanted permits, while the supposed 'price signal' that is meant to change their polluting ways has been neutered.[45]

44 EU Commission (DG Environment), 'Emissions trading: EU ETS emissions fall 3 % in 2008', 18 May 2009, http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/794&format=HTML&aged=0&language=EN&guiLanguage=en

45 The option to 'bank' permits means that some traders will see an advantage in buying at the current low prices, even if there are relatively few companies who need to buy to meet the present requirements of the cap.

Offsetting as overallocation

The economic circumstances surrounding the price collapse in early 2009 should not distract from the more fundamental problems of overallocation that remain. As the UK's National Audit Office found, 'The maximum level of allowable emissions within the EU is higher than the cap' once offset credits are taken into account.[46] According to Michael Wara of Stanford University, 'European-based polluters are likely to buy so many permits from carbon-reduction projects based outside the trade bloc that industries will have emitted roughly 1 percent more in 2008 than they did in 1990.'[47]

As we will see in more detail in chapter 4, the claimed reductions achieved by these offsets are routinely based on unprovable hypothetical scenarios and take little account of the negative social or environmental impacts of the development model within which they are embedded.

Once again, the problem starts with the allocation of permits themselves. The UK's National Audit Office calculates that 'in relation to 2005 verified emissions, the maximum use of project credits in phase 2 as set out in approved National Allocation Plans would result in an increase in emissions of seven per cent'.[48]

46 UK National Audit Office, *op. cit., supra*, note 36, p.19. Other policy measures can also inflate the cap for EU ETS sectors. For example, The Netherlands argued that it would meet a significant proportion of its reductions by increasing the proportion of biofuels used in road transport.

47 James Kanter, 'Do Carbon Offsets Cause Emissions to Rise?', *New York Times*, 8 May 2009, http://greeninc.blogs.nytimes.com/2009/05/08/do-carbon-offsets -cause-emissions-to-rise/#more-8281

48 UK National Audit Office, *op. cit., supra*, note 36, p.19.

Officially, EU rules state that each country should demonstrate that its plans to purchase CDM or JI credits is consistent with the principle that the majority is 'supplemental to domestic action' rather than simply replacing it outright. They also state that a high government purchase of CDM and JI credits should be taken into account when establishing the rules for individual installations within the country. However, these criteria were routinely flouted by both EU governments and the EU itself in agreeing National Allocation Plans for phase 2 of the scheme.

Take the example of The Netherlands, which is one of the most active government purchasers of CDM credits within the EU.[49] In its NAP for 2008-2012, The Netherlands stated its intention to purchase 20 million tonnes of offset credits every year towards its reduction target.[50] This would be equivalent to outsourcing all of its emissions reductions commitments during that period.

Further guidance on NAPs states that the level of government purchases of Kyoto credits should be taken into account when setting the rules governing individual installations. In its response to the Dutch NAP, the EU calculated that The Netherlands had reached the maximum level allowed, and that were Dutch-based companies allowed to buy further offsets this would allow for more reductions to be imported than the level of the cap itself.[51] Having drawn this conclusion, the EU nevertheless concluded that 'the general importance of promoting the international carbon market' was more important than the environmental integrity of the scheme, and granted Dutch companies the right to purchase further offset credits (up to a limit of 10 per cent of their emissions) anyway.[52]

As a result, the Dutch government has achieved a 'reduction target' that allows emissions within The Netherlands to continue increasing. This was achieved in three stages. First, the Dutch government has planned to cover the whole of its emissions reduction commitment by purchasing offset credits. Second, it then allows Dutch-based companies to buy offset credits too. Third, the limit for offset purchases by these companies is 10 per cent, but the Dutch reduction commitment for the 2008-2012 period is only 6 per cent.[53] The Dutch case is by no means an isolated example, and shows how the 'caps' in phase 2 remain so loose that emissions within Europe could continue to increase. Given the circumstances of the economic downturn, it also allows for the possibility that a surplus of permits and credits that enter the scheme in phase 2 could be 'banked' to ensure that the EU's post-2012 targets far easier to attain.

49 There is a notable conflict of interest here, as the head of CDM purchasing at the Dutch Ministry of Housing, Spatial Planning and the Environment (VROM), Lex De Jonge, is also the head of the CDM Executive Board which is responsible for issuing credits.

50 The Netherlands' Ministry for Economic Affairs and Ministry for Housing, Spatial Planning and the Environment (VROM), 'Netherlands national allocation plan for greenhouse gas allowances 2008-2012', p.10.

51 European Commission (DG Environment), 'Commission Decision of 16 January 2007 concerning the national allocation plan for the allocation of greenhouse gas emission allowances notified by The Netherlands in accordance with Directive 2003/87/EC of the European Parliament and of the Council', p.15.

52 *Ibid*.

53 The '10 per cent threshold' specifies the volume of emissions that can be exchanged for offsets. While figures vary greatly per installation, this is higher than the average 6 per cent reduction required across The Netherlands.

All shall have prizes

Underlying the overall surplus of permits, there remain significant differences between sectors regarding the generosity of allocations. The UK National Allocation Plan provides a clear example, explaining that '[t]he reduction in allowances against business as usual will be borne entirely by the Large Electricity Producers...[since] this sector is relatively insulated from international competition and can pass on the cost of carbon to consumers'.[54] A similar pattern of allocation can be observed across all 27 EU states. The flip side of this is that every other sector gets a virtually free ride.

It makes more sense, then, to view the EU ETS as two parallel schemes: one that encourages the power sector to buy extra allowances – which, as we have seen, passes the notional cost on to consumers to generate large profits for the energy companies – and another that awards a large surplus of free permits to heavy industry, requiring no emissions reductions but allowing them to sell permits back to the power sector to generate large profits.[55]

With the majority of permits still allocated for free, the EU ETS is effectively providing a subsidy stream for highly polluting industry. The example of ArcelorMittal, the world's largest steelmaker and the holder of the greatest surplus of EU ETS permits, is instructive. The EU's own data on emissions showed that ArcelorMittal's verified emissions increased by 6.7 per cent in 2006 and by 15.5 per cent in 2007, with a downward trend of -8.4 per cent in 2008 due to the economic crisis. Yet whether its emissions increased or decreased, the fact that it was awarded massively more permits than it would have needed even to begin reducing emissions remained a constant: a 36.9 per cent overallocation in 2005, 26.9 per cent in 2006, 25 per cent in 2007 and 31.7 per cent in 2008.[56]

The main economic benefit here is more straightforwardly linked to the price at which EUAs sell, since ArcelorMittal has no use for this excess of permits to abate its own emissions and is unlikely to do so at any point soon. Corporate Europe Observatory analysed this data, relating the surpluses to actual EUA prices, and found that the company is likely to have made over €2 billion in profits from the EU ETS between 2005 and 2008, with over €500 million of this achieved in 2008 alone – yet has needed to make no proactive changes to its emissions to do so.[57]

The contrast between ArcelorMittal's allocation and its emissions in 2009 is certain to be even more stark, with the company making temporary plant closures across much of Europe. Such closures, which hurt the company's workers to protect its shareholders,

54 UK Department for Environment, Food and Rural Affairs (DEFRA), *EU Emissions Trading Scheme, Approved Phase II National Allocation Plan 2008-2012* p.11. The production of the UK's NAP was the responsibility of DEFRA in consultation with the Department of Trade and Industry.

55 In 2008, the power sector was the major purchaser of credits, while steel, iron ore, pig iron, paper, cement, glass and ceramic products remained considerably overallocated – by 28 per cent in the case of ceramics, pig iron and steel. European Environment Agency, 'European Union Emissions Trading Scheme (EU ETS) data viewer', http://dataservice.eea.europa.eu/PivotApp/pivot.aspx?pivotid=473

56 D. Leloup, 'Analysis of ArcelorMittal EU ETS Data', 16 May 2009, https://spreadsheets.google.com/ccc?key=pl52s4qQrteOKP6fVq6vYFg

57 Corporate Europe Observatory, 'Steel idol with green feet of clay: ArcelorMittal, biggest profiteer of the EU Emission Trading Scheme', May 2009.

currently count within the EU ETS as a 'mitigation' strategy, meaning that Arcelor-Mittal's receives exactly the same number of permits for 2009 as it would if its plants were operating to full capacity. Yet, clearly, a programme of temporary cutbacks does nothing to restructure the company's output so that it might contribute to a cleaner, less fossil fuel-dependent future.

Here, again, a large part of the explanation lies with the fundamental susceptibility of carbon trading to the influence of corporate lobbyists. Strong steel lobbies had tilted the balance of permit allocations, persuading governments to award more to steel companies and less to utilities, an EU official told Reuters press agency.[58] One industry analyst was more blunt in their assessment: 'The steel sector has received more permits than it should have... Steelmakers are using the EU Emissions Trading Scheme (EU ETS) as a cash cow.'[59]

Phase 3: more of the same?

In December 2008, the EU agreed significant changes to the EU ETS for the third phase of the scheme, which runs from 2013 to 2020. New rules set a formal limit on the use of offset credits; the NAPs have been scrapped in favour of an EU-wide allocation; and a far greater use of auctioning was envisaged.

These changes have been promoted as a further tightening of the cap, with the suggestion that this should force greater reductions as well as pushing carbon prices up to a level that would induce a shift towards low carbon technologies. Yet a closer look at how the rules are being set shows that significant loopholes remain with a number of new ones introduced for the first time. The banking of surplus credits from the second phase; rule-waivers for sectors exposed to international competition (or 'carbon leakage' in the jargon); the ability to trade offset credits widely in non-ETS sectors as part of a new Effort Sharing agreement; the inclusion of a series of new sectors, including aviation; the broadening of the scheme to include the full range of greenhouse gases; and the increasing complexity of the financial instruments, futures markets and derivatives through which carbon is traded – all point towards the continued existence of massive holes in the cap.

Banking

The third phase of the EU ETS is in significant trouble before it has even begun. The ability to bank permits left unused in phase 2 without limits means that phase 3 could start with a significant surplus. Projections based on 2008 data from the EU show that industrial sectors have been massively over-allocated – the cap having been set according to projected growth prior to the recession. These assumptions are reflected in the New Entrants Reserve, which is an allocation of permits set aside for installations that are entering the scheme for the first time. This reserve covers new factories and power stations, but also includes capacity increases at existing sites.[60] With the economic

58 Michael Szabo 'EU steel reaps $1.5 bln benefit from carbon trade' *Reuters*, 9 April 2009, http://www.reuters.com/article/latestCrisis/idUSL9933905

59 'EU mills selling carbon permits as production falls', *Metal Bulletin*, 27 April 2009, http://www.metalbulletin.com/Article/2187660/Iron/EU-mills-selling-carbon-permits-as-production-falls.html

60 UK Department for Business, Enterprise and Regulatory Reform (BERR), *op. cit., supra*, note 41.

downturn delaying such projects, this reserve now offers a significant surplus that can simply be rolled forward. An analysis by Sandbag, a campaigning organisation in favour of the EU ETS but arguing for rule changes within it, estimates that there could be up to 700 million surplus permits by the end of phase 2 – equivalent to 14 times the 'reduction' claimed by the EU in 2008.[61] If companies decide to purchase offset credits and 'bank' the surplus of credits for a later phase of the scheme as well – which would currently be the cheapest option for compliance – this permit surplus could be supplemented by over 900 million more surplus offset credits. The 'bankability of permits and credits means that nearly 40% of Phase 3 effort could be met by carry-over from Phase 2', concludes the Sandbag study. This would mean that 'the ETS will not require domestic emissions reductions for the next seven years.'[62]

Sharing the offsets

The inclusion of carbon offsets in the EU ETS also remains a more general problem. Although the EU has set a formal limit of 50 per cent on the use of CDM and JI credits for the third phase of the scheme, this is a poor measure of the quantity of European emissions reductions that are likely to be outsourced, since the ability to bank credits from phase 2 of the scheme can inflate this number. In addition, new EU rules called the Effort Sharing Decision allow companies operating in sectors outside of the EU ETS to make significant use of offsets to avoid making reductions domestically. Using European Commission data and policy statements, the NGO FERN calculated that the actual emissions reduction required within the EU between 2013 and 2020 is just 3.9 per cent compared to 2005 levels, with nearly 60 per cent of this figure coming from offsetting.[63] As a result, the EU looks set to remain a major driver of demand for the creation of such projects.

Linking the holes

A formal limit on offsets is only as strong as the weakest link in the chain of linked markets, and one of the key stated aims of EU climate policy is to connect its EU ETS with other carbon markets to form an OECD-wide carbon market by 2015. At present, EU rules exclude certain types of credits from the scheme – including those from Land Use, Land Use Change and Forestry (LULUCF), and from hydroelectricity projects that do not comply with World Commission on Dams guidelines. Yet, as an EU Parliament

61 Anna Pearson and Bryony Worthington, *EU ETS S.O.S: Why the flagship 'EU Emissions Trading Policy' needs rescuing* Sandbag, London, July 2009, p.4.

62 *Ibid.*, p.14.

63 FERN, 'Reducing Emissions or Playing with Numbers?' *EU Forest Watch*, March 2009. This is broadly consistent with an earlier estimate by the Climate Action Network Europe, which found that a 3.5 per cent reduction would be required EU-wide by 2020, with around two-thirds (65.7 per cent) able to be met by the purchase of offset credits outside the EU. See CAN Europe, 'Effort Sharing Proposal: Background Briefing', 8 December 2008, http://www.climnet.org/Effort%20Sharing%20BRIEFING.pdf. A further calculation by Greenpeace calculated the overall reduction as being less than 3.5 per cent, and the proportion of offsets as 72 per cent. Greenpeace, 'MEPs must exercise their democratic power and reject the EU's 'effort sharing' law', Brussels, 16 December 2008, http://www.greenpeace.org/raw/content/eu-unit/press-centre/reports/MEPs-must-exercise-democratic-power.doc. The net result is to undermine significantly the EU's claim that it intends to reduce 20-30 per cent of its emissions by 2020 (which, in turn, is already insufficient compared to the scale of reductions that climate science suggests is required):

report admits, the linking of carbon markets opens the way for credits formally excluded from the EU scheme to enter it by the back door, 'administrators would never be able to tell whether an incoming allowance has maybe been freed up by use of an external trading unit which they themselves would not accept for compliance.'[64]

The Waxman-Markey American Clean Energy and Security Act of 2009, which is progressing through the US Congress at the time of writing (September 2009), would allow for 2 billion tonnes of offsets per year, with up to 1.5 billion of these able to be generated by international projects. This is roughly equivalent to 27 per cent of US greenhouse gas emissions – which could help the US to avoid domestic emissions reductions until 2026. Were the US and EU markets to be joined up, this could open the way for ranching and landfill projects, for example, in the US to be rendered equivalent to reductions made in the EU.[65]

The potential linkage between the EU scheme and a proposed Australian Carbon Pollution Reduction Scheme (CPRS) offers another example of how the EU's 50 per cent offset limit could easily be circumvented. The CPRS sets no threshold on the inclusion of offsets – allowing for 100 per cent of reduction commitments to be met by offsetting. The resulting surplus of credits within the Australian scheme could then simply be sold on to the EU or US.[66]

The carbon leakage myth

The new holes introduced as part of the EU's Climate and Energy Package also include a series of rule waivers for coal-dependent Central and Eastern European states; and for industrial producers who claim that making emissions reductions would render their products uncompetitive.

Although the EU claims that the scheme will now be allocated predominantly by auctioning rather than free allocation (known as 'grandfathering'), the remaining scope for the free allocation of allowances remains significant. Initial results suggest that over half of the 258 industrial sectors assessed so far will be counted as at risk of significant exposure to international competition, and therefore eligible for free permits.[67]

A further provision allows EU member states to 'temporarily compensate certain installations... for costs related to green-

64 Ralf Schüle and Wolfgang Sterk, 'Options and Implications of Linking the EU ETS with other Emissions Trading Schemes', March 2008, p.12, www.europarl.europa.eu/activities/committees/studies/download.do?file=19802. The report authors suggest that fixed exchange rates or rule harmonisation could avoid this problem, but the rules for currently proposed and active schemes suggest that neither possibility is likely.

65 Payal Parekh, 'Waxman-Markey Bill: No Cuts until 2026', *International Rivers*, 15 April 2009. http://internationalrivers.org/en/blog/payal-parekh/waxman-markey-bill-no-cuts-until-2026

66 An amendment proposed in the course of passing the Australian scheme through the country's Senate illustrates one way that such a process might work – proposing the inclusion of controversial 'soil-based carbon storage' into the scheme, which could then be exported as offsets to the US to generate revenues additional government revenues of up to Aus$2 billion per year. Tom Arup, 'Single-desk carbon trade "could earn billions"', *Sydney Morning Herald,* 31 July 2009. At the time of writing (September 2009), this particular amendment has been blocked, and negotiations on the Australian scheme remain deadlocked.

67 'Huge array of sectors to get free ETS allowances', ENDS Europe Daily, 8 May 2009; see also http://ec.europa.eu/environment/climat/emission/carbon_en.htm

house gas emissions passed on in electricity prices,'[68] adding a potentially large source of new subsidies for some of the most polluting industries.

These concessions were introduced as a means to avoid 'carbon leakage' – the risk that capping emissions in the EU could lead to net increases in emissions.[69] If industry decides to relocate from the EU to countries like India and China where there is no cap – so the argument runs – the net effect will be to increase emissions, since the energy intensity of industrial production in those countries tends to be higher.

Even though 'leakage' could in theory become a problem, the level of concern within EU policy and lobby circles is out of kilter with the extent of the problem – whilst ignoring the most salient factors affecting industrial outsourcing decisions.

Producers of steel, cement and aluminium are among those lobbying most heavily on the 'leakage' question, yet a 2008 International Energy Agency study found that '[t]he EU emissions trading scheme (EU-ETS) has not, so far, triggered observable carbon leakage' in these sectors.[70] This finding was backed up by a further study of the first phase of the EU ETS, which found no evidence 'demonstrating a correlation between European carbon prices and a loss of competitiveness' in the cement, refining, iron and steel, paper and pulp, petrochemicals, glass, or aluminium sectors.[71] Such a pattern is likely to continue, since carbon prices remain a relatively marginal factor in infrastructure investment decisions.[72]

In the steel sector, the EU's own evidence suggests that 'the economics of blast furnace operation [favour] production close to where raw materials are situated'.[73] Insofar as there have been shifts in industrial production, these have tended to favour port locations for cheaper access to materials mined in the South, rather than a shift to facilities outside of Europe itself.[74]

While there has been a long-term trend towards relocating industry from the EU to the South, this has been driven by the liberalisation of international trade, and reductions in the marginal cost of international aviation and shipping – in which the continued availability of unsustainably cheap fossil fuels has remained a key factor.[75]

The main function of the 'leakage' argument has been to enable heavy industry to introduce significant loopholes in both the stringency of the caps and the allocation of free emissions permits. In the third phase of the EU ETS, this included a coordinated campaign

68 European Union, 2009, *op. cit., supra*, note 4, Article 27.

69 Juua Renaud, *Climate policy and carbon leakage: impacts of the European Union Emissions Trading Scheme on Aluminium,* OECD/IEA, Paris, 2008 p.2.

70 Juua Reinaud, *Issues behind Competitiveness and Carbon Leakage,* OECD/IEA October, Paris, 2008, p.4.

71 Convery et al., *op. cit., supra*, note 28, p.21.

72 This relative insignificance results from a combination of low prices and volatility, a pattern that is unlikely to change because the underlying commodity – 'carbon' – is itself highly unstable. Indeed, this volatility may grow worse under phase 3 of the EU ETS as non-CO_2 gases enter the system in increased numbers, and new, more complex carbon derivatives continue to emerge.

73 EU Commission (DG Energy and Transport), *The Market for Solid Fuels in the EU in 2004-2006 and Trends in 2007,* Brussels, 2008, p.16, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008SC2870:EN:NOT

74 This is the strategy favoured by ArcelorMittal, for example, which has focused new investments at coastal locations. See http://www.arcelormittal.com/index.php?lang=en&page=545

75 Vaclav Smil, *Energy at the Crossroads: Global Perspectives and Uncertainties,* MIT, London, 2003

from most key sectors of European industry.[76] 'The real agenda of companies like Mittal/Arcelor and Lafarge is to get completely off the hook from EU climate change efforts,' says Green MEP Claude Turmes.[77]

Nor is this a line of attack that is restricted to the EU. Industry lobbyists in Australia have been shown to be similarly disingenuous in their claims about carbon leakage.[78] In the US lobbyists have also used arguments about 'leakage' and, more straightforwardly, a loss of 'international competitiveness' to win a string of concessions in the Waxman-Markey Bill.[79]

What lies at the root of the 'leakage' argument is an idealised conception of 'free competition' that is out of kilter with how corporations (or, indeed, national economies) actually behave. Yet it is strongest in sectors where competition itself is weak – including in cement, steel and petrochemicals, where a few major transnational companies dominate the market. In sum, the leakage argument has been used as a coordinated effort to ensure that the 'cap' on carbon emissions remains full of holes.[80]

Aviation

The inclusion of aviation in the EU ETS from 2012 represents a further significant expansion of the scheme. The EU incorporated aviation in the EU ETS with a baseline calculated from 2004-2006 emissions, rather than 1990 as with the rest of the scheme. The use of later data means that the aviation industry can avoid taking responsibility for the boom in aviation post-1990, which has been driven forward by the advent of 'low frills' airlines in the EU.[81]

76 The Key Stakeholders Alliance for EU ETS Review, 'Lowering Production is no Benefit for the Environment, says European Industry', Brussels, 21 May 2007. The group consisted of lobbies from CEFIC (chemical industry), CEMBUREAU (cement), CEPI (paper), CERAME-UNIE (ceramics), CPIV (glass), EULA (lime), EUROCHLOR (chlor-alkali), EUROFER (iron and steel), EUROMETAUX (metals), IFIEC (industrial energy consumers), who were critical of even the possibility that 'reducing production volume' should be considered as a mitigation strategy.

77 Claude Turmes, 'Wolf or sheep? – myth and realities behind energy intensive industry lobby efforts to dilute the EU climate package', *EurActiv*, March 2008, http://www.euractiv.com/29/images/Turmes%20European%20Spring%20Council%202008-Background_tcm29-170918.doc

78 Ross Gittins, 'Carbon trading: big business vote of no confidence in itself', *Sydney Morning Herald*, 25 August 2008.

79 The 'leakage' argument has been raised by a broad range of industries and associations in the US, including (but not limited to) the USCAP coalition of NGOs and businesses, and the steel sector. See USCAP, 'Issue overview: energy intensive industries', 15 January 2009, http://www.us-cap.org/blueprint/issuebriefs/energy.asp; Robert Guy Matthews, 'Steel braces for impact', *Wall Street Journal*, 22 May 2009, http://online.wsj.com/article/SB124286482447141439.html#articleTabs%3Darticle. In Europe, some of the most intensive lobbying on the issue came from German chemical industry. BASF, the largest player in this market, has also carried 'leakage' concerns across the Atlantic. See Wolfgang Weber, BASF 'Industrial Competitiveness Under Climate Policies: Lessons from Europe: statement to the United States Senate Committee on Foreign Relations', 8 July 2009, foreign.senate.gov/testimony/2009/WeberTestimony090708p.pdf

80 Were 'carbon leakage' actually to become a significant problem, another means to tackle it might be to impose import tariffs. It is notable that the US has proposed this type of measure in July 2009 in the course of negotiations for a global carbon treaty. Although there are circumstances where such tariffs might be appropriate on environmental grounds, a strong argument can be made that these should be weighed against the relative contributions of different states to causing climate change – see Martin Khor, 'Moves to tax South's imports on climate grounds are unfair', Third World Network, August 2009, http://www.twnside.org.sg/title2/climate/briefings/Bonn04/TWN.BP.Bonnaugust1.doc

81 Alice Bows and Kevin Anderson, *A bottom-up analysis of including aviation within the EU's Emissions Trading Scheme,* Tyndall Centre Working Paper 126, Tydall Centre for Climate Change Research, Manchester, November 2008, p.18.

Beyond this, it is highly implausible that a carbon price will affect investment decisions in the aviation sector. A Tyndall Centre study found that the likely price of carbon would add fewer than four cents to a litre of kerosene – a level that is far lower than the tax breaks afforded for aviation fuels by EU governments.[82] The same study concludes that carbon prices would have to rise to a level of between €100 and €300 per tonne to have any significant impact on the continued expansion in aviation, conceding that even this might remain 'insufficient'. This is an order of magnitude beyond all estimates of future carbon prices – and, in the exceedingly unlikely event that the price moved towards these levels, the record of existing lobbying around emissions trading suggests that significant pressure from aviation (and other industries), which could either force an upper price cap on the scheme or equivalent exceptions and subsidies.[83]

There is one major effect that the inclusion of aviation in the EU ETS is already having, though – giving proponents of aviation ammunition in their efforts to expand the sector. The UK government, for example, argues that emissions increases that would result from the planned expansion of London's Heathrow Airport will be offset by the purchase of EU ETS permits from other sectors.[84]

Finally, the treatment of aviation within the EU ETS clearly demonstrates how the need for a single tradable commodity (carbon) obscures differential environmental impacts. Emissions from aviation arise from CO_2, as well as significant amounts of nitrogen oxide, water vapour, sulphate and soot particles, and their impact is compounded by the formation of contrails. Some studies show these combined impacts to be far greater than the impact of CO_2 alone, yet the EU ETS would tackle only CO_2 emissions from aviation (even when the scheme as a whole is extended to these other gases).[85] In effect, the carbon market provides a means to 'offset' aviation with a series of cheaper reductions in CO_2 emissions in other sectors – but the environmental impacts are vastly different.

82 *Ibid*.; Transport and Environment, *Including Aviation in the EU's Emissions Trading Scheme (EU ETS)*, June 2008, p.6. In the UK alone, the zero tax and VAT-free status of aviation fuel amounts to an estimated GBP 10 billion per year. See World Development Movement, *Dying on a Jet Plane,* March 2007, http://wdm.gn.apc.org/sites/default/files/dyingonajetplane19032007.pdf

83 On aviation lobbying around the EU ETS, see Corporate Europe Observatory, 'Climate Crash in Strasbourg: An Industry in Denial. How the aviation industry undermined the inclusion of aviation in the EU Emissions Trading Scheme', December 2008, archive.corporateeurope.org/docs/climatecrash.pdf

84 See remarks of Ed Miliband, Secretary of State for Energy and Climate Change, Debate on Aviation, UK House of Commons, 23 April 2009, http://www.publications.parliament.uk/pa/cm200809/cmhansrd/cm090423/debtext/90423-0002.htm

85 European Union, 'Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community', 13 January 2009, article 19. The EU suggests that its own research 'indicates that the total climate impact of aviation could be around two times higher than the impact of carbon dioxide alone' and notes 'highly uncertain cirrus cloud effects'. Claiming not to know how to account for these emissions, the EU adopts what it calls the 'precautionary principle' of taking no account of them at all in its calculations.

New sectors, new gases, greater complexity

From 2013, the EU ETS plans to expand to cover more greenhouse gases, taking the UNFCCC definition of this term as its guide.[86] Aside from aviation, it plans to additionally cover a range of other new sectors, most significantly aluminium and a range of chemical industries which emit non-CO_2 greenhouse gases.[87]

At the outset, the EU ETS was limited to CO_2 emissions from large fixed sources (especially the power sector) in order to reduce the uncertainty of calculations. The rationale behind this decision was to ensure that the marginal, year-on-year reductions that the scheme sought should be greater than the margin of error in measurement. This objective is far from being met, and while it is true that the effectiveness of any policy measure (whether or not it involves trading) is subject to robust measurement, a market-based scheme exacerbates the problem.[88] In a system where each installation had fixed targets, for example, measurement problems could be isolated and ring-fenced. A flexible, market-based mechanism, however, allows the worst cases to generate excessive credits which can then be sold on as equivalent to reductions elsewhere. Moreover, treating such gases as equivalent reductions abstracts from how and where those changes are made.

This is not merely a theoretical problem, as the example of the CDM shows. The largest number of credits under this system has not come from supposed CO_2 reductions, but from projects that claim to reduce HFC23, a potent greenhouse gas used for refrigeration. Since it is relatively cheap *and* easy to reduce this gas, such projects proliferated as a means to avoid having to make more expensive abatements. An investment of around US$ 100 million yielded US$ 4.6 billion in profits for HFC plants, according to a study in *Nature*.[89]

The result is the addition of a new loophole in the EU ETS: where power producers (the main purchases of carbon permits) could previously purchase from overallocated industries or buy CDM credits, they will now also have the potential to purchase extra permits through a series of cheap non-CO_2 reductions.

There is a significant chance that many of these will not be reductions at all. Once multiple gases are introduced in the same scheme, the norm is to use 'conversion factors' to calculate reductions in terms of 'CO_2 equivalence.' These factors vary over time, however, and changes can result in large volumes of 'reductions' appearing at the stroke of a pen. The measurement process itself is also highly imprecise and is conducted by proxy rather than directly. For example, a

86 This UNFCCC currently recognises six greenhouse gases, but further highly potent F-gases could be added under terms of a new global climate agreement.

87 For a full listing see European Union, 2009, *op. cit., supra*, note 4, Annex I, pp.3-7.

88 The uncertainty of calculations ranged from 4 to 21 per cent. Suvi Monni, Sanna Syri and Ilkka Savolinen, 'Uncertainties in the Finnish Greenhouse Gas Emission Inventory', *Environmental Science and Policy*, no. 7, 2004, pp.87-98.

89 Michael Wara, 'Is the global carbon market working?' *Nature,* 8 February 2007.

study in Finland found that measurements relating to nitric acid production – the most significant of the non-CO_2 greenhouse gas sources by volume – were 'the most uncertain industrial source category with an uncertainty of -60 [to] +100%'.[90]

Expanding the EU ETS to other gases makes sense from the point of view of carbon traders – for whom a more 'liquid' market with larger trading volumes is liable to yield greater potential profits. Yet it makes the 'carbon' that is traded a still more unstable commodity. The uncertainties involved in comparing these processes are overlooked in order to ensure that a single commodity can be constructed and exchanged.

As the market matures, even this set of equivalences will become harder to measure. The EU ETS is already witnessing the development of more complex carbon market products, which package together permits and credits from several installations, then slice these up and resell them. In essence, this is the same structure that brought the derivatives market to its knees, and the same problem: carbon markets involve the selling of a product that has no clear underlying asset – fertile conditions for the creation of a new 'bubble'. Not only do traders not know what they are selling, but it becomes increasingly meaningless to talk about 'emissions reductions' in this context, since what is reduced on paper is so far removed from any process of any measurable change in industrial practice or energy production.

Conclusion

A failure to cap emissions once might be considered an accident, and twice a coincidence – as the saying goes – but a third failure starts to look like a consistent trend. In this chapter, we have shown empirically that the EU's Emissions Trading Scheme is not living up to its billing as a means to reduce carbon emissions.

In phase 1 of the scheme, too many permits were in circulation as a result of over-generous allocations across the board. This problem has been repeated in the second phase of the scheme, with the ability to trade emissions within the EU for offset credits from outside the trading bloc the main means of over-allocation. In both cases, the free allocation of permits to the power sector, coupled with the ability to pass greater costs to consumers than have been incurred in purchasing permits, has resulted in significant profits, while 'competitiveness' concerns have seen polluting industries materially benefit from a scheme which, far from 'capping' their emissions, offers them a new source of subsidies. In the third phase of the EU ETS, some of these loopholes may be closed, but the increasing complexity and international linking of the European with other carbon markets means that others will be opened – allowing emissions 'reduction' permits to continue circulating without a significant need actually to reduce emissions domestically.

90 Suvi Monni, 'Uncertainties in the 200 Finnish Greenhouse Gas Emission Inventory', VTT Working Paper no. 5, 2004, p.19.