

EU Emissions Trading System: failing at the third attempt

Emissions trading is the European Union's flagship measure for tackling climate change, and it is failing badly. In theory it provides a cheap and efficient means to limit greenhouse gas reductions within an ever-tightening cap, but in practice it has rewarded major polluters with windfall profits, while undermining efforts to reduce pollution and achieve a more equitable and sustainable economy. The third phase of the scheme, beginning in 2013, is supposed to rectify the "teething problems" that have led to the failures to date.

This briefing shows that:

- The EU Emissions Trading System (ETS) has failed to reduce emissions. Companies have consistently received generous allocations of permits to pollute, meaning they have no obligation to cut their carbon dioxide emissions. A surplus of around 970 million of these allowances from the second phase of the scheme (2008-2012), which can be used in the third phase, means that polluters need take no action domestically until 2017. Proposals to curtail this surplus were discussed in the context of the EU's 2050 Roadmap, but have been watered down in response to lobbying from energy-intensive industries.
- Companies can use 1.6 billion offset credits in phases II and III, mostly derived from the UN's Clean Development Mechanism. Over 80 per cent of the offsets used to date come from industrial gas projects, which EU Climate Action Commissioner Connie Hedegaard admits have a "total lack of environmental integrity." The Commission delayed a ban in the use of these industrial gas offsets to April 2013 in response to lobbying from the International Emissions Trading Association (IETA) and others.
- The ETS is a subsidy scheme for polluters, with the allocation of permits to pollute more closely reflecting competition policy than environmental concerns. Power companies gained windfall profits estimated at €19 billion in phase I, and look set to rake in up to €71 billion in phase II. Subsidies to energy-intensive industry through the two phases could amount to a further €20 billion. This has mostly resulted in higher shareholder dividends, with very little of the windfall invested in transformational energy infrastructure.
- The third phase of the ETS will still see significant subsidies paid to industry, despite the auctioning of permits in the power sector. Industry lobbying has resulted in over three-quarters of manufacturing receiving free permits, which could yield at least €7 billion in windfall revenues annually. Energy companies successfully lobbied for an estimated €4.8 billion in subsidies for Carbon Capture and Storage (CCS), with a smaller amount for "clean" energy that includes agrofuels. In addition, the Commission is undertaking a review of its "state aid" rules which could see the granting of direct financial subsidies to companies claiming that the ETS damages their competitiveness.
- The allocation of permits according to performance "benchmarks" was supposed to encourage a fairer and more efficient division of responsibility for emissions reductions in energy-intensive sectors such as cement, steel, paper and glass. But industry has been allowed to influence the benchmarking. For example, CEMBUREAU (the cement industry lobby) was instrumental in choosing what to measure ("clinker" not cement) and how to measure it. The final agreement saw the adoption of a lax standard that was initially proposed by CEMBUREAU. This will result in a surplus of pollution permits for the cement sector, allocated in a way that rewards the continued use of dirty and outdated production methods.
- Aviation will be included in the scheme from 2012. The sector will receive 85 per cent of permits for free, and the projected carbon cost is far lower than the equivalent tax breaks for aviation fuel. Inclusion in the ETS applies only to CO₂ emissions, which obscures the greater impact of contrails and other gases.

Put simply, the third phase of the ETS will continue the same basic pattern of subsidising polluters and helping them to avoid meaningful action to reduce greenhouse gas emissions.



Photo: Ben (flickr.com/people/mrbenn)

A cap that does not fit

The Emissions Trading System (ETS) is the European Union's flagship climate policy, and has created by far the largest carbon market in the world. The basic idea is that it sets an overall legal limit on the CO₂ emissions of over 11,000 power stations and factories covered by the scheme, which operates in 30 countries and accounts for almost half of the EU's CO₂ emissions.¹ Each "installation" then receives permits to pollute, which are known as European Union Allowances (EUAs). In theory, a scarcity of these permits should encourage their price to rise, making it more expensive to pollute and so encouraging emissions reductions.

The scheme has not worked this way in practice, however. The first phase, which ran from 2005 to 2007, saw too many permits handed out – with an overall surplus of 267 MtCO₂e (Megatonnes Carbon Dioxide Equivalent, the internationally recognised measure of greenhouse gas emissions), or about 4 per cent of the total emissions covered by the scheme. In other words, the 'cap' did not cap anything and the price collapsed.

A large surplus of pollution permits makes it possible for emissions increases to continue without significant costs to industry

The European Commission claimed that the second phase, from 2008 to 2012, would usher in genuine reductions, and has stated that a lower level of recorded emissions in ETS sectors in 2008 and 2009 showed the scheme was working.² Emissions from installations covered by the scheme fell by 11.6 per cent in 2009 (a drop of 246 MtCO₂e), having fallen by around 5 per cent in 2008.³ But this needs to be set against falls in production of electricity and industrial goods of 13.85 per cent in 2009 as a result of the recession.⁴ Less production results in fewer emissions – which can hardly be claimed as the results of a successful policy. In fact, the allocation of ETS permits in 2009 was 159.5 MtCO₂e higher than the actual level of emissions, roughly equivalent to the annual emissions of Spain. The cap still did not fit.

Figures for 2010 show that emissions rose by over 3.5 per cent in 2010, compared to 2009 levels. The allocation of permits under the scheme was 3.2 per cent (57.4 MtCO₂e) higher than the actual emissions measured from installations covered by it.⁵ In other words, the cap was ineffective yet again. The large surpluses of permits already circulating within the scheme make it possible for such increases to continue without significant costs to the industries covered.

A cap that still does not fit

The third phase of the ETS will run from 2013 to 2020. It will operate according to new rules introduced through the revised Emissions Trading Directive, approved in December 2009 as part of the EU's 2020 Climate and Energy Package. The stated aim of these measures is to achieve a 20 per cent reduction in greenhouse gases across the 27-state bloc by 2020 compared to 1990 levels.⁶ This falls a long way short of what climate science suggests is needed to avoid dangerous climate change.

The cap for industrial sectors covered by the ETS has been set at 21 per cent compared to 2005 levels, with decreases calculated at 1.74 per cent a year (around 35 MtCO₂e). However, according to World Bank estimates the second phase of the scheme could end with an overall surplus of 970 MtCO₂e, which could be carried over ("banked") for use from 2013 onwards.⁷ This would account for almost 40 per cent of the "reduction" target that the EU claims will be required of power companies and industries covered by the ETS in phase III of the scheme. These figures are swelled by the use of offset credits (see box "The offsets gap"). The phase II surpluses alone could allow the scheme to continue without any domestic emissions reductions until at least 2017.⁸

In the second phase of the ETS, the number of offsets allowed is higher than the reductions required. These credits reduce the obligation on companies to curb their own pollution at source

These figures may yet be revised upwards. The Commission's *Roadmap for moving to a low-carbon economy in 2050* urges the EU to increase the overall reduction target by 2020 to 25 per cent – a move that has been fiercely opposed by energy-intensive industry lobbyists.⁹ The same document also raises the possibility of setting aside a proportion of ETS allowances in order to “maintain the incentives in the ETS rewarding low carbon investments” (a euphemistic phrase for preventing a price collapse from the predicted surplus of permits).¹⁰ It should be noted, however, that a figure of 500-800 MtCO₂e initially proposed by the Commission was removed from the *Roadmap* in response to industry lobbying by Eurofer (steel) and Cefic (chemicals), amongst others.¹¹

The offsets gap

The 2004 Linking Directive allows companies covered by the ETS to hand in “offset” credits generated by “emissions-saving projects” implemented mostly in developing countries in the South. They are mainly generated through the UN's Clean Development Mechanism, which issues credits called Certified Emissions Reductions (CERs).¹² In other words, companies are given the option to buy offsets – the negative social and environmental impacts of which have been widely documented – in place of reducing their own emissions at source.¹³

In the second phase of the ETS, the number of offsets allowed is higher than the reductions required.¹⁴ The precise limit varies between states, with the UK at the lower end of the spectrum (8 per cent of emissions) rising to 21 per cent in Spain and 22 per cent in Germany.¹⁵ The actual use of offset credits to date is considerably lower than this – with 81.9 MtCO₂e in 2008 and 81.8 MtCO₂e of offsets “surrendered” in 2009.¹⁶ EU rules allow any surplus from phase II to be carried forward to phase III – in effect, merging the limit on offsets from the two phases.¹⁷ In total, companies will be able to use 1.6 billion in offset credits.¹⁸ The UK Environment Agency projects that on the basis of existing practice over 1.2 billion of these credits could be “banked” for use in phase III.¹⁹ This would once more reduce the obligation on companies covered by the scheme to take action to curb their own pollution at source.

One of the most high profile failings of the CDM has been the case of industrial gas projects, which purport to make minor technical adjustments to eliminate hydrofluorocarbons (HFCs) (refrigerant gases) and nitrous oxide (N₂O) (a by-product of synthetic fibre production), and account for over 80 per cent of the credits imported into the ETS.²⁰ The European Commission recently decided to phase out the use of these industrial gas credits, belatedly recognising that they suffer from “a total lack of environmental integrity,” in the words of Climate Action Commissioner Connie Hedegaard.²¹ Despite this, and evidence that these projects have resulted in global increases in greenhouse gas emissions, it is likely that such credits will continue to represent the majority of CDM credits used within the ETS until the end of the second phase.²² 2010 figures are likely to suggest a rush to use these credits before the deadline, with companies holding on to other EU ETS permits and offset credits for later use.²³ Lobbying efforts by IETA, Cefic and large power producers such as Enel-Endesa successfully shifted this date back from January to April 2013.²⁴ This could lead to a further 52 MtCO₂e of these credits being used in the ETS – more than the whole annual “reduction” of 35 million tonnes required in 2013.

A polluter subsidy scheme

Since the scheme's inception, the allocation of ETS permits has been decided more on the basis of competition policy than on environmental grounds. Polluting companies have received subsidies to the tune of billions of euros per year at the expense of ordinary consumers. A two-step process has seen polluters benefit in different ways.

Energy-intensive industry has routinely been given extremely generous allocations of permits – a structural surplus of between 20 and 30 per cent in the case of the steel sector. The value of this over-allocation to industry in phase II of the ETS has been estimated at €6.5 billion.²⁵

These unearned subsidies for industry have been achieved by setting relatively more stringent caps in the power sector, on the assumption that it is not particularly exposed to international competition and can simply pass on the “cost” of allowances to electricity consumers. In so doing, the power sector wins too – and wins big. In “passing through” to consumers the cost of allowances that were handed out for free, the utilities

Since the scheme's inception, the allocation of ETS permits has been decided more on the basis of competition policy than on environmental grounds. Polluting companies have received subsidies to the tune of billions of euros per year at the expense of ordinary consumers

companies gained an estimated €19 billion in windfall profits for phase I, and stand to gain anywhere between €23 and €71 billion for phase II of the ETS.²⁶ Rules governing the inclusion of “new entrants” to the scheme also resulted in generous award of free certificates for hard lignite plants, which has contributed significantly to a “dash for coal” in German power production.²⁷

Despite repeated claims from energy-intensive manufacturing industries that they could not pass the costs of emissions allowances through to product prices, this very same trick has *also* helped manufacturing companies gain unearned profits from the scheme. Econometric analysis by CE Delft found that fossil fuel refineries and the iron and steel sectors routinely passed on the entire notional “cost” of EUAs – which they received for free – to consumers. The windfall profits received by these sectors in the first phase of the scheme were estimated at €14 billion (bringing the total subsidy, including over-allocated permits, to over €20 billion).²⁸

The European Commission is undertaking a review of “state aid” rules which could see the granting of direct financial subsidies to companies claiming that the ETS damages their competitiveness

When the third phase of the ETS was announced in January 2008, full auctioning was heralded as being just around the corner – and, with it, the end of such huge subsidies.²⁹ Yet by the time the final Directive was agreed, EU industry had clawed back most of its free permits. This was perhaps unsurprising, given the scale of lobbying that went on. At the Brussels level, Avril Doyle MEP recorded “every lobbyist who paid a visit while she served as rapporteur for the part of the bill that revamped the EU’s emissions trading system. The tally came to 168.”³⁰

Meanwhile, industry fought a rearguard action at the level of Member States, forcing various concessions before the Directive was agreed – most notably on the auctioning of permits.

The new Directive promised a review of industrial sectors for their susceptibility to “carbon leakage”, defined as the risk that a cap on EU emissions could lead companies to relocate elsewhere, weakening the European economy in the process. This review was led by DG Enterprise, the department of the European Commission dedicated to promoting European industry. It has generally been seen as a more “business friendly” access route for lobbying than DG Environment (and DG Climate Action, a new department launched in 2010, which has taken over the lead role in implementing the ETS).³¹

The supposedly “objective” criteria for the Commission’s study of carbon leakage were geared towards defending industrial interests, with the result that the Commission managed to identify 164 industrial sectors and sub-sectors at risk of leakage, and therefore eligible for the continued free allocation of permits. These sectors account for 77 per cent of the EU’s manufacturing output (around a quarter of the emissions covered by the ETS).³² The remainder of industry will still receive 80 per cent of free allocations in 2013, declining to 30 per cent in 2020 and zero by 2027.³³ A preliminary study by the Grantham Institute of the London School of Economics found that the EC criteria for granting free allowances was too generous, resulting in at least €7 billion in windfall revenues annually for energy-intensive industry.³⁴

This is not the end of the story, though. In response to fears of carbon leakage, the Commission is undertaking a review of “state aid” rules which could see the granting of direct financial subsidies to companies claiming that the ETS damages their competitiveness. A consultation will be concluded by May 2011, with new rules expected to be agreed later in the year.

For the power sector, which lobbied less successfully on the whole than the energy intensive industries, the picture is somewhat different.³⁵ Most utilities will face full auctioning from 2013, a fate which the industry lobby association Eurelectric grudgingly accepted. The main exception are power stations in the 10 newest Member States (mostly in Central and Eastern Europe), in particular those that are currently reliant on coal for a high proportion of their electricity generation.³⁶ These states can choose to give up to 70 per cent of permits for free in 2013 still – a last minute compromise in response to Polish government concerns and, in turn, lobbying by the Polish Electricity Association.³⁷

Will the shift to auctioning stop energy companies gaining “windfall profits” from the ETS? The answer, in short, is no. The scale of these profits will be reduced because the companies have to buy the permits in the first place, rather than being awarded them for free. However, the ETS by its very nature still allows power generators to buy allowances from elsewhere rather than change how they produce electricity. While these companies normally pass on the “full cost” of ETS permits, buying offsets remains a cheaper option – and this practice means that the power sector still fares relatively well from the scheme.

NER300: a new subsidy

As a quid pro quo for accepting the auctioning of power sector permits in phase III of the ETS, Eurelectric (the electricity producers' lobby) demanded – and received – a concession ensuring that a proportion of the revenue from these auctions would go to fund Carbon Capture and Storage (CCS), which the utilities are promoting as an excuse for building more coal-fired power stations. This new measure is called NER300, since it will disperse the revenue from the auctioning of 300 million permits that form part of the New Entrants' Reserve (for new members of the scheme).

The technology for CCS was developed by the oil industry, which also stand to gain from its deployment. Shell, BP and other energy companies operating through umbrella groups such as the "Zero Emissions Platform", co-drafted the amendment that created the NER300, which was inserted into the revised Directive by Chris Davies MEP.³⁸

The revenue from the 300 million auctioned permits, worth around €4.8 billion based on current prices, will fund CCS and other "clean energy" projects.³⁹ Two-thirds of this amount will be allocated by the end of 2012.⁴⁰ According to the European Investment Bank, which is administering the scheme, 153 projects have been submitted to date, including 22 CCS proposals (8 of which will be funded up to 50 per cent of their total cost), which are expected to receive the vast majority of the funds.⁴¹ Bioenergy projects are the most numerous in the "clean energy" category, with 46 proposed projects including several promoting the development of agrofuels.⁴²

Centralisation: improving integrity or shifting the lobby focus?

As part of the shift to auctioning, a series of reforms have been introduced to centralise the process of allocating EU ETS permits in phase III.⁴³ The European Commission has taken over from Member States the responsibility for permit allocation and setting an absolute limit on the "Community-wide quantity of allowances."⁴⁴

Whereas in the past allocations had mainly been based on calculations of historical emissions, allocations will now be made according to a set of EU-wide "benchmarks" (standards for emissions per unit of production).

To set these new standards, the EU split the whole range of industrial goods into 53 categories, such as newsprint, coloured glass bottles, and roof tiles. An emissions limit was defined for each product that was intended to reflect the standards achieved by the most efficient 10 per cent of factories in the EU.⁴⁵ The stated aim is that the most efficient factories would gain more generous allocations of permits, whilst the least efficient would be left short.

Within the overall rationale of the scheme, such changes will lead to greater consistency. In particular, they avoid the perverse incentive of using historical emissions as a guide – which has until now seen the scheme reward the highest polluters with the most permits.

However, claims that such allocations will reduce the influence of lobbying, and that they improve the overall environmental integrity of the scheme are hard to justify.⁴⁶ It would be more accurate to say that the adoption of centralised "benchmarking" merely shifts the timing (and to some extent location) of corporate lobbying. As *Der Spiegel* observed, "The lobbyists spent months making the rounds in Brussels and Berlin, proposing changes, additions and exceptions to the 76-page draft document [on benchmarking], wrestling over every single value. It was a fierce competition that led to one overriding outcome: It made emissions trading even more complicated and contradictory, and ultimately more unfair."⁴⁷

As a quid pro quo for accepting the auctioning of power sector permits, the electricity producers' lobby received a concession ensuring that a proportion of the revenue would fund Carbon Capture and Storage (CCS), which is promoted as an excuse for building more coal-fired power stations

Benchmarking: economic interests, not scientific advice

Despite the quasi-scientific veneer of technical benchmarks, the decisions on how to define the categories and which criteria to adopt remain subject to the power politics of the industry lobby. Those with access to Brussels decision makers, or to

national government departments willing to push their agenda, did best. The result is a set of “harmonised” rules containing a number of perversities. This is unsurprising, because defining emissions standards for generic industry categories inevitably ignores context and considerable measurement uncertainties (which are compounded by information inequalities between the Commission and the companies in the scheme).

This is clearly illustrated in the case of the cement – with the hand of CEMBUREAU, the Europe-wide industry lobby association – guiding the whole process.

First, the European Commission’s DG Clima chose to benchmark “clinker” (small lumps of material produced by the fusion of limestone and clay within a kiln) rather than cement itself. This followed a recommendation by the consultancy Ecofys which,

The cement industry lobby was instrumental in choosing what to measure (“clinker” not cement) and how to measure it

in turn, based its judgements on “in depth” discussions with representatives of CEMBUREAU.⁴⁸ Yet the choice of “clinker” is highly controversial, since it excludes from the EU’s calculations, and therefore disincentivises, the use of “substitute materials” which would yield far higher emissions reductions.⁴⁹ In other words, a “clinker” benchmark results in a distribution of “more allowances to installations with high CO₂ emissions”, according to the cement company Holcim, which dissented from the broader CEMBUREAU lobby.⁵⁰

Second, in calculating a proposed benchmark, Ecofys used a “baseline” for current and projected emissions that was developed by the World Business Council for Sustainable Development’s Cement Sustainability Initiative.⁵¹

This methodology was recommended by CEMBUREAU.⁵² In fact, the practice of restricting the main consultations on “benchmarking” to lobby associations was common across all of the energy-intensive industrial sectors in relation to which Ecofys and its partners (the Fraunhofer Institute for Systems and Innovation Research, and the Öko-Institut) compiled “methodology” reports.⁵³

Third, in response to broader consultations, DG Clima nevertheless came up with an initial benchmark of 689.5 kg CO₂ per tonne of grey cement clinker, a far lower figure than the Ecofys report envisaged.⁵⁴ In response to further CEMBUREAU lobbying, however, this was subsequently raised to 716 Kg.⁵⁵ The finally figure agreed as part of the EU’s Comitology procedure was higher still: 766 kg CO₂ per tonne of grey cement clinker. This final benchmark was precisely what CEMBUREAU had argued for.⁵⁶

A Commission proposal that free allocations for grey cement clinker should “reflect the sector’s ability to improve the greenhouse gas efficiency through clinker substitution” was also edited out of the final Decision.⁵⁷

The practice of restricting the main consultations on “benchmarking” to lobby associations was common across all of the energy-intensive industrial sectors

Other changes won by lobbyists for energy intensive industry included a reduction of 25 per cent for the steel sector (compared to the initially proposed benchmark), and a shift to measure production levels in relation to 2005-2008 figures, which set a particularly favourable, pre-recession “baseline” against which future reductions will be judged.⁵⁸

The major problems with emissions allocations in the ETS are not a lack of harmonisation, but the susceptibility of the scheme to rent-seeking behaviour.⁵⁹ This is a structural flaw of emissions markets, since the commodity to be traded is created by governments. As Larry Lohmann has pointed out, “the fact that governments are both suppliers and regulators of emissions commodities has encouraged rampant rent-seeking and complicated allocation systems that profit, rather than penalize, heavy polluters.”⁶⁰

Moreover, the lack of stringency remains - a product of an overall cap that is too high, a surplus of permits from phase II, and the ability to use offset credits within the scheme. The flawed incentive structure is unaltered too: at best, the ETS with a tighter cap would encourage the cheapest emissions reductions first, but these rarely reflect the structural changes that need to take place to transform energy and industrial production to meet the challenge of addressing climate change.

The benchmarking exercise has also left the basic two-tier structure of the ETS intact: the power sector is expected to be “short” and buy permits or credits, passing on the costs to consumers, while manufacturing sectors expect the scheme to provide generous allowances – subsidies, in other words – to protect them from international competition.

Aviation

Emissions from flights departing from or arriving in EU airports are to be included in the ETS from 2012 (the last year of phase II), despite fierce aviation industry lobbying.⁶¹

The obligations placed upon airlines are extremely low, with emissions capped at 97 per cent of the average emissions in 2004-2006.⁶² Based on these initial allocations, it is estimated that the economic impact would amount to “the equivalent of a one-cent per litre tax on aviation fuel which is currently untaxed in the EU” (by comparison, road transport fuel is taxed at on average 48 cents per litre).⁶³

The yearly allowance for 2012 has been set at 213 million tonnes.⁶⁴ Eighty-two per cent of the permits will be handed out free to airlines, with 15 per cent auctioned and the remaining three per cent allocated to “a special reserve for later distribution to fast growing airlines and new entrants into the market.”⁶⁵ Airlines will be allowed to offset their emissions up to a limit of 15 per cent of verified emissions through the use of project credits in 2012, and 1.5 per cent of verified emissions over 2013-2020.⁶⁶

It is highly implausible that a carbon price will affect investment decisions in the aviation sector, moreover. 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.⁶⁷ 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.⁶⁸

The inclusion of aviation in the EU ETS is giving proponents of aviation ammunition in their efforts to expand the sector, however. For example, British Airways has lobbied to scrap the UK government’s Air Passenger Duty (a tax on flights) when the scheme comes into operation. Willie Walsh, BA’s Chief Executive argued: “We agree that emissions trading is the most effective fiscal instrument for shrinking aviation’s carbon output... So when it arrives, at global or European level, let us drop additional taxes, which otherwise threaten the ability of UK airlines to provide the quality air links on which national economic success depends.”⁶⁹

Focusing on aviation emissions from CO₂ ignores the significant amounts of nitrogen oxide, water vapour, sulphate and soot particles, and the added impact from the formation of contrails. Some studies show these combined impacts to be far greater than the impact of CO₂ alone, yet the ETS will only tackle CO₂ emissions from aviation (even when the scheme as a whole is extended to these other gases).⁷⁰ In effect, the carbon market provides a means of ‘compensating’ for an increase in aviation through cheaper reductions in CO₂ emissions in other sectors – but the environmental impacts are vastly different.

The revised ETS Directive also makes provision for the inclusion of shipping, in the event that no international agreement is reached at the International Maritime Organisation by the end of 2011. The EU confirmed in March 2011 that it is preparing measures that would allow it to exercise this option.⁷¹

Industrial gases

A further loophole introduced in phase III of the scheme comes via the introduction of new sectors and gases. The new sectors include the production of bulk organic chemicals, ammonia, hydrogen and aluminium.

The new gases included in the scheme are nitrous oxide from the production of nitric and adipic acid, and perfluorocarbons (PCFs) from aluminium production.⁷² Emission allowances for these sectors in 2013 will amount to around 107 MtCO₂e.⁷³

There is a significant chance that many of the claimed reductions here will not be reductions at all, however. The consistent pattern within emissions trading schemes is that initial allocations are too high, because companies have a financial incentive

The carbon market provides a means of “compensating” for an increase in aviation through cheaper reductions in CO₂ emissions in other sectors – but the environmental impacts are vastly different

to talk up past emissions in order to subsequently benefit from a surplus of permits. This can generally be achieved easily, since (in common with other regulations) the companies have far more information than over-stretched regulators. The European Chemical Industry Council (Cefic), in particular, has lobbied hard on the ETS – first trying to ensure the exclusion of chemicals from the scheme, then aiming to weaken the targets and benchmarks it faces.⁷⁴

Conclusion: failing better?

Every time the ETS fails to reduce emissions, the politicians and businesses who promote it reach for their Samuel Beckett: “Try again, fail again, fail better.”

With the first two phases of the ETS clearly showing that it has subsidised polluters whilst failing to limit emissions, the third phase of the scheme has been promoted as a new beginning. The Commission acknowledges some errors, puts these down to “teething problems”, and claims that the key design flaws have now been fixed.

Although instances of such failings certainly exist, they bring us no closer to understanding why the ETS has misfired so spectacularly. Why have many companies and Member States allowed offsets and surplus permits from phase II to be used in phase III, when they know that this will lower permit prices and undermine environmental integrity? How have carbon intensive industries such as the cement sector secured continued free handouts, despite little evidence that the scheme poses a threat to their competitiveness, and considerable evidence that it subsidises continued pollution?

Some proponents of the ETS suggest that the main flaws are rules that have been designed inadequately or have been badly applied. This briefing has painted a different picture. It has shown that the ETS is at the mercy of a complex interaction of state and corporate power. Those with the loudest voices have successfully pushed for rules that allow them to escape their responsibility to change industrial practices and the means of power production domestically. As we have seen, the Commission is both the supplier and the regulator of carbon as a commodity, a situation which has made the ETS particularly susceptible to rent-seeking behaviour. This should come as no surprise, since the history of emissions trading is littered with evidence that it helps companies and governments to pre-empt and delay making the structural changes necessary to address climate change.⁷⁵ It is a fundamentally flawed system, setting up a system of property rights for continued pollution, and transposing environmental objectives into the kind of cost-benefit trade-offs that led to the problem of climate change in the first place.⁷⁶

The third phase of the ETS is no different. From 2013 onwards, the same basic pattern of rewarding polluters whilst helping them to avoid reducing their greenhouse gas emissions at source is likely to continue. In short, the ETS looks set to fail again.

Author: Oscar Reyes

Acknowledgements: Thanks to Belén Balanyá, Helen Burley, Joanna Cabello, Tamra Gilbertson, Jutta Kill, and Larry Lohmann for their comments on earlier drafts of this publication.

Contact: oscar@carbontradewatch.org

Carbon Trade Watch, Carrer de Princesa 6, 08003 Barcelona

www.carbontradewatch.org

www.corporateeurope.org

Notes

1. The EU27 plus Norway, Iceland and Lichtenstein. Negotiations are underway for Switzerland to join the scheme, see European Council (2010) "EU to link its greenhouse gas emissions trading system with Switzerland" 20 December, http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/envir/118632.pdf. The ETS include most of the largest single, static emissions sources, including power and heat generation, oil refineries, iron and steel, pulp and paper, cement, lime and glass production.
2. See European Commission (2009) "Emissions trading: EU ETS emissions fall 3 % in 2008" 15 May, <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/794>
3. Total verified emissions in 2008 were 2,119 MtCO₂e and in 2009 fell to 1,873 MtCO₂e. See Environment Agency (2010) *Report on 2009 EU Emissions Trading System emissions data* Bristol: Environment Agency, p16
4. Damien Morris and Bryony Worthington (2010), *Cap or trap? How the EU ETS risks locking-in carbon emissions* London: Sandbag, p.24
5. European Commission (2011) "Verified Emissions for 2008-2009-2010 and allocations 2008-2009-2010", 1 April, http://ec.europa.eu/clima/documentation/ets/docs/verified_emissions_en.xls These calculations are based on a provisional data release, and take account of verified data from 8,833 installations (77 per cent of the total).
6. European Commission (2008) "20 20 by 2020 Europe's climate change opportunity" COM(2008) 30 final, 23 January, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0030:FIN:EN:PDF>
7. World Bank (2010) *State and Trends of the Carbon Market 2010* Washington: World Bank, p.57
8. Morris and Worthington (2010), p.21
9. European Commission (2011) "A Roadmap for moving to a competitive low carbon economy in 2050" COM(2011) 112 final, 8 March, p.11, http://ec.europa.eu/clima/documentation/roadmap/docs/com_2011_112_en.pdf. The Commission's 20 20 roadmap had committed the EU to a cut of 30 per cent in the context of an international agreement involving "comparable" commitments from industrialised countries. This has not materialised. There has been significant lobbying against a 30 per cent increase, which has involved Eurofer (steel), CEMBUREAU (cement), and a series of broader industry umbrella groups: the European Alliance of Energy Intensive Industries, the Alliance for a Competitive European Industry (ACEI), and BusinessEurope. See Oxfam (2010) "Crying Wolf: Industry lobbying and climate change in Europe", 21 November, p.2
10. European Commission (2011), p.11
11. For example, the European Chemical Industry Council (CEFIC) claims that "Setting aside allowances in the EU Emissions Trading Scheme... [would] hamper the competitiveness of the European chemical industry." See CEFIC, "Twenty per cent EU greenhouse gas reduction policy best way forward", 10 March 2011, <http://www.cefic.org/Media-Centre/latest-news/2011/Twenty-per-cent-EU-greenhouse-gas-reduction-policy-best-way-forward/>. The move was also opposed by BusinessEurope and Eurofer, the steel industry lobby. See Catherine Airlie and Ewa Krukowska (2011) "EU May Need Tighter Supply to Avoid CO₂ Slump, Adviser Says", Bloomberg, 14 March, <http://www.bloomberg.com/news/2011-03-14/eu-may-need-tighter-supply-to-avoid-co2-slump-adviser-says-1.html> and (2011) "EC 'wrong about impact of deeper CO₂ cuts'", *ENDS Europe*, 3 March 2011, <http://www.endseurope.com/25714/ec-wrong-about-impact-of-deeper-co2-cuts>. Details of the draft were leaked to Bloomberg, see Ewa Krukowska (2011) "EU May Set Aside 800 Million CO₂ Permits by 2020, Draft Shows", Bloomberg, 16 February <http://www.bloomberg.com/news/2011-02-16/eu-may-set-aside-800-million-carbon-emissions-permits-by-2020-draft-shows.html>
12. UNEP Risoe CDM/JI Pipeline Analysis and Database (2011), 1 March, <http://cdmpipeline.org/> <http://cdmpipeline.org/overview.htm> As of March 2011, there were 2867 approved CDM projects, with over 3000 more awaiting approval. Only 956 of the projects have so far issued credits, however, and the majority of these issued credits arose from the claimed "reduction" of HFCs and N₂O.
13. For more on CDM, see Tamra Gilbertson and Oscar Reyes (2009) *Carbon Trading: how it works and why it fails*, Uppsala: Dag Hammarskjöld Foundation, pp.53-87
14. National Audit Office (2009) *European Union Emissions Trading Scheme* London: National Audit Office, p.19, <http://www.nao.org.uk/idoc.ashx?docId=ba234e01-c494-4ab4-898b-812a0fe1c4f5&version=-1>
15. IGES Registry Database (2010), 15 May update, http://enviroscope.iges.or.jp/modules/envirolib/upload/2395/attach/iges_registry_data.zip
16. The Environment Agency (2010), p.15. Some caution should be attached to such figures, however, because the price spread between EUAs (EU permits) and CERs (CDM credits) is likely to be a major determinant of the extent to which offset credits will be used.
17. European Commission (2008) "Questions and Answers on the revised EU Emissions Trading System", 17 December <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796&format=HTML&aged=0&language=EN&guiLanguage=en>
18. House of Commons Environmental Audit Committee (2010) *The role of carbon markets in preventing dangerous climate change*, London: The Stationary Office, p.15
19. The Environment Agency (2010), p.11: "If the level of banking seen in 2008 (55 MtCO₂) and 2009 (290.8 MtCO₂) continued through the remaining years of Phase II, some 1,218.2 MtCO₂ (55 + (290.8 x 4)) would be banked into Phase III." This projection should be treated with some caution, given the uncertainty surrounding economic growth forecasts.
20. Rob Elsworth and Bryony Worthington (2010) *International Offsets and the EU 2009* London: Sandbag, p.5
21. Damien Carrington (2010), "EU plans to clamp down on carbon trading scam" *The Guardian*, 26 October, <http://www.guardian.co.uk/environment/2010/oct/26/eu-ban-carbon-permits>
22. See L Schneider, M Lazarus and A Kollmuss (2010) "Industrial N₂O Projects Under the CDM: Adipic Acid - A Case of Carbon Leakage?" Somerville MA: Stockholm Environment Institute, p.11, <http://www.sei-us.org/publications/id/353> and Michael Wara (2008) "Measuring the Clean Development Mechanism's Performance and Potential" 55 *UCLA Law Review*, pp.1786-7
23. Point Carbon (2011) "EU's 2010 emissions data will show recovery underway", 29 March, <http://www.commodities-now.com/news/environmental-markets/5597-eus-2010-emissions-data-will-show-recovery-underway.html>
24. Corporate Europe Observatory (forthcoming) *Laughing all the way to the offsets bank*
25. Morris and Worthington (2010), p.26
26. A. Denny Ellerman et al. (2010) *Pricing Carbon: The European Union Emissions Trading Scheme* Cambridge: Cambridge University Press, p.326; Point Carbon, WWF (2008) *EU ETS Phase II - The potential and scale of windfall profits in the power sector*, <http://assets.panda>

- org/downloads/point_carbon_vwf_windfall_profits_mar08_final_report_1.pdf . See J. Sijm, K. Neuhoff et al. (2006). "CO2 cost pass through and windfall profits in the power sector" *Climate Policy* 6(1) for evidence that electricity generators were able to generate windfall profits by passing through opportunity costs. A recent assessment of the German electricity sector suggests that the five largest companies have benefited to the tune of €40 billion. See Hauke Hermann et al. (2010) *Free allocation of emission allowances and CDM/JI credits within the EU ETS: Analysis of selected industries and companies in Germany* Berlin: Öko Institut <http://www.oeko.de/oekodoc/1105/2010-148-en.pdf>
27. M. Pahle et al. (2011) "How emission certificate allocations distort fossil investments: The German example." *Energy Policy*, doi:10.1016/j.enpol.2011.01.027, p.12
 28. Sander de Bruyn et al. (2010) Does the energy intensive industry obtain windfall profits through the EU ETS? Delft: CE Delft, http://www.ce.nl/publicatie/does_the_energy_intensive_industry_obtain_windfall_profits_through_the_eu_ets/1038
 29. Historically the permit allocations were free, the favoured position of lobby groups such as Eurelectric. See Andrés Jonathan Drew (2010) "Two Directives, Two Politics _ Prospects for the EU ETS" LSE Law, Society and Economy Working Papers 11/2010, p.29
 30. Joshua Chaffin (2009) "Financial crisis a turning point in lobbyists' fortunes" *Financial Times*, 13 March, <http://www.ft.com/cms/s/0/64689f18-0f69-11de-ba10-0000779fd2ac.html#ixzz1Gg2W0kAc>
 31. Jørgen Wettestad (2008) "EU Energy-intensive Industries and Emissions Trading . Losers becoming Winners?" CANES Working Paper, p.10, <http://fni.no/doc&pdf/FNI-R1008.pdf>
 32. Richard Cooper (2010) "Europe's Emissions Trading System" Discussion Paper 2010-40, Cambridge, Mass.: Harvard Project on International Climate Agreements, p.14, <http://belfercenter.ksg.harvard.edu/files/CooperETSfinal.pdf> . The EU's list of leakage-exposed sectors will be revised in 2014 according to the same criteria.
 33. Department of Energy and Climate Change (DECC), (2011) "The EU Emissions Trading System: Preparing for Phase III (and implementation of Phase II)", February, p.9, http://www.decc.gov.uk/assets/decc/what%20we%20do/global%20climate%20change%20and%20energy/tackling%20climate%20change/emissions%20trading/eu_ets/phase%20iii/1016-euets-preparing-phase-III.pdf
 34. Ralf Martin, Mirabelle Muûls and Ulrich J. Wagner (2010) "Still time to reclaim the European Union Emissions Trading System for the European tax payer", Policy Brief, Centre for Economic Performance, London School of Economics, p.4, <http://cep.lse.ac.uk/pubs/download/pa010.pdf>
 35. Drew (2010)
 36. Pete Harrison and Nina Chestney (2011) "EU sets rules for CO2 full auctioning opt-out from 2013" *Reuters*, 29 March, <http://af.reuters.com/article/energyOilNews/idAFLDE72S0ZM20110329?pageNumber=2&virtualBrandChannel=0&sp=true> Ten EU Member States are potentially eligible Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland and Romania.
 37. Tora Skodvin, Anne Therese Gullberg and Stine Aakre (2010) "Target-group influence and political feasibility: the case of climate policy design in Europe", *Journal of European Public Policy*, 17: 6, 864
 38. Corporate Europe Observatory and Spinwatch (2010), "EU billions to keep burning fossil fuels: the battle to secure EU funding for carbon capture and storage", p.8, <http://www.corporateeurope.org/system/files/files/article/CCS.lobbying.pdf>
 39. This figure uses a price estimate of €16/ton.
 40. European Commission and European Investment Bank (2010) "Cooperation Agreement on the implementation of Commission Decision C(2010) 7499 between the European Commission and the European Investment Bank", <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:358:0001:0018:EN:PDF>
 41. European Commission (2010) "Call for proposals concerning the financing of commercial demonstration projects that aim at the environmentally safe capture and geological storage of CO₂, as well as demonstration projects of innovative renewable energy technologies under the scheme for greenhouse gas emission allowance trading within the Community, established by Directive 2003/87/EC" http://ec.europa.eu/clima/funding/ner300/docs/call_en.pdf The funding from NER3000 may be used in combination with other EU subsidies.
 42. European Investment Bank (2011) "NER 300: Number of project proposals submitted to Member States by 9 February", http://ec.europa.eu/clima/funding/ner300/docs/summary_en.pdf For an accessible critique of agrofuels and CCS as "false solutions" to climate change, see Rising Tide North America and Carbon Trade Watch (2010) *Hoodwinked in the Hothouse*, http://risingtidenorthamerica.org/download/HoodwinkedV2ENG_screen.pdf
 43. The auction process itself was intended to be auctioned, although Member States have a right to opt out. This opt-out has been exercised by the UK, Germany and Poland which, between them, account for over 40 per cent of emissions covered by the EU ETS. Nina Chestney (2011) "UK opts out of EU's common carbon auction platform", *Reuters*, 21 February, <http://uk.reuters.com/article/2011/02/21/uk-britain-carbon-auction-idUKTRE71K1PR20110221>
 44. "Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community", Article 9. The "cap" has been set at 2,039 MtCO₂e for 2013. This figure is adjusted for the inclusion of aluminium and chemicals sectors. The unadjusted cap for sectors included in phase III of the scheme is 1.931 billion tonnes, compared to 2.08 billion tonnes annually for phase II. See European Commission (2010) "Commission Decision of 22 October 2010 adjusting the Union-wide quantity of allowances to be issued under the Union Scheme for 2013 and repealing Commission Decision 2010/384/EU", http://ec.europa.eu/clima/news/docs/decision_on_adjusted_cap_adopted_en.pdf p.3
 45. Alexander Jung (2010) "Dealing in Hot Air: The Pitfalls of Europe's New Emissions Trading System", *Der Spiegel*, 30 December, <http://www.spiegel.de/international/business/0,1518,736798,00.html>
 46. C. Egenhofer, M. Alessi, A. Georgiev and N. Fujiwara (2011) "The EU Emissions Trading System and Climate Policy towards 2050 Real incentives to reduce emissions and drive innovation?" CEPS Special Report,p.ii, p.5, http://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID1756736_code1194431.pdf?abstractid=1756736&mirid=1
 47. Alexander Jung (2010) "Dealing in Hot Air: The Pitfalls of Europe's New Emissions Trading System", *Der Spiegel*, 30 December, <http://www.spiegel.de/international/business/0,1518,736798,00.html>
 48. <http://ec.europa.eu/clima/documentation/ets/docs/BM%20study%20-%20Cement.pdf>
 49. CAN-Europe (2010) "Position paper on Benchmarking and allocation rules in phase III of the EU Emissions Trading System", February, p.xi.
 50. <http://www.aggregateresearch.com/articles/18502/Holcims-opinion-on-benchmarking-CO2-emissions---Clinker-vs-Cement.aspx> The dispute within the industry led to the resignation of Holcim's Benoît-Henri Koch as Vice President of CEMBUREAU.

51. The figures were derived from the CSI "Getting the Numbers Right" database.
52. Ecofys (2009) "Methodology for the free allocation of emission allowances in the EU ETS post 2012. Sector report for the cement industry", p.11 <http://ec.europa.eu/clima/documentation/ets/docs/BM%20study%20-%20Cement.pdf> : "The proposed benchmark is based on a full intensity curve as provided by CEMBUREAU through the CSI initiative." In fact, Ecofys provisionally proposed a higher figure of 780 kg CO₂ / t clinker, p. 11, p.14. This figure was revised downwards in light of more recent 2007-8 data.
53. In most cases, the consultants accepted the recommendations of the industry lobby association. The main exception was the case of the steel industry, where an alternative calculation of "waste gases" was proposed by Fraunhofer. The steel sector benchmark is likely to become the subject of a court case brought by Eurofer, see Ewa Krukowska (2011) "Steel Industry to Sue EU Over Post-2012 Carbon Permits Plan" *Bloomberg*, 4 April, <http://www.bloomberg.com/news/2011-04-04/eurofer-takes-legal-action-against-eu-over-ets-steel-benchmarks.html>
54. CEMBUREAU (2010) "EU ETS – A Clinker Benchmark but ...", October, <http://www.cembureau.be/newsroom/article/eu-ets-%E2%80%93-clinker-benchmark> The figure quoted is from the 8 September 2010 draft of the regulation.
55. Ewa Krukowska and Mathew Carr (2010) "European Union Drafts Industry Benchmark for Falling Supply of CO₂ Permits" *Bloomberg*, 5 October, <http://www.bloomberg.com/news/2010-10-05/european-union-drafts-industry-benchmark-for-falling-supply-of-co2-permits.html>
56. CEMBUREAU (2010), "CEMBUREAU welcomes draft Decision on Benchmarks and calls for interpretative Guidance on Allocation Rules", December, <http://www.cembureau.eu/newsroom/article/cembureau-welcomes-draft-decision-benchmarks-and-calls-interpretative-guidance-allo>
57. European Commission (2010), "Draft Commission Decision of determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC", 22 October, http://www.cogeneurope.eu/wp-content/uploads/2010/10/Commission_decision_Free-allocation_22-Oct.pdf
58. CAN Europe (2010) "Christmas comes early for Steel, cement and refineries in Europe, no emission reductions required", 17 December, [http://www.climnet.org/policywork/eu-ets/289-eu-ets-post-2012-benchmarks-approved-](http://www.climnet.org/policywork/eu-ets/289-eu-ets-post-2012-benchmarks-approved-christmas-comes-early-for-steel-cement-and-refineries-in-europe-no-emission-reductions-required-until-2020)
- christmas-comes-early-for-steel-cement-and-refineries-in-europe-no-emission-reductions-required-until-2020
59. An inability to adjust emissions caps to account for changing economic situations is a further key flaw. This problem was thrown into focus by the recent recession, where a drop in economic output resulted in significant emission reductions that were unrelated to pro-active measures to invest in cleaner technology.
60. Larry Lohmann (forthcoming) "An Endless Algebra: The Contradictions of Climate Markets"
61. 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
62. Alice Bows and Kevin Anderson (2008), *A bottom-up analysis of including aviation within the EU's Emissions Trading Scheme*, Tyndall Centre Working Paper 126, Manchester: Tyndall Centre for Climate Change Research, p.18.
63. EU's take on the pass through cost: "Assuming airlines fully pass on these extra costs to customers, by 2020 the ticket price for a return flight within the EU could rise by between €1.8 and €9. Due to their higher environmental impact, long-haul trips could increase by somewhat more depending on the journey length. For example a return flight to New York at current carbon prices of around €15 might cost an additional €12. However, ticket price increases are in any case expected to be significantly lower than the extra costs airlines have passed on to consumers due to world oil price rises in recent years."
64. Euractiv (2011) "Commission sets first emissions cap for aviation sector", *Euractiv*, 8 March, <http://www.euractiv.com/en/transport/commission-sets-emissions-cap-aviation-sector-news-502817>
65. European Commission (2011) "Questions & Answers on historic aviation emissions and the inclusion of aviation in the EU's Emission Trading System (EU ETS)", 7 March, <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/11/139&format=HTML&aged=0&language=EN&guiLanguage=en>
66. National Audit Office (2009), p.60. Concern at potential overallocation has led to the adoption of a "one way filter" whereby aviation credits can not be surrendered by other players in the scheme.
67. Transport and Environment (2008) *Including Aviation in the EU's Emissions Trading Scheme (EU ETS)*, June, 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 (2007) *Dying on a Jet Plane*, March, <http://wdm.gn.apc.org/sites/default/files/dyingonajetplane19032007.pdf>
68. House of Commons Environmental Audit Committee (2010), p.22
69. Jonathan Buck (2010) "BA CEO Wants Tax Scrapped When Emissions System Takes Off", *Dow Jones*, 8 July, <http://www.automatedtrader.net/real-time-dow-jones/3982/ba-ceo-wants-tax-scrapped-when-emissions-system-takes-off> In response, the UK government has, to date, retained the Air Passenger Duty, but has delayed proposed increases in the scale of this tax.
70. European Union (2009) '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, 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.
71. Ewa Krukowska (2011) "Europe Prepares to Impose Carbon-Reduction Measures on Maritime Transport" *Bloomberg*, 25 March, <http://www.bloomberg.com/news/2011-03-24/uk-treasury-to-review-how-carbon-tax-affects-existing-plants.html>
72. France, The Netherlands and Norway have opted to include NO₂ in phase II of the ETS.
73. Point Carbon (2010) "The EC revises 2013 ETS cap to 2.04bn tonnes" *Carbon Market Europe*, 29 October 2010 Volume 09 Issue 43, p.3
74. Alain Peroy (2007), Letter from CEFIC to Commissioner S. Dimas, 14 December
75. See Gilbertson and Reyes (2009), chapters 1 and 2. For a more fundamental critique of carbon trading as establishing a system of property rights through which corporations secure the continued ability to pollute, see Larry Lohmann (2006) *Carbon Trading. A Critical Conversation on Climate Change, Privatisation and Power* Uppsala: Dag Hammarskjöld Foundation