

WHO GETS THE WINDFALL FROM CARBON TRADING? or: WHY THE EUROPEAN EMISSIONS TRADING SYSTEM SHOULD BE TRANSFORMED INTO A SKY TRUST¹

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‘Scarcity rent’ is what economists call the extra money people pay for things for which supply is substantially less than demand. Ticket scalpers collect scarcity rent when they re-sell hard-to-find tickets to sporting events and concerts. OPEC collects scarcity rent for oil. And, in the same way, owners of tradable carbon emission permits collect scarcity rent when the supply of permits is limited by carbon caps.

The sums involved are not small, and are likely to get much larger as governments respond to climate change. A British study found that power companies there reaped \$1.5 billion in 2005 from carbon permits given to them free by the UK government². In Germany, a large steel company complained publicly that under the German carbon trading system, ‘utilities get windfall profits while energy users get windfall costs’. A WWF paper calculates the windfalls profits for five big German utilities from their German operations in the range of 31 to 64 billion EUR during the eight years of the current European Emissions Trading system (2005-2012)³. And even as all this is known, it is getting worse: between €2.38 and €3.56

¹ Draft, to be published in spring 2007. Do not quote.

² Harrabin, Roger (2006): ‘£1bn windfall’ from carbon trade. BBC News 1 May 2006 <http://news.bbc.co.uk/2/hi/science/nature/4961320.stm>. The article likely refers to the following study: IPA Energy Consulting (2005): Implications of the EU emissions trading scheme for the UK power sector. Final Report to Department of Trade and Industry <http://www.dti.gov.uk/files/file33199.pdf>

³ WWF International Background Information: Windfall Profits from the Price Factoring of CO₂ Costs Compared with Announced Investments by RWE, E.ON, Vattenfall Europe, EnBW and STEAG. Berlin, March 29, 2006 http://www.wwf.de/fileadmin/fm-wwf/pdf_misc-alt/klima/18.pdf
German version: WWF Deutschland Hintergrundinformation: Gewinne aus der Einpreisung von CO₂-Kosten im Verhältnis zu den angekündigten Investitionen von RWE, E.ON, Vattenfall Europe, EnBW und STEAG. Berlin, 13.2.2006 http://www.wwf.de/fileadmin/fm-wwf/pdf_misc-alt/klima/14.pdf

billion per year would the aviation industry benefit in windfall profits from the planned inclusion of this sector into the European Emissions Trading System⁴.

What's going on here? As a previously unpriced activity — emitting carbon into the atmosphere — starts to be priced in markets, some people will pay other people (or companies) for the right to pollute. The money paid and received is scarcity rent, and it will become a trillion euro windfall over coming decades. The question is, who should receive this windfall? Or, more fundamentally, who should own the sky?

The European Emissions Trading Systems (ETS) is by far the biggest and most advanced greenhouse gas trading system worldwide. Operating since 2005, it is a cornerstone of the EU strategy to meet its commitments under the Kyoto Protocol and subsequent agreements. Via linkages to other emissions trading schemes like the Regional Greenhouse Gas Initiative (RGGI) of several northeastern US states, it is likely to become the centre of a global system of emissions trading.

Unfortunately, as the ETS is presently structured, historic polluters have been given the emission permits without paying a cent. In some way, they have been given title to the sky. It is thus they who receive the scarcity rent, and everyone else who pays it to them, directly or indirectly.

This can be shown easily in the example of the German electricity market. All over Europe, electricity prices have risen after the introduction of the ETS. Among industrial customers of utilities, this has created outrage and even the

⁴ WWF: Including aviation in the EU Emissions Trading Scheme - an estimate of the potential windfall profit. http://assets.panda.org/downloads/windfalls_final_.pdf

German antitrust authority, the Bundeskartellamt⁵, issued a warning to RWE because of abusive price hikes after the ETS introduction.

In our view, the utilities are not to blame. It is nothing but normal commercial practice if the costs of the emission permits are being factored into the price of electricity, even if utilities get them for free. Because emission permits could be sold instead of using them to produce electricity, every kilowatt hour sold has to cover not only the marginal cost of producing the electricity, consisting essentially of the fuel costs of the marginal power station plus the operative costs, but also the marginal cost of using the corresponding emission permits. The utilities incur opportunity costs when using the emission permits for producing electricity, and the price of electricity has to reflect these opportunity costs. And in fact, as emission trading is meant as a way of internalizing external costs, it is necessary that prices reflect these new costs.

The ones to blame are the European lawmakers, who stipulated in the ETS directive that only up to 5% in phase I (2005-2007) and 10% in phase II (2008-2012) of the emission permits can be auctioned by the member states - the rest of them have to be given for free to the polluters. And in practice, only four of the 25 member states have actually made use of auctions in phase I, and only Denmark has fully employed it to the 5% limit. At least this number is rising: An analysis of 18 national allocations plans submitted for the phase II reveals that now seven

⁵ see the press release at http://www.bundeskartellamt.de/wDeutsch/aktuelles/2006_12_20.shtml (German) and http://www.bundeskartellamt.de/wEnglisch/News/Archiv/ArchivNews2006/2006_12_20.shtml (English)

include auctioning for phase 2, ranging from a share of only 0.5 % in Ireland and Flanders to 7 % in the UK⁶.

In this article, we propose a makeover of the European Emissions Trading System for its next phase, after 2012. It is based on the following principles: The atmosphere which is used as a sink for emissions is a gift of creation to all living beings, not to a few corporations. All citizens should capture the scarcity rent for public benefit, not surrender it to polluters for private gain. The emission permits should be acquired by the polluters in a transparent, neutral, market-based process and not through lobbying, creating market distortions by putting some at an advantage to the disadvantage of others.

The proposal is based on the Sky Trust developed by one of the authors for the US⁷. When transferring this model to the EU, we will discuss some modifications to the original design, which are partly due to different political realities of the EU, and partly a pragmatic acceptance of elements that already exist. We plan to further develop this proposal.

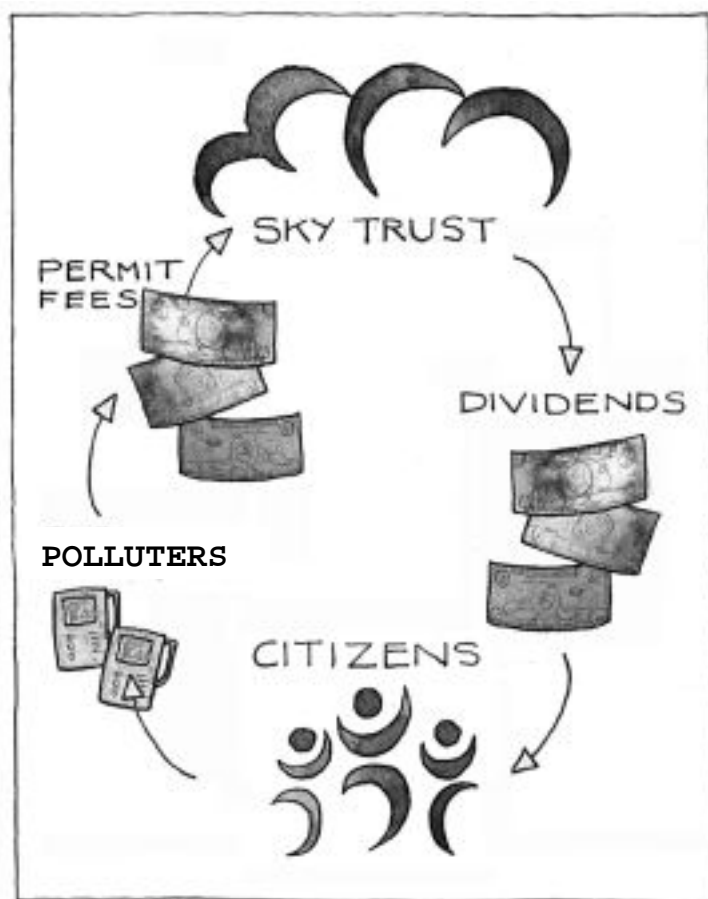
The Sky Trust idea and its adaptation to the EU

The basic idea of the sky trust is simple: An independent Sky Trust would administer the emission permits of the ETS, auction them to the polluting

⁶ Rogge, K., Schleich, J., Betz, R. (2006): An Early Assessment of National Allocation Plans for Phase 2 of EU Emission Trading. Working Paper Sustainability and Innovation No. S1/2006, Fraunhofer Institute for Systems and Innovation Research & UNSW Centre for Energy and Environmental Markets, Karlsruhe, Sydney, November 9, 2006.
<http://www.isi.fhg.de/n/Projekte/pdf/NAP2assessment.pdf>

⁷ Barnes, P. (2001): Who owns the Sky? Our Common Assets and the Future of Capitalism. Island Press, Washington

companies, and recycle the income to the original owners of the permits, the citizens. The following sketch illustrates the functioning of a Sky Trust.



What would the sky trust idea mean for a reform of the ETS and how must it be adapted in a reform of the EU ETS for the period post 2012? We will discuss these issues below.

Who owns the sky? By creating scarcity in emission rights, the ETS creates a valuable asset that is owned by somebody. Practically speaking, there are three possible owners: private corporations, government (either nation-states or the EU itself), and citizens through a trust.

So far, the ETS mandates that private corporations should get the emissions permits for free, or at least most of them. The standard argument used to justify

the granting of common assets like land, mineral deposits or broadcast spectrum to private firms is that they deliver a public value in exchange. They build railroads, extract valuable minerals, or transmit television images. The citizenry thus gets something back for its generosity, making the deals at least arguably fair. The potential gift of carbon absorption capacity, however, would be in a class by itself. The public would get nothing in return, except possibly cooperation from energy companies in meeting an emissions cap. Such realpolitik is in fact the most serious argument advanced for making such a grant today.

The other argument for granting ownership of the atmosphere to corporations is the competitiveness concern of European industry. Generally, this concern does not hold up against scientific scrutiny, as extensive studies have shown⁸. But even in the few industries where such concern may not be unfounded, appropriate border tax adjustments would be a better measure to avoid relocation of industries outside the ETS.

The case for government ownership of carbon absorption capacity is certainly stronger than the case for corporate ownership. Government can spend money on public goods that can accelerate the transition to a low-carbon economy. In particular, it can correct some market failures which prevent cost-effective energy-efficiency measures from being realized. But government cannot

⁸ Sachverständigenrat für Umweltfragen (2006): Die nationale Umsetzung des europäischen Emissionshandels: Marktwirtschaftlicher Klimaschutz oder Fortsetzung der energiepolitischen Subventionspolitik mit anderen Mitteln? Stellungnahme Nr. 11, Berlin, April 2006 http://www.umweltrat.de/03Stellung/download03/stellung/Stellung_NAPII_April2006.pdf
 englisch version: German Advisory Council for the Environment (2006): National Implementation of the EU Emissions Trading Scheme: Market-based climate change mitigation or the continuation of energy subsidies by other means? Statement Nr. 11, Berlin, April 2006
http://www.umweltrat.de/english/edownload/statemen/Stellung_NAPII_engl_2006.pdf

be expected to wisely spend all the revenue it could raise from auctioning carbon emission permits. A strong case can therefore be made that some, if not all of the revenue should be recycled to citizens.

This case has three pillars. One is philosophical: as the sky is a commons, it belongs to everyone equally. The second is economic: once carbon is capped, citizens will pay higher prices for fossil energy. In order to maintain their purchasing power, some of the extra money they pay should be returned to them. If this is done on a *per capita* basis, rather than in proportion to energy use, it will create the right incentives to conserve. A person who drives a Hummer will pay more in than he gets back; a person who rides a bicycle will get back more than she pays in. Carbon conservers will be rewarded, and carbon gluttons will pay.

The third part of the case is political: a carbon cap-and trade system will have to last for several decades until Europe lowers its carbon emissions by approximately 80 percent. For such a system to endure, it must have political support. Giving windfall profits to polluters is not a way to create lasting political support; giving dividends to citizens is. As energy prices rise, so will the citizens' dividends. Some citizens — those who conserve the most energy — will even come out ahead, and all will appreciate the transparency and fairness of the system. They might also greater appreciate the benefit of membership in the European Union.

A Global Commons: There is another factor to consider when discussing ownership of the sky — the fact that the atmosphere is a *global* commons, not just a European one.

All citizens worldwide can claim an equal part of the global emission rights.

Therefore, it can be argued that the emission rights of the ETS do not belong to EU citizens alone. A simple calculation may illustrate the point: Every emissions trading system starts by issuing permits for the actual emissions of a certain sector, which are then reduced over the years. The EU27 emit about 16,3% of global CO₂ emissions, although they have only a share of 7,8% of the global population⁹. Arguably, The EU is overusing its environmental space, if all global emissions would be converted into permits the EU would only get 7,8% of them, or 47,9% of its actual emissions. Correspondingly, only about half of the ETS emission permits should be owned by citizens of the EU, the other half belongs to emitters with less than global average emissions, mostly from developing countries. A sky trust should recycle only half of its proceeds from auctioning to the EU citizens, the rest should benefit global underemitters. The adaptation fund which has been created under the Kyoto Protocol is an obvious candidate to be receive such proceeds. Similarly, funds for transfer of renewable energy and energy efficiency technologies to developing countries should be benefiting from the sky trust. This would correspond to two criteria of environmental justice: The polluter pays principle and the principle of an equal share in the ownership of global commons.

Institutionalizing the EU sky trust: Citizens should own the sky, but this ownership needs to be institutionalized in order to be exercised. A European sky trust should be established as an independent, transparent and accountable body,

⁹ Data for CO₂ from fossil energy use only, for 2002. Data from CAIT 3.0 (Climate Analysis Indicators Tool), World Resources Institute <http://cait.wri.org/downloads/CAIT-3.0-Setup.exe> . Numbers might change if Non-CO₂ greenhouse gases are taken into account and CO₂ from non-fossil sources are included.

comparable to the European central bank, with the duty to administer the emission permits and their proceeds on behalf of all the owners, in both present and future generations.

Trustees must be chosen according to a procedure that ensures their competence, independence from lobby interests, and integrity. Procedures for appointing judges for constitutional courts or central banks can be used as an example.

An excellent example of an institution sharing the economic benefits of a common asset is the Alaska Permanent Fund, created in 1976 to share the windfall from Alaskan oil. All residents of Alaska own one non-transferable share of the Permanent Fund. For over 25 years it has paid yearly dividends of between \$1,000 and \$2,000 to each Alaskan. What Alaska did with oil, all of Europe can do with the sky.

Decisionmaking on the number of emission permits issued: In the ETS, the decision on the number of permits issued is left to national governments in the framework of the national allocation plans, which are reviewed by the EU commission. As experience shows, this has led to a race to the bottom in terms of environmental ambition, and to substantial over-allocation with subsequent decline in permit prices during phase I of the ETS. As of phase II of the ETS, the Commission has been forced to reject most of the national allocation plans because they handed out too many permits to industry. At the time we are writing this, the outcome of the stand-off between the Commission and member states on this issue is still open.

Whatever the outcome, this example clearly points to some severe institutional deficiencies that need to be rectified for the period post-2012. Following the creation of the Euro, the decision-making on the money supply in the Euro zone is not left to national governments, but to a central, independent institution. Similarly, a European Sky Trust should be governed by an independent board of trustees to decide on the number of the permits issued based on the following criteria:

- a) international commitments of the EU under the Kyoto-Protocol or its successor,
- b) the best scientific evidence on climate change,
- c) the precautionary principle.

Use of the proceeds from the auctioning of permits: As citizens own the sky, they should receive the main economic benefit from its use. It is them that bear the cost of the permits that is quite correctly passed through via the prices of electricity and emission intensive products like cement. So it is only fair that they should share the scarcity rent, not the polluting companies as in the present system.

Proceeds from a large part of the auctioning of emission permits should be passed on to EU citizens on a yearly basis, corresponding to the share of the EU emission permits that is owned by the EU citizens as outlined above. It can be expected that the yearly cheque would greatly enhance the consciousness of EU citizens that they are co-owning a valuable resource, and that it would raise their interest in keeping the value of emission permits at a sufficiently high level so as

to maintain the environmental effectiveness of the scheme. This would counterbalance the forces towards expansion of the number of emission permits that have proven to be so strong in the past.

During 2005-07, the phase I of the ETS, permits for 6572 million tons of CO₂ have been issued, or 2191 tons per year. 46,6% of this would be owned by EU25 citizens, about 1021 tons. At an assumed price of 20 EUR/ton, this represents 20,4 billion EUR value, or a yearly income for every citizen of 44,30 EUR.

Upstream vs. Downstream: The original sky trust proposal foresaw an upstream system, whereby emission permits would be acquired not by actual emitters but by firms that introduce carbon into the economy: mines of lignite and coal, oil and gas wells, importers of coal, oil and gas. This leads to a price increase of these fossil energies, a price signal which would be felt across the economy and create incentives to use fossil energies more sparingly. Such an upstream system would cover the whole economy, not merely parts of it.

In contrast, the ETS has been set up as a downstream system, requiring the final emitters to present emission permits, and covering only the large emitters in four sectors: energy (e.g. electric power, direct emissions from oil refineries), production and processing of ferrous metals, minerals (e.g. cement, glass) and pulp and paper. An expansion to the aviation sector is planned.

Would it be worth changing the existing downstream system to an upstream system when reforming the ETS following the sky trust model? Let us briefly examine the pro's and con's of such a change.

The upstream system has the benefit of simplicity. There are a very few entry points of carbon to the economy, as compared to actual emitters. Such a system would be much easier to administer. The upstream system also has the benefit of covering all carbon flowing through the economy.

But the simplicity of the upstream system would become more complex if we consider installations that use fossil fuels but don't emit them into the atmosphere, like carbon capture and storage that may become a relevant technology in the battle against climate change. Already now some oil is being used as asphalt or in the chemical industry: the corresponding carbon doesn't end up in the atmosphere and should therefore not be covered by emissions trading.

Moreover, given that the downstream system has already been established in Europe, it might make sense to continue it for the covered sectors, and consider an upstream design only for the rest of the economy. (Most of the plants that could potentially capture and store carbon are in the downstream sectors.) The result would be a hybrid system.

It should be noted that such a hybrid system, even though it covers the entire economy, should not be the single policy instrument to deal with climate change. We think that emissions trading following the sky trust model is a powerful and necessary instrument, but it should be complemented by other instruments such as incentives for renewables and mandatory efficiency standards.

Conclusion

It would be a tragic irony if the 'solution' to climate change included a massive transfer of wealth to polluters that largely created the problem. This

would be like rewarding tobacco companies with billions of euros for all the lung cancer they caused in the past. The current practice is not only a slap in the face to any criterion of environmental justice, it is also providing the wrong signals to financial markets: As windfalls inflate the profits of fossil emitters, financial markets will shift their investments towards polluting firms instead of the clean energy sources. Just the contrary of what is needed to fight climate change.

The main differences between the current ETS and a European Sky Trust are shown in the following table.

	Current EU ETS	EU Sky Trust
Who sets emission caps ?	National governments, reviewed by the EU comission	Independent trustees
Initial permit allocation	Given free to large polluters	Auctioned to polluters
Permit trading	Yes	Yes
Prices of emission intensive goods	Go up	Go up
Consumers compensated	No	Yes
Poor countries compensated	No	Yes
Effect on personal income	Reduces it by value of permits	Reduces it by ½ value of permits
Effect on income distribution	Regressive	Progressive

The upcoming review of the EU Emission Trading System provides a unique opportunity not to be missed to rectify some of the severe flaws of this core instrument of climate policy. The sky trust model provides a good template that can be used as a blueprint for a substantial reform of the European Emissions Trading System.

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