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'EU Transport Emissions Compliance Catch-up'*

Abstract

Following the recent inclusion of aviation in the European Union's Emissions Trading Scheme (ETS), there is increased likelihood that other transport sectors may follow. This raises concern over new entrants being treated unfairly, left to face significant disadvantages in catching up with the compliance measures already in place. Thus the focus shifts from emissions reduction mechanisms to the method of allocation, including auctioning and grandfather rights. Until a formal international agreement on climate change exists, the ETS appears to be an appropriate working model, but it remains a work-in-progress and should be closely monitored.

Background

In the wake of the Commission's recent vote to include aviation in the European Union's Emissions Trading Scheme (ETS), discussions are more becoming more frequent on whether other modes of shipping and transport may be next on the radar. With growing public concern over pollution and climate change, and press reports stating that the emissions from shipping by sea are significantly greater than airline pollution[1], regulators are under increased scrutiny and pressure to take action.

Maritime emissions are not currently covered under either the Kyoto Protocol or the ETS. Although the EU claims it has considered including maritime emissions in the scheme, it would appear that an initial period of 'regulatory stability' is the interim priority. On top of public pressures, EU policymakers likely fear the reaction of domestic stakeholders in the shipping industry, particularly short-sea shipping, which accounts for 41 percent of goods traffic within the Community. Additionally, EU inland waterway transport is estimated to account for three percent by 2010.[2]

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[1] *See* Vidal, J. "CO_2 output from shipping twice as much as airlines", *The Guardian* 3 March 2007; Smith, L. "Shipping emissions are vastly underestimated", *The Times Online* 4 October 2007; Howden, D. "Shipping pollution 'far more damaging than flying'", *The Independent* 10 October 2007; Vidal, J. "True Scale CO_2 emissions from shipping revealed", *The Guardian* 13 February 2008.

[2] Road transport comprises 44 percent of the goods transport market, and eight percent via rail transport. (Source: "White Paper – European transport policy for 2010: time to decide", European Communities, 2001. http://ec.europa.eu/transport/white_paper/documents/doc/lb_texte_complet_en.pdf)

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The handling of new entrants, including 'entering' industries, to the ETS is not adequately formalised. Under the ETS Directive[3], Member States set aside a certain percentage of their total allowances for new entrants. No adjustments may be made to this ratio, keeping with the common position of no *ex post* adjustments to allowance distribution set out by any Member State in their respective national registry according to their National Allocation Plan (NAP)[4].

Because this 'reserve' is left to each Member State to determine, there is concern that certain industries might enjoy an unfair advantage with respect to new entrants (companies). Also, it is unclear how allowances for industries new to the scheme will be calculated and distributed, as this is done at the state level, which may disadvantage these industries in their attempts to 'catch up' with the compliance measures.

Upon reviewing a number of Member States' NAPs for the 2008-2012 trading period in November 2006, the Commission gave the following feedback to Greece, Ireland, Lithuania and Slovakia: "More information needs to be provided on the manner in which new entrants will be treated."[5] The lack of a common position on the treatment of new entrants is disconcerting. The feedback provided by the Commission gives no suggestion on how new entrants should be treated, and whilst it clearly demonstrates a certain respect for the 'state sovereignty' issue, it does not provide a standard for 'best practice'. The Member State may, at its discretion, decide what it deems appropriate treatment or procedure, but with this autonomy dwells some risk of prejudice.

EU Emissions Trading Scheme (ETS)

Under the Kyoto Protocol[6], the EU committed to reducing its greenhouse gas (GHG) emissions by 8 percent from 1990 levels in the first compliance period from 2008 to 2012. In line with these commitments, the EU commenced operation of the ETS in January 2005. The primary objective of the ETS is to assist Member States to achieve compliance with the Kyoto targets. The scheme does not propose new environmental targets, but creates a new 'market' mechanism for the participating companies to buy or sell emission allowances. The price of an allowance is not set by the Commission, but rather by the supply and demand on the market. This resembles any other free market environment. Market intermediaries quote prices for allowances according to offer or bid. The Commission will not intervene in the market, but if distortions occur, European Community competition rules will be applied. The rationale behind this is a simpler, less expensive means of compliance for companies.

[3] 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 ("the Directive").
[4] Set out in EC Decision 2002/358.
[5] 'Emissions Trading: Commission decides on first set of national allocation plans for the 2008-2012 trading period' - Press Release IP/06/1650, 29 November 2006.
[6] Kyoto Protocol to the United Nations Framework Convention on Climate Change, 11 December 2007, *reprinted* 37 ILM 32 (1998).

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Europe's carbon dioxide (CO_2) emissions market[7], as an example of a cap-and-trade scheme in action, functions in association with NAPs, which are prepared and published by individual Member States[8]. A typical NAP defines how allowances will be granted to nationally registered companies. It is left for the Member State to determine how many allowances to allocate in total[9] (the 'cap'), as well as the number granted to each industry and individual company. The idea behind NAPs is that Member States will limit CO_2 emissions from its domestic industries through the allocation of allowances. Since allowances are limited, a scarcity will ensue, which enables the overall European CO_2 emissions market to function. The NAPs do not set new targets on emissions, but create a system of 'carbon credit' registration at the national-level.[10] The first NAPs were drawn up in 2004, covering the 2005-2007 trading period. In June 2006, Member States published the second NAPs for the period 2008-2012.

The allowances are tracked on an electronic registry system, which is separate from the trading activity. If a change of ownership of an allowance occurs, this is shown on the relevant companies' accounts in the registry. There are no paper certificates; all allowances are recorded electronically. Since allowances are held and initially issued by the Member State, the system comprises both a national component and a European 'hub' where transfers of allowances are checked to ensure the rules of the Directive are being followed. Periodically, some of this information will be released to the public.[11]

The ETS establishes the world's first international trading system for CO_2 emissions, covering over 11,500 energy-intensive installations across the EU which together represents over half of the EU's carbon emission.[12] Until recently, the ETS applied only to major manufacturing industries such as power plants, oil refineries, iron and steel plants, and various factories making such goods as cement, glass, lime, brick, ceramics, pulp and paper.

Aviation

[7] In addition to the European Climate Exchange (ECX), a pan-European trading system for carbon dioxide emissions allowances, the Chicago Climate Exchange (CCX) and Montreal Climate Exchange (MCeX) provide similar trading platforms. To date, there are also markets or talk of establishing markets for the trading of sulphur dioxide and NOx emissions allowances in various industrial countries.
[8] Article 9, EC Directive 2003/87.
[9] The total number of allowances a Member State may grant is not pre-determined, however, there are 12 common criteria in Annex III of the Emissions Trading Directive which must be followed. Some of the areas these criteria cover include the Member State's ability to meet its Kyoto targets (a *quasi* test of reasonableness), non-discrimination between companies and sectors, compliance with state aid rules, new entrants and clean technology.
[10] As set out in EC Decision 2002/358.
[11] In line with the UN rules and the Electronic Registries Regulation, Commission Regulation of 21 December 2004 for a standardised and secured system of registries pursuant to Directive 2003/87/EC and Decision 280/2004/EC, with an aim of 'environmental transparency and commercial confidentiality'.
[12] EC Memo 05/94 'Questions and Answers on Emissions Trading and National Allocation Plans' http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/05/84&format=HTML&aged=1&language=EN&guiLanguage=en

The common position[13] to include civil aviation[14] in the EU ETS was adopted by ministers on 18 April 2008, with the first positive vote on 27 May 2008. The European Parliament took a positive second reading vote on 7 July 2008. Under the scheme's new directive, GHG emissions from flights to, from and within the EU will be included in the EU ETS from 2012.[15] This approach includes research into greener technologies[16] and improvement in air traffic management through the creation of the 'Single European Sky'[17] as well as proposes to reduce NOx emissions from aircraft later this year. According to the Commission, emissions from the aviation sector will be capped at 97 percent of their average level over the period from 2004-2006.[18] This cap is due to decrease to 95 percent beginning in 2013.[19] Initially, airlines will receive 85 percent of their emissions allowances for free. A special reserve of allowances will also be made available for new entrants or fast-growing airlines, up to a limit of one million allowances.

Transport presently accounts for 32 percent of European energy consumption and 28 percent of total carbon dioxide emissions. Current carbon dioxide emissions from aviation account for approximately 3 percent of total EU greenhouse gas emissions and have nearly doubled, growing at a rate of 87 percent since 1990[20], with road passenger transport forecast to increase by 19 percent and freight haulage set to increase by 50 percent of 1990 levels by 2010.[21]

Shipping and surface transport

The Marine Pollution Convention[22] of the International Maritime Organisation (IMO) covers air pollutant emissions, providing control areas[23] for sulphur dioxide emissions in the Baltic Sea, North Sea and English Channel, as well as standards for ship engines with respect to NOx emissions. In June 2008, the IMO's Working Group on Greenhouse Gas Emissions met to discuss the development of a mandatory regime to control GHG emissions from international shipping. The IMO proposes to develop drafts of actual reduction mechanisms

[13] The UK's position is also taken into account as published by the Department for Environment, Food and Rural Affairs (Defra) and the Department for Transport on the impact of the Emissions Trading Scheme: 'A study to Estimate Ticket Price Changes for Aviation in the EU ETS', Vivid Economics, November 2007 *and* 'A study to estimate the impacts of emissions trading on profits in aviation', Vivid Economics, January 2008.
[14] Domestic civil aviation is already included.
[15] The previous proposition for a one-year introductory phase for intra-EU flights starting in 2011 has been dropped.
[16] IP/05/1192.
[17] IP/08/1002.
[18] IP/08/1114 'Emissions trading: Commission welcomes EP vote on including aviation in EU ETS', p.1.
[19] This percentage is subject to review under the Emissions Trading Directive.
[20] Additional aviation emissions include NOx, water vapour, soot and particles.
[21] EC Close-Up Article 'Action on CO2' http://ec.europa.eu/research/transport/close_up/article_4963_en.html
[22] MARPOL 73/78, Annex VI.
[23] Commonly known as Sulphur oxide (SOx) Emissions Control Areas (SECAs), within which Ships sailing in SECAs must either use fuel oil with maximum sulphur content of 1.5% m/m or fit an approved exhaust gas cleaning system or other technological method to reduce the emission of sulphur oxides to 6.0g SOx/kWh or less. (Source: http://www.seaat.org/)

when it next meets in October 2008 with a view of having the agreed measures in place before the expiration of the first commitment period of the Kyoto Protocol in 2011.[24]

In 2000, ships carrying EU flags emitted nearly 200 million tonnes of CO_2, significantly more than EU aviation sector emissions. The Commission has been engaged in developing and adapting strategies to reduce atmospheric emissions from seafaring ships since 2002.

On surface transport, the EU legislation[25] currently in force for heavy-duty vehicles defines the emission standards in place (Euro IV) as well as new provisions which come into force in October 2008 (Euro V). These standards include tailpipe and crankcase emissions, on-board diagnostic systems and fuel consumption. The legislation also provides for a non-binding standard called an Enhanced Environmentally-friendly Vehicle (EEV). The legislation has been highly successful in achieving its objectives. NOx and particulate matter limits have been gradually stepped down since the implementation of Euro I in 1992. For instance, nitrogen oxide limits are due to be reduced by 50 percent from 800 mg NOx/kWh in 1992 to 400 mg NOx/kWh by compliance year 2013-2014.

It remains quite probable that the ETS will be extended to include shipping by sea and/or surface transport. The timeline for such an inclusion is dependent upon such factors as the sufficiency of the shipping industry's seemingly collective action toward meeting environmental targets at satisfying regulators, with an underlying respect of course for other policy objectives such as agriculture and trade.

Compliance issues

The physical effects of climate change are clear to a significant degree, however the actual impact, or cost as an externality imposed on others that the producer does not take into account, is a subjective uncertainty. This of course leaves setting the 'price' of carbon and other pollutant emissions open for policymakers to set. Abatement strategies might include direct regulation (setting certain industry standards, such as engine or fuel-related emission specifications/limitations), Pigouvian tax-based systems, 'pollution permits'[26] or allowances which may be traded, and any variations thereof as hybrids. The economic theories behind 'pollution permits' stem from the work of Coase, Dales and Montgomery.

In addition to the uneven implementation of NAPs across Member States, environmental schemes and standards apply differently across transport sectors (i.e. aviation, agriculture, surface and public transport). This leads to an imbalance in the 'price of pollution' across transport-related industries. To complicate matters, regulators are faced with reconciling

[24] IMO Briefing 'Oslo meeting prepares ground on GHG reduction mechanisms' http://www.imo.org/home.asp?topic_id=1709&doc_id=9753

[25] Directive 2005/55 (agreed in co-decision); Directive 2005/78 (implementing provisions).

[26] For the economy theory behind 'pollution permits', *see* Coase, R. (1960) "The Problem of Social Cost", 3 *Journal of Law and Economics* 1-44; Dales, J.H. (1968) "Land, Water and Ownership", 1*Canadian Journal of Economics* 797-804; and Montgomery, W.D. (1972) "Markets and Licences and Efficient Pollution Control Programs", 5 *Journal of Economic Theory* 395-418.

carbon pricing with other policy objectives. After all, efficient transport is fundamental to sustainability of competitiveness, wealth and prosperity, as a principal driving force of growth, employment and trade.

The character of tax of course is that it is a domestic mechanism, in this case a Pigouvian tax, or a levy on an agent causing an environmental externality (pollution as a form of environmental damage) as an incentive to avert or mitigate the damage[27], meaning that all things being equal, levels of compliance vary according to the amount each state autonomously determines is appropriate for the tax. This presents the likelihood for inequality, as well as inefficiency in curbing emissions in the absence of any pre-set limit to the amount of pollution, when viewed from regional or international perspectives.

The Organisation for Economic Cooperation and Development (OECD) has set out two principal varieties of emission trading mechanisms: 'cap and trade' and 'baseline and credit'.[28] With cap and trade, a limited number of permits, or 'carbon credits', are available to be traded, whereas the amount of credits supplied to the regulated firm under the baseline and credit approach depends on that firm's ability to reduce emissions below the predetermined baseline level, or benchmark. At first glance, the cap and trade system seems better able to fix allowances and therefore more effectively control overall emissions. Regulators claim that CO_2 emissions trading systems are cost-effective and flexible, able to encourage innovation at both firm and industry levels, and deal with inherent distributional issues.

Member States determine the number of allocations for each industry according to actual and projected emissions. Some Member States, albeit a minority, allocate allowances based on historic emissions or benchmarking rather than through the majority 'free' auctions. Once allocated, allowances are grandfathered, which presents a potential for both distortion and opportunity cost. It has been argued[29] that systems which distribute permits through auctioning might operate more effectively than systems which permit established firms to retain 'grandfather' credits.[30] The first allowance auctions in the UK are due to take place in November 2008.

The main issue that here arises is the extension of emissions trading to new industries, and to a lesser extent additional GHGs, such as NOx and perflurocarbons. With the recent inclusion of aviation in the ETS, and talk of bringing in aluminium and ammonia producers, there is a mounting concern within yet-excluded industries that other industries currently subject to the EU ETS enjoy the advantage of grandfather allocations and years of adaptation. Therefore, notwithstanding that the price of a tonne of CO_2 has reached an all-time high, these ETS-

[27] As defined by the Organisation for Economic Cooperation and Development.
[28] 'An OECD Framework for Effective and Efficient Environmental Policies: Overview', OECD Publication from the Meeting of the Environmental Policy Committee (EPOC) at Ministerial Level, ENV/EPOC(2008)6/FINAL, 28-29 April 2008.
[29] MacGill, I. & Betz, R. (2008) "Emissions Trading: Good Governance Requires 100% Auctioning", Centre for Policy Development, Australia. http://www.ceem.unsw.edu.au/content/userDocs/EmissionsTradingGoodGovernance.pdf
[30] Baldwin, Robert (2008) "Regulation lite: The rise of emissions trading' 2 *Regulation & Governance* 193-215

entrant industries will be in the challenging position of being forced to play 'compliance catch-up'.

On the other hand, most of the included industries, including aviation, compete on the global market, which might put them at a disadvantage as many foreign competitors do not (yet) face carbon compliance costs or concerns (at least in the business sense).

For instance, some power companies have managed to make windfall profits from free allowances. This might, however, be short-lived as the Commission intends to replace Member States' NAPs with the enforced auctioning of approximately 60 percent of allowances from 2013. The profits governments make from the auctions may be used to fund national projects to reduce GHGs. Concern remains over the imbalance in wealth of EU Member States and the national emission reduction targets for other sectors not yet covered by the scheme.

Under the Directive, Member States are required to establish NAPs of carbon allowances as well as submit annual reports[31] on the application of the scheme nationally and progress made in its implementation. Installations are required to submit their verified emissions data to the Member State registries, which in turn forward this information to the Community Independent Transaction Log. The emissions reports are verified by independent agencies to ensure compliance. These agencies must set up a verification plan with ETS-appropriate methodology, which is to be monitored by a GHG Auditor. However, the Directive does not set out harmonised verification or accreditation requirements. Member States have discretion over 'mutual recognition' of verifiers, which clearly leaves the door open to confusion and conflict. Non-compliance carries a 40€ per tonne of carbon dioxide emitted penalty as well as the enforced surrender shortfall in allowances in the subsequent year.[32] The general idea of the ETS is to encourage firms with high abatement costs to innovate to reduce emissions and sell excess allowances, or if necessary purchase additional allowances, whereas firms which are smaller emitters are well placed to profit from the sale of their excess allowances.

International developments

The United Nations Framework Convention on Climate Change (UNFCC) came into force in March 2004. The Convention aims to reduce global warming and cope with the inevitable temperature increases.[33] The 192 parties to the Convention have agreed to formulate and implement national strategies for addressing GHG emissions, including providing financial and technological support to developing countries to foster a stronger commitment on their part. Although the Convention is a type of international treaty, it remains a framework of general provisions rather than a programme with mandatory limits on emissions or enforcement conditions.

[31] Set out in EC Decision 2004/156 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to EC Decision 2003/87.
[32] This penalty price is subject to change, but will always be set above the 'carbon price'.
[33] 'Essential background' - http://unfccc.int/essential_background/items/2877.php

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The United States has of course not yet signed up to the Kyoto Protocol, but it is clear that given it emits roughly 25 percent of GHGs, its support and involvement on an international level is essential to tackling climate change.

There is a general consensus that global governance is more favourable than domestic regulation, given the global impact of climate change. Thus the provisions under Kyoto and the commitment of the respective signatory states demonstrate a starting point for the convergence of proactive thinking and action, on a global level. In particular, the headway made by the EU vis-à-vis its ETS as predecessor to Kyoto establishes it as a seemingly appropriate model mechanism, irrespective of its effectiveness or whether it should be deemed 'good regulation', for the way forward on the reduction of emissions through the allowance trading compliance mechanism. At face value, emissions trading appears to remain, for the time being, an 'everybody wins' scenario for government, industry, consumers and the environment, whether it is an acceptable means of regulation. The focus shifts to which industries will be included initially in the EU ETS and each Member State's method of carbon allowance allocation, taking into consideration issues surrounding the discretion of policymakers in the auctioning of carbon credits and conferring grandfather rights upon individual firms.

Although there tends to be a global realisation of the troubles of climate change, an international agreement on tackling carbon and other atmospheric gases is yet out of sight. The efforts of the Kyoto Protocol, UNFCC and EU's ETS demonstrate both an international commitment and an operational (regional) cap and trade system.

In October 2007, the European Commission founded the International Carbon Action Partnership through which it, along with other countries and regions actively involved in the development of carbon markets through cap and trade systems, shares knowledge and experience with respect to implementation strategies.[34] In addition, the Commission organised a conference 'EU ETS Compliance: the Way Forward' from 10-11 September 2008 for competent authorities, including all relevant stakeholders in the EU ETS, and policymakers to establish a Compliance Forum to exchange experience and best practices.

The UN began negotiations on a future climate change treaty in Bali, Indonesia in December 2007. Looking forward, it is hoped that an agreement might be finalised at the 2009 UN climate change conference in Copenhagen.

[34] *See* http://www.icapcarbonaction.com/