

DISTRIBUTING THE RIGHT TO POLLUTE
IN THE EUROPEAN UNION:
EFFICIENCY, EQUITY, AND THE
ENVIRONMENT

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INTRODUCTION

The European Community (“EC”) ratified the Kyoto Protocol¹ in 2002, committing the Community and its Member States to an aggregate 8 percent reduction in greenhouse gases from 1990 levels in the period from 2008 to 2012.² To “help the EU find cost-effective ways of meeting its Kyoto Protocol commitments,”³ the EC, via directive, initiated a carbon dioxide (“CO₂”) emissions trading system (“ETS”),⁴ which began trading in January of 2005.⁵

The EU ETS is one of the most ambitious market-based environmental undertakings to date.⁶ It is the first multinational ETS, the first CO₂ trading system, and the first stab at what seems, inevitably, will be a major mechanism in any attempt at stabilization of atmospheric carbon. The EU has committed itself to the costly and time-consuming tasks of implementing the infrastructure for international trading schemes, such as registration, monitoring, and data collection. The scope of the EU

¹ *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, Dec. 10, 1997, FCCC/CP/1997/L.7/Add.1, 37 I.L.M. 22 [hereinafter *Kyoto Protocol*]. For general discussion of the Kyoto Protocol, see SEBASTIAN OVERTHÜR & HERMANN E. OTT, *THE KYOTO PROTOCOL: INTERNATIONAL CLIMATE POLICY FOR THE 21ST CENTURY* (1999).

² Council Directive 2003/87/EC, 2003 O.J. (L 275/32) (EC) ¶ 4 [hereinafter EC Directive].

³ *Communication from the Commission to the Council and to the European Parliament on Commission Decisions of 7 July 2004 Concerning National Allocation Plans for the Allocation of Greenhouse Gas Emission Allowances of Austria, Denmark, Germany, Ireland, the Netherlands, Slovenia, Sweden, and the United Kingdom in Accordance with Directive 2003/87/EC*, at 2, COM (2004) 500 final (July 7, 2004), available at http://europa.eu.int/eur-lex/en/com/cnc/2004/com2004_0500en01.pdf [hereinafter *EC Communication Concerning National Allocation Plans*].

⁴ Initially, only carbon dioxide will be traded in the EU ETS, EC Directive, *supra* note 2, art. 4, Annex I, but in the future, the ETS may be expanded to include other greenhouse gases. *Id.* art. 30(1), Annex II.

⁵ Press Release, Eur. Comm’n, Emissions Trading: Commission Kicks Off Review of the EU System (June 14, 2005), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/05/727&format=HTML&aged=0&language=EN&guiLanguage=en>.

⁶ See Joseph Kruger & William A. Pizer, *The EU Emissions Trading Directive: Opportunities and Potential Pitfalls* 1 (Resources for the Future Discussion Paper 04-24, 2004), available at <http://www.rff.org/rff/Documents/RFF-DP-04-24.pdf> (noting that the EU ETS “will dwarf existing U.S. trading programs in size and complexity and will encompass a variety of new features”).

ETS will be unprecedented: in Phase I (preparation for the Kyoto period, or 2005–2007) it will cover about 12,000 installations,⁷ responsible for roughly half of all CO₂ emissions in the EU.⁸ Estimates of the total value of the carbon market come in at €30 billion (US\$36 billion) per year in this period.⁹

This commitment to emissions trading has earned the EC well-deserved praise: the ETS has been lauded as “the New Grand Policy Experiment.”¹⁰ The Community’s willingness to burden itself by “putting its money where its mouth is” reinforces the importance of addressing the problem of climate change. In fact, some Member States have pledged cuts far greater than those required under Kyoto.¹¹ Moreover, it seems that the European initiative will spur others towards trading as well. Norway has expressed an interest in linking with the EU ETS, and the EU is looking to Canada, Japan, and individual U.S. states and Australian provinces to follow suit.¹²

However, the design of the EU ETS, specifically the method of allocation of allowances,¹³ leads to two classes of concerns: efficiency (the functioning of the market and its ability to achieve environmental benefits) and equity (redistribution of wealth). These concerns surface due to one design element, which is a

⁷ The EC uses the term “installation” to refer to a discrete emitter, or “stationary technical unit.” EC Directive, *supra* note 2, art. 3(e).

⁸ *EU Carbon Trading a Possible Blueprint*, FIN. TIMES, Dec. 31, 2004, at 7.

⁹ DAVID HARRISON, JR. & DANIEL B. RADOV, NAT’L ECON. RES. ASSOC., EVALUATION OF ALTERNATIVE INITIAL ALLOCATION MECHANISMS IN A EUROPEAN UNION GREENHOUSE GAS EMISSIONS ALLOWANCE TRADING SCHEME, at ES-1 (2002), available at <http://www.ieta.org/ieta/www/pages/getfile.php?docID=149>.

¹⁰ Kruger & Pizer, *supra* note 6, at 1.

¹¹ For example, the U.K. has set a goal of reducing emissions to 20 percent below 1990 levels by 2010, DEP’T OF ENV’T, TRANSP. AND THE REGIONS (U.K.), CLIMATE CHANGE: THE U.K. PROGRAMME, SUMMARY 2 (2000), available at <http://www.defra.gov.U.K./environment/climatechange/U.K./U.K.ccp/2000/pdf/summary.pdf>, and Germany has stated that it will aim at a 40 percent reduction by 2020, provided that the rest of the EU achieves a 30 percent reduction in the same period. FED. MINISTRY FOR THE ENV’T, NATURE CONSERVATION AND NUCLEAR SAFETY (F.R.G.), THE NATIONAL CLIMATE PROTECTION PROGRAMME 2005, at 5 (2005), available at http://www.bmu.de/files/english/climate/downloads/application/pdf/klimaschutzprogramm_2005_en.pdf.

¹² *EU Welcomes Norwegian-EU ETS Link Plan*, EU ENERGY, Oct. 2004, at 13.

¹³ The EC refers to a tradable permit as an “allowance,” which is defined as the right “to emit one tonne of carbon dioxide equivalent during a specified period.” EC Directive, *supra* note 2, art. 3(a).

major departure from nearly all established ETSs. Typically, a centralized government body sets an emissions cap for all polluters, balancing economic interests and ensuring that an appropriate level of cuts in emissions are made.¹⁴ In the U.S. SO₂ trading program, for example, the federal government distributed allowances to firms after a cap had already been determined by the U.S. Congress;¹⁵ U.S. states had no discretion to determine the quantity of allowances distributed per state or per firm. This basic step is almost taken for granted as a necessity by academics writing on emissions trading.¹⁶ However, in the EU ETS each Member State sets its own cap, or total quantity of emissions from firms controlled under the ETS.¹⁷ The discretion of Member States to set their own caps has given many commentators pause.¹⁸ Without a strict, centrally determined “cap” for the “cap-and-trade” system, the quantity of allowances, or emissions allowed under the trading system, will not necessarily be below current emissions levels.

Another controversial aspect of the EU ETS is Member States’ discretion to divide allowances between industries and

¹⁴ See Kruger & Pizer, *supra* note 6, at 11 (“In the U.S., the term ‘allocation process’ usually refers to decisions about allocating to firms *after* a cap has already been decided.”); see also HARRISON & RADOV, *supra* note 9, at 22.

¹⁵ *Id.* at 13.

¹⁶ See, e.g., Jonathan Remy Nash & Richard L. Revesz, *Markets & Geography: Designing Marketable Permit Schemes to Control Local and Regional Pollutants*, 28 *ECOLOGICAL L.Q.* 569, 575 (2001). Nash and Revesz, for example, describe the set up of a cap and trade system as follows:

The design and implementation of a tradable emissions permit regime proceeds in several steps. First, the policymaker identifies the pollutant to be regulated and the region over which the regulation will extend. Next, the policymaker determines what aggregate level of emission in a given year (or other time period) will be deemed acceptable and then subdivides this amount into a number of discrete emission permits, each of which authorizes the holder to emit a fixed amount of the regulated pollutant.

Id.; see also, e.g., James T.B. Tripp & Daniel J. Dudek, *Institutional Guidelines for Designing Successful Transferable Rights Programs*, 6 *YALE J. ON REG.* 369, 375 (1989) (asserting that the first element to effective trading programs is “clear legal authority to . . . implement and enforce the program”).

¹⁷ EC Directive, *supra* note 2, art. 11.

¹⁸ See, e.g., Kruger & Pizer, *supra* note 6, at 10–14; HARRISON & RADOV, *supra* note 9, at ES-1; Frank Gagelmann & Bernd Hansjürgens, *Climate Protection Through Tradable Permits: The EU Proposal for a CO₂ Emissions Trading System in Europe*, 12 *EUROPEAN ENV'T* 185, 191 (2002).

firms within the state.¹⁹ This intra-state discretion, together with the discretion to set overall caps, leads to concerns regarding the equity of the initial distribution of pollution rights. If state regulators are susceptible to the influence of large, rent-seeking industries, the initial distribution may reflect narrow interests rather than overall fairness.

The equity and efficiency concerns just described are exacerbated by the EU's common market system, which allows a free flow of capital and goods across borders and encourages competition among firms in different Member States. Given this competition, the design of the ETS puts Member States in a kind of Prisoner's Dilemma with regard to the setting of caps. It would be best overall if each Member State took steps necessary to meet the scheduled reductions, but in the absence of adequate coordination, Member States have a strong incentive to set overly high caps. Doing so gives their firms a competitive advantage by limiting their regulatory burdens and by providing the potential for extra allowances, which in-state polluters might sell to out-of-state firms.²⁰ In addition, Member States may also use intra-state discretion to favor powerful home industries. Although individually rational, such gaming ultimately may undermine the effectiveness of the ETS.

This Note makes the case that the EU's failure (or perhaps inability) to set an overall cap and allocation methodology for the ETS raises serious concerns about whether the ETS will realize its promise of actual reductions of CO₂ emissions in the EU. Section I provides background on emissions trading systems in general and on the design and legal implementation of the EU ETS, as well as two likely consequences of the lack of centralized authority: a) a dilution of benefits traditionally gained through the use of marketable permit systems and b) a redistribution of wealth which

¹⁹ See, e.g., Kruger & Pizer, *supra* note 6, at 13–14; Alfred Endres & Cornelia Ohl, *Kyoto, Europe?—An Economic Evaluation of the European Emission Trading Directive*, 19 EUR. J.L. & ECON. 17, 26 (2005).

²⁰ A grant of allowances amounts to a subsidy, as the EC Directive mandates that the majority of allowances in the EU ETS be distributed at no cost to polluters. EC Directive, *supra* note 2, art. 10. This method of distribution is obviously more feasible politically than auctioning, the method economists prefer. See, e.g., Peter Crampton & Suzi Kerr, *Tradable Carbon Permit Auctions: How and Why to Auction Not Grandfather* (Resources for the Future, Discussion Paper 98-34, 1998), available at <http://www.rff.org/rff/Documents/RFF-DP-98-34.pdf>.

raises important equity questions. Section II provides empirical support for the claim that Member States have set overly-high caps during Phase I of the ETS (the so-called “learning phase” before the Kyoto commitment period of 2008–12). Section III offers a theoretical explanation for over-allocation, specifically that the design of the EU ETS sets up a Prisoner’s Dilemma among states that encourages them to over-allocate allowances to in-state firms to ease regulatory burdens and provide them an opportunity to become net sellers to the emissions credit market. Section III also summarizes accounts of the cap-setting process in individual Member States, confirming that the Prisoner’s Dilemma set up by the design of the ETS led to over-allocation. Section IV then describes the consequences of over-allocation, which amount to an undermining of the potential advantages of employing an emission trading system. Finally, Section V discusses how the lessons from Phase I are instructive in the development of future ETSs.

I. THE EU ETS: DESIGN AND CONSEQUENCES

This section will lay out some of the basics of the EU ETS, including a brief background on the choice of emissions trading as a regulatory tool and a description of the design and method of allocation of the EU ETS.

A. *Introduction to Emissions Trading*

ETSs emerged as a response to traditional command and control regulation, which required all polluters to reduce their emissions to a specified level, typically that which is achievable through the use of best available technology (“BAT”).²¹ Command and control regulation is problematic because it allows individual firms very little flexibility in choosing the means of reducing pollutants, as it effectively requires all polluters to incur the high costs of investing in pollution control technology.²² This inflexibility has led to large levels of noncompliance with environmental regulation. For instance, the goals of the U.S.

²¹ See Robert W. Hahn & Gordon L. Hester, *Where Did All the Markets Go? An Analysis of EPA’s Emissions Trading Program*, 6 YALE J. ON REG. 109, 109 (1989); see generally Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law*, 37 STAN. L. REV. 1333 (1985) (describing and critiquing the BAT strategy).

²² See Ackerman & Stewart, *supra* note 21, at 1335–37.

Clean Air Act have proven to be costly to meet²³ and difficult to enforce.²⁴

Emissions trading, sometimes referred to as “cap-and-trade,” however, has been widely recognized as a successful regulatory alternative.²⁵ Under a cap-and-trade scheme, the total amount of emissions is capped at a predetermined level and allowances authorizing holders to emit a set quantity of pollution are distributed amongst regulated firms. These firms then have the choice between keeping their emissions at or below the required quantity by investing in pollution control technology, or buying emissions allowances on the market (and thus sharing the costs of pollution abatement) in order to remain within the cap. Sellers to the market are firms that pollute less than the amount of allowances they have, either due to investment in cleaner technologies or a decrease in production. A marketplace develops to facilitate these purchases, matching buyers and sellers. The price of allowances should reflect the lowest marginal cost at which the last unit of emissions will be reduced to meet the system cap.²⁶

There are five benefits that ought to result from the implementation of ETSs as opposed to a traditional command and control regime. First, ETSs achieve emissions reductions in a relatively cost-effective manner; in particular, the cost of greenhouse gas (“GHG”) reduction is estimated to be 50 percent or less under the EU ETS than under command and control regulation.²⁷ Second, because compliance costs are so much

²³ See Jack L. Landau, *Chevron, U.S.A. v. NRDC: The Supreme Court Declines to Burst EPA’s Bubble Concept*, 15 ENVTL. L. 285, 285–86 (1985).

²⁴ Ackerman & Stewart, *supra* note 21, at 1344 (noting “the egregious failure of the EPA and associated state agencies to enforce the laws on the books in a timely and effective way”).

²⁵ See Robert W. Hahn, *Economic Prescriptions for Environmental Problems: How the Patient Followed the Doctor’s Orders*, J. OF ECON. PERSP., Spring 1989, at 95, 95; Ackerman & Stewart, *supra* note 21, at 1334, 1348–49; Nash & Revesz, *supra* note 16, at 571.

²⁶ For a general description of cap-and-trade programs, see Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677, 763–68 (1999). For a good summary of emissions trading schemes which were implemented prior to the EU ETS, see HARRISON & RADOV, *supra* note 9, at ES-4.

²⁷ The EC estimates that the EU ETS will result in annual costs between €2.9 and €3.7 billion (roughly US\$3.5–4.5 billion); without emissions trading, the same reductions could cost €6.8 billion (US\$8.3 billion). By this estimate,

lower, compliance levels should be higher in ETSs than in BAT-based regimes, which in turn would lead to greater environmental benefits. Third, ETSs provide an incentive for technological innovation—the prospect of recouping research and development costs by selling allowances to the market.²⁸ In contrast, BAT regulation offers no such incentive, as BAT standards are based on technology which already exists and are not often revised.²⁹ Fourth, ETSs are far easier to administer, reducing the burden on regulators that are imposed by command and control regulation.³⁰ And finally, ETSs are far easier to monitor and enforce than traditional regulatory schemes.³¹

Thus, there are several rationales behind the use of ETSs as a means of controlling greenhouse gas pollutants. The next section will describe the implementation of the ETS in the EU.

B. *Initial Distribution of Allowances in the EU ETS*

This section summarizes the design of the EU ETS, emphasizing the method of setting Phase I caps by Member States.

The Kyoto Protocol requires an 8 percent reduction in EU-wide emissions.³² However, the EC does not require every Member State to cut emissions uniformly. Instead, the EU has decided to use its compliance with the Kyoto Protocol as a means of community-wide redistribution of wealth. Under the EU's burden sharing agreement ("BSA"), Member States have allocated the 8 percent reduction amongst themselves taking into account *inter alia* each state's expectations for economic growth.³³ Thus,

the ETS will cost about 42–54 percent less than other regulatory mechanisms. Press Release, Eur. Comm'n, Questions & Answers on Emissions Trading and National Allocation Plans (Jan. 6, 2005), available at <http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/04/44&format=HTML&aged=1&language=EN&guiLanguage=en>. This estimate is not surprising considering how inefficient from the standpoint of cost command and control regulation has often been found to be. See Ackerman & Stewart, *supra* note 21, at 1337–39.

²⁸ See Ackerman & Stewart, *supra* note 21, at 1342.

²⁹ See *id.* at 1336.; see also *Env'tl. Defense Fund v. Thomas*, 870 F.2d 892 (2d Cir. 1989) (holding that the Clean Air Act does not impose a mandatory duty to revise air quality standards and, thereby, limiting the use of the courts to force revisions).

³⁰ Ackerman & Stewart, *supra* note 21, at 1343.

³¹ *Id.* at 1346.

³² EC Directive, *supra* note 2, ¶ 4.

³³ See Council Decision 2002/358/CE 2002 O.J. (L 130) 2, 19 (EC) [hereinafter Burden-Sharing Agreement], available at <http://europa.eu.int/>

in general, the relatively well off countries must make large cuts (e.g., Germany is required to make a reduction of 21 percent from 1990 levels), while relatively less well off countries are actually allowed to increase emissions (e.g., Greece is allowed a 25 percent increase from 1990 levels).³⁴

The EC Directive “aims to contribute to fulfilling the [Kyoto reduction] commitments of the European Community and its Member States more effectively, through an efficient European market in greenhouse gas emission allowances.”³⁵ The Directive lays out two distinct phases of emissions reductions: Phase I, which is in the period pre-Kyoto (2005–2007), and Phase II, which is during the Kyoto period (2008–2012).³⁶ Phase I is meant to be used as a “learning phase” to allow market players to gain experience in trading prior to the period of Kyoto commitments.³⁷

The Directive has specified industries which will participate in the ETS during Phase I: generally, energy and major emitting industrials.³⁸ However, Member States’ total emissions reductions for Kyoto purposes will be based on aggregate emissions from all sectors, including the non-trading sector (“NTS”).³⁹ The NTS includes sources which, because they are not discrete and easily quantifiable, are unable to trade in the ETS. Examples of emissions reductions not eligible for trading include a reduction in emissions from the transport sector or lower emissions associated

eur-lex/pri/en/oj/dat/2002/l_130/l_13020020515en00010020.pdf; *see also Commission Communication to the Council and the Parliament, Preparing for Implementation of the Kyoto Protocol*, at 1, COM (1999) 230 final (May 19, 1999), available at http://europa.eu.int/comm/environment/docum/pdf/99230_en.pdf.

³⁴ Burden-Sharing Agreement, *supra* note 33, at 19.

³⁵ EC Directive, *supra* note 2, ¶ 5.

³⁶ *Id.* art. 11.

³⁷ *EC Communication Concerning National Allocation Plans*, *supra* note 3, at 2.

³⁸ EC Directive, *supra* note 2, Annex I, ¶ 2.

³⁹ Member States may also meet their Kyoto requirements through the use of Kyoto’s project-based instruments, Joint Implementation (JI) and the Clean Development Mechanism (CDM). Press Release, Eur. Comm’n, *supra* note 27. For a brief summary of these instruments, see Jason Schwartz, “Whose Woods These Are I Think I Know”: *How Kyoto May Change Who Controls Biodiversity*, 14 N.Y.U. ENVTL. L.J. 421, 424–26 (2006). For an overview of concerns regarding the use of JI/CDM credits in the EU ETS, see Kruger & Pizer, *supra* note 6, at 27–32. For the purposes of this note, it should be assumed that the NTS comprises any use of JI/CDM to meet emissions reductions requirements.

with green building requirements.⁴⁰ When Member States make their determinations of the amount of allowances to allocate, they will take any potential reduction from the NTS into account.⁴¹

Under the EC Directive, each Member State is required to submit a National Allocation Plan (“NAP”) for EC approval that specifies the number of allowances to be allocated in total to the Member State, as well as per sector and per firm.⁴² The Directive reserves the EC’s right to review and reject, partially or wholly, any Member State’s NAP.⁴³ One of the primary criteria for assessing NAPs is that the quantity of allowances allocated (the “cap”) must be “consistent with a path towards achieving or over-achieving each Member State’s target under [the BSA] and the

⁴⁰ There are multitudes of ways in which Member States propose to make reductions in the NTS. These include: tax programs (such as a climate change tax or tax breaks for renewable energy), *see, e.g.*, FED. MINISTRY OF AGRIC., FORESTRY, ENV’T AND WATER MGMT. (AUSTRIA), NATIONAL ALLOCATION PLAN FOR AUSTRIA 12 (2004), *available at* <http://umwelt.lebensministerium.at/article/archive/7085> (follow hyperlink for “NAP for Austria (English version)”) [hereinafter NATIONAL ALLOCATION PLAN FOR AUSTRIA]; renewables programs, *see, e.g., id.*; building programs (such as housing programs or promotion of energy-efficient appliances), *see, e.g.*, FED. PUB. SERV. OF PUB. HEALTH, FOOD CHAIN SAFETY AND ENV’T (BELG.), FLEMISH ALLOCATION PLAN, *in* BELGIAN NATIONAL ALLOCATION PLAN 14 (2004), *available at* http://ec.europa.eu/comm/environment/climat/pdf/belgium_en.pdf; transport measures (such as vehicle taxes and promotion of fuel-efficient cars), *see, e.g.*, MINISTRY OF INDUS., EMPLOYMENT AND COMM’NS (SWED.), SWEDEN’S NATIONAL ALLOCATION PLAN 10–11 (2004), *available at* <http://www.regeringen.se/content/1/c6/01/90/18/e9286dc2.pdf> [hereinafter SWEDEN’S NATIONAL ALLOCATION PLAN]; demand-side management (such as consumer education programs), *see, e.g.*, ALLOCATION PLAN 2005–2007 FOR THE BRUSSELS CAPITAL REGION, *in* BELGIAN NATIONAL ALLOCATION PLAN, *supra* note 40, at 16; agriculture programs (such as limits on nitrates), *see, e.g.*, DEP’T FOR ENV’T FOOD & RURAL AFFAIRS (U.K.), EU EMISSIONS TRADING SCHEME: U.K. NATIONAL ALLOCATION PLAN 2005–2007, at 14 (2004), *available at* <http://www.defra.gov.U.K./corporate/consult/euetsnap-stagethree/nap.pdf> [hereinafter U.K. NAP]; and waste programs (such as increased collection of landfill gas), *see, e.g., id.*

⁴¹ For example, the U.K. must achieve a 12.5 percent reduction from 1990 levels under the BSA. Burden-Sharing Agreement, *supra* note 33, at 19. The U.K.’s NAP contemplates that 38 percent of these reductions will come from the trading sector and 62 percent from the NTS. Regina Betz et al., *Designing National Allocation Plans for EU Emissions Trading*, 15 ENERGY & ENV’T 375, 428 (2004), *available at* http://www.ceem.unsw.edu.au/documents/energysenvironment_final_gesp.pdf. This proportion that is typical amongst Member States. *See id.* at 378.

⁴² EC Directive, *supra* note 2, art. 9.

⁴³ *Id.* art. 9(3).

Kyoto Protocol.”⁴⁴ However, the EC lacks the authority to set a hard floor on the amount of emissions a Member State allocates to its trading sector.⁴⁵ As the EC’s Environment Director conceded, “the emissions trading Directive does not give the Commission a legal basis for imposing a specific minimum degree of scarcity.”⁴⁶ Member States are left to resolve this conflict themselves, determining how far to reduce the emissions in the trading sectors.⁴⁷

Phase I thus presents a conflict to Member States. According to the “learning phase” rhetoric, no substantial burdens should be placed on market players, allowing them an opportunity to get experience with trading pre-Kyoto; however, the EC recognizes that in order to get real trading experience, the quantity of allowances allocated must be below business-as-usual (“BAU”) forecasts.⁴⁸ If there is an insufficient degree of scarcity, it would not be necessary for market players to buy or sell allowances at all, and the period would serve no practical purpose.⁴⁹

C. A Note on Intra-State Allocation

Within the trading sector itself, Member States also have discretion in determining the quantity of allowances given to each industry and individual installation. Distributional concerns surface due to fears that Member States will use this discretion to favor pet industries.⁵⁰ Such preferential treatment would have two

⁴⁴ *Id.* Annex III, ¶ 1. This concept is discussed in greater detail in *EC Communication Concerning National Allocation Plans*, *supra* note 3, at 3–7.

⁴⁵ Much has been written on the EC’s lack of sufficient centralized authority, or its basis in a common monetary system rather than a federal governing body, as in the U.S. See, e.g., Michael Scott Feeley & Peter M. Gilhuly, *Green Law-Making: A Primer on the European Community’s Environmental Legislative Process*, 24 VAND. J. TRANSNAT’LL. 653, 670–71 (1991).

⁴⁶ *EC Admits No Legal Basis to Demand Scarcity in ETS*, POINT CARBON, Aug. 16, 2004.

⁴⁷ EC Directive, *supra* note 2, art. 9.

⁴⁸ The director of the Commission’s Environment Department stated, “I fully agree . . . that without a certain scarcity of allowances in relation to the CO₂ emissions from the installations covered by the scheme, there will not be any trade and no incentive for operators to undertake emissions reductions.” *EC Admits No Legal Basis to Demand Scarcity in ETS*, *supra* note 46.

⁴⁹ See *EC Communication Concerning National Allocation Plans*, *supra* note 3, at 2.

⁵⁰ With €40 billion at stake, it is no surprise that so many commentators have voiced concerns about the potential for enormous redistributions of wealth even in Phase I of the EU ETS. Such concerns date to the passing of the EC Directive.

consequences: a) burdening other industries, the taxpayer, or the NTS at the expense of the favored industry; or b) giving that industry a competitive advantage vis-à-vis similar industries in other Member States. Redistribution can be caused by any inconsistency in allocation formulae across Member States, which would lead to discrepancies in the amount of allowances awarded to various industries within or between Member States. The amount of discretion accorded Member States means that a high degree of consistency in allocation methods is unlikely. Even a cursory assessment of NAPs shows a large degree of inconsistency across Member States.⁵¹

It is not safe to assume that these inconsistencies reflect an *inequitable* outcome. Such a conclusion would necessitate contentious normative judgments regarding what is “fair”⁵² and may likely ignore real differences between Member States. Distributional consequences must be weighed against the concept of state sovereignty and the fact that states themselves are likely to

See, e.g., Gagelmann & Hansjürgens, *supra* note 18, at 192; FIONA MULLINS & JACQUELINE KARAS, THE ROYAL INST. OF INT’L AFFAIRS, EU EMISSIONS TRADING: CHALLENGES AND IMPLICATIONS OF NATIONAL IMPLEMENTATION 29–30 (2003), *available at* http://www.chathamhouse.org.U.K./pdf/briefing_papers/EUETSworkshopreport.pdf; Kruger & Pizer, *supra* note 6, at 26–27.

⁵¹ For example, some based allocations on average historic emissions—that is, allocations were made based on the percentage of the total emissions that each polluter historically emits. *See, e.g.,* MINISTRY OF THE ENV’T (DEN.), DANISH NATIONAL ALLOCATION PLAN 2 (2004), *available at* <http://www.mst.dk/transportU.K./pdf/DK%20NAP%20eng%20april.pdf>. Others used the forecasting method, where allocations are based on future projections. *See, e.g.,* ENVTL. PROT. AGENCY (IR.), IRELAND’S NATIONAL ALLOCATION PLAN 6 (2004), *available at* <http://www.epa.ie/Licensing/EmissionsTrading/NationalAllocationPlan/FileUpload,5578,en.pdf>. In addition, Member States made adjustments to per installation allocation formulae which skew the quantity allocated to particular industries or installations. For example, many Member States adjusted the quantity of allowances allocated based on the unit’s attainment or nonattainment of BAT standards, NATIONAL ALLOCATION PLAN FOR AUSTRIA, *supra* note 40, at 5, bonuses for early action or cogeneration, IRELAND’S NATIONAL ALLOCATION PLAN, *supra*, at 21–23, or expected growth rates of the industry. NEDERLANDSE ORGANISATIE VOOR ENERGIE EN MILIEU (NETH.), ALLOCATION PLAN FOR CO2 EMISSIONS ALLOWANCES 2005–2007, at 4 (2004), *available at* <http://www.novem.nl/default.asp?documentId=114203>.

⁵² Some theorists would argue that “there is no single fair method of division.” Michael J. Meurer, *Fair Division*, 47 BUFF. L. REV. 937, 940 (1999). Furthermore, “[t]here are many ways to formulate the rule that a fair share should be responsive to relevant differences. The correct definition of proportional sharing is not obvious when there are heterogeneous individuals who differ in many morally relevant respects.” *Id.* at 41.

be in the best position to decide who the winners and losers from the ETS should be. These considerations suggest that states should be allowed the flexibility to determine the best approach to allocation.⁵³ States may justifiably rely on any number of factors in determining distribution methodology.⁵⁴ For example, consider the question of whether to reward early action (investment in emissions reduction prior to the EU ETS). If allowances are distributed according to current emissions, early actors will not achieve the benefits from the ETS available to those who have waited to invest until after the initial allocation. Those who invest in pollution control after the initial allocation can recoup some of their costs by increasing output or selling their excess allowances. Thus, some feel that it is only fair to reward the early actor by granting him extra allowances.⁵⁵ On the other side, some argue that such rewards are unnecessary, as firms are rational actors and likely had some profit motive in making the investment besides the ETS.⁵⁶ Both arguments make sense, and it is difficult to argue that one is normatively better than the other. Perhaps, then, states should have the flexibility to take account of local expectations and make this choice even if it leads to distributional inconsistencies from one state to the next.

On the other hand, giving states broad discretion over distribution may actually threaten the effectiveness of the ETS, raising serious efficiency concerns. Discretion over allocation is no trifling matter. Each small decision a Member State makes may have enormous repercussions on its industries; in fact, a German state has filed suit against Germany on precisely this point.⁵⁷ So,

⁵³ The same rationale was used when Congress determined that the states should each decide how to meet federally-mandated minimum standards of the Clean Air Act. See Robert V. Percival, *Environmental Federalism: Historical Roots and Contemporary Models*, 54 MD. L. REV. 1141, 1161 (1995).

⁵⁴ These factors might include a firm's ability to pay (or a desire not to affect employment), public opinion, fear of litigation, or administrative concerns. See EDWARD E. ZAJAC, *POLITICAL ECONOMY OF FAIRNESS* 114 (1995).

⁵⁵ See, e.g., *Communication from the Commission: On Guidance to Assist Member States in the Implementation of the Criteria Listed in Annex III to Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading within the Community*, at 15, COM (2003) 830 final (July 1, 2004).

⁵⁶ See Haoran Pan & Denise Van Regemorter, *The Costs and Benefits of Early Action Before Kyoto Compliance*, 32 ENERGY POL'Y 1477, 1485 (2004); U.K. NAP *supra* note 40, at 29–30.

⁵⁷ *Eastern German State Launches Case Against Emission Trading Law*, EU

the discretion of each Member State to determine allocations to home industries creates enormous incentives to invest in both lobbying and litigation to attempt to influence these decisions.⁵⁸ Energy expended to change allocation methodology is well worth it, considering that each seemingly unimportant decision can mean billions of euros to European industries.⁵⁹ But, as is argued below, such efforts can significantly dilute the benefits of an ETS.

II. THE EVIDENCE FOR OVERALLOCATION

In order to evaluate Member States' caps for the ETS, this section first provides an idealized model of how a Member State could set Phase I caps that would put it "on the path" to meeting the obligations of the Kyoto Protocol in 2008–2012. When compared to this model, a study of the actual allocations shows that almost all Member States set overly high caps, raising serious questions about whether the EU ETS will reap the theoretical benefits of emissions trading schemes.

Ideally, Member States would undertake the following process to determine the quantity of allowances to allocate, with the goal of reaching their Kyoto obligations:

1. Distribute the required reductions between the trading sector and the NTS in the manner that minimizes the cost of control. For the majority of cases, this will be accomplished by making substantial use of the ETS rather than through traditional command and control regulation,⁶⁰ which implies that Member States will allocate a large portion of emissions reductions to the trading sector. For the purposes of my analysis, I assume that Member States would allocate emissions to the trading sector in proportion to that sector's current emissions.
2. Determine a cap for its trading sector in Phase I that, pursuant to the Directive, sets the trading sector on the path to achieving the emissions required under Kyoto during Phase II. For the purposes of my analysis, I assume that caps

ENERGY, Apr. 2005, at 11.

⁵⁸ Lobbying and litigation efforts are further discussed in Section III(b) *infra*.

⁵⁹ For example, a German power company estimates losses of €1 billion due to Germany's treatment of allowances of decommissioned installations. Mark Hibbs, *BMU, EnBW Sue in EU Court over German Emissions Plan*, NUCLEONICS WK., Oct. 7, 2004, at 7.

⁶⁰ See *supra* note 27 and accompanying text.

during Phase I would decrease linearly from current emissions to emissions allowed under the Kyoto protocol.⁶¹

By way of example, Ireland must reduce its CO₂ emissions by 14 percent from 1990 levels during 2008–2012 in order to achieve its commitments under the BSA.⁶² In 2002, Irish firms in the trading sector were emitting 20.9 Mt/year.⁶³ Assuming that Ireland allocated emissions reductions proportionately between the trading sector and the NTS, emissions from the trading sector should decrease linearly from 20.9 Mt to 18 Mt during the three years of the 2005–2007 period.

However, Ireland actually allocated *no* required reductions to the trading sector during Phase I—in fact, Ireland allocated the trading sector a 7 percent *increase* in emissions from contemporaneous⁶⁴ emissions levels. The Irish government justified this cap on the basis that it is 3 percent less than BAU forecasts for Phase I, instead of ensuring reductions from current or historic emissions levels.⁶⁵ Figure 1 shows Ireland's allocation of emissions allowances to its trading sector. The smooth line shows a linear reduction from contemporaneous emissions to those Kyoto levels, and the dotted line portrays keeping emissions constant at then-current levels. In contrast to this decrease, or even the plateau of keeping emissions constant, the 2005–2007 bars show the increased levels of emissions that Ireland allocated.

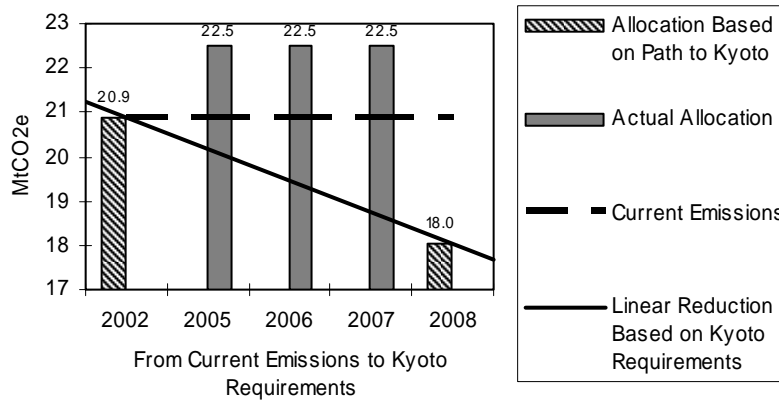
⁶¹ I should emphasize that a linear reduction of a country's overall emissions does not necessitate a linear reduction in a country's trading sector. In some countries, particularly accession countries where the economy has a high rate of growth, there may actually be increases in levels of emissions in the trading sector, plateauing, or non-linear reductions. However, an assumption of linear reduction makes sense considering the rationale behind emissions trading programs: that the emissions trading scheme is usually the optimal (cheapest) way for polluters to achieve emissions reductions.

⁶² Betz et al., *supra* note 41, at 408.

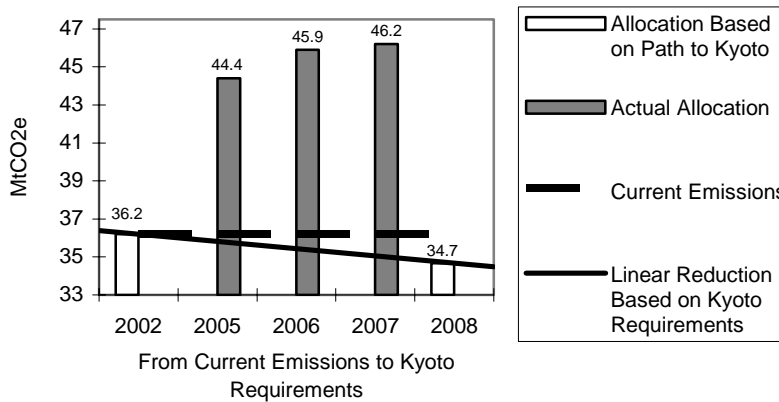
⁶³ *Id.*

⁶⁴ At the time the Member States were drafting their NAPs in 2004, the most up-to-date emissions data available was, for most Member States, from 2002. The data given here, which I refer to as "current" or "contemporaneous," is the data that the Member States were relying on in drafting their NAPs. This data is therefore the relevant data to consider for the purposes of analyzing how these NAPs were drafted and how the amount of emissions to be allocated were calculated.

⁶⁵ IRELAND'S NATIONAL ALLOCATION PLAN, *supra* note 51, at 9.

FIG. 1: PATH TO KYOTO V. ACTUAL ALLOCATION (IRELAND)⁶⁶

Ireland's Phase I caps are not unusual. Finland allocated a quantity to its trading sector which is 25 percent greater than contemporaneous emissions.⁶⁷ In fact, Finland's allocations actually increase each year, as shown in Figure 2.⁶⁸

FIG. 2: PATH TO KYOTO V. ACTUAL ALLOCATION (FINLAND)⁶⁹

⁶⁶ Historic emissions and actual allocation data are from Betz et al., *supra* note 41, at 408.

⁶⁷ *Id.* at 402.

⁶⁸ *Id.*

⁶⁹ *Id.*

In fact, as Table 1⁷⁰ shows, the level of allowances allocated during Phase I of trading (the 2005–2007 period) is disproportionate to the emissions reductions required under Kyoto.⁷¹ The majority of the EU15⁷² has allocated allowances in quantities that *increase*, by an average of 6.3 percent, the level of emissions from the trading sector.⁷³

⁷⁰ Unless specifically noted, the data from this chart was taken from Betz et al., *supra* note 41, at 395–429. Data in Column 5 (“Average Annual Allowances . . .”) was derived from Press Release, Eur. Comm’n, Emissions Trading: Commission Approves Last Allocation Plan Ending NAP Marathon (June 20, 2005), *available at* <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/762&format=HTML&aged=0&language=EN&guiLanguage=en>. Data for Spain is from MINISTERIO DE MEDIA AMBIENTE (SPAIN), NATIONAL ALLOWANCE ALLOCATION PLAN 30–31, *available at* http://www.mma.es/oec/pdf/spanish_nap.pdf (last visited Apr. 22, 2006). Data for Greece is from HELLENIC MINISTRY FOR THE ENV’T, PHYSICAL PLANNING AND PUB. WORKS (GREECE), NATIONAL ALLOCATION PLAN FOR THE PERIOD 2005–2007, at 5, 6, 23 (2004), *available at* http://europa.eu.int/comm/environment/climat/pdf/greece_en.pdf. Data denoted with an asterisk (*) is from *Commission Communication to the Council and the Parliament, Preparing for Implementation of the Kyoto Protocol*, *supra* note 32, Annex I. Please note that the data in Column 1 (Current Total GHG Emissions) and Column 4 (Current Emissions of Trading Sector) may represent data from 2001, 2002, or an average of recent years’ emissions. Data is not available for all Member States.

⁷¹ The Commission recognized as much itself, noting that “a considerable number of Member States have gaps to close, some of significant magnitude.” *Communication from the Commission: Further Guidance on Allocation Plans for the 2008 to 2012 Trading Period of the EU Emission Trading Scheme*, at 4, COM (2005) 703 final (Dec. 22, 2005) [hereinafter *Phase II Guidance*].

⁷² The EU15 comprises the fifteen EU Member States prior to May 1, 2004. The ten accession states (Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia) are thus excluded from this group. STEPHANIE CHANTRY, EUR. COMM’N DELEGATION, THE EUROPEAN UNION AND WORLD TRADE 2 (2004), *available at* <http://www.eurunion.org/profile/EUUSStats.pdf>. Because the data from the accession countries are typically outliers, they are often excluded from analysis of European Community statistics. *See, e.g.*, Eur. Env’t Agency, *Annual European Community Greenhouse Gas Inventory 1990–2002 and Inventory Report 2004*, at 11, EEA Technical Report No. 2/2004 (2004), *available at* http://reports.eea.europa.eu/technical_report_2004_2/en/Tech_2_2004_GHG_inventory_draft.pdf.

⁷³ *See* sources cited, *infra* note 70.

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TABLE 1: PERCENT CHANGE TO KYOTO TARGET V. PERCENT CHANGE IN THE TRADING SECTOR FOR EU15 (MT CO₂E) (FOR ALL AVAILABLE DATA)

	Total GHG Emissions v. Kyoto Requirements			Current Trading Sector Emissions v. Quantity of Allowances Allocated			Difference Between Change Required by Kyoto and Change of Trading Sector under EU ETS
	Current Total GHG Emissions (2002)	Emissions Required by the Kyoto Protocol (2008)	% Change Required to Meet Kyoto Target	Current Emissions of Trading Sector	Average Annual Allowances under EU ETS Phase I (2005-2007)	% Change of Trading Sector in EU ETS Phase I	
Denmark	71.5	54.9	-23.2%	30.9	33.5	8.4%	-31.6%
Finland	80.6	77.2	-4.2%	36.2	45.5	25.6%	-29.8%
Austria	84.6	67.9	-19.7%	30.2	33.0	9.3%	-29.0%
Luxembourg	11.0	10.1	-8.4%	2.9	3.4	15.5%	-24.0%
Ireland	70.0	60.4	-13.7%	20.9	22.3	6.8%	-20.6%
Netherlands	216.1	199.7	-7.6%	89.5	96.3	6.5%	-14.1%
Spain	401.3	347*	-13.5%	174.5	174.4	-0.1%	-13.5%
Portugal	85.2	78.0	-8.5%	36.6	38.2	4.3%	-12.7%
Sweden	70.5	75.0	6.4%	20.2	22.9	13.4%	-7.0%
Italy	554.2	475.0	-14.3%	256.6	232.5	-9.4%	-4.9%
Germany	998.1	962.3	-3.6%	501.0	499.0	-0.4%	-3.2%
Greece	133.5	137.8	3.2%	71.0	74.4	4.9%	-1.6%
UK	656.2	653.0	-0.5%	252.9	245.3	-3.0%	2.5%
Total/Average			-8.3%			6.3%	-14.6%

As Table 1 shows, some Member States have greatly over-budgeted the amount of emissions allocated to the trading sector, allocating up to a 30 percent increase from current levels relative to the decrease in emissions required under Kyoto.

III. EXPLAINING OVER-ALLOCATION: THE PRISONER'S DILEMMA

This section makes the case that over-allocation by nearly all Member States is explained by a type of "Prisoner's Dilemma" resulting from the cap-setting method of the EU ETS. First, this section briefly describes the Prisoner's Dilemma in theoretical terms, and then summarizes press accounts of the allocation process in individual Member States, which in general support the view that a Prisoner's Dilemma resulted in over-allocation in Phase I.

A. *The "Prisoner's Dilemma"*

Each country's ability to determine its own cap may have led to a "Prisoner's Dilemma" in the EU.⁷⁴ The EC Directive reflects a judgment that all Member States will benefit, or in other words, that overall European welfare will be improved, when the emissions reduction goals are met. However, under the design of the EU ETS, each Member State has the opportunity to set its own cap and cannot be sure that others will not try to get away with gaming the system. Each State has an incentive to over-allocate allowances to in-state firms, thereby easing regulatory burdens on the trading sector and providing these firms an opportunity to become net sellers to the emissions credit market. When multiple Member States act in this manner, however, it undermines the effectiveness of the ETS by flooding the market with credits,

⁷⁴ The dilemma arises in contexts where an agent must choose whether or not to pursue a welfare-maximizing cooperative strategy in the absence of information or assurance as to whether other agents will act so as to secure the benefits of cooperation. That is, if others do not act cooperatively, the agent is better off not acting cooperatively, and if others do act cooperatively, the agent is still better off not acting cooperatively (perhaps because she can free ride off their efforts). The dilemma occurs when each agent is so situated, so none of them will choose to cooperate, even though this means they forego the benefits of the cooperative scheme. See, e.g., THE OXFORD DICTIONARY OF PHILOSOPHY 302–03 (Simon Blackburn ed., 1994). For an illustration of a prisoners' dilemma in an environmental context, see generally Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968) and the discussion in RICHARD L. REVESZ, FOUNDATIONS OF ENVIRONMENTAL LAW AND POLICY 14–15 (1997).

which eliminates scarcity and the need for trading. As a consequence all Member States forego the advantages theoretically offered by the ETS, most notably cost-effective emissions reductions. Under circumstances like Phase II, where each member state will face binding overall emissions limits, an inoperative ETS would raise overall compliance costs and therefore increase the probability of non-compliance.

Climate change is a unique problem, as it involves long-term, diffuse impacts that make it more difficult to gather a purely domestic constituency. Nations have the incentive to “free-ride,” or to impose as few costs as possible on their home industries while enjoying the benefits created at the expense of others. In the EU ETS, fear of free-riding would lead individual Member States to make collectively irrational decisions, to the extent that the possibility that others will set high caps motivates a Member State to follow suit. The prospect of being one of a few states with a low cap is unattractive for several reasons. First, a low cap may force in-state firms to buy allowances from out-of-state firms in states where allocation has been overly generous. The low-cap state would thus become an importer of allowances, and capital would flow to the exporting states. Second, a low cap would impose regulatory burdens on in-state firms that could affect their competitiveness in a common market like the E.U. Third, the actual environmental reasons for adopting a low cap become less compelling if others will not do the same. Thus, the possibility of free-riding may spur Member States to be liberal in their allocation of allowances.

B. *Examples of Over-allocation and Gaming in the EU*

Empirical evidence leads to the conclusion that over-allocation of credits occurred during Phase I, and the Prisoner’s Dilemma provides a credible explanation for why over-allocation happened. In addition, the press accounts of the cap-setting processes in individual states provides narrative support for the conclusion that Member States faced a Prisoner’s Dilemma and over-allocated credits out of fears of free-riding.

As many analysts predicted,⁷⁵ the process of allocating emissions allowances was heavily influenced by European

⁷⁵ See, e.g., MULLINS & KARAS, *supra* note 50, at 29–30.

industries.⁷⁶ Many industries issued statements warning that the method of allocation of allowances would wreak havoc on their competitiveness.⁷⁷ Rival Spanish utilities, seeking to avoid an increase in costs, have clashed over the methodology for computing the quantity of allowances allocated.⁷⁸ In Germany, steelmakers' rejection of the allocation plan left "the government at an impasse."⁷⁹ German Chancellor Gerhard Schroder finally interceded to negotiate a deal between industry and the minister of the environment.⁸⁰ In addition, German industry has commenced litigation against Germany, challenging its allocation methodology.⁸¹ In fact, the influence of these interest groups and the concomitant probability for gaming in the allocation of allowances was so strong that it attracted the interest of game theorists, who have modeled the behavior of the various players in the EU to determine possible outcomes.⁸²

Germany's actions had a catalytic effect on other Member States, suggesting that concerns about free-riding at last partially explain the over-allocations that occurred in Member States'

⁷⁶ See, e.g., Endres & Ohl, *supra* note 19, at 26 ("[T]here is empirical evidence that in the case of Germany the distribution of reduction loads between the [trading and non-trading] sectors has been the result of a competition among interested industry groups for lower reduction loads."). Others argue that even before allocations, European industry heavily influenced the EC Directive which instituted emissions trading. See generally Peter Markussen & Gert Tinggard Svendsen, *Industry Lobbying and the Political Economy of GHG Trade in the European Union*, 33 ENERGY POL'Y 245 (2005) (finding that dominant interest groups influenced the design of the EU ETS market).

⁷⁷ For example, the president of Italy's national association of power companies noted that Italian power companies "will be heavily penalized by the EC's decision to reduce Italy's allocation of CO2 emissions," stating that, "We do not accuse the Kyoto Protocol, merely the way the burdens are divided." *EC Cuts Italian NAP by 9%*, EU ENERGY, June 2005, Iss. 109, at 3; see also sources cited *infra* note 144.

⁷⁸ *Spanish Players Clash on Emissions*, UTIL. WK., Mar. 12, 2004, at 11.

⁷⁹ *German Steelmakers Reject Carbon Emissions Scheme*, METAL BULL., Feb. 6, 2004.

⁸⁰ See Raphael Minder, *Industry Resists EU Carbon Scheme*, FIN. TIMES, Mar. 31, 2004, at 7; Richard Orange, *Continent Plays Dirty as U.K. Follows EU Rules on Pollution*, KNIGHT RIDDER TRIB. BUS. NEWS, July 18, 2004, at 1.

⁸¹ See; Case T-387/04, *EnBW Energie Baden-Württemberg AG v. Comm'n* (Sept. 27, 2004), http://europa.eu.int/eur-lex/lex/LexUriServ/site/en/oj/2005/c_006/c_00620050108en00380038.pdf; Hibbs, *supra* note 59.

⁸² See, e.g., Laurent Viguier et al., *A Two-Level Computable Equilibrium Model to Assess the Strategic Allocation of Emission Allowances within the European Union*, 33 COMPUTERS & OPERATIONS RES. 369 (2006).

NAPs. As a broker of emissions credits remarked, “Everybody was waiting to see the other hands, especially Germany’s, because nobody wanted to come out with the toughest emissions targets.”⁸³ Germany ultimately “played a weak hand,”⁸⁴ and other Member States followed suit.⁸⁵ Even though the EC did approve the NAPs of some of these Member States, this approval was often contingent on reductions in the cap, which were agreed upon in private negotiations with the EC.⁸⁶

The small quantity of reductions proposed by some countries caused contention amongst those Member States that did make large cuts in emissions. The most vocal of these was the U.K., which complained bitterly about the narrow cuts of France, Spain, and Italy, warning of a “damaging competitive distortion between EU Member States.”⁸⁷

The U.K. itself presents a prime example of the gaming which occurred in developing the EU ETS. Due to its shift from coal to gas in the 1990s,⁸⁸ the U.K. has already achieved its Kyoto target.⁸⁹ It is therefore in the U.K.’s best interest to argue vehemently for large cuts from others in order to keep its industries as competitive as possible. Once it became clear that many Member States planned to free-ride on the reductions of others, the U.K. responded by actually proposing to *raise* the quantity of emissions from its original NAP.⁹⁰ Although its proposed increase was small, the U.K. was subjected to harsh criticism. One analyst commented that the U.K. had lost “the high

⁸³ *Slightly Greener*, *ECONOMIST*, Apr. 3, 2004, at 67.

⁸⁴ *Id.*

⁸⁵ *See id.*; *see also* Sean Milmo, *EU Launches Emissions Trading*, *CHEMICAL MARKET REP.*, Jan. 10, 2005, at 5, 25.

⁸⁶ *France Must Reduce NAP Allowances for EC Approval*, *EU ENERGY*, Oct. 2004, Iss. 93, at 4.

⁸⁷ Clayton Hirst, *Britain Attacks EU Partners over Pollution*, *INDEPENDENT (London)*, Sept. 5, 2004, at 4.

⁸⁸ Mustafa H. Babiker et al., *The Evolution of a Climate Regime: Kyoto to Marrakech and Beyond*, 5 *ENV'TL SCI. & POL'Y*, 195, 202 (2002); *see also* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, *ELECTRICITY REFORM ABROAD AND U.S. INVESTMENT* 29–30 (1997), *available at* <http://www.eia.doe.gov/emeu/pgem/electric/061697.pdf> (describing the events which led to the shift from coal to natural gas in the U.K.).

⁸⁹ Betz et al., *supra* note 41, at 425.

⁹⁰ *See* Press Release, Dept. for Env't, Food and Rural Affairs (U.K.), U.K. Announces Plans on EU Emissions Trading Scheme, (Oct. 27, 2004), *available at* <http://www.defra.gov.U.K./news/2004/041027a.htm>.

moral ground on showing environmental leadership,”⁹¹ and others argued that the State was sacrificing Kyoto to competitiveness.⁹² Other Member States warned that if the U.K. revision were approved, they would view it as precedent and follow the U.K.’s lead.⁹³ When the Commission did reject the U.K.’s increased allocation,⁹⁴ the U.K. challenged its decision in the European Court of Justice (“ECJ”).⁹⁵ The ECJ’s ruling in favor of the U.K.⁹⁶ has led many to question the stability of the trading scheme.⁹⁷ The Commission’s apparent lack of enforcement power has led other Member States to explore the possibility of increasing their allowances as well.⁹⁸ Such an outcome would be particularly problematic under Phase II.⁹⁹ Recently, prices of allowances dropped on the Commission’s announcement that it would not challenge the ECJ’s decision.¹⁰⁰

The distribution of allowances within the U.K. provides an equally compelling story. Notably, while the U.K.’s cement and chemical industries compete against their counterparts on the continent, its power industry does not. Due to simple geography, it is very difficult to transmit power to or from the U.K., and therefore, the power industry is unlikely to face any competitive effects.¹⁰¹ Not surprisingly, the U.K. allocated a far greater burden to its electric industry (requiring a 28 percent reduction in

⁹¹ Johannah Ladd, *U.K. Request Threatens Trade System*, WALL ST. J., Feb. 2, 2005, at B2D.

⁹² See, e.g., Mark Milner, *Kyoto Sacrificed to Competitiveness*, GUARDIAN (Manchester, Eng.), Oct. 28, 2004, at 22.

⁹³ See Ladd, *supra* note 91.

⁹⁴ See Joe Kirwin, *European Commission Rejects U.K. Request to Boost Allowances, Approves Czech Plan*, 28 INT’L ENV’T REP. 249 (2005).

⁹⁵ Case T-178/05, *U.K. v. Comm’n* (Nov. 23, 2005), <http://europa.eu.int/eur-lex/lex/LexUriServ/LexUriServ.do?uri=CELEX:62005A0178:EN:HTML>.

⁹⁶ *Id.* ¶¶ 61, 63.

⁹⁷ See, e.g., Adam Cohen, *Court Lets EU Nations Ignore Pollution Quotas; Britain Wins in Challenge of Mandate on Emissions; Lending Industry a Hand*, WALL ST. J. (Europe), Nov. 24, 2005, at 3; Fiona Harvey & Raphael Minder, *U.K. Wins Review*, FIN. TIMES, Nov. 24, 2005, at 3.

⁹⁸ See Harvey & Minder, *supra* note 97, at 3; Roger Milne, *U.K. Emissions Victory Prompts Copycat Bids*, UTIL. WK., Dec. 2, 2005, at 10.

⁹⁹ See Harvey & Minder, *supra* note 97 (noting that “the ruling could weaken the Commission’s ability to enforce deeper emissions cuts from member states in the next phase of the scheme, which will run from 2008 to 2012”).

¹⁰⁰ See *2006 EUA Prices Slide on Profit-Taking . . . and Politics*, INT’L GAS REP., Feb. 2006, at 28.

¹⁰¹ U.K. NAP, *supra* note 40, at 45–46.

emissions) than to others (requiring, for example, a 12 percent and 4 percent reduction in emissions from chemicals and cement respectively).¹⁰² Although it is unclear on what grounds this distribution was made, the sheer scale of these anomalies in distribution do suggest that the U.K. may have been driven primarily by consideration of competitive effects.

As Member States began to submit their Phase I NAPs to the EC, it became clear that reductions would be substantially less than what had been hoped for. “Increasingly, voices are raised about a perceived generosity, not to say over-generosity, in terms of the total quantity of allowances proposed to be allocated [in some Member States],” the EC’s environment director complained.¹⁰³

The EC’s attempts to reign in over-allocation were mixed. In some cases, the EC exacted nominal emissions reductions during private negotiations.¹⁰⁴ However, in three cases the EC required Member States to make large cuts in allocations.¹⁰⁵ Perhaps the best example of the EC’s mixed success during Phase I is seen in its dealings with France. The French government tried to favor its chemical industry by formulating a very narrow interpretation of the definition of “covered installation” given in the Directive.¹⁰⁶ In response, the EC ordered France to include about 750 more installations, which it had initially excluded from the trading sector, and to reduce its overall emissions allowances.¹⁰⁷ While this response seemed to signal that the EC would take on a policing role, the increase demanded of France was

¹⁰² James Allen & Anthony White, *Carbon Trading*, ELECRC PERSPS., Sept./Oct. 2005, at 50, 56.

¹⁰³ Sean Milmo, *Uneven Emissions Trading Will Favor Some Companies*, CHEMICAL MARKET REP., Apr. 5, 2004, at 6.

¹⁰⁴ See *France Must Reduce NAP Allowances for EC Approval*, *supra* note 86, at 4.

¹⁰⁵ The EC rejected the Czech NAP entirely, requiring the Czech Republic to explain why it allocated such a large quantity of allowances. *EC Fails Czech NAP*, EU ENERGY, Dec. 2004, Iss. 108, at 13. Additionally, the EC ordered Poland’s quantity of allowances to be cut by 16.5 percent from its original proposal. *Poland Accepts NAP Cut Demand*, EU ENERGY, May 2005, Iss. 108, at 19. Finally, Italy agreed to a 9 percent cut from its original allocation. *EC Cuts Italian NAP by 9%*, *supra* note 77, at 3.

¹⁰⁶ See *EC Examines Revised NAPs*, EU ENERGY, Oct. 2004, Iss. 92, at 12.

¹⁰⁷ Roger Milne, *Commission Approves More Carbon Plans*, UTIL. WK., Oct. 29, 2004, at 13.

disappointing—less than 1 percent of France's total emissions.¹⁰⁸

Recently, the EC emissions logs verified that Member States over-allocated allowances, at least in 2005.¹⁰⁹ These logs show that firms were systematically allocated more allowances than their actual emissions.¹¹⁰ In fact, Germany, which planned to adjust the quantity of allowances allocated *ex post*,¹¹¹ has stated that it will

¹⁰⁸ See *France Must Reduce NAP Allowances for EC Approval*, *supra* note 86, at 4; Betz et al., *supra* note 41, at 404.

¹⁰⁹ Links to individual Member States' Community Independent Transaction Logs are available at European Comm'n, Community Independent Transaction Log, http://ec.europa.eu/comm/environment/climat/emission/citl_en.htm (last visited May 17, 2006); see also *Concerns over EU Carbon Trading*, BBC NEWS, May 15, 2006, <http://news.bbc.co.U.K./2/hi/business/4771871.stm>; Mathew Carr, *Carbon Permits Have Record Jump on Lower-than-Forecast Surplus*, BLOOMBERG.COM, May 15, 2006, <http://www.bloomberg.com/apps/news?pid=10000085&sid=ayx8LFKwPWaw&refer=europe>.

¹¹⁰ See European Comm'n, *supra* note 109.

¹¹¹ Germany has taken a surprisingly strong stance against the EC. See *National Allocation Plans for the EU Emissions Trading Scheme*, CARBON VENTURES NEWS, (London, Eng.), Sept. 2003, at 1, available at http://www.carbonventures.com/newsletters/cvnews_sept_03.pdf. The Commission rejected Germany's NAP because it called for *ex-post* adjustments to the per installation allocation. See Press Release, Eur. Comm'n, Emissions Trading: Commission Clears Over 5,000 Plants to Enter Emissions Market Next January, IP/04/862, at 3–4 (July 7, 2004), available at <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/862&format=HTML&aged=0&language=EN&guiLanguage=fr>. The EC has released a formal decision stating that the German government's intended use of *ex post* adjustments is inconsistent with the stipulations of the EC Directive. *Commission Decision of 7 July 2004 Concerning the National Allocation Plan for the Allocation of Greenhouse Gas Emission Allowances Notified by Germany in Accordance with Directive 2003/87/EC of the European Parliament and of the Council*, at 4, COM (2004) 2515/2 final (July 7, 2004), available at http://europa.eu.int/comm/environment/climat/pdf/germany_final_en.pdf. According to Germany, the purpose of these adjustments is "to ensure that forecast activity data . . . is not systematically overestimated." FED. MINISTRY FOR THE ENV'T, NATURE CONSERVATION AND NUCLEAR SAFETY (F.R.G.), NATIONAL ALLOCATION PLAN FOR THE FEDERAL REPUBLIC OF GERMANY 2005–2007, at 36 (2004), available at http://www.bmu.de/files/pdfs/allgemein/application/pdf/nap_kabi_en.pdf [hereinafter GERMAN NAP]. Such overestimation would cause windfall profits to polluters. Germany planned to make such adjustments when a firm has significantly lower emissions than the quantity of allowances allocated. See Briefing, Freshfields Bruckhaus Deringer, EU ETS Trading Commences 3 (2005), available at <http://www.freshfields.com/practice/environment/publications/pdfs/10573.pdf>; *Commission and Germany Continue NAP Discussions, Despite Lawsuit*, CARBON FIN., Oct. 2004, at 2, available at <http://www.environmental-expert.com/magazine/carbon-finance/carbonfinance-sample.pdf>. However, commentators view these adjustments with skepticism, fearing that they would further dilute the benefits of the ETS by allowing for the determination of the quantity of emissions per installation after the fact, rather

recall 21 million allowances which had been over-allocated to firms.¹¹²

IV. CONSEQUENCES OF OVER-ALLOCATION IN THE EU ETS

Because of the method of allocation in the EU ETS, some of the advantages which are traditionally thought to be gained by emissions trading may not be realized. As discussed in Section III(a), the EU ETS creates a Prisoner's Dilemma. A traditional ETS should avoid some of the problems of the Prisoner's Dilemma because the policing function of the central decision-maker ensures that the proper incentives (rewards for compliance and penalties for noncompliance) are in place, limiting the ability of participants to free-ride. However, the lack of central authority in the ETS makes it unclear whether this will be the case in the EU.

A. A Dilution of Benefits

The benefits of ETSs articulated above¹¹³ may be diluted in the EU. First, the benefit of cost efficiency in emissions reductions may not occur in the EU, because the Prisoner's Dilemma may result in a scenario in which Member States choose not to burden their industries. Instead, Member States use one or both of the following methods to achieve reductions: a) burdening the NTS with traditional environmental regulation, which would negate many of the efficiencies to be gained by entering into a market system;¹¹⁴ or b) as in Ireland, allocating a quantity of allowances to their industries which are essentially in line with

than requiring their industries to change their behavior in order to acquiesce to a prescribed allocation. See, e.g., FELIX MATTHES ET AL., WWF, THE ENVIRONMENTAL EFFECTIVENESS AND ECONOMIC EFFICIENCY OF THE EUROPEAN UNION EMISSIONS TRADING SCHEME: STRUCTURAL ASPECTS OF ALLOCATION 12–13 (2005), available at http://www.wwf.es/cambioclimatico/doc_comercio_emisiones/ETS_Estructura_Oeko_resumen.pdf; see also *EC Examines Revised NAPs*, *supra* note 106. After the Commission's rejection, the German government filed suit before the ECJ, but a decision has not been reached on the issue. See Briefing, Freshfields Bruckhaus Deringer, *supra* note 111, at 3.

¹¹² Carr, *supra* note 109.

¹¹³ See *supra* text accompanying notes 27–31.

¹¹⁴ See *Phase II Guidance*, *supra* note 71, Annex IV, ¶ 1; see also ALYSSA GILBERT ET AL., ECOFYS U.K., ANALYSIS OF THE NATIONAL ALLOCATION PLANS FOR THE EU EMISSIONS TRADING SCHEME 9–11 (2004), available at http://www.ecofys.co.U.K./U.K./publications/documents/Interim_Report_NAP_Evaluation_180804.pdf.

BAU estimates (therefore not requiring their industries to reduce pollution at all) and shifting the burden to the taxpayer by financing the purchase of the Member State's required allowances on the market through a carbon tax.¹¹⁵ This over-allocation is also troubling in light of the fact that the most cost-efficient and easiest reductions in emissions should come from the industries covered by the trading scheme, rather than the NTS where reductions are the result of command and control regulation.¹¹⁶ As the EC's environment commissioner stated, "Too many allowances and a resulting low price will create little incentive to change behavior."¹¹⁷ Some posit that the marketplace is already experiencing these effects,¹¹⁸ causing low prices for carbon credits and a surfeit of sellers struggling to find willing buyers.¹¹⁹ An inefficient market will limit the effectiveness of the ETS in reducing emissions.¹²⁰ In fact, there is already some evidence to support the contention that high caps have led to little, if any, environmental benefits and may cause the EU to miss its Kyoto

¹¹⁵ SWEDEN'S NATIONAL ALLOCATION PLAN, *supra* note 40, at 7–10.

¹¹⁶ See *Phase II Guidance*, *supra* note 71, Annex IV, ¶ 1; see also *supra* note 27 and accompanying text.

¹¹⁷ Raphael Minder, *Six EU States Face Action over CO₂ Emissions Plans*, FIN. TIMES, May 19, 2004, at 8.

¹¹⁸ See, e.g., Johannah Ladd, *EU Trading Plan for Emissions Faces Challenges*, WALL ST. J., Mar. 1, 2005, at A14.

¹¹⁹ *EU Allowance Prices Collapse Again as Sellers Chase Deals*, INT'L GAS REP., July 2005, at 28. Note that carbon prices have been significantly higher than had originally been predicted. These high prices are not the result of the allocation of allowances, but of a number of market forces which analysts had not predicted. Importantly, the price of natural gas in the EU has doubled, causing a switch from gas- to coal-powered plants, which typically emit twice the CO₂ of gas. See Allen & White, *supra* note 102, at 56. Second, extreme temperatures in the winter and summer of 2005 caused an increase in energy consumption, as well as droughts which caused a decrease in hydroelectric production. Fiona Harvey, *Market Begins to Influence Behaviour of Generators*, FIN. TIMES, Oct. 10, 2005, at 2. Third, analysts attribute market tightness to the fact that many European companies had planned to purchase carbon credits through Kyoto's CDM; however, a delay in the establishment of a UN registry made it impossible to certify such credits. *Pricy Carbon Could Spike Even Higher*, ENERGY COMPASS, Nov. 17, 2005, at 1. Finally, the EC's approval of several Member States' NAPs and the distribution of allowances to those countries was delayed, causing uncertainty and a lack of sellers in the marketplace. Sean Milmo, *Prices of CO₂ Allowances Leap on Market Uncertainty*, CHEMICAL MKT. REP., Apr. 11–17, 2005, at 10.

¹²⁰ See Ladd, *supra* note 118; Tessa Thorniley, *EU Emissions Plan is 'Weak and Costly'*, DAILY TELEGRAPH (London), Sept. 15, 2004, at 32.

targets.¹²¹ Missing these targets would mean the loss of the second benefit of ETSS—increased compliance.

Third, the benefit of fostering innovation¹²² may also be lost. As with command and control regulation, the EU ETS creates a scenario where companies have more of an incentive to invest in lobbying efforts or litigation rather than technological innovation.¹²³ While the EU regards its trading program in the 2005–2007 period as experimental,¹²⁴ its industry certainly does not. Valued at €40 billion,¹²⁵ Phase I is not viewed merely as a chance for practice trading, but as a period that will impose real costs and create its own set of winners and losers. The lack of strict caps in the EU has led market players to view investment in gaming strategies as having a higher return than investment in new technologies.

Fourth, the benefit of lower administrative costs, or shifting the information-processing burden from bureaucrats to business managers who can best determine how to cut their plants' pollution costs,¹²⁶ is also likely to be diluted. Member States have allocated a quantity of allowances to their industries which are in line with BAU estimates, only requiring industries to reduce pollution slightly and shifting the burden to the taxpayer by financing the NTS emissions reductions through a carbon tax.¹²⁷ The use of a tax as a regulatory tool is not cost-inefficient; taxes per unit consumed are in line with the polluter-pays principle because the end consumer is internalizing the costs of pollution.¹²⁸ However, this approach shifts the burden from businesses back to Member States, who are left with the task of developing an appropriate system of taxation to finance the purchase of these allowances.

¹²¹ See *EU Update on Emissions Cuts*, UTIL. WK., Jan. 27, 2006, at 13.

¹²² See *supra* note 28 and accompanying text.

¹²³ Betz et al., *supra* note 41, at 389.

¹²⁴ See *EC Communication Concerning National Allocation Plans*, *supra* note 3, at 2.

¹²⁵ Carr, *supra* note 109.

¹²⁶ Ackerman & Stewart, *supra* note 21, at 1343.

¹²⁷ At least four Member States plan to tax fossil fuels to fund NTS emissions reduction programs. See NATIONAL ALLOCATION PLAN FOR AUSTRIA, *supra* note 40, at 11–12, 68–69; GERMAN NAP, *supra* note 111, at 20; U.K. NAP, *supra* note 40, at 69; *supra* note 115 and accompanying text.

¹²⁸ Larry Parker & John Blodgett, *Global Climate Change: Three Policy Perspectives* (Cong. Research Serv., CRS Report for Congress 98-738, 1998), available at <http://www.ncseonline.org/nle/crsreports/climate/clim-1.cfm#Summary>.

Instead of allowing polluters to contract for allowances, the government must take on these tasks and incur the transaction costs of purchasing allowances. Moreover, the government is left with the difficulty of determining the level at which a tax should be set in order to finance the purchase of these credits, a task which entails enormous administrative difficulties.¹²⁹ The lack of centralized decision-making in allocations of allowances has led to other administrative costs as well, namely transaction costs incurred due to litigation.¹³⁰

The fifth potential benefit is greater evenhandedness of regulation of new sources.¹³¹ Under command and control regulation, there is typically a greater burden borne by new sources because they are not grandfathered, and thus, they incur the costs of BAT that their older competitors may avoid.¹³² This disproportionate burden discourages new entry into the market. However, this differential treatment should not occur under ETSs because all units are competing for allowances under the same conditions. Unfortunately, this benefit may also be lost in the EU ETS if existing industry is able to secure special treatment through lobbying efforts.¹³³ In addition, Professors Ackerman and Stewart point out that command and control regulation results in differential treatment if the only firms required to implement BAT are those which are sufficiently profitable, while industries likely to be bankrupted by BAT installation are not burdened.¹³⁴ Market systems, they argue, avoid this problem by placing burdens on industries proportionally, or per unit of pollution. However, this benefit may also be diluted in the EU because wealthier firms can invest more heavily in lobbying efforts and litigation.¹³⁵

¹²⁹ See WILLIAM J. BAUMOL & WALLACE E. OATES, *THE THEORY OF ENVIRONMENTAL POLICY* 192–94 (1988).

¹³⁰ See discussion Section III(b) *supra*.

¹³¹ Ackerman & Stewart, *supra* note 21, at 1335–36.

¹³² See *id.*

¹³³ New and existing sources were treated differently by some Member States, such as the United Kingdom. See DEP'T FOR ENV'T, FOOD & RURAL AFFAIRS (U.K.) ET AL., *EU EMISSIONS TRADING SCHEME: U.K. GOVERNMENT APPROACH TO EU ETS PHASE II*, at 11 (2005), available at <http://www.defra.gov.U.K./environment/climatechange/trading/eu/pdf/phase2-govapproach.pdf> [hereinafter U.K. APPROACH TO PHASE II]; see also MATTHES ET AL., *supra* note 111, at 9.

¹³⁴ Ackerman & Stewart, *supra* note 21, at 1335–36.

¹³⁵ See discussion Section III(b) *supra*.

B. *Distributional Consequences and Questions of Equity*

The method of allocation of the EU ETS will also have equity consequences, causing a redistribution of wealth within and amongst Member States. It is unclear exactly what the effects of this redistribution will be; the question has aroused the interest of modelers, who attempt to predict the winners and losers.¹³⁶ However, the fact that this redistribution will occur,¹³⁷ and is occurring,¹³⁸ is not contested.

This redistribution begs the normative question of who, exactly, *should* be paying for emissions reductions. The EU ETS is likely to have redistributive effects not only between various sectors or emitters, but also between producers and consumers,¹³⁹ if, as discussed in Section I(b), Member States choose to reduce emissions via NTS initiatives, such as demand-side mechanisms, taxes, or purchases from developing nations.¹⁴⁰ One of the normative aims of environmental regulation is the internalization of environmentally-damaging externalities, but this leaves open the question of who should be internalizing the externalities: the producer of the pollution, the end consumer of the polluter's product, or perhaps these costs should be borne proportionally by all taxpayers, regardless of the quantity of pollution consumed. Such policy considerations underlie the development of the emissions marketplace.

Economists would argue that redistribution is not important unless it affects the efficiency of the ETS¹⁴¹ and are typically

¹³⁶ See, e.g., HARRISON & RADOV, *supra* note 9, at 131–36.

¹³⁷ Estimates of the quantity of wealth redistributed range in the billions of euros (€14 billion/year, by one count). Morten Vesterdal & Gert Tinggaard Svendsen, *How Should Greenhouse Gas Permits Be Allocated in the EU?*, 32 ENERGY POL'Y 961, 962 (2004). Others estimate that “the scope of the economic rents at stake are much higher in the EU ETS than in past emissions trading programs. The wealth transfers inherent in the EU system could be 20 times greater (or more) than those of [the U.S. SO₂ and NO_x] trading programs.” KRUGER & PIZER, *supra* note 6, at 16.

¹³⁸ See, e.g., Roger Harrabin, ‘£1bn Windfall’ from Carbon Trade, BBC NEWS, May 1, 2006, <http://news.bbc.co.U.K./2/hi/science/nature/4961320.stm>.

¹³⁹ For a discussion of these concerns, see HARRISON & RADOV, *supra* note 9, at 17–20.

¹⁴⁰ See Betz et al., *supra* note 41, at 375.

¹⁴¹ See, e.g., Markus Åhman et al., *The Ten-Year Rule: Allocation of Emission Allowances in the EU Emission Trading System* 18–20 (Res. for the Future, Discussion Paper 05-30, 2005), available at <http://www.rff.org/rff/Documents/RFF-DP-05-30.pdf>. Economists have varying views on whether the

neutral with respect to particular normative choices in allocation methodologies.¹⁴² By this rationale, a fair allocation results from consistent allocations throughout the EU—that is, that allocations made via a consistent methodology or allocation formula.¹⁴³ Due to pressure from industry over competitive concerns,¹⁴⁴ the EC has espoused this idea and has issued guidance encouraging greater harmonization of allocation methodologies in Phase II.¹⁴⁵

V. FUTURE EMISSIONS TRADING SYSTEMS

Experience with Phase I of the EU ETS will provide important lessons for future ETSs. The EU will have an opportunity to remedy problems in Phase II trading (the Kyoto period). Additionally, the EU ETS Phase I experience can be instructive to other multi-state and multi-national trading schemes.

initial distribution of allowances will affect the overall efficiency of the market; in principle, it should not. William Blyth & Martina Bosi, *Linking Non-EU Domestic Emissions Trading Schemes with the EU Emissions Trading Scheme* 25 (Int'l Energy Agency, COM/ENV/EPOC/IEA/SLT(2004)6, 2004), available at http://www.iea.org/textbase/papers/2004/non_eu.pdf. For a discussion that it will, see Graciela Chichilnisky et al. *Equity and Efficiency in Environmental Markets: Global Trade in Carbon Dioxide Emissions*, in ENVIRONMENTAL MARKETS: EQUITY AND EFFICIENCY 46, 47 (Graciela Chichilnisky & Geoffrey Heal eds., 2000).

¹⁴² See, e.g., Blyth & Bosi, *supra* note 141, at 24.

¹⁴³ This idea, embraced by those who are concerned with keeping a level playing field for market players, has theoretical roots in Feinberg's Formal Principle of Distributive Justice: "Equals should be treated equally, and unequals unequally, in proportion to relevant similarities and differences." ZAJAC, *supra* note 54, at 105. See, e.g., WWF, CARBON COUNTDOWN: EMISSIONS TRADING TO COMBAT CLIMATE CHANGE ¶ 11 (2005), available at http://www.wwf.org.U.K./filelibrary/pdf/ets_U.K._summary.pdf ("Member States and the EU Commission should make a serious effort to maximize harmonization across NAPs."); Åhman et al., *supra* note 141, at 25 (offering suggestions to obtain a "level playing field" in the EU ETS).

¹⁴⁴ See, e.g., Issues Statement, Chem. Indus. Assoc., EU Emissions Trading Scheme (ETS) 3 (July 27, 2005), available at http://www.cia.org.U.K./newsite/Issue_Statements/Emissions_Trading.pdf; *Emissions Trade Scheme Inconsistent, Hurts Smaller Companies*, FOODPRODUCTIONDAILY.COM, Oct. 11, 2005, <http://www.foodproductiondaily.com/news/printNewsBis.asp?id=63826>.

¹⁴⁵ *Phase II Guidance*, *supra* note 71, at 12. The importance of harmonization of allocation methodologies is also stressed by Member States themselves. See, e.g., U.K. APPROACH TO PHASE II, *supra* note 133, at 4–5.

A. *EU Phase II*

One of the solutions to the classic Prisoner's Dilemma problem is coordination among the players, and Phase II provides an opportunity for this to occur. However, it seems likely that this opportunity will be passed over. It appears that the EC's lack of authority,¹⁴⁶ which hindered its attempts to reign in over-allocation in Phase I, will also impair the ETS in Phase II. The design of the Phase II of the EU ETS is almost identical to Phase I; most importantly, Member States have the same discretion to determine their own caps and allocate allowances to industries and individual firms.¹⁴⁷ While it is clear that there is both a need for more stringent allocations¹⁴⁸ and greater consistency in allocation methodologies,¹⁴⁹ neither will be mandated in Phase II.

However, the EC has issued guidance on preparation of Phase II NAPs. Here, the Commission acknowledges many of the shortcomings of Phase I, including statements regarding the under-utilization of the ETS and the over-reliance on the NTS.¹⁵⁰ In addition, the Commission has provided specific criteria to address over-allocation (requiring the trading sector to be allocated a proportional share of overall reductions), over-reliance on non-domestic reductions (requiring limits on the quantity of JI/CDM credits purchased),¹⁵¹ and gaming amongst industries (prohibiting allocations made "in such a way as to unduly favour certain undertakings").¹⁵²

Although it is possible to amend the Directive, the EC has indicated that it does not intend to do so.¹⁵³ It is possible that Member States could amend the Directive themselves through a majority vote, and some Member States have expressed an interest in trying to orchestrate this type of coordinated effort.¹⁵⁴

¹⁴⁶ See *supra* note 45 and accompanying text.

¹⁴⁷ EC Directive, *supra* note 2, art. 11. The notable differences in Phase II are that Member States have the option of including other GHGs in the ETS and that the penalty for noncompliance increases in this period (from €40 to €100). *Id.* arts. 16, 24.

¹⁴⁸ See *Traders Not Surprised by Prospect of Further Cuts in ETS*, EU ENERGY, Jan. 2006, Iss. 124, at 3.

¹⁴⁹ See sources cited note 145 *supra*.

¹⁵⁰ *Phase II Guidance*, *supra* note 71, at 16.

¹⁵¹ See *supra* note 39.

¹⁵² *Id.* at 12–13.

¹⁵³ U.K. APPROACH TO PHASE II, *supra* note 133, at 5.

¹⁵⁴ *Id.* at 4–5.

B. *Other Upcoming Emissions Trading Schemes*

The EU regime foreshadows the implementation of the worldwide ETS under the Kyoto Protocol.¹⁵⁵ While the Protocol states that “[a]ny such trading shall be supplemental to domestic actions for the purpose of meeting . . . reduction commitments,”¹⁵⁶ emissions trading is likely to be a key means for developed countries to meet their Kyoto targets.¹⁵⁷

There are several problems associated with the implementation of an ETS under the Kyoto Protocol, including the Russian “hot air” problem¹⁵⁸ and the uncertainty in the certification of emissions reductions from developing countries.¹⁵⁹ In addition, the difficulties encountered in the EU are likely to be magnified on a worldwide scale, as countries would have to agree to cede power to a centralized decision-making unit to ensure that the ETS operates efficiently and equitably.¹⁶⁰ Many fear that countries’ unwillingness to do so will result in insufficient monitoring of trades and measurement or verification of emissions reductions.¹⁶¹

There are also plans to implement emissions trading programs within the U.S. Recently, seven U.S. states announced plans for a

¹⁵⁵ See *Kyoto Protocol*, *supra* note 1, art. 16 bis (permitting states to use worldwide ETS as a means of meeting Kyoto Protocol commitments).

¹⁵⁶ *Id.*

¹⁵⁷ See Press Release, Eur. Comm’n, Commission Proposes Ratification of Kyoto Protocol and Emissions Trading System (Oct. 23, 2001), *available at* <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/01/1465&format=HTML&aged=0&language=EN&guiLanguage=en>. The permit market under the Kyoto Protocol is projected to be worth billions of dollars annually. Babiker et al., *supra* note 88, at 201.

¹⁵⁸ The “hot air” problem is the issue posed by the economic and industrial stagnation of a number of former Soviet states. Many of those states already emit considerably less than they did in 1990, and thus, their excess emissions credits may provide other states with the means to avoid significant reductions of their own. For discussion, see, for example, Laura Thoms, *A Comparative Analysis of International Regimes on Ozone and Climate Change with Implications for Regime Design*, 41 COLUM. J. TRANSNAT’L L. 795, 821 (2003); Akira Maeda, *The Emergence of Market Power in Emissions Rights Markets: The Role of Initial Permit Distribution*, 24 J. OF REG. ECON., 293, 295 (2003).

¹⁵⁹ See generally Gabriela Llobet, “Trust But Verify”: *Verification in the Joint Implementation Regime*, 31 GEO. WASH. J. INT’L L. & ECON. 233, 239 (1997–1998) (arguing that “verifying emissions reductions represents one of the most significant problems faced in devising a [voluntary multinational regime]”).

¹⁶⁰ See DAVID C. VICTOR, *THE COLLAPSE OF THE KYOTO PROTOCOL AND THE STRUGGLE TO SLOW GLOBAL WARMING* 12–13 (2001).

¹⁶¹ *Id.* at 17.

voluntary ETS, the Regional Greenhouse Gas Initiative (“RGGI”).¹⁶² RGGI represents an enormous landmark as the U.S.’s first multi-state undertaking to reduce CO₂ emissions¹⁶³ and would, in fact, be a coup of sorts, in light of President Bush’s abandonment of the Kyoto Protocol.¹⁶⁴ Although RGGI is still in the early stages of development, the states have agreed upon a regional cap for the trading system, as well as caps for individual states.¹⁶⁵ However, the decisions on allocation to industries and individual units are left to the states.¹⁶⁶ RGGI states that this discretion would allow states to “make decisions that would ultimately be political,” that “without consistency between states there is uncertainty for businesses,” and “concerns about competitiveness that are currently occurring in the EU ETS.”¹⁶⁷

Thus, RGGI may lead to distributional consequences akin to the European system. The RGGI system is complicated by the voluntary nature of its membership; in fact, several states dropped out of the system, citing economic concerns.¹⁶⁸ State actors do not typically wish to burden their home industries, but the draw of the

¹⁶² MEMORANDUM OF UNDERSTANDING OF THE REGIONAL GREENHOUSE GAS INITIATIVE (Dec. 20, 2005), *available at* http://www.rggi.org/docs/mou_final_12_20_05.pdf (last visited Apr. 1, 2006). States hope to keep emissions flat from 2009–2015 and then reduce emissions by 10 percent between 2015 and 2020. Memorandum from RGGI Staff Working Group, to Reg’l Greenhouse Gas Initiative (RGG) Agency Heads, Revised Staff Working Group Package Proposal 1 (Aug. 18, 2005), *available at* http://www.rggi.org/docs/rggi_proposal_8_24_05.pdf.

¹⁶³ See Anthony DePalma, *9 States to Cut Emissions by Power Plants*, N.Y. TIMES, Aug. 24, 2005, at A1; Kirsten H. Engel, *Mitigating Global Climate Change in the United States: A Regional Approach*, 14 N.Y.U. ENVTL. L.J. 54, 65–66 (2005).

¹⁶⁴ See Glenn Scherer, *A Green Revolt Against Bush*, SALON.COM, July 21, 2003, http://www.salon.com/news/feature/2003/07/21/emissions/index_np.html; see also Andrew Buncombe, *US Insists It Is Serious on CO₂ as Kyoto Comes into Force*, INDEPENDENT (London), Feb. 17, 2005, at 33.

¹⁶⁵ Memorandum from RGGI Staff Working Group, *supra* note 162, at 2.

¹⁶⁶ There are two exceptions to states’ ability to determine how allowances are allocated: 5 percent of their emissions budget must be set aside for the regional Strategic Carbon Fund (used to develop additional carbon-reducing projects beyond reductions required for the cap), and 20 percent must be allocated for a public benefit purpose (including the promotion of energy efficiency, mitigating impacts on ratepayers, and promotion of renewable energy technology). *Id.*

¹⁶⁷ Reg’l Greenhouse Gas Initiative, RGGI Stakeholder Workshop on Allowance Apportionment and Allocation: Summary 1 (Oct. 14, 2004), *available at* www.rggi.org/docs/allocation_summary_10_28_04.pdf.

¹⁶⁸ Drake Bennett, *Emission Control*, BOSTON GLOBE, Dec. 18, 2005, at K4.

political capital that results from pro-environment legislation may provide a strong incentive to do so (particularly for those looking to make presidential bids).¹⁶⁹ However, after this legislation has been enacted, a rational actor's agenda would then shift to rent-seeking for powerful home industries. If each state is charged with the task of distributing allowances, an EU ETS-like outcome might then occur, leading to similar competitive distortions and dilutions of the benefits of trading systems.

There has also been some movement towards the implementation of a national ETS. Senators McCain and Lieberman recently reintroduced their Climate Stewardship Act "establishing a market-driven system of greenhouse gas tradeable allowances."¹⁷⁰ The bill calls for distribution of allowances to be determined by the Department of Commerce and the EPA, based on a number of factors including distributive considerations.¹⁷¹ There has been some movement recently to bring the environment, and specifically climate change, back on the agenda.¹⁷²

¹⁶⁹ See E. Donald Elliott et al., *Toward a Theory of Statutory Evolution: The Federalization of Environmental Law*, 1 J.L. ECON. & ORG. 313, 334 (1985). Gov. Pataki of New York, a presidential hopeful in 2008, is widely credited with spearheading RGGI. See Press Release, Gov. Pataki Receives "Climate Champion" Award at 2005 Global Warming Solutions Conference, June 8, 2005, http://www.ny.gov/governor/press/05/june08_05-5.htm; see also Eli Sanders, *Rebuffing Bush, 132 Mayors Embrace Kyoto Rules*, N.Y. TIMES, May 14, 2005, at A9. For a discussion about potential economic drivers for recent seemingly counter-intuitive state activism on global warming, see generally Barry G. Rabe et al., *State Competition as a Source Driving Climate Change Mitigation*, 14 N.Y.U. ENVTL. L.J. 1 (2005). RGGI in particular can also be explained by the regional, rather than single-state nature of the agreement. For an in-depth analysis of this and other regional climate change approaches in the United States, see generally Engel, *supra* note 163.

¹⁷⁰ S. 342, 109th Cong. (2005).

¹⁷¹ *Id.* § 332(b)(1). Other factors include impacts on corporate income, taxes, and asset value; impacts on income levels of consumers and on their energy consumption; economic efficiency; the ability of covered entities to pass costs on to their customers; the degree to which allocations should decrease over time; and international competitiveness of U.S. manufacturing and manufacturing jobs. *Id.* § 332(b)(2)–(7). The bill then calls for the Administrator of the EPA to make allocations on a per unit basis. *Id.* § 333(a). The Administrator must make these allocations in a way that encourages investment in energy efficiency; minimizes costs to the government in making allocations; does not penalize early actors; and provides for new entrants to the market. *Id.* § 333(b). The bill expressly allows awards for early actors for registered reductions between 1990 and 2010. *Id.* §§ 335–36.

¹⁷² See Juliet Eilperin, *GOP Warms Up to Emissions Cuts*, WASH. POST, June 12, 2005, at A10; see also Dan Vergano, *The Debate's Over: Globe is Warming*;

Regardless, many are skeptical that carbon limits will be instituted in the U.S. any time in the near future.¹⁷³

CONCLUSION

The way allowances are allocated in ETSs can have a variety of consequences, affecting the efficiency of the trading system, the level of environmental gains achieved, and equity between market players. Because the stakes are so high, legislators should carefully consider how allowances are allocated in emissions trading schemes. In order to avoid over-allocation and achieve the greatest possible benefit, ETSs should be constructed under a central decision-making authority with agreed-upon caps. To ensure a level playing field, economists advise that the methodology of allocation to specific players should be consistent among states. However, the specifics of these formulae involve normative questions with no clear answer. Thus, allocation raises questions of equity that require the circumspection of the central authority, rather than individuals at state or agency levels. A master formula should be incorporated directly into legislation or compromises amongst states. Making allocation decisions at a centralized level would result in lower transaction costs and lay the groundwork for an efficient emissions market with real environmental progress.

Politicians, Corporations, and Religious Groups Differ Mainly on How to Fix the Problem, USA TODAY, June 13, 2005, at A1.

¹⁷³ See Joseph Kruger, *From SO₂ to Greenhouse Gases: Trends and Events Shaping Future Emissions Trading Programs in the United States* 5–6 (Resources for the Future Discussion Paper 05-20, 2005), available at <http://www.rff.org/rff/Documents/RFF-DP-05-20.pdf>.