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THE EUROPEAN UNION'S MULTINATIONAL CARBON TRADING PROGRAM

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INTRODUCTION

This article will primarily discuss the European Union's Greenhouse Gas Emissions Trading Scheme (EU ETS), which it launched in January 2005 as a market-based solution to provide incentives for curbing greenhouse gas (GHG) emissions.[1] Although this was the first comprehensive multinational greenhouse gas emissions trading program covering installations in each of the EU's then 25 member states, the United States fifteen years earlier had initiated an innovative national sulfur dioxide (SO_2) emissions trading program under Title IV of the Clean Air Act amendments of 1990.[2] That program was aimed at reducing sulfur emissions and the resulting acid rain, which "represents a threat to natural resources, ecosystems, materials, visibility, and public health."[3] Under Title IV, the acid decomposition control program requires significant reductions in sulfur dioxide emissions from 1980 levels.

Subsequently, the 1997 Kyoto Protocol,[4] which was negotiated under the 1992 United Nations Framework Convention on Climate Change,[5] established emissions reductions commitments for industrialized states to an average 5.2 percent reduction below the benchmark 1990 concentration levels by the 2008-2012 period. The Kyoto Protocol includes international emissions trading among other "flexibility mechanisms" to help countries meet their commitments to effectuate green-

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1. Council Directive 2003/87/EC 2003 O.J. (L275 25.10.2003) of the European Parliament and of the Council, Oct. 13, 2003, establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (as amended by Council Directive 2004/1/EC 2004 O.J. (L338 18 13.11.2004)) [hereinafter Directive 2003/87/EC].

2. 42 U.S.C.A. § 7651 (2008). *See generally* Revisions to the Permits and Sulfur Dioxide Allowance System Regulations Under Title IV of the Clean Air Act, *available at* http://www.epa.gov/EPA-AIR/1998/August/Day-03/a20605.htm.

3. § 7651(a) (U.S. Congressional finding).

4. Kyoto Protocol to the United Nations Framework Convention on Climate Change (Dec. 10, 1997), U.N. Doc. FCCC/CP/197/7/Add.2 (final version), *entered into force* Feb. 6, 2005, *reprinted in* 37 I.L.M. 22 (1998) [hereinafter Kyoto Protocol], *available at* http://unfccc.int/resource/docs/convkp/kpeng.pdf. *See generally* MICHAEL GRUB ET AL., THE KYOTO PROTOCOL, A GUIDE AND ASSESSMENT (1999).

5. United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107, *reprinted in* 31 I.L.M. 848 (1992), *entered into force* March 21, 1994 [hereinafter UNFCCC].

house gas reductions. The EU ETS is designed for EU member states to comply collectively with their commitments to reduce emissions under the Kyoto Protocol. Thus, while the EU commitment is to be observed collectively, the targets may vary for member states.

The U.S. Acid Rain Program (ARP) is a model that has been followed by several countries,[6] as well as the Kyoto Protocol itself and the EU. Thus it seems appropriate to briefly review the U.S. and Kyoto experiments on emissions trading before discussing the EU program.

I. U.S. AND KYOTO EMISSIONS TRADING

The Clean Air amendments of 1990 established an overall national limit on sulfur dioxide emissions and an allowance trading program[7] to regulate SO_2 from power plants. The sulfur trading program was divided into two phases—Phase I began in 1995 and Phase II in 2000. The nationwide ceiling on emissions by electric utilities was set at 8.90 million tons and the Environmental Protection Agency (EPA) was authorized to allocate annual emissions to firms in tons per year.[8]

Compliance can be achieved through an emissions allocation and transfer system. The cap-and-trade program also extends to effectuate reductions in nitrogen-oxide emissions. Both of these programs have emissions monitoring rules that are stringent and impose severe penalties that are automatically assessed if there are not enough allowances to cover a source's emissions at the end of the year. Starting in 2000, the program covers virtually all steam-electric utility units in the U.S.

The ARP has been considered a great success. In its 2005 Progress Report on the ARP, the EPA stated:

> After 11 years of implementation, monitoring, and assessment, the ARP has proved to be an effective and efficient means of meeting emission reduction goals under the Clean Air Act. A 2005 study estimated the program's benefits at $122 billion annually in 2010, while cost estimates are around $3 billion annually (in 2000).[9]

Commentators Joseph A. Kruger and William A. Pizer concluded in 2004:

> The U.S. SO_2 program is widely acclaimed as a success. It has resulted in early emissions reductions (spurred by the program's bank-

6. *See, e.g.*, A. Denny Ellerman & Barbara K. Buchner, *The European Union Emissions Trading Scheme: Origins, Allocation, and Early Results*, 1 REV. ENVTL. ECON. & POL'Y 66, 68 (2007) ("Emissions trading programs in the United States were closely followed by many in Europe . . . .") (referring to the UK, Danish, and Dutch systems).

7. § 7651b.

8. *Id.* § 7651b(a)(1).

9. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, ACID RAIN PROGRAM 2005 PROGRESS REPORT, *available at* www.epa.gov/airmarkt/progress/docs/2005report.pdf.

> ing provision), a sharp drop in acid deposition throughout the eastern United States, and lower-than-expected costs. The structure of the program has been influential in the design of the Kyoto framework and the European Emissions Trading System . . . .[10]

The Kyoto Protocol established binding reduction targets and timetables for Industrialized (Annex I) Parties, mandating that they reduce emissions by a varying percentage below 1990 levels.[11] It also provided for measurement, reporting, and review of information,[12] which is an important starting point for building a compliance regime through later amendment. Reduction targets were set for GHGs over a five-year initial commitment period between 2008 and 2012, to be followed by subsequent commitment periods.[13] The European Union was initially opposed to emissions trading, which was strongly advocated by the United States as a means of meeting the Kyoto commitments during the negotiation phase. However, the parties compromised, and hence the Protocol included several market-based flexibility mechanisms to achieve compliance in a cost-effective manner. These mechanisms are international emissions trading, joint implementation, and the Clean Development Mechanism.[14]

At the United States' insistence, and notwithstanding opposition from the EU, the Protocol ultimately included the free market trading of emissions.[15] The "target-based" emissions trading allows Annex I developed countries to purchase emissions credits from other Annex I parties that reduce their GHGs more than required.[16] Thus, states that emit less than their quota of GHGs are able to sell their emissions credits to polluting states that need them to meet their commitments.

The United States was also successful in furthering its "market-based flexibility" approach, as the Protocol provides for Joint Implementation (JI), under which a country with an emission reduction commitment under the Kyoto Protocol is able to acquire credits for projects reducing GHG emissions or enhancing sinks in any other country with a commitment.[17] JI projects earn Emission Reduction Units (ERUs), each equivalent to one metric ton of CO_2.[18] Developed countries can thus

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10. Joseph A. Kruger & William A. Pizer, *Greenhouse Gas Trading in Europe, The New Grand Policy Experiment*, ENVIRONMENT, Oct. 1, 2004, at 8, 14, *available at* http://www.encyclopedia.com/doc/1G1-123629147.html.

11. Kyoto Protocol, *supra* note 4, art. 3, ¶ 1.

12. *See id.* art. 3, ¶ 3.

13. *Id.* art. 3, ¶ 1.

14. *See id.* art. 6, art. 12, art. 17.

15. *Id.* art. 17.

16. *See* Citizens for Global Solutions, Climate Change and the Kyoto Protocol, http://www.globalsolutions.org/issues/climate_change_and_kyoto_protocol (last visited Mar. 17, 2008).

17. *See* Kyoto Protocol, *supra* note 4, art. 6.

18. UNITED NATIONS ENVIRONMENT PROGRAMME, UNEP YEAR BOOK 2008: AN OVERVIEW OF OUR CHANGING ENVIRONMENT 26, *available at* http://www.unep.org/geo/yearbook/yb2008/.

trade among themselves, provided they meet several conditions. One such condition is that the trade must produce reductions in addition to any that would have otherwise occurred.[19] Also, the parties are able to obtain credits through trading only if they are also taking measures to reduce emissions domestically.[20]

JI was directed especially at countries with economies in transition. A supervisory committee under the direction of the states party to the Protocol oversees the JI mechanism.[21] Since it is only in 2008 that the first ERUs will be issued for a crediting period,[22] no project evaluation is yet possible.

During the negotiations, the EU had argued that its member nations should be able to share their emissions limit collectively, so long as the overall EU reductions were met. In response, the United States was able to persuade the negotiating parties to include a provision which allows any group of countries to fulfill their target-based commitments jointly.[23] Thus, a regional emissions trading or multinational "bubble" is permitted.

Another free market mechanism successfully advocated by the United States and also by developing countries is the Clean Development Mechanism (CDM), which is designed to effectuate reductions in carbon emissions while allowing Annex I developed countries to engage in JI-type project-based credits either by governments of or private parties in Annex I countries.[24] Thus, Annex I countries may earn credits by assisting developing countries as they reduce their emissions. Emission-reducing projects in developing countries can earn CERs that can be sold to buyers in industrialized countries.

The credits that can be earned and traded are called Certified Emissions Reductions (CERs), and are measured in metric tons of CO_2 equivalent.[25] Thus, the purpose of the CDM is to assist developing countries in achieving sustainable development while allowing Annex I countries flexibility in meeting their emissions reduction targets under the Protocol. Similar to JI, CDM requires emissions reductions to be supplemental to those that would have otherwise occurred without the project. CDM projects include several energy efficiency projects and those

19. *Id.*
20. *Id.*
21. *See* Guidance on the Implementation of Article 6 of the Kyoto Protocol, *available at* http://unfccc.int/files/meetings/cop_13/application/pdf/cmp_art_six_kp.pdf (last visited Mar. 17, 2008).
22. *See* UNFCCC, *Joint Implementation*, *available at* http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php (last visited Mar. 17, 2008).
23. Kyoto Protocol, *supra* note 4, art. 4.
24. *Id.* art. 12.
25. *Id.*

that reduce non-CEO industrial greenhouse gases, as well as aforestation and reforestation projects.[26]

While the CDM program was launched in November 2001, the first project was registered about three years after that, and the first CERs were issued in October 2005.[27] An Executive Board under the direction of the states party to the Protocol oversees the CDM.[28] The United Nations Environment Programme (UNEP) reports that 852 projects had been registered in 49 countries as of the end of November 2007 and 2600 projects are currently in the global pipeline; the number of expected CERs will be more than $2.5 billion by the end of 2012, while as of October 2007, $85.9 million of CERs have been issued by the CDM Executive Board.[29]

II. THE EU TRADING SCHEME

As to the EU developments, with its 27 member states, trading in carbon emissions, under which allowances and credits are bought and sold, has become a prominent part of the EU's response to the challenge of climate change. The aim of the EU emission trading scheme is to help EU member states to achieve compliance with their commitments under the Kyoto Protocol. As the European Community had ratified the Kyoto Protocol jointly with its member states, the EU is obligated to reduce its GHG emissions by eight percent over the 2008-2012 period, compared to its 1990 emissions.[30]

The EU scheme works on a cap-and-trade basis and is designed to result in both economic and environmental gains. And it could become a credible and central tool for future climate mitigation following the European Union's "Green Agenda," which was unveiled on January 23, 2008, in Brussels under the flashy title, "20 20 by 2020—Europe's Climate Change Opportunity."[31] This gives the EU the high moral ground and also is likely to turn carbon emissions into a mainstream commodity.

The EU's initiative on climate change and renewable energy for 2020 began with the European Commission's proposals "calling for a quantum leap in the EU's commitment to change."[32] The European Par-

26. UNITED NATIONS ENVIRONMENT PROGRAMME, *supra* note 18, at 25.
27. *Id.*
28. *Id.*
29. *Id.*
30. Directive 2003/87/EC, *supra* note 1, at 1.
31. *See* Commission of the European Communities, *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 20 20 by 2020—Europe's Climate Change Opportunity*, COM (2008) 30 final (Jan. 23, 2008) [hereinafter *20 20 by 2020*].
32. Commission of the European Communities, *Commission Staff Working Document, Impact Assessment*, SEC (2008) 85/3, at 2 (Jan. 23, 2008) [hereinafter *Impact Assessment*].

liament[33] was in support of taking definitive steps to curb greenhouse gas emissions and developing renewable energy sources in addressing climate change. In March 2007 the European Council agreed to set precise, legally binding targets establishing two key targets: 1) a reduction of 20 percent in GHGs by 2020 and to increase it to 30 percent if under an international agreement other developed countries commit to "comparable emission reductions and economically more advanced countries to contributing adequately according to their responsibilities and respective capabilities";[34] and 2) a 20 percent share of renewable energies in EU energy consumption by 2020.[35] The Council had called upon the European Commission in February "to bring forward proposals which create the right incentives for forward-looking low-carbon investment decisions."[36]

The European Council's invitation to the European Commission to present concrete proposals for implementing a new approach to the EU energy and climate change issues reflected an acknowledgement of and a response to the evolving and growing public opinion in Europe that a new European approach to energy and climate policy was needed. Hence, there was a political consensus for the change. As the European Commission noted:

> The resolve of the European Council was a signal to our international partners that the EU was ready to turn words into deeds. This paid dividends at the United Nations Climate Change Conference in Bali in December 2007. The European Union was able to play a pivotal role in securing agreement on the roadmap towards a new comprehensive agreement on cutting emissions to be reached by 2009. This reinforced the EU's determination to press on with its commitment to fighting climate change, to show that it was ready to give force to its conviction that developed countries can and should commit to a 30 % cut in emission levels by 2020. The EU should continue to take the lead in the negotiation of an ambitious international agreement.[37]

The Commission responded to the Council's call by presenting three policy proposals: 1) a proposal for a Directive on the promotion of renewable energy; 2) a proposal for amending the EU Emissions Trading

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33. *See* European Parliament Resolution on Climate Change, EUR. PARL. DOC. P6_TA 0038 (2007).

34. *20 20 by 2020*, *supra* note 31, at 2.

35. *Id.*

36. *Council Conclusion of 20 February 2007, EU Objectives for the Further Development of the International Climate Regime Beyond 2012*, *available at* http://register.consilium.europa.eu/pdf/en/07/st06/st06621.en07.pdf, *cited in Commission of the European Communities Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community*, COM (2008) 16 final 2008/0013 (COD), at 3 (Jan. 23, 2008), *available at* http://www.aem.cz/svse/data/080123_eu_ets_draft_proposal.pdf [hereinafter *Commission Proposal for a New Directive*].

37. *20 20 by 2020*, *supra* note 31, at 3.

Directive reviewing the EU ETS; and 3) a proposal on sharing the member states' efforts to meet the EU GHG reduction commitment in sectors not covered by the EU ETS, such as transport, buildings, services, agriculture, small industrial installations, and waste.[38] The discussion here will be limited to the Commission proposal relating to amendment of the EU Emissions Trading Directive.

The Commission based its proposals on five key principles: 1) the targets must be met and thus the proposals must be sufficiently strong and effective to be credible, accompanied by mechanisms for monitoring and compliance; 2) the effort required from member states must be fair; 3) the cost must be minimized; 4) the EU must continue its efforts beyond 2020 to meet the target of curbing global emissions by 50 percent by 2050; and 5) the EU must actively promote a comprehensive international agreement to cut GHG emissions.[39]

The EU ETS program is to run in two phases, from 2005 through 2007 in the first phase, and in the second phase from 2008 through 2012, which coincides with the five-year period of Kyoto commitment. The 2003 Council Directive,[40] under which EU ETS became operative, established a regulatory framework for the implementation of a mandatory GHG allowance trading scheme in its member states so as to promote reduction of GHG emissions in an economically efficient and cost-effective manner.

To summarize selected major provisions of the Directive, operators of installations listed under Annex I must hold a permit from a competent authority authorizing GHG emissions.[41] Such operators are under monitoring and reporting requirements for their GHG emissions.[42] These operators must surrender allowances equal to the verified emissions of the total emissions of the installation in each calendar year of the EU ETS.[43] Each member state is required to develop a National Allocation Plan (NAP) stating the total quantity of allowances that it intends to allocate to installations subject to approval by the Commission.[44] These allowances can be transferred between any persons in the Community.[45] Member states are required to make decisions regarding their NAP that are consistent with their obligations under the EU and under the Kyoto Protocol.[46] Member states are required to distribute, free of charge, at

38. *Impact Assessment*, *supra* note 32, at 2.
39. *20 20 by 2020*, *supra* note 31, at 4-5.
40. Directive 2003/87/EC, *supra* note 1.
41. *Id.* art. 4.
42. *Id.* art. 6.2(c), (d).
43. *Id.* art. 6.2(e).
44. *Id.* art. 9.
45. *Id.* art. 12.1(a).
46. *Id.* art. 9, Annex III.

least 95 percent of allowances in Phase I and at least 90 percent of allowances in Phase II.[47]

Thus, under EU ETS, operators are required to surrender allowances to cover their actual GHG emissions during the previous calendar year.[48] However, operators can trade the emission allowances they have been allocated.[49] Companies can sell allowances if they cut their own emissions and they can buy them if they find themselves with insufficient allowances to cover their emissions. Thus, a reduction by companies of their emissions results in their earning an income stream from the sale of allowances. This, it is hoped, will stimulate innovation and push change where it is most cost-effective. However, if operators find cutting emissions more expensive than buying extra allowances, they will have to purchase them. Each allowance gives operators the right to emit one ton of CO_2 equivalent during a specified period. Up to five percent of allowances may be auctioned in the first phase of the program and up to ten percent in the second phase.[50] National governments allocate allowances to companies under this "cap-and-trade" system and the Commission approves the national plans.[51]

Initially, in the first phase of trading period, from 2005 to 2007, only CO_2 emissions are covered, and those also from large emitters in the power and heat generation industry and in selected energy-intensive industrial sectors, such as combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, bricks, ceramic, pulp, and paper.[52] Nearly 10,500 installations in the 27 member states of the EU, accounting for around 50 percent of the EU's CO_2 emissions and about 40 percent of its overall GHG emissions are covered.[53] During the second phase, from 2008 through 2012, nitrous oxide emissions are also being included.[54]

The EU ETS is linked with the Kyoto Protocol's flexibility mechanisms—the CDM and JI—which are project-based. Thus, European industry can use credits from the CDM and JI to help them comply with their obligations under the system. By allowing this linkage, the EU provides tangible support to developing countries in their efforts to achieve sustainable development. Also, banking and borrowing are per-

47. *Id.* art. 10.
48. *Id.*
49. *Id.*
50. *Id.*
51. *Id.* art. 24.
52. EUROPEAN COMMISSION, EU ACTION AGAINST CLIMATE CHANGE—EU EMISSIONS TRADING: AN OPEN SYSTEM PROMOTING GLOBAL INNOVATION 7 (2007). The facts and figures in this pertaining to the EU ETS regulatory scheme are derived from European Commission publications.
53. *Id.*
54. *See* Directive 2003/87/EC, *supra* note 1, Annex II.

missible. During the first phase, the necessary infrastructure for monitoring, reporting, and verification, including registries, was established.

After reviewing the ETS, the European Commission noted that the ETS

> needs to be strengthened and updated if it is to meet its new objectives. The incentive effect of the current ETS has been cushioned by the generous number of allowances handed out in the first phase (2005-2007). The structure of the ETS, with national allocation plans, has raised the risk of distortions in terms of competition and the internal market. The scope of the ETS, in terms of the sectors of the economy covered and the gases included, has also limited its ability to drive emission cuts.[55]

The Commission stated that its proposed amendments[56] to the EU ETS Directive are guided by three overall objectives:

> 1. Fully exploiting the potential of the EU ETS to contribute to the EU's overall greenhouse gas reduction commitments in an economically efficient manner.
>
> 2. Refining and improving the EU ETS in the light of experience gathered.
>
> 3. Contributing to transforming Europe into a low greenhouse-gas-emitting economy and creating the right incentives for forward looking low carbon investment decisions by reinforcing a clear, undistorted and long-term carbon price signal.[57]

As to the scope of the ETS, the Commission proposed to expand its coverage with the inclusion of greenhouse gases other than CO_2 and all major industrial emitters.[58] In light of its conclusion that "[t]he emissions trading system should only be extended to emissions which are capable of being monitored, reported and verified with the same level of accuracy as applies under the monitoring, reporting and verification requirements currently applicable under the Directive,"[59] the Commission did not include shipping. Industrial plants emitting less than 10,000 tons of CO_2 would not have to participate in the ETS,[60] provided alternative measures were in place to ensure that they adequately contribute to reduction efforts.

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55. *20 20 by 2020, supra* note 31, at 5.
56. For the text of the revised Directive, see *Commission Proposal for a New Directive, supra* note 36, at 12.
57. *Id.* at 3.
58. *Id.* at 5.
59. *Id.* at 4.
60. *Id.* at 5.

The Commission proposed to replace the national allocation plans by a harmonized ETS covering the whole Union having common rules. Noting that "in the absence of comparable constraints for industry in third countries, there may arise a risk of 'carbon leakage', i.e. relocation of greenhouse gas emitting activities from the EU to third countries and thereby increasing global emissions,"[61] the Commission proposed that the power sector would be subject to full auctioning from the start of 2013.[62] Most other industrial sectors, including aviation, would be subject to full auctioning gradually and they are to reach full auctioning by 2020.[63] Member states are to handle auctioning and their treasuries would benefit by the auctioning revenues.[64]

Noting the need for linking with other emission trading systems to build a global carbon market, but stressing harmonization, the Commission proposed that under the new ETS,

> companies will still have access to CDMs, but the use of credits generated by such mechanisms will be limited to the levels used in the current ETS period. This would leave room for access to this mechanism to be increased once an international agreement is signed—central to allowing the EU to step up swiftly to the more challenging 30% GHG reduction in the event of an international agreement. Freeing up access to this mechanism would also be an incentive for third countries to sign up to an international agreement, in the knowledge that European investment technology could flow as a result.[65]

The Commission had taken this step after noting that, while CDMs had proved useful in cutting emissions, there was "a risk that too generous a use of CDMs can dilute the effectiveness of the ETS by increasing the supply of credits and thereby cutting demand for allowances, and reducing the incentive for governments and companies to promote emission reductions at home."[66]

The Commission also acknowledged that since the revised ETS is to cover less than half of the GHG emissions, the remaining emissions, such as buildings, transport, agriculture, waste, and industrial plants falling under the threshold for inclusion in the ETS, must be covered through national commitments under an EU framework.[67] It set the target of a 10 percent reduction in emissions from 2005 levels in these sec-

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61. *Id.* at 8.
62. *Id.* at 15.
63. *Id.* at 9.
64. *Id.* at 7-9.
65. *20 20 by 2020*, *supra* note 31, at 6-7; *see also Commission Proposal for a New Directive*, *supra* note 36, at 10-11.
66. *20 20 by 2020*, *supra* note 31, at 6.
67. *Id.* at 7.

tors.[68] Although EU measures such as tougher standards on CO_2 emissions from cars and fuel would be applicable, member states are to determine the measures to be taken and sectors where they would like to concentrate their efforts.[69]

Thus the EU's new agenda, which must be endorsed by the European Parliament and by member states to become effective, extends the scope of the ETS with the inclusion of greenhouse gases other than CO_2 and all other major industrial emitters. Allocations are to be reduced year by year so as to allow for emissions covered by the ETS to be reduced by 21 percent from 2005 levels by 2020.[70] Full auctioning is aimed at making older, dirty ways of power generation, such as coal burning, so expensive that they are prohibitive. This could encourage new investments across the European power sector in new and cleaner technologies, such as wind, carbon capture, and carbon sequestration. Until now allowances were given away, which was a major shortcoming in the first phase. In the sectors not involved in the carbon trading scheme, such as transport, farming, and construction, national caps are to be imposed.

Under the new agenda, the EU threatens to limit severely the trade in certified emission reduction credits after 2012 if there is no comprehensive global successor treaty to the Kyoto Protocol. If no new CERs are admitted into Europe after 2012, the UN-approved carbon reduction projects will be severely affected, for under the new ETS companies will still have access to the Clean Development Mechanism, but the use of credits generated by this mechanism will be limited to the levels used in the current ETS period. Access to this mechanism will only be increased after an international agreement is reached.

Jose Manuel Barroso, the President of the European Commission, announcing reforms to the ETS in its third phase after 2012, said that "Europe would not allow other countries to exploit its virtuous stance on carbon."[71] Without an international agreement, which is the best way to tackle the problem, he added, "There is no point in Europe being tough if it just means production shifting to countries allowing a free-for-all on emissions."[72]

The EU's tough measures would include forcing importers to buy carbon permits on the ETS and restrictions on the import of additional CER credits after 2012 unless "a satisfactory international agreement is

68. *Id.*
69. *Id.*
70. *Id.* at 6.
71. Carl Mortished, *European Move to Tighten Carbon Trade Permits Threatens UN plan,* THE TIMES (London), Feb. 4, 2008, at 44.
72. *Id.*

reached."[73] That successor agreement would purportedly include the United States, Japan, China, India, and the emerging markets, without which the price of European carbon permits will soar.[74]

CONCLUSION

The carbon emission trading market for carbon quotas and credits is very sensitive to a slowdown in economic activity, for it cuts production, which means reduction in emissions. Unless there is a comprehensive global agreement on the reduction of carbon emissions, the market will remain complicated, as intense lobbying, both political and corporate, will continue. What about the credibility of this market? Who will monitor and police the system, effectively and internationally?—that is, who will verify the carbon quota and credit entitlements? Obviously it must be done by national governments and the United Nations. The subprime mortgage crisis is a good example of the failure of the needed effective regulatory mechanism. Mechanisms should be such that a long-term, credible carbon price is achieved which encourages companies to invest in low carbon-neutral energy generation.

What have we learned? The first phase of ETS, 2005-2007, which the EU calls the "learning phase," was not a success story. Lobbyists succeeded in getting the EU to allocate carbon credits and allowances to industries too generously. Thus they did not need to buy permits. ETS allowances were given away, resulting in what critics have characterized as massive windfalls for energy-intensive industries.

Phase II began on January 1, 2008, and goes until 2012. It sets tougher targets, although most allowances are still handed out free to industry. During this phase, tighter limits are to be imposed on the number of credits allocated within Europe, but companies will still be able to import credits from the developing countries, which provides them little incentive to achieve emissions reductions.

Finally, the carbon market has seen considerable volatility and price fluctuations for both CERs and allowances, although there is growing interest among investors in the U.S., Canada, Australia, and Japan. Consequently, both the regulated and the unregulated sectors have witnessed a great deal of activitiy. To ensure the emergence of a healthy carbon market, it is essential that policy-makers establish mechanisms to gather accurate market-relevant emissions data and release it in an orderly and transparent manner. They must set the caps consistent with the scientifically credible level of environmental performance and impose strict penalties for fraud or noncompliance They must also give companies maximum flexibility to achieve the emission reduction goals. Effective

73. *Id.*
74. *Id.*

enforcement must also be ensured and strict penalties must be imposed for fraud or noncompliance. The 2007 World Bank study entitled, "State and Trends of the Carbon Market 2007" aptly stated: "The key elements for well-functioning carbon markets include: competitive energy markets; common, fungible units of measure; standardized reporting protocols of emissions data; and transferability of assets across boundaries."[75]

75. KAREN CAPOOR & PHILIPPE AMBROSI, WORLD BANK, STATE AND TRENDS OF THE CARBON MARKET 2007, at 6, *available at* http://carbonfinance.org/docs/Carbon_Trends_2007-_FINAL_-_May_2.pdf (2007) (citation omitted).