LINKING A UNITED STATES GREENHOUSE GAS CAP-AND-TRADE SYSTEM AND THE EUROPEAN UNION'S EMISSIONS TRADING SCHEME

James Chapman*

Abstract

The use of market mechanisms in general, and emissions trading in particular, is seen as one of the most cost-effective ways to reduce greenhouse gas pollution, and many signs suggest that a cap-and-trade scheme may be established in the U.S. in the next few years. Linking separate emissions trading schemes together can further drive down the costs of abating pollution by creating a wider market, but there are a number of issues—political, technical, and environmental—which can either prevent a link from being established or can cause a link to have harmful effects. This paper examines how easily a U.S. emissions trading scheme, designed along the lines of recent legislative proposals with input from industry leaders, environmental advocates, and the Obama administration, could be linked to the largest existing emissions trading scheme, the European Union's Emissions Trading Scheme (EU ETS). This paper concludes that very little or no harmonization is required on a number of issues, such as cost containment, allocation methodology, coverage and non-compliance penalties, and that the thornier issues of cap and price levels and offset use can either be resolved or do not present insurmountable hurdles given the potential benefits of establishing a link. The political economy of linking, in terms of the domestic pressures affecting governments seeking a link, is examined and, while a complex set of incentives face both the U.S. and the EU, it appears that overall a link is not merely possible but likely within a decade of the creation of a U.S. system. However, this paper strongly urges that the issues raised are

* James Chapman is currently working in the London office of Freshfields Bruckhaus Deringer LLP. Before this he was a research fellow at the Frank J. Guarini Center on Environmental and Land Use Law at the NYU School of Law. He completed his LL.M. at the NYU School of Law in 2009 and received his B.A. (First Class Honors) in Jurisprudence from Magdalen College, Oxford University in 2007. He can be reached at james.chapman@nyu.edu. The author wishes to thank Toni Moyes for the idea behind this paper, Professor Richard Stewart for his assistance and supervision, and Emma Shearn for her invaluable input. All remaining errors are the author's.

considered by policymakers when crafting a U.S. ETS in order to facilitate linking in the long run.

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INTRODUCTION

Many signs point to federal legislation creating a cap-and-trade emissions trading scheme (ETS) for greenhouse gas (GHG) emissions in the United States being passed in the not-too-distant future, not least the American Clean Energy and Security Act of 2009 clearing the House of Representatives,[1] and a similar bill headed towards the Senate floor early in 2010.[2] Increased domestic and international pressure may be sufficient to overcome the concerns produced by current economic woes and produce significant efforts toward cutting emissions to a more responsible level. Cap-and-trade systems, for a variety of reasons,[3] have emerged as the preferred method of abatement control, harnessing market forces to accomplish emission reductions where they are least expensive.

The next step after creating functional cap-and-trade schemes is to link them together. The economic theory underlying the benefits of distinct market-based mechanisms can be applied to links established between ETS systems, whereby permits issued in one system are valid for compliance in another.[4] Linking systems together, resulting in harmonization of allowance prices, brings a number of benefits. Economically, creating a larger market with a wider pool of abatement opportunities reduces total compliance costs,[5] inefficiency of cross-country emission allocation,[6] and price volatility,[7] as well as increasing market liquidity.[8] Normatively, there is a desirable equity in developed countries with similar levels of contribution to GHG stocks in proportion to the economic benefits they

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1. *See generally* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (as passed by the House of Representatives on June 26, 2009).

2. *See generally* Clean Energy Jobs and American Power Act of 2009, S. 1733, 111th Cong. (2009) (as introduced into the Senate, Sept. 30, 2009).

3. Nathaniel O. Keohane, *Cap-and-Trade, Rehabilitated: Using Tradable Permits to Control U.S. Greenhouse Gases*, REV. ENVTL. ECON. POLICY, Winter 2009, at 42.

4. Niels Anger, *Emissions Trading Beyond Europe: Linking Schemes in a Post-Kyoto World*, 30 ENERGY ECONOMICS 2028, 2042 (2008).

5. *Id.* at 2046.

6. Adam Diamant, Manager of Econ. Analysis, Elec. Research Power Inst., Linking Global GHG Emissions Trading Markets: Issues and Approaches 6, 14 (Mar. 20, 2007), http://globalclimate.epri.com/PDF/Adam_Diamant_Linking_CCAR_Linking_Panel.pdf; BJART J. HOLTSMARK & DAG E. SOMMERVOLL, INTERNATIONAL EMISSIONS TRADING IN A NON-COOPERATIVE EQUILIBRIUM 22 (Statistics Norway, Research Dep't 2008), *available at* http://www.ssb.no/publikasjoner/DP/pdf/dp542.pdf.

7. VIVID ECONOMICS, OFFICE OF CLIMATE CHANGE, CARBON MARKETS IN SPACE AND TIME 5 (2009), *available at* http://www.vivideconomics.com/docs/Vivid%20Econ%20Carbon%20Markets.pdf.

8. *Id.* at 13.

have reaped from this pollution facing the same price on carbon.[9] Institutionally, there will be economies of scale in the provision of market infrastructure, such as trading platforms and standardized contracts.[10] Politically, this "bottom-up"[11] approach is becoming increasingly popular as a potential architecture for a global climate change regime, especially in the wake of the failed negotiations at Copenhagen in December 2009. This architecture does not require the consensus of an international agreement but rather bilateral/multilateral negotiations in which agreement can more easily be reached and that, in the process, help to lock in unilateral targets.[12] This is possibly the most realistic path to a unified international approach in the future.[13] This paper does not seek to support or question these benefits, which are assumed from the basic premise that linking, if correctly implemented, is generally desirable from the perspective of international climate policy.

Several proposals for a cap-and-trade system in the United States have been made and much ink has been spilled on analysis of these schemes on their own merits: how effectively they achieve their stated goals, the costs generated by the regulation, distributional effects, and so on. In contrast to this, given that linkage is explicitly contemplated by all the proposals,[14] comparatively little has been said either in academic analysis or, more

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9 United Nations Framework Convention on Climate Change (UNFCCC), art. 3(1), FCCC/INFORMAL/84 GE.05-062220 (E) 200705 (1992).

10. Guy Turner, *The Missing Link: Linking Emission Trading Schemes*, *in* INTERNATIONAL EMISSIONS TRADING ASSOCIATION GREENHOUSE GAS MARKET REPORT 2008: PIECING TOGETHER A COMPREHENSIVE INTERNATIONAL AGREEMENT FOR A TRULY GLOBAL CARBON MARKET 136, 137 (Kim Carnahan ed., 2008).

11. CHRISTIAN FLACHSLAND, OTTMAR EDENHOFER, MICHAEL JAKOB & JAN STECKEL, POTSDAM INS'T FOR CLIMATE IMPACT RESEARCH, DEVELOPING THE INTERNATIONAL CARBON MARKET: LINKING OPTIONS FOR THE EU 3 (2008), *available at* http://www.pik-potsdam.de/members/edenh/publications-1/carbon-market-08.

12. Wolfgang Sterk, Michael Mehling & Andreas Tuerk, *Prospects of Linking EU and U.S. Emission Trading Schemes: Comparing the Western Climate Initiative, the Waxman–Markey and the Lieberman–Warner Proposals* 2 (Apr. 24, 2009), *available at* http://climatestrategies.org/our-reports/category/33/143.html (follow "Download Now!" hyperlink); Christian Flachsland et al., *To Link or Not to Link: Benefits and Disadvantages of Linking Cap-and-Trade Systems*, 9 CLIMATE POLICY 358, 364 (2009).

13. *Nations May Form Global Carbon Market Without U.N. Deal*, REUTERS, June 12, 2009, http://www.reuters.com/article/environmentNews/idUSTRE55B67V20090612; Christian Flachsland, Ottamar Edenhofer & Robert Marschinski, *Global Trading Versus Linking: Architectures for International Emission Trading* 19 (Dec. 2, 2008), *available at* http://www.pik-potsdam.de/members/flachs/publikationen/linking-architectures-working-paper.

14 Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. §§ 712(c)(3)(B), 761(a) (2008); America's Climate Security Act of 2007, S. 2191, 110th Cong. §§ 2501–2502(a) (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(d) (2007); American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 728(a)(2) (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 722(d)(3) (2009).

worryingly, in political discussions about how easily any of the proposed systems could be linked to other emissions trading systems, of which there is a steadily increasing number. The European Union's Emissions Trading Scheme (EU ETS) is the largest and highest-profile example,[15] and several countries plan to use emissions trading to help them achieve their goals under the Kyoto Protocol (Australia, Japan, and New Zealand, for example), and numerous initiatives have demonstrated domestic interest and capacity in the U.S., such as the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI), California Assembly Bill (AB) 32, and the Chicago Climate Exchange (CCX).[16] The aim of this paper is to examine how easily a federal U.S. ETS scheme could be linked to the EU ETS, creating the backbone of a de facto global carbon market,[17] given the benefits that such a link stands to produce.

This paper takes as its hypothesis that the likely elements of the U.S. ETS scheme, outlined in Section I, can be distilled from certain sources. Of the many proposals placed before Congress to date,[18] I consider the Discussion Draft for climate legislation released by Congressmen Dingell and Boucher (Dingell–Boucher),[19] the Lieberman–Warner Climate Security Act (Lieberman–Warner),[20] the Low Carbon Economy Act of 2007 (Bingaman–Specter),[21] and, most crucially, the recent American Clean Energy and Security Act of 2009 (Waxman–Markey), which passed the

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15. In 2008, the EU ETS represented 67% of the volume and 81% of the value of the global carbon market.

16 *See generally* RICHARD L. REVESZ, PHILIPPE SANDS & RICHARD B. STEWART EDS., ENVIRONMENTAL LAW, THE ECONOMY, AND SUSTAINABLE DEVELOPMENT: THE UNITED STATES, THE EUROPEAN UNION AND THE INTERNATIONAL COMMUNITY (2000) (analyzing environmental regulation in legal and political systems using examples from the United States, European Union, and international community); Press Release, Jos Delbeke, Deputy Director General, DG Env't, Introductory Remarks at the ICAP Global Carbon Market Forum: Putting the Emerging Global Carbon Market on a Solid Footing 3 (May 19, 2008), http://www.icapcarbonaction.com/index.php?option=com_content&view=article&id=6%3Awhat-is-icaps-goal&catid=2%3Apress-release&Itemid=34&lang=en (noting that the precursors for all of these schemes exist in emissions trading programs in the US).

17. Sterk et al., *supra* note 12; MARK LAZAROWICZ, GLOBAL CARBON TRADING: A FRAMEWORK FOR REDUCING EMISSIONS 44 (2009).

18 RESOURCES FOR THE FUTURE, SUMMARY OF MARKET-BASED CLIMATE CHANGE BILLS INTRODUCED IN THE 110TH CONGRESS 1 (Oct. 31, 2008), *available at* http://rff.org/News/Features?Documents/ccBills110thCongress.pdf.

19. *See generally* Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. (2008) (introduced into the House of Representatives on Oct. 7, 2008).

20. *See generally* America's Climate Security Act of 2007, S. 2191, 110th Cong. (2007) (introduced into the Senate on Oct. 18, 2007).

21. *See generally* Low Carbon Economy Act of 2007, S. 1766, 110th Cong. (2007) (introduced into the Senate on July 11, 2007).

House of Representatives by a margin of 219–212 in June 2009,[22] and the Clean Energy Jobs and American Power Act introduced in the Senate by Senators Kerry and Boxer (Kerry–Boxer).[23] I will examine these in the light of public statements made by President Obama, his staff and members of the new administration, the most recent report on climate markets by the Government Accountability Office, and the U.S. Climate Action Partnership (USCAP) Blueprint for Legislative Action of 2009, which builds on the USCAP Call to Action from 2007.[24] Given the list of those who have already signed onto the USCAP document (including Duke Energy, Shell, BP, and Ford, as well as the Natural Resources Defense Council, Environmental Defense Fund, and World Resources Institute),[25] it is a fairly reliable indicator of the compromise demands of the large emitters and major players from the environmental lobby, whereas the others (especially Waxman–Markey for the House and Kerry–Boxer for the Senate) can be seen as reliable indicators of the strands of thought in Congress.

Three caveats to the use of these sources are the lack of clear and widespread public debate on the issues contained therein, the effect that the current economic situation—including its knock-on effects such as reduced oil prices—will have on these provisions, and the failure of all but one proposal to gain legislative support to date.[26] As to the first, the price and allocation method rather than the intricacies of the system will figure most prominently in any public discourse, rendering many of the points discussed below relatively unaffected by discussion in the media. As to the second and third, the low level of deviation of the USCAP Blueprint from the USCAP Call to Action, and Waxman–Markey (successfully passed by the House of Representatives) and Kerry–Boxer from previous legislative attempts, provides signs of hope that effects of the economic climate on the U.S. ETS will not be too severe and that the political atmosphere is now ripe to pass legislation previously seen as nonviable.

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22. *See generally* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009) (approved by the House of Representatives on June 26, 2009).

23. *See generally* Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009) (introduced in the Senate on Sept. 30, 2009).

24. *Comprehensive Regime, Ambitious Goals, in Waxman–Markey*, EXECUTIVE COUNSEL, Sept.–Oct. 2009, at 28, *available at* http://www.hunton.com/files/tbl_s47Details%5CFileUpload265%5C2678%5CExecCounsel_SeptOct2009_Waxman-Markey.pdf.

25 U.S. CLIMATE ACTION P'SHIP, A BLUEPRINT FOR LEGISLATIVE ACTION 25 (2009), *available at* http://www.us-cap.org/pdf/USCAP_Blueprint.pdf.

26. This includes not just the credit crisis and its knock-on effect but reduced oil prices in particular.

In Section II, I sketch out the salient corresponding features of the EU ETS based on the current plans for Phase III stemming from the EU ETS Review. In Section III, I examine the obstacles to linking systems together that have been suggested by the recent literature that would force a choice between not linking, harmonizing, or accepting differences,[27] before moving on to application of this theory in Section IV to a proposed link between the EU ETS and the U.S. ETS. Section V examines the politics of linking negotiations from several viewpoints. The Appendices provide greater detail on how the U.S. ETS and EU ETS in Sections I and II were constructed.

This paper concludes that a number of potential issues are resolved even before linking negotiations begin, due to the similarity of the two schemes in many respects. Both have mid- and long-term cap levels set, allowing high levels of investor trust and certainty. Coverage is wide enough in both systems to both demonstrate a serious commitment to abatement and encompass many competing carbon-intensive industries. The EU ETS will not be entirely dwarfed by its U.S. counterpart, and the disparity in size will wane with time. Auctioning has an increasing role in both systems, and both have chosen fixed rules over regulatory discretion. Both systems use the same basic units and the same Global Warming Potential (GWP) rates (used to compare the harm caused by different GHGs) from the Intergovernmental Panel on Climate Change (IPCC). Penalties for non-compliance will be similar in magnitude and type. Monitoring, reporting, and verification (MRV) will be high quality and rigidly enforced in both jurisdictions. Cost containment provisions are very similar, function according to fixed rules, and maintain environmental integrity. Both systems recognize the need to maintain the high quality of domestic and international offsets and reduce leakage as much as possible.

Despite these fortuitous examples of dovetailing, many thorny issues remain, most notably the cap levels and thus price paths. The EU ETS will probably have a consistently higher price than the U.S. ETS. As a result, both sides will experience a complex matrix of incentives regarding linking,

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27. This paper does not examine the legal aspects of creating a binding linking mandate between the EU and the U.S. from a legal perspective. *See* Sterk et al. *supra* note 12, at 23, 26–27; *see also Commission Staff Working Document Accompanying Document to the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC So As to Improve and Extend the EU Greenhouse Gas Emission Allowance Trading System*, at 137, COM (2008) 16 final (Jan. 23, 2008) [hereinafter *Commission Staff Working Document*]; WILLIAM BLYTH & MARTINA BOSI, INT'L ENERGY AGENCY, LINKING NON-EU DOMESTIC EMISSIONS TRADING SCHEMES WITH THE EU EMISSIONS TRADING SCHEME 12 (2004) (noting the fact that the anticipated link cannot be operational before 2013 removes the problem of the legal structure of AAU transfers between Kyoto parties and non-parties).

depending on how the role of entities in the market (net buyer or seller) would change, how environmental groups perceive the politics underlying the link (subsidizing a sub-standard scheme or minimizing costs), and how governments will react to transatlantic wealth transfers. The level of offset use relative to the required reductions (supplementarity) may demonstrate a fundamental difference in ideology underlying the schemes, hinting at deep incompatibility, although the market reality of limited offset supply will count more toward encouraging linking than the limits will be able to discourage it.[28]

Bearing these similarities and differences in mind should be close to the forefront of policymakers' thoughts when designing and debating the U.S. ETS. Undoubtedly, such a system should consider domestic concerns to a large degree, and the structure of any system will inevitably reflect a delicate domestic political balance. However, given knowledge of the benefits linking has to offer and the likelihood of a global carbon market in the long-term, hurdles can be removed before their creation, as the U.S. ETS is still in embryonic form and thus susceptible to criticism from a linking perspective.[29] As all the proposed schemes explicitly permit allowances from other ETSs to be used for compliance, it would be at best unwise and at worst arrogant not to seriously contemplate prospects for linking in a system's construction.

The role of an international agreement in facilitating linking should not be understated. It would reduce many tensions over price paths and other more troubling issues that afflict both jurisdictions independently of the link but which could be inflamed by linking. This paper concludes that, once sufficient time has passed for both schemes to demonstrate institutional security, maturity, and market stability, a link is not only possible but probable within a decade, although it will start out as a limited link.

I. THE U.S. ETS

It should be stressed that the nature of this hypothetical U.S. ETS is not the main thrust of this paper's analysis; rather, it is used as a tentative basis for the study of linking possibilities. It is hoped that the examination of linking in the following sections sufficiently allows for assessing schemes

28. Joe Delbeke, *The Potential Magnitude of Offset Demand in the Early Years*, CARBON MARKET N. AM., June 19, 2009, at 6, *available at* http://www.pointcarbon.com/polopoly_fs/1.1142246!CMNA20090610.pdf; *Industry Fears Offset Demand Can't Be Met*, CARBON MARKET N. AM., June 5, 2009, at 4, *available at* http://www.pointcarbon.com/polopoly_fs/1.1132316!CMNA20090605.pdf.

29. LAZAROWICZ, *supra* note 17, at 46.

that deviate from this U.S. ETS. The analysis behind this sketched outline of a U.S. ETS can be found in Appendix 1. Insofar as common features and themes could be found in the examined sources, they have been blended together to create an ETS that is both adequately detailed for examination from a linking perspective and a reasonable approximation to the likely federal system.

The U.S. ETS will require reductions below a 2005 baseline of 3% at the start of the scheme in 2012, 17%–20% in 2020, 42% in 2030 and 83% in 2050. The price path will begin in the middle of the $13–$30 range and ramp up toward the top of that range over the following decade, following the same path after that.[30] Compliance periods (blocks of years within which borrowing and banking rules are different from such rules between the blocks) will not be officially used, although there will be a regular review of the mechanism to assess its adequacy and different borrowing rules for different vintages, which may together demonstrate similar characteristics to commitment periods.[31] The U.S. ETS will cover at least 80% of GHG emissions from multiple gases over the course of 2012–2050, with a hybrid system regulating partly upstream (for transportation) and partly downstream (for large stationary sources).[32] Free allocation, using a mix of updated and historically benchmarked allocations, will be dominant at the outset, but in the long run the scheme will move from 20% auctioning at the outset toward full auctioning, rising by approximately 10% per decade. Strict regulation of free permit recipients will prevent significant incentive distortions resulting from free allocation.[33]

The facility to bank allowances will be unlimited.[34] Some short-term borrowing may be allowed, but mid-term borrowing will be restricted and

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30. ENVT'L. PROT. AGENCY, ANALYSIS OF THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009, H.R. 2454 IN THE 111TH CONGRESS, 3 (June 23, 2009), http://www.epa.gov/climatechange/economies/pdfs/HR2454_Analysis/pdf; *Obama Pressures Congress to Draft Carbon Cap-and-Trade Law*, CARBON MARKET N. AM., Feb. 27, 2009, at 1, *available at* http://www.pointcarbon.com/polopoly_fs/1.1066754!CMNA20090227.pdf; CONGRESSIONAL BUDGET OFFICE, COST ESTIMATE, H.R. 2454 AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009 AS ORDERED REPORTED BY THE H. COMM. ON ENERGY AND COMMERCE ON MAY 21, 2009, at 13 (June 5, 2009) [hereinafter CBO], http://www.cbo.gov/ftpdocs/102xx/doc10262/hr2454.pdf.

31. LAZAROWICZ, *supra* note 17, at 82.

32. CBO, *supra* note 30, at 5; U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 7.

33. A. Denny Ellerman, *Lessons for the United States from the European Union's CO2 Emissions Trading Scheme*, *in* CAP-AND-TRADE: CONTRIBUTIONS TO THE DESIGN OF A U.S. GREENHOUSE GAS PROGRAM 15 (2008) [hereinafter Ellerman in CAP-AND-TRADE].

34. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 725(a)(1)–(2), (c)(1) (2009); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2101 (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 103(a)(2) (2007); *see* Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 715(a) (2008) (unlimited banking is subject to the Administrator requiring eventual retirement).

long-term borrowing will not be permitted at all.[35] A price ceiling that maintains environmental integrity will be instituted, such as a strategic allowance reserve, but set at a high price that can be triggered only by severe short-term price spikes.[36] There will be an auction reserve price, although it will be set below the lowest predicted bound of the price path.[37] There will be no unlimited safety valve. Market intervention measures will be limited to fixed rules rather than the exercise of administrative discretion.

Given cap levels, the use of offsets from domestic and international schemes will have lenient limits of 20%–30% compliance. There will be qualitative limits on all offsets and a conversion ratio of around 5:4 so that more offsets have to be surrendered than the amount emitted starting a few years into the scheme.[38] Links will be sought with other cap-and-trade systems that are at least as stringent as the U.S. ETS, with no limits on the use of such allowances.[39]

Non-compliance will be punished with a significant fine tied to allowance prices and a make-good provision.[40] MRV requirements will be strict and rigorous, requiring annual reporting that would be made public as soon as practically possible.[41] Unless a satisfactory international agreement is implemented, some border adjustment provision will be necessary in the future so that carbon-intensive products imported into the U.S. that are produced in a country without capped GHG emissions will require the surrender of special allowances to cover these emissions.[42]

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35. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 8; U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, INTERNATIONAL CLIMATE CHANGE PROGRAMS: LESSONS LEARNED FROM THE EUROPEAN UNION'S EMISSION TRADING SCHEME AND THE KYOTO PROTOCOL'S CLEAN DEVELOPMENT MECHANISM 56 (2008).

36. *E.g.*, H.R. __ § 715(c)(2); S. 2191 § 2301; H.R. 2454 § 725(c)(1)–(2).

37. *E.g.*, H.R. __ § 716(c)(2); H.R. 2454 § 726(c)(2).

38. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 9.

39. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 728(c)(2)(A) (2009); Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 761(a) (2008); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2501 (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(d) (2007).

40. *E.g.*, S. 2191 § 1203(a)(2)(B)(i), (ii); H.R. 2454 § 723(b)(2); H.R. __ § 715(c)(1); S. 1766 § 602.

41. *E.g.*, H.R. 2454 § 713(b)(1)(N), (b)(2); H.R. __ § 703(b); S. 1766 § 601; S. 2191 §§ 1103(a), 1105(8).

42. *Climate Deal Key to Avoiding Carbon Tariffs: US Trade Official*, CARBON MARKET N. AM., Apr. 17, 2009, at 4, *available at* http://www.pointcarbon.com/polopoly_fs/1.1099451!CMNA20090417.pdf.

II. THE EU ETS[43]

The details of Phase III of the EU ETS, running from 2013 to 2020 (and, potentially, thereafter Phase IV), depend in some crucial ways on international negotiations. If an acceptable international agreement is reached in which developed countries cap their emissions and all large emitting countries abate their emissions according to their capacity, then there will be cuts of 30% below 1990 levels by 2020 for the entire European economy.[44] Without an agreement, the reduction will be 20% below 1990 levels, with sectors covered by the EU ETS expecting a 21% cut in emissions from 2005 levels.[45] In any event, a target of 60%–80% below 1990 levels by 2050 has been set, with the possibility of this target being raised to 95% depending on a satisfactory international agreement.[46] Although the economic downturn has caused a contraction of industrial activity and with it a reduction in European Union Allowance (EUA) price to fall well below €15 at the recent nadir, Phase III prices are expected to rise from around €25–€30 in 2013 towards €50–€60 by 2020.[47] The failure of the talks in Copenhagen will likely push the EU towards the lower bounds of these predictions.

Around 41% of emissions in the EU are currently covered by the scheme and are regulated entirely downstream, with plans to expand past the core emitting sectors to nearer 50% by 2013, including some gases (such as nitrous oxide) other than carbon dioxide, the only regulated gas at the moment.[48] Auctioning will play an increasingly large role, rising to 70% in 2020 and 100% in 2027.[49] Any remaining free allowance allocation

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43. A more detailed background to this summary can be found in Appendix 2.

44. Directive 2003/87/EC, art. 28(1) 2003 O.J. (L 275) 1, 37 (as amended June 25, 2009).

45. Citizens' Summary: EU Climate and Energy Package, http://ec.europa.eu/climateaction/docs/climate-energy_summary_en.pdf.

46. EUR. COMM'N, PROPOSAL FOR A DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL ON THE GEOLOGICAL STORAGE OF CARBON DIOXIDE AND AMENDING COUNCIL DIRECTIVES 85/337/EEC, 96/61/EC, DIRECTIVES 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC AND REGULATION (EC) NO. 1012/2006, at 2 (2008), *available at* http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0018:FIN:EN:PDF; Matthew McDermott, *EU Offers 95% Emission Cuts by 2050, 30% by 2020—If Climate Deal Signed in Copenhagen*, TREEHUGGER.COM, Oct. 23, 2009, http://www/treehugger.com/files/2009/10/eu-offers-95-percent-emissions-reductions-2050.php.

47. OFFICE OF CLIMATE CHANGE, NEW CARBON FINANCE, AN ASSESSMENT OF THE IMPACT OF BANKING AND BORROWING RULES ON LINKING 12 (2009).

48. Press Release, European Union, Questions and Answers on the Revised EU Emissions Trading System 4 (Dec. 17, 2008), http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796.

49. Directive 2003/87/EC, art. 10a(11), 2003 O.J. (L 275) 1, 19 (as amended June 25, 2009).

will use historical benchmarks.[50] Allowances can be banked for eight years within Phase III.[51] Short-term borrowing within the compliance period is allowed (although it is less effective as auctioning plays a larger role)[52] and there is no safety valve or allowance reserve. A price floor may be instituted through an auction reserve or clearing price (still to be established for Phase III), but prices are likely to remain well above this level.[53] There is the possibility for market intervention only in extreme price spikes (a trebling of price for six months compared to the average price for the two years preceding that period), and even then the remedy is early auctioning of allowances rather than a relaxation of the cap at the discretion of the authorities.[54]

There will be a domestic offset scheme,[55] and international offsets from the Clean Development Mechanism (CDM) and Joint Implementation (JI) will be allowed in Phase III, up to slightly over the limit allowed in total in Phase II or just over 11% of Phase II compliance, whichever is higher.[56] This limit will be increased by 50% if the international agreement mentioned above is concluded.[57] There will be qualitative limits on both domestic and international offsets,[58] but without any conversion ratio.[59] The regulator will remain bound to seek out links to similarly stringent trading schemes, although there is currently no provision for accepting allowances from other systems.[60] MRV methodology, already well developed, is in the process of being improved and harmonized,[61] and reported data is made public on a regular and timely basis.[62] The penalty for non-compliance is a

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50. *Id.* at art. 10a(2).

51. *Id.* at art 13(1).

52. Ellerman in CAP-AND-TRADE, *supra* note 33, at 30; Sterk et al., *supra* note 12, at 17.

53. Directive 2003/87/EC, art. 10(4), 2003 O.J. (L 275) (EC) 1, 16 (as amended June 25, 2009).

54. Directive 2009/29/EC, art. 1(29), 2009 O.J. (L 140) 63, 82–83.

55. *Commission 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*, 6–7, COM (2008) 16 final (Jan. 23, 2008), *available at* http://ec.europa.eu/environment/climat/emission/pdf/ets_revision_proposal.pdf [hereinafter *Commission Proposal*].

56. Directive 2009/29/EC, art. 1(13), 1(28), 2009 O.J. (L 140) 63, 77–78, 81–82.

57. *Id.* at art. 1(13).

58. *MEP Offset Proposal Could Disqualify 30% of CERs: Analysis*, CDM & JI MONITOR, Oct. 15, 2008, at 1.

59. Directive 2003/87/EC, art. 11a(2), 2003 O.J. (L 275) 1, 24 (as amended June 25, 2009).

60. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 28.

61. EUR. COMM'N, *supra* note 46, at 6; *Commission Proposal*, *supra* note 55, at 6.

62. *See* Decision 2007/589/EC, Annex I, 2007 O.J. (L 229) 1, 5–47 (outlining general monitoring and reporting requirements for the EU ETS).

make-good provision and a fine of €100, rising with inflation.[63] There will be no border adjustment measures.

III. THEORETICAL OBSTACLES TO LINKING

These obstacles can be roughly split into three categories: issues that relate to the political feasibility of creating a link; issues concerning market functionality once the link is established; and issues concerning the environmental impact of the link. Some issues will spill over into more than one area (for instance, cap level dictates the political issue of financial flows as well as the environmental issue of system stringency), but this basic categorization is useful when considering the role each issue will play in negotiations over linking and the creation of the U.S. ETS.

A. Political Feasibility

The two most crucial features in creating an ETS are the stringency of the caps and the coverage of the scheme. The former sets the price on carbon that covered entities face before linking (given domestic abatement opportunities), and the latter dictates the proportion of the economy under the cap, and thus the number of opportunities for abatement.[64] The two combined determine market size, and, to a large extent, this in turn dictates to which pre-link price the post-link price is closer (the first major issue: which market has greater "control" over price).[65] This feeds in to the direction and magnitude of cross-border financial flows once the link is established (the second major issue) and whether the price partially or fully harmonizes.[66] Price harmonization will occur through an entity in the system with the less stringent cap and lower allowance price selling allowances to an entity that faces a more onerous cap and a higher allowance price in the other system. The payments for these transfers aggregate to large wealth transfers across borders, which is a politically charged issue given that it is purely due to the politically chosen level of a

63. Directive 2003/87/EC, art. 16(3), 2003 O.J. (L 275) 1, 29 (as amended June 25, 2009).

64. JUDSON JAFFE & ROBERT N. STAVINS, HARVARD PROJECT ON INT'L CLIMATE AGREEMENTS, LINKAGE OF TRADABLE PERMIT SYSTEMS IN INTERNATIONAL CLIMATE POLICY ARCHITECTURE 40 (2008), *available at* http://belfercenter.ksg.harvard.edu/files/StavinsWeb6.pdf [hereinafter JAFFE & STAVINS 2008].

65. The larger market will have greater "gravitational pull" on price.

66. The price will partially harmonize if, when the maximum number of allowances permitted to cross the Atlantic have done so, the U.S. and EU allowance prices are still different.

system's "ambition."[67] Although certain industries can be excluded from the cap but subjected to other, potentially more stringent, measures (such as performance or technology standards), cap level and coverage together form a useful indicator of the level of political dedication to reducing GHG emissions, as a commitment is made about the maximum level of emissions from a given set of industries. The larger the set and the lower the emissions level, the more meaningful the commitment.

Allowance allocation may have limited effects on a link from an operational standpoint (as discussed below), but the link will mainly serve to highlight differences in allocation methods between the two systems that exist entirely independently of the link.[68] If, for example, free allowances are given to the electricity sector in one system but all allowances are auctioned in the other, the link will make the different levels of hardship faced by the electricity sectors in the two systems more contrasted. The other effect will be a distributional one, as a price shift caused by linking will affect those who buy or sell and receive allowances for free or bid for allowances, depending on the abatement opportunities at the facilities covered.[69] Thus, the allocation methodology presents essentially domestic political considerations that will not affect the functioning of the link.[70]

Indirect linking is a serious concern when considering establishing or maintaining a link. A variety of system features (price and cost containment mechanisms, for example) can pass across sets of links no matter how long the chain or how complex the network of markets. Even if there is no formal direct link between systems A and C, if there are A–B and B–C links, then A will find itself indirectly linked to C. In some cases this is beneficial because it can produce some of the advantages of linking without requiring the establishment of a direct link,[71] which may prove politically impossible to negotiate or technically too difficult to manage given a lack of impetus to harmonize. It may also conversely have the effect of producing some of the disadvantages of a badly thought-out link. If C's monitoring, reporting, and verification (MRV) requirements are below A's standards but B is amenable to both sets of standards, the indirect A–C link may lead to greater overall emissions, depending on how prices change within the system. The same goes for susceptibility to leakage or

67. JAFFE & STAVINS 2008, *supra* note 64, at 11; VIVID ECONOMICS, *supra* note 7, at 14.

68. BLYTH & BOSI, *supra* note 27, at 25–26.

69. Diamant, *supra* note 6, at 13; BLYTH & BOSI, *supra* note 27, at 9.

70. Michael Grubb & Karsten Neuhoff, *Allocation and Competitiveness in the E.U. Emissions Trading Scheme: Policy Overview*, 6 CLIMATE POLICY 7, 15 July (2006).

71. Flachsland, Edenhofer & Marschinski, *supra* note 13, at 12–14.

updating allowances, not to mention the potential for a safety valve to proliferate through a network of markets.

Loss of autonomy is a concern, as the link reduces the control that either regulator has over its own system. The issue of control comes up in two contexts. First, if one system has greater ad hoc control, this may be cause for concern for the other. The fact that systems seek links and not a merger is a strong indicator of this.[72] The existence of and adherence to agreed rules is crucial to maintain efficient investor certainty and market integrity, so any potential for discretionary action is problematic.[73] Second, each system will want assurances regarding the long-term predictability of the other system's characteristics,[74] most notably cap levels. Each regulator has an incentive to raise the domestic cap to reduce the environmental effectiveness and increase the value of the domestic system, generating financial transfers into that regulator's economy.[75] The role of agreements made in advance of linking should not be underestimated, especially if they have been negotiated and agreed upon in international fora.[76] If targets and timetables, such as those in the Kyoto Protocol, have been agreed upon, it makes it much harder for regulators to raise cap levels, gain economic advantages, and reduce the environmental benefits of the scheme.

B. Operational

It is important that the commodity is constant in the systems. An example of a basic mismatch would be if one system uses metric tons and the other imperial tons for each allowance. This can be rectified with an exchange rate across the link, or even upon surrender, but it is far easier to simplify matters by using the same measurement in each system.

Neither coverage[77] nor the point of regulation appears to affect the functioning of the link.[78] Abatement opportunities may be more numerous

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72. JAFFE & STAVINS 2008, *supra* note 64, at 11.

73. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 24, 29.

74. *Commission Staff Working Document*, *supra* note 27, at 136; Flachsland, Edenhofer & Marschinski, *supra* note 13, at 15.

75. Carsten Helm, *International Emissions Trading with Endogenous Allowance Choices*, 87 J. PUB. ECON. 2737, 2744–45 (2003) ("[E]ven if overall emissions are higher with trading, all countries may consent to it because their welfare without trading would be lower . . . if the efficiency gains are large so as to compensate the negative damage effect."); *see* Flachsland et al., *supra* note 12, at 361 (observing that international agreements reduce other incentives for administrators to raise caps).

76. JUDSON JAFFE & ROBERT STAVINS, INT'L EMISSIONS TRADING ASS'N, LINKING TRADABLE PERMIT SYSTEMS FOR GREENHOUSE GAS EMISSIONS 50 (2007), *available at* http://www.ieta.org/ieta/www/pages/getfile.php?docID=2733.

77. *Commission Staff Working Document*, *supra* note 27, at 133.

in a downstream-regulated, more populated system, which would potentially minimize the total costs of abatement as well as avoid anti-competitive market power concerns.[79] This may be balanced by the effect of increased total transaction costs on a more fragmented market. Efforts should be made to avoid trade in GHG-intensive products between systems where this leads to double or no counting of emissions due to different points of regulation. However, given that this problem will arise anyway, establishing a link provides more opportunities to coordinate efforts to prevent this from happening, thus reducing this concern.

The use of "updating allocations," where recent emissions data is used to establish the fair level of free allowance allocation to a covered entity, can lead to competitive distortions. The incentive structure sought by cap-and-trade systems is purely one where emitters will continue to abate until abatement becomes more expensive than the market price for the permit, bearing in mind the possibility of banking or borrowing, given future price paths. Covered entities subject to auctioning or historic emissions baselines (non-recent emissions data) face this decision. They will seek to minimize the total cost of abatement through distributing emissions in an efficient manner both spatially and temporally. However, emitters subject to updating allowance schemes have an extra incentive in this matrix. The more they pollute and surrender allowances, the more allowances they stand to receive in coming years from the system administrator. Thus, the "pollute" option is given greater value than it should have. This distortion may increase the total cost of compliance not just within a system but across a link. By shifting abatement away from its cheapest location, updating allowance allocation provides an unfair competitive advantage to firms in that system.[80]

There is no technical barrier to transferring allowances from one system to another, but certain decisions can facilitate market functionality. Experience suggests that, where systems want to link but remain distinct (rather than merging into one system), there should be individual registries for each system and a central registry that checks all transactions between entities in separate systems. Moreover, registry standards must be

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78. Judson Jaffe & Robert N. Stavins, *Linking a U.S. Cap-and-Trade System for Greenhouse Gas Emissions: Opportunities, Implications and Challenges* 25 (Reg-Mkts. Ctr. Working Paper No. 08-01), *available at* http://aei-brookings.org/admin/authorpdfs/redirect-safely.php?fname=..pdffiles/WP0801_topost.pdf; LAZAROWICZ, *supra* note 17, at 51.

79. JAFFE & STAVINS 2008, *supra* note 64, at 10.

80. JAFFE & STAVINS, *supra* note 76, at 40.

compatible.[81] The mechanics of units and transfer will be highly dependent upon the nature of the other elements of the link but can be easily adjusted accordingly.[82]

Some potential issues surround the use of commitment periods (blocks of years within which banking and borrowing rules are different from those rules governing banking and borrowing between such blocks). Heavy restrictions on cost containment between periods can lead to a price crash towards the end of a period and a price spike as soon as the new period starts with a tighter cap, neither of which is desirable due to the price shocks that will be suffered by the other system. If the periods in linked systems match up exactly this problem is exacerbated. Mismatched periods provide two advantages: the possibility of using the other system's cost containment features to prevent the price crash and spike so there is price continuity; and insight as to how a lower cap will affect prices, giving another set of data for mapping the marginal abatement cost (MAC) curves in more detail to better craft policy and investment decisions. If, however, only one of two linked systems uses commitment periods, this effect is drastically reduced. Moreover, as markets mature, the use of financial products in smoothing the jump in price from one period to the next should not be underestimated.[83]

Some systems exist alongside a variety of domestic measures designed to encourage GHG emissions abatement (such as an ETS with a low allowance price alongside carbon or energy taxes or a renewable portfolio standard),[84] or alternatively some systems may have a specific price path in mind to fulfill a particular goal through co-benefits from the ETS (such as a desired rate of technological innovation or creation of "green" jobs). If this is the case, then price harmonization may have the effect of defeating some of the specific objectives sought by the regulators, increasing total costs of abatement and decreasing total welfare by more than is gained from linking. As a recent report phrased it, where a system "designed to keep the price as low as possible . . . [is] linked to a system designed to produce high prices, to encourage green investment . . . the result is a weighted average of the two which satisfies neither party."[85] Similarly, there will be other regimes working alongside emissions trading (such as tax, environmental, exchange

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81. *Commission Staff Working Document*, *supra* note 27, at 134; Simon Marr, Directorate-Gen. for the Env't, Eur. Comm'n, *Linking the EU ETS: Opportunities and Challenges* 7 (June 14, 2007), *available at* http://ec.europa.eu/environment/climat/emission/pdf/4thmeeting/2a_marr.pdf.

82. FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 16.

83. Sterk et al., *supra* note 12, at 18.

84. JAFFE & STAVINS, *supra* note 76, at 49.

85. OFFICE OF CLIMATE CHANGE, *supra* note 47, at 40.

regulation, and corporate governance), and these should be examined for potential distortions in the link, which could lead to welfare losses exceeding welfare gains from linking.[86]

Penalties for non-compliance, on the other hand, can potentially have an effect on a link. For example, if one system has harsh penalties but the other system has a mere make-good provision, or even one with a nominal fine, a quasi-cost-containment mechanism could emerge and cross the link, circumventing deliberate limits placed on cost containment mechanisms.[87] Moreover, lenient non-compliance measures can be taken as evidence of a lack of commitment to significant action. Equivalent effectiveness of the non-compliance rules, irrespective of minor differences, is the benchmark for success.[88]

If one system is subject to considerable price volatility, linkage will not be desirable from the perspective of the other system, which will suffer increased volatility. Conversely, linking itself can help to reduce price fluctuations by providing a wider pool of abatement opportunities and thus greater market liquidity.[89] The reasons for any price instability[90] and the potential dampening effect of a link on this should be carefully examined. In the absence of a corrective mechanism for cross-country allocation (discussed below), the potential instability produced by international allowance trading interacting with exchange rates[91] is a good reason to use quantitative limits on the link until the phenomena surrounding linking are better understood and internal (cost containment) and external (financial products)[92] measures can be developed to provide some stability.

C. Environmental

Arguably, the most important environmental issue is the relative stringency of the caps, as this dictates the extent to which the system is restricting emissions below business-as-usual (BAU) levels. A stringent

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86. Mustafa Babiker, John M. Reilly & Laurent L. Viguier, *Is International Emissions Trading Always Beneficial?*, 25 ENERGY J. 33, 34, 53 (2004) (stating the impact of international emissions on welfare); Flachsland et al., *supra* note 12, at 360.

87. Sterk et al., *supra* note 12, at 20.

88. *Commission Staff Working Document*, *supra* note 27, at 135.

89. JAFFE & STAVINS, *supra* note 76, at 18.

90. *Id.* at 42. This could include unreliable, irregular, or opaque data publication in either system. The efficiency of the market depends upon an effective flow of information so the price can be accurately assessed.

91. Warwick J. McKibben & Peter J. Wilcoxen, *The Role of Economics in Climate Change Policy*, 16(2) J. OF ECON. PERSPECTIVES 107, 126 (Spring 2002).

92. MICHAEL MEHLING, GLOBAL CARBON MARKET INSTITUTIONS, AN ASSESSMENT OF GOVERNANCE CHALLENGES AND FUNCTIONS IN THE CARBON MARKET 20 (2009).

system will be hesitant to link to a lenient system not just due to the politico-economic concerns set out above but also due to the concerns over being seen as "subsidizing" the other system's failure to impose a satisfactory environmental standard. One view is that, regardless of linking, the same total cap will be imposed on emissions, as the more stringent system is powerless to dictate the other system's cap level. In another sense, there is a normative loss in accepting this political reality through linking, not to mention the long-term environmental advantages lost in reduced innovation incentivization by not having a high price on carbon in any jurisdiction. This is discussed in greater detail in Section IV.

Cost containment measures (such as safety valves, allowance reserves, banking, or borrowing) will migrate across the link just as the price will, regardless of whether this happens directly or indirectly.[93] Banking, borrowing, and limited reserves are less controversial, as they do not raise the total cap and can help to stabilize price paths.[94] However, the safety valve allows emissions to exceed the cap and so may prevent linking. On similar grounds of environmental effectiveness, even borrowing can be an obstacle to setting up a link.[95] The lower of two price ceilings will be effective in both systems until any reserve behind that ceiling is exhausted, giving substantial control over price to the system with the lower ceiling.[96]

Offsets have two particular issues. First, there is an inherent tension between the desire for a high price signal to drive investment and abatement in the core domestic emitting sectors and the need to provide cheap emissions reductions now through offsets while clean technology is being developed and deployed. The question is to what extent the emissions reductions below BAU levels required by the cap exceed the level of offsets allowed for compliance. Supplementarity[97] requires that the total emissions reductions below BAU levels are greater than the volume of offsets allowed for compliance in that system. Otherwise, there will be no need for any domestic emissions reductions (even though there will inevitably be some "low-hanging fruit" domestic abatement opportunities that are cheaper than

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93 Contracts can be formed between individuals in the two systems whereby the individual in the system with the cost-containment measure will act as a direct proxy for the individual without such facilities (direct). Alternatively, as a whole system the price effects of the cost-containment measures will migrate across the link and cause the facility to be used as if it were available in both systems (indirect).

94. Electric Power Research Institute, Interactions of Cost-Containment Measures and Linking of Greenhouse Gas Emissions Cap-and-Trade Programs, 2-7 to 2-8 (2006).

95. VIVID ECONOMICS, *supra* note 7, at 23; *see also infra* Appendix I Section D.

96. JAFFE & STAVINS, *supra* note 76, at 45.

97. Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 17, Dec. 11, 1997, 37 I.L.M. 22 (1998).

offsets). Supplementarity looks to the primary purpose of an ETS. If it is seen primarily as about reducing emissions immediately, then supplementarity is not an issue, as offsets allow reductions to be achieved where they are cheapest. This has the added advantage of providing incentives for technological innovation in sectors or countries not covered by a cap. If, however, ETS systems are seen as mechanisms to drive investment in technology for a transition to a green domestic economy, then offsets should not detract from necessary resources being focused on reducing emissions domestically. Which of these two paths is followed in either system will affect the existence and degree of supplementarity, and, therefore, the willingness to link.

Second, there are concerns in all offset systems about additionality. If the credits eventually used to permit extra emissions in an ETS system do not represent true reductions, allowing these low-quality offsets into an ETS system will increase total emissions. Moreover, there is the potential problem of double counting, where offset projects could—through fraud or incompetence—produce credits that are used in more than one system, rewarding the same emissions reductions more than once.

Leakage (the extent to which emitting activities will shift outside the industrial sector or geographic area covered by the cap) is a concern, as the greater the extent of leakage, the less meaningful a stringent cap is and the greater the loss to the capped economy relative to uncapped economies.[98] Thus, prior to linking, the extent to which either system is susceptible to leakage and the likely price shift wrought by the link should be examined. If one system is more likely to leak and faces a higher price after the link, net leakage and thus total emissions will, in fact, be increased by the link, regardless of the cost savings in achieving a certain level of domestic reductions.[99] Predicting relative susceptibility to this effect has proven difficult.[100] Relevant factors that have been identified include global competitiveness (the ability to pass carbon costs to global consumers), carbon intensity (the level of GHG emissions required in the production process),[101] and offset use.[102] Unless leakage will be dramatically increased by joining markets together, this poses no serious issue, as the majority of

98. *See generally* EECP WORKING GROUP, REPORT OF THE AD HOC MEETING OF THE EECP WORKING GROUP ON EMISSIONS TRADING ON CARBON LEAKAGE AND AUCTIONING 1 (2008), *available at* http://ec.europa.eu/environment/climat/emission/pdf/finrep.pdf (discussing international concern about carbon leakage).

99. JAFFE & STAVINS, *supra* note 76, at 31.

100. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 22.

101. *Id.* at 11.

102. *More CERs Can Slow EU Carbon Leakage: Report*, CDI & JM MONITOR, Oct. 15, 2008, at 4.

leakage will occur independently of the link and mechanisms such as free allocation to vulnerable industries are in place to minimize leakage in any case.

Having MRV provisions of equivalent effectiveness in the two systems is very important for a number of reasons. First, from an environmental perspective, if more emissions are permitted through a lower price in the system with more relaxed MRV provisions, then it is likely that the link will raise total GHG emissions. Second, from a trust and competitiveness perspective,[103] a link is more likely to function well in the long term if all linked parties are sure that the commitments they have made are being followed.[104] There may be assurances and enforcement mechanisms envisioned between the regulators in the case of a significant breach of obligation by one system, but the key criterion is equivalent reliability and accuracy, regardless of differences in the methods used.[105]

D. Limits and Delays

To allay a majority of these concerns, limits can be placed on the link. Qualitative limits are not feasible in an ETS–ETS link, although they have been successfully employed in ETS–offset system links to ensure only credits from high-quality projects can be used to offset emissions.[106] Quantitative limits make more sense in an ETS–ETS link. They can result in partial price harmonization if the limits are tight enough to prevent a sufficient flow of allowances from one system to the other to equalize prices and can prevent cost containment measures from completely crossing from one system to the other.[107] The same comments apply to an exchange rate at the link, whereby more foreign allowances would have to be surrendered to cover a given level of pollution than domestic allowances. This would mean that increased use of the link would reduce total emissions, safeguarding environmental integrity concerns. However, the partial price harmonization it would create would limit the advantages that the link could potentially offer.

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103. EECP WORKING GROUP, *supra* note 98, at 3.

104. EUR. COMM'N, *supra* note 46, at 6.

MEHLING, *supra* note 92, at 22; LAZAROWICZ, *supra* note 17, at 47.

105. *Commission Staff Working Document*, *supra* note 27, at 135; JAFFE & STAVINS, *supra* note 77, at 41.

106. Directive 2003/87/EC, art. 11(b), 2003 O.J. (L 275) 1, 26 (as amended June 25, 2009). The mechanism for tagging based on CER serial numbers represents a successful qualitative filter.

107. Financial intermediaries will always play a role in offering effective cost-containment measures in either system independently, and a link will facilitate this role.

Given the relative novelty of global emissions trading, individual systems will want to build expertise and institutional capacity across the economy in a safe, controlled environment with as few complicating factors (such as linking) as possible at the outset.[108] Once expertise and certainty over the price path has reached a certain level, then linking becomes a more attractive option.[109] The same works in reverse: experienced systems will be reluctant to link to new systems without a sufficiently high pedigree of expertise or maturation. This will not be a permanent barrier to establishing a link but will justifiably delay links.

IV. PATHS AND OBSTACLES TO ESTABLISHING A LINK

A. System Features Unlikely to Prevent Linking

The U.S. ETS will not use compliance phases in a meaningful way like the EU ETS Phases I–II.[110] Instead, the annually decreasing U.S. cap will help to provide the long-term price stability that was missing from the first two EU ETS Phases. The longer EU compliance period (from 2012 to 2020), combined with an annually decreasing cap during and after Phase III[111] and banking of allowances across phase boundaries, should provide a long-term price signal[112] and reduce price volatility.[113]

A number of factors suggest that this latter concern will not be a major issue, even though volatility is set to increase as caps become tighter due to increased susceptibility to the effects of fundamentals like fuel prices and weather.[114] In the EU ETS, volatility has been no worse than that of other major commodities such as oil. Even a well-designed market will be inherently susceptible to some price volatility due to its interdependence with other volatile commodities.[115] The transparency derived from regular publication of emitter-level data in the EU ETS certainly helps the price

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108. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 7 (stating that the EU ETS Phase I is generally regarded as a rehearsal designed to set up the relevant infrastructure and knowledge base, rather than achieve emissions reductions immediately).

109. Flachsland, Edenhofer & Marschinski, *supra* note 13, at 16.

110. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 6.

111. *Commission Proposal*, *supra* note 55, at 16.

112. Ellerman in CAP-AND-TRADE, *supra* note 33, at 3.

113. VIVID ECONOMICS, *supra* note 7, at 20.

114. POINT CARBON, CARBON 2008: POST-2012 IS NOW, at 24 (2008), *available at* http://cbey.research.yale.edu/uploads/Carbon%20Finance%20Speaker%20Series/Point%20Carbon%202008–Post-2012%20is%20now.pdf.

115. MEHLING, *supra* note 92, at 32.

signal remain steady,[116] as it will in the U.S. ETS. As time goes by, financial intermediaries will provide an increasing variety of products to cushion the price.[117] Last, the link itself should further reduce price volatility by widening the market and improving liquidity.

Both systems see auctioning as the way forward in the long term, even if there is significant free allowance allocation in the short- to mid-term in the U.S. ETS. By the time that linking is seriously contemplated, the EU will be auctioning close to 70% of allowances and the U.S. close to 30%. EU emitters will complain less about buying allowances at auction if the price goes down after linking. All covered entities in the U.S., including those that would not be under the EU cap, will be pleased about receiving free allowances that are worth more due to the raised price, suggesting a possible reduction in domestic anti-linking sentiment. Although the EU will mostly auction and will use historic benchmarks for free allocation, the extent to which the U.S. system may use updating allowances should be examined for its potential to reduce cost savings from linking despite regulation of free allowance allocation to protect consumers. The price floor in the U.S. ETS, established by an auction reserve price, will not cross to the EU ETS, as the U.S. allowance price—unlikely to dip that low independently—will be even higher after linking.

The obligation on regulators in both systems to seek out links with other ETS systems should not produce indirect linking concerns. Currently, the EU ETS is linked to Kyoto's Clean Development Mechanism and the Joint Implementation mechanism (CDM/JI), and it is in the process of restricting Phase III credit use to higher-quality projects.[118] It is unlikely, given the demands of business for high levels of international offset use, that the U.S. will be able to avoid using large quantities of certified emission reductions (CERs) from the CDM (despite U.S. skepticism of the CDM to date), as no other international offset system has a similar institutional capacity and framework.[119] Indeed, one possible effect is that

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116. *Id.* at 29; LAZAROWICZ, *supra* note 17, at 21.

117. WORLD BANK, STATE AND TRENDS OF THE CARBON MARKET 2009, at 5, *available at* http://wbcarbonfinance.org/docs/State_Trends_of_the_Carbon_Market_2009-FINAL_26_May09.pdf.

118. MARKET ADVISORY COMMITTEE TO THE CALIFORNIA AIR RESOURCES BOARD, RECOMMENDATIONS FOR DESIGNING A GREENHOUSE GAS CAP-AND-TRADE SYSTEM FOR CALIFORNIA 72 (2007) [hereinafter MAC 2007], http://www.energy.ca.gov/2007publications/ARB-1000-2007-007/ARB-1000-2007-007.PDF (CER use in the EU ETS is seen as an obstacle to linking. This appears to have been superseded by the likelihood of a U.S. ETS–CDM link).

119. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 39 (stating that the overall effect of the CDM is unclear). Given the administrative difficulties seen to date, some projects in the CDM pipeline may abandon their application and seek certification in the U.S. instead, as some have reportedly done through CCX.

the sharing of the CDM by the U.S. ETS and the EU ETS may produce additional price harmonization beyond that achieved by the formal link—depending upon the cost of CERs, their long-term supply and demand, and the limits placed on their use in ETS systems.[120] Thus, until more links are established, neither system has current or foreseeable links to any other trading schemes that warrant concern.

Just as the method of transfer poses no problems but requires a choice as to method and equivalent registry standards,[121] so too must the registry framework be selected. The EU ETS currently uses the International Transaction Log (ITL), which is run by the United Nations, as the hub of the network of national registries, while the Community International Transaction Log (CITL), the previous European hub, checks the validity of all transfers.[122] With another system such as the CITL to check transfers, the ITL is a good candidate for the central hub of the proposed link, given its success in coordinating the CDM Registry, the EU ETS, the Kyoto assigned amount unit (AAU) systems, and other national registries.[123] Current EU plans to use the CITL as the central hub once more in 2013 demonstrate the ease with which the structure can be rearranged to suit various purposes—again showing that the mechanics of transfer pose no barrier to linking.[124]

The technical question of central registries leads to the administrative and institutional question of whether an oversight body is required to govern the link,[125] or to have some role in relation to the regulation of the systems themselves to "act as agent for the whole and educate, facilitate, and coordinate."[126] Concerns over autonomy suggest that a strong version of this type of authority is not viable for the link in the way that the

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120. Flachsland, Edenhofer & Marschinski, *supra* note 13, at 14.

121. *Commission Staff Working Document*, *supr*a note 27, at 134.

122. Press Release, European Commission, Emissions Trading: EU Commission to Connect EU with UN Carbon Credit Registry (Aug. 6, 2008), http://www.europa-eu-un.org/articles/en/article_8072_en.htm.

123. Flachsland, Edenhofer & Marschinski, *supra* note 13, at 29 (The ITL's use of standards adopted under the Kyoto Protocol would not currently be binding on the U.S., which would have the option of using these standards from the outset of the ETS. However, as the anticipated link will be taking place beyond the remit of the Kyoto compliance period, it is unlikely that these, or related AAU concerns, will prove problematic.).

124. Alessandro Vitelli, *The ITL-CITL Connection's Impact on the Market*, IDEA CARBON, Aug. 6, 2008, *available at* http://communities.thomsonreuters.com/clientfiles/a05396f8-44d6-45cc-9abc-1fa99735e184/reuters%20commentary_6%20sug.pdf.

125. MEHLING, *supra* note 92, at 24.

126. A. Danny Ellerman, *The EU Emission Trading Scheme: Prototype of a Global System?* 12 (Harvard Project on Int'l Climate Agreements, Belfer Center for Sci. and Int'l Affairs, Harvard Kennedy School of Business, Discussion Paper 08-02, August 2008), *available at* http://belfercenter.ksg.harvard.edu/files/Ellerman_HPICA_2.pdf.

European Commission's authority is viable within the existing framework of the EU to regulate sovereign states' participation in the EU ETS. Indeed, there are good reasons for retaining local autonomy over the vast majority of ETS features so long as such regulation remains adequately effective.[127] However, the existence of a mere forum in which to collaborate, share information, and resolve issues would be inadequate. A "light touch" regulating body that falls in-between forum and regulator, to which each system has expressly delegated certain powers and responsibilities within a set procedural framework, could oversee the link and would also permit the introduction of other countries' schemes into the linked network at a later date.[128] The International Carbon Action Partnership (ICAP), a forum for governments to discuss linking, provides a useful prototype for such an entity, although it would doubtless require more mandatory elements of participation to regulate and coordinate effectively.[129]

There will undoubtedly be other regimes working alongside the trading systems, such as the sulfur dioxide trading program in the U.S., but neither experience with the EU ETS nor the literature on the EU and U.S. schemes has demonstrated the presence of any programs that have the potential to create substantial distortions upon linking.[130] Any system that can function side by side with an independent domestic climate market should not be able to affect a link substantially, although energy taxes in particular should be examined for any potentially distorting effects.[131]

For the purposes of non-compliance penalties, the U.S. ETS recognizes the need for a make-good provision plus a substantial fine.[132] So long as this is effective to deter non-compliance—as the stiff penalty and make-good provision has been to date in the EU ETS—the link will not be affected by any differences between EU and U.S. penalties.[133] In terms of

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127. LAZAROWICZ, *supra* note 17, at 82–83.

128. *Id.* at 83.

129. MEHLING, *supra* note 92, at 18.

130. COMM'N OF THE EUR. CMTYS., BUILDING A GLOBAL CARBON MARKET—REPORT PURSUANT TO ARTICLE 30 OF DIRECTIVE 2003/87/EC, at 9 (2006), *available at* http://ec.europa.eu/environment/climat/emission/pdf/com2006_676final_en.pdf; *see* William F. Pederson, *Adapting Environmental Law to Global Warming Controls*, 17 N.Y.U. ENVTL. L. J. 256, 259–60 (2008) (discussing simultaneous presence of a U.S. cap-and-trade system for sulfur dioxide emissions).

131. Babiker, Reilly & Viguier, *supra* note 86, at 53.

132. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 1203(a)(2)(B)(i), (ii) (2007); American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 723(b)(2) (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 723 (2009); Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 715(c)(1) (2008); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 602 (2007).

133. *Commission Staff Working Document*, *supra* note 27, at 135; LAZAROWICZ, *supra* note 17, at 47.

MRV, the EU has had extensive experience in Phases I–II, and the harmonization of the member state actions in line with the published guidelines towards a more rigid system will present a clear, high standard across the EU.[134] The U.S. will have a solid knowledge base to use in designing MRV requirements from the EU ETS, the Kyoto framework, and from domestic systems such as the sulfur dioxide trading scheme, RGGI, and CCX.[135] Both systems require regular, transparent reporting of data that is made publicly available shortly after collation.[136] As MRV standards will be adequately high for both systems, there should be no issue here.[137] The same can be said for market regulation.[138] In the wake of the current financial crisis, by the time a link is operational it is highly likely that strong regulation of financial products will be implemented. It will be a matter of concern for linking only if either market looks susceptible to market manipulation or collapse. Given that serious efforts are underway to set up effective monitoring systems on both sides of the Atlantic, the ubiquitous "adequate effectiveness" criterion will likely be satisfied, although it will take time for faith in complex internationally linked markets to take hold after the recent economic crisis.[139]

Unlimited banking and limited short-term borrowing seem to be common features of both systems, as is the lack of a safety valve or extensive mid- to long-term borrowing facilities.[140] The structure of U.S. strategic allowance reserves will be clearly set out in advance and will be highly predictable,[141] and the same can be said for the triggering of the EU's mechanism in case of extreme price fluctuations.[142] However, it should be noted that the lower of the two reserves (the U.S. ETS's) will be the effective reserve price ceiling. Hence, the EU effort to place relief from high prices out of reach will be futile. The saving grace is that a very significant price spike will be required to trigger either mechanism. Moreover, the overall caps—and thus environmental integrity—are

134. MAC 2007, *supra* note 118 (the fears of "less rigorous monitoring standards" should be allayed by the time a link is seriously contemplated).

135. BLYTH & BOSI, *supra* note 27, at 11–12.

136. *See* LAZAROWICZ, *supra* note 17, at 21 (discussing reporting requirements for the EU ETS); *see, e.g.*, American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 713 (2009) (outlining greenhouse gas reporting requirements); America's Climate Security Act of 2008, S. 2191, 110th Cong. § 1103 (2008) (outlining GHG reporting requirements).

137. *Commission Staff Working Document*, *supra* note 27, at 135; LAZAROWICZ, *supra* note 17, at 47.

138. MEHLING, *supra* note 92, at 27.

139. Michael Grubb, *Linking Emissions Trading Schemes*, 9 CLIMATE POLICY 339, 340 (2009).

140. LAZAROWICZ, *supra* note 17, at 50.

141. VIVID ECONOMICS, *supra* note 7, at 26.

142. Directive 2009/29/EC, art. 1(29), 2009 O.J. (L 140) 63, 82–83.

maintained in both systems.[143] Indeed, linking reduces the chance of such a spike due to the increased price stability and predictability brought about through a larger, more liquid market.[144] There does not appear to be pressure in either system to deviate from this path, so cost containment propagation poses only one hurdle that is relatively low.

Because the U.S. will face a higher price it will see more leakage, a matter of great concern to industry and politicians alike. As mentioned above, leakage is difficult to monitor and predict effectively, but the key point to bear in mind is that the majority of leakage will occur independently of the link.[145] The sole concern is the net alteration in levels of leakage resulting from a price change upon linking, balanced between an increase in the U.S. and a decrease in the EU. As the EU and U.S. attempt to stem the flow of leakage through free allowances to vulnerable industries and the U.S. looks to receive significant financial flows as a result of an EU–U.S. link, it is tentatively suggested that this will not significantly alter the incentives faced by either party in the decision to link.[146]

B. Obstacles to a Successful Link

In terms of prices, targets, and timetables, it is clear that a "perfect balance of efforts is very unlikely to be achieved."[147] Linking two systems together will naturally involve some compromise in this area,[148] which attempts to respect the preferences of all concerned parties.[149] It would

143. *See* American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 726(g)(2) (2009) Indeed, if Waxman–Markey is used as the model, the use of auction proceeds from the U.S. safety reserve will be restricted to the purchase of reduced emissions from deforestation and degradation credits which will be retired using a 80% conversion ratio, meaning that use of the U.S. safety reserve not only maintains the total U.S. cap, but reduces global emissions. *Id. See also* Sterk et al., *supra* note 12, at 14; *Senate Price Control Won't Stop Linkage*, CARBON MARKET N. AM., Oct. 23, 2009, at 4, *available at* http://www.pointcarbon.com/polopoly_fs/1.1263039!CMNA20091023.pdf.

144. LAZAROWICZ, *supra* note 17, at 50.

145. *GMF Event Examines Economic Competitiveness and Cap-and-Trade Policy on Capitol Hill*, German Marshall Fund, Mar. 26, 2009, http://www.gmfus.org/event/detail.cfm?id=566&parent_type=E.

146. *See* Flachsland, Edenhofer & Marschinski, *supra* note 13, at 26 (discussing the effect on the EU ETS of linking to a partner ETS with less stringent goals).

147. Sterk et al., *supra* note 12, at 15; *Commission Staff Working Document*, *supra* note 27, at 135.

148. BLYTH & BOSI, *supra* note 27, at 34–35.

149. KAROLINE HAEGSTAD FLÅM, A MULTI-LEVEL ANALYSIS OF THE EU LINKING DIRECTIVE PROCESS: THE CONTROVERSIAL CONNECTION BETWEEN EU AND GLOBAL CLIMATE POLICY 10 (2007), *available at* http://www.fni.no/doc&pdf/FNI-R0807.pdf.

appear that the EU scheme is more stringent,[150] using an earlier and thus lower baseline, pushing for deeper emissions cuts, using a higher price ceiling, and allowing fewer international offsets than the U.S. This is even more likely to be the case if the EU finds that the highly anticipated international agreement is acceptable and so lowers its cap to 30% reductions in 2020 and 95% in 2050, although this is looking less likely in the wake of Copenhagen. Moreover, there will be a greater supply of cheap abatement in the U.S. due to greater coverage and the guaranteed availability of offsets from agriculture.[151] Until the U.S. ETS and EU ETS Phase III are operational and abatement opportunities are fully explored, divining relative abatement costs—and the price of carbon—is educated guesswork, especially on the U.S. side. [152] Still, current guesswork fairly consistently predicts that the EU ETS will turn out to be more stringent.[153]

Whether this disparity, and the resulting flow of capital from the EU to the U.S. upon linking,[154] is a serious obstacle depends to a large extent on the total emissions reductions of both parties over time[155] as well as international negotiations.[156] Even if the U.S. fails to achieve the EU's ambitious target for all developed countries of 30% below 1990 levels by 2020,[157] if binding international targets and timetables can be agreed upon—these being the EU's current focus[158] and President Obama's stated goal[159]—then the issue of cap stringency is likely to recede, as cap levels

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150. Sterk et al., *supra* note 12, at 15–16; POINT CARBON, CARBON 2008, *supra* note 114, at 45; POINT CARBON, CARBON 2009: EMISSION TRADING COMING HOME, 28 (2009), *available at* http://www.pointcarbon.com/research/carbonmarketresearch/analyst/1.1083366.

151. OFFICE OF CLIMATE CHANGE, *supra* note 47, at 27, 33. It must be noted that this model assumes a less stringent U.S. ETS. The model assumes 10% reductions by 2020, whereas this paper assumes closer to 20%.

152. *See* Sterk et al., *supra* note 12, at 15–16 (discussing carbon price forecasting of the various U.S. schemes).

153. POINT CARBON, CARBON 2009, *supra* note 150, at 28.

154. JAFFE & STAVINS 2008, *supra* note 64, at 11.

155. Lisa Friedman & Jean-Marie Macabrey, *Negotiations: Europeans Grapple As U.S. Lowers Expectations on Midterm Emissions Targets*, CLIMATEWIRE, Mar. 10, 2009, http://www.eenews.com/climatewire/2009/03/10/6/.

156. Flachsland, Edenhofer & Marschinki, *supra* note 13, at 16, 29; JAFFE & STAVINS 2008, *supra* note 64, at 19.

157. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Towards a Comprehensive Climate Change Agreement in Copenhagen*, at 5, COM (2009) 39 final (Jan. 28, 2009) [hereinafter *Communication*].

158. *See id.* at 2 (stating that developed countries should reduce their emissions to 30% below 1990 levels by 2020).

159. *See Obama to Poznam Delegates: U.S. Will Engage in Climate Talks*, CARBON MARKET N. AM., Nov. 21, 2008, at 3 (stating that the United States will be actively involved in international negotiations to "help lead the world toward a new era of global cooperation on climate change"),

will already have been settled. This will be the case regardless of the order of domestic legislation and international agreement so long as both materialize. However, for the time being it would appear more realistic to proceed on the assumption that such an international agreement may not provide a guiding hand for linking negotiations.

The expected coverage figures (U.S. 80% and EU 50%) demonstrate that both systems have taken on substantial commitments.[160] The disparity is not likely to be a contentious point for the U.S., especially as the EU is clearly in a constant review process of expanding coverage, starting from wholly downstream regulation and thus taking longer to move to more upstream regulation in order to widen coverage.[161] Assuming cooperation is maintained on trade in carbon-intensive products, it is no obstacle that the EU ETS is regulated downstream at large emitters while the U.S. ETS is likely to be a hybrid system in terms of the point of regulation.

Coverage will also have an effect on market size, dictating whether the EU or the U.S. will experience a greater price change upon linking. The U.S. will be the larger market for the foreseeable future. The table below gives approximations of the size of the EU market calculated by allowance volume relative to the U.S. market in 2020, assuming coverage in the U.S. and the EU is approximately 80% and 50% respectively.[162] Despite the difference in market size, price effects of the link will be felt on both sides of the link, ensuring reduced total costs of compliance. Moreover, as the EU expands its coverage further and the U.S. makes deeper reductions, the disparity will be further reduced.[163]

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available at http://www.pointcarbon.com/polopoly_fs/1.1008624!CMNA20081121.pdf; *Congressional Aides Lower Expectations for U.S. Climate Bill*, CARBON MARKET N. AM., Dec. 12, 2008, at 3, *available at* http://www.pointcarbon.com/polopoly_fs/1.1021161!CMNA20081212.pdf; *Obama Administration Takes on Climate Change*, CARBON MARKET N. AM., Jan. 30, 2009, at 1, *available at* http://www.pointcarbon.com/polopoly_fs/1.1047201!CMNA20090130.pdf; *see also Nominations: Hearing Before the Senate Committee on Foreign Relations*, 111th Cong. 11 (2009) (statement of Sen. Hillary Rodham Clinton, nominee, Secretary of State), *available at* http://foreign.senate.gov/testimony/2009/ClintonTestimony090113.pdf (stating that the U.S. must be a leader in developing and implementing a coordinated response to climate change).

160. CBO, *supra* note 30, at 5 (stating predicted coverage under Waxman–Markey); *Commission Staff Working Document*, *supra* note 27, at 13 (outlining EU ETS coverage).

161. Flachsland, Edenhofer & Marschinski, *supra* note 13, at 21.

162. CBO, *supra* note 30, at 5 (stating predicted coverage under Waxman–Markey); *Commission Staff Working Document*, *supra* note 27, at 13 (outlining EU ETS coverage).

163. LAZAROWICZ, *supra* note 17, at 1 (stating that there is minimal trade in sectors covered by the U.S. ETS but not by the EU ETS, further reducing concerns over coverage disparity).

Table 1. Approximate figures.

	Waxman–Markey	Kerry–Boxer	Lieberman–Warner	Dingell–Boucher	USCAP (14% below 2005)	USCAP (20% below 2005)
EU (20% below 2005)	34%	35%	35%	30%	37%	40%
EU (30% below 2005)	30%	31%	31%	27%	33%	36%

These conclusions are confirmed by a recent report from the UK's Office of Climate Change.[164] Although the models differ slightly from the U.S. ETS suggested in Section I,[165] the quantitative conclusions bear a striking resemblance to the qualitative analysis immediately above. For example, one of the results is that the predicted allowance prices in the EU and U.S. are €62 and €19 respectively in 2020, but the linked price will be far closer to the U.S. price at €31.[166]

This disparity in market sizes will cause some concern for the EU due to the reduced control over its trading system. However, in order to further investor trust, price predictability, and market integrity, rules have been chosen over ad hoc discretion throughout both systems. No doubt further assurances concerning the long-term predictability of the linked systems will be necessary as a condition precedent to linking, in addition to the absence of intervention measures.[167] Because the U.S. ETS seeks a predictable long-term price path to drive investment and the EU is likely to formulate at least mid-term plans before 2012 (and the annual reductions in Phase III are already scheduled to continue past 2020), in addition to the potential for renegotiating the link at a later date, worries over loss of control should not outweigh the advantages of linking.

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164. OFFICE OF CLIMATE CHANGE, *supra* note 47, at 35.

165. *See id.* at 4 (stating that less stringent cap levels, such as 10% below 2005 by 2020, lead to a larger market with greater gravitational pull on price and a lower allowance price).

166. *Id.* at 35 fig.11, 42 tbl.14. There will not be a convergence based purely on market size and initial allowance prices due to the shape of the MAC curves.

167. *Commission Staff Working Document*, *supra* note 27, at 135, 137.

One possible issue is the equivalence of GHGs.[168] The majority of the market is concerned with carbon dioxide emissions, but the same conversion factors for other gases are used in both systems, namely those most recently adopted in the IPCC's Fourth Assessment Report.[169] From a legal perspective, however, the EU ETS would not link to a system where allowances were not backed by AAUs.[170] This makes it an absolute requirement of linking that either the U.S. becomes a signatory to Kyoto or the EU and the U.S. be bound by Kyoto's successor under the United Nation's Framework Convention on Climate Change (UNFCCC) and the link established after 2012, of which the latter is a far more likely option. Thus, linking provides an extra incentive for the U.S. to enter into an international agreement.

EU and U.S. regulators are increasingly wary of the shortfalls of offsets, even though both systems will involve a domestic offset system and use international offsets.[171] Much of the criticism leveled at the EU ETS has involved the fact that the emissions reductions have been mostly achieved through foreign offsets, reducing the need to develop new technology that cuts emissions domestically.[172] Although the level of CER/emissions reduction unit (ERU) use in Phase III depends on the level of use in Phase II, the EU has explicitly limited supplementarity concerns by preventing offsets from accounting for more than half of the 2008–2020 reductions.[173] Moreover, although exactly how a domestic offset scheme will fit into this framework has yet to be seen, the lower level of coverage in the EU could lead to offsets being granted for projects in the EU that would be covered by the U.S. cap, further reducing supplementarity concerns in the EU. By way of contrast, the proportion of offsets allowed for compliance in the U.S. ETS may exceed the required reductions in order

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168. Directive 2003/87/EC, art. 3(j), 2003 O.J. (L 275) 32, 35; Dingell-Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 702 (2008); American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 711(a), (b)(1) (2009); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 4(5) (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(d)(2) (2007). The EU ETS, Waxman–Markey, Dingell–Boucher, Lieberman–Warner, and Bingaman–Specter all use metric tons of carbon dioxide equivalent, rendering basic commodity mass-concerns void.

169. LAZAROWICZ, *supra* note 17, at 47. Copenhagen would be a useful juncture at which to bring the CDM in line with current science. *Id.*

170. *Commission Staff Working Document*, *supra* note 27, at 134, 136.

171. Sterk et al., *supra* note 12, at 9–11, 22.

172. *Commission Proposal*, *supra* note 55, at 10.

173. *Emissions in Remission? Looking at—and Through—an EU recession*, GLOBAL MARKETS RESEARCH, Oct. 15, 2008, at 17, *available at* http://www.dbcca.com/dbcca/EN_media?Mark_Lewis_151008_DB_Emissions_in_Remission.pdf. *But see id.* at 3 (stating that the recession may reduce business-as-usual predictions, so offsets will constitute more of the reductions).

to achieve politically the desired cap level.[174] Thus, the EU quantitative limits on offsets are rendered far less meaningful.[175]

However, a number of factors suggest that this concern is partly misplaced. First, even if the U.S. offset use limit is not supplemental to domestic mitigation, if the aggregate level of emission reductions called for in the two systems is greater than the aggregate level of offset use, some supplementarity remains. Second, the U.S. ETS' use of a conversion rate for international offsets will ensure that increased offset use reduces total global emissions, rather than maintaining a steady level.[176] This conversion rate, due to likely price differences, will not be open to gaming.[177] Third, there will be many domestic abatement opportunities that remain cheaper than offset prices and so will be exploited. Finally, and most importantly, the probable functioning of the market must be examined. The supply of qualitatively acceptable international offsets is currently far below even half a billion tons per year[178] and will likely remain that way for some time to come.[179] Furthermore, a similar comment concerning a shortfall in supply from domestic U.S. offsets can be made, especially if quality checks are rigorous. To conclude, whether the amount of offset use proves to be a problem depends more on the level of offset use than the legal limits if

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174. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 5.

175. LAZAROWICZ, *supra* note 17, at 48.

176. Maria Bendana, *Strong Push for Reducing Deforestation in 1st Draft U.S. Climate Bill*, FOREST CARBON PORTAL, Apr. 2, 2009, http://www.forestcarbonportal.com/article.php?item=366.

177. The concern of circumventing the conversion rate on offsets used by Waxman–Markey by laundering CERs through the EU ETS is a false one. In order for laundering to take place, the limit on CER use in the EU ETS could not have been reached, otherwise no CERs could enter the EU ETS to be converted into EUAs to sell across the Atlantic. If this limit were not reached, the U.S. allowance price would have to be higher than the EUA price for entities bringing CERs into the EU ETS to gain more by selling them in the U.S. than in the EU, and this is not contemplated for many years to come, if at all. Even if this were the case, the fact that the U.S. allowance price remained above the EUA price must mean that a limit on the link had been reached – i.e., no more EUAs could be used for compliance in the U.S. ETS due to the lack of full price harmonization. If no more EUAs can enter the U.S. ETS, then no laundering can take place. Doubtless, some "laundering" through strategic banking of CERs might take place, but this could be detected by market regulators, or avoided through setting vintage limits on permit storage.

178. *See, e.g.*, LAZAROWICZ, *supra* note 17, at 73. According to the UNFCCC, the average annual CER output of the entire CDM is currently under 280 million tons. This includes project types now considered unacceptable for compliance, such as those involving HFC-23, indicating that the real supply may be even lower. *Id.*

179. NAT'L COMM'N ON ENERGY POLICY, FORGING THE CLIMATE CONSENSUS: DOMESTIC AND INTERNATIONAL OFFSETS 3 (2009); Joe Delbeke, *The Potential Magnitude of Offset Demand in the Early Years*, CARBON MARKET N. AM., June 19, 2009, at 6, *available at* http://www.pointcarbon.com/polopoly_fs/1.1142246!CMNA20090610.pdf; *Industry Fears Offset Demand Can't Be Met*, CARBON MARKET N. AM., June 5, 2009, at 4, *available at* http://www.pointcarbon.com/polopoly_fs/1.1132316!CMNA20090605.pdf.

these limits are never reached, and current information suggests that they will not be.

The problem of supplementarity is separate from concerns about offsets of dubious quality that do not represent real reductions. The U.S. is aware of the pitfalls of the CDM,[180] and it will attempt to avoid them in its domestic offset scheme. Both the U.S. and the EU[181] seem to agree that an adequate supply of good-quality international offsets is needed, which may be best brought about through reform of the CDM itself, bolstered by the use of qualitative limits on linkage that restrict the use of credits from projects using questionable methodologies for existing projects and credits. Both sides will want to ensure that all other ETS schemes using CERs replicate these limits, as qualitative restrictions could be subverted by low-quality credits being used in other systems.[182] This concern exists independently of a link, and it would be a stumbling block if one system were to accept low-quality credits that could effectively then be used for compliance in the other by freeing up allowances for sale from the more lax system.[183] If an EU ETS–U.S. ETS link increased the volume of low-quality CERs entering the U.S. ETS due to more relaxed standards and a raised price in the U.S., the link could itself further thwart EU efforts. Thus, the EU would have to accept the limits on domestic and international offsets in the U.S. ETS before linking, which may prove difficult until the U.S. can demonstrate—along with its level of maturity—that its offset usage policy is acceptable. These concerns apply equally to concerns in either system about domestic offsets, such as the Land Use, Land Use Change and Forestry (LULUCF) offsets anticipated in recent U.S. bills, and can only be addressed in time when the quality of offset certification can be demonstrated.[184] However, if the EU is both attempting to improve offset quality across the board and expand the range of project types it will accept (including forestry, although wariness surrounding offset crediting for Reduced Emissions from Deforestation and forest Degradation (REDD)

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180. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 7.

181. *Communication*, *supra* note 157, at 11.

182. LAZAROWICZ, *supra* note 17, at 48.

183. BLYTH & BOSI, *supra* note 27, at 20; *see* OFFICE OF CLIMATE CHANGE, *supra* note 47, at 40 (stating that when systems with different borrowing rules are linked there will be no difference in the price or emissions outcomes if the systems are designed with a stringent cap).

184. Press Release, Int'l Emissions Trading Ass'n, IETA Positions on the European Commission's Communication "Towards a Comprehensive Climate Change Agreement in Copenhagen," at 7 (Mar. 2009), *available at* http://www.ieta.org/ieta/www/pages/getfile.php?docID=3255; Michael Mehling & Andreas Tuerk, Guest Commentary, *Linking Carbon Markets—A New Hope for Global Emissions Trading?*, CARBON MARKET N. AM., Apr. 24, 2009, at 6, *available at* http://www.pointcarbon.com/polopoly_fs/1.1104027!CMNA20090424.pdf.

projects remains), then this tension should be eased.[185] In conclusion, offsets, although appearing to pose a number of significant issues, in fact offer rather few obstacles, all of which can be adequately dealt with in due course.

C. A Realistic Pathway

As a well established system, the EU has some expertise and knowledge of the workings of an ETS system. While few regard the EU ETS as a mature market,[186] for some time it will have more experience, maturity, and collected data upon which to base decisions than the U.S. system. EU concerns about linking to the U.S. ETS before the latter has demonstrated its stability will push links back several years,[187] and the U.S. system is highly unlikely to be functional before 2012. Moreover, market participants will require sufficient notice of a link in order to adjust investments and price paths to the likely post-link direction.[188] The year 2015 has been mooted by the EU as a target for linking, albeit an ambitious one rooted in assumptions concerning the start date of a U.S. scheme that are now unlikely to come to pass.[189]

The difficult issues mentioned in this section may require a limit on any link at its outset.[190] In the absence of greater harmony than the systems currently demonstrate, neither system will want to shake off its independence and surrender to unlimited linking, but both regulators will want enough trade to be permitted between the systems to make the effort of creating a link worthwhile in terms of managing volatility and reducing total costs of compliance. A limit will restrict the financial flows across borders and will allow for the regime to be developed over time, as an understanding of abatement opportunities in different countries grows. If the prices are naturally close enough, full price harmonization is possible, even with a limited link. This limit will serve to minimize all the concerns mentioned to such a level that linking is deemed acceptable on both sides. It should be noted that, for the time being, the U.S. limit is likely to be

185. Sterk et al., *supra* note 12, at 11.

186. POINT CARBON, CARBON 2008, *supra* note 114, at 10 (stating that under 20% of respondents thought that the EU ETS was a mature market).

187. FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 29; Grubb, *supra* note 139, at 340.

188. LAZAROWICZ, *supra* note 17, at 51.

189. *Id.* at 33; *Communication*, *supra* note 157, at 13.

190. The U.S. system will probably have a limit built into the legislation, although this is unlikely to matter, as the likely direction of allowance flow will be U.S. allowances into the EU ETS rather than EUAs into the U.S. ETS.

redundant. The number of U.S. allowances permitted for compliance in the EU ETS will be the crucial figure due to the likely direction of allowance flow. Following the U.S. lead, rather than a quantitative quota, the EU could consider the use of a conversion factor on imports of U.S. allowances, so that the link could, though its very existence, reduce total emissions. This gives the EU a very strong hand in linking negotiations.

V. THE POLITICAL ECONOMY OF LINKING NEGOTIATIONS

This analysis suggests that both sides are faced with complex incentives. The EU in particular faces a difficult choice in deciding to link that will only become clear once the U.S. scheme is instituted and demonstrates maturation and willingness to negotiate. Linking may only be possible with a combination of tight limits, concessions, side payments, and one of the mechanisms suggested in this article to reduce the more serious drawbacks of linking.

It is clear that the U.S. ETS will only link to a comparable ETS scheme. Waxman–Markey will only accept allowances from systems that are "at least as stringent"[191] as the one in the U.S. Lieberman–Warner requires international allowances to come from a system of "comparable stringency,"[192] including comparable MRV provisions. Bingaman–Specter requires international allowances to come from a system with "a level of environmental integrity that is not less than the level of environmental integrity of [the Bingaman–Specter Bill]."[193] Under Dingell–Boucher, for foreign allowances to be used for compliance, the scheme must be at least as "stringent" as the U.S. ETS.[194] Full evaluation of these terms would certainly involve looking at the stringency of the cap, coverage, MRV, non-compliance provisions, and probably many more factors outlined elsewhere in this paper. As the EU ETS appears to be at least as, if not more, stringent on most relevant metrics, this criterion is very likely to be satisfied.

The EU ETS Review has stated that the EU ETS "should be able to link to other mandatory emission trading systems capping absolute emissions,"[195] but internal discussions on linking have stressed the same

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191. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 728(a)(2) (2009).

192. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2502(b)(2) (2007).

193. Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(d) (2007).

194. Dingell–Boucher Cap and Trade Bill Discussion Draft, H.R. __, 110th Cong. § 761(a)(2) (2008).

195. *Commission Proposal*, *supra* note 55, at 10.

factors as those outlined in Section III.[196] The decision about whether to link will be made on a "case-by-case basis,"[197] but the Review stated that all of the concerns outlined in Section III would be balanced when considering a link—implying a willingness to compromise but not capitulate.[198]

A. Internal Pressures: The Emitter and Household Level

Proceeding on the basis that the EUA price will initially be higher than the U.S. permit price once the markets are joined, entities in the U.S. will face a higher post-link price on carbon as EU emitters buy cheap allowances from the U.S. system. If there is full auctioning, all U.S. emitters will be against the link, with all EU emitters for it. Assuming some allowances are given away for free, due to a higher post-link price there will be opposition to the link from U.S. net buyers of permits. Those U.S. emitters who are net sellers at the post-link price, however, will be pro-linking. There will be significant pressure to link from net allowance buyers in the EU who face a lower compliance cost and opposition from net sellers who will receive less revenue from selling their permits. Emitters whose post-link position shifts in the EU (seller to buyer) will oppose the link, and those who shift in the U.S. (buyer to seller) will support the link. Regardless of auctioning methodology, all parties will be attracted to the harmonized price faced by emitters in the same industrial sector in the two separate systems, thereby reducing competitiveness concerns as well as increasing price stability.

Given probable market sizes, the price deviation will be greater for the EU, so the pressure to link from covered entities in the EU will be more significant than the pressure against a link from their counterparts in the U.S. On the other hand, greater coverage in the U.S. ETS will generate more emitters affected by the price change, who are likely to lobby the regulator. Moreover, due to greater coverage and thus greater integration of the ETS in the economy, consumers will be more affected by price shifts in the U.S., producing another power base that may oppose linking, especially in relation to electricity costs.[199] This could be offset by diverting the increased auction revenues in the U.S. back to consumers, or by effective

196. EECP WORKING GROUP, *supra* note 98, at 2–4; *Commission Staff Working Document*, *supra* note 27, at 134.

197. *Commission Staff Working Document*, *supra* note 27, at 133.

198. *Id.*

199. *See* Sterk et al., *supra* note 12, at 8, 16 (stating that electricity generators included opportunity costs of allowances in product prices under the EU ETS); *see also U.S. Carbon Price Could Send Power Prices Soaring: Report*, CARBON MARKET N. AM., Jan. 30, 2009, at 4, *available at* http://www.pointcarbon.com/polopoly_fs/1.1047201!CMNA20090130.pdf.

use of the regulation intended to protect consumers from rises in energy prices.

B. Net Financial Gains and Losses: The Market Level

Upon linking, the EU faces a wealth transfer to the U.S. from the aggregated payments for U.S. allowances.[200] If, averaged over time, the systems are approximately equal in stringency (with approximately equal price paths), then these financial flows will balance out, merely maximizing the efficiency of the market by pushing abatement to its very cheapest location. However, if one system is consistently more stringent than the other—as the EU ETS appears to be—then there will be a sustained flow of capital out of the more stringent system, clearly a political stumbling block as it is due to a difference in politically-decided levels of ambition.[201] Assuming a limit of 5% of compliance is used, with an average annual cap of 1,846 allowances in the EU ETS Phase III,[202] 923 million allowances from the U.S. ETS could be used for compliance annually in the former system. If prices are driven up by the tighter cap to the predicted €30,[203] then even if the link reduces the EUA price to €25, the EU could face a drain of up to €18 billion to the U.S over the eight-year compliance period. This is not a particularly high figure when spread across many European nations, especially when one considers that GDP for the EU was over $18 trillion in 2008.[204] Such financial flows across borders have proven to be among the least politically troubling aspects of the EU ETS, although in the European context—not present in an EU–U.S. link—the absence of widespread auctioning and overallocation have all played a significant part in reducing these concerns.[205] A crucially related result of the inter-system transfers is that auction revenues will drop for the EU ETS,[206] making it more difficult to channel funds to adversely affected consumers.

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200. Sterk et. al., *supra* note 12, at 3.

201. VIVID ECONOMICS, *supra* note 7, at 14.

202. Press Release, European Union, Questions and Answers on the Revised EU Emissions Trading System (Dec. 17, 2008), *available at* http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796.

203. POINT CARBON, CARBON 2008, *supra* note 114, at 31.

204. April 2008, WORLD ECON. OUTLOOK DATABASE (Int'l Monetary Fund, Washington, D.C.) Apr. 2008, *available at* http://www.imf.org/external/pubs/ft/weo/2008/01/weodata.weorpt.aspx?sy=2006&ey=2013&scsm=1&ssd=1&sort=country&ds=.&br=1&c=998&s=NGDPD&grp=1&a=1&pr.x=40&pr.y=5 (last visited Oct. 17, 2009).

205. A. Danny Ellerman, *supra* note 126, at 23.

206. The EUA price will be lowered after linking, and for the same number of allowances distributed by regulators with a lower price attached to each one, the auction revenue will be reduced.

One way to get around this is through a burden-sharing agreement, where the total EU and U.S. cap is respected, but caps for each jurisdiction can be redistributed.[207] This would involve the likely number of permits to be brought into the "short" jurisdiction being "transferred" from the regulator of the "long" jurisdiction to the other free of charge before auctioning took place. This should not affect the price, as the same number of permits exists in the linked system after the transfer, but it raises questions of how this would be regulated in the absence of a body to oversee the link. This solution, despite the equitable distribution of burdens it entails, is not a likely scenario, given the value of such permits from domestic auctioning.[208] Another solution is to calculate the annual wealth transfer and have the U.S. regulator make a direct payment to the EU regulator once auction proceeds have been collected the following year—an even less likely option, given how explicit this would make the wealth transfer. A third option is to regard this as a necessary evil and a burden to be shouldered by the EU.

C. Anchoring: The International Level

The "first mover"[209] anchoring effect of the EU ETS should not be underestimated. It is the most attractive linking partner from the perspective of other systems[210] due to its size and system characteristics, and, due to its level of maturation, it is more likely to have attracted links with other systems (such as Japan, Australia, and New Zealand) through ICAP than the U.S. ETS by the time that a U.S. ETS–EU ETS link is viable. Other systems are more likely to harmonize along EU lines than vice versa due to the EU ETS's size. Therefore, U.S. legislators looking to the future should seek to set up the U.S. ETS in such a way that its features are amenable to all potential linking partners, whose creation will have been guided by the EU ETS's structure. This advantage accruing to the EU ETS flows not only from the credibility it has gained from making the first serious forays into determined abatement efforts but also the ability to silently shape future ETS structures. For this very reason, it is hoped that

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207. This could be achieved along the lines of the Burden Sharing Agreement that reallocated commitments under Kyoto within the EU.

208. There is also an element of moral hazard in providing a solution for the U.S. to avoid ratcheting its cap down to a level where the EU considers linking appropriate.

209. *See House Climate Bill Clears First Major Hurdle*, CARBON MARKET N. AM., May 22, 2009, *available at* http://www.pointcarbon.com/polopoly_fs/1.1123351!CMNA20090522.pdf (stating that there are many advantages to being the first mover, not least the anchoring effect).

210. *Kyoto May Be Replaced by 7 Carbon Markets—Barclays*, CLIMATEWIRE, Oct. 19, 2009, http://www.eenews.net/climatewire/2009/10/19/9.

those designing a cap-and-trade bill undertake the kind of analysis this paper suggests.

One serious caveat to this is the potential effect of "border adjustment" anchoring. Jurisdictions looking to maintain competitive trade with the U.S. may seek to demonstrate the equivalence of their own domestic emissions trading schemes to the U.S. ETS. They are likely to do this by following the structure of the latter scheme in order to avoid the penalty of having to surrender special allowances to cover products exported to the U.S.[211] This effect may act as a significant counterweight to the anchoring mentioned above, assuming there are some features of the "first mover" that are not comparable to or more stringent than the U.S. scheme (such as coverage or MRV). The potential losses to trade from an inadequate abatement regime, irrespective of any links, may be sufficient to override the desire for compatible linking to schemes with "first mover" characteristics.

Two limits on the dominance of "border adjustment" over "first mover" anchoring are timing and the nature of the measures affected by these different effects. First, if the U.S. is slow to move towards successfully signing a bill into law (as appears likely),[212] let alone establishing an ETS, domestic pressure will have tipped other countries towards establishing schemes of their own, which will not be contingent upon an ephemeral U.S. ETS. Therefore, the only possible effect felt on these schemes will be that of the EU ETS. Second, the "first mover" effect is more targeted towards operational and environmental obstacles to linking, such as commodity type, cost containment measures, and MRV regimes. The fact that linking is unlikely to change cap levels on either side of the link is desirable to reduce costs and volatility. This means that obstacles to linking that can be cleared early on will be. On the other hand, the border adjustment effect, while taking these obstacles into account, is primarily motivated by coverage and cap stringency. The real concern of the U.S. is whether foreign competitors are faced with a similar price on carbon, and, despite the language in the bills, the details of the scheme are less important.[213] Thus, these two effects could be seen simultaneously on different sectors of a regime.

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211. *Canada Seeks to Align GHG Laws with the US*, CARBON MARKET N. AM., Apr. 17, 2009, at 1, *available at* http://www.pointcarbon.com/polopoly_fs/1.1099451!CMNA20090417.pdf (stating that signs are already emerging that indicate Canada will be guided by this concern).

212. Darren Samuelson, *Reid Plans Global Warming Floor Debate 'Sometime in the Spring,'* E&E NEWS PM, Nov. 17, 2009, http://www.eenews.net/eenewspm/2009/11/17/1.

213. *See generally* U.S. GOV'T ACCOUTABILITIY OFFICE, GAO-09-274R, CLIMATE CHANGE TRADE MEASURES: CONSIDERATIONS FOR U.S. POLICY MAKERS (2009) (questioning the potential impact of GHG emission pricing between U.S. and foreign competitors).

D. Subsidization: The Ethical/Environmental Level

There is some force to an argument that the EU would be subsidizing the less stringent U.S. scheme not just financially, but normatively and environmentally. The EU would subsidize this scheme by creating a market that reaches a medium level of effort by combining a high level of effort on the EU side and a lower one on the U.S. side, primarily in terms of cap levels but also concerning offset use and other system characteristics. Harmonization of the carbon price does not reflect the underlying difference in domestic pressure to abate, but rather masks it. Indeed, establishing a link signals approval of the other scheme's targets.[214]

Two rebuttals can be made to this line of thinking. First, experience in the EU to date suggests that there has been little or no mention of the subsidization argument, or of the accompanying financial flows, despite the divergent effort levels among states according to the Burden Sharing Agreement; however, we must recognize how different an EU ETS–U.S. ETS link would be to the arrangement among EU member states. Second, outside the European context it should be recognized that a scheme's structure may not be particularly susceptible to variation by another state, especially if caps are set in an international agreement. Overall, the same amount of abatement will occur with or without the link, so refusing the benefits from linking appears almost petulant in the face of reality. This argument could be rephrased in the following terms: despite the "subsidization" argument, an inability to alter another country's regulatory autonomy should not stand in the way of reaping a series of benefits from linking systems— whilst still acknowledging that there is at some level a betrayal of domestic values.

However, this paper suggests an alternative approach. While it may be difficult to change another country's cap levels and system structure, linking may be the very pivot with which such change can be most easily effected. The EU can claim leader status on GHG mitigation efforts on four grounds. First, the EU has engaged in emissions trading and reduction since 2005, and is on track to achieve its commitments under the Kyoto Protocol (leakage and offset issues aside.) The EU program appears to be meeting its goal as compared to the historically meager U.S. constructive involvement in climate change domestically and internationally. Second, the fact that the U.S. has not seriously engaged in abatement to date means that any apparent deep cuts below BAU levels reflect a prolonged history of greater investment in carbon-intensive facilities, and thus normatively count

214. Flachsland et al., *supra* note 12, at 363.

for less. Third, the EU has opted for a stringent scheme not only to reduce emissions in the short term but, crucially, to incentivize investment and research in abatement technology and infrastructure, even if this effect has not fully emerged yet. This scheme aims to capture many of the benefits of this positive externality domestically, such as intellectual property rights to technology that can be licensed abroad and domestic "green" jobs. This benefit from linking will disappear if, through linking, the EUA price drops significantly, as nowhere will there be a sufficiently strong price on carbon to fuel this drive for the required new technology and infrastructure. Fourth, due to the expected direction of allowance flows the EU is in the position of being able to dictate the terms of a linking agreement, as no EUAs will be required in the U.S. ETS but U.S. allowances would be in demand in the EU ETS post-linking.

This leader status could be exercised to make greater stringency on the part of the U.S. a condition of linking. Some recent estimates of the cost savings available from an EU–U.S. link range from 30% (where the systems are similar) to 50% (where one ETS is noticeably more stringent than the other).[215] Environmentalists on both sides will correctly contend that, due to reduced total costs of compliance, the total cap—specifically, the U.S. cap—could be reduced so that greater emissions reductions can be achieved for closer to the total cost levels seen as acceptable prior to linking. Indeed, the same report estimates that the total cap could be reduced by 1 gigaton if the total pre-linking costs were to be imposed post-linking.[216] Although this sacrifices some long-term regulatory certainty in ensuring adequate levels of investment in low-carbon technology and infrastructure, it is no doubt possible to use timely notification and both internal and external cost containment measures to ensure a stable price path. Moreover, the worry about regulatory uncertainty is usually concerned more with under-investment (causing high prices in the long term), whereas this approach would incentivize over-investment as a precaution (producing, if anything, lower prices in the long term). If this path were taken, the U.S. could genuinely claim—although it would not be alone in this claim—to be at the forefront of mitigation efforts and enjoy the normative, political, and economic force associated with that position.

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215. LAZAROWICZ, *supra* note 17, at 41.

216. *Id*. at 42.

CONCLUSION

Much of the foregoing analysis is highly speculative. The hypothetical U.S. ETS is far from definite, although becoming more so. Parts of this paper will hopefully become outdated shortly, as an ETS system is successfully set up in the U.S. While certain features and lines of reasoning within the sources this paper examines seem fairly constant, the political atmosphere in which any legislation is passed will be very different than the one in which the last round of proposals failed, whether due to their structure or the hostile legislative atmosphere. The effect of the economic crisis on ETS legislation still proves problematic and continues to be the focus of debate rather than the requirements of science or amenability to linking. On the international level, we have yet to see what the EU and the U.S. will agree upon, but also the extent to which other emitters can be brought into abatement efforts. The long-term fallout from Copenhagen is still too uncertain to contribute in a meaningful way to this paper's analysis except to note the glaringly obvious lack of targets. Most crucially, the price paths of the EU ETS in Phase III and the U.S. ETS after a few years of operation are still speculative and at best constrained by fairly wide bounds, ignoring some inevitable price volatility.

The importance of linking should not be overstated. It is a useful tool to achieve significant cost reductions but should not be sought at the expense of resources that could be deployed in more useful areas, such as actually implementing abatement.[217] Linking will only be a feasible option once price stability, institutional security, and market maturity have been demonstrated on both sides of the Atlantic. More importantly, the advantages of efficiency gains and reduced total costs of compliance can be offset by increased total emissions under certain conditions, although these are unlikely to materialize.[218] As limits on any link will almost certainly be put in place, the benefits a link will yield will be similarly limited.

However, this paper concludes that a link between the EU ETS and the U.S. ETS is more than a mere possibility. Once systems have emerged on either side of the Atlantic, regulators will seek links for a variety of reasons, not least of which include reducing the total costs of abatement and price volatility. These reasons for seeking a link remain beneficial even if caps are allocated "fairly" with equal burdens (and so minimal inter-system transfers) in mind.[219] This paper has hopefully demonstrated that the

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217. EECP WORKING GROUP, *supra* note 98, at 2.

218. HOLTSMARK & SOMMERVOLL, *supra* note 6, at 22.

219. *See Commission Staff Working Document accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee*

operational obstacles are few and avoidable, whatever form the U.S. system takes within the range of options considered. Furthermore, the more problematic political and environmental issues, while significant, are not insurmountable. No harmonization is required on a wide variety of each system's facets, such as cost containment, allocation, non-compliance, and MRV.

System stringency (mainly through cap levels) is the serious sticking point, as market realities (especially after the filter of qualitative limits) will prevent offsets from stymieing linking negotiations. The EU will be amenable to a range of emission reduction paths contemplated by the U.S. in order to bring the latter into meaningful global efforts, with linking as one logical step in the process of forging a global response to a global problem. Even before the details of the U.S. scheme have taken shape, the European Commission's avowed intent to enter into "bilateral partnerships with the U.S. . . . to share experience on designing domestic emissions trading systems and to facilitate the creation of a robust OECD-wide carbon market by 2015"[220] hints strongly at the enthusiasm of the EU to link. However, the opportunity should be seized by the U.S. to engage in serious efforts to join the EU's firm stance on deep emissions reductions through tighter caps, less offset use, and a lower price ceiling. There is a host of good reasons for the U.S. to push for a more stringent system aside from the facilitation of linking (to begin with, responding to scientific evidence of climate change and signaling the willingness of the U.S. to strive for global leadership in this field). This paper merely seeks to illustrate one particular reason to push for a more environmentally effective system. If this path is not taken, it is likely the EU and others will make such a path the required one for a link, and it will be far more difficult for the U.S. to switch later on than to start out on the right track.

The benefits of linking, such as the reduction of total compliance costs and volatility, will hopefully suffice to outweigh the perceived downsides, such as complex domestic pressures or the potential need for harmonization. Moreover, limits on the link can be employed to keep any downsides firmly under control. An EU ETS–U.S. ETS link will be one of the most significant steps taken towards unifying the global response to climate change, sending a strong political signal internationally.[221] Such a link will pave the way for further action if considered in depth by those tasked with creating the U.S. ETS and those in charge of policy thereafter.

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and the Committee of the Regions, 30 COM (2009) 39 final (Jan. 8, 2009) (allowing for emissions trading between countries with cap-and-trade systems creating a mechanism for reduction obligations).

220. *Communication*, *supra* note 157, at 5.

221. Flachsland et al., *supra* note 12, at 366.

It is hoped that this paper's analysis proves to be of some use in crafting an ETS that is more amenable to linking, and thus more environmentally effective.

APPENDIX 1: THE U.S. ETS

Most proposals have assumed that a federal ETS would be implemented. For the sake of simplicity I assume that the U.S. ETS will be a uniform system set up by federal legislation,[222] not a set of linked distinct markets with different rules set up at a regional or state level or regulation by EPA under the Clean Air Act. Legislators will be required to grapple with the difficult issue of preemption and the endangerment finding,[223] but these discussions lie outside the scope of this paper.

A. Price, Targets, and Timetables

The table below outlines the targets and timetables from the sources examined in this paper in terms of the percentage reduction from emissions levels in the given baseline year. The more recent of these, at the top of the table, are indicative of the most likely path of the U.S. ETS.[224]

Table 2. Targets and timetables from the sources examined in this paper in terms of the percentage reduction from emissions levels in the given baseline year.

	Baseline	2012	2020	2030	2050
Waxman–Markey	2005	3	17	42	83
Kerry–Boxer	2005	3	20	42	83
USCAP	2005	0	14–20	42	80
Lieberman–Warner	2005	4	19	36	71
Dingell–Boucher	2005	19	6	44	80
Bingaman–Specter	2006	-7	0	32	60

222. Meghan McGuiness & A. Danny Ellerman, *The Effects of Interactions Between Federal and State Climate Policies*, *in* CAP-AND-TRADE: CONTRIBUTIONS TO THE DESIGN OF A U.S. GREENHOUSE GAS PROGRAM 95 (2008) (suggesting that, from an economic perspective alone, preemption is preferable).

223. *Climate Change Policy to Battle Economic Downturn in 2009*, CARBON MARKET N. AM., Jan. 9, 2009, at 1, *available at* http://www.pointcarbon.com/polopoly_fs/1.1033448!CMNA20000109.pdf (stating that RGGI may seek inclusion in a federal system on its own terms).

224. OFFICE OF MANAGEMENT & BUDGET, A NEW ERA OF RESPONSIBILITY: REVIEWING AMERICA'S PROMISE, 21 (2009), *available at* http://www.whitehouse.gov/omb/assets/fy2010_new_era/A_New_Era_of_Responsibility2.pdf.

Bingaman–Specter, the least stringent, requires reductions to 2006 levels by 2020 and 1990 levels by 2030.[225] Dingell–Boucher and Lieberman–Warner use 2005 as a baseline and commence in 2012.[226] The former aims for 7% reductions in 2020 and 80% in 2050, while the latter aims for 16% reductions in 2020 and 70% in 2050.[227] USCAP calls for reductions of 14–20% below 2005 levels by 2020 and 80% reductions below 2005 levels by 2050.[228] President Obama's more stringent target, similar to the California's AB 32,[229] requires 80% below 1990 levels by 2050.[230]

Waxman–Markey[231] and Kerry–Boxer[232] follow the recent budget proposals[233] in pointing towards stringency, expecting targets of 14% below 2005 levels by 2020 and 83% by 2050. All of these suggestions follow the U.S. Government Accountability Office's (GAO) recommendation of a long-term price signal to drive investment in technology from an early stage.[234] President Obama's proposed path requires a 40% reduction below BAU by 2020,[235] although the USCAP suggestion is closer to 20% reductions below BAU by 2020.[236]

Studies have attempted to model the allowance prices in various permutations of the bills. The Environmental Protection Agency (EPA) estimated allowances under Bingaman–Specter to cost $57–$61 in 2030 (in 2005 dollars), over three times the Technology Accelerator Payment value.[237] Similarly, the EPA predicted prices of $46–$73 in 2030 under

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225. Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 101 (2007).

226. Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 711(a) (2008); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 1201(a).

227. U.S. Climate Action P'ship, Issue Overview: Comparison of Emission Targets 1 (2009), *available at* http://www.pewclimate.org/docUploads/USCAP-Issue-Brief-Target-Comparison.pdf.

228. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 5.

229. MAC 2007, *supra* note 118, at 2; CARBON MARKET N. AM., Dec. 12, 2008, *supra* note 159, at 3.

230. Obama for America, Barack Obama and Joe Biden: New Energy for America, 2 (Aug. 3, 2008) http://www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf.

231. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 702(2), (4), 703(2)(4) (2009).

232. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 703 (2009).

233. OFFICE OF MANAGEMENT & BUDGET, *supra* note 227, at 21.

234. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 54.

235. FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 15; CARBON MARKET N. AM., Nov. 21, 2008, *supra* note 159, at 3.

236. H. Josef Hebert, *Waxman Promises Quick Action on Climate*, ASSOCIATED PRESS, Jan. 15, 2009, *available at* http://www.breitbart.com/article.php?id=d95nne8o0&show_article=1.

237. U.S. ENVT'L. PROT. AGENCY, OFFICE OF ATMOSPHERIC PROGRAMS, EPA ANALYSIS OF THE LOW CARBON ECONOMY ACT OF 2007, 33 (2008), *available at* http://www.epa.gov/climatechange/economic/pdfs/S1766_EPA_Analysis.pdf.

Lieberman–Warner.[238] However, reflecting the influence of a variety of factors (such as the economic downturn), the EPA estimated allowance prices under Waxman–Markey to be $13–$24 in 2015 and $16–$30 in 2020, although the high end of these price ranges is dramatically lowered by increased international offset use.[239] The Congressional Budget Office's analysis placed the same bill's allowances at $16 in 2012 and $26 in 2019.[240] The Congressional Research Service generalized from these studies that the broad consensus seemed to suggest that under Waxman–Markey prices "generally fall within a band (between $13 and $21 in 2015), and increase at a steady rate through 2050 (between 4% and 6% annually)."[241] Point Carbon estimated allowance prices to average $15 between 2012 and 2019 under Kerry–Boxer, approaching $20 by 2020.[242] The EPA has stated (before releasing a full analysis of Kerry–Boxer) that allowance prices would be approximately 1% higher than in Waxman–Markey due to the similarity of the two bills.[243]

A report by New Energy Finance pegged the federal U.S. allowance price at €15–€20 by 2020.[244] Recent budget proposals suggest that allowance prices will be at least $13.70 in 2012, rising to around $16.50 by 2020.[245] These more recent predictions suggest that the allowance price will remain close to the auction reserve price for the first decade of the scheme, with allowances from the early years banked for compliance later on.[246] It is difficult to make any certain predictions about a likely price under the U.S. ETS, due not only to modeling constraints, but also to the uncertainty about the direction of the global economy.[247]

Only the USCAP Blueprint suggests that multi-year compliance periods like the EU ETS's phases should be used, and that the "rolling two-year

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238. U.S. ENVTL. PROT. AGENCY, EPA ANALYSIS OF THE LIEBERMAN-WARNER CLIMATE SECURITY ACT OF 2008, at 27 (Mar. 14, 2008), http://www.epa.gov/climatechange/downloads/s2191_EPA_Analysis.pdf.

239. U.S. ENVTL. PROT. AGENCY, ANALYSIS OF THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009, H.R. 2454 IN THE 111TH CONGRESS, 3 (June 23, 2009), http://www.epa.gov/climatechange/economies/pdfs/HR2454_Analysis/pdf.

240. CBO, *supra* note 30, at 13.

241. CONGRESSIONAL RESEARCH SERVICE, CLIMATE CHANGE: COSTS AND BENEFITS OF THE CAP-AND-TRADE PROVISIONS OF H.R. 2454, at 39 (2009).

242. *Senate Bill Pegs Carbon at $15 a Tonne: Report*, CARBON MARKET N. AM., Oct. 9, 2009, at 1, *available at* http://www.pointcarbon.com/polopoly_fs/1.1246345!CMNA20091009.pdf.

243. U.S. ENVTL. PROT. AGENCY, ECONOMIC IMPACT OF S. 1733: THE CLEAN JOBS AND AMERICAN POWER ACT OF 2009, at 3 (Oct. 23, 2009), http://www.epa.gov/climatechange/economics/pdfs/EPA_S1733_Analysis.pdf.

244. NEW ENERGY FINANCE, GLOBAL CARBON QUARTERLY Q3 2009, at 19 (2009).

245. CARBON MARKET N. AM., Feb. 27, 2009, *supra* note 30, at 1.

246. CARBON MARKET N. AM., Oct. 9, 2009, *supra* note 243, at 1.

247. U.S. ENVTL. PROT. AGENCY, *supra* note 240, at 8.

compliance period" in Waxman–Markey and Kerry–Boxer is just a result of the borrowing rules rather than a concerted effort to use such periods.[248] Even if such periods are used, the desire for a long-term price signal will minimize restrictions on banking between periods, vastly reducing their importance. However, the requirement of regular review of the system's adequacy,[249] with the associated impetus for action upon its recommendations, may have a similar effect.[250]

B. Coverage

Waxman–Markey, Dingell–Boucher, Lieberman–Warner, and Bingaman–Specter all include requiring over 80% of emissions under the cap by 2015.[251] President Obama's plan is for an "economy-wide"[252] scheme, and it is likely that in order to achieve his dramatic emissions reductions, coverage will indeed have to be wide.[253] The USCAP proposes the same, with the scheme covering large stationary emitters downstream (such as power stations) and other fossil fuel use upstream (such as transportation fuel production).[254] The GAO report echoes these sentiments in its recommendation that coverage be as wide as possible to maximize cost abatement opportunities, but with reliable MRV as a limiting factor.[255] Some areas will be more suited to offset schemes or technology standards, such as agriculture or refrigerant gases.[256] However, as the impetus from major emitters and the environmental lobby is for wide coverage, their wishes are likely to be respected. To achieve the desired coverage, the point of regulation for all five bills is a hybrid of upstream and downstream regulation.[257] A variety of GHGs are regulated by all the bills (as wide

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248. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 8.

249. *E.g.*, American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 705 (2009); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(a)(2) (2007).

250. LAZAROWICZ, *supra* note 17, at 82.

251. CBO, *supra* note 30, at 5 (stating that Waxman–Markey will cover 72% of U.S. GHG emissions in 2012, 78% in 2015, and 86% in 2020).

252. Obama for America, *supra* note 231, at 2.

253. Ellerman in CAP-AND-TRADE, *supra* note 33, at 29; CARBON MARKET N. AM., Feb. 27, 2009, *supra* note 30, at 1.

254. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 7 (emphasizing that large emitters are defined as those emitting over 25,000 tons of carbon dioxide equivalent per annum for existing sources and 10,000 tons of carbon dioxide equivalent per annum for new sources).

255. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 27–28.

256. *Id.* at 27. Methane, a hard gas to reliably monitor, forms approximately 8% of all GHG emissions from the U.S.

257. Joe Lieberman, *Frequently Asked Questions on Global Climate Change and the Lieberman-Warner Climate Security Act*, at 9, *available at* http://lieberman.senate.gov/documents/lwcsafaq.pdf (last visited Dec. 16, 2009); Questions and Answers

coverage would require), although hydrofluorocarbons (HFCs) are omitted from a number of them.[258] All bills except Waxman–Markey[259] and Kerry–Boxer[260] leave the GWP determination to the EPA Administrator or President,[261] but as Waxman–Markey and the EU ETS use the most up-to-date figures from the IPCC's Fourth Assessment Report,[262] these are probably the figures that will be used.

C. Allocation

The three pre-2009 bills all envisioned the role of free allowance distribution declining over time, reflecting the "political necessity of a high degree of initial free allocation."[263] Around 20% of allowances are auctioned at the outset of each of these schemes, with this proportion increasing steadily. Although during the presidential campaign, Obama and his administration consistently took a firm line on 100% auctioning from the start,[264] rent-seeking during the legislative process reduced this number in Waxman–Markey to 19% auctioning from 2012 through 2025 and 40% from 2012 through 2050.[265] The USCAP proposal suggests that a "significant portion" of allocated allowances should be free to help more affected areas of the country and reward early action using new technology, with auctioning playing a greater role as time goes on.[266] This proposal supports the GAO Report's conclusion that auctioning is, a preferable option in the long term since it avoids the incentive-distorting effect of updating allowances, which the U.S. system may well feature despite

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Regarding the "Low Carbon Economy Act of 2007," at 10, *available at* http://energy.senate.gov/public/_files/ClimateBillFrequentlyAskedQuestions.pdf (last visited Dec. 16, 2009); American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 722(a) (2009).

258. Carbon dioxide counts for around 80% of U.S. GHG emissions.; American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. §§ 332, 619 (2009) (regulating HFCs under the Clean Air Act as ozone-depleting substances, bringing them outside the ETS entirely).

259. H.R. 2454 § 712(b)(1)–(2).

260. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 712 (2009).

261. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 4(10) (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 3(2) (2007); Dingell-Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 701(b)(2) (2008).

262. LAZAROWICZ, *supra* note 17, at 47.

263. Ellerman in CAP-AND-TRADE, *supra* note 33, at 15.

264. Obama for America, *supra* note 231, at 2–3; CARBON MARKET N. AM., Feb. 27, 2009, *supra* note 30, at 1; OFFICE OF MANAGEMENT & BUDGET, *supra* note 225, at 21; Alex Kaplun, *OMB Chief Defends Obama Admin Carbon Auction Plans*, E&E NEWS PM, Mar. 3, 2009, http://www.eenews.net/eenewspm/2009/03/03/5.

265. JOHN LARSEN & ROBERT HEILMAYR, WRI BRIEF ASSESSMENT OF ALLOWANCE DISTRIBUTION UNDER H.R. 2454, THE AMERICAN CLEAN ENERGY AND SECURITY ACT 3 (2009), *available at* http://www.wri.org/publication/usclimatetargets/allowance-distribution.

266. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 11.

attempts to strictly regulate the recipients of free allowances.[267] Waxman–Markey and Kerry–Boxer both use a mix of updating and historically benchmarked allocations.[268] As allocation methodology has been one of the most contentious political elements among those supporting the bill, we can expect to see some mixture of the two. However, predicting exactly how the bill will look at the end of the legislative process is too difficult to be worthwhile.

D. Cost Containment

All five bills[269] and the USCAP Blueprint[270] allow unlimited banking. In light of these sources and the GAO's mention of "the importance of long-term certainty in encouraging investments in low-carbon technologies,"[271] unlimited banking will certainly feature in the U.S. ETS.

Waxman–Markey and Kerry–Boxer allow unlimited interest-free borrowing of allowances from the following year's vintage of allowances.[272] Both Dingell–Boucher and Lieberman–Warner have borrowing facilities for up to 15% of compliance in any year, imposing 8%[273] and 10%[274] interest per annum respectively; for vintages 1–5 years in the future, Waxman–Markey and Kerry–Boxer follow Dingell–Boucher's provisions.[275] None of these three employ a safety valve; whereas Bingaman–Specter does not allow borrowing but has what amounts to a safety valve set at $12 per ton rising 5% per annum above inflation. Given President Obama's targets and emphasis on environmental results, the use of a safety valve is highly unlikely. However, other methods of cost containment are available, as seen in Dingell–Boucher, Lieberman–Warner, Kerry–Boxer, and Waxman–Markey, all of which use a strategic allowance reserve as USCAP recommends. This is a pool of allowances that are set

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267. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 28.

268. American Clean Energy and Security Act, H.R. 2454, 111th Cong. § 783(b)(2), (3), (c) (2009); American Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 772(b)(2), (c) (2009).

269. H.R. 2454 § 725(a)(1)–(2); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2101 (2007); *see* Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 715(a) (2008) (unlimited banking is subject to the Administrator requiring eventual retirement).

270. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 8.

271. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 56.

272. H.R. 2454 § 725(c)(1); S. 1733, 111th Cong. § 725(c)(1). This borrowing has implications for the allocation methodology adopted.

273. Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 715(c)(2) (2008).

274. America's Climate Security Act of 2007, S. 2191, 110th Cong. §§ 2301, 2303 (2007).

275. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 725(c)(2)(A), (C) (2009).

aside each year and auctioned regularly according to fixed rules at a predetermined trigger price (somewhere between $20 and $30 rising 5% over inflation in Dingell–Boucher;[276] 60% above the thirty-six month average daily closing price in Waxman–Markey;[277] and $28 in 2012 rising 5% over inflation per annum between 2012 and 2017 and rising to 7% thereafter in Kerry–Boxer).[278] This would be very difficult to trigger except in the case of extreme short-term price spikes: Waxman–Markey's reserve could only be triggered by a steady price increase of 100% per annum for three years. The idea that prices will quadruple during this short period at a steady rate is inconceivable.

According to the price estimates above, any auction reserve price will be followed for the first few years of the scheme and will not deviate far from it within the scheme's first couple of decades. Kerry–Boxer suggests $10 (in 2005 dollars) in 2012 rising 5% above inflation per annum.[279] Waxman–Markey opts for the same, but using 2009 dollars.[280] Lieberman–Warner omitted such a reserve price. Dingell–Boucher also did not call for a reserve price, but it remained open to the EPA Administrator to require one.[281] Bingaman–Specter did not have a price floor, but it envisioned far lower prices than the other bills, so low prices were considered less of an issue.[282] This move towards a "soft" price collar is seen as necessary to achieve sufficient political support for the bill to pass.[283]

Borrowing, with a suitable level of interest as above, could certainly help stabilize the long-term price path called for by the GAO, although the potential for "debtor" companies to subsequently disappear or lobby for raised caps is an issue that could severely compromise environmental effectiveness.[284] In addition, the calls for a high price signal spurring investment in domestic abatement would be ignored if excessive borrowing were allowed, and greater levels of auctioning prevent borrowing from taking place. For these reasons, long-term borrowing is an unlikely candidate for inclusion in the U.S. ETS, although the short and restricted

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276. Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 716(c)(2) (2008).

277. H.R. 2454 §726(c)(2).

278. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 726 (2009).

279. *Id.* at § 778(d).

280. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 791(d) (2009).

281. Dingell-Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 730(b) (2008).

282. Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 208 (2007).

283. Timothy Gardner, *Fight Looms on U.S. Climate Price Controls*, REUTERS, Sept. 30, 2009, http://www.reuters.com/article/GCA-GreenBusiness/idUSTRE58T6XU20090930.

284. FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 19, 47.

mid-term borrowing in Waxman–Markey and Kerry–Boxer could provide a balanced solution.

The likelihood of using market intervention measures, through which the regulator can interfere in the workings of the market if conditions become unfavorable, is not yet clear. Lieberman–Warner used a Carbon Market Efficiency Board to temporarily increase the use of banking, borrowing, and offsets,[285] and the USCAP Blueprint has suggested a similar mechanism through the strategic offset and allowance reserve pool that can be accessed at the regulator's discretion.[286] However, the other bills, in abstaining from the use of discretionary market intervention, stress the need for clear rules in order to produce the long-term price signal GAO requires of a carbon market,[287] even if this involves set cost containment measures such as safety valves or strategic allowance reserves. Whether the Blueprint's proposal can be formulated in a sufficiently predictable, clear, and environmentally effective manner to satisfy these calls has yet to be seen. As discussed later, however, the effect on linking prospects of market intervention measures should be sufficient to focus the minds of the legislators on the use of rules rather than discretion.

E. Offsets

Waxman–Markey allows two billion tons of offsets to be used for compliance each year, split equally between domestic and international offsets, following USCAP's lead.[288] This amounts to a limit of just under 30% compliance at the scheme's outset, falling to a minimum of 27% by the middle of the next decade and rising steadily thereafter. A conversion rate of 1.25 international offsets for one ton of emissions from 2018 means that 20% of all retired international offsets will not be used for compliance; this increased offset use will lower the total level of global emissions.[289] There is no statutory limit on the number of international allowances permitted for compliance, but a regulator can impose such a limit under this scheme.[290] Kerry–Boxer follows Waxman–Markey in all of the above provisions except that its domestic international ratio is 3:1 rather than

285. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2604(a)(1)(A), (B), (E) (2007).

286. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 10.

287. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 24.

288. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 722(d)(1) (2009).

289. *Id.* § 722(d)(1)(A).

290. *Id.* § 728(d).

1:1.[291] Up to 750 million extra international offsets can be used if there are fewer than 900 million domestic offsets in a year.[292]

Dingell–Boucher sees an increasing role to be played by offsets, rising from 5% of each entity's compliance between 2013 and 2017 up to 15% from 2018 to 2020[293]—in addition to the unlimited use of foreign allowances. Lieberman–Warner allows 15% of compliance to be satisfied through domestic offsets,[294] 15% through foreign offsets,[295] and 2.5% through international forest carbon credits.[296] International allowances and international forest carbon credits can reach these limits if the regulator issues fewer offsets than the limits allow, with unused amounts carrying over to the following year.[297] There is no limit on the use of domestic offsets under Bingaman–Specter, and the President can institute a scheme to allow up to 10% of compliance to be covered by international offsets.

The GAO suggests that offsets are not a reliable long-term approach to mitigating emissions, as they can serve to "undermine the system's integrity,"[298] although it accepts that an improved CDM may offer some benefits during the transition period to a low-carbon economy.[299] The USCAP Blueprint calls for the EPA to regulate the use of offsets.[300] International offsets would have to satisfy the qualitative standards required under the domestic offset scheme and over time would be accepted only from states that have undertaken to reduce their emissions.[301] An annual limit of 1.5 billion tons of domestic offsets, and the same limit on international offsets, would be in place alongside a total offset cap of 2–3 billion tons.[302] Moreover, upon a price spike, emitters would have access to a reserve of offsets above the annual limit and allowances borrowed from a future compliance period. If granted, a request for offsets or allowances could have substantially harmful effects on the market similar to those seen

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291. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 722(d)(1)(A) (2009).

292. *Id.* § 722(d)(1)(C).

293. Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 712(c) (2008).

294. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2402(a) (2007) (presumably due to their higher reliability than that of international offsets).

295. *Id.* § 2501.

296. *Id.* § 3803.

297. *Id.* § 321(3)(b).

298. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 56.

299. *Id.* at 55.

300. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 9.

301. *Id.* ("environmentally additional, verifiable, permanent, measurable and enforceable").

302. *Id.*

in EU ETS Phase I, as the USCAP limit requires reductions below BAU of 2.5–3 billion tons by 2020.[303]

From all of the above, it appears quite evident that offsets will have a significant role to play in the U.S. ETS system, most likely along the lines of Waxman–Markey's and Kerry–Boxer's provisions.

F. Links to Other Systems

Most of the details regarding offsets and allowances from other schemes are laid out above, suggesting the likelihood of linking to the CDM and other major offset systems, as well as to ETS schemes. The regulator is obligated to seek out links to suitable ETS schemes under Waxman–Markey, Dingell–Boucher, Lieberman–Warner, and Bingaman–Specter.[304] The USCAP paper explicitly calls for links to other emissions trading systems,[305] and Obama's comments regarding an "effective and equitable global program" that can "bring all the major emitting nations together to develop effective emissions reduction efforts"[306] are a strong signal that international cooperation could involve linking. Although the GAO report is wary of the downsides of linking, especially cost containment propagation, it does note the potential to improve cost-effectiveness.[307]

G. Non-Compliance and Monitoring, Reporting, and Verification

Under Lieberman–Warner, the fine for non-compliance is either $200 or three times the market price, whichever is higher, plus an interest-free, make-good provision.[308] Waxman–Markey requires a fine of double the auction price and an interest-free, make-good penalty.[309] Kerry–Boxer requires a fine of double the fair market value of an allowance plus an

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303. BUREAU OF OCEANS AND INT'L. ENV'T. AND SCI. AFFAIRS, U.S. DEP'T. OF STATE, U.S. CLIMATE ACTION REPORT—2006: FOURTH CLIMATE ACTION REPORT TO THE UN FRAMEWORK CONVENTION ON CLIMATE CHANGE 60 (2006), *available at* http://www.state.gov/g/oes/rls/rpts/car/index.htm.

304. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 728(c)(2)(A) (2009); Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 761(a) (2008); America's Climate Security Act of 2007, S. 2191, 110th Cong. § 2501 (2007); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 501(d) (2007); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 728(a) (2009).

305. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 3, 6.

306. Obama for America, *supra* note 231, at 3.

307. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 30.

308. S. 2191 § 1203(a)(2)(B)(i), (ii).

309. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 723(b)(2) (2009).

interest-free, make-good provision.[310] Dingell–Boucher is less punitive, with an interest-free, make-good requirement plus a fine of 50% of the fair market value of an allowance.[311] Bingaman–Specter requires the payment of three times the safety valve price in the year of non-compliance.[312] USCAP makes no mention of non-compliance measures. It has been suggested that one key aspect of a successful emissions trading program is an onerous non-compliance penalty,[313] and there is little doubt that, when combined with effective MRV, it would certainly strengthen the system. The level of penalty for non-compliance must exceed a mere make-good provision so as to prevent it from effectively becoming a safety valve.

It is not currently possible to comment on MRV in the U.S. ETS except to say that the audacious coverage plans may be cause for concern that even a predominantly upstream hybrid point of regulation cannot entirely allay. Moreover, any domestic offset schemes will be subject to the usual host of worries about MRV in offset schemes, although experience from existing GHG ETS schemes and emissions trading schemes in the U.S. will be invaluable in constructing a solid MRV framework.

Waxman–Markey and Kerry–Boxer require quarterly reporting,[314] and Dingell–Boucher requires annual reporting,[315] whereas Bingaman–Specter[316] and Lieberman–Warner[317] leave reporting and publication of data to be decided by the EPA Administrator. All bills except Bingaman–Specter require the publication of emissions data on the internet as soon as possible after receipt by the Administrator.[318] These requirements suggest that the U.S. ETS will feature at least annual reporting that is entirely public and transparent.

H. Border Adjustments

To prevent leakage, and its economic and environmental downsides, the four earliest bills require allowances from a special reserve to be surrendered for goods with embedded carbon entering the U.S. from

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310. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 723 (2009).

311. Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 715(c)(1) (2008).

312. Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 602 (2007).

313. REVESZ, SANDS & STEWART, *supra* note 16, at 13.

314. H.R. 2454 § 713(b)(2); S. 1733 § 713(b)(2)(B).

315. H.R. __ § 703(b).

316. S. 1766 § 601.

317. America's Climate Security Act of 2007, S. 2191, 110th Cong. § 1103(a) (2007).

318. American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 713(b)(1)(N) (2009); S. 2191 § 1105(8); Dingell–Boucher Cap-and-Trade Bill Discussion Draft, H.R. __, 110th Cong. § 408 (2008); Low Carbon Economy Act of 2007, S. 1766, 110th Cong. § 601 (2007).

countries that have not taken sufficient action to mitigate their emissions,[319] with such a provision expected in Kerry–Boxer.[320] The USCAP has hinted at support for similar measures.[321] The GAO has noted the potential benefits of including this in the U.S. ETS, but, along with USCAP, notes the potential violations of World Trade Organization law that could render these actions illegal—not to mention the possibility of retaliatory trade measures.[322] In recent interviews, Obama has stated his opposition to these measures and his hope that the Senate version of the bill will not include them.[323]

All of these sources have as their best scenario an international agreement with binding caps on all countries, nullifying the need for any such border measures. However, some border adjustment tariff or allowance reserve will probably be included to garner sufficient support for the legislation to pass.

APPENDIX 2: THE EU ETS

A. Price, Targets, and Timetables

The EU ETS is currently in its second Phase, covering the Kyoto commitment period of 2008–2012. Phase II requires net emissions reductions of 8% below 1990 levels across the EU in line with the Kyoto Protocol and the subsequent Burden Sharing Agreement, which reapportions commitments under the Kyoto Protocol between Member States.[324] EUAs have been trading within the €20–€30 range for much of the current phase,[325] although the economic downturn has lowered the price significantly. Market participants predicted in early 2008 that 2010 EUA prices would be around €24 and 2020 EUA prices would be around €35.[326] Predictions of even higher prices were made in 2008, including 2020 prices of €67 (Deutsche Bank)[327] and €45–€79.3 (SocGen),[328] and if an

319. H.R. 2454 § 768; H.R. __ § 786; S. 1766 § 502; S. 2191 § 1306.

320. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. § 765 (2009).

321. U.S. CLIMATE ACTION P'SHIP, *supra* note 25, at 4.

322. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 29.

323. John M. Broder, *Obama Opposes Trade Sanctions in Climate Bill*, N.Y. TIMES, June 28, 2009, http://www.nytimes.com/2009/06/29/us/politics/29climate.html.

324. Decision 2002/358/EC, art. 2, 2002 O.J. (L 130) 1, 3.

325. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 33.

326. POINT CARBON, CARBON 2008, *supra* note 114, at 31.

327. Deutsche Bank, *EUA Prices of € 100/t or More Are Possible Under Certain Scenarios*, CO_2-HANDEL.DE, May 30, 2008, http://co2-handel.de/article58_8839.html.

international agreement is reached and 30% reductions are required, €93.8 (SocGen).[329] However, due to a combination of factors (including energy prices peaking in 2008, the recession, steady output from the CDM, and increased flexibility in proposals for Phase III), the likely price has been suggested to move from the lower reaches of a €20–€40 range[330] in 2013 toward €60 by 2020.[331] Below is a recent collection of expected prices from various financial institutions for EUAs in 2012, before Phase III begins and the cap is lowered.[332] It should be noted that the banking of EUAs and CERs will be employed to keep the price path relatively continuous.

Table 3. A recent collection of expected prices from various financial institutions for EUAs in 2012, before Phase III begins and the cap is lowered.

Institution	*Estimated EUA Price in 2012*
Barcap	24
COER2	28–32
Citi	25
Daiwa	12
PointCarbon	26
Sagacarbon	26
SocGen/Orbeo	20
UBS	35

The third phase, 2013 to 2020, is currently taking shape and much rests on what is agreed upon in international negotiations which remain without a clear outcome even after Copenhagen. If no agreement is reached, the EU has pledged to reduce emissions to 20% below 1990 levels during this period, but the Council of Ministers has pledged a 30% reduction below 1990 levels if an acceptable international agreement can be reached in which other developed countries take on similar commitments, and more economically advanced developing countries contribute according to their

328. *European Carbon Prices to Quadruple by 2020—SocGen*, REUTERS UK, Oct. 10, 2008, http://uk.reuters.com/article/idUKLA12666420081010.

329. *Id.*

330. MICHAEL GRUBB, CARBON PRICES IN PHASE III OF THE EU ETS, CLIMATE STRATEGIES BRIEFING NOTE, 4 (2008), *available at* http://www.climatestrategies.org/component/reports/category/47/69.html.

331. OFFICE OF CLIMATE CHANGE, *supra* note 47, at 42 tbl.14.

332. Poll: EU Carbon Emissions—EUA Forecasts to 2020, THOMSON REUTERS, Sept. 25, 2009, http://in.reuters.com/article/oilRpt/idINLG61152420090218.

capacities and responsibilities.[333] Moreover, the Council of Ministers has pledged to reduce emissions by 60%–80% compared to 1990 levels by 2050, with the potential of 95% cuts by 2050 if a suitable international agreement can be forged.[334] These extra cuts appear increasingly unlikely as the probability of a satisfactory international agreement dwindles. The core pledge implies a reduction below BAU levels of 25%–35% up to 2020,[335] with reduction projected beyond 2020 in a linear fashion.[336]

B. Coverage

The EU ETS covers the twenty-seven member states of the EU, regulating all emitters over twenty MW,[337] amounting to approximately 41% of EU emissions.[338] It regulates downstream at emitter level and covers only carbon dioxide.[339] Plans for Phase III are to increase coverage of other gases and sectors by around 7%, with every increase in coverage accompanied by rigorous checks to ensure that newly covered sectors are capable of reliable MRV.[340] GWP ratios are taken from the IPCC's Fourth Assessment Report.[341]

C. Allocation

In the previous phase of 2005–2007 (effectively a rehearsal period)[342] and the current phase, member states had to formulate National Allocation Plans (NAPs), which set out how their countries would conform to requirements both in terms of the regulated (ETS) and non-regulated (other

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333. Citizens' Summary: EU Climate and Energy Package, http://ec.europa.eu/climateaction/docs/climate-energy_summary_en.pdf; Directive 2003/87/EC, art. 28(1), 2003 O.J. (L 275) 1, 37–38 (as amended June 25, 2009).

334. EUR. COMM'N, *supra* note 46, at 2; McDermott, *supra* note 47.

335. FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 15.

336. Memoranda from the European Comm'n, Question and Answers on the Commission's Proposal to Revise the EU Emissions Trading System, at 2, Memo/08/35 35 (Jan. 23, 2008); *Commission Proposal*, *supra* note 55, at 14.

337. A new threshold of 10,000 tons of carbon dioxide per annum is also being considered for Phase III to include more emitters.

338. *Commission Staff Working Document*, *supra* note 27, at 13.

339. Directive 2003/87/EC, Annex 1, 2003 O.J. (L275) 1, 43 (as amended June 25, 2009).

340. EUR. COMM'N, *supra* note 46, at 4 (carbon dioxide emissions from petrochemicals; ammonia and aluminum; nitrous oxide emissions from production of industrial acids; and PFC emissions from the aluminum sector).

341. LAZAROWICZ, *supra* note 17, at 47; FLACHSLAND, EDENHOFER, JAKOB & STECKEL, *supra* note 11, at 18; *Commission Proposal*, *supra* note 55, at 14 (discussing that these checks help to avoid gaming, especially in offset registration).

342. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 5.

policies) sectors.[343] These plans, including how many allowances were to be issued, were sent to the European Commission and assessed against the list of twelve criteria in Annex III of the ETS Directive.[344] If the Commission approved the NAP, the plan was entered into the central registry overseeing the EU ETS, the Community International Transaction Log (CITL), as well as the national registry of the emitter's country. Otherwise the Commission rejected the plan and required a new one to be submitted.

This system will be overhauled in Phase III, with the Commission taking a much more central role in setting the total cap and annual national caps, and with auctioning playing an increasingly important role in allowance allocation—from around 70% in 2020 to total auctioning by 2027.[345] The key decision in whether to auction or distribute free of charge is the likely leakage caused by auctioning, with the goal of minimizing leakage.[346] Free allowance allocation is based on historical benchmarks rather than on an updating basis.[347] Thus, the EU will be able to present a far more united, uniform, and decisive front in negotiations than if the decentralized NAP process was still in place.[348]

D. Cost Containment

The EU ETS has no safety valve and no price floor once allowances are distributed, and any auction reserve price that is set will be far below expected prices.[349] No borrowing is allowed between phases, but borrowing within phases (limited to the year ahead)[350] will be reduced as auctioning takes on a larger role.[351] Allowances can be banked for eight years in Phase III,[352] and Phase III plans do not limit banking of unused allowances from Phase II to help prevent a price crash, as was seen at the end of Phase I.[353] There are no market intervention measures.

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343. Directive 2003/87/EC, art. 9, 2003 O.J. (L 275) 32, 35.

344. *Id*. at Annex III.

345. Press Release, European Union, Questions and Answers on the Revised EU Emissions Trading System 4 (Dec. 17, 2008), *available at* http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796.

346. Directive 2009/29/EC, art. 1(12), 2009 O.J. (L 140) 63, 72.

347. *Id*. at art. 10a(2).

348. *Commission Staff Working Document*, *supra* note 27, at 136.

349. Directive 2003/87/EC, art. 10(4), 2003 O.J. (L 275) 1, 16 (as amended June 25, 2009).

350. Ellerman in CAP-AND-TRADE, *supra* note 33, at 30.

351. Sterk et al., *supra* note 12, at 17.

352. Directive 2003/87/EC, art. 13(1), 2003 O.J. (L 275) 1, 27 (as amended June 25, 2009).

353. A. DANNY ELLERMAN & PAUL L. JOSKOW, THE EUROPEAN UNION'S EMISSIONS TRADING SYSTEM IN PERSPECTIVE 13 (2008).

E. Offsets

There is currently no domestic offset program in the EU ETS (although ERUs from Kyoto's Joint Implementation (JI) mechanism are permitted if produced by installations not covered by the cap),[354] but the EU ETS Review has proposed a domestic offset scheme for Phase III.[355] CERs from the CDM and ERUs from JI can be surrendered for compliance up to the amount allowed in NAPs,[356] and Kyoto credit validity is set to continue beyond 2012.[357] The EU ETS has provided the strongest price signal for CERs to date, hence the extent to which CERs have tracked the EUA price.[358]

If the 20% reduction target is used, concerns that excessive offset use will prevent reductions from being achieved will lead to further limits on offset use. The European Commission has recommended that the level of offsets allowed for use in Phase III should be the higher number of those allowed but not used in Phase II and a percentage not below 11% of the allocation for Phase II.[359] During Phase II, approximately 1.4 billion CERs and ERUs were permitted for compliance. Currently, if a satisfactory international agreement can be reached and the 30% target is used, the number of offsets allowed for compliance will be increased by 50%. Both of these scenarios are restricted by the requirement that no more than half of the EU-wide reductions from 2008 to 2020 are achieved through offsets.[360]

There have been tentative suggestions about heightened qualitative limits on which CERs and ERUs can be accepted for compliance[361] over and above the requirements under the current Linking Directive (no nuclear credits, LULUCF credits,[362] or hydroelectric plants over twenty megawatts that do not comply with rigorous environmental standards).[363] Members of the European Parliament (MEPs) have called for only "high quality" credits to be used from 2013, assuming an international agreement does not

354. Directive 2003/87/EC, art. 11b(2), 2003 O.J. (L 275) 1, 26 (as amended June 25, 2009).
355. *Commission Proposal*, *supra* note 55, at 11.
356. POINT CARBON, CARBON 2008, *supra* note 114, at 28 (around 10% in each country).
357. COMM'N. OF THE EUR. CMTYS., *supra* note 130, at 8.
358. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 33.
359. Directive 2009/29/EC, art. 1(13), 1(28), 2009 O.J. (L 140) 63, 77–78, 81–82.
360. *Id.* at art. 1(13).
361. CDM & JI MONITOR, *supra* note 58, at 1.
362. *See* Directive 2004/101/EC, art 1(2), 2004 O.J. (L 338) 18, 21 (amending Directive 2003/87/EC to include art. 11a(3)(a)).
363. *See id*. (amending Directive 2003/87/EC to include art. 11b(6)). The 2000 "Dams and Development" Report by the World Commission on Dams is taken as the benchmark.

materialize.[364] Although no guidance has emerged on what this standard would entail (aside from the Commission's suggestion that use of project-based CERs from more advanced developing countries should be phased out in favor of sector-based CERs),[365] some have suggested that it could rule out 20%–30% of all CERs;[366] even if a successor to Kyoto is in place, this call represents real worries within the EU about offset quality.[367] The Phase III proposals also require CERs to come from host countries that have ratified the new international agreement.[368]

F. Links to Other Systems

The EU ETS is currently linked only to the CDM and JI.[369] The ETS Directive obliges the EU to seek links with other systems hosted by Annex B countries,[370] and the EU ETS Review has called for "all barriers to linking EU ETS" to other ETS systems to be "removed."[371] Recently, the Commission has reiterated its commitment to creating an "OECD-wide carbon market by 2015."[372] Much depends on what is agreed to over the next few months and whether any international agreement will cause effective ETS systems to be set up elsewhere that satisfy EU criteria for linking.[373] The enthusiasm to link when it is appropriate can be seen in the European Commission's and ten member states' participation in ICAP, since ICAP seeks to "create an international forum of governments and public authorities that are engaged in the process of designing or implementing carbon markets . . . to discuss relevant questions on the design, compatibility and potential linkage of regional carbon markets."[374] The success of this forum in establishing links could determine the likelihood and timeframe of a U.S.–EU link.

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364. *Commission Proposal*, *supra* note 55, at 10, 18.
365. *Communication*, *supra* note 157, at 11.
366. *Id.* at 2.
367. *Commission Staff Working Document*, *supra* note 27, at 145.
368. *Commission Proposal*, *supra* note 55, at 10–11.
369. *See* Directive 2004/101/EC, 2004 O.J. (L 338) 18 (amending Directive 2003/87/EC).
370. Directive 2003/87/EC, art. 25(1), 2003 O.J. (L 275) 1, 35 (as amended June 25, 2009).
371. *Commission Staff Working Document*, *supra* note 27, at 164.
372. *Communication*, *supra* note 157, at 11.
373. *Commission Staff Working Document*, *supra* note 27, at 132.
374. INT'L CARBON ACTION P'SHIP, POLITICAL DECLARATION (2007), http://www.icapcarbonaction.com/index.php?option=com_content&view=article&id=12&Itemid=4&lang=en.

G. MRV and Non-Compliance

Plans are underway to harmonize and centralize the EU ETS in Phase III, reducing member state discretion about MRV methodology in NAPs.[375] Overall, MRV expertise has been developed to a high level, partly by limiting coverage to large emitters and by requiring that all emitters covered can be reliably monitored. These developments will ensure that this high standard is applied to any new sectors included.[376] Reports are made annually, and the reported data has to be published no later than three months after the end of the calendar year.[377]

There is a make-good provision and a penalty of €100 per allowance for non-compliance during Phase II.[378] During Phase III these fines will be indexed to the Eurozone inflation rate.[379] In addition, the regulator publishes details of non-compliant firms, so those firms cannot secretly pass non-compliance penalty costs to consumers.[380]

H. Border Adjustments

The EU ETS does not use border adjustments and has no plans to do so.[381]

375. *Commission Proposal*, *supra* note 55, at 6.

376. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-09-151, *supra* note 35, at 28.

377. Decision 2007/589/EC, Annex I(8), 2007 O.J. (L 229) 1, 25.

378. Directive 2003/87/EC, art. 16(3), 2003 O.J. (L 275) 1, 29 (as amended June 25, 2009).

379. *Id*. at art. 16(4).

380. *Id*. at art. 16(2).

381. *Carbon Tariffs Falling Out of Favour As Trade War Looms*, EURACTIV.COM, July 28, 2009, http://www.euractiv.com/en/climate-change/carbon-tariffs-falling-favour-trade-war-looms/article-184449; *European Enviro Minister Disproves [sic] of Carbon Tariffs*, CLIMATEWIRE, Oct. 16, 2009, http://www.eenews.net/climatewire/2009/10/16/7.