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Authors*:

Jason Anderson (IEEP)
Institute for European Environmental Policy
London, United Kingdom
Michael Mehling (Ecologic Institute)
Harro van Asselt (IVM)

Administrator:

Gian Paolo MENEGHINI
Policy Department A: Economic and Scientific Policy
DG Internal Policies
European Parliament
Rue Wiertz 60
B-1047 Brussels
Tel: +32 (0)2 283 22 04
Fax: +32(0)2 284 90 02
E-mail: gianpaolo.meneghini@europarl.europa.eu

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LINKING THE EU'S EMISSIONS TRADING SYSTEM TO ANY FUTURE US EMISSIONS TRADING SCHEME

CONTENTS

EXECUTIVE SUMMARY

As the world's largest economy, the United States is also the largest consumer of fossil energy sources and the largest per capita emitter of greenhouse gases. Although the climate and energy policies adopted over the past decade have been insufficient to reverse continued emissions growth, a number of recent developments may cause this situation to change. A newly appointed administration and changed majorities in Congress are likely to create the most favourable conditions for ambitious federal legislation on climate policy in over a decade, while the regional, state and local levels continue to see vibrant initiatives to mitigate global warming. At all levels, emissions trading is being explored as a policy instrument to address GHG emissions.

Emerging trading schemes in the US offer the opportunity of a future trading link to the European Union emissions trading scheme, which in turn would promise greater diversity of abatement options, improved market size and liquidity, and ultimately a more efficient allocation of resources. Interest in the benefits of such a link has prompted formal and informal cooperation across the Atlantic, including initiatives such as the International Carbon Action Partnership launched in October 2007 with the express aim of creating a "forum to discuss relevant questions on the design, compatibility and potential linkage of regional carbon markets".

Yet research on the benefits of linking also suggests that differences in the design of emissions trading schemes can hamper the prospects for a successful market linkage. Accordingly, the differences between trading schemes and their potential incompatibility merit attention when assessing the expediency of a market link. This study therefore provides a detailed overview of central legislation proposed during the 110th Congress, both in the House of Representatives and the Senate, outlines the climate and energy agenda of the newly elected President, and proceeds to describe current climate initiatives at the regional and state level, including the Regional Greenhouse Gas Initiative in the Northeast and mid-Atlantic, the Western Climate Initiative (WCI) on the West Coast, and the Midwest Regional Greenhouse Gas Reduction Accord. It also briefly summarises the US Conference of Mayors Climate Protection Agreement and the California Global Warming Solutions Act as well as the voluntary Chicago Climate Exchange.

In the following section, attention shifts to a bill introduced in the Senate by Joseph I. Lieberman and John W. Warner on 18 October 2007. Although this bill was ultimately defeated on the Senate floor by means of a procedural motion, it is still the only bill to be approved both by the relevant Subcommittee and the Committee on Environment and Public Works, and is therefore considered a standard of reference for future federal cap-and-trade legislation. This assessment focuses on a series of design features, starting with allocation methods, sectoral arrangements, and cost containment provisions, rules on domestic and international offsets, measures on technology and research & development, and legal and institutional structures for market oversight and enforcement. A contentious issue, the imposition of border adjustment measures to offset any competitive disadvantages arising from GHG regulation, is then addressed in greater detail, and the chapter is then rounded out with a description of the provisions on international cooperation and partnerships.

What follows is a systematic comparison of design features in central climate policy initiatives at the federal, regional and state level geared towards the establishment of an emissions trading scheme. Drawing on two bills in the Congress, two regional initiatives, one state bill and the voluntary Chicago Climate Exchange, this section identifies a number of common features, yet also important differences relevant to linking.

Overall, very few aspects of the trading schemes assessed in this study suggest incompatibility with the EU emissions trading scheme (ETS). Allocation rules and differences in the point of regulation and sectoral coverage have no bearing on the prospects of a link. Monitoring and enforcement structures appear sufficiently effective in all initiatives to afford the necessary confidence in a functioning market. More problematic, however, are provisions on borrowing and the recognition of domestic and international offsets, although here, too, the obstacle is largely political in nature.

Cost-containment provisions included in several US initiatives may prove to be the greatest obstacle to a transatlantic market link. Mechanisms permitting borrowing from future allowance budgets to increase the current supply and other measures have the potential of undermining the environmental stringency of the linked schemes while limiting carbon price developments to a defined price corridor. Moreover, when exploring a link between the EU ETS and US trading schemes, attention also needs to be given to the Kyoto Protocol, which has created tradable units recognised for compliance with the quantified emissions limitation and reduction commitments it sets out for certain industrialised countries.

In order to avoid a breach of their international obligations, parties that have entered such commitments need to avoid a disparity between real emissions and the number of units assigned under the Protocol. Carbon units generated in states that are not a party to the Kyoto Protocol cannot be used for compliance with the Kyoto Protocol, however, even if the emissions reduction they reflect is genuine and additional; as a result, parties with quantified emission reduction and limitation obligations are unlikely to link their national emissions trading schemes with schemes in countries which have not ratified the Kyoto Protocol, given that units purchased from the latter will not be accompanied by Kyoto units.

Throughout the international climate change negotiations, the position of the US has been influenced by concerns about the international competitiveness of its domestic industries. In the final section, therefore, relevant provisions to address such concerns are assessed with a view to international trade law. This chapter explains the motivation for border adjustment measures, their historical origin, and the bills they are currently found in. It then proceeds to evaluate the legality of such border adjustment measures in respect of the free trade disciplines administered by the World Trade Organisation, including market access, the principle of national treatment, and the most-favoured nation principle. Given the potential for a violation of international trade rules, the discussion also addresses the question whether such a violation might be covered by the environmental exceptions set out in the General Agreement on Tariffs and Trade.

It is as yet unclear what shape federal climate legislation will take under a new administration and the 111th Congress, and whether federal action will pre-empt emerging or existent initiatives at the regional and state level.[1] If the most successful federal bill to date, the Climate Security Act of 2008, is an indication, such federal legislation is likely to reflect a sufficient level of ambition to be politically acceptable to the EU. Yet preoccupation with cost containment, notably in times of economic distress, is likely to result in the inclusion of a price corridor or "safety valve" in future US legislation.

[1] Franz Litz and Kathryn Zyla, *Federalism in the Greenhouse - Defining a Role for States in a Federal Cap-and-Trade Program* (Washington, DC: WRI, 2008).

Also, it is still uncertain how the US will position itself in international efforts to negotiate a successor to the Kyoto Protocol by the end of 2009, and whether it will adopt binding international commitments. Accordingly, a number of uncertainties remain, preventing a final assessment of the prospects for linking across the Atlantic. For the time being, the arguably most effective way of promoting future links between the EU ETS and regional or federal trading schemes in the US will be continued engagement at the political level, formal and informal, through initiatives such as the International Carbon Action Partnership. Ultimately, active transatlantic cooperation has the best prospects of identifying and realising opportunities for transatlantic emissions trading.

1 INTRODUCTION

As the world's largest economy, the United States (US) is also the largest consumer of fossil energy sources and the largest per capita emitter of greenhouse gases (GHGs);[1] and emissions have continued to grow, largely as a result of an expanding transportation sector and reliance on coal in the energy sector: according to data released in December 2008, domestic US GHG emissions amounted to 7,282.4 Mt CO_{2eq} in 2007, a figure that was 16.7% higher than emission levels in 1990.[2] Given this overall trend, the US has been widely portrayed as a laggard in the regulation of climate change.[3] Over the past decade, criticism has not only been levelled against the federal strategy to address domestic GHG emissions, which has been largely based on voluntary commitments, intensity targets, and funding for technology research and development;[4] at the international level, US positions have faced intense scrutiny and scepticism ever since it withdrew from the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).[5]

A number of recent developments may reverse this perception in the near term, however. Public opinion has noticeably shifted in the recent past: according to nationwide surveys, an overwhelming majority of Americans consider global warming a serious or very serious problem, and well over half believe that global warming should be one of the highest priorities for government leaders.[6] Growing concern about the risks arising from climate change and high oil prices have also brought climate and energy issues to the policy forefront,[7] where the reality of climate change is now widely recognised, and the need for action among policymakers has altered the dynamics of the political debate.[8]

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[1] Cate Hight and Gustavo Silva-Chávez, *Change is in the Air: The Foundations of the Coming American Carbon Market Climate Report N° 15* (Paris: Mission Climat of Caisse des Dépôts, 2008), 4: in 2004, the US emitted almost twice as much per person as did Russia, six times as much as China and twelve times as much as India.

[2] Energy Information Administration, *Emissions of Greenhouse Gases in the United States 2007* (Washington, DC.: EIA, 2008).

[3] For further discussion, see Ulf Moslener and Bodo Sturm, "A European Perspective on Recent Trends in US Climate Policy", 18 European Environment (2008), 257-275.

[4] David Campbell, *U.S. Climate & Energy Policy: An Overview* (Washington, DC: RGIT, 2008), 3-5.

[5] Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto (Japan), 10 December 1997, in force 15 February 2005, 37 I.L.M. 22 (1998); on the rejection of the Kyoto Protocol by the United States, see Michael Lisowski, "Playing the Two-Level Game: US President Bush's Decision to Repudiate the Kyoto Protocol", 11 *Environmental Politics* (2002), 101-119.

[6] Camilla Adelle and Sirini Withana, *EU and US Public Perceptions of Environmental, Climate Change and Energy Issues* (Brussels: IEEP, 2008), 8: a New York Times/CBS News Poll, conducted in April 2007, indicates that over 90% of the 1052 people surveyed considered global warming to be a serious or very serious problem, while 52% of those surveyed state that global warming should be one of the highest priorities for government leaders, and 78% of those polled maintained that action to counter the effects should be taken immediately.

[7] Joseph E. Aldy, Camilla Bausch, and Michael Mehling, *Climate Change and Energy Security: Lessons Learned*. Washington, DC: American Institute for Contemporary German Studies, 2008, 7.

[8] See Tim Profeta and Cathleen Kelly, *The US Climate Policy Debate: How Climate Politics are Moving Forward on Capitol Hill and in the White House* (Washington, D.C.: The German Marshall Fund of the United States, 2008), 3.

Accordingly, the regional, state and local levels have seen a number of vibrant initiatives unfold over recent years.[9] Meanwhile, a newly appointed administration and changed majorities in Congress are likely to create the most favourable conditions in over a decade for ambitious legislation at the federal level. Indeed, a pioneer of market mechanisms for pollution control,[10] the US is once again exploring emissions trading as a policy instrument to address GHG emissions; a series of legislative proposals in both houses of Congress and the ambitious climate policy agenda embraced by the incoming president, Barack Obama, all feature economy-wide cap-and-trade schemes as their central approach to mitigate GHG emissions.[11]

Emerging trading schemes in the US offer the opportunity of a future trading link to the European Union emissions trading scheme (EU ETS). Defined as a mechanism through which market participants in one trading scheme can use carbon units issued under another scheme to meet domestic compliance obligations,[12] linking promises greater diversity of abatement options, improved market size and liquidity, and ultimately a more efficient allocation of resources.[13] It should come as no surprise, therefore, that European decision makers have expressed an interest in the benefits of linking. Already in late 2006, the EU Council of Environment Ministers stated "its commitment to developing a strong global carbon market by linking the EU ETS with other emissions trading schemes at national or regional level";[14] earlier, the European Commission had published a communication titled "Building a Global Carbon Market", in which it called for consideration of linkages between the EU ETS and "mandatory emission trading schemes in third countries capping absolute emissions at national or regional level", be they "planned or in operation".[15] Similar interest has also been voiced in a number Member States; the German foreign minister Frank-Walter Steinmeier, for instance, called for a "powerful new trans-Atlantic market" as a way for Europe and the US to assert leadership in global efforts to mitigate climate change.[16]

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[9] See below, Section 2.2.

[10] See, for instance, the overview of trading schemes provided by A. Denny Ellerman, Paul L. Joskow & David Harrison, Jr., *Emissions Trading in the US: Experience, Lessons, and Considerations for Greenhouse Gases* (Arlington, Va.: Pew Center on Global Climate Change, 2003), 8-31.

[11] For further details, see below, Section 2.1.

[12] Erik Haites, *Harmonisation between National and International Tradable Permit Schemes*, CATEP Synthesis Paper, OECD Doc. CCNM/GF/SD/ENV(2003)2/FINAL (Paris: OECD, 2003), 5.

[13] Richard Baron and Cedric Philibert, *Act Locally, Trade Globally: Emissions Trading for Climate Policy* (OECD, Paris 2005), 123: "The economic case for linking is clear. Linking various systems and emissions targets under a single emissions trading umbrella would help deliver a common environmental goal at least-cost, as each participant would now have access to a broader range of mitigation options."

[14] European Council of Environment Ministers, Council Conclusions of the 2773rd Environment Council Meeting, Brussels, 18 December 2006, para 4.

[15] European Commission, Building a Global Carbon Market – Report Pursuant to Article 30 of Directive 2003/87/EC, COM(2006)676 final.

[16] Strategy Paper of the German Foreign Ministry, cited by Peter Ehrlich, "Berlin plant Klimapakt mit US-Staaten", Financial Times of 5 July 2007.

Interest in an operational link between different trading schemes has also been expressed in the US. Not only are there plans to create domestic links between the emerging carbon markets in the US, but in California, an Executive Order issued by the Governor explicitly calls for the development of a "program that permits trading with the European Union … and other jurisdictions."[17] Moving one step further, several schemes currently under consideration or already in force allow for introduction of allowances from other emissions trading schemes,[18] including the EU ETS.[19] Informal contacts between US state officials and representatives of the European Commission and different Member States have created opportunities to exchange information and explore linking options,[20] and the Californian Governor and British Prime Minister signed a partnership to cooperate in the development of effective climate policies, *inter alia* with a view to "evolve market mechanisms".[21]

Reflecting the high level of interest in linking, more than 15 national and regional governments, including the European Commission, several EU Member States, and a number of US states, agreed to launch an International Carbon Action Partnership (ICAP) in October 2007 with the express aim of creating a "forum to discuss relevant questions on the design, compatibility and potential linkage of regional carbon markets".[22] A recent study forecasts a global carbon market worth €2 trillion by 2020, largely consisting of linked national and regional markets in Europe and North America.[23]

Yet current research on the benefits and conditions of linking also collectively affirms that differences in the design of emissions trading schemes can hamper the prospects for a market linkage; technical solutions may help overcome such divergences, but tend to lessen the benefits of linking or affect the environmental integrity of underlying markets.[24] Needless to say, understanding the differences between trading schemes and their potential incompatibility is of vital importance when assessing the expediency of a trading link.

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[17] Executive Order S-20-06 by the Governor of the State of California, 17 October 2006, available at <http://gov.ca.gov/index.php?/executive-order/4484>, para. 5.

[18] See, for instance, the Regional Greenhouse Gas Initiative Model Rule, 15 August 2006, available at <http://www.rggi.org/docs/model_rule_8_15_06.pdf>, Section XX-10.3 (b) (1).

[19] Andrew S. Bergman, "Regional Greenhouse Gas Initiative: The First Mandatory Greenhouse Gas Trading Program in the United States", 9 *ABA Sustainable Development, Ecosystems and Climate Committee Newsletter* (2006), 9-13, at 11.

[20] Joseph Kruger and William A. Pizer, *Regional Greenhouse Gas Initiative Prelude to a National Program?* (Washington, D.C.: Resources for the Future, 2006), 4.

[21] Anon., "California-U.K. Emissions Deal Bypasses Bush", San Francisco Chronicle, 1 August 2006, at A1.

[22] See International Carbon Action Partnership (ICAP), Political Declaration, 29 October 2007, Lisbon, Portugal, available at <http://www.icapcarbonaction.com/docs/icap_declaration.pdf>; ICAP currently brings together US and Canadian members of the Western Climate Initiative, north-eastern US members of the Regional Greenhouse Gas Initiative, the European Commission and several EU Member States (France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the UK) as well as Australia, New Zealand and Norway. Japan is an observer. For commentary, see Martin Bergfelder, "ICAP – The International Carbon Action Partnership: Building a Global Carbon Market from the Bottom-up", 2 *Carbon & Climate Law Review* (2008), 202-203.

[23] See Point Carbon, *Carbon 2008 – Post-2012 Is Now* (Oslo: Point Carbon, 2008), 17, assuming a market volume of 38 Gt and a carbon price of €50 in 2020; in a recent survey among stakeholders and observers in the carbon market, 73% of respondents expected such a global market by 2020, see Point Carbon, *Carbon Market Transactions in 2020: Dominated by Financials?* (Oslo: Point Carbon, 2008), 48.

[24] See, for instance, Erik Haites and Fiona Mullins, *Linking Domestic and Industry Greenhouse Gas Emission Trading Systems. Report prepared for the Electric Power Research Institute (EPRI), International Energy Agency (IEA) and the International Emissions Trading Association (IETA)* (Toronto: Margaree Consulting, 2001), available at <http://www.iea.org/textbase/papers/2001/epri.pdf>, 67.

Given the current interest in a transatlantic market link, this study provides an update of US developments in the area of emissions trading, and assesses one of the most important bills to date – arguably still the standard of reference for federal GHG legislation in the US – with a view to its compatibility with the EU ETS. A brief overview also addresses key features of other federal and regional proposals, followed by a more detailed assessment of the potential trade law implications of US action to regulate greenhouse gases.

2 OVERVIEW OF CURRENT AND EMERGING GHG EMISSION TRADING SCHEMES IN THE US

2.1 Federal Initiatives

Convening between 3 January 2007 and 3 January 2009, the 110th Congress of the United States witnessed a substantial increase in activity on the design of domestic climate change policy. More than 235 bills, amendments, and resolutions focused on climate change were presented during the 110th Congress, and committees and subcommittees have hosted more hearings on climate change than in any previous Congress.[25] In the House of Representatives, a Select Committee for Energy Independence and Global Warming was created on 8 March 2007, which, although without formal legislative authority, has been influential in focusing attention and facilitating debate on climate policy.[26]

After the elections on 4 November 2008, the Democratic party – which has traditionally been more likely to favour ambitious GHG regulation –expanded its majority in both houses;[27] it also chairs all relevant committees with jurisdiction over GHG regulation, and the recent replacement of Representatives John D. Dingell (D-MI) and Frederick C. Boucher (D-VA) as Chairs of the Committee on Energy and Commerce and the Subcommittee on Energy and Air Quality, respectively, by Representatives Henry D. Waxman (D-CA) and Edward J. Markey (D-MA), implies that the House will be far more proactive in regulating greenhouse gases during the current 111th Congress.

The bills for GHG emissions trading schemes submitted in the 110th Congress will likely serve as the foundation for future policy deliberations. A number of proposed economy-wide bills would have set a 2050 emission target of 80% below 1990 levels, including proposals by Congressman Henry D. Waxman and Senators Bernard Sanders (D-VT) and Barbara L. Boxer (D-CA). Several bills would set 2050 targets of 1990 minus 60%, including the proposal by Senators John Kerry (D-MA) and Olympia Snowe (D-ME).[28]

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[25] See Annex I to this study and Pew Center on Global Climate Change, "Climate Action in Congress: U.S. Climate Change Legislation", available at <http://www.pewclimate.org/what_s_being_done/in_the_congress>.

[26] See United States House of Representatives Select Committee for Energy Independence and Global Warming, *Final Staff Report for the 110th Congress*, 31 October 2008, available at: <http://globalwarming.house.gov/tools/3q08materials/files/0064.pdf>; the Select Committee was re-established for the 111th Congress pursuant to H.Res. 5 on 6 January 2009 by the Speaker of the House, Nancy P. Pelosi (D-CA).

[27] As of 26 January 2009, the party distribution in the 111th Congress is as follows: Democratic majorities of 55 to 41 in the Senate (with two independent Senators and two vacancies), and 256 to 178 voting members (with one vacancy) in the House of Representatives. Despite substantial Democratic majorities in both the Senate and the House, procedural requirements in the Senate call for 60 votes to close debate on a bill and proceed to vote on its substantive merits (cloture), and 67 votes to approve an international treaty (ratification).

[28] Aldy (supra, note 7), 20.

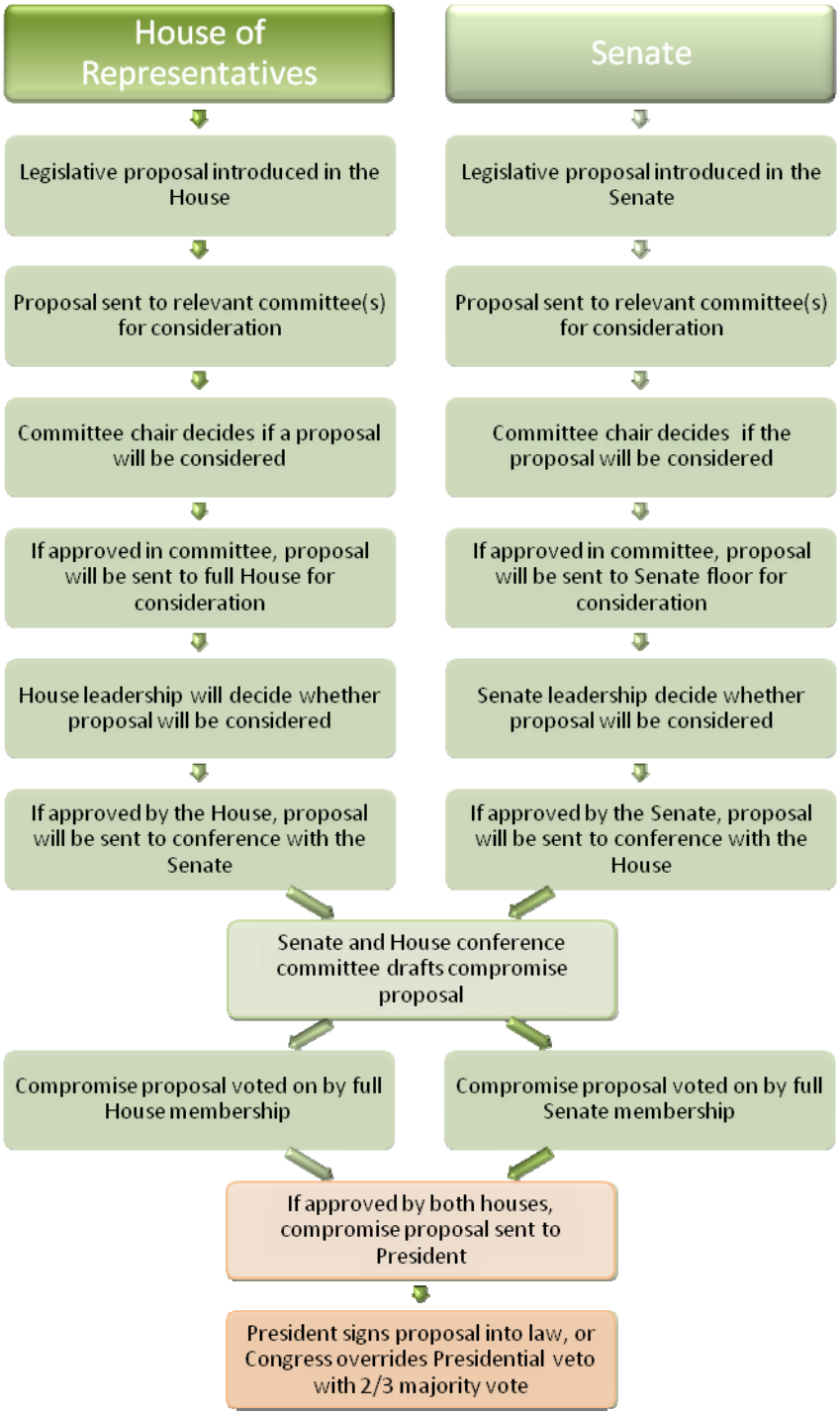
By far the most attention was given to a bill introduced on the floor of the US Senate on 18 October 2007 by Senators Joseph I. Lieberman (I-CT) and John W. Warner (R-VA).[29] Formally designated "America's Climate Security Act", the bill soon garnered several co-sponsors, and successfully cleared the first hurdle on 5 November 2007 by passing from the Senate Subcommittee on Private Sector and Consumer Solutions to Global Warming and Wildlife Protection[30] to the Senate Committee on Environment and Public Works, from which it was reported favourably by a narrow margin of votes on 5 December 2007.[31]

[29] For the full text of Senate Bill S.2191 of 18 October 2007 ("America's Climate Security Act of 2007"), see <http://www.govtrack.us/data/us/bills.text/110/s/s2191.pdf>.

[30] Approval occurred with 4 to 3 votes.

[31] The bill was reported favourably with 11 to 8 votes, and introduced as Senate Bill S.3036 ("Lieberman-Warner Climate Security Act of 2008") on 20 May 2008, available at <http://www.govtrack.us/data/us/bills.text/110/s/s3036pcs.pdf>.

Figure 1: The Federal Legislative Process (based on: Hight et al., 2008)



On 6 June 2008, the US Senate voted on a procedural motion to close the debate on a revised version of the bill, which had been introduced as a substitute amendment on 4 June 2008 by the Chair of the Committee, Senator Boxer.[32]

[32] S.Amdt. 4825: In the nature of a substitute. An amendment to S.3036 [110th]: Lieberman-Warner Climate Security Act of 2008, available at <http://thomas.loc.gov/cgi-bin/query/r?r110:fld001:S55050>.

Ambitious in scope, the bill would have called for binding annual emission reductions of 4% below 2005 levels by 2012, 19% below 2005 levels by 2020, and 71% below 2005 by 2050;[33] it also would have established a GHG registry to monitor emissions in the US,[34] and created a market for carbon emission allowances with ample coverage and the ability of holders to freely trade, transfer, or sell allowances.[35] Concerns about the use of revenue from allowance auctioning and the lack of time to discuss amendments overshadowed the debate on the Senate floor; moreover, timing for the debate was arguably poor for a bill predicted to increase energy costs at a time when large segments of the population were preoccupied about record gasoline prices.

In the end, opponents of the bill blocked discussions at every procedural stage, including a request that the clerk of the Senate read the entire 491 pages of the bill aloud. Faced with such delaying tactics, the Majority Leader, Senator Henry M. Reid (D-NE), indicated that no constructive debate on the bill could be expected and called a procedural vote to "invoke cloture," or close the debate. A favourable vote by three fifths of the Senate, or 60 Senators, would have been needed to proceed to a vote on actual passage of the bill, yet only 48 Senators expressed their support of cloture.[36] Moreover, ten Senators who had voted favourably for the procedural motion later signed a letter indicating that they had serious reservations about specific provisions of the bill and would not have voted favourably on its substance without major revisions.[37]

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[33] Section 201 of ACSA 2008, supra note 32; in absolute terms, this would have translated into a cap of 5,775 million units in 2012, falling to 1,732 million units in 2050. Emissions of hydrofluorocarbons (HFCs) would have been cut more rapidly, declining from 2012 levels by at least 15% in 2020, 45% in 2030, and 70% by 2040. Overall, the bill would have reduced total US emissions (from all sources, capped and non-capped) by up to 66% below 2005 levels by 2050, see Committee on Environment and Public Works, "A Summary of the Boxer Substitute Amendment to the Lieberman□Warner Climate Security Act", available at http://epw.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=441a4c27-8df5-4008-8931-7e07e8914a51h

[34] Section 102 of ACSA 2008, supra note 32, sets out methods for avoiding the double-counting of emissions, protocols to prevent any avoidance of reporting requirements, and methods to verify and audit submitted data; it also established consistent policies for calculating carbon content and greenhouse gas emissions for each type of fossil fuel reported.

[35] Sections 401, 402, 411, 412 of ACSA 2008, supra note 32; an estimated 87% of US GHG emissions would be subject to the cap-and-trade program; about 2,100 large covered facilities would have been required to submit emissions allowances under the program, including: coal-fired power plants and other entities that use more than 5,000 metric tonnes of coal, natural gas processors and importers, petroleum processors and refiners, manufacturers and importers of more than 10,000 metric tons of GHGs (as measured in CO_{2eq}), and any entity that emits more than 10,000 metric tons (CO_{2eq}) of HFCs as a byproduct of the manufacture of hydrochlorofluorocarbons (HCFCs).

[36] More precisely, the cloture failed with 48 votes in favour and 36 votes against, and with six absent senators indicating support, see <http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=110&session=2&vote=00145>.

[37] In a letter to Senators Reid and Boxer dated 6 January 2008, Senators Debbie Stabenow (D-MI), Jay Rockefeller (D-WV), Carl Levin (D-MI), Blanche Lincoln (D-AR), Mark Pryor (D-AR), Jim Webb (D-VA), Evan Bayh (D-IN), Claire McCaskill (D-MO), Sherrod Brown (D-OH) and Ben Nelson (D-NE) stated: "As Democrats from regions of the country that will be most immediately affected by climate legislation, we want to share our concerns with the bill that is currently before the Senate... we cannot support final passage of the Boxer Substitute in its current form."

Still, the bill is likely to be reintroduced in a revised version during the current 111th Congress, and arguably remains the standard of reference for GHG legislation by Congress in the US.

Meanwhile, in the House of Representatives, Edward J. Markey, Chairman of the Select Committee for Energy Independence and Global Warming and now also Chairman of the Subcommittee on Energy and Air Quality, introduced a climate change bill entitled the "Investing in Climate Action and Protection (iCAP) Act" on 4 June 2008.38 Covering approximately 87% of US GHG emissions,39 the bill would establish objectives for GHG emission reductions to 2005 levels by 2012, to 20% below 2005 levels by 2020, and to 85% below 2005 levels by 2050.40 Moreover, the iCAP Act would auction 94% of allowances in 2012; the remaining 6% would be allocated to energy-intensive industries. By 2020, 100% of allowances would be auctioned. Companies also could use domestic offset programs approved by the Environmental Protection Agency (EPA) to cover 15% of their emissions, as well as an additional 15% from approved international offset programs. The bill would require more than half of the auction proceeds to be distributed to low- and middle-income households in the form of rebates and tax credits.

Another proposal meriting attention was introduced by Henry A. Waxman, the new Chairman of the Committee on Energy and Commerce, on 21 March 2007. Designated the "Safe Climate Act of 2007",[41] it would have imposed annual reductions in GHG emissions each year starting in 2010, reaching 80% below 1990 levels in 2050.[42] It also would have created an emissions trading scheme with auctioned allowances, although the specification of details is left to the administration.[43] Proceeds from auctioning would have been deposited in a "Climate Reinvestment Fund", dedicated to supporting technology research and development, compensating consumers for any energy cost increases, providing transition assistance for affected workers and regions, and protecting against harm from climate change.[44] No debate was ever held on either this bill or the proposed iCAP-Act during the previous session of Congress. Because all proposed bills are cleared from the books at the end of a session, either bill would have to be reintroduced in the current 111th Congress to proceed further in the legislative debate.

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38 H.R. 6186, introduced by Representative Edward J. Markey on 4 June 2008 ("Investing in Climate Action and Protection Act (iCAP)"), available at http://markey.house.gov/docs/energy_environment/icap_act_final.pdf.

39 Pursuant to Section 700 (5) of the Clean Air Act, as amended by H.R. 6186, "covered entities" regulated under the cap would include power plants and large industrial facilities; entities that produce or import petroleum- or coal-based liquid or gaseous fuels; entities that produce or import hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, or nitrogen trifluoride; natural gas local distribution companies; and geological carbon sequestration sites.

40 Section 712 (d) of the Clean Air Act, as amended by H.R. 6186; in absolute figures, this would amount to a reduction from 6,098 million tonnes in 2012 to 930 million tonnes in 2050.

41 H.R.1590, introduced by Representative Henry A. Waxman on 21 March 2007 ("Safe Climate Act of 2007"), available at <http://thomas.loc.gov/cgi-bin/query/z?c110:H.R.1590:>.

42 Section 701 of the Clean Air Act, as amended by H.R. 1590.

43 Section 704 of the Clean Air Act, as amended by H.R. 1590.

44 Ibid.

Both Representative Waxman and Senator Boxer, as chairs of the respective committees with jurisdiction on climate legislation in each house of Congress, have announced the introduction of comprehensive global warming bills in the first half of 2009.[45]

Complementing this new intensity of effort in the legislature are ambitious policy proposals from the new administration. Following a campaign largely focused on the promise of change, the victory of the Democratic Senator from Illinois Barack H. Obama in the presidential election on 4 November 2008 heralded a major shift in the climate and energy policies of the United States administration. During the campaign, Senator Obama had already outlined a comprehensive "New Energy for America" plan he would implement if elected to the presidency.[46] It sets out the cornerstones of a sweeping energy reform and stimulus package aimed at creating new employment, reducing dependence on foreign energy imports, and limiting GHG emissions. Specific measures include the strategic investment of $150 billion over 10 years to accelerate the commercialization of plug-in hybrid vehicles, promote the development of commercial scale renewable energy, encourage energy efficiency investments, and begin the transition to a new digital electricity grid.

Additionally, this plan calls for a minimum share of US electricity demand to be covered with renewable sources by specified dates,[47] and outlines design elements of an economy-wide cap-and-trade scheme to help reduce GHG emissions by 80% below 1990 levels by 2050. Full auctioning of GHG allowances under this scheme would minimize windfall profits for affected power generators and raise significant revenue, of which $15 billion would be earmarked each year to support the development of energy efficiency improvements, more efficient biofuels and clean energy vehicles, and federal and state wildlife management. All remaining receipts would be used for rebates and other transition relief to avert any adverse impacts on low-income families. Clearly, a cap-and-trade scheme of this scope and ambition would become the centrepiece of US climate policy efforts, much as the EU ETS has become in Europe. Yet while Congressional action on cap-and-trade bill has been described as a preferable option by the new administration, it has also announced that it would instruct the Environmental Protection Agency (EPA) to move forward with executive rulemaking if Congress does not take action within 18 months. Aside from the long-term objective of reducing GHG emissions by 80% below 1990 levels by 2050, moreover, an interim target of returning to 1990 levels by 2020 has been announced, requiring a reduction by 17% below current levels. Initial appointments by the presidential transition team, such as Nobel laureate Steven Chu to the Department of Energy and former EPA Administrator Carol M. Browner to a newly created White House office on energy and environment, further signal determination to promote a more aggressive climate agenda and reengage in the international negotiation process geared towards adopting a successor regime to the Kyoto Protocol beyond 2012.

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[45] Barbara L. Boxer, "Statement on Next Steps for Global Warming Legislation", 15 January 2009, available at <http://epw.senate.gov/public/index.cfm?FuseAction=Majority.PressReleases&ContentRecord_id=dc4125d8-802a-23ad-472f-77e4f259b06e&Designation=Majority>.

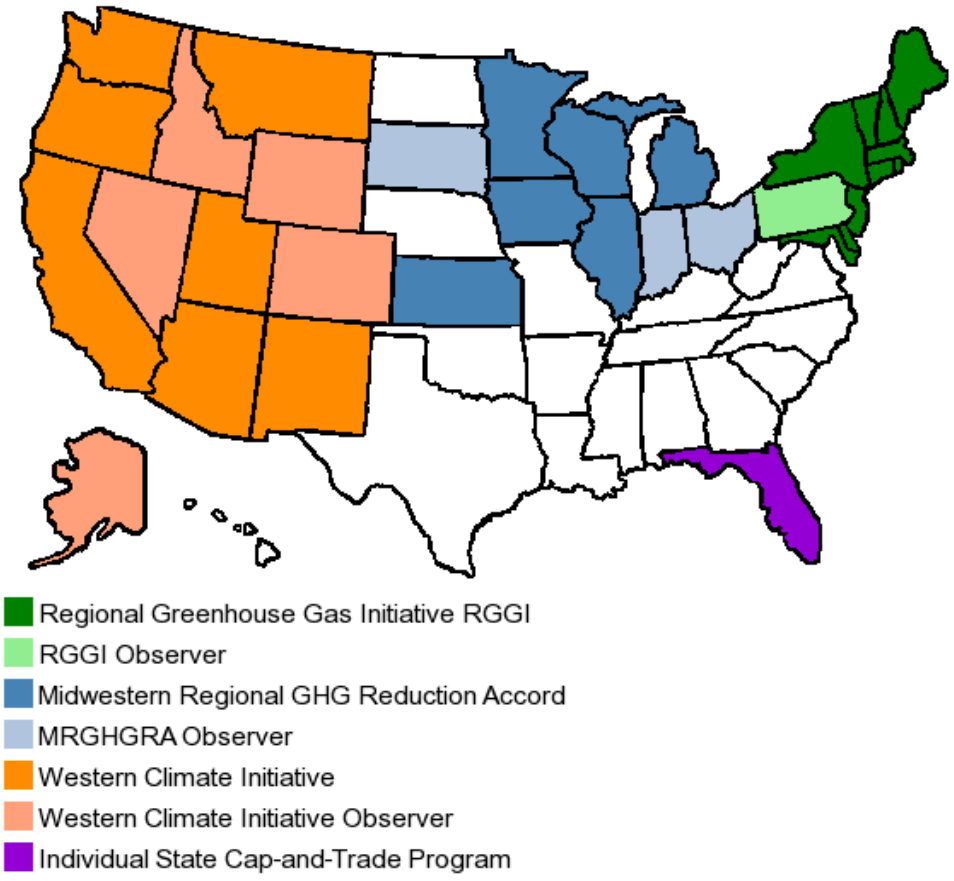
[46] Barack H. Obama (D-IL) and Joseph R. Biden (D-DE), "New Energy for America", Lansing, MI, 3 August 2008, available at <http://www.barackobama.com/pdf/factsheet_energy_speech_080308.pdf>.

[47] These quantified targets are: 10% share of electricity generated from renewable sources by the year 2012, and 25% by the year 2025.

2.2 Regional Initiatives

A number of states have joined regional arrangements in partnership with other US states as well as Canadian provinces and Mexican border states. Compared to efforts at the state level, such regional initiatives can increase the efficiency of policy efforts by encompassing a broader geographic area, eliminating duplication of work, and creating more uniform regulatory environments. In recent years, a number of regional initiatives have developed to increase renewable energy generation, track renewable energy credits, and research and establish baselines for carbon sequestration. Given the benefits of coordinated action, emissions trading has also become a subject of regional cooperation. Three programmes, in particular, focus on the creation of a regional cap-and-trade scheme: the Regional Greenhouse Gas Initiative (RGGI) in the Northeast and mid-Atlantic, the Western Climate Initiative (WCI) on the West Coast, and the Midwest Regional Greenhouse Gas Reduction Accord. Although each of these agreements differs in coverage and scope, they all share the objective of harnessing carbon market for climate policy objectives.

Figure 2: Regional Climate Initiatives (Source: Pew Center on Global Climate Change)



2.2.1 Regional Greenhouse Gas Initiative (RGGI)

The Regional Greenhouse Gas Initiative (RGGI) is a cooperative effort by ten US North-eastern and Mid-Atlantic states to limit GHG emissions. Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont are all signatory states to a Memorandum of Understanding (MoU) released on 20 December 2005 that describes the essential elements of the trading system.[48] Starting in 2009, these ten states have committed themselves to stabilising and later reducing CO_2 emissions from the power sector.[49] For the period between 2009 and 2014, the total emissions cap for all power producers in all ten states is set at 188 million short tons[50] per year; thereafter, the cap decreases by 2.5% each year until 2018.[51] The total cap is broken down into state allocations agreed upon in the MoU.[52]

Each of the participating states had to pass rules or laws to implement the trading scheme. In order to ensure consistency across states, a Staff Working Group (SWG) consisting of state officials issued a Draft Model Rule on 15 August 2006, providing a template for state legislation.[53] As a result, the individual CO_2 Budget Trading Programs in each of the ten participating states are linked through CO_2 allowance reciprocity. Accordingly, regulated entities will be able to use a CO_2 allowance issued by any of the ten participating states to demonstrate compliance with the state program governing their facility. Overall, the ten individual state programs will function as a single regional compliance market for carbon emissions, creating the first mandatory, market-based GHG emissions reduction program in the US.

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[48] Regional Greenhouse Gas Initiative Memorandum of Understanding, 20 December 2005, available at <http://www.rggi.org/docs/mou_12_20_05.pdf>; Pennsylvania is an observer to the RGGI process.

[49] Fossil fuel fired electric generating units serving a generator of 25 MW or larger are required to comply with the CO_2 Budget Trading Program; once a unit triggers applicability and becomes a CO_2 budget unit, that unit will remain subject to the program, regardless of changes to the unit. A unit that commences operation on or after 1 January 2005 is considered fossil fuel fired provided that fossil fuel comprises more than 5% of its total annual heat input; a unit that commenced operation prior to 1 January 2005 is considered to be fossil fuel fired if fossil fuel comprises more than 50% of its total annual heat input. Regionally, units of this size and type are responsible for approximately 95% of CO2 emissions from the electric generation sector.

[50] Unlike the metric tonne containing 1000 kilogrammes, or 2204 pounds, a short ton is a unit of weight equivalent to 2000 pounds, or 907.4 kilogrammes.

[51] This puts the final RGGI cap, applicable during the final two years of the scheme (2018 and 2019), at 169 million short tons, or 90% of the initial cap.

[52] The largest allocation – over 64 million short tons per year – goes to the State of New York, which has the largest population and economy in the region; conversely, the smallest allocation – just over 1.2 million short tons – goes to Vermont, a small state with one nuclear plant powering most of its area.

[53] RGGI Model Rule, supra note 18.

In terms of timing, the period between 2009 and 2018 is broken into trading periods of three years each, starting with the period from 2009 to 2012. Covered facilities may bank allowances within a trading period. They may also use domestic carbon offset allowances from specified GHG reduction projects[54] to meet up to 3.3% of their emissions obligation during each trading period, a limit that rises to 5% in the event of a "stage one trigger event" where allowance prices exceed $7 on average for each short ton over a period of twelve months.[55]

While the Model Rule creates a uniform framework for the Budget Trading Program, it also leaves states with flexibility in adopting provisions regarding applicability and source exemptions, allowance allocations and allowance set-asides, and permitting. Accordingly, there are important differences among states in how they choose to implement the model rule. One important difference is the portion of allowances allocated to emitters based on historical emissions as opposed to the portion auctioned by the state.[56]

Under the MoU, participating states merely agreed to allocate a minimum of 25% of allowances to support consumer benefit programs. Individual states may choose how to allocate the remaining 75% of their allowances. Auctions are conducted in regular intervals on an electronic platform, pursuant to a uniform auctioning format.[57] In the first auction, held on 25 September 2008, 59 bidders participated, most of them utilities acquiring allowances for compliance purposes. All 12.5 million allowances offered sold at a clearing price of US$3.07 per allowance. The December 2008 auction sold 31.5 million allowances at US$3.48. It had 80 participants, again most of them compliance buyers.[58] A third auction has been scheduled for 18 March 2009. Differences between states also relate to the use of proceeds from auctions[59] and the number of allowances set aside for specific purposes.[60]

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[54] Offsets may be generated from five types of projects: landfill methane capture and destruction; reductions in emissions of sulfur hexafluoride; sequestration of carbon through afforestation; reduction or avoidance of CO_2 emissions from natural gas, oil, or propane end-use combustion through improvements in end-use energy efficiency; and avoided methane emissions from agricultural manure management operations.

[55] In the case of a "stage two trigger event," in which prices exceed $10 for a short on average for twelve months, generators may use offsets to satisfy 10% of their obligations and may purchase international offset credits or allowances.

[56] While most states chose to auction close to all of their allocation, Delaware is auctioning only 60% in 2009 to increase to 100% over 5 years.

[57] Allowances are available for sale on a quarterly basis in lot sizes of 1,000 allowances. The initial auctions offered allowances through a single-round, uniform-price, sealed-bid auction format, with flexibility to transition to a multiple round, ascending-price auction format to address evolving market conditions; for details on the auctioning process, such as participation, reserve prices and monitoring, see Charles Holt et al., "Auction Design for Selling CO_2 Emission Allowances under the Regional Greenhouse Gas Initiative", 15 October 2008, available at <http://rggi.org/docs/rggi_auction_final.pdf>.

[58] The low participation of financial players is likely due to the precarious economic situation – banks and hedge funds do not want to take any risk. This means there will not be as active a secondary market as there could be.

[59] While most states will use the money for investment in renewable energy and energy efficiency programs, some, such as New Hampshire, have written in their rules that auction proceeds above an auction clearing price of $6 per ton would be returned to electricity ratepayers.

[60] For instance, the state of Maryland has adopted a "trigger price" provision that comes into effect if the allowance price exceeds $7 per short ton. If this trigger price is met, Maryland would have the option of setting aside up to 50% of its allowances for purchase by its own electric utilities at a price ceiling of $7 per short ton; other states have set aside allowances for cancellation in recognition of voluntary efforts to participate in green power programs, which is typically done by paying a premium on their electricity bill or purchasing Renewable Energy Certificates (RECs).

2.2.2 Western Climate Initiative (WCI)

On 26 February 2007, the Western Climate Initiative (WCI) was launched to develop regional strategies to address climate change.[61] It currently brings together Arizona, California, Montana, New Mexico, Oregon, Utah, and Washington, and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec;[62] these states and provinces have adopted a regional goal of lowering GHG emissions by 15% below 2005 levels by 2020.[63] A recommended design for an emission trading scheme was released on 23 September 2008.[64] Starting on 1 January 2012, it would cap emissions of six GHGs[65] from facilities with annual emissions of 25,000 metric tonnes CO_{2eq} or greater.[66] Initially, the scheme would only cover emissions from large downstream emitters, notably electricity,[67] industrial processes, and industrial and commercial sources. From 1 January 2015, however, coverage would extend to upstream emissions from fuel combustion for transportation purposes and at residential, commercial, and industrial facilities, to the extent that these are not already covered.[68]

Once implemented, coverage could extend to nearly 90% of the emissions in the region, representing over 70% of the Canadian economy and 20% of the US economy.[69] Initially, at least 10% of the allowances will be auctioned, rising to a minimum of 25% by 2020. No more than 49% of emissions reductions may be achieved through offsets.[70] Participating states and provinces aspire to a higher auctioning percentage over time, possibly rising to 100%.[71] The remainder is to be distributed by each partner jurisdiction as it sees fit, which may include further auctioning. If analysis indicates that allocations of free allowances to particular sectors should be treated uniformly to address competitiveness concerns, the distribution of allowances will be standardised as necessary.

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[61] For the original agreement signed by the Governors of Arizona, California, New Mexico, Oregon, and Washington, see "Western Regional Climate Action Initiative", 27 February 2007, available at <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F12775.pdf>.

[62] An additional 13 jurisdictions participate as observers, including the US states of Alaska, Colorado, Idaho, Kansas, Nevada, and Wyoming; the Canadian province of Saskatchewan; and the Mexican border states of Baja California, Chihuahua, Coahuila, Nuevo Leon, Sonora, and Tamaulipas.

[63] See WCI, "Statement of Regional Goal", 22 August 2007, available at <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf>.

[64] WCI, "Design Recommendations for the WCI Regional Cap-and-Trade Program", 23 September 2008, available at <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F20432.PDF>.

[65] Covered emissions include the six primary greenhouse gases identified by the UNFCCC: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

[66] WCI, supra note 64, 3.

[67] Also included is electricity generation that occurs outside, but is delivered inside jurisdictions participating in the scheme.

[68] The point of regulation is set where the fuels enter commerce inside the participating states and provinces, for example the fuel distributors, see WCI, supra note 64, 3.

[69] WCI, "Overview: The Western Climate Initiative's Cap-and-Trade Program Design Recommendations", 23 September 2008, available at < http://www.westernclimateinitiative.org/ewebeditpro/items/o104f19872.pdf>.

[70] In other words, the number of offsets that could be used would equal approximately 1% of the overall cap in 2013, increasing to 7.35% of the cap by 2020, see Hight et al., supra note 1, 16; both domestic offsets and credits generated in developing countries through the CDM could be used for compliance.

[71] WCI, supra note 64, 8.

To guard against the risk of setting the cap too high, the first 5% of allowances auctioned by each partner will have a minimum price. If part of the allowances is not purchased at or above the minimum price, a fraction will be retired.[72]

2.2.3 Midwestern Greenhouse Gas Accord (MGGA)

On 15 November 2007, the governors of nine Midwestern states and one Canadian premier signed the Midwestern Greenhouse Gas Accord (MGGA) at the Midwestern Governors Association Energy Security and Climate Change Summit.[73] Currently, Iowa, Illinois, Kansas, Manitoba, Michigan, Minnesota, and Wisconsin are members, and Indiana, Ohio, Ontario and South Dakota are observers. Under the Accord, members pledge to establish targets for tracking and reducing emissions of six GHGs and finalising a multi-sector cap-and-trade programme as well as a model rule for its implementation in state laws.

Additionally, the accord states that a carbon market should be operational within 30 months of its signing, and calls for the future cap-and-trade programme to link to other regional or global carbon markets to reduce leakage and increase market efficiency. A set of preliminary recommendations issued by an Advisory Group on 1 November 2008 propose a reduction target "consistent with that recommended by the scientific community" of 60 to 80% below 2005 levels by 2050.[74] Will many of the recommendations are still under discussion, the proposed trading scheme will likely combine an upstream and a downstream approach, with a "hybrid approach" to allowance distribution, including "some auctioning, some free allocation, and some allocation at a small fixed fee"; compatibility with other trading schemes, including the EU ETS, is also mentioned as an objective.[75]

2.2.4 Mayors' Climate Protection Agreement

On 16 February 2005, the date when the Kyoto Protocol entered into force, the mayor of Seattle, Gregory J. Nickels, launched the US Mayors Climate Protection Agreement. Its objective was to encourage at least 141 US cities to adopt the reduction objective agreed to for the US under the Kyoto Protocol prior to its withdrawal: a GHG emissions reduction of 7% below 1990 emissions levels by the 2008 to 2012 period. Specifically, participating cities committed to:

- strive to meet or beat the Kyoto Protocol targets in their own communities, through actions ranging from anti-sprawl land-use policies to urban forest restoration projects to public information campaigns;
- urge their state governments, and the federal government, to enact policies and programs to meet or beat the GHG emission reduction target defined for the US under the Kyoto Protocol; and

[72] WCI, supra note 64, 9.

[73] Midwestern Governors Association, "Midwestern Greenhouse Gas Accord", 15 November 2007, available at <http://www.midwesternaccord.org/midwesterngreenhousegasreductionaccord.pdf>; since the original signature, an additional Canadian province has joined the MGGA.

[74] MGGA, "Preliminary Recommendations of the Advisory Group, 1 November 2008", available at <http://www.midwesternaccord.org/News%20Page/Accord%20Draft%20Recs%2011%201%2008.doc>.

[75] Ibid., 2.7 and 3.5.

- urge the US Congress to pass the bipartisan greenhouse gas reduction legislation, which would establish a national emission trading system.[76]

By 1 January 2009, more than 900 mayors, representing in excess of 80 million citizens, had signed the US Mayors Climate Protection Agreement. In 2007, moreover, the US Conference of Mayors launched the Mayors Climate Protection Center to administer and track the agreement.[77]

While it appears that few signatories to the Agreement will achieve the Kyoto Protocol reduction target by 2012, the agreement has prompted several cities to launch policy initiatives aimed at reducing municipal GHG emissions, including energy efficiency improvements to city buildings and transportation fleets, expansion of public transportation networks, renewable energy mandates, new building codes with efficiency requirements for residential and commercial structures, urban development plans that discourage vehicle use and seek to establish "walkable" communities, and tax incentives and grants for community groups that take additional steps to reduce their GHG footprints.[78] On 22 June 2008, the US Mayors Conference released a survey which showed that high gasoline prices and the weak overall economy were burdening climate protection efforts in participating cities.[79] In the survey, financial resource constraints were cited as the largest obstacle to expanding energy efficiency and climate protection initiatives.

2.3 State Initiatives: The California Global Warming Solutions Act (AB32) and California Climate Exchange (CaCX)

Across the country, a majority of states have adopted or are currently developing strategies to reduce their GHG emissions.[80] Among these, California has traditionally been a frontrunner. As the eighth largest economy and the fifteenth largest emitter of GHGs worldwide, California is also responsible for annual emissions of 469 million $MtCO_{2eq}$.[81] On 27 September 2006, the State of California adopted legislation with the intention of cutting state-wide GHG emissions to 1990 levels by 2020.[82] The Global Warming Solutions Act of 2006, also known as Assembly Bill 32 (AB 32),[83] directs the California Air Resources Board (CARB) to establish a program for GHG emissions reporting and to monitor and enforce compliance with this program.

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[76] US Mayors Climate Protection Agreement, as endorsed by the 73rd Annual US Conference of Mayors meeting, Chicago, 16 February 2005, available at http://www.usmayors.org/climateprotection/documents/mcpAgreement.pdf

[77] See <http://usmayors.org/climateprotection>.

[78] Hight et al., supra note 1, 12.

[79] The United States Conference on Mayors, "Survey on Mayoral Leadership on Climate Protection", 22 June 2008, available at <http://www.usmayors.org/climateprotection/climatesurvey07.pdf>.

[80] For further details, see Pew Center on Global Climate Change, "What's Being Done...In the States", available at <http://www.pewclimate.org/what_s_being_done/in_the_states>.

[81] Hight et al., supra note 1, 13.

[82] As defined in the bill, "greenhouse gases" include CO_2, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

[83] California Global Warming Solutions Act of 2006 (AB32), 17 October 2006, adopted as Division 25.5 of the Health and Safety Code, available at http://www.leginfo.ca.gov/cgi-bin/postquery?bill_number=ab_32&sess=cur&house=b&author=nunez

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Although it does not mandate specific measures to reduce GHG emissions, AB 32 authorizes the state board to adopt market-based compliance mechanisms such as emissions trading.[84] With an Executive Order signed on 16 October 2006, moreover, the Governor of California, Arnold Schwarzenegger, specifically directed CARB to "collaborate with the Secretary for Environmental Protection and the Climate Action Team to develop a comprehensive market-based compliance program."[85]

Under AB 32, regulations to implement a cap-and-trade program need to be developed by 1 January 2011 in order for the program to begin in 2012. On 30 June 2007, a Market Advisory Committee (MAC) issued a final report recommending design options for a trading scheme and stated that "[l]inkages with other mandatory GHG trading systems should be encouraged".[86] Key recommendations from the report include broad coverage of all major GHG-emitting sectors of the economy into the cap-and-trade program, a "first-seller approach" to capping emissions associated with imported electricity, and a mixed approach of free allocation and auctioning of allowances.

A Scoping Plan approved by CARB on 11 December 2008 takes up these recommendations and specifies the relationship of a cap-and-trade scheme to other GHG reduction actions, such as direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, and voluntary actions.[87] It identifies cap-and-trade as an important component of the plan, covering 85% of Californian emissions.[88] Given the participation of California in the WCI, however, specific details on the design of the trading scheme and rule development will be coordinated with the timeline for developing a regional cap-and-trade programme.

On 30 May 2007, the private Chicago Climate Exchange (CCX)[89] announced it would form a California Climate Exchange (CaCX) to develop and trade financial instruments relevant to AB32.[90] Among the objectives of this exchange listed by CCX are ensuring "price transparency and efficient, exchange-based systems for maximum success" and accomplishing "linkage with other national, regional and global markets." Product development is to be finalised for operation in accordance with the evolution and requirements of an emissions trading scheme once implemented under AB32.

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[84] See Part 5, Section 38570, of AB 32.

[85] Executive Order S-20-06 by the Governor of the State of California, 17 October 2006, available at <http://gov.ca.gov/index.php?/executive-order/4484>.

[86] Market Advisory Committee (MAC), "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California", 30 June 2007, available at <http://www.climatechange.ca.gov/documents/2007-06-29_mac_final_report.pdf>.

[87] CARB, "Proposed Scoping Plan: A Framework for Change", 15 October 2008, approved 11 December 2008, available at <http://www.arb.ca.gov/cc/scopingplan/document/psp.pdf>.

[88] Ibid., 30-31.

[89] For further details on CCX, see below, Section 2.4.

[90] CCX, "Chicago Climate Exchange, Inc. (CCX) announces formation of the California Climate Exchange (CaCX)", 30 May 2007, available at <http://www.chicagoclimatex.com/news.jsf?story=1401>.

2.4 Voluntary Initiatives: The Chicago Climate Exchange (CCX)

Operating since 30 September 2003, the Chicago Climate Exchange (CCX) is the first and largest voluntary GHG emissions cap-and-trade scheme in North America. Although participation is voluntary, compliance with emission reduction objectives is binding under private law once a member joins.[91] Accordingly, companies joining the exchange commit themselves to reducing their aggregate emissions of six GHGs by a specified amount during a limited period.[92] Members who cannot achieve the reduction target through internal abatement measures can meet their compliance commitment by purchasing Carbon Financial Instruments (CFI)[93] through an electronic trading system from other CCX members; overall, trading is structured in three parts:

- the Trading Platform, which is a marketplace for executing trades among Registry Account Holders;
- the Clearing and Settlement Platform, which processes all transaction information; and
- the Registry, which is the official database for Carbon Financial Instruments owned by Registry Account Holders.

Overall, 23 Mt of CO_{2eq} were traded on the CCX Trading Platform in 2007.[94]

Offsets from projects implemented through the CCX offset programme can also be used to comply with reduction targets, although total use of offsets for compliance is limited to no more than 50% of the required reductions.[95] CCX employs independent verification to ensure compliance.[96] Currently, CCX has more than 400 members, ranging from major corporations to state and municipalities, educational institutions, and agricultural entities.[97]

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[91] For details, see <http://www.chicagoclimatex.com/content.jsf?id=25>.

[92] In Phase I, which ran between 2003 and 2006, emission reduction targets were 1% per year, below an average baseline period of 1998 to 2001. Phase II extends the reduction period through 2010, with an additional 2% reduction commitment for Phase I members and a total of 6% reduction commitment by 2010 for new Members joining in Phase II.

[93] Each CFI represents 100 metric tonnes of CO_2 equivalent.

[94] Hight et al., supra note 1, 11.

[95] Offsets are issued to owners or aggregators of eligible offset projects that sequester, destroy or displace GHGs; they are issued after mitigation occurs and required verification documentation is presented to CCX. Eligible project categories for which CCX has developed standardised rules include agricultural methane, coal mine methane, landfill methane, agricultural soil carbon, rangeland soil carbon management, forestry, renewable energy and ozone depleting substance destruction. Other project types are subject to approval on a project-by-project basis, and may include energy efficiency and fuel switching and Clean Development Mechanism (CDM) eligible projects.

[96] Although CCX is not a regulated exchange, the Financial Industry Regulatory Authority (FINRA) independently verifies all baseline and annual emissions reports for Phase I and Phase II programme years for accuracy and completeness, and to ensure compliance with the CCX Emission Reduction Schedule. Moreover, it monitors CCX trading activity and reviews all verifier reports for offset projects.

[97] For the current membership list, see <http://www.chicagoclimatex.com/content.jsf?id=64>. In terms of absolute emissions, membership amounts to an aggregate baseline of 365 $MtCO_{2eq}$, or approximately 5%% of US annual GHG emissions.

Between 2003 and 2006, a majority of CCX members met and exceeded their emissions reduction commitments: emissions from the group declined by 9% in 2003, 12.1% in 2004, 9.7% in 2005 and 5.9% in 2006, for a total emissions reduction of 128 Mt CO_{2eq}.

3 CASE STUDY: THE CLIMATE SECURITY ACT OF 2008

As mentioned earlier, the bill introduced by Senators Lieberman and Warner on 18 October 2007, although ultimately defeated on the Senate floor in a procedural motion, remains the standard of reference for federal cap-and-trade legislation as the only bill to be approved both by the relevant Subcommittee and the Committee on Environment and Public Works. While the design of future legislative proposals in the current 111th Congress remains unclear, it is likely that major structural elements of the defeated Climate Security Act of 2008 will be retained. For that reason, the following case study will address a number of features relevant for any prospective efforts to create a transatlantic trading link between federal climate legislation and the EU ETS, informing the subsequent section on compatibility of US initiatives. Particular attention is devoted to the contentious issue of border adjustment measures to offset competitive disadvantages. It merits noting that the assessment is based on the substitute amendment introduced on 4 June 2008 by Senator Boxer with Senators Lieberman and Warner.[98]

3.1 Allocation Method

A central feature of any emissions trading scheme is the mechanism for distribution of allowances. On this issue, ACSA 2008 contains a separate title setting out a "Federal Program to Prevent Economic Hardship".[99] It outlines a complex process to distribute allowances, with a decreasing share of free allocation in the form of "transition assistance" for specified sectors, and an increasing share of auctioning. Conditions for free allocation are outlined in great detail. Between 2012 and 2030, 18% of the allowance account or less are to be allocated free of cost to fossil-fuel powered electricity generators,[100] 11% or less to manufacturers,[101] 2% or less to fuel producers or importers,[102] and a specified share to rural electric cooperatives.[103] From 2012 to 2017, 5% of allowances are to be allocated for free to early actors, decreasing to 1% in 2018 through 2025.[104]

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[98] ACSA 2008, supra note 32.

[99] Sections 501 to 585 of ACSA 2008; this Title reflects extensive revisions from the earlier version of the bill.

[100] Sections 551 and 552 of ACSA 2008; from 2012 to 2030, the EPA is charged with distributing free allowances to owners and operators of fossil fuel-fired electricity generators. 18% of all allowances will be allocated from 2012 through 2015, declining to 2.75% of all allowances by 2030.

[101] Sections 541 and 542 of ACSA 2008; ACSA 2008 directs the EPA to distribute allowances to carbon-intensive manufacturing facilities free of cost between 2012 and 2030. 11% of all allowances are earmarked for such allocation from 2012 through 2021, 10% in 2022, and declining by 1% each year thereafter until 2030, when the free allocation would represent 1% of all allowances. Eligible manufacturing facilities include iron, steel, pulp, paper, cement, rubber, chemicals, glass, ceramics, SF_6, or aluminium and other ferrous metals. No more than 10% of the allowances may be distributed in this way to US manufacturers of petroleum-based liquid or gaseous fuel.

[102] Sections 561 to 572 of ACSA 2008; between 2012 and 2017, 2% of all allowances are to be distributed for free to owners and operators of petroleum-based fuel refineries, falling to 1% from 2018 through 2030; likewise, from 2012 to 2030, the EPA is mandated with distributing 0.75% of all allowances for free to owners and operators of natural gas processing plants, as well as natural gas producers in Alaska and the Outer Continental Shelf.

[103] Section 552(c) of ACSA 2008; the EPA can distribute up to 5% of the allowances available in this subtitle to rural electric cooperatives, 15% of which should be distributed as part of a pilot programme to Virginia and Montana to determine the benefits realized by rate-payers and the use of low GHG technologies.

[104] Section 702 of ACSA 2008.

Likewise, from 2012 to 2025, 3% of all allowances will be allocated to carbon capture and sequestration activities, dropping to 1% from 2031 to 2050.[105] Roughly 30.5% of allowances are to be set aside between 2012 and 2050 for other entities, including states, load-serving entities and others.

As for auctioning, starting in 2012, 21.5% of allowances are to be auctioned, increasing to 69.5% by 2031 and onward. Proceeds from these auctions should be used for energy technology development, assistance for low- and middle-income energy consumers, climate change adaptation efforts in the US and programs to support energy independence and national security. Procedurally, auctioning occurs through the Environmental Protection Agency (EPA), which applies different methodologies. ACSA 2008 establishes a minimum reserve price for allowances sold each year at the regular auctions. In 2012, the minimum reserve price is set at $10, adjusted for the price of inflation between calendar years 2013 and 2027.[106]

Auction revenues are earmarked for a number of purposes, including worker training and assistance and consumer relief. Specifically, ACSA 2008 establishes a Climate Change Worker Training and Assistance Fund, funded by the proceeds of the auction of 1% of all allowances from 2012-2017, 2% from 2018-2027, 3% from 2028-2030, 4% from 2031 to 2038, and holding at 3% from 2039 and each year thereafter through 2050. 30% of these funds would be used for energy efficiency and renewable energy worker training program, 60% for the climate change worker adjustment program, and 10% for workforce training and safety.[107] Also, ACSA 2008 establishes a Climate Change Consumer Assistance Fund (CCCAF) funded by auctioning 3.5% of all allowances in 2012, increasing to 15% in 2034 and each year thereafter through 2050. No disbursements from this fund would be made except by an appropriations act. The subtitle includes a Sense of the Senate statement that the CCCAF should be used to fund a tax initiative to protect consumers, especially consumers in greatest need, from increases in energy costs and other costs.[108]

[105] Section 1011 of ACSA 2008.

[106] See Section 524 of ACSA 2008: "REGULAR AUCTION RESERVE PRICE.
(a) In General.--At any regular auction, there shall be a regular auction reserve price below which the Administrator shall not sell any emission allowance.
(b) Regular Auction Reserve Price in 2012.--At any regular auction that takes place during calendar year 2012, the regular auction reserve price per emission allowance shall be $10.
(c) Regular Auction Reserve Price in Subsequent Years.--For each of calendar years 2013 through 2027, the regular auction reserve price at any regular auction that takes place during the calendar year shall be equal to the product obtained by multiplying--
(1) the regular auction reserve price that applied to each regular auction conducted during the preceding calendar year; and
(2) the sum of--
(A) the annual rate of United States dollar inflation for the calendar year (as measured by the Consumer Price Index); and
(B) 1.05."

[107] Sections 531 to 536 of ACSA 2008.

[108] Sections 581 to 585 of ACSA 2008.

3.2 Sectoral Arrangements

Coverage envisioned in ACSA 2008 is very comprehensive. As an economy-wide bill, it has been designed to cover the large coal consumers, natural gas and petroleum processors, producers and importers, and producers of HCFC refrigerants. In its introductory section, ACSA 2008 further specifies covered entities as:

- entities that use more than 5000 metric tonnes of coal annually in the US;
- natural gas processing plants (except in Alaska);
- entities that produce natural gas in Alaska;
- importers of natural gas;
- manufacturers or importers of petroleum-based liquid or gaseous fuel, petroleum coke, or coal-based liquid or gaseous fuel;
- entities that manufacture or import more than 10,000 metric tonnes of CO_{2eq} aside from HFCs; and
- entities that emit more than 10,000 metric tons CO_{2eq} of HFCs as a byproduct of the manufacture of HCFCs.[109]

ACSA 2008 chooses a hybrid approach, with downstream regulation of electric utilities and large sources, and upstream regulation of transportation fuels. Accordingly, the latter are included by requiring any entity that has annual production or imports of petroleum- or coal-based transportation fuel in excess of 10,000 CO_{2eq} when used to submit allowances based on the carbon content of the fuel. Finally, with a view to emissions from sources other than fossil fuels, the bill also requires entities with an annual production or import of non-fuel chemicals resulting in emissions of more than 10,000 CO_{2eq} to participate. A separate trading system is established for HFCs.[110]

3.3 Cost Containment

The bill attempts to limit the possibility of runaway carbon prices through provisions on banking, borrowing, "emergency off-ramps", and "cost containment options". Banking is unrestricted, with no expiration of allowances. This is stated succinctly.[111] Borrowing may take place, through detailed rules to be developed later.[112] The limit is 15% of allowances needed for annual surrender, borrowed from a period no further in the future than 5 years hence. Repayment will be with interest of 10% per year.

A separate section deals with Emergency off-ramps.[113] Pursuant to this section, the Carbon Market Efficiency Board (CMEB), also established by the legislation, will be allowed to enact certain measures "to ensure functioning, stable, and efficient markets for emission allowances".

[109] Section 4 (16) of ACSA 2008.

[110] Sections 1501 to 1503 of ACSA 2008.

[111] Title V.A of ACSA 2008.

[112] Title V.B of ACSA 2008.

[113] Title V.C of ACSA 2008.

These include increasing:

- the amount of borrowing allowed;
- the repayment period of borrowed allowances;
- the amount of foreign allowances permitted;
- the amount offset allowances generated.

These are *not* to be done at entity-level, but are adjustments to the whole system, and there are restrictions on the scope of applicability noted.

Another measure foreseen is the auctioning of allowances reserved for the purpose of cost containment ("cost containment auctions", as opposed to "regular auctions"). These are to take place every December, 2012 through 2027.[114] The price is to be between $22 and $30 in the first auction, determined by the President based on a methodology noted in the bill, and subsequent action prices will be increased above this by a factor of 1.05 plus the inflation rate every year.[115] The source of allowances is a pool of 6 million allowances taken from the 2030 to 2050 allotment. Any allowances not sold at regular auction are added to the pool.[116] Other provisions on quantity limits, use of proceeds and discontinuation pertain as well.

3.4 Offsets

Domestic offsets are limited to 15% of allowances.[117] International offsets, additional to those allowed under the sections on that issue (see below), will be allowed when domestic offsets are less than 15% of allowances, so that domestic and additional international allowances summed together may not exceed 15%.

These offset credits may be carried over into a subsequent year, but only by the amount between 15% and the amount below this that was actually retired – e.g. if 14% of allowances retired in one year were offsets, then 1% may be carried over into the subsequent year; if 13% were offsets, 2% may be carried over, etc. This prevents large numbers of offsets from being generated, in excess of the 15% limit, and rolled over into a subsequent year. Under the permitted system, offsets in the subsequent year will be allowed to exceed the 15% limit by the amount rolled over.[118] There is also a linkage with RGGI offsets, which can be traded in at a discount to be determined by the administrator.

Offset rules established through the bill are meant to "ensure that those offsets represent real, verifiable, additional, permanent, and enforceable reductions in GHG emissions or increases in sequestration".[119] For biological sequestration projects, any reversal of sequestration has to be compensated.

Sections 313 – 320 establish the rules of the domestic offset programme. These are summarized as follows:

[114] Section 532 of ACSA 2008.

[115] Section 533 of ACSA 2008.

[116] Section 535 of ACSA 2008.

[117] Section 312 of ACSA 2008.

[118] Section 312.3 of ACSA 2008.

[119] Section 312.C.2 of ACSA 2008.

Eligible project types: these are to be revised "from time to time":

- agricultural and rangeland sequestration and management practices, of which several are listed;
- capture and reduction of fugitive emissions from facilities not covered by reduction obligations already;
- methane capture and combustion at non-agricultural facilities;
- "other actions" that avoid or reduce emissions;
- combinations of practices; and
- those submitted by petition for approval.

This list, while seemingly specifying project types, is nearly all-inclusive, given the options for "other actions" and ad-hoc approvals.

Requirements of each project type: within three years the administrator is to develop rules for each category which "specify requirements for determining the eligibility of a project, for determining additional emission reductions or sequestrations from such project, for preventing emissions leakage associated with such project, for preventing the reversal of sequestrations from such project, and for monitoring, verifying, and reporting the operation of such project".

The rules are meant to achieve the following:

- avoid double counting or crediting government-subsidised projects;
- determine the boundaries and leakage;
- establish scientifically sound monitoring, measuring and quantification;
- establish the baseline;
- determine uncertainties;
- determine that the project is additional;
- a method to compensate for leakage;
- assessing the risk of reversal;
- a means of excluding land with changes in sequestration within the previous 10 years; and
- an annual reporting protocol.

Technologies and associated performance benchmarks can also be established, valid for five years. Each methodology will be tested to ensure consistent results before it is approved. There is some further detail on how to establish the methodologies noted procedures for project developers and registration of reductions, verification and issuance, and tracking of reversals in sequestration projects, among other details.

The rules for international project offsets and international allowances are covered in sections 321 and 322. International project offsets are to be limited in quantity to 5% of allowances. If less than 5% the gap can be made up with international allowances (credits from other trading systems). International allowances are capped at 5% minus the amount of domestic offset allowances distributed in a year[120].

A similar carry-over provision to the one in the domestic offset section is outlined here: the difference between any retired in one year and the 5% cap may be carried over. Section 322 permits liking to international trading systems, provided they adhere to rules in accordance with the UNFCCC. The programme to be linked to should be mandatory and have absolute emissions limits, as well as being similar in stringency to the system in the US.

In addition, offsets from forestry projects up to 10% of allowances are allowed in a separate section (1325), under title IX subtitle B, addressing international deforestation and forest degradation.

3.5 Technology and Research & Development

Aside from transitional support offered to fossil fuel power plants and carbon intensive industries, specific technologies are also singled out for extra funding to develop improved technologies and practices. The agriculture and forestry program in section 332 rewards innovative and additional reductions to those in the agriculture and forestry sector through distribution of allowances held back for that purpose – equivalent to 0.25% of allowances per year. These are not to be distributed to projects already earning offset credit.

Title VIII describes support to energy efficiency. Allowances will be set aside for this purpose, an amount to be determined by the new Climate Change Technology Board. Entities that achieve reductions through innovative practice will receive allowances, divided into categories: buildings, appliances, and manufacturing.

Renewable energy support will receive 4% of allowances per year from 2012 to 2030, and 1% from 2031 to 2050. They are to be distributed to owners, operators and developers of facilities that include:

- solar;
- wind;
- geothermal;
- incremental hydropower;
- biomass;
- ocean waves;
- landfill gas;
- livestock methane; and
- fuel cells powered with a renewable energy source.

[120] Note that this unusual succession of caps seems incorrect, as it refers to "domestic allowances…pursuant to this section", while the section is on international offsets, and domestic allowances are permitted up to 15%, not 5%, so this could be either an error or a logical leap that is simply hard to follow.

Low-carbon electricity and advanced research is addressed in Title IX. 1.75% of allowances will be devoted to a low-carbon electricity fund, between 2012 and 2021, 2% between 2022 and 2030, and 1% between 2031 and 2050. The climate change technology board has use of the funds to provide competitive financial incentives.

A Carbon capture and sequestration technology fund, designed to "kick-start" the technology, is designated as the recipient of 1% of allowances through 2050, with the Climate Change Technology Board deciding how it is used. In addition, CCS plants actually deployed will receive "bonus" allowances equal to several multiples of their avoided emissions – starting at double the rate in 2012, declining to parity in 2025, then to 0.5 from 2031 to 2039. The allowances reserved for this purpose start at 3% in 2012, rising to 4% from 2026 to 2030, then down to 1% from 2031 to 2050. This form of subsidy is available to a facility for up to 10 years. The bill mandates further definition of a legal framework, an assessment of storage capacity and the feasibility of needed pipelines, as well as rules on liability.

In transport technology, 0.5% of allowances are dedicated to commercialisation and diffusion of fuel-efficient medium and heavy trucks, buses and vans. 1% of allowances will fund the Climate Change Transportation technology fund, which will support a program developed in a previous energy bill (the Energy Independence and Security Act of 2007). 1% of allowances will support cellulosic biofuels development and diffusion.

Although not supported by auction revenue, the new low-carbon fuel standard in subtitle D supports renewable transport fuels by mandating reductions in the GHG emissions per unit of energy.

3.6 Oversight and Enforcement

Under ACSA 2008, the non-compliance penalty for failure to submit one or more allowances is equal to the greater of $200 or 3 times the market value of allowances for each allowance not submitted. In addition, operators need to submit the missing allowances in the following calendar year. As regards market oversight, ACSA 2008 establishes a Carbon Market Working Group to "enhance the integrity, efficiency, orderliness, fairness, and competitiveness of the development by the United States of a new financial market for emission allowances".[121] This Working Group is to be chaired by the Administrator of the EPA and include the Secretary of the Treasury, the Chairman of the SEC, the Chairman of the Commodity Futures Trading Commission, the FERC Chairman, and other officials appointed by the President.

This working group will have the power to issue recommendations and promulgate regulations to enhance the integrity, efficiency, orderliness, fairness, and competitiveness of the development of the emissions trading market, based on core principles which include: preventing the concentration of market power within the control of a limited number of individuals or entities; preventing abuse of material, non-public information; providing for transparency; and preventing excessive speculation that could cause sudden or unreasonable fluctuations or unwarranted changes in the price of emission allowances.[122] Additionally, the CMEB mentioned earlier[123] can provide general market monitoring and reporting to Congress.

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[121] See Section 411 of ACSA 2008: "FINDING
Congress finds that it is necessary to establish an interagency working group to enhance the integrity, efficiency, orderliness, fairness, and competitiveness of the development by the United States of a new financial market for emission allowances, including by ensuring that—
(1) the market--
(A) is designed to prevent fraud and manipulation, which could potentially arise from many sources, including--
(i) the concentration of market power within the control of a limited number of individuals or entities; and
(ii) the abuse of material, nonpublic information; and
(B)(i) is appropriately transparent, with real-time reporting of quotes and trades;
(ii) makes information on price, volume, and supply, and other important statistical information, available to the public on fair, reasonable, and non-discriminatory terms;
(iii) is subject to appropriate recordkeeping and reporting requirements regarding transactions; and
(iv) has the confidence of investors;
(2) the market--
(A) functions smoothly and efficiently, generating prices that accurately reflect supply and demand for emission allowances; and
(B) promotes just and equitable principles of trade;
(3) the need of market participants and regulators for transparency is balanced against legitimate business concerns regarding the release of confidential, proprietary information;
(4) the market is subject to effective and comprehensive oversight and integrates strong enforcement mechanisms, including mechanisms for cooperation with other national and international oversight regimes;
(5) an appropriate interagency forum exists--
(A) for ongoing assessment of emerging regulatory matters and information-sharing; and
(B) to ensure regulatory coordination of the market;
(6) the market establishes an equitable system for best execution of customer orders; and
(7) the market protects investors and the public interest."

[122] Section 412 of ACSA 2008.

[123] See above, Section 3.3.

3.7 Border Adjustment Measures

Following proposals by industry and labour unions, the use of offsetting measures at the border (border adjustment measures, or BAMs) has received a great deal of attention in policy and academic circles, with various bills including such provisions.[124] Border adjustment measures in ACSA 2008 are included in a section that has as its goals, *inter alia*, to promote "a strong global effort to significantly reduce greenhouse gas emissions" and to ensure "that greenhouse gas emissions occurring outside the United States do not undermine the objectives of the United States in addressing global climate change".[125] The section establishes an international reserve allowance program, which requires US importers of covered goods from covered countries to purchase international reserve allowances from the Administrator of the EPA.[126] A separate reserve is created for the allowances that need to be purchased.[127]

In order for goods to enter into the country, US importers are required to provide a written declaration, which includes a "compliance statement", stating that the good is covered by the international reserve allowance requirement or that the good originates from an exempted country.[128] If the latter proves impossible, the importer is required to state in which countries components of the good were produced, to provide an estimate of the required allowances, and to submit this number of allowances or a financial deposit to cover their purchase.[129] The price of the international reserve allowance is determined through the price of domestic emission allowances.[130] Within 180 days, the Administrator is obliged to assess how much allowances were in fact required; excess allowances or deposits are refunded, while in case of insufficient allowances the importer is required to submit further allowances.[131] The bill thus presents an administrative burden to foreign producers, requiring them to track the carbon embedded in the goods transported to the US.

It is possible for an importer to submit a "foreign allowance or similar compliance instrument" distributed by a foreign cap-and-trade scheme instead of an international reserve allowance.[132] In order to qualify, cap-and-trade schemes 1) need to place a quantitative limitation on the total GHG emissions and achieve that limitation through emissions trading; 2) satisfy any requirements the Administrator may set for the enforceability of the cap-and-trade program; and 3) amount to a "comparable action".[133] Although the last two requirements can only be met once the US scheme is in place, the allowances distributed by the EU ETS are an obvious candidate for this provision.

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[124] See below, Section 5.1.3.

[125] Section 1302 of ACSA 2008.

[126] Section 1306 (a) (1) of ACSA 2008.

[127] Section 1306 (a) (2) of ACSA 2008.

[128] Section 1306 (c) (1-2) of ACSA 2008.

[129] Section 1306 (c) (3) of ACSA 2008.

[130] Section 1306 (a) (4) of ACSA 2008.

[131] Section 1306 (c) (4) of ACSA 2008.

[132] Section 1306 (e) (1) (A) of ACSA 2008.

[133] Section 1306 (e) (1) (B) of ACSA 2008.

Interestingly, the proceeds of the sale of allowances are to be used for a program "to mitigate negative impacts of climate change on disadvantaged communities in foreign countries."[134] However, the bill does not clarify which countries would benefit from such a program, and whether these countries would include the countries covered by the international reserve allowance program.

3.7.1 Country Coverage

The requirement for US importers to surrender allowances applies only to countries that have not taken "comparable action", and that are not exempted. Altogether, these countries are identified in an "excluded list".[135] Countries not on this list are covered by the program.[136]

According to the bill, "comparable action" refers to "any greenhouse gas regulatory programs, requirements, and other measures adopted by a foreign country [in a particular calendar year] that, in combination, are comparable in effect to actions carried out by the United States through Federal, State, and local measures to limit greenhouse gas emissions".[137] The determination of whether a country has undertaken comparable action is delegated to an International Climate Change Commission (ICCC).[138] First, the ICCC needs to decide whether the foreign country has taken action that the emission reductions or limitations (percentage wise) in a given period are the same or greater than the emission changes in the US.[139] Second, if the ICCC finds that a country has not taken comparable action on this basis, it still needs to consider whether that country has implemented, verified, and enforced 1) "[t]he deployment and use of state-of-the-art technologies in industrial processes, equipment manufacturing facilities, power generation and other energy facilities, and consumer goods …, and implementation of other techniques or actions, that have the effect of limiting greenhouse gas emissions of the foreign country;" and 2) "[a]ny regulatory programs, requirements, and other measures … to limit greenhouse gas emissions."[140]

A couple of remarks are in place. First, the initial determination of whether a country has taken comparable action effectively would require any foreign country to adopt the same kind of GHG emission caps as the US. Second, however, the second paragraph moderates this provision by providing an "escape clause" for those countries that did not reduce or limit their emissions to the same extent, but still have policies and/or legislation in place that limit GHG emissions. The text in the clause covers a broad range of activities that could be implemented in a foreign country. However, even if these policies are in place, it does not mean that the ICCC would decide that a country is taking comparable action: it merely needs to consider them in deciding upon that. Third, the bill does not require a foreign country to adopt the same kind of policies as the US, as long as the results over a given period are similar. However, it is unclear how the policies with quantified emission reduction objectives could be compared to other policies of a more qualitative nature.[141]

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[134] Section 1306 (a) (8) of ACSA 2008.

[135] Section 1306 (b) (2) (A) of ACSA 2008.

[136] Section 1306 (b) (3) (A) of ACSA 2008.

[137] Section 1301 (4) (A) of ACSA 2008.

[138] Section 1305 (a) of ACSA 2008.

[139] Section 1301 (4) (B) (i) of ACSA 2008.

[140] Section 1301 (4) (B) (ii) of ACSA 2008.

[141] Ibid.

Fourth, in determining "comparable action", the Commission is instructed to take into account "net transfers to and from the United States and the other foreign country of greenhouse gas allowances and other emission credits."[142] This would mean, for example, that if participants in the US trading scheme use credits from accepted offset projects in China for compliance purposes, this would be accounted for. Fifth, the ICCC needs to ensure that the determination of comparable action complies with "applicable international agreements," which include notably the UNFCCC and the WTO agreements.[143] Sixth, the provision is not entirely clear whether comparability is about the *intended* effects (i.e. stated emission reduction objectives) or the *real* effect of measures (i.e. actual emission reductions achieved) adopted in both the United States and in foreign countries. Related to this, it is unclear how the program could account for policies aimed at long-term emission reductions, such as policies aimed at technological innovation.[144]

The bill provides for a few more exemptions. First, the poorest (least-developed) countries are exempted from the provision.[145] Second, countries with low emissions (0.5% of global GHG emissions or less) are also excluded.[146] The rationale of these exemptions seems straightforward: the first can be seen as a solidarity exemption, whereas the second exemption can be justified in terms of effectiveness of the allowance requirement provision.

3.7.2 Coverage of Goods

The goods covered by the bill are determined by the Administration. They include primary products or manufactured items for consumption, which generate a "substantial quantity of direct greenhouse gas emissions or indirect greenhouse gas emissions,"[147] and which are "closely related to a good the cost of production of which in the United States is affected" by the Act.[148] Primary products include, *inter alia*, iron and steel, aluminium, cement, glass, pulp, paper, chemicals, and industrial ceramics.[149] Manufactured items for consumption are to be determined by the ICCC, on the basis of administrative feasibility and necessity to achieve the objectives.[150] It may thus be possible to include finished goods, such as automobiles and appliances, although the inclusion of such goods will likely pose huge administrative challenges given the possible different countries of origin of the various components of the finished good.[151] Furthermore, broadening the scope of the program could also make it easier to obscure the origin of the good.[152]

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[142] Section 1301 (4) (B) (iii) of ACSA 2008.

[143] Section 1301 (4) (B) (iv) of ACSA 2008.

[144] See Trevor Houser et al., *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design* (Washington, D.C.: Peterson Institute for International Economics/World Resources Institute, 2008), 39.

[145] Section 1306 (b) (2) (A) (ii) of ACSA 2008.

[146] Section 1306 (b) (2) (A) (iii) of ACSA 2008.

[147] Indirect emissions refer to the emissions stemming from electricity consumption during the manufacturing of a good. Section 1301 (10) of ACSA 2008.

[148] Section 1301 (7) of ACSA 2008.

[149] Section 1301 (15) (A) of ACSA 2008.

[150] Section 1301 (13) (C) of ACSA 2008.

[151] Peter R. Orszag, *Issues in Designing a Cap-and-Trade Program for Carbon Dioxide Emissions*, Testimony before the Ways and Means Committee, US House of Representatives (18 September 2008), 18.

[152] Ibid.

3.7.3 Calculation of the Adjustment

The basis for calculating the number of reserve allowances required for imports in the Climate Security Act follows a formula that considers: 1) the national GHG intensity rate in a covered country for each category of covered goods, taking into account both direct and indirect emissions;[153] 2) an allowance adjustment factor for the allowances that are allocated free of charge in the US;[154] and 3) an economic adjustment ratio for foreign countries, which is set at 1 unless a country has implemented, verified and enforced state-of-the-art technologies and regulatory programs or measures to limit GHG emissions.[155] The first part of the formula intends to establish the change in GHG emissions from a particular sector by looking at the national GHG intensity changes. This approach, however, is "inequitable in its treatment and questionable in its environmental impact."[156] As a sectoral average is used as the benchmark, the bill applies to all covered goods from a covered country, no matter how efficient the production process for a particular shipment of goods. This could lead to the perverse incentive for these foreign producers to refrain from increasing their efficiency.[157]

The economic adjustment ratio seeks to establish what changes in emissions cannot be attributed to the implementation of a US emissions trading scheme. In order not to give a double benefit to the energy-intensive industries producing covered goods, the allowance adjustment factor discounts the extent to which they have received allowances at no cost. The fact that the bill includes both the option of free allocation and BAMs may have implications for WTO compliance,[158] even though free allocation will eventually be phased out.

For goods originating in multiple countries, the bill specifies that further procedures need to be established. However, at the very least, an importer needs to specify how many international reserve allowances are needed, thereby using the highest number of allowances required.[159] An importer may argue for an exemption under which a "more representative" requirement would apply.[160] Such an exemption can only be granted after an administrative hearing.

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[153] Section 1306 (d) (2-3) of ACSA 2008.

[154] Section 1306 (d) (2 and 4) of ACSA 2008.

[155] Section 1306 (d) (2 and 5) of ACSA 2008.

[156] Houser et al., supra note 144, 35.

[157] Ibid.

[158] See below, Section 5.1.4.

[159] Section 1306 (d) (8) (B) (i) of ACSA 2008.

[160] Section 1306 (d) (8) (C) of ACSA 2008.

3.7.4 International Negotiations

BAMs are not the primary tool to reach the section's objectives. In fact, it states that the best way to achieve the objectives of the section is through agreements between the US and other countries.[161] The section describes the US' intention to conclude a binding agreement under the UNFCCC or elsewhere that includes all major emitters.[162] The section further instructs the US Administration to negotiate agreements that: 1) induce countries that have not taken "comparable action" to adopt regulatory programs or measures that are comparable in effect to those of the US; and 2) promote the adoption of similar BAMs in countries that have taken "comparable action".[163]

After the enactment of the bill, the President would need to notify other countries of these negotiation objectives, asking these countries to take comparable action.[164] In doing so, the President needs to provide other countries with an estimate of the percentage change in emissions in the period from 2012-2021.[165]

3.7.5 Timing of Measures and Revisions

The bill states that the requirement for importers to surrender allowances is to become effective two years after the domestic cap is imposed, on 1 January 2014.[166] Half a year before that date (and each year thereafter), the ICCC needs to determine which countries have taken comparable action.[167] This gap is important, as it buys some time for potentially affected countries to develop and implement domestic climate change mitigation policies, and allows the international climate change negotiations to come up with results.[168] Furthermore, the timing provisions are important in the context of WTO compatibility, as we will see in Chapter 4.

By 1 January 2017, the ICCC needs to prepare an assessment of the effectiveness of the program.[169] If the program proves to be ineffective, the Commission may propose to increase the stringency, or change the program to ensure that it is in compliance with international agreements.[170] This allows changes to the program in case of findings of non-compliance with the WTO agreements. The Commission may also recommend expanding the scope of the program to manufactured items for consumption not yet covered.[171]

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[161] Section 1303 (a) of ACSA 2008.

[162] Section 1303 (b) (1) of ACSA 2008.

[163] Section 1303 (b) (2) of ACSA 2008.

[164] Section 1303 (c) of ACSA 2008.

[165] Section 1303 (c) (2) of ACSA 2008.

[166] Section 1306 (c) (1) of ACSA 2008.

[167] Section 1305 (a) of ACSA 2008.

[168] Jennifer Haverkamp, "International Aspects of a Climate Change Cap and Trade Program", Testimony before the Committee on Finance, US Senate, 14 February 2008, 14.

[169] Section 1307 (a) of ACSA 2008.

[170] Section 1307 (b) (1) of ACSA 2008.

[171] Section 1307 (b) (2) of ACSA 2008.

3.7.6 Comparison between the US and the EU

Having described the border adjustment provisions of the Climate Security Act in detail, this section seeks to compare the discussions on measures to address leakage and competitiveness on both sides of the Atlantic. Comparing the two is not straightforward. Whereas the EU ETS has been operational since 2005, and the future of the system now seems to be guaranteed until at least 2020, a US cap-and-trade scheme is still under discussion. Consequently, any comparison will be of an inherently preliminary nature. Still, some interesting observations can be made.

First, even though some of the rationales in the US and the EU may be the same, the emphasis in US discussions is very much on safeguarding competitiveness of domestic industries, and preventing free riding by countries like China and India,[172] whereas in the EU the problem is mainly framed in terms of carbon leakage. A possible reason for this different framing of the debate may be that the US rationales have been influenced by concerns that date back to the start of the negotiations, whereas European motivations to address carbon leakage are probably influenced by the EU's leadership ambitions. Although protecting competitiveness still plays a role in the European debate,[173] the key provisions in the revised emissions trading Directive primarily focus on carbon leakage.

Second, the nature of the debate in the US and the EU is different. Most of the European discussions in the past year dealt with questions related to measuring the carbon leakage problem, and identifying the sectors that might be exposed. At the same time, a significant amount of research effort has been put into modelling potential leakage effects as well as empirical observations of leakage.[174] However, measures addressing leakage are still to be decided, with several options being left open until at least 30 June 2010. In the US, in contrast, the focus has been chiefly on the design of measures addressing competitiveness/leakage concerns. Nevertheless, first analyses of competitiveness effects of possible US carbon pricing policies are underway.[175]

Third, and related to the second point, the inclusion of BAMs in (draft) legislation differs in the US, where the measure would immediately be included in legislation once enacted, and the EU, where the measure would only be enacted if it were deemed an appropriate measure in the Commission's report to the Council and the Parliament due in June 2010. This staged introduction as envisaged by the EU is likely to have fewer adverse impacts on the post-2012 climate change negotiations. Furthermore, postponing the adoption of measures buys – hopefully sufficient – time to assess which measures would best address the leakage problem in the light of the outcome of international negotiations.

Fourth, several remarks can be made with regard to the possible design of BAMs, based on the text in the Climate Security Act and the revised emissions trading Directive. First, the sectoral coverage is largely overlapping, focusing on the heavy industries. However, the option to extend BAMs to importers of finished products is included in the US.

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[172] See also below, Section 5.

[173] See, e.g., Recital 25 of the revised Directive.

[174] See, e.g., Verena Graichen et al., *Impacts of the EU Emissions Trading Scheme on the Industrial Competitiveness in Germany* (Berlin: Umweltbundesamt, 2008); Jean-Charles Hourcade et al., *Differentiation and Dynamics of EU ETS Industrial Competitiveness* (Cambridge: Climate Strategies, 2008).

[175] See, e.g., Richard Morgenstern et al., *Competitiveness Impacts of Carbon Dioxide Pricing Policies on Manufacturing* (Washington, D.C.: Resources for the Future, 2008), 99-105.

Second, the Climate Security Act contains detailed guidelines to determine which countries have taken "comparable action".

The revised Directive takes into account the extent to which third countries have taken comparable action in the determination of which sectors are exposed to leakage. Third, the Climate Security Act envisages the use of BAMs in addition to free allocation to affected industries. Although the revised Directive does not indicate whether this is the EU's intention, it is well possible that if importers are included in the EU ETS, free allocation to sectors deemed to be at significant risk of carbon leakage would continue.

Finally, the discussions on both sides of the Atlantic are explicitly linked to international agreements in which the US and the EU participate. With respect to the UNFCCC, the revised Directive in particular points out the notion of "common but differentiated responsibilities and respective capabilities" and the situation of least-developed countries. The Climate Security Act instructs the ICCC to determine which countries have taken comparable action in compliance with "applicable international agreements," which includes the UNFCCC.[176] Furthermore, it takes into account the situation of least-developed countries by exempting them from the importer allowance requirement. Both the revised Directive and the Climate Security Act also point to the need to ensure the measures' compliance with WTO law.

3.7.7 Implications for Linking Trading Schemes

It might be possible that both the US and the EU adopt BAMs in the future. However, it is equally possible that the EU opts for other measures to address leakage, while eventual cap-and-trade legislation includes BAMs. Under this scenario, the question arises what implications this might have for the linking of the two trading schemes.

If BAMs in the vein of the Climate Security Act would be adopted and the EU ETS would remain unchanged, indirect linking would already take place through one of the provisions on the importer allowance requirement. European Union Allowances (EUAs) would likely be seen as a "foreign allowance", which can be used to fulfil the importer allowance requirement.[177] The EU ETS would probably be included as a "commensurate cap-and-trade program", as it seems to fulfil the basic requirements of the bill (e.g. a quantified cap; trading possibilities; and a monitoring and reporting system).[178] Furthermore, indirect linking would take place if the US would recognize CERs as international offsets.[179]

[176] Section 1301 (4) (B) (iv) of ACSA 2008.

[177] Section 1306 (e) (1) (A) of ACSA 2008.

[178] Section 1306 (e) (1) (B) of ACSA 2008.

[179] Section 1306 (e) (2) (A) of ACSA 2008.

3.8 International Cooperation and Partnerships

ACSA 2008 allows for the registry of offsets from international reduced deforestation and forest degradation at quantities up to 10% of the annual domestic cap, and with excess capacity allowed to be taken up by international allowances from foreign countries with comparable cap-and-trade systems. 1% of domestic allowances are dedicated for capacity building and for projects to reduce deforestation and forest degradation.[180] International forest carbon offsets are only allowed from eligible countries that have: demonstrated capacity to participate (historical data, technical capacity to measure and monitor fluxes, institutional capacity to reduce emissions); capped GHG emissions or otherwise established a national baseline "consistent with nationally appropriate mitigation commitments or actions" and "projected to result in zero-net deforestation by not later than 2050"; and implemented an emission reduction program for the forest sector and demonstrated reductions using remote sensing. These offsets can only be generated by national programs, not projects within the country. ACSA 2008 also allows the EPA to discount the allowances if, 10 years after enactment, countries that in the aggregate account for more than 0.5% of global GHG emissions have not capped emissions, established reference scenarios, or otherwise reduced total forest emissions.

In the area of technology cooperation, ACSA 2008 establishes an International Clean Energy Deployment Fund with 0.5% of allowances from 2012 to 2017 to carry out the International Clean Energy Deployment Program established in Section 114 of the bill.[181] It establishes eligible countries as those which are not in the OECD, and have either made a binding commitment in an international agreement to carry out "actions to produce measurable, reportable, and verifiable GHG emission mitigations," or have in force binding national policies to do so. Finally, the bill also creates an "International Climate Change Adaptation and National Security Fund" with funds raised by auctioning a percent of emission allowances starting at 1% in 2012, increasing to 1.25% in 2014, to 2% in 2018, 3% in 2022, 4% in 2026, 6% in 2031, and 7% in 2039.[182] These funds go to a similarly named programme whose purpose is to address climate change impacts through adaptation in the "most vulnerable developing countries" especially as these impacts might affect US national security. Some of these funds can be channelled through international funds with the same goals.

[180] Sections 1311 to 1316 of ACSA 2008.

[181] Section 1321 of ACSA 2008.

[182] Section 1331 of ACSA 2008.

4 COMPATIBILITY OF THE EU ETS AND PROPOSED US ETS

4.1 Overview of Relevant Design Features

Table 1: Overview of Relevant Design Features

Trading Scheme Design Feature	America's Climate Security Act 2008, S.3036 (Lieberman/Warner/ Boxer)	Investing in Climate Action and Protection Act (iCAP), H.R. 6186 (Markey)	Regional Greenhouse Gas Initiative (RGGI)	Western Climate Initiative (WCI)	California Global Warming Solutions Act (AB32)	Chicago Climate Exchange (CCX)
Allocation	24% auctioning in 2012; approximately 60% auctioning in 2037.	94% auctioning in 2012; 100% auctioning by 2020.	Varies between states, but minimum 25% allocated to consumer benefit or strategic energy purposes.	10% in 2012; 25% auctioning by 2020; 100% auctioning "in the longer term".	Exact allocation not yet defined, but likely analogous to WCI.	Not applicable.
Sectoral Arrangements	CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Upstream coverage for transport fuels and natural gas; downstream for large coal users and GHG manufacturers; separate cap for HFCs.	CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, and NF_3. Upstream for transport fuels, downstream for electric utilities and large sources, natural gas at local distribution companies (LDCs); leakage from geological carbon sequestration sites.	Only CO_2. Fossil fuel fired electric generating units serving a generator of 25 MW or larger.	CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. 2012-2014: facilities with annual emissions of 25 kt CO_{2eq} or greater. From 2015: upstream emissions from fuel combustion for transportation, residential, commercial, and industrial purposes.	Exact coverage not yet decided, but likely analogous to WCI.	CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6. Voluntary scheme: no mandatory coverage.

Trading Scheme **Design Feature**	**America's Climate Security Act 2008, S.3036 (Lieberman/Warner/ Boxer)**	**Investing in Climate Action and Protection Act (iCAP), H.R. 6186 (Markey)**	**Regional Greenhouse Gas Initiative (RGGI)**	**Western Climate Initiative (WCI)**	**California Global Warming Solutions Act (AB32)**	**Chicago Climate Exchange (CCX)**
Banking and Borrowing	Unlimited Banking; Borrowing limited to 15% of annual compliance requirements, up to 5 years into the future; 10% annual interest on borrowed allowances.	Unlimited Banking; Borrowing limited to 15% of annual compliance requirements, up to 5 years into the future; 10% annual interest on borrowed allowances.	Unlimited banking, no borrowing.	Unlimited banking (under a general cap to avoid market manipulation); no borrowing.	Unlimited banking, no borrowing.	Unlimited banking.
International Offsets (CDM)	Up to 5% of allowances.	No LULUCF; no HFC destruction. Up to 15% of allowance retirement.	Once allowances exceed $10.	Up to 49%, within WCI area or outside subject to similar criteria. Priorities (but not limited to): forestry, agriculture, waste	Up to 49% of reduction effort (exact figure not yet defined), regardless of location, rules on acceptability yet to be determined.	International offsets subject to individual approval; use of offsets limited to no more than 50% of required reductions.
Domestic Offsets	Up to 15% of allowances	Projects in agriculture, af-/reforestation, fugitive emissions, coal mines. Up to 15% of allowances.	Limited to landfill gas, SF6, afforestation, end-use efficiency, manure management within RGGI or states with an MoU. Limit of 5% if allowances exceed $5, limit of 10% if above $10.			Use of offsets for compliance is limited to no more than 50% of the required reductions; standardised rules for 5 offset types.

Trading Scheme **Design Feature**	**America's Climate Security Act 2008, S.3036 (Lieberman/Warner/ Boxer)**	**Investing in Climate Action and Protection Act (iCAP), H.R. 6186 (Markey)**	**Regional Greenhouse Gas Initiative (RGGI)**	**Western Climate Initiative (WCI)**	**California Global Warming Solutions Act (AB32)**	**Chicago Climate Exchange (CCX)**
Technology	A range of incentives through earmarked allowances: Agriculture and forestry: 0.25% Efficiency: undetermined renewables: 4% initially, reduced to 1% Research: varies between 1 and 2% CCS demonstrations: 1% CCS installations: varies from 3 to 4 then 1% Heavy transport: 0.5% Other transport: 1% Cellulosic biofuels: 1%.	Three funds, given the indicated % of allowance revenue: 1) Low carbon technology (12.5% through 2050) 2) National Energy efficiency (12.5% through 2050) 3) Agriculture and forestry carbon (4.5%, then 5% from 2020 to 2050).	No support or obligation is defined.	A general commitment from members to use some revenue for: 1) efficiency and renewables 2) RD&D in renewables, CCS efficiency, transmission and storage. 3) Agriculture, forestry and other uncapped sectors. 4) Adaptation.	Auctioning revenue (and non-CO_2 GHG fee) implied to be used for technology and mitigation support, but not yet defined. Support to technologies in complementary measures outside cap and trade.	Not applicable.

Trading Scheme Design Feature	America's Climate Security Act 2008, S.3036 (Lieberman/Warner/ Boxer)	Investing in Climate Action and Protection Act (iCAP), H.R. 6186 (Markey)	Regional Greenhouse Gas Initiative (RGGI)	Western Climate Initiative (WCI)	California Global Warming Solutions Act (AB32)	Chicago Climate Exchange (CCX)
Oversight and Enforcement	Noncompliance penalty for failure to submit one or more allowances is equal to the greater of $200 or 3 times the market value of allowances for each allowance not submitted; Carbon Market Efficiency Board (CMEB) provides general market monitoring and reporting to Congress, can also employ cost relief measures including relaxing restrictions on borrowing or offsets.	Noncompliance penalty for failure to submit one or more allowances is equal to the greater of $200 or 3 times the market value of allowances for each allowance not submitted; Office of Carbon Market Oversight (OCMO) created within FERC, charged with ensuring transparency, fairness, and stability in the market for emission allowances, offset credits, and derivatives thereof	Noncompliance penalty equal to 3 times the number of excess emissions; guidelines for continuing measurement demand a maximum uncertainty of 10%. Verification by regulating authority	Noncompliance penalty equal to 3 times the number of excess emissions; further sanctions subject to implementing state legislation.	Analogous to WCI.	Independent verification of baseline and annual emissions reports; monitoring of trading activity and review of all verifier reports for offset projects.
Border Adjustment Measures	Imports of manufacturing items from countries not taking "comparable action" and not being exempted required to submit allowances from 2014; no implications for linking.	Imports of "trade-exposed primary goods" from countries not taking "comparable action" and not being exempted required to submit allowances from 2020; no implications for linking.	No implications for linking.	No implications for linking.	No implications for linking.	No implications for linking.

Trading Scheme Design Feature	America's Climate Security Act 2008, S.3036 (Lieberman/Warner/ Boxer)	Investing in Climate Action and Protection Act (iCAP), H.R. 6186 (Markey)	Regional Greenhouse Gas Initiative (RGGI)	Western Climate Initiative (WCI)	California Global Warming Solutions Act (AB32)	Chicago Climate Exchange (CCX)
International Cooperation	Provides for international partnerships to reduce deforestation and forest degradation, to deploy clean energy technology, and to adapt to climate change and protect national security.	President mandated with working pro-actively under the UNFCCC and in "other appropriate forums" to establish binding agreements committing all major GHG-emitting nations "to contribute equitably to the reduction of global greenhouse gas emissions"; International Forest Protection Fund created to support policies in qualifying developing countries that reduce emissions from deforestation and forest degradation or increase biological carbon sequestration through restoration of forests and degraded lands, afforestation, and improved forest management.	No provision.	No provision.	No provision.	No provision.

4.2 Prospects of Linking: An Assessment

As the foregoing overview has shown, current and emerging trading schemes in the US share a number of common features, yet also differ in important respects. Clearly, the prospects of a link between these schemes and the EU ETS are vitally dependent on the mutual compatibility of their respective design. While not all characteristics of each trading scheme need to be identical or even similar to facilitate a link, certain differences can become serious obstacles. Price containment measures, such as price caps and unconstrained borrowing, as well as relative commitments and ex-post adjustments of allowances are arguably the most challenging to overcome, as they can compromise the environmental integrity of the trading system in its entirety and cause negative economic or distributional impacts.[183]

Overall, very few aspects of the trading schemes assessed in this study suggest incompatibility with the EU ETS. Allocation rules may differ and need not be harmonised for linking to be an option, yet all schemes in the US aim for fairly high levels of auctioning in the longer term, similar to the EU ETS. Likewise, differences in the point of regulation and coverage are not significant enough to warrant concern and would not affect the environmental integrity of the schemes. Banking is allowed in the EU ETS and all US schemes analysed here, yet even if one scheme did not provide for banking, a link to another scheme allowing banking would effectively extend that option to the first scheme.

Only if the overall enforcement structures are perceived as credible will market participants want to invest with confidence in a functioning market for emissions allowances with price signals that represent a true level of scarcity.[184] Accordingly, mutual confidence in the bodies and procedures which oversee and enforce monitoring, verification and compliance is essential for effective linking. Like the EU ETS, however, all US schemes analysed here designate competent authorities to oversee market operation and enforce the regulatory framework; moreover, they set out sanctions for non-compliance which exceed the market price for allowances sufficiently to create an adequate incentive for compliance.

Borrowing is only possible within narrow quantitative limits in the various US schemes assessed in this study. While the EU has also *de facto* allowed limited borrowing during the first two trading periods, starting in 2013, borrowing will no longer be possible. Because borrowing entails a risk of deferring and later abandoning mitigation measures while also potentially raising future compliance cost,[185] this difference between the EU and the US schemes which permit borrowing could prove to be an obstacle to linking.

Another essential consideration in the context of linking is the recognition of domestic and international offsets, given that a link between schemes will indirectly extend the availability of offsets to all linked schemes. Here, significant differences in perception are apparent on either side of the Atlantic: whereas forestry projects are popular offset categories in the US, the EU has been generally sceptical due to the methodological and regulatory challenges involved in any offset projects based on sinks.

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[183] M.J. Mace et al., *Analysis of Legal and Organisational Issues Arising in Linking the EU Emissions Trading Scheme to other Existing and Emerging Emissions Trading Schemes. Study Commissioned by the European Commission, DG Environment, Climate Change and Air* (London: FIELD et al., 2008), available at <http://www.field.org.uk/files/Linking%20emission%20trading%20schemes_0.pdf>, 51.

[184] Mace et al., supra note 183, 60.

[185] Catherine Boemare and Philippe Quirion, "Implementing Greenhouse Gas Trading in Europe: Lessons from Economic Literature and International Experiences", 43 *Ecological Economics* (2002), 213-230.

Conceivably, therefore, different views on the utility and reliability of sink projects may pose a political obstacle to linking and necessitate harmonisation, be it on an informal level or in the context of an international agreement.

Cost-containment provisions included in several US initiatives may prove to be the greatest obstacle to a transatlantic market link. Mechanisms such as the one set out in ACSA 2008 with the CMEB effectively result in borrowing from future allowance budgets to increase the current cap, applying downward pressure on allowance prices. Moreover, additional measures – such as cost containment auctions and emergency off-ramp measures – further undermine the environmental stringency of the scheme and limit carbon price developments to a certain price corridor. Linking the EU ETS to such a scheme might cause total emissions to end up higher than if the two schemes had been kept separate,[186] raising serious concern about the expediency of linking. Other schemes, however, such as the WCI, have expressly rejected price capping.

A final aspect to consider when exploring a link between the EU ETS and US trading schemes, moreover, is the Kyoto Protocol, which has created tradable units recognised for compliance with the quantified emissions limitation and reduction commitments it sets out for certain industrialised countries.[187] In order to avoid a breach of their international obligations, parties that have entered such commitments need to avoid a disparity between real emissions and the number of units assigned under the Protocol. If two parties to the Kyoto Protocol link their national trading schemes, they can ensure congruence between Kyoto units retired at the end of the compliance period and actual emissions by basing their domestic units on units recognised under the Kyoto Protocol, as the EU has done.[188]

Carbon units generated in states that are not a party to the Kyoto Protocol cannot be used for compliance with the Kyoto Protocol, however, even if the emissions reduction they reflect is genuine and additional; as a result, parties with quantified emission reduction and limitation obligations are unlikely to link their national emissions trading schemes with schemes in countries which have not ratified the Kyoto Protocol, given that units purchased from the latter will not be accompanied by Kyoto units. While complex gateway arrangements can be implemented to partially overcome this obstacle, although they will increase transaction costs and thus prove less attractive.[189]

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[186] William Blyth and Martina Bosi, *Linking Non-EU Domestic Emissions Trading Schemes with the EU Emissions Trading Scheme*, OECD Doc. COM/ENV/EPOC/IEA/SLT35 <http://www.iea.org/textbase/papers/2004/non_eu.pdf>.

[187] See Article 3(1) of the Kyoto Protocol, which specifies that such parties "shall, individually or jointly, ensure that their aggregate anthropogenic carbon dioxide equivalent emissions" of specified greenhouse gases "do not exceed their assigned amounts, calculated pursuant to their quantified emission limitation and reduction commitments inscribed in Annex B."

[188] Pursuant to Article 45 of Commission Regulation (EC) No 2216/2004 of 21 December 2004 for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision No 280/2004/EC of the European Parliament and of the Council (Registries Regulation) OJ 2004 L386/1, allowances issued within the European emissions trading scheme are converted Assigned Amount Units (AAUs) to which a unique unit identification code has been added.

[189] Wolfgang Sterk and others, *Ready to Link Up? Implications of Design Differences for Linking Emissions Trading Schemes.* Jet-Set Working Paper I/06, available at <http://www.wupperinst.org/uploads/tx_wibeitrag/ready-to-link-up.pdf>, 63-5: under such a mechanism, units sold from a scheme covered by the Kyoto Protocol to participants in jurisdictions which are not parties to the Protocol would be stripped of their Kyoto status; while the domestic unit would flow into the foreign scheme, its Kyoto status would be retained in a "gateway", allowing units to be sold back into the covered scheme to the extent that they can be reverted to Kyoto units with the stripped status in the Gateway.

5 PROPOSED EMISSIONS TRADING SCHEME IN THE US AND WORLD TRADE LAW

5.1 Introduction: Competitiveness Concerns in the US

5.1.1 Byrd-Hagel and the US Withdrawal from Kyoto

Throughout the international climate change negotiations, the position of the US has been influenced by concerns about the international competitiveness of its domestic industries. Before the adoption of the Kyoto Protocol in 1997, the US Senate had unanimously passed the Byrd-Hagel Resolution, declaring that the United States should not agree to binding commitments if the agreement was not accompanied by developing country commitments to reduce or limit emissions, or would cause serious harm to the US economy.[190] The concern is that the costs of compliance with climate policies would decrease the competitiveness of American industries vis-à-vis competitors from countries without emission limitation or reduction commitments; and that production would subsequently move abroad, with a loss of American jobs as a result. The Byrd-Hagel Resolution can be regarded as exemplary for bipartisan American concerns about developing country participation and competitiveness.

The Kyoto Protocol was eventually never submitted to the Senate for ratification. In 2001, the US Administration rejected the Kyoto Protocol as an agreement that was "fatally flawed in fundamental ways".[191] US climate policy since then has been notable for its absence of mandatory GHG emission reductions – in contrast with the EU – and its emphasis on research and development of clean technologies.

Although more than ten years have passed since and much happened – including notably the Protocol's entry into force – it would be naïve to assume that the concerns expressed in the Resolution have died away completely. Both the Bush Administration and Congress have indicated that protecting the competitiveness of American industries and developing country participation remain important preconditions for the US' participation in a post-2012 international climate change agreement. The sceptical stance towards Kyoto was once more repeated by President Bush in April 2008: "The impact of this agreement … would have been to limit our economic growth and to shift American jobs to other countries – while allowing major developing nations to increase their emissions."[192] Likewise, competitiveness has featured in Congressional discussions on designing future US climate policy.

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[190] The bipartisan Resolution was tabled by Senator Robert C. Byrd (D-WV) and Senator Charles T. Hagel (R-NE), and passed by the Senate with a 95-0 vote, 105th Congress, 1st Session, S. Res. 98.

[191] Press Release, White House, President Bush Discusses Global Climate Change, 11 June 2001, available at <http://www.whitehouse.gov/news/releases/2001/06/text/20010611-2.html>.

[192] Press Release, White House, President Bush Discusses Global Climate Change, 16 April 2008, available at <http://www.whitehouse.gov/news/releases/2008/04/20080416-6.html>.

In 2005, a nonbinding "sense of the Senate" Resolution was adopted, which called for mandatory limits on GHG emissions, both conditions featured again.[193] In the preparation of cap-and-trade legislation, the Energy and Commerce Committee of the House of Representatives also dedicated a White Paper to the issue in January 2008, followed by a hearing in March of the same year, providing an indication that these concerns also still matter in the House.[194] Furthermore, the House Select Committee on Energy Independence and Global Warming released a staff report in October 2008, in which it recommends that climate change legislation should "include "carrots" and "sticks" to ensure that major-emitting developing countries, like China and India, take comparable action on global warming – and to avoid negative effects on the competitiveness of US industry."[195]

5.1.2 The Rationale for Border Adjustment Measures in the US

It is important to view proposals for BAMs in the context of the above concerns. In particular, the use of BAMs in US climate policy can be traced back to the following inter-related rationales:

- *A stick for developing countries*: The first rationale for BAMs is to provide a political stick for developing countries, in particular China and India, to take on quantitative emission reduction or limitation commitments in a future climate agreement.[196] Under this argument, BAMs would provide the US with a credible threat to incentivize developing country participation. What is interesting about this rationale is that, if effective, it would mean that the BAMs might not need to be used against other countries.
- *Free riding by developing countries*: With regard to the second rationale, it is argued that developing countries would free ride on the American efforts to mitigate climate change. Developing countries would reap the global benefits from reduced GHG emissions in the United States, but would not be faced with the additional costs of emission reductions.[197]
- *Levelling the playing field for American industries*: The third rationale is ensuring a level playing field for American energy-intensive industries exposed to international competition.[198]

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[193] S. Amdt. 817 to H.R. 6, 109th Congress (2005), approved by a vote of 66 to 29 on 21 June 2006. The conditions were that the measures "(1) will not significantly harm the United States economy; and (2) will encourage comparable action by other nations that are major trading partners and key contributors to global emissions".

[194] House of Representatives, Committee on Energy and Commerce, *Climate Change Legislation Design White Paper: Competitiveness Concerns/Engaging Developing Countries*, 31 January 2008, available at < http://energycommerce.house.gov/images/stories/Documents/PDF/selected_legislation/white_paper.competitiveness.013108.pdf>.

[195] Staff Report, supra note 26.

[196] Michael G. Morris, Chairman, President and Chief Executive Officer, American Electric Power, Testimony before the House Energy and Commerce Subcommittee on Energy and Air Quality, 5 March 2008, available at <http://energycommerce.house.gov/cmte_mtgs/110-eaq-hrg.030508.Morris-testimony.pdf>.

[197] Thomas Brewer, *The Trade and Climate Change Joint Agenda* (Brussels: Centre for European Policy Studies, 2008), 8-9.

[198] See, e.g., Richard Morgenstern, *Addressing Competitiveness Concerns in the Context of a Mandatory Policy for Reducing US Greenhouse Gas Emissions* (Washington, D.C.: Resources for the Future, 2007), 115.

- *Carbon leakage*: A fourth rationale for BAMs is more related to its environmental effects. It is argued that, without such a provision, GHG emissions outside the United States would increase if cap-and-trade legislation would be adopted.[199]
- *Garnering support for cap-and-trade legislation*: Although the last rationale is related to the concerns about competitiveness and developing country participation, this motivation is more pragmatic: proponents of cap-and-trade legislation view the inclusion of a border adjustment provision as crucial for securing sufficient support for such legislation in light of the aforementioned concerns.[200]

From an academic point of view, not all of these reasons are equally valid. The extent to which the threat of trade measures is actually effective in persuading other countries in taking a particular course of action has been questioned by previous research on trade sanctions.[201] In addition, empirical analyses point to the fact that not all American industries are exposed to international competition,[202] and that BAMs, if adopted, would not provide the most effective means of protection.[203] Furthermore, countries like China are taking domestic action as well, and for some primary goods the carbon-intensity in the United States is even higher.[204] Nevertheless, in assessing the likelihood of the adoption of BAMs, it is important to note that it is not the validity of these motivations that matters, but rather their existence. The question is thus not whether Chinese industries indeed jeopardize the competitiveness of American industries, but rather whether they are *perceived* to do so.

5.1.3 The IBEW/AEP proposal

BAMs came to the forefront in 2007, when the company American Electric Power (AEP) raised the idea of including such measures to ensure China and India's participation in climate change mitigation efforts.[205] AEP secured support of one of the largest labour unions, the International Brotherhood of Electric Workers (IBEW). In an op-ed released in February 2007, the leaders of AEP and IBEW argued, first, that a post-2012 treaty should include a requirement for allowances to accompany exports from major emitting nations; and second, that the US should include such a requirement in its domestic cap-and-trade legislation.[206]

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[199] Jason E. Bordoff, *International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns* (Washington, D.C.: Brookings Institution, 2008), 3-4.

[200] Ibid., 6.

[201] Houser et al., supra note 144, 57.

[202] See Houser *et al.*, supra note 144, 45 ("[d]espite the concern about carbon-intensive imports from China, they account for less than 10% of all but cement imports").

[203] For example, an analysis of the Climate Security Act indicated that the effect of border adjustment measures would be "minimal". See EPA, EPA Analysis of the Lieberman-Warner Climate Security Act of 2008: S. 2191 in 110th Congress (14 March 2008), 84. Furthermore, the border adjustment measure could be circumvented by obscuring the national origin of a good by redirecting it through countries that have been deemed to take "comparable action". See Houser et al., supra note 144, 56.

[204] Houser et al., supra note 144, 46-51.

[205] E&E Daily, "Trade Sanctions Emerge as Tool to Force China and India to Curb Emissions" (21 March 2007).

[206] See Michael G. Morris and Edwin D. Hill, "Trade is the Key to Climate Change", Energy Daily (20 February 2007), available at http://www.ujae.org/globalwarming/hill%20morris%20article%20in%20energy%20daily%20feb%2020%2007.pdf

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The main motivations thus cited include the protection of the international competitiveness of American industries and jobs, as well as the prevention of a global increase in GHG emissions through a shift in energy-intensive production.[207] In addition, the "stick" rationale features in AEP's position.[208]

AEP/IBEW sought to craft a proposal that would be as WTO compatible as possible.[209] The proposal was subsequently included, first in the draft bill by Senators Bingaman and Specter, and later in the Climate Security Act. In the following sections, we will examine to what extent this objective is fulfilled, using the provisions of the Climate Security Act as an example. However, it should be remembered that the bill has been defeated, and that BAMs in the US – if adopted at all – might end up looking differently.

5.1.4 Border Adjustment Measures and World Trade Law

The use of border tax adjustments and importer allowance requirements has received significant attention from the legal research community.[210] These assessments have sought to address the question to what extent the use of BAMs would be compatible with applicable free trade disciplines, including the regime administered by the World Trade Organization (WTO). Some analyses have focused specifically on the provisions of the Climate Security Act.[211] Here we aim to provide an overview of the key legal questions in case of a WTO dispute, and seek to identify elements on which there is consensus in the legal literature, as well as elements that are still disputed.

Measures affecting international trade in goods are commonly governed by the General Agreement on Tariffs and Trade (GATT).[212] In this regard, it should first be examined whether the provisions in the Climate Security Act would violate one of the core disciplines of the GATT, including the provisions on market access and the principles of "national treatment" and "most-favoured nation treatment" (Sections 4.3-4.5). Even if this would be the case, BAMs might still be justified based on the general exception clause under article XX of GATT (Section 4.6). In the following analysis, we will discuss the provisions in the Climate Security Act in this order. We end this Chapter with a summary and some concluding thoughts (Section 4.7).

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[207] See also Morris, supra note 196.

[208] Ibid., 9.

[209] Andrew Shoyer, *WTO Background Analysis of International Provisions of US Climate Change Legislation* (Washington DC: Sidley Austin LLP, May 2008).

[210] See, e.g., Frank Biermann and Rainer Brohm, "Implementing the Kyoto Protocol without the USA: The Strategic Role of Energy Tax Adjustments at the Border", 4 *Climate Policy* (2005), 289-302; Javier de Cendra, "Can Emissions Trading Schemes be Coupled with Border Tax Adjustments?", 15 *Review of European Community and International Environmental Law* (2006), 131-45; Roland Ismer and Karsten Neuhoff, "Border Tax Adjustment: A Feasible Way to Support Stringent Emissions Trading," 24 *European Journal of Law and Economics* (2007), 137-64; Joost Pauwelyn, *US Federal Climate Policy and Competitiveness Concern: The Limits and Options of International Trade Law* (Durham, N.C.: The Nicholas Institute for Environmental Policy Solutions, 2007); Jochem Wiers, "French Ideas on Climate and Trade Policies", 2 *Carbon & Climate Review* (1/2008), 18-32.

[211] See for example, Bordoff, supra note 199; and Steve Charnovitz *et al.*, *Reconciling GHG Limits with the Global Trading System* (Washington, D.C.: Peterson Institute for International Economics, 2009).

[212] General Agreement on Tariffs and Trade (GATT), 15 April 1994, contained in the Marrakesh Agreement Establishing the World Trade Organization, Annex 1A, 1867 United Nations Treaty Series 187, 33 International Legal Materials 1153 (1994).

5.1.5 Market Access

A preliminary question concerns the nature of the border measure. Would the importer allowance requirement in the Climate Security Act be regarded as a border-enforced measure part of an internal regulation, or as a border measure only applying to imports? If the measure would apply to importers only, it could be seen as either a new tariff on imports above a particular ceiling, which are prohibited by Art. II:1(b) GATT; or as a quantitative restriction on imports, which are generally prohibited by Art. XI:1 GATT.

Howse and Eliason argue that an importer allowance requirements should be seen as "ancillary to the enforcement or administration of a US regulatory scheme that applies to both domestic and imported products," and that they would therefore be covered by Art. III GATT.[213] The basis for this claim can be found in a note to Art. III GATT, which states that "[a]ny internal tax or other internal charge, or any law, regulation or requirement … which *applies to an imported product and to the like domestic product* and is collected or enforced in the case of the imported product at the time or point of importation, is nevertheless to be regarded as an internal tax or other internal charge, or a law, regulation … subject to the provisions of Article III" (emphasis added).[214] However, as Pauwelyn shows, the fact that the measure applies to both domestic producers and importers may not necessarily be sufficient, as the importer allowance requirement in the Climate Security Act targets the energy input of foreign products.[215]

If the measures are not regarded as falling within the scope of Art. III GATT, they would likely be prohibited by either Art. II:1(b) or Art. XI:1 GATT.[216] However, they could still be saved by the environmental exceptions of Art. XX GATT.

5.2 National Treatment

If the measure is indeed seen as a border-enforced internal measure, it needs to be ascertained that it does not discriminate between imports and domestic products under Art. III GATT.

First, the requirement for domestic producers to purchase and surrender allowances could be regarded an internal tax or charge, meaning that Art. III:2 GATT would apply. Art. III:2 GATT states that foreign products "shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products". Read in conjunction with Art. II:2(a) GATT, this affords states the right to impose charges on imported products, provided these are "equivalent to an internal tax in respect of the like domestic product".

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[213] Robert Howse and Antonia Eliason, "Domestic and International Strategies to Address Climate Change: An Overview of the WTO Legal Issues", in Sadeq Bigdeli, Thomas Cottier, and Olga Nartova (eds.), *International Trade Regulation and the Mitigation of Climate Change* (Cambridge, Cambridge University Press, 2009). See also Bordoff, supra note 199, 9; and Shoyer, supra note 209, 5.

[214] See Pauwelyn, supra note 210, 23-24. Besides the requirement of applying the measure to both domestic and imported products, the note's other requirement – of being collected or enforced at the time or point of importation – is also satisfied by the provisions of the Climate Security Act. See Section 1306 (c) (1) of ACSA 2008.

[215] Ibid., 24-26.

[216] Shoyer, supra note 209, 6.

It has been argued that a domestic measure does not have to be a tax or charge in the traditional sense to be covered; because it is compulsory and unrequited, even the duty to purchase and surrender allowances is commonly thought to be included.[217]

The importer allowance requirement of the Climate Security Act is clearly targeted at the – direct and indirect – emissions resulting from the production of a covered good.[218] However, under Art. III:2 GATT, BAMs may only offset measures imposed on domestic *products*, not producers.[219] Widely held to rule out direct taxes and related measures, this restriction has prompted debate on whether energy taxes and other constraints based on energy input (or carbon output) are sufficiently "product-related" to fall within the scope of this provision. Traditionally, these would have been considered a matter related to the production process, not the product itself.[220] Judging by more recent case law on the application of Art. III GATT, however, it is likely that even inputs which are not incorporated into the final product can serve as the basis for a border adjustment.[221] Instead, a sufficient nexus between the product and the BAM needs to be established.[222] Still, even then, the requirement that it be applied to *like* products needs to be satisfied, an aspect that is highly contested in a climate policy context. In its judicial practice, the WTO Appellate Body has consistently applied four criteria to identify the likeness of products: 1) the properties, nature and quality of the products; 2) the end-uses of the products; 3) consumers' perceptions and behaviour in respect of the products; and 4) the tariff classification of the products.[223]

While it may be difficult to distinguish energy-intensive from less energy-intensive products based on these criteria, the Appellate Body has also stated that "a Member may draw distinctions between products which have been found to be "like", without, for this reason alone, according to the group of "like" imported products "less favourable treatment" than that accorded to the group of "like" domestic products".[224] Such a distinction would need to be justified on substantive grounds, however, and not merely be based on the origin of the product.[225]

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[217] See, e.g., Bordoff, supra note 199, 14; de Cendra, supra note 210, 135; Ismer and Neuhoff, supra note 210, 8; Pauwelyn, supra note 210 21. But see Howse and Eliason, supra note 213; and Wiers, supra note 210, 30, who argue that the measure should be assessed under Art. III:4 GATT.

[218] Section 1301 (7) (B) of ACSA 2008.

[219] On this distinction see, for example, Steve Charnovitz, "The Law of Environmental 'PPMs': Debunking the Myth of Illegality", 27 *Yale Journal of International Law* (1/2002), 85-92.

[220] Such was the approach chosen, for instance, in United States – Restrictions on Imports of Tuna, Report of the Panel, DS21/R, 3 September 1991, BISD 39S/155, para. 5.13.

[221] See R. Andreas Kraemer *et al.*, *What Contribution Can Trade Policy Make Towards Combating Climate Change?* (Brussels: European Parliament, 2007), 42-43, pointing to the decisions in United States – Taxes on Petroleum and Certain Imported Substances (Superfund Case), Report of the Panel, 17 June 1987, BISD 34S/136, and United States – Taxes on Automobiles, Report of the Panel, 29 September 1994 (not adopted) DS31/R.

[222] On this view, see Pauwelyn, supra note 210, 20.

[223] See, e.g., EC – Measures Affecting Asbestos and Asbestos-Containing Products, Report of the Appellate Body, WT/DS135/AB/R, 12 March 2001, para. 101.

[224] Ibid., para. 100.

[225] Pauwelyn, supra note 210, 30.

As long as a measure is applied uniformly to domestic and imported products and is clearly based on measurable and transparent environmental criteria, not the country of origin, it may thus meet the conditions set out by the Appellate Body.

In this context, an important factor in the assessment of the admissibility of border adjustment measures is the method used for their calculation, which again needs to avoid any discrimination based on country of origin. Past case law of the WTO dispute settlement mechanism suggests that such calculation should ideally be based on the actual GHG intensity or energy input of the imported product; in the absence of reliable data, however, a benchmark or average value may suffice, although distinctions based on the origin of the product are, again, to be avoided.[226] At first sight, the formula used by the Climate Security Act does not seem to pass this test: it is based on the national GHG intensity rate of foreign countries, while domestic allowances are related to the emissions of individual producers.[227] This would discriminate against foreign products with lower GHG intensity, for instance a product made in China using wind power. However, the final determination of non-discrimination also needs to take into account the other factors of the formula specified in the Climate Security Act, in particular the economic adjustment ratio, which accounts for climate policies implemented in the foreign country.[228]

If the US cap-and-trade system is considered to be an internal tax or charge for which a border adjustment is permitted under Art. III:2 GATT, it is still necessary to examine whether the pecuniary burdens carried by the importer – who needs to purchase allowances from the separate reserve – are comparable to those borne by domestic producers – who need to buy allowances from the government.[229] Only if these are found to be the same is it possible that the measure will pass the test of Art. III:2 GATT. Two aspects of the Climate Security Act should be mentioned here. First, the bill links the price of international reserve allowances to the price of domestic allowances.[230] Second, it discounts the border adjustment by the extent to which domestic producers can receive allowances at no cost.[231] However, even if the level of free allocation is taken into account, it can be questioned whether this accurately reflects the costs borne by domestic producers. Even free allowances impose costs, as using an allowance for compliance purposes makes it impossible for a producer to sell the allowance, representing an opportunity cost.[232] Thus, as Bordoff argues, "it would not disadvantage importers to pay the market price for carbon even if domestic manufacturers received free allowances themselves."[233]

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[226] See, e.g., United States – Standards for Reformulated and Conventional Gasoline, Report of the Appellate Body, WT/DS2/AB/R, 20 May 1996, 27 (hereinafter US-Gasoline).

[227] Section 1306 (d) (2) of ACSA 2008. See Charnovitz et al., supra note 211.

[228] Section 1306 (d) (2) of ACSA 2008.

[229] Charnovitz et al., supra note 211.

[230] Section 1306 (a) (4) (B) of ACSA 2008.

[231] Section 1306 (d) (2) of ACSA 2008.

[232] See, e.g., Jos Sijm et al., "CO_2 Cost Pass-through and Windfall Profits in the Power Sector," 6 *Climate Policy* (1/2006), 50.

[233] Bordoff, supra note 199, 13.

The US cap-and-trade system might also be considered an internal regulation, in which case Art. III:4 GATT applies.[234] It requires equal treatment of "like" foreign and domestic products "in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use". Many of the same questions raised under Art. III:2 GATT will be applicable here as well.[235]

5.3 Most-favoured Nation Treatment

A further provision with potential relevance for BAMs is Art. I:1 GATT, which sets out the principle of most-favoured nation treatment by demanding that "any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties". If BAMs were applied to "like" products based on their country of origin, favouring products from countries with stringent climate policies and penalizing products from countries with weak or no climate policies, a violation of this principle would appear possible. This appears clearly to be the case in the Climate Security Act, which distinguishes between countries taking "comparable action" and those that do not.[236] One possible defence could be to argue that the treatment does not discriminate on the basis of the origin of the products, but rather on the basis of "the conditions of production that apply equally to all nations".[237] However, it seems unlikely that such a defence would be accepted under current WTO case law.[238]

This violation may be avoided by uniformly imposing BAMs on all imported products.[239] However, one environmental rationale of the measure – to induce states to adopt appropriate climate measures of their own or join international efforts – would be undermined, with further reverberations when, for instance, the justification of a trade measure under Art. XX GATT is ascertained.

5.4 Environmental Exceptions

5.4.1 Art. XX(b) and XX(g)

Even if the BAMs in the Climate Security Act would be found to violate the abovementioned provisions of the GATT, it may be justified under the general exceptions set out in Art. XX GATT, and thus still be considered admissible. Art. XX GATT contains two exception clauses which may help justify BAMs motivated by climate and energy policies: one applies to measures "necessary to protect human, animal or plant life or health" (Art. XX(b) GATT); the other to measures "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption" (Art. XX(g) GATT). The provisions of Art. XX GATT – and subsequent case law – are important in the context of the Climate Security Act, as the WTO compatibility of the importer allowance requirement seems to heavily rely on them.

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[234] Wiers, supra note 210, 30.

[235] Ibid., 24.

[236] Section 1306 (b) (2) of ACSA 2008.

[237] Bordoff, supra note 199, 15. See also Shoyer, supra note 209.

[238] Bordoff, supra note 199, 15.

[239] Pauwelyn, supra note 210, 32.

First, the objective to promote effective protection of the global climate needs to meet the criteria set out in both Art. XX(b) and XX(g). It could be argued that controlling GHG emissions through BAMs may result in the prevention of an increase in vector-borne diseases and other health hazards induced by climate change, as well as loss of plant and animal habitats;[240] likewise, earlier case law has affirmed that the atmosphere can be considered an exhaustible natural resource whose deterioration affects all states.[241]

The second question is whether the measure is considered "necessary" (for Art. XX(b) purposes) or "relating to" (for Art. XX(g)). In this regard, it should be noted that the Art. XX(b) requirement has been interpreted more strictly than the Art. XX(g) test.[242] An analysis of the Art. XX has to examine how the measure relates to the environmental objectives mentioned above. As argued in Section 3.2, there seem to be multiple rationales for the inclusion of the importer allowance requirement, both environmental – preventing carbon leakage and encouraging wider participation in global climate efforts – and non-environmental – protecting the competitiveness of American industries and preventing free-riding. However, the text of the Climate Security Act clearly emphasizes the environmental rationales. The stated objectives of the measure are environmental, i.e. promoting "a strong global effort to significantly reduce greenhouse gas emissions" and ensuring "that greenhouse gas emissions occurring outside the United States do not undermine the objectives of the United States in addressing global climate change".[243] It could also be argued that the measure is aimed at reducing GHG emissions from American consumption.[244] In other words, good arguments exist that relate the BAM to the environmental objective. At the same time, however, discussions in Congress relate the use of BAMs to the protection of American competitiveness, an objective that is not captured by either of the clauses under Art. XX GATT. This "hidden" non-environmental rationale of the measure would, however, not likely be considered by the WTO dispute settlement mechanism as long as there is a rational connection between the measure and the objective.[245] Still, it could be questioned to what extent the use of the importer allowance requirement would effectively contribute to the objective of climate change mitigation.[246] For that, the US would need to argue that the measures would provide a direct incentive to foreign producers to reduce their emissions, and/or that it keeps American industries from relocating to countries with no climate change mitigation policies in place.[247]

[240] See Shoyer, supra note 209, 11.

[241] US-Gasoline, para. 14. See also Bordoff, supra note 199, 17; Pauwelyn, supra note 210, 35.

[242] US-Gasoline, para. 14-19.

[243] Section 1302 of ACSA 2008.

[244] Charnovitz et al., supra note 211.

[245] Howse and Eliason, supra note 213.

[246] Bordoff, supra note 199, 18.

[247] Wiers, supra note 210, 25.

Third, for Art. XX(g) it needs to be established that the importer allowance requirement is "made effective in conjunction with restrictions on domestic production or consumption". This test requires "even-handedness" in the measure,[248] a requirement that the Climate Security Act seems to satisfy by requiring lower GHG emissions from both domestic and imported products.[249] Furthermore, it could be argued that the "even-handedness" requirement is satisfied by only applying the measure to countries that have not taken "comparable" action, and by exempting countries with low GHG emissions.[250]

5.4.2 Art. XX Chapeau

If the measure falls under one of the two exceptions discussed above, the introductory paragraph of Art. XX – the *chapeau* – additionally requires that such measures "are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade". As no measure has yet been enacted – let alone "applied" – the following analysis is of an inherently preliminary nature.

Taking into account past case law, the determination of whether the requirements of the *chapeau* of Art. XX have been fulfilled includes at least four questions, which will be addressed below.[251]

1) Does the legislation take into account local conditions in other countries, or does it essentially require that other countries adopt the same policies as the US?[252]

A couple of remarks can be made here with regard to the Climate Security Act. First, one way the bill seeks to address this requirement is by excluding countries that have taken comparable action, as well as by using an economic adjustment ratio in calculating the level of the allowance requirement. Both of these provisions specifically take into account the extent to which other countries have adopted and implemented climate policies. However, it remains to be seen how both the definition of comparable action and the economic adjustment ratio will be operationalized.[253] The existing trend to make the "comparable action" test more stringent reduces the flexibility of taking into account foreign countries' specific circumstances, and may make the measure less likely to pass this test. At the very least, the eventual determination of comparable action in US legislation needs to allow other countries to pursue climate change objectives through other types of policies than mandatory cap-and-trade systems. Second, the bill contains provisions that do not seem to take into account conditions in other countries. For example, using a base year of 2005 puts rapidly developing countries, which emitted less than the US before that year, at a disadvantage.[254] Third, different treatment of countries is allowed by the introductory clause; indeed, it provides mandate to do so if conditions in these countries are dissimilar.

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[248] See, e.g., US-Gasoline, para. 20-21.

[249] Charnovitz et al., supra note 211; Shoyer, supra note 209, 10.

[250] Shoyer, supra note 209, 11.

[251] Pauwelyn, supra note 210, 38-41.

[252] Ibid., 38.

[253] Charnovitz et al., supra note 211.

[254] Section 1301 (1) (A) of ACSA 2008. See Charnovitz et al., supra note 211.

In other words, the provisions of the Climate Security Act exempting least-developed countries and countries with *de minimis* emissions are not only justified, but also necessary given the different economic and environmental circumstances in these countries.[255] This interpretation is reinforced by referring to Art. 3 of the UNFCCC, which provides that States have "common but differentiated responsibilities and respective capabilities" in addressing climate change.[256]

2) Has the United States engaged in "serious, across-the-board negotiations with the objective of concluding bilateral or multilateral agreements"?[257]

This question places particular emphasis on exhausting all prospects for a multilateral solution before resorting to unilateral trade measures.[258] However, such efforts need not necessarily culminate in a multilateral agreement, provided the negotiations have been conducted seriously and in good faith.[259] This condition is of particular relevance to the Climate Security Act. The subtitle establishing the international reserve allowance program indicates that negotiated agreements with foreign countries would be a first-best option.[260] In this context, however, it should be noted that bringing forward the timing of entry into effect of the importer allowance requirement reduces the time for negotiations, leaving little space for getting to the kind of international agreement called for by the bill. Demanding that the BAM should be implemented simultaneously with the start of the domestic trading scheme, as some have argued in the context of the Climate Security Act, would effectively leave no time at all for good faith and serious negotiations. What timeframe exactly is necessary is difficult to tell, but the more time is allowed for negotiations, the more likely this requirement is satisfied.

3) Does the implementation and administration of the border adjustment measure respect/ fulfil the requirements of "basic fairness and due process"?[261]

The question here is to what extent the Climate Security Act engages foreign countries in the implementation of BAMs. First of all, it can be noted that the provision in the bill itself is being drafted without participation from other WTO members. However, for WTO compliance, it is probably more important that other countries are involved in the operationalization of the international reserve allowance program.

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[255] Interestingly, the more a border adjustment measure differentiates between different countries, the more likely it would violate the MFN-clause, but the more it would be compliant with the chapeau conditions. Conversely, applying the border adjustment measure to all countries could avoid a violation of the MFN principle, but would make it unlikely to qualify as an exception. This means, essentially, that countries wanting to design border adjustment measure need to consciously choose a strategy that either rests on avoiding violation of the commitments and principles in the GATT or on satisfying the conditions of the general exceptions.

[256] Pauwelyn, supra note 210, 39-40.

[257] Ibid., 40.

[258] United States – Import Prohibition of Certain Shrimp and Shrimp Products, Report of the Appellate Body, WT/DS58/AB/R, 12 October 1998, para. 156.

[259] United States – Import Prohibition of Certain Shrimp and Shrimp Products, Recourse to Art. 21.5 DSU, Report of the Appellate Body, WT/DS58/AB/RW, 22 October 2001, para. 176 et sqq.

[260] Section 1303 (a) of ACSA 2008.

[261] Pauwelyn, supra note 210, 40.

This means that they would need to have some input in the determination of "comparable action" by the ICCC; and that there should be an appeal mechanism if there is disagreement about this determination.[262] One proposed solution is to coordinate the treatment of imports with other countries.[263]

4) Does the bill discriminate in ways that run counter to its environmental objective?[264]

As argued above with respect to the exceptions of Art. XX (b) and (g), the stated objective of the BAM is related to GHG emission reductions both within and outside the United States. However, the application of the BAM could be run counter to this objective in several ways.[265] First, the bill requires that all importers of covered goods from covered countries need to purchase allowances, even if those goods are produced with clean technologies.[266] Second, the bill allows the use of BAMs for energy-intensive products, while at the same time providing for free allocation for the energy-intensive sectors.[267] Although free allowances may be seen as still imposing a cost, they might also be regarded as a subsidy.[268] In addition, other sectors in the US are also granted allowances for free, which may lead to further distortions. Third, if, in the application of the BAM, it appears that the impact on protecting the competitiveness of American industries are larger than the impacts in terms of preventing carbon leakage, the measure may be more likely regarded as "stealth protectionism".[269]

5.4.3 Overview

As the foregoing assessment has shown, the BAMs in the Climate Security Act are not, as a matter of principle, ruled out by the pertinent rules of international trade law. Indeed, past case law even suggests that such measures would stand a chance of being found admissible in a trade dispute; and in the event that a violation of free trade disciplines is found, the measure could possibly be justified under the general exceptions of Art. XX(b) and (g) GATT. However, we would caution against taking WTO compatibility of any BAM for granted. Even the provisions in the Climate Security Act – arguably the most detailed and carefully drafted legal provisions including climate-related BAMs – are not guaranteed WTO-proof.

Table 2 provides an overview of the key questions that need to be answered for each of the relevant GATT provisions, and includes our preliminary assessment of the responses in the case of the provision of the Climate Security Act. Although the provisions in the bill have sought to be as WTO compatible as possible keeping in mind Art. XX case law, there are some valid arguments that even this strategy would not work. It is clear that, from a legal point of view, a multilateral solution raises far fewer questions than unilateral trade measures; and that, if nonetheless applied, any BAM should only follow upon serious efforts to negotiate such a solution. Arising burdens should preferably affect domestic and foreign producers uniformly, and be justified on environmental, not economic grounds.

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[262] Charnovitz et al., supra note 211.

[263] Ibid.

[264] Brazil – Measures Affecting Imports of Retreaded Tyres, Report of the Appellate Body, WT/DS332/AB/R, 3 December 2007, para 246.

[265] Charnovitz et al., supra note 211.

[266] Ibid. See also Bordoff, supra note 199, 21.

[267] Charnovitz et al., supra note 211.

[268] See Bordoff, supra note 199, 22-26.

[269] Ibid., 19-20.

But ultimately, legal uncertainties will always remain: the relevant provisions are too indeterminate, their interpretation leaving ample discretion and susceptible to political concerns. Although some studies have dared to advocate a certain outcome, the final word, in fact, rests with the judicial bodies of the WTO.

Table 2: Overview of key trade law questions related to border adjustment measures, applied to the Climate Security Act

GATT provisions	**Key questions**	**Response**
Art. II:1(b); Art. XI:1	Is the measure a border-enforced internal measure or only applied to imports?	Likely a border-enforced internal measure
Art. III:2 (and Art. II:2(a))	Can a US cap-and-trade system be viewed as an "internal tax or charge"?	Unclear
Art. III:4	Can a US cap-and-trade system be viewed as an internal regulation?	Unclear
Art. I:1	Is the measure applied to all foreign countries equally?	Unlikely
Art. XX(b)	- Is the objective of the measure "to protect human, animal or plant life or health"? - Is the measure considered "necessary"?	- Likely - Likely, but not completely clear
Art. XX(g)	- Are the resources protected by the measure "exhaustible"? - Is the measure "relating to" the conservation of the resources protected? - Is the measure "made effective in conjunction with restrictions on domestic production or consumption"?	- Likely - Likely, but not completely clear - Likely
Art. XX chapeau	- Does the measure take into account conditions in other countries? - Does the measure satisfy the international negotiation requirements? - Does the measure respect basic fairness and due process? - Does the measure discriminate in ways that run counter to its objective?	- Possibly - Likely - Possibly - Possibly

6 CONCLUSIONS

Linking of emissions trading schemes has been described as the "the *de jure* or *de facto* post-2012 international architecture" for climate mitigation.[270] And indeed, with negotiations on a global climate regime perpetually threatened by diplomatic stalemate, linking provides an optional "fallback in case of multilateral collapse"[271] driving a bottom-up process in which "various domestic emissions trading schemes ... transform themselves into a global emissions market in a progressive and organic manner".[272] Whether a mere complement to international trading or the foundation of a global carbon market, therefore, linking is certain to play a part in the future climate regime.

Given the prospective scope of emerging carbon markets in North America, the US would seem a natural linking partner for the EU ETS to harness the economic benefits of emissions trading across geographic and political boundaries. Joint carbon markets across the Atlantic could even form the first step towards a reference price for carbon in a global market expected to reach several trillion US$ annually.[273] Yet as was illustrated in the foregoing sections, variations in the design of emissions trading schemes can hamper the prospects for a market linkage, resulting in unwanted distributional impacts,[274] and possibly also compromising the integrity of the underlying trading schemes as instruments of climate policy.

Clearly, therefore, the design features of different schemes merit careful attention prior to linking. While by no means all design elements need to be comparable,[275] certain divergences are greater obstacles to linking than others. Difficulties may arise, in particular, if only one scheme sets out cost containment provisions, intensity targets, or weak rules on borrowing. A link may also be prevented if only one linking partner has entered commitments under an international climate regime, such as a post-Kyoto treaty.

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[270] Robert N. Stavins, "Linking Tradable Permit Systems: Opportunities, Challenges, and Implications", 7th Annual Workshop on Greenhouse Gas Emission Trading, 9 October 2007, Paris, France, available at <http://www.iea.org/Textbase/work/2007/ghget/Stavins.pdf>.

[271] Kristian Tangen and Henrik Hasselknippe, "Converging Markets" 5 *International Environmental Agreements: Policy, Law & Economics* (2005), 52; as described more recently by Christian Flachsland et al., *Developing the International Carbon Market: Linking Options for the EU ETS* (Potsdam: Potsdam Institute for Climate Impact Research (PIK), 2008), 8: "if no agreement on a global trading system is achieved within UNFCCC negotiations by 2009, linking offers an opportunity to keep and build political momentum for constructing a global carbon market in the mid- to long term."

[272] Christian Egenhofer and Noriko Fujiwara, *The Contribution of Linking Emissions Markets to a Global Climate Change Agreement: Feasibility and Political Acceptability*, Final Report of a Study Prepared for the Economic and Social Research Institute, Cabinet Office, Government of Japan, 9, available at <http://www.esri.go.jp/jp/prj-2004_2005/kankyou/kankyou17/02-1-p.pdf>.

[273] Point Carbon, *Carbon 2008 – Post-2012 Is Now* (Point Carbon, Oslo 2008) 17, forecasting a global carbon market worth €2 trillion by 2020, assuming a market volume of 38 Gt and a carbon price of €50 in 2020.

[274] Once linked, schemes with a lower carbon price relative to other schemes will see an increase in demand, creating upward pressure on their domestic carbon pricing; although this may give rise to unwanted distributional impacts, the net effect of linking will usually remain positive for all linked schemes.

[275] See, for instance, Mace et al., supra note 183, 51: "linking emissions trading systems is possible even between quite different systems"; Judson Jaffe and Robert N. Stavins, *Linking Tradable Permit Systems for Greenhouse Gas Emissions: Opportunities, Implications, and Challenges*. Report prepared for the International Emissions Trading Association (Geneva: IETA, 2007), available at http://www.ieta.org/ieta/www/pages/getfile.php?docID=2733 18-20: "differences between systems can remain without undermining the case for linking."

It is as yet unclear what shape federal climate legislation will take under a new administration and the 111th Congress, and whether federal action will pre-empt emerging or existent initiatives at the regional and state level.[276] If the most successful federal bill to date, the Climate Security Act of 2008, is an indication, such federal legislation is likely to reflect a sufficient level of ambition to be politically acceptable to the EU. Yet preoccupation with cost containment, notably in times of economic distress, is likely to result in the inclusion of a price corridor or "safety valve" in future US legislation.

Also, it is still uncertain how the US will position itself in international efforts to negotiate a successor to the Kyoto Protocol by the end of 2009, and whether it will adopt binding international commitments. Accordingly, a number of uncertainties remain, preventing a final assessment of the prospects for linking across the Atlantic. For the time being, the arguably most effective way of promoting future links between the EU ETS and regional or federal trading schemes in the US will be continued engagement at the political level, formal and informal, through initiatives such as the International Carbon Action Partnership (ICAP). Ultimately, active transatlantic cooperation has the best prospects of identifying and realising opportunities for transatlantic emissions trading; for "there is little that cannot be done if Americans and Europeans agree – but very little that can be done if they do not".[277]

[276] Franz Litz and Kathryn Zyla, *Federalism in the Greenhouse - Defining a Role for States in a Federal Cap-and-Trade Program* (Washington, DC: WRI, 2008).

[277] Jessica T. Mathews, "U.S. – Europe: Estranged Partners", Remarks to the Open Forum, State Department, Washington, DC, 11 January 2002.

ABBREVIATIONS

AB 32	Global Warming Solutions Act (California Legislative Assembly Bill 32)
ACSA 2007	America's Climate Security Act of 2007 (S.2191)
ACSA 2008	Lieberman-Warner Climate Security Act of 2008, in the version of a Substitute Amendment (S.Amdt.4825 to S. 3036)
BAM	Border Adjustment Measure
CARB	California Air Resources Board
CACX	California Climate Exchange
CCFE	Chicago Climate Futures Exchange
CCCAF	Climate Change Consumer Assistance Fund
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CFI	Carbon Financial Instrument
CMEB	Carbon Market Efficiency Board
ECX	European Climate Exchange
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EU	European Union
EU ETS	European Union Emissions Trading Scheme
FERC	Federal Energy Regulatory Commission
FINRA	Financial Industry Regulatory Authority
GATT	General Agreement on Tariffs and Trade
GHG	Greenhouse Gas
Gt	Gigatonne
HCFC	Hydrochlorofluorocarbon
HFC	Hydrofluorocarbon
iCAP	Investing in Climate Action and Protection Act (H.R. 6186)
ICAP	International Carbon Action Partnership
ICCC	International Climate Change Commission
LDC	Local Distribution Company
MGGA	Midwestern Greenhouse Gas Accord
MOU	Memorandum of Understanding
Mt	Megatonne
OECD	Organisation for Economic Cooperation and Development
OCMO	Office of Carbon Market Oversight
REC	Renewable Energy Certificate
RGGI	Regional Greenhouse Gas Intiative
RGIT	Representative of German Industry and Trade
SWG	Staff Working Group
t	(Metric) Tonne
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
WCI	Western Climate Initiative
WTO	World Trade Organization

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ANNEX I: LEGISLATIVE PROPOSALS INTRODUCED IN THE 110TH CONGRESS – EMISSION PATHWAYS

Source: Pew Center on Global Climate Change, 2008