

Characteristics of Ongoing, Developing, and Proposed Greenhouse Gas Cap-and-Trade Systems.
Current as of June 13, 2008.

EMISSIONS REDUCTION PROGRAM	REGIONAL GREENHOUSE GAS INITIATIVE (RGGI)¹	WESTERN CLIMATE INITIATIVE²	MIDWEST GGRA³	LIEBERMAN-WARNER CLIMATE SECURITY ACT (S. 3036)⁴	EUROPEAN UNION EMISSIONS TRADING SCHEME (EU ETS)⁵
GASES COVERED	CO ₂	6 gases*	6 gases	6 gases ⁶	CO ₂ (phase I, 2005-07); 6 gases (phase II and later)
REPORTING	The Climate Registry (TCR) ⁷ and State authorities	TCR and state authorities	TCR and state authorities	Establishes a new federal climate registry ⁸	Individual nations have their own registries that report to a common registry, the CITL. ⁹
SECTORS COVERED AND POINT OF REGULATION	Electricity Sector: fossil fuel plants with nameplate capacity greater than 25 MW. ¹⁰	Economy-wide; still under discussion. Large point sources proposed to be included downstream. Inclusion of mobile sources and residential/commercial fossil fuel use upstream under discussion. ¹¹ Considering "First jurisdictional deliverer" ¹² as the point of regulation for electricity; would cover both generation and imports.	Multi-sector	Economy-wide, "hybrid": upstream for transport fuels and natural gas and producers of some non-CO ₂ gases; downstream for large coal users; separate cap for HFC consumption ¹³	Large point source combustion, refineries, and metal, mineral, pulp, glass, lime, cement and other industries
NEAR-TERM TARGET	Stabilize annual emissions at current levels ¹⁴ through 2014. ¹⁵	No near-term target. ¹⁶	Under discussion	4% below 2005 level in 2012 ¹⁷	Phase II: 7% below 2005 levels during 2008-2012. ¹⁸
MID-TERM TARGET	10% below current levels by 2018. ¹⁹	15% below 2005 levels by 2020 ²⁰ for whole WCI program; cap and trade target could differ	Under discussion	19% below 2005 level in 2020	20% below 1990 levels by 2020. ²¹
LONG-TERM TARGET	N/A	Regional commitment to "do their share" to reduce GHG emissions 50-85% below current levels by 2050. ²² Also, member jurisdiction targets. ²³	Under discussion	71% below 2005 level in 2050	60-80% below 1990 levels by 2050. ²⁴
COMPLIANCE PERIOD	3 years; can be extended under certain circumstances. ^{25,26}	3 years ²⁷		1 year ²⁸	Phase I: 3 years Phase II & after: 5 years

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<p>ALLOWANCE BANKING & BORROWING</p>	<p><u>Banking:</u> Yes, unlimited.²⁹</p>	<p><u>Banking:</u> Yes, unlimited <u>Borrowing:</u> Allowances from future compliance periods <i>should not</i> be eligible for use.³⁰</p>		<p><u>Banking:</u> Permitted without restriction.³¹ <u>Borrowing:</u> Up to 15% of annual obligation may be borrowed from future years. Allowances must be "repaid" with 5 years, at 10% interest.³²</p>	<p><u>Banking:</u> Except for Phase I, allowances may be used for any emission during the current or subsequent compliance period. <u>Borrowing:</u> effectively allows for borrowing from 1 year in the future.³³</p>
<p>OFFSETS</p>	<p><u>If allowances cost less than \$7/ton:</u> Up to 3.3% of an entity's reported emissions³⁴ may be covered by eligible U.S. offset projects.³⁵ <u>If allowances cost \$7-\$10/ton:</u> Up to 5% of a source's reported emissions may be covered by offset projects for the duration of the compliance period.³⁶ <u>If allowances cost more than \$10/ton:</u> Up to 10% of a source's reported emissions may be covered by offset projects.³⁷ The compliance period may be extended by one year.³⁸ Also, allowances purchased from any GHG cap-and-trade system anywhere in the world may be retired and counted as an offset.³⁹ <u>Project Types:</u> Landfill methane capture; SF₆ emissions reductions; carbon sequestration via afforestation; increased end use efficiency of non-electric oil and gas combustion; and avoided methane emissions from agricultural manure.⁴⁰</p>	<p>Under discussion⁴¹</p>		<p>Up to 15% of annual obligations may be met by domestic offset projects. Unused percentage under 15% may be carried forward to the following year. Furthermore, offset allowances issued under RGGI would qualify for federal offset allowances at an appropriate discount rate.⁴² Up to 5% of annual obligations may be met by international offset projects.⁴³</p>	<p>~10% of a country's emissions may be offset by Clean Development Mechanism (CDM) and/or Joint Implementation (JI).⁴⁴</p>

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OTHER COST CONTAINMENT MECHANISMS		Under discussion.		<p><u>Carbon Market Efficiency Board:</u> To reduce costs, the CMEB is authorized to adjust borrowing terms, increase foreign allowances, and expand offset project type eligibility.⁴⁵</p> <p><u>Cost-Containment Auction:</u> annual CCAs (separate from the “regular auction”) will release a fraction of allowances at a reserve price of \$22/ton (in 2012).⁴⁶</p>	
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<p>LINKAGES⁴⁷</p>		<p>Supports adding other states with similar GHG reduction goals, multi-sector climate action plans, and tailpipe standards.⁴⁸ Furthermore, the WCI will consider allowing WCI-regulated entities to use allowances originating from similar cap-and-trade systems.⁴⁹</p>	<p>Resolved to link to other jurisdictions' cap-and-trade systems.⁵⁰</p>	<p>Up to 15% of annual obligation may be met by purchasing allowances from foreign trading programs of "comparable integrity and stringency."⁵¹</p>	<p>In 2008, Norway announced its intentions to link its independent ETS with the EU.⁵²</p> <p>EU ETS Linking Directive Article 25 links with other GHG emissions trading schemes, saying:</p> <ol style="list-style-type: none"> 1. Agreements should be concluded with third countries listed in Annex B to the Kyoto Protocol which have ratified the Protocol to provide for the mutual recognition of allowances between the Community scheme and other greenhouse gas emissions trading schemes in accordance with the rules set out in Article 300 of the Treaty. 2. Where an agreement referred to in paragraph 1 has been concluded, the Commission shall draw up any necessary provisions relating to the mutual recognition of allowances under that agreement in accordance with the procedure referred to in Article 23(2).
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<p>ALLOWANCE DISTRIBUTION</p>	<p>So far, eight of the ten RGGI member states have committed to auction more than 90% of their allowances, and the remaining participants are auctioning more than 70% of their allowances.⁵³ The first of quarterly uniform regional auctions will take place on September 10, 2008.⁵⁴</p> <p>At least 25% of state allowance budgets must be reserved for “consumer benefit or strategic energy purposes.”⁵⁵</p>	<p>Like RGGI, each state is responsible for allocating allowances. Allocation decisions are subject to WCI ground rules that are being determined. Early reduction actions should be allowed.⁵⁶</p>		<p><u>Sum of all annual allocations between 2012 and 2050:</u></p> <p>Auction: 43.1%</p> <p>Freely Allocated: 56.9%⁵⁷</p> <p><u>Initial 2012 allocations:</u></p> <p>Auction: 24.5%</p> <p>Freely Allocated: 75.5%</p>	<p>Member nations determine the number and method of allowances, subject to review by the Commission⁵⁸ and the following ground rules:</p> <p>Phase I: allowances were freely distributed based on historic emissions.</p> <p>Phase II: member states may auction up to 10%.</p> <p>Phase III: proposed full auctioning for electricity sector.⁵⁹</p>
<p>NONCOMPLIANCE PENALTIES</p>	<p>If emitters do not possess sufficient allowances of the current or past vintage by the end of the compliance period, they forfeit 3x the number of allowances from a future vintage.⁶⁰ If they do not possess <i>any</i> allowances whatsoever, they are required to immediately acquire them.⁶¹</p>			<p>The noncompliance penalty for failure to submit one or more allowances is equal to the greater of \$200 or 3x the market value of allowances for each allowance not submitted.</p>	<p>Non-allowed emissions originally cost €40/ton ('05-'07), since increased to €100/ton ('08-'12).⁶²</p>

* 6 gases include carbon dioxide (CO₂), methane (CO), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

¹ The Regional Greenhouse Gas Initiative was initiated in a Memorandum of Understanding (MOU) signed on December 20, 2005; see http://www.rggi.org/docs/mou_12_20_05.pdf. A subsequent Model Rule has since been adopted by the ten member states; see http://www.rggi.org/docs/model_rule_corrected_1_5_07.pdf.

² <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>. The “Draft Design Recommendations” for a WCI Cap & Trade program, released on May 16, 2008, represents the best current information on the WCI cap & trade program. Plans may develop or substantially change until or after the design deadline in August, 2008.

³ The Midwestern Greenhouse Gas Reduction Accord is still in the draft design phase. All information in this column was taken from the November 15, 2007 Accord, available at <http://www.midwesternaccord.org/midwesterngreenhousegasreductionaccord.pdf>.

⁴ The full text of the S. 3036, the Boxer-Lieberman-Warner Substitute Amendment to the Lieberman Warner Climate Security Act (S. 2191), can be found at <http://lieberman.senate.gov/documents/amendment.pdf>. A detailed summary of the bill is available at <http://www.pewclimate.org/docUploads/L-WFullSummary.pdf>.

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⁵ The EU ETS currently has 27 member nations, and was agreed upon in principle in 2003. 2003/87/EC: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:275:0032:0046:EN:PDF>.

Phase I, the “learning phase,” ran from 2005-2007. Phase II will run from 2008-2012. Phase III will run from 2013-2017. For a historical summary and policy analysis of the EU ETS thus far, see *The European Union’s Emissions Trading System in Perspective*, published by the Pew Center in May, 2008: <http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf>. For current information, see the EU ETS homepage at http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm.

⁶ S. 3036 distinguishes between HFCs and the five non-HFC GHGs, but it regulates both. HFCs are regulated under a parallel regime; S. 3036 §1501.

⁷ <http://www.theclimateregistry.org/>

⁸ S. 3036 §102(a)

⁹ CITL stands for the Community Independent Transaction Log. For a list of EU national climate registries, see: <http://ec.europa.eu/environment/ets/registrySearch.do;jsessionid=LN7hqQMTD4HJG28JGdG12gDsSqLkTJGnFVhTyKVjtdc2sHG54867!-2000754511>.

¹⁰ RGGI Model Rule Subpart XX-1.4(a).

¹¹ <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>.

¹² Due to the problem of regulating electrical generation on a grid where not all generators are not subject to WCI jurisdiction, the WCI has proposed a “first jurisdictional deliverer” (FJD) approach. FJDs are: generator deliverers in WCI jurisdictions, or deliverers of imported electricity in WCI jurisdictions. See <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17468.pdf>. Also see <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F15951.PDF>.

¹³ <http://www.pewclimate.org/docUploads/L-WFullSummary.pdf>

¹⁴ RGGI “current levels” defined as 188,000,000 short tons of CO₂ for the region. See www.rggi.org/docs/program_summary_10_07.pdf

¹⁵ RGGI MOU Section 2.D.

¹⁶ However, some member states have near-term targets (2010-12): California (2000 levels by 2010); Manitoba (6% below 1990 levels by 2010-12); New Mexico (2000 levels by 2010); Oregon (arrest emissions growth by 2010); and Quebec (6% below 1990 levels by 2012). <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf>. http://www.mddep.gouv.qc.ca/changements/plan_action/2006-2012_en.pdf.

¹⁷ S. 3036 actually mandates an absolute cap on carbon emissions, rather than a relative percent reduction. For example, the ~5,775-million-ton CO₂e cap in force for 2012 represents a ~4% reduction from 2005 levels.

¹⁸ http://ec.europa.eu/environment/climat/emission/ets_post2012_en.htm

¹⁹ RGGI MOU Section 2.E.

²⁰ <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf>.

²¹ The goal, as expressed by the European Council in March, 2007 is to unilaterally reduce EU GHG emissions 20% below 1990 levels by 2020; or, if an international GHG regime is established, 30%. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0017:FIN:EN:PDF>. The European Commission, in its proposal for an amendment of the EU ETS authorizing directive, endorsed a plan to achieve the 20%-by-2020 goal via annual 1.74% reductions from a 2010 baseline. The Commission predicts that this linear reduction path will reduce emissions to 21% below reported 2005 levels. See http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf.

²² <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf>.

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²³ Although the WCI has not adopted a regional emissions reduction goal beyond 2020, several of the member states have separately adopted long-term targets (2040-50): Arizona (50% below 2000 by 2040); California (80% below 1990 by 2050); New Mexico (75% below 2000 by 2050); Oregon (>75% below 1990 by 2050); Washington (50% below 1990 by 2050). <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf>.

²⁴ The European Council “reaffirmed that developed countries should collectively reduce their emissions by 60% to 80% by 2050 compared to 1990.” http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf.

²⁵ The RGGI “Compliance Period” (or “Control Period”) is, by default, 3 years, and consolidates emissions from the constituent years for regulatory purposes. For example, an emitter may without penalty emit 1000 tons of CO₂ during 2009 with allowances for only 500 tons, provided it obtains allowances for the 500-ton difference before the end of the compliance period in December, 2011. See RGGI MOU Section 2.E.(1); RGGI Model Rule Subpart XX-1.2.(ag). The first compliance period runs from January 1, 2009 to December 31, 2011.

²⁶ RGGI compliance periods may be extended to 4 years, given a Safety Valve Trigger Event or Offsets Trigger Event. See 12, supra.

²⁷ However, the WCI’s first compliance period will be two years, to smooth the transition period.

²⁸ S. 3036 §202(a)

²⁹ RGGI MOU Section 2.I. Also, RGGI Model Rule Subpart XX-6.6.

³⁰ <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>.

³¹ S. 3036 §501

³² S. 3036 §511

³³ The emissions allowance surrender date falls at the end of February, two months after the issuance date for the next year’s allowances. Therefore, emitters may cover allowance shortages by “borrowing” from next year’s allowances. <http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf>

³⁴ See the Regional Greenhouse Gas Initiative (RGGI) Memorandum of Understanding (MOU) Section 2.F.(2)(b), signed December 20, 2005.

³⁵ Provided that the state or jurisdiction where the project is located has: a GHG cap-and-trade program; and/or entered into a memorandum of understanding with RGGI whereby the state agrees to ensure the credibility of the offset program. See RGGI MOU Section 2.F.(2)(a), as amended August 8, 2006.

³⁶ The price is determined by a 12-month rolling average (2005\$) starting after the first 14 months of the compliance period (the “market settling period”). See RGGI MOU Section 2.F.(3)(a) and 2.F.(3)(b), as amended August 8, 2006. “Offsets Trigger Event” also referred to as “Stage One Trigger Event;” RGGI Model Rule Subpart XX-1.2.(bd). Because the 12-month rolling average may not include the 14-month market settling period, the “Offset Trigger” or “Safety Valve Trigger” at the earliest may be triggered 26 months after commencement of the compliance period. www.rggi.org/docs/program_summary_10_07.pdf.

³⁷ RGGI MOU Section 2.F(4)(a).

³⁸ RGGI MOU Section 2.E(2)(a), as amended August 8, 2006. The “Safety Valve Trigger Event” (also referred to as “Stage Two Trigger Event”) expires upon the commencement of the subsequent compliance period. RGGI MOU Section 2.F(4)(b), as amended August 8, 2006.

³⁹ RGGI Model Rule Subpart XX-10.3(b).

⁴⁰ RGGI Model Rule Subpart XX-10.3.(a)(i)-(v).

⁴¹ <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>.

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⁴² See S. 3036 §302(b). For a list of eligible offset project types, see <http://www.pewclimate.org/docUploads/L-WFullSummary.pdf>.

⁴³ S. 3036 §321(b).

⁴⁴ CDM refers to emissions-reduction investments by developed (Annex B) countries in developing (Annex I) countries. JI refers to investment by an Annex B country in another Annex B country. Under the EU ETS, a certain fraction (typically 10%) of a country's emissions may be offset by CDM/JI. For additional details and explanation, see: Ellerman, A. Denny and Paul L. Joskow. *The European Union's Emissions Trading System in Perspective*. Pew Center on Global Climate Change, May 2008. <http://www.pewclimate.org/docUploads/EU-ETS-In-Perspective-Report.pdf>

⁴⁵ See S. 3036 §521.

⁴⁶ See S. 3036 §522.

⁴⁷ See *Recommendations for Developing a Greenhouse Gas Cap-and-Trade System for California*, published by the Market Advisory Committee to the California Air Resources Board on June 30, 2007. In Section 6-5, the MAC notes that the ability to successfully and sustainably link cap-and-trade programs correlates with the programs' similarities. Considering that a cap-and-trade program must negotiate separately with each of its linked partners, it is expected that linkage complexities and costs would increase in direct relation to the number of linked programs and in inverse relation to the programs' similarities. In addition, continued success depends on minimizing "leakage" of pollution to outside regulatory borders, and on coordinated cost-containment in linked systems. www.climatechange.ca.gov/events/2007-06-12_mac_meeting/2007-06-01_MAC_DRAFT_REPORT.PDF.

⁴⁸ See Goal 2 of the WCI Statement of Regional Goals. August 22, 2007. www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf

⁴⁹ <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>

⁵⁰ See the Midwestern Greenhouse Gas Accord. November 15, 2007. <http://www.midwesternaccord.org/midwesterngreenhousegasreductionaccord.pdf>

⁵¹ S. 3036 §322.

⁵² See: <http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/08/98&format=HTML&aged=0&language=EN&guiLanguage=en>

⁵³ www.rggi.org/docs/program_summary_10_07.pdf; www.rggi.org/docs/20080317auction_design.pdf.

⁵⁴ www.rggi.org/docs/20080317auction_design.pdf.

⁵⁵ RGGI Model Rule Subpart XX-5.3.(a) and (b); "consumer benefit or strategic energy purpose" defined in Model Rule Subpart XX-1.2.(ae).

⁵⁶ In the WCI's May 16, 2008 "Draft Design Recommendations," several ground rules were proposed for allowance allocation, including: transparent allocation policies; offering a minimum percentage (25-75%) of allowances through a regional auction process (The Draft Design Recommendations suggested 25-75%. However, the final recommended percentage has not been determined, and member states will set their own minimum auction requirements.); emphasis on free allocation in the early years of the cap-and-trade system, to mitigate transition complications; phased increases in the minimum percentage of auctioned allowances, perhaps to 100%. <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.PDF>.

⁵⁷ For a detailed illustration of freely allocated allowances and auction revenue streams, see <http://www.pewclimate.org/docUploads/S3036-allocation-summary.pdf>.

⁵⁸ See, for example, the European Commission's assessment of national allocation plans, released November 26, 2006. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2006:0725:FIN:EN:PDF>.

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⁵⁹ According to the European Commission's recommendations to amend the EU ETS Directive, "[a]uctioning best ensures efficiency of the ETS, transparency and simplicity of the system and avoids undesirable distributional effects. Auctioning also best complies with the polluter-pays principle and rewards early action to reduce emissions. For these reasons auctioning should be the basic principle for allocation." http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf, page 7.

⁶⁰ A RGGI allowance is assigned an immutable "vintage" or "allocation year." The sum of allowances in each annual vintage equals the total regional cap; e.g., 188 million allowances for each vintage from 2009-2014. An allowance may only be used during a compliance period coinciding with or subsequent to its vintage. For example, a 2010 allowance may be applied to an emission during the 2009-2011 compliance period or later, but a 2014 allowance may only be used during the 2012-2014 period or later.

⁶¹ RGGI Model Rule Subpart XX-6.5(d). For example, a utility emits 100 tons during the 2009-11 compliance period. It possesses 50 allowances from the 2011 vintage and 200 allowances from the 2013 vintage. It must forfeit all 50 of its 2011 allowances, and 150 (50x3) of its 2013 allowances.

⁶² See Cal MAC Recommendations App. B.2