### Major Design features for Cap and Carbon Trading

<table>
<thead>
<tr>
<th>Program start date (actual or planned)</th>
<th>Western Climate Initiative (WCI) - Basis for CA and Quebec -</th>
<th>WA Proposal SB 5735 (2009 not enacted) and amendments</th>
<th>California Cap &amp; Trade Program (AB 32)</th>
<th>Regional Greenhouse Gas Initiative (RGGI)</th>
<th>European Union Emission Trading System (ETS)</th>
<th>American Clean Energy and Security Act, 2009 H.R. 2454 (Waxman-Markey bill)</th>
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### Emission Reduction Targets

- 15% below 2005 for region (individual jurisdictions retained their existing reduction targets)
- 1990 levels by 2020
- 1990 levels by 2020 (AB32)
- 80% below 1990 by 2050 (Executive Order)
- 10% below the cap by 2019

### Scope/Coverage

- **Covered Gases:** CO₂, methane, nitrous oxide, sulfur hexafluoride, HFCs, PFCs, and greenhouse gases designated by rule.
- **Threshold:** CO₂, methane, nitrous oxide, sulfur hexafluoride, HFCs, PFCs, and greenhouse gases designated by rule.
- **Covered Entities:** CO₂, methane, nitrous oxide, sulfur hexafluoride, HFCs, PFCs, and greenhouse gases designated by rule.

### Point of Regulation

- **Industries sources – at the point of emission:** Electricity: in-state generator and first entity delivering imported electricity for.
- **Industrial sources – at the point of emission:** Electricity: in-state generator, and first entity delivering electricity.
- **Sources of electricity generation (168 facilities):** Downstream at the point of emission.

### Summary of Emission Trading Systems (proposed and active)

- **Waxman-Markey bill:**
  - 2012 (completely phased in by 2016)
- **Programs and initiatives:**
  - **Western Climate Initiative (WCI):**
    - Basis for CA and Quebec -
    - WA Proposal SB 5735 (2009 not enacted) and amendments
    - California Cap & Trade Program (AB 32)
    - 2012
    - 2015 - Phase II: 2017 local distribution
  - **European Union Emission Trading System (ETS):**
    - 2005
    - 28 EU countries
    - 2012 (completely phased in by 2016)
  - **American Clean Energy and Security Act, 2009 H.R. 2454 (Waxman-Markey bill):**
    - 2012 (completely phased in by 2016)
  - **European Clean Development Mechanism (CDM):**
    - 2012 (completely phased in by 2016)
  - **California Cap and Trade Program (AB 32):**
    - 2012
    - 2015 - Phase II: 2017 local distribution
  - **Regional Greenhouse Gas Initiative (RGGI):**
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<th>Consumption</th>
<th>RCI fuel combustion: Where the fuels enter commerce</th>
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<tbody>
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<td>from other state for consumption in-state</td>
<td>RCI fuel combustion: Where the fuels enter commerce</td>
</tr>
<tr>
<td>imported electricity for consumption</td>
<td>RCI fuel combustion: Where the fuels enter commerce</td>
</tr>
<tr>
<td>where the fuels enter commerce</td>
<td>Transportation fuel consumption: where the fuels enter commerce</td>
</tr>
<tr>
<td>where the fuels enter commerce</td>
<td>Other energy use is generally covered upstream at the producer or distributor of the combusted fuels</td>
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**Setting the Cap**

<table>
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<tr>
<th>Setting the Cap</th>
<th>Annual caps set in advance of the start date 2012</th>
<th>Decline over time</th>
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</thead>
<tbody>
<tr>
<td>Initial cap based on expected actual emissions in 2012 for sources covered 2015: cap set by adding RCI and transportation 2020: cap for 2020 set so that reduction by the cap plus reductions from other policies will achieve WCI 2020 goal. Post-2020: caps will be set not less than 3 years in advance Restrictions on adjusting the caps, adjustment made prior to compliance period</td>
<td>Proposed to set statewide and sector emission caps for covered entities - recommendations subject to legislative approval Emissions cap must decline evenly in each sector until the state GHG are reduced as required in RCW 70.235.020</td>
<td>Set in 2013 at about 2 percent below the emissions level forecast for 2012 Declines about 2 percent in 2014 Declines about 3 percent annually from 2015 to 2020</td>
</tr>
<tr>
<td>Referred to as CO2 budget MOU set the overall emissions budget per compliance period 2.5% per year reduction</td>
<td>EU-wide caps for Phase I and II From 2013 onward the cap is reduced by 1.74%, by 2020 GHG is reduced 21% from 2005</td>
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**Allowance Distribution**

| Allowance Distribution | Allowances issued by each Jurisdiction | Distribution can be standardized to address competitiveness 10% minimum is auctioned in 1st compliance period, increase to 25% in 2020 Coordinated regional auction process designed by jurisdictions 5% of allowances are reserved to avoid over-supply, & reserve price is set Early reduction allowances for reduction from 1/2008 to 1/2012, in addition to 2012 allowance budget | Didn’t advance to this decision phase |
|-----------------------|----------------------------------------|-----------------------------------------------|
|                       | Annual allowances budgets set for years 2013-2020 | Allowances directly allocated to covered entity or opt-in covered entity based on methodology which includes emissions efficiency benchmark per unit Free allowances to industrial facilities for leakage prevention and transition assistance All remaining allowances are auctioned. 1st auction conducted Nov. 2012 Auction reserve price ($10) An auction purchase limit is set per entity or groups of entities within same corporation Allowance price containment reserve | RGGI auctions virtually all allowances Fixed additional supply of allowances that are only available for sale if CO2 allowance prices exceed certain price levels RGGI adjust budgets to account for banked allowances held by emitters |
|                       | The vast majority of allowances were previously given away (grandfathered), for Phase I and II only 5% were auctioned From 2013 auctioning is the main method of allocating allowances From 2013 power generators must buy all of their allowances (there are some exceptions to new member states) Allocation to states are based on several factors (verified emissions, least wealthy states, Kyoto bonus) Manufacturing industry will receive 80% of its allowances free of charge in 2013, decreasing annually to 30% in 2020. Distributed based on harmonized rules-meaning on the basis of an average or expected performance benchmark ( Free allowances phased out by 2027. Most governments use a common platform | The vast majority of allowances were previously given away (grandfathered), for Phase I and II only 5% were auctioned From 2013 auctioning is the main method of allocating allowances From 2013 power generators must buy all of their allowances (there are some exceptions to new member states) Allocation to states are based on several factors (verified emissions, least wealthy states, Kyoto bonus) Manufacturing industry will receive 80% of its allowances free of charge in 2013, decreasing annually to 30% in 2020. Distributed based on harmonized rules-meaning on the basis of an average or expected performance benchmark ( Free allowances phased out by 2027. Most governments use a common platform | About 80 percent of emission permits would be given away free at the start of the program, with the percentage decreasing over time. By 2030 70% of allowances will be auctioned. From 2020 free allowances are given with different phase out periods and conditions to: energy-intensive industries merchant coal generators and to electricity producers under long-term contracts; oil refineries state governments to support renewable energy, EE, etc. local natural-gas distribution companies automobile industry Strategic allowance reserve auction |

**Annual Allowance Budgets**

- **MOU Set the Overall Emissions Budget Per Compliance Period**
  - 2.5% per year reduction
- **EU-wide Caps for Phase I and II**
  - From 2013 onward the cap is reduced by 1.74%, by 2020 GHG is reduced 21% from 2005
- **Establish the Quantity of Allowances for Years 2012-2050 (4627 to 1035 MMTCO2e)**
  - About 80 percent of emission permits would be given away free at the start of the program, with the percentage decreasing over time. By 2030 70% of allowances will be auctioned. For 2020 free allowances are given with different phase out periods and conditions to:
### Revenue
A portion of the value of allowance budget dedicated for public purposes (i.e. energy efficiency, emissions reductions and sequestration in agriculture and forestry, adaptation, R&D, demonstrations and deployment). The rest used as the jurisdiction sees fit.

<table>
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<tr>
<th>Decision phase</th>
<th>Proceeds from the sale of allowances deposited into the Air Pollution Control Fund and available for appropriation by the Legislature</th>
<th>Proceeds invested in energy efficiency, renewable, direct bill assistance</th>
<th>At least ½ of auctioning revenues should be used to combat climate change in Europe or other countries</th>
<th>The proportion of allowances auctioned for deficit reduction or for refunds to consumer increases from about ½ a percent in 2020 to over 50 percent by 2050.</th>
</tr>
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### Cost containment (Banking and Borrowing)
Unlimited banking – number of allowances held by any party is limited to prevent market manipulation. Borrowing is not allowed.

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<th>Unlimited banking Cost containment reserve (CCR) to provide flexibility and cost containment</th>
<th>Unlimited banking</th>
<th>Unlimited next year borrowing with no interest and borrowing of 15% of compliance obligation from 2-5 years at 8% annual interest</th>
</tr>
</thead>
</table>

### Compliance period

<table>
<thead>
<tr>
<th>Would have looked to WCI structure</th>
<th>1st period 2013-2014 2nd period 2015-2017 3rd period 2018-2020 Three-year compliance periods</th>
<th>3 year compliance period</th>
<th>Annual compliance period</th>
<th>Two-year compliance period</th>
</tr>
</thead>
</table>

### Compliance & Enforcement mechanisms
Sufficient allowance surrendered at end of each compliance period.
If no compliance entity or facility will be required to obtain and surrender 3X allowances Penalties can be imposed.

| Would have looked to WCI structure | Capped industries provide allowances and offsets for 30 percent of previous year’s emissions Every three years, these industries provide allowances and offsets covering the remainder of emissions in that three-year compliance period If deadline is missed or there is a shortfall, four allowances must be provided for every ton of emissions that was not covered in time Various mechanisms to prevent market manipulation | Entities must hold 50% of their allowance obligation at the end of each Interim Control Period, (any year that is not the end of a three-year compliance period). Fine equal to three times the allowance price for each ton of CO2 emissions exceeding the number of submitted allowances. Additional penalties for sources not holding allowances accounting for the 50% compliance obligation. Independent market monitor. Violations subject to Clean Air Act penalties. | Under phase 3 there is a fine of €100 for every tCO2-e unit that is not surrendered. | Penalties for non-compliance – 2X number of allowances not delivered An allowance tracking system must be established to facilitate the orderly functioning of allowance and offset credit markets |
### Offset credits

Limit use of offsets and allowances from other trading systems to no more than 49% of total emission reductions from 2012-2020

- Projects inside WCI, but may accept offset credits from developing countries
- List of project types to use as priority for offset projects (agriculture, forestry and waste)
- Protocols to be developed

No more than 49% of a sector’s total emissions reductions from 2012 to 2020 can be from offsets

- Offset credit - real, additional, quantifiable, permanent, verifiable, and enforceable;
- Must meet the compliance Offset Protocol
- Must be within US, Canada or Mexico
- Requirements for offset projects are set
- Projects registered and listed
- Offsets verified by an ARB accredited verification body

Offset credits limited to 3.3% of covered entity reported emissions

- Offsets must originate within U.S. unless prices exceed $10
- Quantitative restrictions: In phases 2 and 3 each country can set its own limit for how many CERs (certified emission reduction unit) can be surrendered, but the maximum is 11% of each entity’s total free allocation from phase 2, and for entities that did not participate in phase 2 this number is 4.5% of its allowance for each year.
- Qualitative restrictions: In phase 1 CERs from LULUCF (Land Use, Land-Use Change and Forestry) projects were ineligible. In phases 2 and 3 CERs referring to abatement from of HFC and N2O (from the production of adipic acid) were also designated as ineligible. Finally in phase three all CERs surrendered that were registered after 31 December 2012 must be in an LDC (less developed country). Restrictions on ERUs (emissions reduction units - JI units) were also introduced for phase 3.

| Offsets could account for up to 2 billion tons of total emission reductions each year under the entire cap; in 2012 up to 15 % and by 2050 33%
| EPA to determine eligible projects 1/2 offsets would be domestic, 1/2 international. Up to 3/4 from international sources if not enough US sources
| USDA would have established a list of eligible agricultural and forestry offset programs. The USDA will then issue offset credits to the project developers. |

### Governance and Institutions

Regional organization created to administer the program (WCI Inc.)

Would have been part of WCI, so same institutions

- Auction Administrator
- Executive Officer
- Financial Service Administrator

WCI Inc. serves as regional organization for CA and QC

RGGI Inc.

- Oversight and guidance is provided by the European Union by co-decision of the Member States. The detailed implementation is designed by the European Commission, with approval from the Member States. Third parties are responsible for verification.
- National governments are responsible for accreditation and enforcement.
- Federal GHG registry
- FERC regulate cash market in derivative markets
- Commodity Futures Trading Commission responsible for derivative markets
- No over-the-counter trading of derivatives
- Offsets Integrity Advisory board

### Linking to other markets

New WCI partner can be added – must adopt GHG reduction goal as stringent or more

- Done by bilateral or multilateral agreement

Would have been part of larger WCI trading market

Government of Quebec (effective January 1, 2014), under a formal linkage agreement

Frequent discussions but formal linkage considered unlikely due to differences in program scope and allowance prices.

- Over the next decade ETSs are planned across the OECD (Organization for Economic Co-operation and Development - 34 countries founded in 1961
- States could not enact C&T
- State trading put on hold
- Allowed holder of allowances from RGGI and CA to exchange them for federal allowances

### Role of other policies (complementary and/or supplementary)

Other fiscal measures can be used, or can implement policies for transportation (smart growth, LCFS, transit options, etc)

Alternative non-market based strategies for achieving targets – e.g., regulatory, performance based, economic and fiscal measures, measures to transition from coal-fired electricity, transportation, energy efficiency in buildings.

Large role for complementary policies, which make up the majority of the emission reductions necessary under AB 32. The AB 32 scoping plan lays out the total emission reductions.

Proceeds from auctions largely directed to energy efficiency programs. Transportation initiative also underway in RGGI region.

- Complementary policies needed to transform the energy system – renewable energy policies
- Supplemental emissions reductions through reduced deforestation – use allowance set-aside to reduce GHG emissions from deforestation