



GHG ALLOWANCE/FEE REVENUE ALLOCATION WORKSHOP

April 16, 2009 – California Museum in Sacramento

BACKGROUND

INTRODUCTION

As mandated by the Global Warming Solutions Law (AB 32), the California Air Resources Board (ARB) adopted a scoping plan in December 2008 that includes implementing a broad-based California cap-and-trade program covering 85 percent of the state's greenhouse gas (GHG) emissions. The scoping plan also contains targeted GHG fees. By law, implementation regulations must be developed by January 1, 2011, with the program beginning in 2012.

CAP-AND-TRADEⁱ

- In a cap-and-trade program, the government determines which facilities or emissions are covered and the government sets an overall emission target, or "cap," for covered entities. California's cap, by law, is to reduce GHG emissions to 1990 levels by 2020, or by approximately 30 percent.
- Once the cap has been set and covered entities specified, tradable emissions allowances (rights to emit) are distributed either by selling or "grandfathering" in historical emitters (that is, giving allowances away for free.)
- Each allowance effectively puts a price on carbon by authorizing the release of a specified amount of GHG emissions, generally one ton of carbon dioxide equivalent. The total number of allowances is equivalent to the overall emissions cap. Covered entities must submit allowances equivalent to the level of emissions for which they are responsible at the end of each program's compliance period.
- Allowance trading occurs because firms face different costs for reducing emissions. For some emitters, implementing new, low-emitting technologies may be relatively inexpensive. Those firms will either buy fewer allowances or sell their surplus allowances to firms that face higher emission control costs, depending on the program design.

GHG FEES

Targeted GHG fees would reduce emissions in several ways:ⁱⁱ

- The cost of the fee would encourage consumers to make purchasing choices that lower their GHG footprint, while also encouraging producers to innovate and reduce their GHG impact.
- The revenue from the fee could be invested in achieving GHG reductions.

PROGRAM DESIGN CHOICES

Emission allowances represent a significant economic value whether they are freely allocated or sold through auction. Depending on market conditions and program design, California GHG allowances (see definition below) could generate billions of dollars in state revenue.

A first and critical program design decision regards the percentage of allowances that are auctioned (or sold) to emitters. California has signed an agreement as a member of the

Western Climate Initiative (WCI) network of US states and Canadian provinces that requires auctioning 10-25 percent of allowances, while leaving California free to auction up to 100 percent of allowances. The Scoping Plan states that “ARB agrees that a transition to a 100 percent auction is a worthwhile goal for distributing allowances. However a broad set of factors must be considered in evaluating the potential timing of a transition to a full action including competitiveness, potential for emissions leakage, the effect on regulated versus unregulated industrial sectors, the overall impact on consumers and the strategic use of auction revenues.”

The AB 32 Scoping Plan identifies a number of potential uses for revenue generated by a cap-and-trade system without evaluating the advantages and disadvantages of different options, and calls for further input from outside experts. Those options include funding major investments in transitioning California businesses, residents, and local governments to a cleaner and more efficient economy. This idea is supported in concept by both the Economic and Technology Advancement Advisory Committee (ETAAC) and the Environmental Justice Advisory Committee (EJAC), which recognized the co-benefits of reduced air pollution in low-income and minority communities. Other options include using the revenue to fund consumer dividends, tax credits, RD&D, worker training, adaptation to climate change, and program administration. Thus, California decision-makers need the best information possible to shape an allocation/distribution policy framework that best meets the goals of AB 32.

California has the advantage of evaluating the lessons learned from a range of prior allocation decisions. As noted below, allocations were initially based on grandfathering under the initial rounds of the European Union Emissions Trading Scheme, followed by a push to greatly increase the levels of auctioning. Allocations are based primarily on auctioning under the more recent Regional Geographic Greenhouse Gas Initiative.

The following revenue allocation scenarios and their impacts are analyzed by RFF:

Cap-and-dividend options	<ul style="list-style-type: none"> – Per capita dividend of allowance revenues to households, pretax (more progressive than posttax) – Per capita dividend of allowances revenues to households, posttax (progressive)
Adjustment of preexisting taxes	<ul style="list-style-type: none"> – Reduction in income taxes (most regressive) – Reduction in payroll taxes (regressive) – Expansion of the Earned Income Tax Credit (most progressive)
Energy and fuel sector options	<ul style="list-style-type: none"> – Free allocation of allowances to consumers in the electricity sector (progressive) – Exemption of transportation sector from the cap-and-trade program (progressive) – Exemption of home heating sector from cap-and-trade program (progressive) – Investment in end-use energy efficiency (progressive)
Free allocation	<ul style="list-style-type: none"> – Grandfathering to incumbent emitters (regressive)

The report studies the literature on distributional impacts of climate policies and found that the distributional effects hinge crucially on whether allowances are grandfathered or auctioned and whether revenues from allowance auctions, or from indirect taxation of allowance rents, are used to cut payroll taxes, corporate taxes, or provide lump sum transfers. In summary, the literature indicated that it is important to look at both the direct effects of climate policies – that is, the direct increase in the price of energy consumed by households – and the indirect effects – that is, the increase in the costs of products and services for which energy is an input.ⁱⁱⁱ

EXISTING EXPERIENCE ON ALLOCATING THE VALUE OF GHG ALLOWANCES/FEES/TAXES

prepared by ICCT for the April 16, 2009 GHG Allocation Workshop

Regional Geographic Greenhouse Initiative (RGGI)

Description	The states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont established a cap-and-trade system to stabilize GHG from the electric power sector and eventually reduce GHG emissions 10% by 2018. ^{iv}
Start Date	The first compliance period began in 2009 and runs through 2011. The first allowance auction occurred on September 25, 2008.
Scope	RGGI covers the electricity sector, but only in-region generators and not imported electricity. Baseline emissions are approximately 180 mmtpy CO ₂ (eq).
Allocations	<p>Eight of ten states currently auction nearly 100% of their allowances^v. The RGGI model rule sets a minimum requirement of allocating 25% of allowance for the “consumer benefit or strategic energy purpose allocation”.^{vi} This term is defined in the RGGI model rule to mean the goals of “promotion of energy efficiency measures (EEMs), direct mitigation of electricity ratepayer impacts attributable to the implementation of the CO₂ Budget Trading Program, promotion of renewable or non-carbon-emitting energy technologies, stimulation or reward of investment in the development of innovative carbon emissions abatement technologies with significant carbon reduction potential, and/or the administration [of the program]”^{vii}</p> <p>Auctions of a portion of 2009 allowances have realized over \$250 million^{viii} (allowance prices ranged from \$3.07/ ton to \$3.51/ton), benefiting energy efficiency, renewable energy and other consumer benefits.^{ix} The New York Times reported that the Governor of New York is considering increasing the amount of free allocation to electric utilities from 1.5 million tons of emissions to 6.5 million tons^x from a base budget of 64.3 tons annually.^{xi}</p>

British Columbia Carbon Tax

Description	The purpose of the carbon tax is to encourage individuals and businesses to reduce their use of fossil fuels and reduce related emissions.
Start Date	Phase-in started July 1, 2008.
Scope	Covers all carbon-based fuels for transportation, heating, electricity, industry in the Canadian province of British Columbia. Baseline emissions are approximately 64 mmtpy CO ₂ (eq). ^{xii}
Allocations	Phases in from \$10 (Canadian) per ton of CO ₂ in 2008 to \$30 per ton in 2012, all of which is returned to residents and businesses. Income tax rates for the first \$70,000 earned was cut five per cent in 2009 and the corporate taxes were also cut. The government issued a \$100 rebate to every adult and child in the province in 2008 and will continue to issue annual tax credits to offset the cost of the carbon tax. The BC government has also implemented incentives and programs to improve the fuel efficiency of trucking. ^{xiii}

European Union Emissions Trading Scheme (EU ETS)

Description	The EU ETS is a cap&trade system with the objective of helping EU Member States achieve compliance with their commitments under the Kyoto Protocol. Under the Kyoto Protocol, the EU15 has to reduce its collective greenhouse gas emissions by 8% below 1990 levels during 2008-2012. The majority of the Member States that joined the EU on 1 May 2004 have individual targets under the Kyoto Protocol with the exception of Cyprus and Malta, which have no targets.
Start Date	The EU ETS “Learning phase” occurred from 2005-2007. Phase II began in 2008 and runs through 2012.
Scope	“The more than 10,000 installations that are covered by the scheme across the EU- 25 are combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics and pulp and paper.” ^{xiv} Baseline emissions are approximately 2100 million metric tons CO ₂ (eq) per year ^{xv} . A directive has been issued to include aviation beginning in 2013. ^{xvi}
Allocations	<p>The EU ETS required at least 95% free allocation to existing sources of emissions in Phase I, and 90% free allocation in Phase II. There has been a very limited transition to auctioning at the beginning of Phase II. The UK government completed its second auction on March 24, 2009, which additional auctions scheduled for the future.^{xvii}</p> <p>The UK Carbon Trust found that “The first year ... confirmed economists’ predictions that sectors – especially power generation – would pass through most of the carbon costs in their product prices, and as a result profit from their free allocations. In the year of high prices, power generators in the UK made around EU 1 billion profit”^{xviii}.</p> <p>The European Commission for Environment has posted the following policy statements regarding allocations: “While the great majority of allowances has been allocated free of charge to installations in the first and second trading periods, the Commission proposed that auctioning of allowances should become the basic principle for allocation. This is because auctioning best ensures the efficiency, transparency and simplicity of the system and creates the greatest incentive for investments in a low-carbon economy. It best complies with the “polluter pays principle” and avoids giving windfall profits to certain sectors that have passed on the notional cost of allowances to their customers despite receiving them for free.</p> <p>^{xix}No allowances will be allocated free of charge for electricity production, with only limited and temporary options to derogate from this rule. Sectors and sub-sectors found to be exposed to a significant risk of carbon leakage will receive allowances for free based on ambitious benchmarks, but for non exposed industry such allocations will be phased out.”^{xx}</p>

UK Climate Change Levy

Description	The levy is part of a range of measures designed to help the UK meet its legally binding commitment to reduce greenhouse gas emissions. ^{xxi}
Start Date	The Climate Change Levy (CCL), i.e. a tax, came into effect on April 1, 2001.
Scope	The CCL applies to energy used in the non-domestic sector (industry, commerce, and the public sector) including coal, natural gas, electricity, and petroleum (excluding road fuel). For instance, the levy equals approximately 0.7 cents per KW-hr of electricity consumption.
Allocations	Revenue from the CCL funds accelerated depreciation tax write-offs for investments in energy saving technologies and products and (at least in part) the Carbon Trust. Both help businesses reduce their energy use and the development and adoption of low carbon technologies. ^{xxii} The mission of the Carbon Trust is to accelerate the move to a low carbon economy by working with organizations to reduce carbon emissions and develop commercial low carbon technologies. ^{xxiii} Climate Change Agreements (CCAs) provide an 80% discount on the levy if challenging targets are met for improving energy efficiency or reducing greenhouse gas emissions, which can help the competitiveness of carbon-intensive firms. Estimated emission reductions by 2010 are 14.2 mmtpy CO ₂ (eq) for the CCL and CCA and 4.4 mmtpy for the Carbon Trust, with potential long-term additional reductions of 13.7 to 20.7 mmtpy by 2050 from investments in low-carbon technology. ^{xxiv}

US Clean Air Act Acid Rain Program

Description	The Clean Air Amendments of 1990 included a cap-and-trade program for sulfur dioxide to reduce acid rain in the United States and downwind areas of Canada.
Start Date	Phase I began in 1995, with additional generating units covered under Phase II in 2000.
Scope	The program affects primarily coal-fired electric utility generating units including over 100 US large electric utilities.
Allocations	The Clean Air Act contains a free allocation formula for fossil fuel based electric utilities with a number of bonuses and exceptions ^{xxv} and a small fraction of allowances set aside as a “bonus” for energy efficiency and renewable energy (which did not overall decrease electricity& fossil fuel usage). Utilities receiving allocations were typically vertically integrated generation & distribution companies subject to state price regulation established to prevent excess profits. The value of the allowances were estimated at \$1-\$2 billion annually, significantly less than anticipated under a CO ₂ trading system. (<i>NCEP, Allocations Allowances under a Greenhouse Gas Trading System, will add page number and move to footnotes</i>) (note that later program revisions changed the value of these allowances) The program auctions approximately 2.8% annually ^{xxvi} to assist price discovery and to allow access for new entrants into the market.

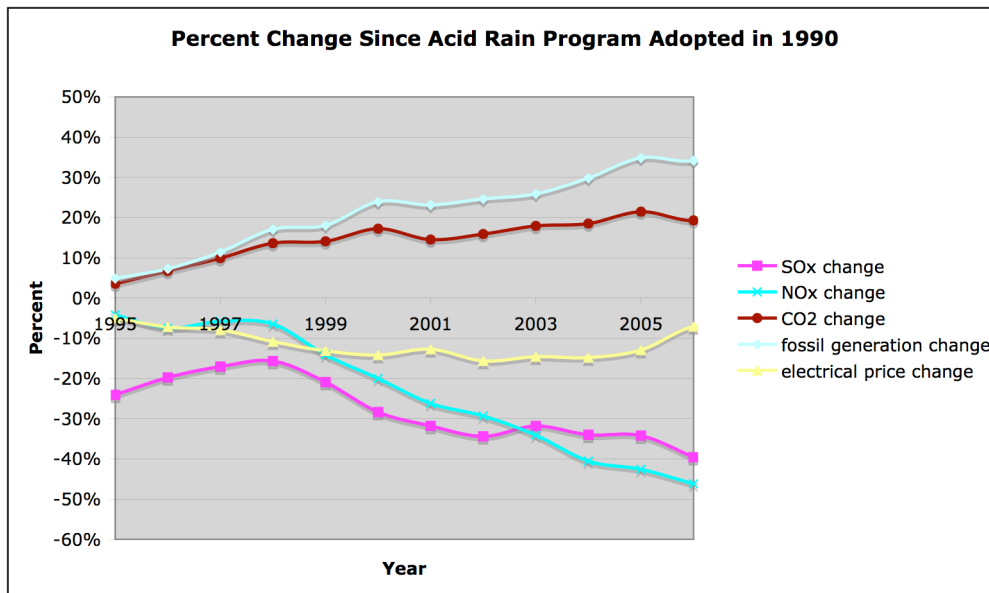


Chart data sources: US EPA, US Energy Information Administration

Chlorofluorocarbon Taxes and Allowance Trading

Description	The CFC tax and a system of declining tradable allowances were implemented in the United States to eliminate CFCs for most purposes by 2000 under the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer.
Start Date	The tax was phased-in from 1990 to 1995 in the United States. The US Clean Air Act Amendments of 1990 established the final rules for the allocation & trading program.
Scope	US program covered domestic production plus imports.
Allocations	<p>“The marketable allowance trading system was accompanied by excise taxes on CFC production in the US. The rationale for the excise taxes was that the restrictions on the quantity of CFCs and halons offered on the market would lead to rapidly escalating prices that potentially would reduce incentives to develop substitutes in a timely fashion. The excise taxes were designed to capture "windfall profits," whereas the allowance trading system was designed to assure that production and import of the substances was efficient (concentrated at the lowest cost producers, who then produced the most valued CFCs). According to Cook, the tax raised \$2.9 billion in its first five years.”^{xxvii}</p> <p>In Singapore all CFC allowances were sold with the price determined through an auction format. Half were actually allocated based on auction bids, while the other half were sold to historical producers at the same price as the auction result.^{xxviii}</p>

Finland Carbon Tax

Start Date	1990
Scope	Covers transportation fuels, coal, natural gas, and other fuels.
Allocations	While the tax originally based only on carbon content, the tax was subsequently changed to a combination tax that is based primarily on carbon emissions and secondarily on energy usage. ^{xxix} The current tax is €18.05 per tonne of CO ₂ (€66.2 per tonne of carbon) or \$24.39 per tonne of CO ₂ (\$89.39 per tonne of

| carbon) in U.S. dollars.^{xxx}

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- ⁱ http://www.pewclimate.org/global-warming-basics/climate_change_101
- ⁱⁱ See ARB Proposed Scoping Plan, adopted December 2008, page 60.
- ⁱⁱⁱ RFF
- ^{iv} RGGI, <http://www.rggi.org/about>
- ^v <http://www.lawandenvironment.com/2009/03/articles/climate-change/100-auction-for-co2-allowances-takes-a-hit/>
- ^{vi} RGGI model rule, December 2008, page 39, http://www.rggi.org/about/history/model_rule
- ^{vii} RGGI model rule, December 2008, page 11, http://www.rggi.org/about/history/model_rule
- ^{viii} <http://www.rggi.org/co2-auctions/results>
- ^{ix} http://www.rggi.org/docs/Auction_3_News_Release_MM_Report.pdf
- ^x http://www.nytimes.com/2009/03/06/nyregion/06paterson.html?_r=2
- ^{xi} NYDEC Part 242-5.3, <http://www.dec.ny.gov/regs/47185.html>
- ^{xii} http://www.livesmartbc.ca/attachments/climateaction_plan_web.pdf
- ^{xiii} http://www.gov.bc.ca/fortherecord/carbon/cr_taxpayers.html?src=/taxpayers/cr_taxpayers.html
- ^{xiv} European Commission, http://ec.europa.eu/environment/climat/pdf/m06_452_en.pdf
- ^{xv} European Commission, "Emissions Trading: EU-wide cap for 2008-2012 set at 2.08 billion allowances after assessment of national plans for Bulgaria," EC Press Release, October 26, 2007.
- ^{xvi} http://ec.europa.eu/environment/climat/aviation_en.htm
- ^{xvii} <http://www.dmo.gov.uk/index.aspx?page=ETS/AuctionInfo>
- ^{xviii} "Allocation and competitiveness in the EU Emissions Trading Scheme, Options for Phase II and beyond", 2006, www.carbontrust.co.uk. Point Carbon estimated windfall profits in the UK, Germany, Spain, Italy, and Poland to be between 23 and 71 billion euros, in total, during the second period of the EU ETS (2008 – 2012)." EU ETS Phase II – The potential and scale of windfall profits in the power sector, A report for WWF By Point Carbon Advisory Services, March 2008 http://assets.panda.org/downloads/point_carbon_wwf_windfall_profits_mar08_final_report.pdf (note that 1 euro equals 1.33 US dollars)
- ^{xix}
- ^{xx} Source: European Commission for Environment, <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/08/796&format=HTML&aged=0&language=EN&guiLanguage=en>, and http://ec.europa.eu/environment/climat/emission/auctioning_en.htm
- ^{xxi} HM Revenue & Customs, http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageExcise_InfoGuides&propertyType=document&id=HMCE_CL_001174
- ^{xxii} UK Carbon Trust
- ^{xxiii} UK Carbon Trust, <http://www.carbontrust.co.uk/about>
- ^{xxiv} National Audit Office "The carbon Trust Accelerating the move to a low carbon economy" November 22, 2007." Executive Summary and p.10.
- ^{xxv} See Clean Air Amendments of 1990 section 404 on allocating allowances. A very small percentage were auctioned annually to create a price signal and provide an opportunity for new entrants to the market.
- ^{xxvi} <http://www.epa.gov/airmarkets/trading/factsheet-auction.html>
- ^{xxvii} US EPA, see <http://yosemite.epa.gov/ee/epa/incsave.nsf/22dcaad1f2bc15e8852567840015b4f6/511d430d23ed4d8585256636004f926c!OpenDocument>
- ^{xxviii} US EPA, <http://yosemite.epa.gov/ee/epa/incsave.nsf/ed54df2c1fa8521a85256c2c0056dd36/511d430d23ed4d8585256636004f926c!OpenDocument>
- ^{xxix} US EPA, <http://yosemite.epa.gov/ee/epalib/incent.nsf/384624008775ddb88525634e003fbd8b/6efc340b45af9e2f852564ef006c7187!OpenDocument>
- ^{xxx} Using the August 17, 2007 exchange rate of USD 1.00= Euro 0.7405. Current taxes are summarized in a Ministry of the Environment fact sheet [Environmentally Related Energy Taxation in Finland](http://www.environment.fi/default.asp?contentid=147208&lan=en), <http://www.environment.fi/default.asp?contentid=147208&lan=en>.