



Cap and Trade under California's Global Warming Solutions Act: Environmental integrity and low-cost emission reductions

California's Global Warming Solutions Act (AB32) puts an economy-wide cap on greenhouse gas emissions in California. In December 2008, the California Air Resources Board (CARB) adopted a plan that calls for over 85% of California's emissions to be regulated by a cap-and-trade program, including the transportation, electricity, natural gas and large industry.

A cap-and-trade mechanism creates a market for emission reductions that rewards innovation. Allowance trading gives businesses the flexibility to find cost-effective solutions. Cap and trade is superior to a carbon tax because the 'cap' specifies an environmental outcome, and trading inspires innovation and a search for low cost reductions.

Comparing Cap and Trade with a Carbon Tax

	CAP AND TRADE	CARBON TAX
<i>Environmental outcome</i>	<p>Certain environmental outcome.</p> <p>An emissions cap sets a limit on the amount of greenhouse gases that can be sent into the atmosphere. Capped entities are required to reduce emissions or buy allowances from other entities that achieve reductions beyond their requirements. The balance of supply and demand for allowances determines the prevailing allowance price in trades.</p>	<p>Uncertain environmental outcome.</p> <p>Carbon taxes deliver revenue that can be used to reduce emissions, but there is no guarantee that the added cost pressure will drive down emissions substantially. Setting the tax high enough will be difficult politically, requiring constant revision to achieve desired greenhouse gas emission reductions.</p>
<i>Integration with regional, national, and international programs</i>	<p>Easily integrated.</p> <p>Cap-and-trade systems are underway in the Northeast Regional Greenhouse Gas Initiative and Europe, and is the preferred strategy for the Western States Climate Initiative and federal legislation.. These programs can be readily linked to each other such that quantified emission reductions can be credited and traded in various markets.</p>	<p>Not easily integrated.</p> <p>Tax codes vary widely from state to state and are not easily applied to foreign goods. A tax policy that gives proper treatment to both interstate commerce as well as foreign imports will be difficult to create and in need of constant revision as governments make alterations to their respective tax rates.</p>
<i>Facilitation of long-term investment decisions</i>	<p>Facilitates long-term planning.</p> <p>Though prices will fluctuate with overall economic conditions and availability of reductions, a declining cap ensures continued demand for emission reductions into the future. Whereas taxes provide precise price certainty, cap and trade provides certainty that there will be a price for greenhouse gas emissions.</p>	<p>Facilitates long-term planning.</p> <p>Carbon taxes provide a specified price signal that allows companies to plan for the future. However, the tax rate needed to achieve environmental goals is difficult to know, so tax rates will be subject to changes as needed to achieve desired environmental outcomes.</p>

<i>Cost containment mechanisms</i>	Design features provide cost containment. Features like high quality, low-cost offsets and banking of allowances from year-to-year can reduce economic uncertainty that results from dynamic markets without compromising the environmental goals.	Does not provide cost containment. While a tax guarantees a price and generates revenue, there is no prospect for the price to fall with innovations that lead to lower cost reductions.
<i>Track record</i>	Successful history. The Clean Air Act established a highly successful sulfur dioxide allowance trading program to reduce acidifying emissions from coal power plants. The program cut pollution 40% from 1990 levels at half the expected cost and ahead of schedule.	Untested. Carbon taxes have been implemented in very few places. Where it has been tried, carbon taxes have failed to reduce overall emissions. In Norway, emissions are expected to increase nearly 10% by 2020 despite carbon taxes.
<i>Cost of reductions</i>	Low-cost reductions. Following the principles of competitive advantage, well-designed cap and trade ensures efficient allocation of resources by allowing each participant to decide how to reduce emissions. Entities that can reduce emissions cheaply will have an incentive to do so from selling their unused allowances.	Unknown cost-effectiveness. Taxing ensures money will be available for emission reductions but hinges on regulators investing the revenues effectively. Many hands will be reaching into the revenue jar and there will be political pressure to redirect revenues away from climate change mitigation.
<i>Ease of implementation</i>	Modest challenges to implementation. Cap and trade will require a new regulatory framework to track emission reductions and to facilitate and oversee allowance trading.	Modest challenges to implementation. Carbon taxes would require significant, ongoing revisions to the tax code that are likely to face continual political challenges.
<i>Innovation incentives</i>	Financial incentive to over-comply. Truly green businesses will be rewarded for adopting low-carbon technologies that reduce emissions below their individual targets. This creates a profit motive that drives innovation and encourages businesses to think creatively about reducing emissions. Also, allowance prices will decline once new innovations enable lower cost reductions.	Financial incentive to avoid costs. Taxes put a modest premium on innovation to the extent that entities try to avoid extra costs from carbon-intensive goods and services. But there is no direct profit motive as exists with allowance trading, nor would the tax amount decline automatically once innovation enables reductions at lower cost.
<i>Flexibility</i>	Flexible compliance for individual entities. Cap and trade creates a market price for greenhouse gas reductions that naturally fluctuates with economic conditions (via the balance between supply and demand for emissions). When economic activity is low and when new methods for achieving low-cost reductions are implemented, allowance prices will fall. When the economy grows and production increases, allowance prices will go up, ensuring that growth is directed toward low-carbon investments	Inflexible compliance for individual entities. Because tax codes are written in statute, government would have to constantly revise the tax rate based on expected or prevailing economic conditions to provide the type of automatic adjustments engendered in cap and trade. Legislators will be responsible for adjusting the price signal, which is difficult to do especially where a two-thirds majority vote is required to change taxes.

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