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CALIFORNIA CLIMATE CHANGE PROJECT BRIEF SUMMARY



Lessons for a Cap-and-Trade Program

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This summary provides recommendations for a cap-and-trade system for greenhouse gas (GHG) emissions reduction in California. The authors find that a state program will have great value on its own and could catalyze a national effort.

California should require reductions of GHGs under a mandatory emission cap supported by best practice policies that are environmentally effective, economically efficient, and conducive to technological innovation. There is no evidence that voluntary measures and information programs would provide sufficient incentives for necessary reductions.

A cap-and-trade program should aim for broad coverage of economic sectors and GHGs. All gases and economic activities that can be monitored at low cost should be included. The wider the range of sectors covered, and the broader the array of GHGs included, the greater the opportunities for achieving the state-wide emissions targets at low cost. A broad program yields numerous compliance opportunities in the short term and provides strong incentives for innovation and further cost-reductions over time.

A sector-based approach is likely to be preferable to an upstream approach. A sector-based approach would help prevent GHG leakage associated with coal-fired electricity and would dovetail with state transportation policies to reduce emissions of GHGs from vehicle tailpipes authorized by AB1493. In contrast, an upstream approach would lead to redundant regulation of the transportation sector.

Emissions caps should apply to all major stationary sources, including cement makers, refineries, landfills, and other manufacturing. Including these sources is administratively feasible, would lower significantly the cost of meeting targets and offers additional flexibility in the timing of investments.

Transportation-sector emissions should be excluded because monitoring individual vehicles is infeasible and because car and light truck emissions are already limited by prior legislation (AB1493).

Electric and natural gas sector carbon dioxide emissions should be capped, and the emissions levels should be calculated based on the carbon content of the fossil fuel inputs. Carbon dioxide is the principal GHG released by these sectors, and it is straightforward to determine emissions based on carbon content of fossil fuels. To the extent feasible, emissions of other greenhouse gases GHG (e.g. sulfur hexafluoride) should also be covered by emissions caps. The point of regulation should be all public and private load-serving entities and distributed generators to reduce emissions leakage and promote a wider range of mitigation options.

The cap-and-trade program should establish an “on-ramp” for GHG emissions that are not initially covered and should provide incentives to develop cost-efficient technologies, procedures and monitoring techniques to enable all GHG-emitting economic activities in the state to take advantage of the efficiency and flexibility of the allowance market.

The initial distribution of allowances should involve both auction and free allocation in order to balance efficiency and equity considerations. An auction will minimize the total cost of meeting GHG reduction goals, while free distribution of a portion of allowances can help reduce burdens on regulated facilities or electricity consumers. The portion of free allowances allocated should be higher at the start of the program to reduce initial cost increases while giving the economy time to realign investments and processes to reduce carbon emissions.

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Allocations and auctions should credit investments in conservation and energy-efficiency services as displaced electricity sales.

Auction revenues should be used to 1) compensate communities for job and other significant economic losses, 2) reduce market distorting taxes and 3) support technological innovation that can help make the entire California economy more competitive, especially in low carbon technologies, and potentially create new export products and employment opportunities.

The California program should offer opportunities to bank emissions allowances, and it should give generous credit for early emission reductions. Banking reduces the overall cost of emission reductions, helps to avoid short-run volatility in allowance prices, vests participants in the longevity of the program and accelerates technological diffusion and experience with low-carbon technologies.

The program should not allow allowance borrowing, because this delays the diffusion of technology and can create pressure for future waivers of the emission cap through relief of debt borrowed against the cap. Better alternatives are to 1) allocate generously in the first years of the program and provide incentives for accumulation and maintenance of an allowance bank, 2) allow offsets to be used, and, 3) link the California system to other GHG cap-and-trade systems.

California should facilitate linkage of its GHG cap-and-trade program with others and promote symmetric treatment in buying and selling allowances. Interaction with other programs could expand opportunities for cost savings and innovation by allowing investments in GHG reductions to flow freely across state boundaries. Interaction could also offer a market for Californian GHG emission allowances and help build political momentum for national policy.

California's program should include emission offsets. They provide an opportunity for cost-savings and economic development. The program should establish conditions for such offsets that limit fictional emissions reductions and inefficient revenue transfers. Credit for offset investments should be pre-approved to reduce uncertainty and lower transaction costs for investors and characterization of qualifying investments and their offset rate should regularly reviewed every three-years.

Offset accreditation should be based on simple, transparent criteria and be sector-specific or technology-specific to accelerate investment and emissions reduction. The accreditation of project specific investments can be a supplement but should not be the core of the offset program since it imposes substantial transaction costs for all parties and undermines the opportunity to promote new investments or harvest low cost emission reductions.

Environmental justice concerns should be addressed. Public health and climate change mitigation are both important goals, and any potential conflicts should be minor and must be solved. The program should avoid inequitable regional impacts or risks to public health and prohibit the trading of toxic GHGs. (Most important GHGs – carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, perfluorocarbons, and hydrofluorocarbons – are nontoxic.) New distributed electricity generation units must offset increases in risks from criteria pollutants and should not emit measurable toxics.

A statewide environmental justice oversight activity should have subpoena power and a mechanism for discovering environmental justice violations. If the “no toxic trading” and “anti-backsliding” provisions are included, there is no need for project-specific environmental justice review which could slow innovation and limit cost-saving trades.

This summary is based on “Lessons for a Cap-and-Trade Program” by Dallas Burtraw, Resources for the Future, Alexander E. Farrell, UC Berkeley, Lawrence H. Goulder, Stanford University, and Carla Peterman, UC Berkeley, Chapter 5 of Managing Greenhouse Gas Emissions in California, California Climate Change Center, UC Berkeley, 2006, prepared for the California Environmental Protection Agency. The work was funded in part by Stanford University's Woods Institute for the Environment and The William and Flora Hewlett Foundation. See <http://environment.stanford.edu/ideas/cccp.htm> for full paper.