



Less Is More: Limited Offsets Spur Clean Energy Development



BACKGROUND

What is a global warming “offset”?

Many individuals, businesses, and governments are exploring the concept of “offsets,” in which an emitter of global warming pollutants pays others to reduce their own emissions; as a result, the purchaser gets credit for the amounts avoided. Offsets fall into two categories:

If offsets are used to comply with California climate policies, they should be limited to a small fraction of required reductions.

Any offsets allowed in the state should occur within its uncapped sectors. If offsets come from outside California, they should be from regions that have adopted strong global-warming caps—those regions would thus not be faced with incentives to avoid creating mandatory emissions-reduction programs.

Voluntary offsets—Individuals and businesses can *voluntarily* buy offsets from dozens of companies. Depending on the offset type, voluntary offsets may be a good way for individuals and businesses to contribute to lowering global warming emissions. The voluntary offset market has been criticized for its lack of commonly accepted standards or in-place regulations for assuring veracity and permanence, but there is movement to bridge such gaps. Meanwhile, independent reviews of voluntary offsets are available.

Compliance offsets—Offsets can be built into *mandatory* emissions-reduction programs, such as California’s cap on global warming emissions (which requires that they be reduced to 1990 levels by 2020). In such programs, capped entities may be allowed to purchase credits from projects outside the covered sectors.

For example, if an electric utility in the United States is subject to a global warming emissions cap, an offsets program may allow it to purchase emissions-reduction credits from, say, a waste-to-energy program at a Brazilian corn-processing factory, methane capture at a Midwest dairy, or hydrofluorocarbon destruction at a Chinese refrigerant factory. These offset credits substitute for direct emissions reductions made by the electric utility, such as using solar or wind energy to displace electricity and emissions generated at fossil-fuel-fired power plants. All offsets must be additional, permanent, quantifiable, verifiable, and enforceable by the California Air Resources Board, as required by law.

A cap-and-trade program should be designed to support the voluntary renewable energy market. For instance, if individuals or businesses voluntarily install solar panels, geothermal heat pumps, or other renewable energy systems on their property, allowances representing an amount equivalent to the emissions reduced through these projects should be removed from the entire pool of allowances available to capped entities. This, in effect, lowers the total emissions cap and spurs further investment in clean energy technologies.

Will renewable energy projects be used as compliance offsets in California?

To reach its emissions-reduction target, the California Air Resources Board (CARB) is considering the adoption of a “cap-and-trade” system in which regulated entities are required to procure allowances (also sometimes called tradable permits) for all of their global warming emissions. As part of this program, CARB might allow capped entities to buy offsets instead of buying allowances or making emissions reductions directly. No existing cap-and-trade system in the world allows offsets from capped sectors (like renewable energy in the electricity sector) because of problems with double-counting. Many assume that within a few years, the entire U.S. electricity sector will be capped in a federal cap-and-trade system.

BENEFITS FOR THE CLEAN ENERGY SECTOR

The low-carbon economy as an engine of growth

Ambitious renewable energy and energy-efficiency programs will be needed to meet California's 2020 requirement of a 30-percent reduction in global warming emissions compared with "business as usual." But if the expansive use of offsets is allowed under Assembly Bill 32, regulated entities might choose to purchase cheaper offsets in place of reducing direct emissions through clean energy investments.

By contrast, limiting offsets will steer electricity providers, currently responsible for 22 percent of California's emissions, toward investment in low-carbon technologies more rapidly and will avoid their locking themselves into fossil-fuel-based generation, such as new natural gas plants that could operate for decades. Moreover, investments in the green-technology sector could stoke a major economic engine in California, providing jobs and income and the opportunity to capture a larger share of the rapidly growing market.

Increased deployment of clean technology

Existing climate-friendly technologies, such as solar and wind power, have not spread as much as they should because the market undervalues their benefits and fails to fully account for the costs of pollution from fossil-fuel-based electricity generation.

According to a recent survey,¹ the most pervasive obstacle to the widespread deployment of green technologies is their perceived cost-effectiveness. But while the costs of fossil-fuel-based energy sources, as currently computed, may *seem* lower in comparison to those of greener energy sources, they do not include the costs of global warming pollution and other environmental and public health impacts. Neither are the fuel diversity, rate stability, and economic-development benefits of clean sources of energy



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accounted for in the market. Placing a price on carbon would therefore help to overcome one of the most critical barriers to increased deployment of clean energy.

Unlimited amounts of offsets, however, would likely *lower* the price of carbon and consequently strengthen the existing barriers to increased use of green technology.

Lowered costs for emerging low-carbon technologies

Increased use of commercial clean technologies brings two additional benefits: productivity gains from learning by doing, and economies of scale as production is ramped up. One study of such effects showed 3- to 35-percent cost improvements from a doubling of installed capacity of new electricity-generation technologies such as wind, solar, and biomass.² But such benefits could be lost if funds for investment in renewables and efficiencies were diverted to offsets.

Innovation for new technologies

Research on innovation in environmental technology suggests that "demand pull" from stringent regulations is crucial in fostering innovation.³ The wide-

spread use of certain types of offsets can make global warming regulations less effective and therefore less innovation-forcing. Offsets spread out the mitigation effort, either to other sectors or geographic areas, thereby diluting the demand pull for innovation in high-emitting sectors such as the electricity industry. On the other hand, by carefully limiting the use and type of offsets for compliance with global warming policies, the innovation-forcing capacity of regulation policies can be maintained.

Investors in California clean tech appear to realize the benefits to innovation from strong climate policies. In 2007, the state attracted \$1.8 billion in clean energy venture capital—nearly half of the green venture-capital investment in all of North America that year and more than the corresponding investment in Europe.⁴

Indeed, a 2004 survey⁵ of venture capitalists (VCs) found that one of the most important reasons why VCs were motivated to invest in California's clean tech industry was the state's regulatory climate and policies.

- Seventy-nine percent of VCs surveyed said that California's current regulatory climate was a factor in their clean-tech investment decisions.



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- Ninety-one percent said that advancing California's environmental policies would be a driver for new investment in the state's clean-tech industry.

But if large numbers of cheap offsets were allowed to flood California's mandatory emissions limit, with the effects of lowering the price of carbon and undermining the stringency of global warming regulations, the opportunity to capitalize on California's clean-tech investments could be diminished or lost.

California inspiring global action

By fostering clean-tech innovation within its borders rather than by diverting funds to offset projects, California can make a much bigger contribution to solving the global problem of climate change. If California purchases offsets from outside the state it will miss opportunities to both maximize clean technology development in California and put the state on a path toward achieving its long-term climate goals.

To date, offsets from the world's

largest compliance-offset market—the Kyoto Protocol's Clean Development Mechanism (CDM)—have predominantly come from projects that mostly reduce the emissions of industrial gases. These types of offsets projects, while valuable, do not do enough to secure structural changes needed for dramatic long-term emissions reductions necessary to avoid the worst effects of climate change.

More than half of CDM offsets to date have come from the destruction of hydrofluorocarbons at refrigerant plants and nitrogen-oxide destruction at nylon factories.⁶ Only three percent of all CDM offsets have come from wind-energy projects and none have come from solar energy.⁷ Yet these are the type of activities that will promote the clean-technology development and deployments needed for long-term cuts in global warming pollution. Postponing such technological changes in key sectors—energy, for example—will make the task of curtailing emissions, in the timeframe we have left to avoid dangerous climate change, far more difficult and expensive.

ENDNOTES

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- 4 Baker, D. 2008. California scores nearly half of North America green tech capital. *San Francisco Chronicle*, January 17. Online at: <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/01/17/BUHTUGFJMDTL>.
- 5 Environmental Entrepreneurs. 2004. Creating the California cleantech cluster: How innovation and investment can promote job growth and a healthy environment.
- 6 Wara, M. 2006. Measuring the clean development mechanism's performance and potential. Stanford, CA: Program on Energy and Sustainable Development.
- 7 United Nations Environment Programme. CDM projects by type. Online at <http://cdmpipeline.org/cdm-projects-type.htm#5>, accessed May 13, 2008.

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