

POLICY BRIEF

Offsets: An Important Piece of the Climate Policy Puzzle

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MITIGATION BEYOND THE CAP

A Series of Briefs on Expanding Climate Mitigation Opportunities

Mitigation Beyond the Cap

Offsets: An Important Piece of the Climate Policy Puzzle

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Offsets are heralded by some as a salvation for U.S. climate policy—keeping costs down, bringing new profits to agriculture, and saving forests—all while still mitigating climate change. Others claim they are a false hope that will thwart the potential for an effective U.S. policy by allowing fossil fuel emitters to buy their way out of solving the problem. The truth likely lies somewhere in the middle.

Offsets may be a critical piece in solving the climate policy puzzle, but we will not be sure how they fit until we wade through the disparate opinions and facts about their value and attempt to dispel confusion and resolve remaining concerns. Offsets may be an effective way to harness outside-the-cap opportunities to expand climate change mitigation, but they are not the only option to consider. In order for stakeholders in the government, the business and investment community, and NGOs to plan for their role in the climate mitigation portfolio, it is vital that the role of offsets and the rules by which they interact with the market be clearly defined.

What is an offset?

Under a mandatory U.S. policy the term *offset* describes a reduction in emissions or increase in sequestration of greenhouse gases produced by an entity outside of the compliance cap that is used by a capped entity to offset its own emissions.

The Case for Offsets

Offsets can be environmentally, politically, and economically advantageous for the reasons outlined below.

Offsets create more mitigation

Ideally, emission reduction efforts would cover all relevant sources, sinks, sectors, and countries. But bringing all of these entities under a mandatory cap is not practical or politically viable at this time. Unfortunately, this exclusion could leave potentially cost-effective reductions off the table. To tap these opportunities, policymakers can provide incentives for these critical actors to take mitigating actions through subsidies or they can use what may be a more cost-effective mechanism by creating a market where these uncapped reductions create offsets for the capped compliance markets. The mitigation potential from sources and sinks outside of typically regulated sectors and countries is not trivial. Depending on assumptions, the supply of outside-the-cap mitigation in the U.S. could be as much as 300 million metric tons of CO₂e¹ per year for a U.S. cap that would start around 5.7 billion metric tons of CO₂e.² The supply of offsets would grow over time as the cap declines. The potential supply of international offsets may be substantially larger.

They reduce costs

Mitigation outside the cap is often less costly than the emission reductions available to capped entities. Thus, allowing capped entities to use offsets to meet their compliance obligation reduces costs of meeting a given emissions target. In fact, economic modeling shows offsets to be one of the most effective policy mechanisms for reducing the costs of a cap-and-trade policy. Recent analysis of a fairly stringent cap-and-trade policy suggests that a robust offsets program with unlimited domestic and international offsets would result in an allowance price reduction of up to

¹ EPA Analysis of the Lieberman-Warner Climate Security Act of 2008: S. 2191 in 110th Congress (March 2008). Available at http://www.epa.gov/climatechange/downloads/s2191_EPA_Analysis.pdf.

² S. 2191. Lieberman-Warner Climate Security Act of 2007 (October 18, 2007). 110th Congress. Available at http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=110_cong_bills&docid=f:s2191rs.txt.pdf.

70% compared to a policy with no offsets.³ A key cost containment element of offsets is that they can serve as a short-term bridge to lower cost compliance as the capped sectors undertake the technology transformation necessary to achieve deep long-term reductions.

They engage politically important constituencies

In the U.S., despite the declining number of farmers and the shrinking proportion of GDP from farms, agriculture remains a critical political force in almost every state. Until recently, many agricultural groups have strongly opposed any national restrictions on greenhouse gases because they expect higher fuel and fertilizer prices to result. However, the possibility that profits from an offsets market could be greater than the expected increased fossil fuel-related costs appears to have changed their firm opposition and opened a dialogue about agriculture's role in the cap-and-trade policy.

The existing internationally sanctioned offsets program, the Clean Development Mechanism (CDM),⁴ has engaged key developing countries such as China and India, two of the fastest growing emitters, among others more directly in international climate negotiations. The potential for a new, separate offsets program focused on avoiding deforestation and forest degradation is encouraging additional developing countries to participate.

An offsets program can build on experience to date

Offsets are not a new endeavor in climate policy. The Climate Trust began developing offsets in 1997 in response to Oregon state law. The Chicago Climate Exchange (CCX) has used offsets as a compliance option in the voluntary program it initiated in 2003. The CDM is the most pervasive regulatory based offsets program at present; it has been fully operational since 2006. These and many other organizations and businesses have been engaged in the voluntary market for offsets. Furthermore, new efforts are underway to standardize methods with the Voluntary Carbon Standard and to develop new regulatory offset programs in the Northeast under the Regional Greenhouse Gas Initiative (RGGI) and in California for the Climate Change Action Registry (CCAR). The EPA is also developing new federal standards for the voluntary Climate Leaders program, while the USDA has been given authority to develop standards through the recent Farm Bill. While none of these is perfect, together they constitute a solid foundation of experience on which to build a strong federal program.

Offsets can yield significant co-benefits

Outside-the-cap activities that mitigate climate change, whether they be reduced emissions from landfills or increased sequestration in the agriculture or forestry sectors, can bring significant co-benefits for both the environment (e.g., improved air and water quality, habitat conservation) and society (e.g., new income for rural communities, diversified livelihoods). Reductions in the capped sectors are also likely to bring co-benefits such as improved air quality and reduced mercury pollution.

Concerns about Offsets

Concerns remain that offsets will not provide the environmental benefits expected. These concerns are described below.

Offsets can undermine environmental integrity

Integrity—the notion that the offset reductions do in fact occur and can be properly quantified—is critical for both the desired environmental outcome and for the success of the market. Questions remain about a number of critical issues regarding how we will account for the mitigation produced by an offsets project. These issues include the following:

³ EPA Analysis of S. 2191.

⁴ The CDM is sanctioned by the United Nations Framework Convention on Climate Change under the Kyoto Protocol.

- *Additionality* – whether we can ensure that offsets projects will produce new additional greenhouse gas mitigation benefits that are above and beyond what would have occurred without the projects
- *Permanence* – how we address the potential release back into the atmosphere of carbon sequestered in trees or soils
- *Leakage* – how we account for the potential of an offsets project to produce mitigation in one location but result in an unaccounted-for increase in greenhouse gas emissions elsewhere in the economy

Various protocols have addressed these questions for some types of offset activities but need to do so for others.

They divert from fossil fuel reductions

If offsets (both domestic and international) are unlimited and supplies are as high as some of the more ambitious predictions, mitigation in the capped sector could be substantially curtailed for 30 to 40 years.⁵

While using offsets reduces the need for capped sectors to make their own reductions and reduces the market driver for development and deployment of new technology in the near term, it also lowers the cost of setting a more stringent cap, thereby making a more environmentally rigorous policy more politically viable. This is a bit of a shell game, but it has consequences. Not allowing offsets leaves all or most uncapped mitigation opportunities off the table, and because this results in a more costly program, the cap will likely need to be lower for political success. The result, at least in the near term, may be a weaker climate policy. In contrast, allowing offsets may allow for a stronger cap. While the reductions in emissions from the capped sectors may be the same whether or not offsets are included, allowing offsets means that capped sectors are paying uncapped sectors and activities for additional mitigation, which increases the overall mitigation and environmental benefit. Analysis shows a middle ground between unlimited offsets and no offsets may be able to reduce costs significantly and also result in substantial mitigation in the capped sectors.

Offsets programs become an entitlement

Engaging new sectors (e.g., agriculture and forestry) and countries (e.g., developing countries) in the business of climate mitigation through offsets raises awareness and can be used as a first step toward further engagement, but it can also be a barrier to the additional participation that we not only want, but must have in order to avoid dangerous levels of climate change. Being outside the cap and part of an offsets program (i.e., being paid not to emit or to sequester) can be seen as an entitlement which creates a strong stakeholder group that would prefer to continue being paid for these services rather than being regulated and having to begin paying for emissions. Policy approaches to address these issues are being discussed and deserve further attention.

They send money overseas

Linking with the international markets for capped allowances and for offsets will involve transactions going both out of and into the U.S. Models suggest that, with the inclusion of international offsets, as much as 4 billion metric tons could be available internationally,⁶ which would mean billions of dollars flowing among capped markets, including the U.S., and to developing countries. Since offsets from developing countries are among the least expensive mitigation options, significant financing would flow to these countries if international offsets were allowed. While the U.S. would not be investing that money at home, we would gain by achieving the same global climate reductions at a lower cost, potentially spurring other investment opportunities, reducing the costs to consumers, and achieving other development or diplomatic objectives. More work needs to be done to weigh these costs and benefits.

⁵ The curtailment is temporary because most, if not all, offsets provide only short-term supply as the business-as-usual shifts and as sequestration levels off (often ~50 years) and other uncapped reductions become largely tapped out.

⁶ EPA Analysis of S. 2191.

They create negative co-effects

While there are potentially many positive side effects of offsets, there are also potential negative effects, such as the replacement of native vegetation by fast-growing high-carbon nonnative species; the concomitant loss of native habitat; reduced water quantity; and higher food prices. We need to assess these potential negative impacts and do what we can to avoid or address them. Being as informed as possible about the positive and negative co-effects is critical, as some trade-offs may be necessary to achieve the greater good.

Next Steps

The potential economic benefits of offsets in a cap-and-trade policy may be critical for the success of a robust climate policy in the U.S. Thus offsets deserve continued attention in order to resolve remaining concerns. The existing analyses on mitigation supply and their potential impacts on cost are very telling, but work can be done to better assess the range of possible outcomes given evolving technologies, different political options, unexpected economic shifts, and the complexities of assessing transaction costs. There are also outstanding policy design questions on how to ensure integrity and avoid entitlement programs that threaten the ultimate environmental objective. While many questions remain and there are details still to be worked out, they do not appear insurmountable.

This paper is the first in a series of briefs focused on designing offsets policy titled [Mitigation Beyond the Cap](#). These papers will explore various aspects of offsets policy in greater depth. This work builds from the Nicholas Institute reports [Designing Offsets Policy for the U.S.](#) and [Harnessing Farms and Forests in the Low-Carbon Economy](#). Our objective is to aid in the development of a responsible program for including outside-the-cap mitigation in federal and state cap-and-trade policies. We will discuss some of the main remaining questions and concerns about offsets, providing information that can help put these concerns in perspective: Are these real problems? Can they be addressed? We hope to clarify where value judgments will need to be made by the political process, and provide the information needed to make these political decisions.

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Designing Offsets Policy for the U.S. can be found at <http://www.nicholas.duke.edu/institute/offsetspolicy.pdf>.

Harnessing Farms and Forests in the Low-Carbon Economy can be found at <http://www.env.duke.edu/institute/ghgoffsetsguide/index.html>.

Mitigation Beyond the Cap series of briefs can be found at <http://www.nicholas.duke.edu/institute/offsetseries.html>.

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the Nicholas Institute

The Nicholas Institute for Environmental Policy Solutions at Duke University is a nonpartisan institute founded in 2005 to engage with decision makers in government, the private sector, and the nonprofit community to develop innovative proposals that address critical environmental challenges. The Institute seeks to act as an “honest broker” in policy debates by fostering open, ongoing dialogue between stakeholders on all sides of the issues and by providing decision makers with timely and trustworthy policy-relevant analysis based on academic research. The Institute, working in conjunction with the Nicholas School of the Environment, leverages the broad expertise of Duke University as well as public and private partners nationwide.

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