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Maximizing the Positive: Interactions between Offset Programs and Other Climate-related Policies
Draft Findings

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Abstract

This paper addresses one of the more vexing and poorly understood questions facing GHG offset programs: How can offset programs be designed to work with, and enhance, other GHG mitigation policies to create an effective, secure, and equitable climate protection regime? Or, put more specifically, do offset programs, and the potential revenue streams and interest groups created by offset projects, erect barriers -- or create pathways -- to other effective government policies? As discussed in this paper, evidence appears to suggest that offset programs have played both roles, and specific policy measures can be undertaken to maximize positive, and to minimize negative, interactions with other policies.

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Introduction

This working paper addresses one of the more vexing and poorly understood questions facing GHG offset programs: How can offset programs be designed to work with, and enhance, other GHG mitigation policies to create an effective, secure, and equitable climate protection regime? Or, put more specifically, do offset programs, and the potential revenue streams and interest groups created by offset projects, erect barriers -- or create pathways -- to other effective government policies? As discussed below, evidence appears to suggest that offset programs have played both roles, and specific policy measures can be undertaken to maximize positive, and to minimize negative, interactions with other policies. However, the Lieberman-Warner bill and other proposed Congressional legislation could create domestic GHG offsets at a scale unprecedented among industrialized countries, and could present significant risk of unintended, negative consequences for domestic and international climate policy. As we will discuss below, these issues can and should be addressed early on in the design of comprehensive U.S. climate policy.

Offset programs can interact with other climate-related policies in a number of important ways.

- **Lower cost of compliance:** They can provide access to lower cost emission reductions (or removals[1]) available in sectors or regions not participating in a cap-and-trade system[2], and thus, provide more cost-effective means to achieve emissions reduction goals or to enable a deeper overall reduction goal than might otherwise be possible.
- **Target uncapped sectors:** Domestic offset programs can send market signals to emissions sources currently difficult to include in cap-and-trade system, provide new revenue sources and business opportunities, and build capacity for new and innovative emission reduction opportunities.in sectors such as agriculture and forestry. As such, offset programs can enhance the political prospects of a cap-and-trade system.
- **Facilitate expanded regulation of emission sources:** Not only can offset programs provide incentives to exceed existing regulatory requirements by demonstrating technological, financial, and implementation feasibility, offset activities can lay the groundwork for raising regulated standards or including additional emission sources in future emission trading regimes.

Nonetheless, in some instances, GHG offset programs may not be the most effective, efficient, and equitable instrument for maximizing emission reductions, managing costs, and distributing the costs and benefits of climate policy. In contrast to other policy options, offsets can be subject to significant transaction costs and high rents (profits available to offset suppliers whose cost is far less than the market prices of offsets[3]), as well as significant institutional and technical

[1] For simplicity, we use the term "reductions" to encompass both emission reductions and removals (sequestration or sinks).

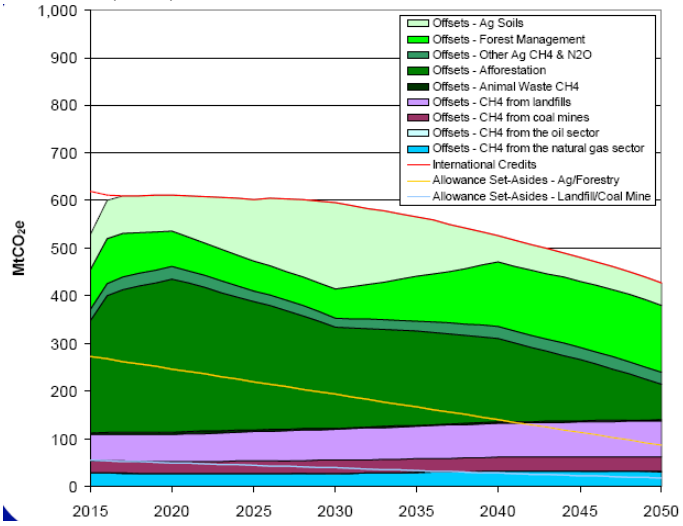
[2] This memo focuses on offsets that are generated in sectors not covered by a cap. Offsets within capped sectors are also possible but double counting, ownership, and additionality concerns are more difficult to resolve. Such offsets are currently not included in the Lieberman-Warner bill.

[3] The most notable examples of this phenomenon are projects designed to destroy or avoid production of high global warming potential gases such as hydrofluorocarbons, nitrous oxide, or perfluorocarbons. Often costing less that $1/tCO2e to implement, these projects can fetch up to the market-clearing price of offsets, which can exceed $20/tCO2e in EU markets. This has raised questions as to whether the profits created by offset markets (without

challenges and uncertainties. These challenges include, among others, additionality and baseline determination, managing the risk of reversals (loss of carbon stocks) from sequestration projects, and accounting for measurement uncertainties.

More fundamentally, an offset program is an inherently voluntary approach. Significant emission reduction opportunities may be left on the table if actors are not aware, inclined, or otherwise able to develop offset projects in a given sector or region. Furthermore, offsets, alone, provide no disincentive for activities that might increase emissions. As a result, other policies -- such as incentives, disincentives, direct regulation, or inclusion within an emissions cap-and-trade system -- may ultimately be needed in addition to, or instead of, offset programs for those sectors and regions. Given that offset markets are emerging at the regional and national levels in the U.S. at the same time that other policy approaches are being explored or implemented, it is important to ensure that offsets program are designed in a way that maximize positive, and minimize negative, interactions with these other policies.

Figure 1. Projected Supply of U.S. Domestic Offsets under the Lieberman-Warner Bill (S. 2191) based on EPA (2008)



As of this writing, the Lieberman-Warner Climate Security Act of 2008 (S.2191 in the 110th Congress) is currently the most prominent and widely discussed legislative proposal for a U.S. cap-and-trade system. In its present form it would allow for a domestic offset program that could supply up to 15% of the emission reductions needed to meet the national cap through 2050. Analysis by the EPA suggests that domestic offsets used for compliance in 2015 alone could be worth over $15 billion.[4] Based on the eligible offset project types defined in the Lieberman-Warner bill and the EPA's supply curve analysis, afforestation and forest management activities could comprise over half of this market, with reduced tillage, and various methane reduction capture projects (landfill, coal mine, natural gas, and manure management) accounting for much of the remainder.[5] Furthermore, as Figure 1 shows, these project types are projected to continue to deliver significant offset quantities through 2050. In sum, the Lieberman-Warner bill, as EPA's analysis demonstrates, create high expectations for a very sizable domestic offset market that starts rapidly and lasts several decades.

While the EPA's analysis focuses on the generation of emission reductions (or removals) from the agricultural and forestry sectors through offsets, other policies to achieve emission reductions in these uncapped sectors, such as inclusion within the cap, direct incentives, regulations, or tax

significant technology transfer or sustainable development benefits) should accrue to the industrial facility owners. Wara (2007) and others have suggested that policies other than offsets might be preferable for such projects.

[4] Assuming approximately $30/tCO2e offset price, per the USEPA analysis (see slide 88).

[5] Similar sources are targeted or likely to be central to regional cap-and-trade systems launched or under design.

policies, may prove more effective and efficient than offsets. Should other policies emerge that would regulate the GHG emissions among these project types – e.g. performance standards for methane emissions from natural gas pipelines or incentives for manure digesters – such policies could affect the supply of offsets. These policies might face stiff opposition from parties poised to benefit from the billions of dollars in annual offset revenues. The challenge for policy makers is to tap the potential benefits of a robust offset market without foreclosing the ability to enact future policies that provide the most efficient, equitable, and effective solutions.

This challenge is not new to policymakers – as we discuss below, there are lessons to be drawn from the Joint Implementation (JI) and Clean Development Mechanism (CDM) experience, as well as from the emerging U.S. offset market, especially in California. Relevant experiences drawn from existing offset programs can be divided into three categories by policy interaction type:

A) **Existing and future cap-and-trade systems and international obligations, their requirements, implementation, and evolution**. Domestic offset programs can interact with the future inclusion of emission sources currently not covered by emission caps, and with national emissions reductions obligations, such as those established by the Kyoto Protocol, in addition to an emissions trading system.

B) **Direct regulations and requirements that have *clear* impacts on offset eligibility**. Offsets programs should be designed to work with existing, anticipated or possible future regulations that may affect emissions from prospective offset projects, address issues of equity among regions that have different levels of regulation and of appropriate authority (national/state/local) where regulation and offsets may interact.

C) **Other policies such as incentives (e.g. subsidies, tax credits, feed-in tariffs), disincentives (e.g. emission taxes), or regulations that have more *ambiguous* implications for offset eligibility.** Such policy interactions may arise when it is unclear whether and how a policy may influence investment or other decisions, or in the case where a policy is not fully administered or enforced. For example, incentives may not be at sufficient levels, or adequately administered, to affect behavior. In such instances, offsets could serve to enhance the policy by bolstering enforcement or to "top up" incentives. However, the interaction with these policies may make the determination of additionality or regulatory surplus for offset eligibility more complex.

In the following section we provide examples of experience and lessons learned from existing GHG policies that illustrate how the policy interactions listed above have been addressed. Many of the examples provided in this working paper come from private communication with policy makers, regulators, and offset project developers (See list of contacts at the end of this paper).

Experience and Lessons from GHG Markets

Category A: Interactions with existing and future cap-and-trade systems and international obligations, their requirements, implementation, and evolution

Kyoto signatory countries provide the principal source of lessons for this category of policy interaction. JI programs, created under the Kyoto Protocol, provide the closest analog to a prospective U.S. program that would create domestic offsets for compliance under a domestic cap-and-trade system.

A1. Comprehensive, national emissions obligations can dampen the market for domestic offsets. Conversely, creating large, domestic offset markets could create an added barrier to later adoption of such obligations, if they are viewed as feasible and desirable.

In countries party to Kyoto, the creation of domestic (JI) offsets must be accompanied by a retirement of a corresponding number of national allowances (Assigned Amount Unit or AAU), resulting in the tightening of the national cap.[6] Many countries therefore perceive that JI domestic projects could make the task of the fulfilling Kyoto obligations more challenging.[7]

That outcome might appear, at first, non-intuitive. In principle, JI projects should reduce national emissions by the amount of Emission Reduction Units, or ERUs, the offset currency created through JI, issued. So while the amount of emissions permits (AAUs) a nation holds goes down, so does that nation's emissions; the emissions obligation for the rest of the economy stays the same. However, this simple formulation ignores at least three key considerations. The first is simply that, as a result of "getting the baseline wrong", JI projects may not result in as many tons of emissions reduced as ERUs issued. While JI transfers baseline risk to the country, there are ways to manage this risk, such as conservative baseline setting. The second, and more important, consideration is the possibility that policies and measures, such as regulation or incentives, could achieve similar reductions from the same emissions sources targeted by a JI project. In contrast to the JI project case, the country does not need to retire AAUs, and can thereby make progress toward meeting emissions obligations, reducing pressure on the rest of the economy to reduce its emissions. This becomes a particular concern in countries facing more stringent emissions caps.

Indeed, in EU countries with more challenging Kyoto emission commitments, JI activity has been scarce. Domestic JI projects are currently not allowed in the UK or the Netherlands. Of the 135 JI projects recently documented by UNEP as being in the development pipeline, only two projects are from Western Europe (Germany). All others are from Central and Eastern Europe (UNEP Risoe Center, 2008). By and large, these countries can meet their 2012 emissions commitments under Kyoto without the need for significant new policies or investments. Therefore, their issuance of a modest amount of emission reduction units (ERUs), is unlikely to present the concerns noted above.

[6] Note that this principle also applies to forestry, land use, and land use change (sequestration) projects. Issuance of JI offsets (ERUs) for these project types requires the retirement (or conversion) of a Removal Unit (RMU), which factors in to a country's overall emissions obligation.

[7] Personal communication, Axel Michelowa, Lambert Schneider, Benoit Leguet, Martin Stadelmann.

New Zealand halted its domestic JI program after the first round of its tender process, once the government realized it had a Kyoto deficit rather than the surplus it originally predicted. Germany has rejected 45 out of 48 domestic JI projects submitted thus far. While some respondents note that a number of JI projects are still in the planning stages in Western Europe[8], it is safe to conclude that domestic offsets per se are not expected to play a major role in countries where emissions commitments are binding.

Several factors appear most likely to account for this outcome. First, there is no clear signal that JI projects will be credited beyond 2012, which can limit developers to highly profitable projects expected to yield paybacks within the 5-year commitment period (2008-2012). Second, for many Kyoto parties, JI has taken a back seat to the CDM in terms of effort to create or use offsets. In addition to providing a much larger supply of low-cost compliance units, CDM provides a means to fulfill the Kyoto Protocol and international climate policy objectives. Third, for the EU, the existing high level of environmental policy and regulation limits makes it difficult to determine where JI projects are non-additional or surplus to regulation.[9] Finally, and most importantly, many countries perceive that domestic JI projects could make the task of the fulfilling Kyoto obligations more challenging.

In the case of the EU, its Emission Trading Scheme (EU-ETS)[10] covers only about half of the EU's emissions. The emission caps imposed by the EU ETS are insufficient for achieving overall Kyoto compliance. Most countries still need to achieve substantial emissions reductions in non-EU ETS sectors, and many have developed national climate strategies to achieve specific reduction in these sectors.

In contrast to the EU, it is quite conceivable that the U.S. could enact a national emissions trading system prior to adopting a comprehensive and binding national emissions commitment, e.g. through a new international agreement. Since the sectors and sources targeted for domestic offsets in Lieberman-Warner and other proposed U.S. cap-and-trade legislation are not subject to a cap, either through the legislation itself or any international agreements, the barriers to domestic offsets found in the EU would not exist in the U.S., at least at its outset. However, if the U.S. were then to adopt a comprehensive national emission reduction obligation, the U.S. might face many of the same concerns about domestic offsets – and their risk to meeting national obligations – as many Kyoto Parties currently do, resulting in a potential dampening of U.S. domestic offset markets.

The implications of this situation – first adopting a partial cap through Lieberman-Warner-like legislation that creates an offset market in uncapped sectors/sources, and then later considering an overall national cap/obligation as part of a future international agreement – are unclear, but critically important to understand. Would the presence of a robust offset market pose a barrier to the adoption of such an international agreement? Conversely, would such an agreement make the federal government more cautious regarding domestic offsets, as the EU experience suggests

[8] France is currently planning about 20 JI projects (Leguet, personal communication)
[9] Timo Hohmuth, personal communication.
[10] The EU-ETS is the largest multi-national, emissions trading scheme in the world, and currently covers more than 10,000 installations in the energy and industrial sectors which are collectively responsible for close to half of the EU's CO_2 emissions and 40% of its total GHG emissions (EU Web Portal).

they might be? While these could be key considerations in designing national climate policy, it is unclear whether they are being widely discussed today.

One approach to address this situation would be explicitly to design any domestic offset program as a transitional instrument, clearly signaling to offset project proponents and market actors that future adoption of a national obligation (placing a cap on emissions from sources eligible for offsets) could limit offset activity after a future date. In order to create a robust market, reward early actors, and take advantage of the innovations spurred by offset markets project eligibility could be guaranteed for a specified number of years with a crediting period sufficient (5-10 years) to support investments. Offset programs could certainly continue after the adoption of a comprehensive national commitment, just as they exist today in Kyoto countries; however, as demonstrated by the EU experience the level of activity may not be quite as robust as implied in Figure 1 under current proposed U.S. climate legislation.

Indeed the adoption of a comprehensive national obligation (i.e. inclusive of agriculture, forestry, and other land use activities) is a double-edge sword for offset developers and carbon market actors more broadly. Limited offset eligibility or crediting periods, or other similar responses to a national obligation would likely dampen offset market investment and activity. At the same time, a comprehensive national obligation could be helpful in making U.S. domestic offsets fungible in international carbon markets, potentially increasing their value. Given the uncertain shape of any post-2012 international climate agreements, or links among domestic emission trading systems, these factors are hard to judge.

A2. While domestic offset programs could impede expansion of the scope of GHG emission trading systems to cover the sectors from which offsets are sourced experience with N_2O abatement in the EU suggests that the opposite could also occur. However, the circumstances surrounding proposed EU ETS expansion to include N_2O from acid production facilities may not be a good indicator for other sectors and sources.

In January 2008, the European Commission recommended expanding the scope of the EU ETS for Phase 3 (2013-2020) to include several new emissions sources: CO_2 emissions from petrochemicals, ammonia and aluminum production, and N_2O emissions from the production of nitric, adipic, and glyoxalic acids, and PFC emissions from the aluminum. [11] Of these sources, N_2O from nitric acid production has been the target of significant JI activity to date. Fifteen N_2O abatement projects are currently in the JI pipeline, including at least one in Germany.[12]

Despite this recommendation, there is still ongoing debate regarding the question of whether to include N_2O in the EU ETS for Phase 3. Some member states are arguing for an "opt-in"; others are arguing to continue to allow JI projects with harmonised, best available technology, baselines.[13] The outcome of this discussion is unclear, as is the question of whether the presence of, and potential for, N_2O JI projects has facilitated their inclusion in the Phase 3 EU ETS.

[11] Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading system of the Community, 2008/0013 (COD). http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf

[12] UNEP/Risoe, 2008.

[13] Peter Hohmuth, personal communication.

Consultation with EU experts suggests that the presence of JI projects is unlikely to impede the inclusion of N_2O emissions from acid production facilities in the ETS. N_2O projects are among the "low hanging fruit" of emission reductions, providing abundant reductions at very low cost, with payback times from offset sales generally well less than a year in length. Therefore, JI projects can be highly profitable even if they are credited for only the 5 years of the Kyoto compliance period and EU ETS Phase 2 (2008-2012). Furthermore, there is no clear signal that JI projects will be credited beyond 2012. According to industry experts, JI project developers work under the assumption that there will not be an extension of JI past 2012.[14] While there is no guarantee for CDM projects either, there is a general consensus among Kyoto parties that CDM should and will be continued for some time, and they have sent such signals to carbon markets.

A.3. Issuing offsets for the direct or indirect reduction of emissions covered by an emissions trading system creates added policy challenges (addressing double counting and retirement of allowances). Policy makers have tended to disallow this option.

To avoid double counting emissions reductions or the need to retire allowances within the EU ETS, JI projects generally cannot claim offsets (ERUs) for reducing emissions from sources covered by the ETS.[15] Some project developers claim that this situation has unduly hampered development of the JI market, especially for demand-side electricity efficiency projects that indirectly reduce emissions from covered sources (electricity generators), and continue to argue for enabling such ETS-overlapping projects. However, if the Lieberman-Warner bill is a good indication, it appears increasingly likely that domestic offsets in the U.S. will be allowed only in sectors not covered by an emissions trading system (as depicted in Box 1). While some stakeholders may object to such a restriction, as they have in the Western Climate Initiative cap-and-trade design process, the complexity of potential interactions between offsets and allowances from capped emission sources remain a significant barrier.[16] In general, policy makers in the U.S. have tended to suggest other policy approaches, such as allowance set-asides, rather than offsets for project activities such as energy efficiency or renewable energy.[17]

[14] Axel Michaelowa, personal communication.

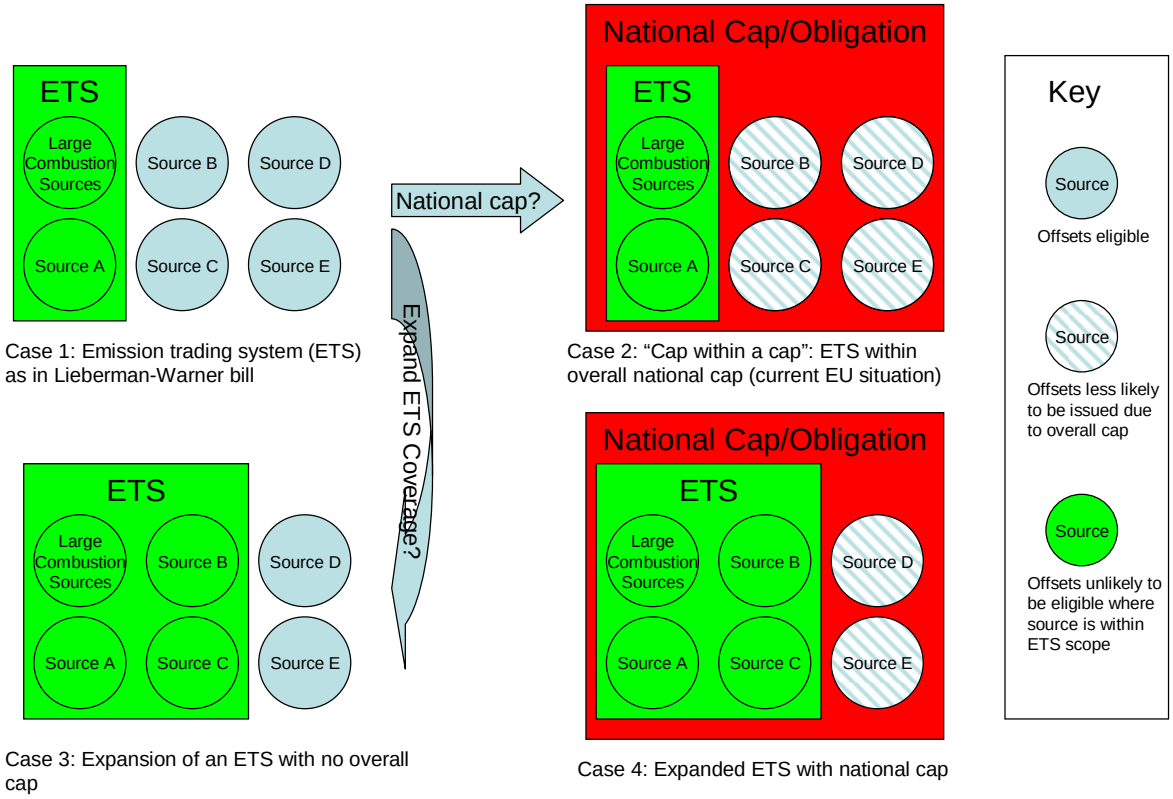
[15] Sometimes these double counting issues affect projects that are only indirectly related to the EU-ETS. In France JI project developers proposed a project to increase building of wood houses. If those houses use wood, they replace steel or cement, both of which are covered under the EU-ETS and therefore it makes the projects non-eligible for JI (Benoit Leguet, personal communication).

[16] For example, if an energy efficiency or renewable energy project is granted offsets, then from which pool would allowances be retired? If retired from allowances allocated to electricity producers, which producer's allowance account should be reduced?

[17] For example, several RGGI state allocation plans, and the Lieberman-Warner bill both utilize allowance set-asides for this purpose.

Box 1: Interaction of Offsets with the Scope of an Emissions Trading System and the Presence of an Overall National Emissions Cap

The schematic illustration below can help to clarify some of the key lessons from EU experience with Joint Implementation, as well as the implications of expanding the scope of an emissions trading system. Circles represent the various categories of emissions (or sinks), referred to simply as sources A through E. (Since large combustion sources are generally covered by emission trading systems, we show this category explicitly.)



Case 1: Emission trading system (ETS) as in Lieberman-Warner bill

Case 2: "Cap within a cap": ETS within overall national cap (current EU situation)

Case 3: Expansion of an ETS with no overall cap

Case 4: Expanded ETS with national cap

- Case 1 on the top left represents the US situation should a partial emission trading system (ETS) system such the one proposed through Lieberman-Warner or other similar cap-and-trade bills be adopted: some sources would be covered by the ETS, others would not be covered. Sources outside the ETS would be able to participate in domestic offset program.

- Case 2 illustrates the current EU situation. While the EU has already established a cap-and-trade system, this is in effect a "cap within a cap". Sources outside the ETS (B through E), while in principle eligible for domestic offset programs (JI), would still be subject to an overall cap.

- Case 3 shows the effect of expanded ETS coverage. If the EU experience and Lieberman-Warner bill are an indication, sources B and C would no longer be eligible for offsets, though the manner in which offsets created prior to the ETS expansion would be handled is unclear.

- Case 4 shows the effect of expanding an ETS where a national cap exists (Case 2) or adding a cap to an already expansive ETS (Case 3).

As illustrated, the supply of offsets shrinks significantly as one moves from Case 1 to Case 2 or 3, and even more so if one moves to Case 4. Perhaps the greatest challenge of all is moving from Case 1 to Case 2: the adoption of a comprehensive national cap/obligation *after* the establishment of an ETS. Kyoto parties effectively avoided this challenge by first adopting a national cap/obligation. The N2O example discussed below, though perhaps not representative, does suggests that moving from Case 2 to Case 4 can be done.

Category B: Direct regulations and requirements that have clear impacts on offset eligibility or quantification.

Unlike Category A above, this category of policy interactions along with Category C below (policies with ambiguous impacts on offset eligibility) is ubiquitous; government policies touch nearly every source and sectors where GHG offsets can be created. In some cases, regulations and other requirements are unambiguous, and clearly indicate what types of investments or activities are allowed. Examples of such policies include building codes, forestry regulations, or national technology and pollution control standards. They exist at local, state, and national levels. Sometimes critiqued as "command-and-control" approaches, these policies remain important components of policy-makers' portfolios due to their effectiveness and efficiency in many contexts.

Most offset programs require that offsets be "surplus" to regulation. This is a consequence of the fundamental additionality criterion, and the expectation that projects that would otherwise be required for regulatory compliance are not "beyond business-as-usual". While straightforward in principle, this criterion can come in conflict with local and national policy, either in terms of how existing regulations are implemented or how regulations change in the future. There is a well recognized risk that offset markets could create a barrier to, or penalize jurisdictions for, adopting otherwise desirable regulations that would reduce GHG emissions. Jurisdictions and offset programs – as we shall see for CDM in general, the EU with respect to new countries, and California with respect to landfills and manure management operations -- have approached the relationship between offsets and regulation in rather different ways.

B1. While the CDM allows offsets from activities that are required or subsidized by government policy, similar rules would be inappropriate for industrialized countries like the U.S. where governments are expected to fund, implement, and enforce policies that can result in GHG emission reductions.

The Marrakesh Accords that laid out the design for the CDM clearly recognized the importance of "taking into account relevant national and/or sectoral policies and circumstances" in determining project baselines, and by inference, project eligibility.[18] However, it was not until specific projects were submitted that this language was put to the test. In some cases, the presence of an ambitious national policy, such as renewable energy obligations, made it impossible for renewable energy project to qualify as surplus to regulation. Costa Rica is a good example. Recognized as environmental leader, Costa Rica required in its National Development Plan that 20% of private electricity generation come from renewable sources. Renewable energy projects built to comply with the quota were thus not eligible as CDM projects (Figueres, 2004). In other words, the requirement for regulatory surplus created a perverse incentive for developing country governments to avoid policies to support GHG-friendly investment that might preclude their industries from maximizing their carbon revenues from a CDM project. Worse still, CDM was perceived to create an incentive for lowering the standards and

[18] Paragraph 45(e), Modalities and procedures for a clean development mechanism, as defined in Article 12 of the Kyoto Protocol (COP decision 17/CP.7)

regulations, more so, when some governments that felt that they were being unfairly penalized for their "early actions".

The CDM Executive Board addressed this problem in 2004 and 2005 by stating that new policies favoring less emissions-intensive technologies or fuels adopted since the Marrakech Accords were drafted (November 11, 2001) would be essentially ignored in determining the eligibility of, and baselines for, CDM projects.[19] In principle, this decision eliminated the perverse incentive that the regulatory surplus requirement created. Furthermore, it created an added incentive for developing country governments to enact policies to spur investments in projects using lower carbon-emitting technologies or fuels, since their industries would be able to take these projects "to the carbon bank". The evidence on the impact of this decision is still unclear.[20]

In essence, the CDM approach to potential conflicts between policy and offsets has been to "look the other way" at host country policies established since 2001.[21] This approach makes sense for CDM to the extent that host countries are under no obligation or expectation to reduce their GHG emissions, and that CDM is an instrument specifically designed to finance or reward project-level actors rather than governments.[22] Furthermore, CDM is an instrument for enabling financial flows from industrialized countries to developing countries. With the CDM, host country governments can leverage these financial flows to adopt more ambitious policies – from landfill gas regulations to renewable energy programs – that result in reduced GHG emissions.

The context for domestic offsets in the U.S. or other industrialized countries is sufficiently different that the CDM rules on policy interaction are largely inappropriate. There is an expectation that government policies should play a role in reducing emissions. Funding and enforcement efforts for policies such as appliance efficiency or renewable energy standards, for example, are publicly financed. Allowing offsets where project activities are public funded or required would transfers the value of emission reductions created by government policy largely to private-sector actors (project proponents).

[19] The decision categorized policies or regulations into four groups, of which they provided guidance for two of the groups. The first one, referred to as type E+, covers those national or sectoral policies and regulations that "create policy-driven market distortions that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels", and the second one, referred to as E-, covers policies and regulations where the comparative advantage was in favor of less emissions-intensive technologies or fuels. For E+ type of policy or regulation was put in place after 11 December 1997, its existence (which would tend to increase emissions) should be excluded from the baseline scenario. For E- type of policy or regulation was put in place after 11 November 2001, its existence should be excluded from determination of the baseline scenario.

[20] For example, some gas venting and flaring projects in the oil and gas industry are viewed as requiring incentives or regulation the financial incentive from CDM. (DeGouvello, 2006)

[21] A further draft may discuss the question of CDM offsets revenue being used to assist in compliance with regulations that are not otherwise well enforced.

[22] Offsets could conceivably be awarded directly to the government for the emissions benefits of enacting, for example, a renewable energy obligation or other emission-reducing policies. For a variety of reasons, political as well as practical, "policy CDM" has not yet been pursued through the Kyoto Protocol.

B.2. Offsets can support the transition to increased regulation, for example, in the EU where a "grace period" created for Central and Eastern Europe countries entering the Union has enabled the use of JI to support the compliance with (landfill) regulations.

In 2004, ten Central and Eastern European Countries (CEECs) countries joined the EU, and two more joined in 2007.[23] As part of becoming an EU member state, each country must adopt the body of EU law and regulation, known as the *acquis communautaire* (acquis). In some cases, implementing the acquis meant the adoption of more stringent laws and regulations in sectors where JI projects were already underway or at least contemplated (Fernández and Michaelowa, 2003).

Accession countries were given a "grace period" to implement these new laws. This grace period directly impacts JI projects. For example, the EU landfill directive[24] requires that landfills receiving biodegradable waste must have a gas collection system. Yet there is a transition period for existing landfill sites. That means that the number of ERUs a waste management JI project can generate depends on the 'grace period' each country was granted to implement the EU landfill directive.

This brings up the question if the prospect of JI projects influenced the negotiation of these grace periods. In other words, in order to evaluate if the prospect of revenue from JI projects influenced the implementation of EU law (such as the landfill directive) it would be necessary to know if these grace periods were negotiated to account for a country's ability to implement and enforce the new laws or to allow JI projects to benefit. Several industry analysts and stakeholders are of the opinion that CEEC countries lack the financial, human, and infrastructural capacity to implement acquis policies speedily and that having the JI mechanism helps facilitate change that would otherwise have happened more slowly, if at all.[25]

B.3. As recent developments in California suggest, the prospect of regulation and other policies can limit offset markets for some sectors (e.g. landfill gas) more than others (e.g. manure management). Resistance and amenity of a sector to regulation, as well as the timing of offset program establishment, can influence how regulatory surplus is addressed

[23] In 2004 the following countries joined the EU: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. In 2007, Bulgaria and Romania joined as well. All these states are also now also members of the EU-ETS.

[24] Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste.

[25] To illustrate this point, below an excerpt from a landfill project PDD from Bulgaria. The authors found similar references for projects in Poland, Lithuania, and Slovakia. "At the landfill of Plovdiv [no methane capture system has been put in place]. The reason for this is mainly the lack of importance and the lack of financial sources. Bulgaria is one of the poorest countries of the European Union and faces many very important issues that should be taken care of. The attitude of the municipality of Plovdiv that can be shown regarding taking measures and steps as described above is that they are waiting. They will not accomplish the needed steps and they will not take the needed measures without any help from the EU or another party. What will happen in the future is not known but the financial sources that are available in Bulgaria now are used for other issues than improving the landfills in such a way that they comply with the landfill directive."
http://ji.unfccc.int/UserManagement/FileStorage/M6TDI592QRCK5351ZHMA57YNH322MU, accessed May 5, 2008)

Recent efforts in California provide examples of how the interaction between regulation and offsets can be addressed in different ways, depending on the sector and circumstances. Landfill gas capture and for manure management are both expected to make significant contributions to achieve the emission reduction goals in the state's Climate Action Plan (California Environmental Protection Agency, 2006). Both landfills and livestock operations present the potential for reductions through projects that capture and destroy methane emissions; they are also subject to other air and water quality concerns and regulations.

Furthermore, both sectors are major potential sources of offsets nationally as shown in Figure 1, and the California Climate Action Registry (CCAR) has recently developed offset project protocols for each. The two protocols currently differ in their approach to regulatory surplus, influenced by California's differing policy approaches to these two sectors.

As an early action measure for its Climate Action Plan, California state agencies are developing regulations that will require gas recovery systems on smaller landfills not subject to federal requirements (under the Clean Air Act), and upgrading of methane capture and destruction efficiencies at all landfills, resulting in over 2 million metric tons of CO2e reductions by 2020 (ARB, 2007). The CCAR landfill protocol states that "in the event that a landfill hosting a gas collection and combustion project becomes subject to a regulation, ordinance or permitting condition that would call for the installation of a landfill gas control system, emission reductions can be reported to the Registry up until the date that the landfill gas control system is required to be operational." [26]

In contrast, California is leaning towards a more voluntary approach with respect to livestock operations, in order to "preserve market opportunities", and may undertake measure such as improving the prospects for digester projects to sell generated electricity to the grid through net metering or other means. The CCAR Livestock Protocol treats the effect of future regulation on crediting lifetime quite differently from its Landfill Protocol. "All projects that pass this test are eligible to register reductions with the Registry for the lifetime of the project-crediting period (ten years), even if a regulatory agency with authority over a livestock operation passes a rule obligating the installation of a biogas control system during mid-period." [27]

California policy's context has led to very different regulatory surplus requirements for these two project types. CCAR's protocol for landfill methane has been developed while more stringent landfill regulations have been under development. Future policies of manure management, on the other hand, have been much less certain at time of protocol development. This has lead to a more lenient (and arguably inconsistent) definition of regulatory surplus for agricultural manure

[26] p.8, Landfill Project Reporting Protocol Collecting and combusting methane from landfills Version 1.0, November, 2007, http://www.climateregistry.org/resources/docs/protocols/project/landfill/Landfill_Project_Reporting_Protocol_v1.0_Nov.07.pdf

[27] p.4, Livestock Project Reporting Protocol Capturing and combusting methane from manure management systems, June 2007, http://www.climateregistry.org/resources/docs/protocols/project/livestock/CCAR_Livestock_Project_Reporting_Protocol_June_2007.pdf

projects. CCAR's decisions have implications beyond California, since CCAR's Project Protocols are intended to apply in any state wishing to employ them.

B.4. Inconsistent levels of regulation among jurisdictions (states, provinces, and countries) can create equity and competitiveness concerns with respect to what counts as an offset. This is a particular challenge for a domestic offset system in countries such as the U.S. and Canada where state or province regulatory authority can be significant.

As just noted, California is in the process of enacting what is likely to be the most stringent regulation of landfill gas emissions in the U.S.. In Canada, British Columbia is considering similarly ambitious regulation for its landfills. In both countries, federal or regional offset programs would allow offsets from landfill gas capture operations where they are above and beyond local regulation.[28] As a result, the same type of project -- i.e. with similar landfill characteristics and gas capture technology – that would be required by law in California or BC would be able to generate offset revenue in other states and provinces. Similarly, for forest management offsets created under a federal program, the same project type and circumstance might be additional in one state, but not in another due to that state's forest practices regulations (California, for instance, is the only states to establish minimum rotation length).

Such a situation can penalize jurisdictions for their efforts at GHG mitigation, a perverse consequence much like the one Costa Rica objected to with respect to its renewable energy requirements and the CDM. One option for offset programs is to set a regulatory surplus threshold at the level of the most stringent regulation within the country.[29] While this would remove the perverse disincentive against aggressive GHG mitigation policy in leading states or provinces, it could also create significant uncertainty for offset developers who would need to monitor regulatory prospects across many jurisdictions.

The situation of varying state and local regulation is a familiar one in the federal climate policy debate, though it is has been invoked far less often than in the case of regional cap-and-trade programs or motor vehicle standards. Should and can the federal government play a useful role in resolving regional differences in offset eligibility? It seems unlikely that a voluntary (offset) program would pre-empt a state or local regulatory authority. At the same time, the possibility that a "patchwork" of regulations might have a major effect on the regional distribution of benefits from an up to $15 billion domestic offset market, and put policy "leaders" at a competitive disadvantage, might create pressure for federal action.

B.5. Offset programs can foster beyond-regulation activities and innovation, potentially leading to more ambitious regulations in the future. This interaction can be positive or negative depending on perspective.

EPA's EnergyStar provides an example of a voluntary program that has spurred technology innovation and diffusion that in many cases has led years later to stronger regulation, in the form

[28] See EPA Climate Leaders or CCAR offset project protocols and the Canadian Federal Offset guidelines (http://www.ec.gc.ca/doc/virage-corner/2008-03/526_eng.htm#2).
[29] Such an approach has been considered in Canada.

of enhanced appliance standards. Offsets can function in a similar manner, by spurring innovative activity in sectors where regulation already exists. For example, CCAR's forestry protocol is premised upon exceeding California's forest practice regulations, which establish a minimum rotation length. Where more ambitious regulations are possible in the future, offset projects can pave the path.

This potential outcome is not lost on some industry representatives, who, as a result, may perceive offsets as a slippery slope to further regulation. In California, one farm industry group has noted this concern, citing their experience with NOx markets. Where their farmer's actions once earner NOx credits (much like offsets), these actions became the basis for new emission standards, thus eliminating the previous financial benefit, while resulting in added regulation.[30]

Category C: Other policies: incentives (e.g. subsidies, tax credits, feed-in tariffs), disincentives (e.g. emission taxes), or regulations that have more ambiguous implications for offset eligibility.

This category of interactions arises where other policies exist, and where the incentives they provide, or their implementation and enforcement, are [claimed to be] insufficient for a project activity to take place without the benefit of offsets and the revenues they might provide. In such cases, it can be difficult to judge additionality, and this difficulty can stymie offset market development.

C.1. Where incentives already exist for potential offset activities, some Western EU countries have tended to take a strict approach that has stifled offset development; this may be a function of the overall national cap as discussed above.

Many European countries have feed-in tariffs that promote the production of renewable energy. France, for example, has many incentive programs for renewables among them a feed-in tariff for electricity from manure digesters. These countries have generally determined that projects benefiting from feed-in tariffs cannot qualify as JI projects, because the feed-in tariff's incentive renders the project non-additional. According to some analysts, however, the current limited activity in digesters is evidence that the tariff is insufficient to justify digester investments.[31]

The result is that digester projects *without* electricity production – simply methane capture and destruction by flare – may be pursued instead of ones *with* electricity production, in order to avoid the additionality concern. Ironically, this policy approach could result in foregone GHG benefits from digester-based electricity.

[30] Steve Shaffer, personal communication, in relation to the cotton ginners association.
[31] Benoit Leguet, personal communication

German experience has been similar. Many of their prospective JI projects have been coal mine methane projects, rejected due to concerns about feed-in tariffs and other policies supporting the use of coal mine gas.[32]

The case where offsets provide one of several incentives is one of the more vexing challenges in offset program design. As the cases above suggest, the easiest approach for many governments is simply to disallow offsets in such cases. Not only do governments face the environmental integrity concern of potentially non-additional offsets, the public could perceive project developers as "double-dipping", getting a government subsidy (feed-in tariff) while also benefiting from offset revenue. Policy options to address this situation include a) the use of the usual suite of methods for additionality assessment (common practice analysis, etc.) taking into account the other policies, and/or b) discounting methods, such as proportional attribution to offset value based on the fraction of overall incentives received from various sources (offset market, direct subsidies).

C.2. Offsets can be used to make government policies more effective, e.g. by topping-up existing incentives, or, in the case of CDM, by bolstering enforcement in countries where regulations are not currently well implemented. Use of offsets for similar purposes in an industrialized country is harder to justify, given higher expectations for regulatory enforcement and the challenges of additionality determination.

The CDM Executive Board has allowed a lower baseline to be used for projects developed in countries and regions where there is widespread non-compliance of mandatory laws and policies. The project developers have to demonstrate that applicable legal or regulatory requirements are systematically not enforced and that non-compliance is widespread.[33] For example, methane regulations under the 2000 Municipal Solid Waste Rules in India are currently poorly enforced. The CDM EB therefore set the threshold for monitored compliance at 50% during the crediting period requiring that crediting stop once the monitoring threshold had been crossed.[34]

Poor enforcement is not just an issue in developing countries. The energy efficiency requirements of state building codes in the U.S. are often poorly enforced. In Massachusetts for example, less than half of new residential construction meets the MA code for energy efficiency.[35] However, unlike in a place like India, where expectations for regulatory enforcement are already low, it is unlikely that offsets would be viewed as an acceptable policy tool to enhance regulatory compliance in the U.S. To do so would call into question the fundamental credibility of regulatory tools. Other actions, such as training, oversight, and added staffing for building or other officials would likely be more effective, comprehensive, and sustainable.

[32] Lambert Schneider, personal communication. Many of the projects for coal mine methane capture and use were rejected because they were deemed non-additional due to other policy incentives.
[33] CDM Additionality Tool (version 03 & 04)
[34] Approved baseline methodologies AM0012 and AM0025.
[35] Impact Analysis Of The Massachusetts 1998 Residential Energy Code Revisions http://www.mass.gov/Eeops/docs/dps/inf/inf_bbrs_impact_analysis_resident_energy.pdf, accessed on May 12, 2008.

Summary and Conclusions

Policy interactions are a common concern where domestic offsets have been proposed or implemented. Often government regulation is perceived as a threat to the offset market, or conversely, offsets can be viewed as risk to other policies such as achievement of national emissions obligations. In fact, as our investigation has revealed, the interactions are often quite complex, and in some cases, quite positive. Yet much of the evidence for such policy interactions is anecdotal.

The following are our key findings regarding of policy interactions:

- *Comprehensive, national emissions obligations (inclusive of agriculture, forest, and other land use activities) could dampen the market for domestic offsets. Conversely, creating large, domestic offset markets could create an added barrier to later adoption of such obligations.* National obligations as imposed by a Kyoto-like system have limited the prospects for domestic JI offset projects across most Kyoto countries .

- *While domestic offset programs could impede expansion of the scope of GHG emission trading systems to cover the sectors from which offsets are sourced experience with N_2O abatement in the EU suggests that the opposite could also occur. However, the circumstances surrounding proposed EU ETS expansion to include N_2O from acid production facilities may not be a good indicator for other sectors and sources.*

- *Issuing offsets for the direct or indirect reduction of emissions covered by an emissions trading system creates added policy challenges (addressing double counting and retirement of allowances). Policy makers have tended to disallow this option.*

- *While the CDM allows offsets from activities that are required or subsidized by government policy, similar rules would be inappropriate for industrialized countries like the US where governments are expected to fund, implement, and enforce policies that can result in GHG emission reductions.*

- *Offsets can support the transition to increased regulation, for example, in the EU where a "grace period" created for Central and Eastern Europe countries entering the Union has enabled the use of JI to support the compliance with (landfill) regulations.*

- *As recent developments in California suggest, the prospect of regulation and other policies can limit offset markets for some sectors (e.g. landfill gas) more than others (e.g. manure management). Resistance and amenity of a sector to regulation, as well as the timing of offset program establishment, can influence how regulatory surplus is addressed*

- *Inconsistent levels of regulation among jurisdictions (states, provinces, and countries) can create equity and competitiveness concerns with respect to what counts as an offset. This is a particular challenge for a domestic offset system in countries such as the US and Canada where state or province regulatory authority can be significant.*

- *Offset programs can foster beyond-regulation activities and innovation, potentially leading to more ambitious regulations in the future. This interaction can be positive or negative depending on perspective.*

- *Where incentives already exist for potential offset activities, some Western EU countries have tended to take a strict approach that has stifled offset development; this may be a function of the overall national cap as discussed above.*

- *Offsets can be used to make government policies more effective, e.g. by topping-up existing incentives, or, in the case of CDM, by bolstering enforcement in countries where regulations are not currently well implemented. Use of offsets for similar purposes in an industrialized country is harder to justify, given higher expectations for regulatory enforcement and the challenges of additionality determination.*

Where domestic offset programs make sense, it is essential to design them to enhance rather than inhibit other future actions as a part of a comprehensive and effective long-term climate policy. The following preliminary recommendations [to be expanded and elaborated] could help to minimize negative impacts and maximize positive policy interactions between offset programs and other GHG mitigation policies:

- View offsets, in general, as a temporary or transitional mechanism, and design programs and rules, especially with respect to "regulatory surplus rules" accordingly.
- Support and, possibly, favor early actions in the offset market.
- Manage expectations in the offset market by signaling where for which sectors and sources the use of alternative and potentially competing policy mechanisms may be considered within the next 5 to 10 years, and thus may influence offset eligibility.

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