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Beyond Additionality in Cap-and-Trade Offset Policy

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EXECUTIVE SUMMARY

Perhaps no element of recent cap-and-trade proposals has been as controversial as provisions for offset credits, under which sources whose emissions are limited may increase their emissions in exchange for reducing emissions from an unregulated source outside the cap. At the heart of nearly all offset programs is the requirement of "additionality"— offset credits should *only* be given for emissions reductions *that would not have happened in the absence of the offset program*. A recent (May 2010) white paper entitled "Ensuring Offset Quality" for three U.S. cap-and-trade programs for greenhouse gases, including the now-operational Regional Greenhouse Gas Initiative (RGGI), continues to cite additionality as the most important part of any offset policy. This paper questions the usefulness of additionality as a standard on both practical and moral grounds. Practically speaking, additionality requires verifying what a potential offset seller would have done without the offset program. The difficulty of establishing such counterfactuals hamstrings existing offset programs by raising transaction costs. Additionality also calculates offset credits against a weak, Business As Usual (BAU) baseline. By favoring larger historical emitters, this approach is morally disquieting and a threat to environmental integrity under the cap, a primary justification for additionality rules. Ironically, even as programs such as RGGI have stopped rewarding higher emitters through free allocations of allowances based on prior emissions levels, *they are creating the same perverse incentives* rewarding high emissions baselines and poor environmental performance for emitters outside the cap.

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The offsets white paper recognizes other standards for calculating offsets, including performance-based benchmarks that could do a better job protecting environmental integrity while simplifying validation and monitoring. For these reasons, this paper argues that offset policy designers should consider going "beyond additionality" to focus on other factors more important to the creation of fair, practical, and environmentally effective offset credits.

Additionality and Offset Credits

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After a decade in which they seemed to be the answer to nearly every pollution problem, cap-and-trade policies have generated substantial controversy in the past two years. Perhaps no element of recent cap-and-trade proposals have been as controversial as provisions for offset credits, under which pollution sources whose emissions are limited under a given cap may increase their emissions in exchange for reducing emissions from an unregulated source outside the cap.

Offsets have assumed an important role in many recent emissions trading programs for greenhouse gases (GHGs), including the Regional Greenhouse Gas Initiative (RGGI), the Western Climate Initiative (WCI), and the Midwestern Greenhouse Gas Reduction Accord (MGGRA). RGGI encompasses 10 states in the Northeast and is the oldest of the three programs, starting operation in 2009. WCI is a similar program composed of seven states in the Western U.S. and four Canadian provinces, while the MGGRA includes six participating Midwestern states and one Canadian province. Both WCI and MGGRA remain in the design phase and are scheduled to begin operation in 2012.

At the heart of nearly all offset programs is the awkwardly-phrased requirement of "additionality"—the idea that offset credits should only be given for emissions reductions from projects that would not have happened otherwise. A recent white paper on offsets for greenhouse gas emissions for RGGI, WCI, and MGGRA, for example, refers to additionality as perhaps the most important part of any offset policy.[1] The white paper defines additionality in financial terms, requiring that a valid offset project "would not have happened anyway in the absence of the economic incentive created by the compliance obligation required by the cap-and-trade program."[2] A 2006 analysis of the issue by other experts offers a very similar definition: "To [be additional], the reduction from the uncapped source must be a response to the presence of the offset crediting mechanism."[3] In both cases, the core idea is that *emissions reductions would not have happened without the financial incentive of the offset payment*.

This kind of "financial additionality" is the most common way of trying to exclude offset projects that would have happened without the offset program. Alternative definitions exist, however, including "legal or regulatory" additionality, in which credit is only given for actions not already required by law, and "technological additionality," in which credit is only given if the project

adopts a more advanced emissions reduction technology than the norm. It is the financial link, however, between the offer of offset credit and the seller's decision to undertake the offset project that is the core idea of any additionality measure.[4] In essence, the added financial incentive of the offset payment must be a decisive factor that causes the offset project to occur.

The privileging of (financial) additionality as the *sine qua non* for granting offset credits is widespread, extending into rules defining offsets from the Kyoto Protocol's Clean Development Mechanism to the Chicago Climate Exchange.[5] While understandable, the emphasis on additionality is problematic on both practical and moral grounds and should be reconsidered. Since its introduction, "additionality" has generated endless conflict over its exact meaning and how we should measure it (with even supporters agree that additionality is a difficult standard to test in practice).[6] More importantly, the most prominent justifications for additionality, including its ostensibly vital role in protecting the environmental integrity of any offset program, are misguided. As such, this paper argues that policy designers should consider going beyond additionality to focus on other factors more important to the creation of fair, practical, and environmentally effective offset credits.

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At first glance, it seems hard to argue with a requirement that offset projects be additional. Why would anyone want to pay firms to provide emissions reductions they would have provided anyway for free? Environmental advocates and policy designers might understandably gravitate toward additionality, therefore, as a way to get the most pollution reduction for their scarce dollars. Indeed, one of the strongest and most prevalent arguments for additionality is the existence of a vast pool of potentially "non-additional" emissions reductions already going on in the world without offset incentives. Giving offset credits for these so-called "phantom reductions," according to this line of thought, would overwhelm any emissions reductions made by offset buyers in the capped region, undermining the program's environmental integrity by failing to lower total emissions below the status quo.[7]

In addition, paying people to do things they were going to do anyway may seem morally suspect: a waste of public dollars at best, and a corrupt exploitation of public resources at worst. The easy conclusion is that such individuals are gaming the system—taking advantage of payments they neither require nor deserve. Combine this fear with a more general, long-standing ethical discomfort with the commodification of pollution rights and polluters "buying their way out" of a duty to clean up their emissions, and you have the basis for an even greater level of moral concern with offsets that are not additional. During negotiations over the Clean Development Mechanism, for example, arguments over offset credits being "additional" were often linked to concerns about such credits being "supplemental" to emissions reductions under the cap.[8] "Supplementarity" standards continue in many programs, limiting use of offset credits to some fixed percentage of the total emissions reductions required.[9]

Despite their intuitive appeal, these lines of argument for additionality are problematic. In practical terms, additionality requires verifying a counterfactual: What would a potential source of offset credits have done without the incentive of the offset payment? Proving this (or any) sort of counterfactual is quite challenging, as the white paper authors recognize.[10] Although an economic analysis may suggest that an emissions reduction or carbon storage project would not have been profitable without income from offset credits, economists have struggled for decades to accurately quantify the non-monetary benefits of many environmental improvements. Is an apparently unprofitable afforestation project now profitable if we discover that a landowner values having more forest on his or her property for aesthetic or personal reasons? How will we measure this—through controversial techniques like contingent valuation where we ask owners about their willingness to pay for the enjoyment of a new stand of trees? Such measurement techniques remain difficult and of uncertain validity, yet they (or something like them) appear to be required by the additionality standard.[11] At a minimum, these additionality tests will significantly increase the transaction costs of certifying an offset project. This risks limiting the scope of the offset market, as has occurred due to high transaction costs under the Clean Development Mechanism.[12]

Additionality also has the perverse moral implication of favoring offset providers with a poor track record of previous behavior and lack of motivation to address environmental problems.[13] Consider the following example: Two firms are contemplating a program to reduce GHG emissions from their manufacturing processes. One firm has already started developing a project to reduce these emissions, while another has considered the idea but rejected it. Both face the same monetary incentives in this scenario, but Firm A is sufficiently motivated by the (non-monetary) environmental and reputational benefits of the project to move ahead, while Firm B is not. Under the financial additionality standard, as promulgated in the "Ensuring Offset Quality" paper, Firm B would be eligible for offset payments but Firm A would not. (This is not just an implausible hypothetical: Firms regularly engage in these forms of overcompliance under various voluntary environmental programs such as ISO 14001).[14] Surely this is not a desirable outcome.

These perverse moral implications lead to incentives for strategic behavior by offset providers as well. By only offering payment for reductions that "would not have happened otherwise," additionality rules discourage early action and encourage delaying emissions reductions for fear of losing a chance at future offset payments for those actions. In the effort to avoid paying for emissions reductions that "would have happened anyway," additionality rules create incentives that *discourage* offset projects that might have otherwise happened. While not every potential offset provider will be swayed by these incentives, some surely will.[15]

Perhaps most importantly, additionality is a weak mechanism for ensuring the environmental integrity of any cap-and-trade program. The "Ensuring Offset

Quality" paper, for instance, explicitly measures additionality relative to projections of "business as usual" (BAU) emissions for sources outside the cap. [16] This standard sets a low bar for granting offset credits for sale, one that presumes offset providers are entitled to revenue *for every incremental reduction they make from the status quo, as long as their current emissions behavior is legal.*

Again, one has to ask why one would want to make such a weak standard the foundation of attempts to protect the environmental integrity of an offset program. It was common to allocate emissions entitlements based substantially (but not entirely) on status quo or historical emissions in this manner in earlier cap-and-trade programs for air pollution.[17] But the situation has changed rapidly in the last few years.[18] Programs such as RGGI have been trailblazers in this regard, promoting a new paradigm in which there is no right to allowance credits based on prior behavior or emissions. Instead, allowances are treated as *public assets* to be distributed for public benefit, to current emitters and non-emitters alike according to a wide range of standards other than BAU or historic baselines.[19] In the case of RGGI, these allowances are largely auctioned to the highest bidders, with the revenue being put to a range of public purposes.[20] The crucial point, however, is not the auction *per se* but that RGGI provides no entitlement to economic value in the form of allowance credits under the cap based on historic or BAU emissions or energy consumption levels.

We neither must nor should use historical or BAU emissions as a yardstick for allocating emissions credits of any sort, offsets or otherwise.

The irony, therefore, is that even as the creators of innovative cap-and-trade programs such as RGGI have stopped recognizing historical baselines as an important standard for allocating emissions credits *under the cap*, they are re-creating the same criterion for potential sources of offset credits *outside the cap*. This is because additionality effectively requires us to measure offset credits based on what an offset provider would have emitted otherwise, under BAU. In this respect, a firm with an inferior environmental management record would be eligible for more offset credits than one who had a superior record. This is morally disquieting, but more importantly, it is a serious threat to environmental integrity under the cap. Indeed, giving offset credits based on emissions reductions from historic norms is one of the weaker baselines for calculating offset credits one could imagine.

Thus, in their pursuit of greater efficiency, environmental integrity, and moral credibility through additionality, the white paper authors risk overlooking the most important innovation of RGGI: *we neither must nor should use historical or BAU emissions as a yardstick for allocating emissions credits of any sort, offsets or otherwise*. RGGI's designers made the transformational leap of abandoning historical baselines for allocating allowances under their cap, but have yet to extend this paradigm shift to allocating offset credits (exchangeable for allowances) outside the cap. The primary reason for this oversight appears to be the undue influence of the additionality standard. This is unfortunate, because the standard is impeding consideration of other, potentially superior methods of calculating offset credits.

Fortunately, there are many methods for measuring offset credits without reference to BAU baselines. An entire section of the white paper discusses alternative, standardized measures of measuring and certifying offset credits that have nothing to do with the previous intentions or emissions histories of offset sellers.[21] These include techniques such as benchmarking and performance standards that are already proven to work in other allocation contexts, including the NOx cap-and-trade program in the Northeast, and the 1990 acid rain program (where many allowances were allocated based on a benchmarked pollution rate and historic energy consumption levels, rather than actual levels of emissions).[22] While benchmarks pose their own challenges in terms of selecting an appropriate standard,[23] they are more directly responsive to concerns about preserving an emission cap's environmental integrity than a calculation based on historic behavior. Rather than measuring offsets based on a counterfactual of BAU behavior, we might be better off focusing on the appropriate environmental (and other) standards for granting any particular offset credit.

Thus, with the right performance standards or benchmarks, one could eliminate "phantom reductions" more directly than with a standard based on measuring the incentive effects of offset payments. One could give offset credits, for example, only for carbon stored beyond a minimum level of forest cover on a property, or for afforestation conducted in certain ecologically desirable regions or with appropriate provisions to protect the livelihood of local populations. For renewable energy projects, one could focus on a high technological threshold, or even on development of renewable energy in new economic sectors or underserved areas. It is worth noting in this regard that offset rules already impose similar standards that have nothing to do with BAU or historical intentions, including limits on credits for actions that are already legally required.[24] Notice that in many cases, an alternative, performance-standard based offset criterion would result in *stricter* (and more consistent) rules for providing offset credits.

Additionality, in sum, is neither the best nor the only way to address the problem of emissions "leakage" outside the cap via offsets. With its focus on counterfactual intent and thought experiments, additionality distracts us from the main goal of ensuring environmental integrity. Indeed, many of the standards now used to test offset projects for "regulatory" or "technological" additionality might be useful as performance-based standards for offset credits. The point is that linking such standards to the concept of additionality makes them weaker, by insisting they serve as imperfect approximations for the "real" test of whether the project would have happened anyway without the offset program. The potential causal link between the offset program and the project is actually a red herring—what matters is whether offset policies are protecting reductions under the cap and encouraging the most desirable emissions reductions elsewhere. There is no need for measuring prior intent or "financial additionality" to meet these standards. As one previous article defending additionality concludes: "Additionality *per se* is not the objective; it is a means to

an objective."[25]

Thus, the argument for moving "beyond additionality" does not imply that other limits on offsets are unimportant. Monitoring and verification of offset credits is vital, and present difficult challenges (as the authors of "Ensuring Offset Quality" discuss in detail). Setting appropriate performance standards or benchmarks will also be challenging. Adding a test that tries to causally link an offset payment to a project, however, makes these tasks more difficult with no obvious marginal benefit. Thus, additionality increases an offset program's verification burden while focusing regulators on the wrong task—trying to estimate whether a project would have happened or not, rather than trying to support the best mix of projects outside the cap that meet various policy goals.

But despite the apparent existence of viable alternative standards for quantifying offset credits, some appear reluctant to let go of the criterion of additionality. Although the motivations may be admirable, a new look at the idea in light of recent policy developments suggests that additionality may do more harm than good. By failing to at least consider moving "beyond additionality," offset program designers risk building an ineffective, unwieldy, and unjust approach to allocating emissions credits for offset sellers even as many of the same policy designers have eliminated a similarly flawed approach to allocation based on historical behavior for polluters under the cap.

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Endnotes

[1] Three-Regions Offsets Working Group. May 2010. "Ensuring Offset Quality: Design and Implementation Criteria for a High-Quality Offset Program," p. 8, 18. Available at www.rggi.org/docs/Three_Regions_Offsets_Whitepaper_05_17_10.pdf

[2] "Ensuring Offset Quality," p. 8.

[3] Trexler, Mark C.; Derik J. Broekhoff, and Laura H. Kosloff. 2006. "A Statistically-Driven Approach to Offset-Based GHG Additionality Determinations: What Can We Learn?" *Sustainable Development Law and Policy* Winter 2006:30-40, at 31..

[4] This is made plain in both the Ensuring Offset Quality white paper as well as the Trexler, Broekhoff, and Kosloff discussion, where other technological "tests" are offered as second-best estimations of the core question whether the offset project happened only because of the incentive of an offset payment.

[5] MacKenzie, Donald. 2009. "Making Things the Same: Gases, Emission Rights and the Politics of Carbon Markets." *Accounting, Organizations, and Society* 34 (3-4):440-55; Offset Quality Initiative. 2008. Overview and Frequently Asked Questions, Project-based Credits—"offsets"—in Chicago Climate Exchange. [accessed June 24, 2010]. Available at http://www.chicagoclimatex.com/docs/offsets/General_Offsets_faq.pdf; Ensuring Offset Quality. Pew Center on Global Climate Change [accessed June 24 2010]. Available at http://www.pewclimate.org/publications/whitepaper/ensuring-offset-quality;

[6] As one of the authors states, "Additionality: Never has so much been said about a topic by so many, without ever agreeing on the common vocabulary, and the goals of the conversation." Trexler, Broekhoff, and Kosloff (2006), p. 30.

[7] *Id*., at 32-35. "Ensuring Offset Quality" makes the same point, without the phrase "phantom reductions," p. 9 and elsewhere.

[8] Ott, Hermann E. 2001. "Climate Change: An Important Foreign Policy Issue." *International Affairs* 77 (2):277-96.

[9] As reviewed briefly in Raymond, Leigh. 2010 (forthcoming). "The Emerging Revolution in Emissions Trading Policy." In *Greenhouse Governance*, ed. B. G. Rabe. Washington, DC: Brookings Press.

[10] "Ensuring Offset Quality," p. 11; See also Trexler, Broekhoff, and Kosloff (2006), at 31; or Schneider, Lambert. 2008. "Key Lessons Learned on the CDM and Its Use in the EU ETS." *Briefing Paper for EU Parliament workshop on CDM*, available at: http://ecologic-events.eu/cdm-workshop/presentations.htm

[11] For more on the difficulties of measuring these non-monetary values, see Sagoff, Mark. 2004. *Price, Principle, and the Environment*. Cambridge, UK: Cambridge University Press.

[12] On high transaction costs for CDM projects, see Michaelowa, Axel, and Frank Jotzo. 2005. "Transaction Costs, Institutional Rigidities and the Size of the Clean Development Mechanism." *Energy Policy* 33:511-23.

[13] This is effectively a version of the so-called "early action" problem created by basing any emissions credits on historical baselines. The problem has beset cap and trade programs for years, but has been overcome by the dropping of status quo baselines as a basis for allocation in programs such as RGGI, as discussed in the text below.

[14] For example, see Prakash, Aseem. 2000. *Greening the Firm: The Politics of Corporate Environmentalism*. Cambridge, UK: Cambridge University Press.

[15] Similar strategic behavior is common in the face of similar perverse incentives, for example those facing private landowners with potential endangered species habitat. See Lueck, Dean, and Jeffrey A. Michael. 2003. "Preemptive habitat destruction under the Endangered Species Act." *Journal of Law and Economics* XLVI (April):27-60.

[16] "Ensuring Offset Quality," p. 10-11.

[17] Raymond, Leigh. 2003. *Private Rights in Public Resources: Equity and Property Allocation in Market-Based Environmental Policy*. Washington, DC: Resources for the Future Press, especially ch. 3.
[18] Raymond, Leigh. 2010 (forthcoming). "The Emerging Revolution in Emissions Trading Policy." In *Greenhouse Governance*, ed. B. G. Rabe. Washington, DC: Brookings Press.
[19] *Id.*
[20] *Id.*
[21] "Ensuring Offset Quality," p. 18-23.
[22] Raymond, Leigh. 2003. *Private Rights in Public Resources: Equity and Property Allocation in Market-Based Environmental Policy*. Washington, DC: Resources for the Future Press, ch. 3.
[23] As seen in the EU ETS, for example. See Ellerman, A. Denny, Barbara Buchner, and Carlo Carraro, eds. 2007. *Rights, Rents, and Fairness: Allocation in the European Emissions Trading Scheme*. Cambridge, UK: Cambridge University Press, p. 351-352.
[24] Draft rules for the WCI include the intriguing idea that no offset credit should be given for activities that are legally required in the capped regions, rather than in the location of the offset provider. See Raymond (2010 Forthcoming).
[25] Trexler, Broekhoff, and Kosloff (2006), p. 40.