January 17, 2013

Ms. Nicole Singh
Regional Greenhouse Gas Initiative Inc.
90 Church St. 4th Floor
New York, NY 10007

Dear Ms. Singh:

I have been following the review of the RGGI program. In October we submitted comments on the design of the cost management provisions of the cap-and-trade program. Discussions around its design and the text of the draft model rule indicate the issue remains important. I am writing to resubmit our comments in the hope they will be timely. This correspondence is modified slightly from the original version in October. Let me emphasize that I am writing as a researcher at Resources for the Future and the views expressed here do not represent those of Resources for the Future. They are my views and those of my colleagues on the original comment, Matt Woerman and Clayton Munnings.

This letter addresses two specific elements of cost management that are under the current review of the RGGI program: the cost containment reserve and price floor.

There are many good arguments on behalf of a symmetric cost containment mechanism that includes a price floor and a price ceiling that that respond automatically to unexpected increases in prices. The price floor in the auction that has been an element of the program design throughout the first compliance period provides a minimum price for allowances in the market by automatically constraining supply. The price floor assures investors of a minimum value in the allowance market. A price floor in an auction is also considered a good feature of auction design generally.

The price ceiling that is being considered as an additional design element is meant to provide assurance that prices will not rise outside the range of expected outcomes. The proposal being discussed in RGGI is sometimes described as a "soft" price ceiling because it offers a limited amount of additional allowances at a specified price. In contrast a "hard" ceiling would offer an unlimited amount. In a recent scientific paper, Fell et al. (2012) demonstrated that a soft price ceiling can deliver most of the benefits in terms of constraining prices as would a hard price ceiling, while also delivering greater environmental certainty.[1]

An important issue in the design of the cost containment mechanism is how the price triggers associated with the floor and ceiling should change over time. A standard approach would be to have the floor and ceiling adjust at rates that reflect the rate at which other market asset values would change over time. This rate is the opportunity cost of capital, or the discount rate, for investors. The reason this rate is efficient stems from the management of an asset or resource over time. In this case, the resource is emissions (or emissions allowances). Two useful papers in the economics literature develop the

[1] Fell, H., D. Burtraw, R. D. Morgenstern, K. L. Palmer, 2012. Soft and hard price collars in a cap-and-trade system: A comparative analysis," *Journal of Environmental Economics and Management,* 64 (2): 183-198.

justification for a discount rate that causes allowance prices to rise over time (Cronshaw and Kruse, 1996; Leiby and Rubin, 2001).[2]

The reasoning provided in the economics literature for the rate of change in allowance prices is that from the perspective of a compliance entity or investor holding an emissions allowance substitutes for holding funds in an alternative investment. If the rate of return on the alternative is greater than the rate of return on holding an allowance, one would use up allowances today (or sell them) and buy the alternative. This would leave fewer allowances for tomorrow, driving up their price. This arbitrage process would continue until the rates of return on the two investments were equal. Similarly, if the rate of return on allowances were greater than the alternative, one would take money out of alternative investments to reduce emissions today and hold allowances. This would increase allowance supply in the future, drive down future allowance price and decrease the rate of return on holding an allowance. This is the reason one would expect the price floor and the price ceiling to increase over time.

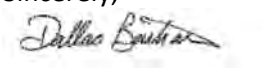
To put this idea into operation requires identification of the market opportunity cost of capital, which has two components. One is the ***real rate of return*** on an alternative investment, and the second is the ***rate of inflation***. A central estimate of the rate of return on an alternative investment is 5 percent; hence, the opportunity cost of capital would be 5 percent plus inflation.

As a point of comparison, California is using a rate equal to 5 percent plus inflation for its price floor and ceiling. An advantage of using a similar value to California is that it would contribute to general alignment of the programs. As another point of comparison, in analysis supporting the federal Waxman-Markey proposal the Energy Information Administration used a real discount rate of 7.4 percent, not including inflation.[3] With lower interest rates today than were in place in 2009, the optimal discount rate might be lower, which would justify the 5 percent choice in California.

In summary, in designing the cost containment reserve RGGI needs to decide how the floor and ceiling allowance prices will change over time. Some commentators have suggested a pre-determined rate of change (rather than making changes every year based on observed inflation) in order to bolster the predictability of the market. A value of 2.5 percent per year is suggested to represent the rate of inflation. The other consideration is the real cost of capital. California has chosen a value of 5 percent as a proxy for this value. This might be a good choice for RGGI as well. The efficient rate of change in prices would be the sum of these two numbers.

I am grateful for the opportunity to comment and look forward to future opportunities to provide input.

Sincerely,



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[2] Cronshaw, M.B. and J.B. Kruse. 1996. “Regulated Firms in Pollution Permit Markets with Banking" *Journal of Regulatory Economics,* 9(2):179-89. Leiby, P. and J. Rubin. 2001. "Intertemporal Permit Trade for the Control of Greenhouse Gas Emissions," *Environmental and Resource Economics*, 19(3): 229-256.

[3] See page 73: http://www.eia.gov/oiaf/servicerpt/hr2454/pdf/sroiaf(2009)05.pdf.