

Allocation of Emission Allowances for the Regional Greenhouse Gas Initiative

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The Regional Greenhouse Gas Initiative (RGGI) proposal under discussion among nine New England and Mid-Atlantic States has resulted in a preliminary agreement to establish a CO₂ cap and trade program. Emission allowances worth billions of dollars may be given away to start the program. Intense interest in this allocation should be expected.

In order to aid in the evaluation of various alternatives, an economic analysis of the program and the consequences of the allocation has been conducted. In summary, in a well-functioning market the price of allowances and the increase in electricity prices resulting from the cap and trade program are essentially independent of the initial allowance allocation.

Policymakers have a decision to make regarding to whom to convey the benefits of any “free” allowances, but generally face two alternatives. They can minimize the economic impact of the program by using the allocation to lower customer costs, or they can use the allocations to further other social and political goals. Allocating allowances to generators falls in the second category; the allocation will benefit the generator class without any realistic expectation that it will lower customers’ costs.

The Allocation of Emission Allowances

The value of the allowances allocated under RGGI will likely exceed a billion dollars. For example, ICF has estimated allowance values from roughly \$1 per ton to \$10

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or higher. With initial allocations of around 125 million tons a year, the allocations could total billions of dollars over the 15-year life of the program. There are many ways the allocation of allowances can be accomplished.

One option is to allocate emission allowances to customers. This could be accomplished through either a direct allocation of allowances to customers or more likely through some agent, who will conduct an auction on their behalf to sell the allowances to generators, with the proceeds of the auction used to reduce customers' electricity costs. This approach offers the promise of minimizing the cost of the program to customers, and will produce the lowest net electricity rate increases. Some increase will occur, of course, because the overall cost of producing electricity will be higher as a result of the new constraint on production. However, selling the allowances and using the proceeds to reduce rates paid by consumers will have the least potential for the RGGI program to have negative economic consequences for the region.²

A second option would be to use the allowances to advance various social or political objectives. The allowances have substantial value that could be used to fund a variety of programs. Such programs are only limited by the creativity of the proposal designers, and the ability to gain political acceptance of the programs. The current RGGI proposal calls for setting aside 5 percent of the allocation for a Strategic Carbon Fund that will target additional CO₂ reductions, and 20 percent for a non-specified public benefit purpose that could include rate reduction (falling under the first option above), but also could include programs to promote energy efficiency, renewable energy technology, or other CO₂ reduction technologies.³ The benefits of these activities will depend on their specific attributes. From an economic perspective, this approach represents an added tax placed on electricity (relative to the full-rebate approach under option one) at the same time that the CO₂ emission cap will be increasing the cost of electricity

² Within this option there are a range of choices available in determining how the allowances will be sold and exactly how the proceeds will be used to reduce prices. Various entities could act as the customers' agent, and different auction processes could be used. The agent and auction process should ensure that all generators get equal access to emission allowances. The proceeds of the auction could be credited to the cost of electricity in some proportion to electric load.

³ Other uses sometimes discussed under similar circumstances include using the revenues to provide benefits to low-income customers, aid in job creation, or fund advocacy groups.

production. Therefore, opting for any of these alternatives will further increase electricity prices.

A third option is to allocate the allowances to electric generators affected by the program. There is cosmetic appeal to giving the proceeds to the entities claiming to be most affected by the new rules. Closer consideration, however, demonstrates that this approach is actually another example of the second option—an allocation of valuable allowances for social and political purposes independent of the net costs incurred by generators under the RGGI program. For most generators and their shareholders, a free allocation of emission allowances will be a windfall, providing substantial additional profit in instances when wholesale electric price increases more than offset the added cost of emission allowances. For reasons set out below, allocating allowances to generators will not result in lower prices to customers.

Rational generators will not reduce their electricity bids as a result of a free allocation of allowances, and if they did it would only reduce the efficiency of the overall RGGI program, because such behavior would disrupt the economic efficiency seeking process that is the basis of cap and trade programs. Instead, generators will include the value of their CO₂ emissions, measured by the current allowance price, in their electricity bids. As before, generators will only generate when prices are above their variable costs.

For low-fuel-cost, low-CO₂-emitting generators (such as nuclear, hydroelectric, some cogeneration units, and perhaps combined cycle units), the electricity price increase will exceed any increase in costs, and their profits will increase even after purchasing any needed allowances. Dispatchable units with high fuel costs that were frequently on the margin will likely continue to be marginal producers, with the market value of allowances included in their bid prices resulting in higher electricity prices covering their new allowance costs. Units on the verge of retirement may find the allowance allocation to be a complete windfall. Some less efficient coal units may see cost increases greater than the electricity price increase brought by the RGGI program, but those same units have benefited from electricity price increases resulting from the recent surge in gas prices, and will have to reduce their output in order for emission reduction targets to be met.

The effect of the RGGI program will vary based on the circumstances of each generator. Allocating allowances to generators will certainly make them better off, but even without the allocation, most generators can be expected to enjoy electricity price increases that exceed their cost increases. In any event, policy makers should expect that the allocation of allowances to generators on the basis of historic emissions at no cost will result in electricity prices that reflect the full market value of the allowances and that there will be no offsetting benefits to customers.

The Underlying Economic Theory

Under the proposed RGGI program, emissions are to be capped by issuing emission allowances at a level that initially reflects historic levels and then decreases through 2020 by ten percent. Electricity generators are free to consider a variety of emission reduction alternatives, and are allowed to buy and sell allowances as part of their compliance strategy. Allowance trading increases the efficiency of the program. By allowing trades, the overall market can achieve emission targets at a lower cost, or alternatively, greater reductions can be achieved for a fixed cost, than through a command and control program.

A market in emission allowances will result from the program, and the ensuing price of allowances will reflect the marginal cost of CO₂ reductions. Emission control decisions will be made based on the cost of control options relative to the market price of allowances. The allowance price provides incentives to those who have relatively low-cost opportunities for emission reductions to make those investments. Generators may claim that they need free allowances to fund their investments in equipment to reduce emissions, but this would result in double payments. As described below, electricity prices will increase as a result of the RGGI program, and generators will be able to finance cost effective investments that reduce emissions from the emission allowance revenues they will receive as part of the increased electricity price. Others may buy allowances rather than make changes.

In the competitive wholesale electricity market, generators are expected to add the market value of the emission allowances to their electricity price bids. This increase in electricity price bids reflects the then-current market value of the allowance, regardless of

how a generator has obtained an allowance or its cost. Similar to the cost of fuel, and in keeping with current practices of tradable emission allowances for SO₂ and NO_x, the opportunity cost of the allowance is a variable cost of production.

This bidding behavior is not only expected - it is critical to the proper operation of the cap and trade program. An important element of compliance with the program will be the potential to shift electric generation patterns away from those with high CO₂ emission rates. This will naturally result when generators include the cost of their CO₂ emissions in their electricity bids. Electricity prices will increase, but the marketplace will provide the desired emission reductions as efficiently as possible, including reductions resulting from changes in the distribution of production among resource options.

If significant reductions in emissions are desired, the price for emissions will have to be high enough to affect behavioral changes, including decisions to shift production. This will increase wholesale electricity prices, which will be paid for by consumers.