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## **Freely-allocating GHG allowances: Reducing carbon market efficiency and creating windfall profits**

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Jürgen Weiss  
Mark Sarro

## EXECUTIVE SUMMARY

As climate legislation once again gains prominence in the US Congress, so does the question of auctioning versus allocating emission allowances. President Obama's budget proposal calls for 100-percent auctioning while proposals by USCAP and others call for mostly allocation. The current Waxman-Markey draft bill is silent on the issue.

Outside a very narrow range of circumstances, free allocation of allowances, especially to electric power generators and utilities, would lower the efficiency of cap-and-trade and likely produce windfall profits for some companies at the expense of consumers.

Free allocation to regulated electric utilities would dilute the consumer price signal needed to stimulate not only direct reductions in energy use, but also investment and innovation in end-use efficiency improvement. This runs counter to the widespread agreement that energy efficiency improvements will need to play a major role in combating climate change risk. Full auctioning of allowances may increase the cost of capital of regulated utilities. But that is more a feature of cap-and-trade induced volatility than of auction versus allocation, and it is likely less important than the demand effect.

Free allocation to non-regulated electric utilities will, in most cases, lead to windfall profits and a corresponding tax on consumers, the revenues of which get sent to the shareholders of those companies.

In narrow cases, an argument for allocation can be made to avoid emissions (and job) leakage and to potentially compensate non-regulated emitters constrained by existing long-term contracts from passing on carbon costs. However, in the former case, the use of import tariffs would be more appropriate than simply allocating allowances.

All in all, any carbon cap and trade regime should be based on the principle of auctioning and only deviate under exceptional circumstances. Allocation of allowances will not only redistribute wealth (away from consumers), it would also likely make any carbon market less efficient and therefore raise the cost of lowering our greenhouse gas emissions.

## THE BASIC ISSUE

Under a cap-and-trade program, an amount of allowances equal to the cap is issued by the program administrator. Subsequent to the initial issuance, the allowances are traded freely, and program participants must submit an amount of allowances equal to their actual emissions in regular intervals (e.g., annually). Once allowances have been issued, whether by auction or allocation or some combination of both, allowances are traded freely in a secondary market (hence the “trade” in cap-and-trade), which also establishes a carbon price.

Most economists argue that a well-functioning secondary market guarantees the resulting carbon price is an efficient price signal independent of the choice of initial method for issuing allowances. We believe this is not true when we consider the impact of allocation versus auctioning on the capped sectors still under rate of return regulation. Regardless, the topic of whether or not allowances should be auctioned to the highest bidder or allocated for free to regulated entities is occupying much of the debate about cap-and-trade at this stage. Notably, the most recent climate bill sponsored by Congressmen Waxman and Markey is entirely silent on the question of auction versus allocation.

Most economists also favor auctioning allowances. It creates a level playing field for all market participants and, since allowances have value, auctioning them avoids transferring value to a subset of companies at the public’s expense. Auctioning also creates an important initial price signal for secondary markets. With cap-and-trade, the market price for allowances is mostly established through the secondary carbon market.

Cap-and-trade will result in higher end-use energy prices as carbon costs are passed on to consumers. Auctioning allowances would generate significant revenue that can be used

to (partially) offset this higher cost to consumers. Various “cap and dividend” proposals have been put forth<sup>1</sup> with that goal, and President Obama’s 2009 budget proposed to use a significant portion of auction revenue to fund low/middle-income tax cuts. That budget proposed a 100-percent auction and projected \$650 million in revenue by 2020. The Congressional Budget Office projects even more revenue from cap-and-trade: \$50 billion to \$300 billion per year.<sup>2</sup>

## THE ARGUMENTS FOR ALLOCATION

Some, especially entities likely to be regulated under a cap-and-trade program, argue for free allocation of a significant portion of emissions allowances, at least initially. For example, a recent proposal by USCAP (a consortium of emitters, broad industry and not-for-profit organizations) prominently articulates this point of view.<sup>3</sup>

There are four common arguments in favor of allowance allocation:

*1. Competition.* US companies in industries regulated under cap-and-trade but facing international competition from countries without similar carbon constraints would be put at a competitive disadvantage if allowances are auctioned. The result would be either a loss of market share for, and hence jobs with, those entities and/or an incentive to move to a non-regulated country, again resulting in US job losses. Also, in either case, the policy would at least partially fail to lower overall emissions, as emitting activity would simply shift to

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<sup>1</sup> See, e.g., HR 1682, Cap and Dividend Act of 2009, introduced by Congressman Van Hollen on April 1. See also Steve Stoft, *Carbonomics* ([www.stoft.com](http://www.stoft.com)), proposing an “un-tax”: a carbon tax version of cap and dividend.

<sup>2</sup> “Issues in Designing a Cap-and-Trade Program for Carbon Dioxide Emissions,” Testimony of Peter Orszag before the U.S. House Committee on Ways and Means, September 18, 2008.

<sup>3</sup> See *Blueprint for Legislative Action*, available at [www.us-cap.org](http://www.us-cap.org).

countries without similarly stringent regulation.

2. *Hardship.* Requiring emitters to purchase allowances at auction would impose intolerable hardship on exactly those companies required to fund the investments in our lower carbon future. This is so because the cost of purchasing allowances may not be able to be passed on to consumers at all or in full. Hence, the cost of allowances would be a direct hit to the free cash flow of such companies. Especially under current economic conditions, saddling US companies with significant additional costs is risky and unwise, and would only harm companies and stakeholders.

3. *Cost of capital.* Auctioning allowances would increase the cost of capital of entities required to buy allowances, particularly in cases when the allowance cost cannot be directly passed-through to consumers. This additional cost would simply increase the cost of energy investments made by such entities and, therefore, ultimately would increase the cost of energy to consumers. Even for entities that may be able to pass-through allowance costs such as regulated utilities, cap-and-trade auctions would increase price risk, regulatory risk, and other factors, all of which would increase the cost of capital.

4. *Efficiency.* The federal government cannot be trusted to efficiently redistribute the hundreds of billions of dollars cap-and-trade auctions would generate. Using auction revenues to fund activities unrelated to lowering carbon emissions would divert resources from activities lowering carbon and would force emitters to effectively subsidize other industries and/or other government initiatives. The government would do a better job of allocating the allowances directly to the right users, rather than allocating auction revenue to what might not be the right uses.

## WHY ALLOCATION MAKES MOSTLY NO SENSE

Most of the arguments in favor of free allocation suffer from logical and practical flaws.

The first argument has some theoretical merit, but is likely not much more than a familiar attempt to create protections for industries inside the US. A few sectors likely do face real “leakage” issues. Some industrial production may indeed shift to less-regulated locations if carbon allowances are auctioned and carbon prices are high. But for a leakage problem to be potentially serious, several conditions have to be met:

- ◆ The affected industry must be “tradable”, so it is possible for buyers of the industry’s products to purchase competing products from international suppliers.
- ◆ The cost of carbon must be significant, so cost increases resulting from purchasing carbon allowances would be high enough relative to other costs influencing the choice of plant location to make relocation a viable option.
- ◆ General economic conditions for US companies in countries with significantly low, or no, carbon constraints must be sufficiently stable and conducive to doing business.

Even for industries with high carbon emissions, the choice of plant location is complex and involves an analysis of multiple factors, such as physical proximity to critical inputs and markets, transportation costs, legal and regulatory structure, and the quality of the local business environment. Carbon costs would have to become overwhelming to drive the choice of location for an industry. There are only a few candidates in the US where this may be the case: cement, aluminum, iron and steel

production, and possibly some amount of pulp and paper and refining activity. For the rest, relocating either is not an option, or it is not an economically attractive one based solely on the cost of carbon relative to other costs.

Several of the countries to which US companies might relocate have already imposed more stringent carbon constraints, most notably the European Union, where allocation of allowances will be replaced by auctions as the dominant approach post 2012.<sup>4</sup> Nonetheless, the EU has acknowledged that for certain sensitive industries leakage problems exist, and therefore some free allocation should be considered. We agree as long as such allocation is based on serious analysis of the likelihood of leakage.

However, allocation is generally the wrong instrument for dealing with the leakage problem. Yes, free allocation would diminish the financial impact of carbon regulation on companies subject to the threat of leakage. But, as described above, one of the main purposes of a cap-and-trade (or tax) program is to increase the price of activities with high carbon content.

With freely-allocated allowances, the best outcome from a business perspective is also the worst outcome from a policy perspective: emitters under the cap-and-trade program would be better able to compete with (non-emitting) uncapped companies because they would not have to incorporate a carbon cost into their prices. This would preserve their market position but would destroy the price signal so crucial to shift economic activity away from carbon-intensive products.

A better approach would be to impose a carbon price on products entering the US

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<sup>4</sup> The current EU post-2012 framework calls for 100% auctioning of allowances to electric utilities and a phase-out of allocation to other sectors by 2027.

from uncapped countries. Unlike free allocation, this would lead to the right price signal (as all products, domestic or foreign, would be priced so that the cost of carbon is included) and would generate some additional revenue from the import tariff. For these reasons, there already has been a fair amount of discussion of imposing carbon import tariffs if the US implements cap-and-trade.<sup>5</sup>

Most importantly, for many sectors under cap-and-trade there is no risk of leakage. In particular, the electric power sector as a whole is a non-tradable sector, as are the oil and gas industries. In other words, no power generator or oil refiner will threaten to leave the country and locate elsewhere because it has to buy carbon allowances at auction. For these sectors, auctioning should thus be the mechanism for distributing allowances.

#### **ALLOCATION TO ELECTRIC POWER COMPANIES WOULD MAKE MATTERS WORSE**

In the US, 13 out of 50 states and the District of Columbia<sup>6</sup> have deregulated electricity markets. According to the Energy Information Administration, total electricity consumption in these states was slightly more than 31 percent of total electricity demand in the US in 2008. In the remaining 37 states, representing close to 70 percent of US demand, electricity is still provided by regulated, vertically-integrated electric utilities.

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<sup>5</sup> On March 18, 2009, the Wall Street Journal reported that Energy Secretary Chu was open to a carbon import tariff and quoting Secretary Chu as saying that "If other countries don't impose a cost on carbon, then we will be at a disadvantage...[and] we would look at considering perhaps duties that would offset that cost." (<http://online.wsj.com>)

<sup>6</sup> Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, the District of Columbia, Delaware, Michigan, Illinois and Texas have implemented retail choice.

### *The impact on regulated states*

Regulation for electric utilities means retail rates are set from time to time in ways that ensure total revenues collected from customers are equal to total utility costs including an appropriate rate of return on investment. If allowances are auctioned, the costs of regulated utilities will increase and they will be allowed (potentially with some lag, but also through existing structures such as fuel adjustment clauses) to increase rates accordingly, leaving the utility's stakeholders unharmed.

In this case, rates for utility customers would increase. But under a cap-and-dividend approach, the same ratepayers would also see a return of the auction revenues, *e.g.*, through direct check or tax credits. Ratepayers would, on average, see their rates increase, but would also see some benefit from the auction revenues collected. If, on the other hand, regulated utilities receive a free allocation of allowances based on (historic) carbon emissions, the rate of return to utility stakeholders at existing retail rates would be largely unaffected, at least in the early years of cap-and-trade when capped emissions are relatively close to historic emissions. Hence, there would be little or no increase in retail rates, at least initially.

In other words, a cap-and-trade program with 100-percent free allocation to regulated utilities would initially not have a significant direct impact on the financial performance of those utilities. It also would not lead to any (or only to very small) increases in retail rates, and hence no equivalent "dividend" payments. This approach substantially weakens one or both of the intended consequences of cap-and-trade: it would essentially eliminate the initial consumer price signal, *i.e.*, the incentive for consumers to reduce their electricity consumption through prices that fully reflect the environmental costs of that generation, in this case the cost of climate change.

Of course, regardless of whether allowances are freely allocated or auctioned, it is unclear how the incentives of a regulated utility to lower the carbon content of its generation mix will change.

Unless regulators require and enforce prudent power procurement and generation investment, regulated utilities under cap-and-trade can simply pass-through to

### **A Tough Road for PUCs**

Public Utilities Commissions will face a not altogether unfamiliar, but nonetheless tricky problem in a cap-and-trade world. Regulated utilities will need to make decisions about purchasing power and building new generation in a world in which future carbon prices are unknown and potentially highly uncertain. But they will need to decide whether or not utilities' decisions are prudent and therefore whether the associated costs can be passed-through to consumers in retail electricity rates.

Of course, PUCs have had to make similar decisions for a long time. Anytime a utility builds a new power plant, there is some uncertainty about future fuel and power prices and, consequently, whether or not that particular investment was least costly, especially *ex-post*.

But adding uncertainty about future carbon prices to the mix will complicate the PUCs' job substantially. Unlike a carbon tax, cap-and-trade (without safety valves) has the potential to create much more uncertainty in carbon prices than PUCs are used to, and modeling the future carbon price reliably is a complicated and costly exercise. Helping the PUCs will therefore likely create a whole new cottage industry around forecasting carbon markets and carbon prices.

consumers via retail rates the higher cost of carbon-rich generation. Properly evaluating the prudence of utility investments in a cap-

and-trade environment will be a difficult task (see the text box on this page).

In short, a cap-and-trade system with full allocation might only weakly affect utility procurement decisions and will very weakly affect final demand, since retail rates would only change marginally, especially in the early years of any cap and trade program. As a result of both but in particular the lessened price signal for consumers, full allocation would lead to less efficient carbon mitigation, which means higher carbon prices than under full auctioning.

#### *The impact on deregulated states*

In the remaining (deregulated) states, power is sold into competitive markets by merchant power providers, which would be required to procure and retire allowances under a cap-and-trade program. The impact of allocation versus auctioning of allowances for this portion of electricity markets depends substantially on the ability to pass-through carbon prices to the purchasers of power in deregulated markets.

Cap-and-trade would establish a market-based carbon price. If there were no existing long-term contracts to sell power at the time the carbon market goes into effect, the carbon price would directly increase the marginal cost of power production. All generators would face the same carbon cost, hence the relative costs of various generation technologies would change depending on the carbon content of fuel and plant efficiency. This would create the right incentives, given the cap, for purchasers to choose power based on a cost that incorporates the full carbon cost. In other words, all generators will pass-through the carbon cost to consumers.

Some generators would not be able to sell as much power and/or would see their net margins decline. In particular, costs at coal-fired power plants would increase by more than power prices, which could result in

lower sales. Both effects would negatively impact the performance and balance sheets of companies with coal-fired generation. However, this is a natural byproduct of pricing designed to reflect fuel-dependent environmental costs more accurately. That coal-fired generators might be losers under cap-and-trade is not surprising. If coal-fired generators are winners (absent effective carbon capture and sequestration), our climate change policy will clearly miss its target.

There is no efficiency reason to allocate allowances for free. The only reason that can be made legitimately is one of equity – that it is somehow unfair to punish some power producers by imposing a carbon cost on some of their output. However, it is difficult to argue that such a policy would come unexpectedly. The fact that coal-fired generation is at risk under climate change legislation has been known for many years. Investors in coal-fired power plants, and in companies that own them, have been (or should have been) taking into account the risks and likely impact of climate legislation on the value of coal-fired generation.

Allocating allowances for free would have little or no impact on the decision-making of such generators. In particular, it would not, and should not, change the way such companies would price their power. The price of coal-fired generation would go up by the same amount whether or not the underlying allowances are freely allocated or are auctioned. The only difference from allocation would be that the owners of coal-fired generation would be given a valuable asset (carbon allowances) financed by ratepayers, who would be paying for these allowances through higher energy prices.

This is equivalent to a carbon tax, the revenues of which are sent to the investors of merchant power producers. It is hard to see how, from a public policy perspective, this is more efficient than either the government investing auction revenues in

research and direct deployment of low-carbon technologies or, better yet, dividending auction revenues to taxpayers.

There is one potential exception: to the extent merchant power producers or other merchant providers of products impacted by carbon legislation, such as upstream gas and oil companies, are committed to providing their products at a fixed price under an existing contract, auctioning allowances would make it difficult or impossible for those companies to pass on the incremental carbon cost.

The result would be a two-fold loss: such companies would lose some of the margin embedded in existing contracts, and the market would lose the all-important carbon price signal to end-users. Freely allocating allowances would stem the first loss, but not the second. In fact, the second loss would be substantial if a high proportion of power, oil and gas sales are under existing fixed-price contracts. The number of allowances under cap-and-trade usually is less than total emissions at the start of the program and declines over time. So the combination of an increasingly-limited supply of allowances and an inability to increase prices due to existing contracts could result in rationing as a response to cap-and-trade.

However, the possibility of carbon regulation has been well-known for years, and fully implementing cap-and-trade also will take years. By the time such a program would take effect, few long-term contracts would not allow carbon costs to be for a passed-through via mechanisms such as fuel adjustment clauses. Indeed, such mechanisms are increasingly common in existing contracts. Nonetheless, the existence of long-term contracts without carbon price pass-through at the onset of any federal cap and trade program remains an empirical question. Should there be a significant number of such contracts, some allocation of carbon allowances to the affected entities.

## **CARBON COST MAY AFFECT COST OF CAPITAL**

Whether auctioning emissions allowances would increase emitters' cost of capital and thereby increase the cost of new energy-related investments is an interesting and important question, but not straight-forward to answer. It requires a clear distinction between the price and market impacts of cap-and-trade broadly and the relative impacts of allocating versus auctioning specifically.

Overall, cap-and-trade would generate more volatile carbon prices than a carbon tax. More volatile carbon prices would mean more uncertain costs for entities required to submit allowances for compliance purposes. In turn, more uncertain costs would imply a higher cost of capital, either through a higher cost of equity, higher borrowing costs, or both.

If regulated entities have to purchase at auction all allowances required to cover their emissions, they are exposed to price uncertainty for the full level of their emissions. Free allocation of at least some allowances would correspondingly reduce the amount of emissions for which allowances would have to be purchased either at auction or on the secondary market. That would proportionally reduce the uncertainty of carbon-related costs and the impact on the cost of capital.

In principle, this argument has some merit. In practice, its relative importance depends on the extent to which volatile carbon prices – and the inability to hedge them effectively – would actually increase cost of capital. In the absence of a well-functioning US carbon market, this empirical question remains unanswered. But it is not unreasonable to assume that if carbon price volatility is seen as a significant problem, some combination of political and financial solutions will be created to deal with it.

There is already an active discussion in the US about safety valves and other measures to reduce carbon price volatility. For example, even in its draft form, the Waxman-Markey bill plainly states cap-and-trade would “provide measures to limit unreasonable fluctuation in the prices of regulated allowances.”<sup>7</sup> Also, a number of insurance and hedging products are already emerging to deal with the risk associated with carbon-related uncertainty.

### **THE BOTTOM LINE**

As the details of cap-and-trade market implementation are discussed, it is important to keep in mind that the ultimate goal of such legislation is to create a system of price signals at the wholesale and retail levels to encourage a shift from carbon-intensive activity to a low-carbon economy.

At the wholesale level, the primary goal is for market prices to reflect the carbon-cost of each activity, so wholesale buyers make purchasing decisions with carbon cost in mind. At the retail level, the goal is the same when consumers make direct choices among products of varying carbon content, such as when buying gasoline for their cars. But it is typically difficult or impossible for electricity end-use customers to choose directly the carbon-composition of the electricity they consume. In that case, the goal of carbon prices would be to increase electricity prices in proportion to the carbon-intensity of the fuel mix used to generate the power.

Freely allocating allowances does nothing to further the goal of creating proper carbon price signals.

Free allocation to regulated vertically-integrated utilities would dilute the end-use price signal and, by removing part of the

incentive for consumers to react to higher energy prices by lowering demand, require more costly responses elsewhere in the economy, making the program overall more expensive to society.

Free allocation to merchant power producers would likely result in windfall profits very much like those observed in the European Union Emissions Trading Scheme, where allowances were initially allocated to electric utilities but will be 100-percent auctioned post-2012. The US should follow Europe’s example, not repeat its error.

The initial Waxman-Markey draft does not deal with allocation versus auction. We hope the final Waxman-Markey bill will deviate from last year’s Lieberman-Warner blueprint, which proposed freely allocating 75 percent of emissions allowances at the outset of cap-and-trade and auctioning only one-third of all allowances by 2030.

While some allocation of allowances may be appropriate in some circumstances, free allocation should be the exception. All, or nearly all, allowances should be auctioned and the auction proceeds should be returned to the public, ideally on an equal per-capita basis. That approach preserves the carbon price signal and mitigates its direct dollar cost to consumers.

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<sup>7</sup> Waxman-Markey draft, March 31, 2009, pp. 450, 455.

[http://energycommerce.house.gov/Press\\_111/20090331/acesa\\_discussiondraft.pdf](http://energycommerce.house.gov/Press_111/20090331/acesa_discussiondraft.pdf)

## ABOUT BRATTLE

*The Brattle Group* provides consulting and expert testimony in economics, finance, and regulation to corporations, law firms, and governments around the world. We combine in-depth industry experience and rigorous analyses to answer complex economic and financial questions in litigation and regulation, develop strategies for changing markets, and make critical business decisions.

We have offices in Cambridge, Massachusetts; San Francisco, California; and Washington, DC. We also have offices in Brussels, London, and Madrid.

## ABOUT THE AUTHORS



**Dr. Mark Sarro**, a principal of *The Brattle Group*, specializes in the financial and strategic aspects of energy- and carbon-related risk analysis, investment, and business decisions. His climate change work includes project-specific financial modeling, modeling markets for conventional and renewable energy, analyzing climate policy, and advising on the availability and pricing of emissions allowances and offsets.

**P:** +1. 617.864.7900

**E:** [Mark.Sarro@brattle.com](mailto:Mark.Sarro@brattle.com)



**Dr. Jürgen Weiss** is a principal of *The Brattle Group* and heads the firm's climate practice. He specializes in climate change and carbon market analyses, renewable energy, and electric utility economics. He advises clients on climate change policy, strategy and risk, changes in the value of existing assets, integration of renewables, market design and performance analysis, and efficient retail incentives and rate design. Dr. Weiss has consulted and written substantially on issues related to carbon pricing and the demand side of electricity markets, including topics such as efficiency, conservation, storage, retail rates, renewable power, and Renewable Portfolio Standards.

**P:** +1. 617.864.7900

**E:** [Jurgen.Weiss@brattle.com](mailto:Jurgen.Weiss@brattle.com)