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**Comments on The Western Climate Initiative's  
*Allocations Draft Design Recommendations***

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These comments offer Sightline Institute's perspective on the WCI allocations draft design recommendations. As in all our considerations of WCI policy, Sightline's goal is to foster a market mechanism that is **effective** in reducing emissions; **fair** to consumers, particularly low- and middle-income households; and **efficient** for the economy as whole, presenting the least administrative and regulatory burden for businesses, while providing the greatest opportunities for low-cost emissions reductions.

In addition to these comments, Sightline endorses the comments submitted by the Western Climate Advocates Network (WeCAN) to the Allocations Subcommittee.

Sightline's position on allocation can be summarized as follows:

**All WCI emissions allowances should be distributed through a public auction**, except in cases where there is little or no potential for allowance recipients to pass through opportunity costs of unsold permits to consumers. Free allocations should be employed only to prevent substantial "leakage" of emissions to jurisdictions outside the WCI, or in narrow instances when allowances are allocated for the benefit of consumers and the general public. Compared with free allocation, auctions would enhance economic efficiency, treat all firms evenhandedly, and help ensure that the public retains the full economic value of emissions allowances.

**Windfall profits and fairness**

The way in which allowances are allocated has little bearing on how effective the WCI market mechanism will be in reducing emissions from within the WCI. However, *the method of allocation may determine the basic economic fairness of the system.*

The economic literature clearly shows that, in both theory and practice, firms that receive emissions allowances for free can reap unwarranted and unearned windfall profits at consumer

expense. Even if firms receive their allowances free of charge, they can pass the lion's share of the *opportunity cost* of any allowances they use as higher prices to consumers. Thus, consumer prices rise, but firms' outlays do not—a perfect recipe for profit windfalls. (Please see Appendix A, at the end of these comments, for a review of the relevant economic literature.)

It is important to note that such windfalls would not be the result of malfeasance or illegal behavior by regulated firms. Instead, firms that receive free allowances would simply be following market-based incentives created by the WCI mechanism. Emissions permits are a tradable asset with a clearly defined market value. Regardless of how firms obtain their permits—whether through auctions or through free allocation—they will charge whatever the market will bear for these assets. And market dynamics create significant opportunities for firms to charge their consumers for the cost of any allowances.

### **How windfalls work**

How can firms raise prices even if they're given carbon permits for free?

The simplest explanation may be an analogy from Peter Barnes of the Tomales Bay Institute:

Try buying World Series tickets from a scalper. Would he charge you any less if he found the tickets on the ground? Of course he wouldn't. Like energy, the street price of World Series tickets is based on supply and demand. The supply and demand for tickets is the same no matter how much the scalper paid for them, and so the price he charges you will also be the same no matter how he got them.

Of course, the scalper would much rather get his tickets for free - and that's precisely the point. Polluters are financially much better off if permits are given away instead of auctioned, but the cost of cutting emissions and the resulting effect on energy prices will be the same no matter how the permits are delivered.

A permit to emit carbon is like a World Series ticket. It has a value in the marketplace; and any owner of permits will attempt to sell them to the highest bidder, rather than just giving them away. That's true regardless of how the owner acquired the permits (whether through an auction or free allocation) and regardless of who buys them (the firm's own customers or some other entity). In fact, this is exactly what has happened in Europe's carbon market.

### **Europe's experience with windfalls**

Under the EU's Emissions Trading Scheme (ETS), almost all emissions permits were given to private firms for free.<sup>1</sup> But even so, these firms *charged their own customers for the market price of the permits*—and reaped enormous windfall profits as a result. In a way, firms operating under the ETS acted like the “scalpers” in the example above: even though they received their permits for free, they still charged their customers whatever the market would let them. The bipartisan National Commission on Energy Policy found, in a March 2007 paper:

Recent experience with the Emission Trading System (ETS) now being implemented by the European Union (EU) suggests that *the potential for windfall profits, far from being purely hypothetical, is borne out by empirical evidence, with utility companies that received free allocations under the EU program having realized substantial gains.*<sup>2</sup>

The Commission concluded that free allocation of ETS emissions permits hurt consumers, even as it increased the profits of private firms:

...an allocation approach that gives all allowances for free to directly affected industries will have *the overall effect of transferring some wealth from the broad public (in this case consumers) to those industries.*

In fact, the International Energy Agency studied Europe's system independently and came to the same conclusion: private firms were passing on the market value of permits as higher costs to their consumers. In a February 2007 report the Agency reported:

*If any evidence is needed of the CO2 pass-through into electricity prices, it was provided by the abrupt fall of the CO2 price in May 2006, as market players were made aware of the excess quantity of EU allowances for the year 2005. The fall by EUR 10/tCO2 was immediately followed by a drop in wholesale electricity prices of EUR 5-10/MWh. This electricity price adjustment can be directly attributable to the CO2 [permit] price fall, itself not connected to other energy market movements that could also affect electricity prices.*<sup>3</sup>

In other words, permit prices dictated the rise and fall of consumer prices, even when firms received their permits for free. And when an energy research group at the University of Cambridge looked at the European experience, they also agreed:

...in theory, power producers pass on the opportunity costs of freely allocated emission allowances to the price of electricity. For a variety of reasons, however,

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1 Jos Sijm et al., “CO2 Cost Pass Through and Windfall Profits in the Power Sector,” Electricity Policy Research Group, University of Cambridge, May 2006, web link, page 2.

2 National Commission on Energy Policy, “Allocating Allowances in a Greenhouse Gas Trading Program,” March 2007, web link, page 11.

3 Julia Reinaud, “CO2 Allowance and Electricity Price Interaction,” International Energy Agency, February 2007, web link, page 5.

the increase in power prices on the market may be less than the increase in CO<sub>2</sub> costs per MWh generated by the marginal production unit. This is confirmed by empirical and model findings, showing *estimates of CO<sub>2</sub> cost pass through rates varying between 60 and 100 percent for wholesale power markets in Germany and the Netherlands.*<sup>4</sup>

That is, the Cambridge research group found that specific market conditions influence price outcomes, but that the method of allocation does not.

In summary, detailed, non-partisan, and highly credible analyses of Europe's trading system have concluded that, when allowances were given out for free, firms were able to reap windfall profits at the expense of consumers. Not surprisingly, the EU is now rewriting their program to correct the mistake, and to ensure that new permits are auctioned.

### **Recycling auction revenue can benefit the public**

In addition to avoiding windfall profits, WCI should have a strong preference for auctioning because it generates revenue that can be recycled for numerous beneficial purposes.

*Auction revenues can protect low- and middle-income families.* Higher energy prices are a near-certainty under a cap and trade program, regardless of how allowances are distributed. But because low-income households spend a higher share of their income on energy than wealthier ones, high energy prices will fall hardest on the poor and middle class—which would compound the inherent economic unfairness of climate change itself.

Auctioning, coupled with careful use of auction revenues, can cushion the impacts of rising energy costs on low- and middle-income families, and could even enhance economic equity.<sup>5</sup> For example, a study from the Center for Budget and Policy Priorities found that:

To fully offset the increased costs borne by the bottom quintile and to partially offset the increased costs of those with modestly higher incomes would require approximately 14 percent of the value of all emissions permits under a cap-and-trade system... Such an amount is readily affordable if most of the permits are auctioned off rather than given away free to energy companies.<sup>6</sup>

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4 Jos Sijm et al., "CO<sub>2</sub> Cost Pass Through and Windfall Profits in the Power Sector," Electricity Policy Research Group, University of Cambridge, May 2006, web link, page 26.

5 Similarly, some free allocation to entities that operate on the behalf of consumers or affected workers could help cushion the effects of rising prices or economic shifts resulting from carbon emissions limits. Nonetheless, full auctioning of allowances would be the most transparent method for preventing profit windfalls, and would allow for a revenue stream that could meet many of the equity goals of the program.

6 Robert Greenstein et al., "Designing Climate-Change Legislation That Shields Low-Income Households From Increased Poverty and Hardship," Center for Budget and Policy Priorities, revised March 21, 2008, web link.

In other words, a very modest reinvestment of auction revenue can hold harmless the poorest fifth of households, and part of the second-poorest fifth.

Moreover, if auction revenue were rebated to the public on a per capita basis it would yield even more advantageous effects for lower- and middle-income households. According to one analysis from the University of Massachusetts Amherst, a “cap and dividend” program would boost net incomes in the bottom three quintiles—by nearly 15 percent for the lowest quintile—at the modest cost of a 0.9% net income reduction for the fourth quintile and a 2.4% net income reduction for the wealthiest quintile.<sup>7</sup> A Congressional Budget Office report came to broadly similar conclusions.<sup>8</sup>

*Auction revenue can yield short-term—and long-term—term benefits.* Recycling the revenue can enhance the efficiency of the market mechanism through investments in end-use energy efficiency that reduce the demand for carbon, thereby dampening short-term price increases. Such investments have the effect of reducing consumers’ energy costs even when prices are rising because consumers require less carbon for energy. Investments into research and development for new efficient technologies can reduce carbon demand over the longer term with even more beneficial results for future energy prices. It should be noted that *investments that reduce demand for carbon yield compounding benefits*: they dampen energy prices, which both lightens the burden on businesses and also helps preserve social equity.

Fortunately, there is a very long list of possible revenue recycling projects that simultaneously reduce carbon emissions and enhance equity. Perhaps the single best category of such examples is infrastructure improvements to support low-carbon travel; sidewalks, streetcars, rail transit, bus service, bus rapid transit, vanpools, bike lanes, carpool lanes, remote offices, and rail, to name just a few opportunities, can reduce transportation-sector emissions by providing cost-effective alternatives to long-distance single-occupancy driving. (Land-use changes, including policies that foster compact development, can yield further carbon reductions over the long term.) For household energy, there are equally significant opportunities for simultaneous reductions in emissions and energy costs, including low-income weatherization, appliance swaps, and incentives that encourage landlords to provide efficient appliances in rental units. But without recycling auction revenue into strategic investments, none of these programs will realize its fullest potential.

*Auctioning can maximize efficiency and minimize volatility.* By requiring firms to bid on permits, auctioning encourages early price discovery and therefore minimizes trading and the associated transaction costs. In fact, partly for these reasons, there is evidence that *auctioning may reduce carbon prices*. A study by Resources For the Future found that

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7 James K. Boyce and Matthew Riddle, “Cap and Dividend: How To Curb Global Warming While Protecting the Incomes of American Families,” Political Economy Research Institute, University of Massachusetts Amherst, November 2007, web link.

8 Congressional Budget Office, “Shifting the Cost Burden of a Carbon Cap-and-Trade Program,” July 2003, web link. See especially Table 3.

allowance prices are likely to be lower under auctioning than under either grandfathering (based on historic emissions) or load-based allocation:

Our main finding is that the auction is dramatically more cost-effective than the other approaches—roughly one-half the societal cost of grandfathering or the generation performance standard.<sup>9</sup>

Generally speaking, societal costs would translate into lower allowance prices, which in turn would benefit both consumers and businesses.

Auctioning can also reduce volatility and uncertainty through a “vintage” system. Allowance vintages can be introduced into the market in a limited-release fashion prior to a compliance period. For example, a small share of 2018-vintage allowances could be auctioned in 2015, with additional small shares being auctioned in 2016 and 2017. Then, in 2018, the remaining 2018-vintage allowances would be auctioned. Vintages will tend to further encourage early price discovery. And by sending advance signals of annual carbon prices, a vintage system will tend to reduce price volatility as well, even while it provides businesses with a more predictable path for compliance. But vintages are a feature that is unique to auctioning; it is nearly impossible to establish a workable vintage-type system of free allocation.

### **Auctioning would have modest effects on emissions-reduction investments**

Some firms have raised objections to auctioning, on the grounds that paying for emissions permits will siphon off money that they would otherwise use for capital improvements to help reduce emissions. By inhibiting such capital investments, they argue, auctioning could actually undermine progress towards emissions reduction goals.

While this may appear at first glance to be a plausible concern, on closer inspection it ignores many of the basic dynamics of a market-based emissions reduction mechanism:

⇒ *Emissions levels are determined by the cap*--that is, the number of permits that are made available during any particular compliance period. Providing particular firms with free permits will have absolutely no effect on the number of permits issued, and thus no effect on total emissions within the region.

⇒ *The allocation method doesn't affect the economic return from any particular capital investment.* From a firm's perspective, cost savings and revenue increases provide essentially identical incentives: both show up in the bottom line as

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<sup>9</sup> Dallas Burtraw et al., “The Effect of Allowance Allocation on the Cost of Carbon Emission Trading,” Resources For the Future, August 2001, web link. See especially Table 3 on page 36. Note that while carbon allowance prices are lower, electricity prices are higher.

increased profits. Thus, a firm that receives its allowances for free will seek to maximize its revenues, by investing in cost-effective emissions reduction technologies and selling any unused allowances. Likewise, a firm that must pay for its allowances will seek to minimize its costs, by investing in cost-effective emissions reduction technologies that reduce its need to purchase allowances. In both cases, the financial incentives are the *exactly the same*: rational firms will make any and all capital investments that pay for themselves over the long term, but will not invest in upgrades that do not pay for themselves, based on expected allowance prices and capital costs.

⇒ *The allocation method has uncertain effects on the overall mix of emissions-reduction investments.* A firm's capital investments are determined primarily by the expected long-term returns on those investments. Returns on energy efficiency upgrades are determined by: the expected cost of energy; the expected price of emissions allowances; any auxiliary financial benefits of the upgrade; tax regulations governing capital depreciation; financing costs; long term interest rates; and similar factors. There is little reason to expect that a firm will invest in emissions-reduction upgrades that are not justified by the financial fundamentals, regardless of how that firm receives its emissions permits.

⇒ *The allocation method has uncertain effects on the overall mix of emissions-reduction investments.* A firm's capital investments are determined primarily by the expected long-term returns on those investments. And these expected returns, in turn, are determined by: the expected cost of energy; the expected price of emissions allowances; any auxiliary financial benefits of the upgrade; tax regulations governing capital depreciation; financing costs; long term interest rates; and similar factors. In theory, of course, the allowance allocation method might affect some of these factors, including permit prices and financing costs for individual firms, in unexpected ways. Yet at this stage--before comprehensive economic modeling or evaluations of real-world emissions control programs--it's *simply premature* to make specific claims about how allocation methods might affect these financial fundamentals. Regardless, there is no reason to expect that a firm will invest in emissions-reduction upgrades that are not justified by the financial fundamentals, irrespective of how that firm receives its emissions permits.

### **Some possible (but limited) exceptions to auctioning**

For all the reasons mentioned above, Sightline feels allowances should be auctioned, rather than distributed freely. However, there may be compelling economic reasons to allocate free permits in a small number of cases. One possible example is in cases in which allowances are granted to entities that are truly unable to pass on costs to consumers, such as rate-of-return regulated utilities. (This exception may be especially applicable to regulated utilities that are

consumer-owned and for which any allowance value would flow through to owners/consumers.)

Additionally, there may be some benefit to freely allocating a small portion of allowances in order to hold businesses harmless. The most credible estimates suggest that free allocation of only a small fraction of allowances would be sufficient to fully offset profit losses that resulted from the higher prices induced by a carbon cap. The Congressional Budget Office reported that:

...researchers estimate that the large losses borne by industry could be fully offset with only a modest share of the total allowance value—generally less than 20 percent—because much of the cost of the policy would be borne by consumers in the form of higher prices.<sup>10</sup>

In fact, in the same paper, the CBO reviews several economic models that estimate the share of freely allocated credits required to offset company losses, and finds that these are estimated at 14 percent, 6 percent, and 5.5 percent at the sector level. Another analysis, by Charles River Associates, which also surveyed much of the relevant economic literature, came to similar conclusions, determining that most sectors, including the electricity sector, would require free allocation of less than 10 percent of permits in order to be fully compensated for any lost profits resulting from higher prices.<sup>11</sup>

Importantly, however, free allocation in excess of these small shares would result in windfall profits for companies at the expense of consumers. Moreover, Sightline strongly cautions against automatic free allocation in order to hold private businesses harmless. Generally, allowance value should be used in the *public* interest, and consumers will likely be facing higher prices under a restricted supply of carbon.

Nonetheless, some minor free allocation may be beneficial in the case of the few industries that trade in global commodities and that also cannot pass on higher costs to consumers (and therefore cannot reap windfall profits). Limited free allocation to compensate for lost profits may prevent leakage of emissions to sources outside the region where environmental standards may be lower.

Finally, free allocation may be used as an inducement to early action. While Sightline believes that auctioning by itself provides sufficient encouragement to early emissions reductions, there may be some political merit to limited free allocation as a reward for certain types of emissions reductions. It should be remembered, however, that even these meritorious free allocations will result in windfall profits at the expense of energy consumers in most cases.

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10 Congressional Budget Office, “Shifting the Cost Burden of a Carbon Cap-and-Trade Program,” July 2003, [web link](#). See especially Table 1.

<sup>11</sup> Anne E. Smith et al, “Implications of Trading Implementation Design for Equity-Efficiency Trade-Offs in Carbon Permit Allocations,” Charles River Associates, working paper, December 2002, [web link](#).

In all instances where free allocation is considered, Sightline believes that WCI should first undertake careful modeling of systemic cost impacts. There should be clear and compelling economic reasons for any limited free allocation. In all other cases, Sightline believes that WCI should presume full auctioning from the outset of the program.

## **Appendix A: Literature review**

Economists agree that, for any given permit price, energy prices will go up by roughly same amount whether emissions permits are auctioned or handed out for free. Thus, free allocation does *not* necessarily benefit the public or consumers, especially in cases in which firms are able to pass through allowance costs to consumers. (Entries are listed by date of publication.)

### **Center on Budget and Policy Priorities**

Robert Greenstein et al, “Designing Climate-Change Legislation That Shields Low-Income Households from Increased Poverty and Hardship,” November 8, 2007, [web link](#).

“...auctioning a significant share of the emissions permits will have no effect on energy prices, which will increase — and by essentially the same amount — *regardless* of how many of the permits are auctioned rather than given away. This is because the emissions cap will limit the supply of energy produced from fossil fuels, and market forces will drive up the price for that energy to the point where the demand falls to equal the supply.” (Page 3)

### **Congressional Budget Office**

Peter R. Orszag, “Testimony: Approaches to Reducing Carbon Dioxide Emissions,” November 1, 2007, [web link](#).

“Giving allowances away to companies that supply fossil fuels or that use large quantities of fossil fuels in their production processes could create “windfall” profits for those firms. The reason is that the cap-and-trade program would still result in higher prices for consumers and households but would not impose additional costs on those firms. Even if the companies received allowances for free, they would still raise prices to their customers because the cost of using an emission allowance for production—rather than selling it to another firm—would be embodied in the prices that they would charge for their goods and services.” (Page 2)

“...price increases stem from the restriction on emissions and would occur regardless of whether the government sold emission allowances or gave them away.” (Page 7)

“Distributing allowances at no charge to specific firms or individuals is, in effect, equivalent to collecting revenue from an auction of the allowances and then distributing the auction proceeds to those firms or individuals. In other words, the government could either raise \$100 by selling allowances and then give that amount in cash to particular businesses and individuals, or it could simply give

\$100 worth of allowances to those businesses and individuals, who could immediately and easily transform the allowances into cash through the secondary market.” (Page 14)

**Political Economy Research Institute, University of Massachusetts Amherst**

James K. Boyce and Matthew Riddle, “Cap and Dividend: How to Curb Global Warming While Protecting the Incomes of American Families,” November 2007, [web link](#).

“If the permits are given free-of-charge to energy companies – based, for example, on their historic levels of sales of fossil fuels – the result is a windfall gain to these firms, or more precisely, to their shareholders.” And, “This is what happened when the European Union introduced carbon permits for electric power generation and gave them free-of-charge to utility companies.” (Page 4 and Note 6)

**Congressional Budget Office**

“Trade-Offs in Allocating Allowances for CO2 Emissions,” August 25, 2007, [web link](#).

“Because most of the cost of the cap would ultimately be borne by consumers, giving away nearly all of the allowances to affected energy producers would mean that the value of the allowances they received would far exceed the costs they would bear. As a result, that allocation strategy would increase producers’ profits without lessening consumers’ costs. In essence, such a strategy would transfer income from energy consumers—among whom lower income households would bear disproportionately large burdens—to shareholders of energy companies, who are disproportionately higher-income households.” (Page 2)

**California Air Resources Board, Market Advisory Committee**

“Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California,” June 30, 2007, [web link](#).

“The free allocation of emission allowances generates rents—that is, profits beyond the normal expected return to capital—to recipients of the free allowances. The rents come from the value of emissions allowances, which in turn is driven by the scarcity of allowances under the cap-and-trade program. When allowances are given out for free to generators, generators capture these rents. When allowances are given out for free to LSEs, consumers enjoy the rents (in the form of lower electricity prices) to the extent that LSEs cannot claim the opportunity cost of allowances as a variable cost. There is substantial analytical and empirical evidence that free allocation can generate very large rents and increase profitability for those entities that receive free allowances.” (Page 48)

**National Commission on Energy Policy**

“Allocating Allowances in a Greenhouse Gas Trading Program,” March 2007, [web link](#).

“...if [firms] receive free allowances in proportion to their emissions—will not only be effectively compensated for their costs, but can expect to realize substantial profits... In simple terms, however, the argument goes as follows: under a greenhouse gas trading program, the market price of goods and services

throughout the economy will rise to reflect the value being placed on carbon emissions. That is because, for every ton of emissions released, some entity somewhere in the energy chain will have to submit an allowance that has real monetary value. That monetary value (or price) is set by the market also receive large, up-front payments in the form of free allowances, those payments can easily exceed any net costs that companies experience as a result of implementing emissions reductions and charging higher prices. *In other words, firms that receive free allowances and experience increased revenues from higher prices get reimbursed twice—once by government and once by the consumer.*” (Page 10)

### **International Energy Agency**

Julia Reinaud, “CO2 Allowance and Electricity Price Interaction,” February 2007, [web link](#).

“Economic theory explains why, under a cap-and-trade system, the price of emissions ought to be treated as a marginal cost. As a generator holds allowances, the production of CO2-emitting electricity competes with the possibility to sell the unused allowances. This so-called opportunity cost of CO2 allowances, equal to the CO2 market price, is therefore incorporated in operators’ decisions to generate electricity. So far, EUA have been distributed for free to installations. Whether or not the full opportunity cost of such free allowances finds its way to end-user electricity prices depends on several elements including: contractual agreements between suppliers and end-users, regulatory frameworks, but also the elasticity of demand and the rules used by governments to allocate EU allowances.”

### **Electricity Policy Research Group, University of Cambridge**

Jos Sijm et al., “CO2 Cost Pass Through and Windfall Profits in the Power Sector,” May 2006, [web link](#).

“This paper shows that, in theory, power producers pass on the opportunity costs of freely allocated emission allowances to the price of electricity. For a variety of reasons, however, the increase in power prices on the market may be less than the increase in CO2 costs per MWh generated by the marginal production unit. This is confirmed by empirical and model findings, showing estimates of CO2 cost pass through rates varying between 60 and 100 percent for wholesale power markets in Germany and the Netherlands.” (Page 26)

### **Electricity Policy Research Group, University of Cambridge**

Robin Smale et al., “The impact of CO2 emissions trading on firm profits and market prices,” 2006, [web link](#).

This analysis of cost pass-through in EU Cement, Steel, Newsprint, Petroleum, and Aluminum manufacturing sectors finds that the aluminum smelting industry (1 plant) in England will cease to exist while, “For other sectors, the ostensibly toughest policy scenario, where the CO2 price is d30/t, leads to the largest increase in profits. This is because, although the CO2 price, and hence marginal cost rise, is significant, the grandfathered allowances are more valuable. As the

proportion of allowances to be grandfathered remains high in these scenarios, the effect of receiving such a valuable allocation dominates the higher marginal costs. If the high CO<sub>2</sub> price were associated with a much lower proportion of allowances being grandfathered, the profit impact would be expected to be markedly different.” (Page 41)

### **Congressional Budget Office**

“Shifting the Cost Burden of a Carbon Cap-and-Trade Program,” July 2003, [web link](#).

The paper reviews several economic models that estimate the share of freely allocated credits required to offset company losses. These are estimated at 14 percent, 6 percent, and 5.5 percent at the sector level. Free allocation in excess of these shares would result in windfall profits. See especially Table 1.

### **Climate Policy Center**

“Allowance Allocation Under a Carbon Cap-and-Trade Policy,” September 2003, [web link](#).

“By grandfathering greenhouse gas allowances, the U.S. government would confer economic rents on the firms that receive allowances... Indeed, grandfathering potentially promises large windfall profits for energy industry firms... Full grandfathering would produce such large windfall profits that it might result in political scandal.” (Pages 18-19)

### **Resources For the Future**

Lawrence H. Goulder, “Mitigating the Adverse Impacts of CO<sub>2</sub> Abatement Policies on Energy-Intensive Industries,” March 2002, [web link](#).

“By compelling fossil fuel suppliers to restrict their outputs, the government effectively causes firms to behave like a cartel, leading to higher prices and the potential for excess profit. To the extent that the environmental policy enables the firms to retain these rents – such is the case under a CO<sub>2</sub> policy involving freely offered tradeable permits – the firms can make considerably higher profit under regulation than in its absence. Correspondingly, the government needs to leave with firms only a fraction of these potential rents in order to preserve the profits of the regulated industries.” (Page 19)

### **Center for Clean Air Policy**

Anne E. Smith and Martin T. Ross, “Allowance Allocation: Who Wins and Loses Under a CO<sub>2</sub> Control Program?” February 2002, [web link](#).

“Although a cap-and-trade program with all allowances auctioned would have severe effects on the coal industry (a predicted 65 percent loss in equity value in 2010) and would hurt other energy-related sectors (oil and gas extraction, refining, gas distribution, and electricity generation would feel equity losses in 2010 of between four and eight percent), the average losses in each sector could be offset by grandfathering them only nine percent of total U.S. allowances.” (Page 28)

### **Resources For the Future**

Dallas Burtraw et al., “The Effect of Allowance Allocation on the Cost of Carbon Emission Trading,” August 2001, [web link](#).

“[Electricity] producers can expect to do the best under grandfathering because it represents a substantial transfer of wealth to producers from consumers. In fact, producer profits and asset values increase substantially compared to the baseline (absent a carbon policy), making producers better off with a carbon policy than without, but leaving consumers substantially worse off. Even though grandfathering appeared to be the intermediate approach with respect to its effect on electricity and natural gas prices, it is the most extreme approach with respect to transfers of wealth.” (Page 4)

### **Resources For the Future**

Peter Cramton and Suzi Kerr, “Tradable Carbon Permit Auctions: How and Why to Auction Not Grandfather,” May 1998, [web link](#).

“Advocates of grandfathering usually fail to point out that, if the permits are given to energy companies, consumers will still pay the higher energy prices. It is the carbon cap itself that will determine the price increase. Regardless of whether the government auctions permits or gives them away for free, the same energy price should be expected. The marginal cost of controlling carbon is not altered by grandfathering, only the initial ownership of carbon rights. The only difference is that the energy companies, not the taxpayers, pocket the extra revenue.” (Page 2)