



## The Green Movement and the Challenge of Climate Change

By Lee Lane

*To produce net benefits, climate policy will have to make careful trade-offs between the costs and benefits of greenhouse gas (GHG) emission controls. Many environmentalists regard cost-benefit trade-offs as taboo—a strongly negative reaction that can block rational decision-making. Some green groups, however, have now embraced so-called cap-and-trade emission controls.<sup>1</sup> At least one recent analysis regards the green groups' move toward cap-and-trade as a sign that they are rising above the taboo response to embrace economic reasoning. A closer look shows that there may be less to this story than advertised.*

What explains the traditional resistance of many green groups to economic reasoning? A theory developed several years ago by political psychologist Philip Tetlock offers a possible answer. Tetlock calls his theory the Sacred Value Protection Model (SVPM). According to this view, economic principles express “secular” values. Tetlock believes, however, that many people would regard protecting the environment as a “sacred” value. Proposing a trade-off between secular and sacred values triggers a “taboo” response.<sup>2</sup>

More recently, in an article written with green activist and scientist Michael Oppenheimer, Tetlock argues that green advocacy groups have displayed relatively high degrees of realism, tolerance, truth-seeking, and an ability to learn from experience. (Oppenheimer, it should be noted, is a vocal advocate of proposals to use cap-and-trade as a means of controlling GHG emissions that contribute to global climate change.) Oppenheimer and Tetlock concede that the record of green policymaking is more nuanced than the SVPM allows. “On one hand,” they write, “we discover what seem to be strong pockets of taboo cognition—policy domains in which

even speculative forms of cost-benefit analysis (would you change your mind if . . . ?) are likely to provoke sharp resistance. On the other, we discover numerous exceptions and qualifications.”<sup>3</sup>

According to Oppenheimer and Tetlock, cap-and-trade is one such exception. In the early 1990s, one green advocacy group, Environmental Defense, took a stance in favor of cap-and-trade in the case of one air pollutant: sulfur dioxide (SO<sub>2</sub>). The SO<sub>2</sub> cap-and-trade plan was eventually incorporated into the Clean Air Act Amendments of 1990.

As Oppenheimer and Tetlock describe the course of events, “despite considerable opprobrium (low to moderate moral outrage), it would go too far to assert that Environmental Defense was ostracized.”<sup>4</sup> At that time, most green groups opposed the position. Years later, when the effectiveness of the trading system seemed to be confirmed, many green groups (although not all of them) embraced the concept. “Thus, the taboo has become the accepted practice.”<sup>5</sup>

Superficially, the embrace of the SO<sub>2</sub> program looks like an important step toward reconciling green thinking with the dictates of economics. If this impression is correct, it would mark an important turning point: the green groups would have

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been able to learn a major lesson from economic theory. It would suggest a defeat for the power of the SVPM among the green groups. But is this the right interpretation?

## Hard Caps versus Prices

With GHG controls, the devil is in the details—and Oppenheimer and Tetlock skip the details. The result is that they misinterpret the environmentalists' stance.

Most green groups strongly prefer controls that set quantitative limits on GHG releases. This form of cap-and-trade does not allow a trade-off between control costs and environmental damage. Price-based GHG control mechanisms—for example, a carbon tax or a cap-and-trade system featuring an allowance price safety valve—would allow trade-offs of this kind. With a price-based system, if the costs of abatement prove to be excessive, the option exists to merely pay the price of continuing to emit. Almost all of the green groups, however, fiercely reject those approaches.

The choice between the green groups' preferred systems and the price-based GHG limits is not a mere technical matter. It can dramatically change the balance between the costs and benefits of future climate policy. The green groups' preferred approach of quantity-based ("hard") caps suffers from severe defects.

A control policy based on hard caps virtually ensures very high volatility of GHG emission allowance prices. Many previous cap-and-trade programs have also exhibited this volatility.<sup>6</sup> Even rather modest fluctuations in business cycles or weather will cause GHG allowance prices to fluctuate. And the price swings can be very large. As two prominent economists have observed:

For example, consider an effort to reduce domestic carbon dioxide emissions by 5% below future forecast levels over the next ten years—to about 1.8 billion tons of carbon. . . . Based on central estimates, the required reductions would amount to about 90 million tons of carbon emissions, and might cost the economy as a whole around \$1.5 billion per year. However, reaching the target could instead require 180 million tons of reductions because of otherwise higher emissions related to a warm summer, a cold winter, or unexpected economic growth. Based on alternative model estimates, it could also cost twice as much to reduce each ton of carbon. The result could be costs that are eight times higher than the best guess.<sup>7</sup>

Because GHG allowances will be an important part of the cost of doing business and because their prices will fluctuate, many firms will have to incur substantial costs to hedge against these price swings. Note, though, that while the prices of emission rights may vary widely, the harm done by releasing an additional ton of GHG into the atmosphere does not.<sup>8</sup> The future harm from GHG output depends on cumulative global emissions over many decades. A given country's overshooting or undershooting its annual caps is merely noise in the system. It follows that all costs incurred by firms hedging against allowance price swings are pure deadweight loss to society.

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In general, economists have favored carbon taxes as GHG control tools—or cap-and-trade plans that are designed to mimic carbon taxes. These approaches, many believe, are the most cost-effective means of reaching any given GHG reduction target.<sup>9</sup> The advantages of price-based GHG tools are the mirror image of the drawbacks of hard caps. Price-based tools are well suited to stimulating open debate about the public's willingness to pay for GHG reductions. These tools can also entirely avoid the gyrations in abatement costs that plague hard caps. And they distribute emission reductions through time based on the actual state of technology, not on *ex ante* expectations.

## Sharp GHG Cuts and Uncertain Technology

Green groups assume a great deal of progress in GHG control technology. They wish not only to impose hard caps, but also to set those caps to require rapid GHG cuts. Policies of this kind could be very costly. For example, proposals by former vice president Al Gore and British government economist Nicholas Stern have been calculated to entail global net costs of \$17 trillion and \$22 trillion, respectively.<sup>10</sup> That is, these proposals

are far more expensive than would be a policy of simply ignoring climate change.

Such proposals are based on the hope that new technology will emerge and that this technology will make the GHG reductions much cheaper. But the future course and rate of technology change is highly unpredictable, and Congress is not famous for the accuracy of its predictions on this score. If the new technologies fail to appear on schedule, abatement costs are likely to rise far above optimal levels, and they may stay that way for an extended period of time.

A worrisome aspect of this approach is that by adopting very stringent emission caps, green groups are departing sharply from the model of the SO<sub>2</sub> program. In large measure, that program achieved relatively low abatement costs because its targets were selected to fall well within the range of capabilities of existing technology. A subsequent assessment of the SO<sub>2</sub> program made clear that more was involved than just the concept of trading:

[T]he cost reductions observed in the SO<sub>2</sub> trading experience will not necessarily be repeatable in other markets. One key feature of the SO<sub>2</sub> market would need to be present again. The SO<sub>2</sub> cap was set at a level that left a wide range of options for many individual sources, and more importantly, for all affected sources in the aggregate. An approximate 50% overall emissions reduction was required in a situation where there was a technologically-proven option that could achieve reductions of 95%. Combined with that was the presence of a wide continuum of lower percentage reductions possible via fuels with many different sulfur content levels. Thus, there was room for applying the best available control measures on only a small fraction of the regulated units, where they would be truly cost-effective and, more generally, for meaningful competition among a diverse set of options.<sup>11</sup>

The particulars of the SO<sub>2</sub> case suggest caution about efforts to extrapolate its results to the quite different problem of GHG controls. In fact, even the SO<sub>2</sub> program would have yielded much different results had it been based on emission reductions steep enough to require universal application of the most expensive available control technology. As later economic analysis pointed out, "A more stringent cap would have reduced this flexibility, and price competition among suppliers of control options. For example, the ability to take advantage of

cheaper low-sulfur coals from the West would have been greatly diminished if aggregate required SO<sub>2</sub> reductions had been substantially greater than 50%."<sup>12</sup>

A central factor in the SO<sub>2</sub> program's success, therefore, was that its caps fell well within the reach of then-available technology. Setting a cap of this kind does seem to imply the acceptance of a secular-sacred trade-off. But in accepting cap-and-trade, the green groups are not accepting modest caps. Still less are they accepting the legitimacy of secular-sacred trade-offs. So far, at least in the case of GHG controls, green groups continue to resist such trade-offs to the limits of their political power.

In contrast to the green groups' stance on GHG controls, most economists have argued that the best policy would be to make modest, but gradually increasing, reductions in GHG releases.<sup>13</sup> In effect, economists tend to prefer the more modest goals that characterized the actual SO<sub>2</sub> program to the steep reductions favored by the green groups. Economists also point out that it appears to be possible to learn to live with a fair amount of the predicted rise in GHG levels.<sup>14</sup> Climate policy, in their view, requires patience. Some environmental harm must be accepted. Otherwise, GHG control costs can easily be more expensive than the environmental damages that the controls prevent.

## Hard Caps and Policy Stability

Environmentalists' intransigence about cost-benefit trade-offs in an emissions trading scheme is likely to carry a high price tag. It may do so even from the green groups' own point of view. The use of hard caps is likely to increase the chance of expensive changes in the course of policy.

Hard caps preclude certainty about future abatement costs. As a result, they largely foreclose reasoned discussion about the public's willingness to pay for GHG reductions. Green groups' rhetoric compounds the problem. For example, as the discussion in California illustrates, extravagant claims about emissions-reducing free lunches are common. An analysis by the California Air Resources Board (CARB) makes this claim about its new climate action plan: "The results consistently show that implementing the Scoping Plan will not only significantly reduce California's greenhouse gas emissions, but will also have a net positive effect on California's economic growth through 2020."<sup>15</sup>

Independent economists have greeted these claims with great skepticism. As one noted in reviewing the

report, “I have come to the inescapable conclusion that the economic analysis [of CARB] is terribly deficient in critical ways and should not be used by the State government or the public for the purpose of assessing the likely costs of CARB’s plans.” He went on to observe that “the analysis is severely flawed, and hence not useful for the purpose for which it was intended.”<sup>16</sup> Another reviewer wrote, “The net dollar cost of each of these regulations is likely to be *much larger* than what is reported. . . . There is a national consensus that carbon pricing is not a ‘free lunch.’”<sup>17</sup>

The green advocacy groups, however, have enthusiastically embraced this report and the claims that GHG controls do, indeed, offer a free lunch. The Natural Resources Defense Council stated, “We concur with the overall finding that the Proposed Scoping Plan will provide economic benefits in 2020 for the overall state economy as well as to individual households and businesses.”<sup>18</sup> Other groups have made similar claims with reference to the AB 32 Scoping Plan. Environmental Defense has said, “California’s leadership on global warming will usher in a new wave of entrepreneurial innovation and be the economic engine that will drive greater prosperity in the state.”<sup>19</sup>

At stake is much more than a dispute between the green groups and mainstream economists. If the promised free lunch turns out to carry a hefty price tag, the policy may change. Congress has a long record of policy reversals on environmental targets.<sup>20</sup> If that happens, many investments in GHG control may become stranded assets.

Fearing this risk, firms may defer investments until the level of government resolve becomes clearer. The resulting delay of investment decisions can itself impose serious costs.<sup>21</sup> Further, industry’s motive for investing in R&D designed to develop less expensive future control technologies will be weaker than it would have been with a more certain future policy.<sup>22</sup> This result is the very opposite of the one for which the supporters of hard caps wish.

## A Taboo Preserved

On closer inspection, the green groups’ gradual acceptance of emission rights trading appears to be more an example of a taboo preserved than one of pragmatism vanquishing taboo. One can hardly help noticing that price-based controls make the secular-sacred trade-off that is inherent in climate policy visible for all to see. Key to the superiority of a price-based system is that it

allows the market to determine the cumulative GHG reductions on a year-by-year basis. Thereby, it calibrates GHG cuts to the sacrifices that achieving them will require.

Tetlock’s original SVPM theory predicts that making this secular-sacred trade-off transparent should render price-based controls anathema to green groups. It hardly seems coincidental that, while many environmental groups have embraced quantity-based cap-and-trade, every major environmental organization has rejected the bills that would have relied on price-based controls.<sup>23</sup> Yet Oppenheimer and Tetlock cite the groups’ partial embrace of cap-and-trade as proof of ideological flexibility. At the same time, they neglect the green groups’ near unanimous rejection of price-based GHG controls and do so even though this aspect of the groups’ position goes to the heart of Tetlock’s SVPM theory.

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Tetlock’s initial article spoke to the need to make trade-offs. It also discussed how people get around their own taboos. These trade-offs are a central reality of all policymaking. They clearly dominate climate policy, an area in which the stakes are high but good GHG control options are few and far between. Thus, tacitly, Tetlock’s original article poses an important challenge to the green advocacy groups.

## Conclusion

Oppenheimer and Tetlock, in telling the story of the green groups and cap-and-trade, never grasp the importance of the choice between hard caps and price-based tools. They do not distinguish between the SO<sub>2</sub> program’s form and its relatively gradual targets. They ignore the baleful potential of suppressing needed public debate on willingness to pay.

As a result, Oppenheimer and Tetlock miss a deeper reality about green NGOs: that they continue to evade the needed trade-off between the goal of protecting the environment and that of preserving prosperity. This trade-off lies at the heart of making good policy on climate change. By ignoring it, the green groups are pursuing an approach that is deeply flawed.

## Notes

1. With cap-and-trade, government allows the various sources of a specific pollutant to buy and sell legal rights to emit, but it sets a ceiling on the total emissions. The ceiling caps total emissions, but those firms that can reduce emissions most cheaply do so, and those for whom controls are more costly buy more allowances.

2. Philip Tetlock, "Coping with Trade-offs: Psychological Constraints and Political Implications," in *Political Reasoning and Choice*, ed. Arthur Lupia, Mathew D. McCubbins, and Samuel L. Popkin (Berkeley: University of California Press, 1999).

3. Philip Tetlock and Michael Oppenheimer, "The Boundaries of the Thinkable," *Daedalus* 137, no. 2 (2008): 59–70.

4. Ibid.

5. Ibid.

6. Anne E. Smith (testimony, hearing on America's Climate Security Act of 2007, Senate Committee on Environment and Public Works, November 8, 2007).

7. R. Glenn Hubbard and Joseph Stiglitz, "Letter to Senators John McCain and Joseph Lieberman," June 12, 2003.

8. William Pizer, "Combining Price and Quantity Controls to Mitigate Global Climate Change," *Journal of Public Economics* 85, no. 3 (2002): 409–434.

9. Tom Redburn, "The Real Climate Debate: To Cap or to Tax?" *New York Times*, November 2, 2007.

10. William Nordhaus, *A Question of Balance: Weighing the Options on Global Warming Policies* (New Haven, CT: Yale University Press, 2008), 201.

11. Anne E. Smith, Jeremy Platt, and A. Denny Ellerman, "The Costs of Reducing Utility SO<sub>2</sub> Emissions—Not as Low as You Might Think" (Working Paper 98010, Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology, Cambridge, MA, 1998), 5.

12. Ibid.

13. David Kelly and Charles Kolstad, "Integrated Assessment Models for Climate Change Control," in *International Yearbook of Environmental and Resource Economics 1999/2000: A Survey of Current Issues*, ed. Henk Folmer and Tom Tietenberg (Cheltenham, UK: Edward Elgar, 1999).

14. Robert Mendelsohn, *The Greening of Global Warming* (Washington, DC: AEI Press, 1999), 2, 8–9, 27–28, available at [www.aei.org/book109](http://www.aei.org/book109).

15. California Air Resources Board (CARB), *Climate Change Proposed Scoping Plan: A Framework for Change* (Sacramento: CARB, October 2008), 74.

16. Robert Stavins, "Comments on Economic Analysis

Supplement, Pursuant to AB 32, California Global Warming Solutions Act of 2006, Prepared by the California Air Resources Board," in *Peer Review of the Economic Supplement to the AB 32 Draft Scoping Plan* (November 2008).

17. Matthew E. Kahn, "Peer Review of the Economic Modeling Analysis of the California ARB Greenhouse Gas Reduction Scoping Plan," in *Peer Review of the Economic Supplement to the AB 32 Draft Scoping Plan*.

18. Audrey Chang, National Resources Defense Council, to California Air Resources Board, "Re: NRDC Comments on AB 32 Proposed Scoping Plan for Policies to Reduce Global Warming Pollution," November 18, 2008, available at [www.solutionsforglobalwarming.org/docs/NRDC-ScopingPlan-11.18.08.pdf](http://www.solutionsforglobalwarming.org/docs/NRDC-ScopingPlan-11.18.08.pdf) (accessed February 13, 2009).

19. Environmental Defense Fund, "Final AB 32 Scoping Plan Contains Key Improvements," news release, October 15, 2008, available at [www.edf.org/pressrelease.cfm?ContentID=8682](http://www.edf.org/pressrelease.cfm?ContentID=8682) (accessed February 13, 2009).

20. R. Shep Melnick, "Pollution Deadlines and the Coalition for Failure," *The Public Interest* 75 (Spring 1984): 123–24.

21. Matthew E. Kahn, "Peer Review of the Economic Modeling Analysis of the California ARB Greenhouse Gas Reduction Scoping Plan."

22. W. David Montgomery and Anne E. Smith, "Price, Quantity, and Technology Strategies for Climate Change Policy," in *Human-Induced Climate Change*, ed. Michael E. Schlesinger, Haroon Kheshgi, Joel B. Smith, Francisco C. de la Chesnaye, John M. Reilly, Tom Wilson, and Charles Kolstad (Cambridge, UK: Cambridge University Press, 2007).

23. Friends of the Earth has supported a tax, but it appears to have done so on the (mistaken) belief that taxes, unlike cap-and-trade, would not create opportunities for corporate windfall profits. On its website, Friends of the Earth claims that "it will be much harder for polluters to find loopholes with a [carbon] tax than with other approaches. . . . Corporations and their shareholders will pay a price if they do not act today in order to ensure their business' ability to remain competitive." (Friends of the Earth, "Support the Carbon Tax," available at [http://action.foe.org/dia/organizationsORG/foe/content.jsp?content\\_KEY=3303](http://action.foe.org/dia/organizationsORG/foe/content.jsp?content_KEY=3303) [accessed February 13, 2009].) Ralph Nader has also embraced a price-based system. See Ralph Nader and Toby Heaps, "We Need a Global Carbon Tax," *Wall Street Journal*, December 3, 2008. Nader is better known as a "consumer activist" rather than an environmentalist. The more orthodox green nongovernmental organizations' reaction to his new stance will be an interesting test.