

## 5 At What Price, Green?

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**A**lthough the Obama administration has been fixated on bailouts and stimulus, it has not lost sight of the fact that its campaign promises included a dramatic change in environmental policies. Reacting especially to the Bush administration's apparent unwillingness to grapple with global warming and energy issues, President Obama has taken the same bold steps on these issues that he has on other headline issues.

Rather than trying to cover the entire range of policies, we focus our analysis on the major issues of climate change and green jobs, the two areas where the administration is putting its environmental emphasis. Our major points are (1) that the administration has not been candid with the American public about the costs of these initiatives or about the likelihood of their ability to improve the environment; (2) that these initiatives are likely to encourage protectionism, reduce international trade, and hence slow the recovery of the U.S. and world economies; and (3) that slower growth will undermine environmental improvements at home and abroad.

Although many environmentalists argue that markets and prosperity are the cause of environmental degradation, our analysis begins with the premise (based on strong evidence) that markets are the source of prosperity and that prosperity and property rights are necessary for environmental quality. If economic growth and

international trade are weakened by ill-conceived, risky policies, political support for environmental protection will be reduced, and we may end up with a poorer economy and environment.

## CARBON THEORY OF VALUE

Given President Obama's focus on climate change, we begin by asking (1) whether the administration's carbon reduction targets are realistic; (2) whether they are likely to have a significant impact on global temperatures in the relevant *political* time frame; (3) what it will cost to achieve these targets; and (4) what regulatory controls (e.g., trade policies) would be necessary to make them effective. We emphasize political time frame because politicians seldom see beyond the next election cycle, while the effects of and solutions to global change require decades.

Without getting into climate science, we stipulate that global temperatures are rising, that some part of the rise is anthropogenic, and that greenhouse gases (GHG) already in the atmosphere will cause temperatures to rise, even if the United States reduces its GHG emissions now. Regardless of the climate model used, it is well accepted that the most realistic targets for reducing current GHG emissions will lower temperatures by only small amounts over the course of the century.

Moreover, trying to set meaningful GHG emission targets is difficult due to the complexities of climate models. As models have been refined to take account of other variables (e.g., ability of oceans to absorb CO<sub>2</sub> and the impact of increased cloud cover associated with CO<sub>2</sub>), predicted temperature increases have declined. Also, as models have improved it is clear that climate change will vary considerably from region to region. Due to these complexities, GHG targets are apt to depend as much on politics as they do on science.

In light of this, consider the proposal to stabilize atmospheric

GHG concentrations at 535–550 parts per million (ppm) of CO<sub>2</sub> (about twice the preindustrial level) in an effort to hold global warming to around 2 degrees centigrade (3.6 degrees Fahrenheit) as described in the influential Stern Report. To meet this target, global emissions will have to peak before 2020 and must fall by 2050 to 30 to 60 percent below what they were in 2000. For its part, the Obama administration proposes to reduce U.S. carbon emissions by 14 percent from the 2005 level by 2020 and by 83 percent below the 2005 level by 2050.

Cost estimates for achieving such reductions range between 1 and 3 percent of world gross domestic product (GDP), though the complexities described above make it difficult to get consensus on the cost. Suppose current world GDP grew from its current level of \$47 trillion to \$94 trillion by 2030 (that is about 3 percent per year) without any emissions reductions. If the cost of achieving targets described above amounts to 3 percent of GDP in 2030, this implies that stabilizing GHG concentrations could cost an average of \$117 billion per year in lost economic growth between now and 2030. Just for the United States, the Lieberman-Warner bill under consideration in Congress might cost \$800 to \$1,300 per household annually by 2015, rising to \$1,500 to \$2,500 by 2050, according to a study by Charles River Associates. Though some argue that cutting carbon emissions will actually increase GDP through green technologies and green jobs (see discussion below), we think this is unlikely. On the contrary, we believe that the high cost of cutting carbon emissions enough to make any difference in climate will make it difficult for the Obama administration to sell its ambitious agenda to the American public.

Making the sale will be even harder for developing countries where two-thirds to three-fourths of the world's population live. Lifting these populations out of poverty will require formidable increases in the GDP, which will be accompanied by increases in energy use and carbon emissions. Studies predict that global energy demand will increase by 50 percent by 2030, with China and India

accounting for approximately 45 percent of the increase. Because most developing economies rely on cheap coal to generate energy (currently nearly 80 percent of China's electricity is provided by coal-fired generation), this growth in demand maps directly into increases in carbon emissions. Given the implications for development, it is not surprising that the leaders of developing countries refuse to join in mandatory, binding GHG discharge targets.

High costs of achieving GHG reductions do not necessarily mean that we should do nothing to mitigate change if the cost of doing nothing is high, and this is precisely what environmentalists argue. The costs of climate change, however, are surprisingly uncertain, despite common rhetoric to the contrary. Except for unanticipated catastrophic effects, most economics studies find small negative global consequences. To be sure, regional impacts of climate change vary, but the aggregate costs are estimated by some to be between 0.08 percent and 0.24 percent of global GDP by the year 2100. Those estimates change periodically, but if the future damage caused by unmitigated climate change is somewhere near these magnitudes and if controlling emissions to stabilize GHG concentrations reduces GDP by 1 to 3 percent, then an aggressive carbon policy does not pass economic muster.

Even if the benefits of pursuing the administration's GHG targets were higher, there is still the question of whether targets can be achieved. Proponents of a cap-and-trade system (see more discussion below) contend that cap-and-trade gets the incentives right for industry to comply (see Fred Krup, *Wall Street Journal*, March 24, 2009). But the World Bank has noted that industry compliance with pollution regulation is far from universal, witness the ineffectiveness of the European Union efforts. If manufacturing facilities migrate offshore in response to higher carbon restrictions in the United States, emissions could rise elsewhere while unemployment and economic stagnation result here at home.

And if achieving compliance in the developed world is a problem, consider what it will be like in countries such as China and

India. Even if their central governments signed on to an international treaty to control global emissions as envisioned by the administration, there is the huge problem of compliance at the local level. In China the hundreds of state-owned enterprises and utilities that generate much of the GHG pollution generally are beyond effective control of the central government. Instead, they are responsive to local party officials whose careers depend on continued economic growth, growth built around cheap, dirty coal. As noted by the Peterson Institute as well as the World Bank, China's administration is far from transparent, even to most Chinese. The problem is replicated in India, Brazil, Indonesia, and so forth.

A final problem with the administration's carbon agenda is that it is likely to be captured by protectionists rather than environmentalists. American unions, already reeling from trade liberalization, are looking for ways to protect their jobs, and so is the administration. Indeed, Energy Secretary Steven Chu called for carbon tariffs as a "weapon" to protect U.S. companies from competition from carbon-intensive imports. As Chu put it, tariffs on imports produced in developing countries lacking tough GHG mandates will help "level the playing field. . . . If other countries don't impose a cost on carbon, then we will be at a disadvantage" (see *Wall Street Journal*, March 18, 2009). With industries such as paper, cement, fertilizer, steel, and glass all facing competition from foreign competition, a tariff in the name of climate change will be welcomed. At a time of a growing sentiment for protectionism (e.g., restrictions on access to U.S. highways by Mexican trucks as part of the North American Free Trade Agreement [NAFTA], "buy America" provisions in the recent stimulus bill, and protective tariffs in Europe and elsewhere), a carbon tariff poses even more fundamental threats to trade.

Administration and measurement costs as well as opportunities to expand tariffs in the name of the environment and GHG controls suggest that the use of trade restrictions as a convenient mechanism

to enforce international climate agreements are both naïve, difficult, and dangerous. In a global economy, it is very hard to determine the national origin of final products when components come from many sources and countries, let alone to determine the carbon content and source of products. Any action by the United States to use a carbon tariff is likely to be matched by others, as suggested by China's top climate change negotiator, who said the U.S. proposal to impose import duties on goods from countries that don't try to limit their carbon emissions was "an excuse to impose trade restrictions" under the guise of "climate protection."

It is important to keep in mind that much of the recent global economic growth has been trade-based. When considering protectionism, it is worth remembering the Smoot-Hawley Tariff of 1929 and its damaging impact on world trade, leading to the Great Depression.

All of this suggests that the administration's proposed climate policy will be more costly, will be more damaging to the U.S. and the global economies, and will be less likely to succeed in achieving carbon reduction targets than we have been led to believe. Before undertaking its ambitious climate agenda, the Obama administration should be more transparent with the American public as to the costs and uncertainties of its climate policies and the dangers of an associated trade war. History has shown that societies will bear costs of expensive agendas (e.g., send men to the moon, fight dictators with ambitions for global power) when outcomes are observable and have substantial likely benefits. Unfortunately, in the case climate change, discernible results are very unlikely given the existing concentrations of GHG in the atmosphere and regulatory compliance problems. Couple this with misleading and probably incorrect cost assurances by advocates, the likelihood of a major political backlash is high. Such an outcome surely is not what the administration or supporters of environmental quality have in mind.

### *An Inconvenient Tax*

A possible reaction to these concerns about costs, compliance, and results is that the Obama administration's primary mechanism for reducing carbon emissions—cap-and-trade—will be different. The proposal for capping and reducing carbon emissions in the United States is patterned after the successful SO<sub>2</sub> permit trading system established under the 1990 Clean Air Act Amendments. The right to release carbon is to be limited by the overall cap, and it is a valuable factor of production. Firms holding emission permits can use them as a basis for carbon releases, bank them for future shortfalls, or sell to firms that have insufficient permits. In all cases, the permits have value related to the tightness of the cap and the scarcity of permits. By auctioning off the permits, the administration argues that it will capture the value for the public.

For recognizing the potential of a GHG cap-and-trade system to create property rights and thus incentives for reducing emissions, the Obama administration gets high marks. For not recognizing the important differences between applying cap-and-trade to regional SO<sub>2</sub> emissions and to global carbon discharges, and for not recognizing the added costs that auctioning the carbon permits will have on the economy, however, it gets low marks. These costs are in addition to those described above for GHG emission controls.

One of the biggest hurdles to establishing a cap-and-trade system for carbon is allocation of the initial emission permits. In general the Obama administration has followed the lead of the dozens of economists who sent a petition to the House Energy and Commerce Committee on March 3, 2009, calling for auctioning permits, rather than grandfathering them to existing emitters. Economists argue that the revenues raised from auction could be used by the government to reduce distortional income taxes and thereby make the economy more efficient.

If the permits are auctioned, the price paid will become “an inconvenient tax” (as it was called by the *Wall Street Journal*, February

27, 2009). And like any other tax, it will be shared by both producers and consumers.

The expected revenue that might be generated from a carbon permit auction gives some sense of how much this tax will be. The administration's initial estimates of the expected revenue from a carbon permit auction were \$130–\$370 billion annually by 2015 and to total \$650 billion over the next ten years. By 2019, auction revenues will be the sixth-largest source of revenue for the federal government and may raise as much as \$300 billion every year. The Congressional Budget Office (CBO), however, considers these estimates low and puts the sum closer to \$900 billion over the next ten years. And at a closed meeting on March 17, 2009, administration officials acknowledged that the auction could raise two to three times the \$650 billion figure (see the *Wall Street Journal*, March 18, 2009).

What ever the number, it is a big pill for producers and consumers to swallow. Moreover, the tax will fall disproportionately on lower-income families. CBO breaks down the burden of achieving a 15 percent reduction in carbon emissions as follows: the bottom quintile of households will see their after-tax income fall by 3.3 percent; the middle quintiles will see theirs fall between 2.7 and 2.9 percent; and the top quintile will see theirs fall by 1.7 percent.

Recognizing the potential for this tax regressivity, the Obama campaign promised to return the windfall to taxpayers. Now that he is president, Obama wants \$525 billion to go, through its “making work pay” tax credit, to taxpayers who do not pay income taxes. This amounts to \$400 for individuals and \$800 for families earning less than \$250,000 per year. The president's budget further proposes to use another \$120 billion to fund clean energy technology.

Any realistic political analysis, however, raises questions about the likelihood that the auction revenues will be redistributed to the public. Already, the administration is on the defensive and strapped for cash to fund its policy objectives. In March the CBO's baseline projections of the budget deficit for 2009 and 2010 rose, leading to

estimates that the deficit will total \$1.7 trillion, or 11.9 percent of GDP, this year, the largest since 1945, when World War II ended. Accordingly, the opportunity to use cap-and-trade auctions as a revenue source becomes overwhelmingly appealing, potentially hijacking the environment objectives. Further, with windfall tax revenues such as these, political scientists predict that a disproportionate amount of the revenues are likely to go to special-interest groups, with the amount determined largely by lobbying effort.

Lest you be skeptical that auction revenues will go to uses other than tax refunds, consider what happened to tobacco settlement revenues. In November 1998 a settlement was reached between the major U.S. tobacco producers and forty-six states. In exchange for dropping their lawsuits, states were to receive payments from the tobacco companies projected to be \$206 billion over the first twenty-five years. These payments were to be used for the advancement of public health and the implementation of tobacco-related health measures. To date, \$79.2 billion from tobacco settlement money has been received by the states. Between 2000 and 2005, 30 percent of the money went to health-related spending, but the rest went to everything from infrastructure to public debt service, the latter of which took 5.4 percent of the revenues.

### *The Adaptation Strategy*

Though cap-and-trade is a property rights approach to environmental problems that has been successfully applied to regional fisheries and SO<sub>2</sub> controls, it is not as efficacious for global carbon emission controls because of uncertainties regarding costs and benefits and worldwide compliance. Given the stipulation that we are experiencing global warming and that it might lead to possible catastrophic events, if not cap-and-trade, then what?

To get at the answer, put the issue in the context of risk analysis. Some policy analysts contend that incurring the huge costs of

reducing carbon is like buying insurance. But unlike insurance which pools risk and pays those insured if and when they have a loss, spending money now to potentially avoid uncertain future costs has no such pooling benefit. Instead of being like fire insurance, it is more like buying a smoke detector. As such, the decision to reduce the likelihood of a catastrophic event depends on the cost of prevention versus the expected cost of the event. Because the smoke detector is cheap relative to a bad fire, almost all homes have them. Based on the cost-benefit evidence of reducing CO<sub>2</sub> emissions, however, it appears that rather than reducing risk, the administration's policies could increase it. They could make the United States and the world poorer and, therefore, not only less able to respond to climate change but also more vulnerable to other threats, such as terrorism and general unrest as the world's populations see constrained opportunities and dashed expectations. We recognize that there are potential costs to climate change, but at this time, an aggressive emissions control policy through cap-and-trade is apt to be counterproductive economically, politically, and environmentally (i.e., have little real impact on global temperatures in the foreseeable future).

Fortunately, there are policies that will help to more effectively adapt to global warming. For example, state insurance regulators are requiring that insurance companies disclose the added risk that they are likely to face if warming occurs. Such disclosure provides better information of the expected cost of global warming and therefore a price signal to reduce that cost just as do higher fire insurance rates. Encouraging the provision of transparent information is something the Obama administration should consider.

Similarly, as the administration considers subsidies such as those to agriculture, it should ask whether subsidies encourage or discourage adaptation to climate-related events. Subsidizing flood, hurricane, and crop insurance is exactly the wrong thing to do in the face of global warming because such subsidies create a moral hazard problem. Subsidies to corn-based ethanol production are

now widely recognized as detrimental to the land on which corn is grown and as having little, no, or perhaps even a detrimental effect on GHG emissions.

Land prices are another signal that will help us adapt. Some of France's wine production is moving to Germany as vintners anticipate better climates for grapes further north. Land trusts, such as the Nature Conservancy, which seek to preserve habitat for endangered species through conservation easements, are beginning to ask whether they should anticipate where the environment needs to be conserved rather than reacting to past changes.

Climate change predictably will have a big impact on the timing and distribution of precipitation. For the western United States, climate models generally indicate that higher global temperatures will lead to shifts in the timing and location of precipitation, rather than reductions in overall precipitation. This may require more freshwater storage dams and distribution canals. Preparation for such changes ought to be given priority.

Furthermore, water markets can generate information about relative values and encourage more efficient water use. They can alleviate the need for expensive, energy-consuming desalinization projects and reduce reliance on costly, controversial, and often ineffective water rationing by government. Water markets, however, require more precise definition of and commitment to water rights, and streamlined regulatory processes to lower the costs of water transactions. This includes making it possible for water trades across political boundaries, which could be accomplished under interstate water compacts. Although states are a focal point for much of what needs to happen to facilitate water markets, the federal government can be influential, especially in regions where it supplies a large share of the water.

The Obama administration's green jobs agenda could fit into an adaptation strategy if it would establish transparent strategies for identifying which jobs are worth encouraging for reducing GHG emissions. Because of the overriding incentives to use coal in the

developing world, new methods of reducing its carbon releases could have an important payoff. This does not mean throwing money at any alternative energy development. Rather, it means doing what government can do well, namely, focus on basic research. This is where America has led the world in the past and where it can continue to do so.

## GREEN JOBS THEORY OF VALUE

President Obama has made green job creation a central part of both his environmental and his stimulus policies. And who could be opposed to such a policy, given that green means good for the environment and that jobs are seen as the way of getting the economy out of the doldrums? We ask here whether appearance is reality.

### *Is Green Really Green?*

At a time when everything, from produce to household cleaners to radio stations, claims to be green, it is not surprising that politicians would jump on the “greener than thou” bandwagon (see Anderson and Huggins’s book by that title from the Hoover Institution Press, 2008). Defining what is green, however, is not easy.

The administration’s definition of green jobs seems to center around industry categories rather than measures of environmental quality. Hence, jobs from generating electricity from renewable sources, from producing ethanol, or from constructing energy saving buildings are all considered green. Ethanol stands out in this list, given that, “instead of producing a 0 percent savings [of carbon dioxide], [it] nearly doubles greenhouse emissions over 30 years” (see Timothy Searchinger et al., *Science*, 2008).

Hence, we must ask whether simply asserting jobs to be green is sufficient. If the administration really wants to improve the environment with a jobs policy, it will have to undertake more precise,

transparent calculations to determine what constitutes green. In the absence of precision and transparency, special interests are likely to make the case for subsidizing their jobs, regardless of how good they might be for the environment.

### *Are Green Jobs Better?*

Just as the administration is asking us to take it on faith that green is green, it is asking us to take it on faith that green jobs are better for the economy. Accepting this requires several heroic assumptions, which are covered in much more detail in a study entitled “The Methodologies of Green Jobs,” by Andrew P. Morriss, William T. Bogart, Andrew Dorchak, and Roger E. Meiners, released on March 26, 2009, by the Institute for Energy Research. The following is a summary of their arguments.

1. *Green jobs produce goods and services that are more valuable than the cost of production.* Profitable markets require that revenue or product value exceed production costs, but politically mandated job creation does not. The fact that green jobs must be subsidized suggests that such jobs have not passed this market test either because the cost of production is too high, the value of what is produced is too low, or both. Just as spending money on carbon reduction may not be worth it because we are unlikely to get much temperature reduction, spending money on green jobs is not worth it if added GDP from green jobs could be gotten for less money in other sectors. To be sure there are subsidies all over the economy, especially in energy, but the amount of the subsidies increases with “greenness.” For example, the average subsidy per megawatt hour (Mwh) of electricity produced from coal is \$0.44 compared to \$2.80 per Mwh from renewable energy sources. Studies of other government job-creation programs show that between 10 and 60 percent of the jobs created by subsidies would not have existed if left to the marketplace.

2. *A green job is a net addition to employment.* Estimates of the number of jobs created by green government spending ignore the potential crowding-out effect. The proper measure would be net new jobs created rather than green jobs created where the money is spent. Consider whether a job in the renewable energy sector reduces unemployment. If that energy crowds out a job in a fossil fuel plant, the net effect on employment will be zero. There are no good data for saying what this crowding-out effect is with green jobs, but there are plenty of studies for other sectors such as construction of sports stadiums, higher education, and industrial plant location. All reach the conclusion that the crowding-out effect is not zero.

3. *Substituting labor for capital increases productivity.* Green jobs typically mean substituting labor for capital or other inputs. For example, a job in recycling labor is a substitute for sand in the case of glass or growing trees in the case of paper. Economists generally agree that substituting labor for capital reduces labor productivity and thus lowers labor wages. Indeed, most of the growth in wages in the twentieth and twenty-first centuries in the United States and elsewhere has been through increases in capital per worker and new technologies. This is precisely what Karl Marx missed with his “labor theory of value,” and what the administration is missing with a green jobs policy.

4. *Spending tax money on green jobs has a low or no opportunity cost.* In fact, United Nations Environment Programme goes even one better, claiming that green jobs pay a “double dividend” in the form of jobs and environmental quality. The opportunity cost question is obviously closely related to net job creation but is broader in that it asks what might happen if green job money were spent elsewhere. A quick look at numbers suggests that green jobs are expensive. A study by the Carbon Action Partnership estimated that \$100 billion invested in green job creation would yield 935,200 jobs. That number sounds good until one realizes that this is a cost of \$107,000 per job. Could this sum be better spent on health care

to save lives or college education to increase human capital? Once the size of these opportunity costs becomes evident, expect green fur to fly.

### *Greening of the Marketplace*

The caveats just raised about green job creation do not mean that green jobs will not drive a portion of our economy's future. In fact, the American Solar Energy Society claims that there were 8.5 million jobs in the alternative energy and energy efficiency sectors in 2006 and that there will be 16.3 million such jobs by 2030 without the new policies favored by the Obama administration. Although we can not be sure of the accuracy of these claims or of how many such jobs resulted from the helping hand of government subsidies, we can be sure that the green sector will continue via the invisible hand of the marketplace.

As with global warming, the lesson key for the Obama administration is to let market prices reflect resource scarcity and provide incentives for private investment that are profitable and therefore sustainable. The viability of this approach is illustrated by what the marketplace did for energy efficiency between 1970 and 2000. In 1970 experts warned that growing demands for energy would cause us to run out of supplies by the end of the century. We know today, however, that demand predictions were 60 to 80 percent too high, mainly because energy savings stimulated mostly by the market caused energy use per dollar of GDP to fall by 36 percent.

### *Green Protectionism*

As taxpayer money is distributed across the country to advance energy independence and to create green jobs, what happens if solar panels and windmill blades are more efficiently made elsewhere, say

in Mexico or China? It is easy to imagine the outcry of politicians when solar power firms or wind energy generators, who have received subsidies, seek to buy imported turbines or panels. There is no reason to expect that the United States will have a comparative advantage in this type of production. Indeed, once the technology is made routine, these inputs will be commodities that are likely to be produced in low-cost labor markets. This is a good outcome for alternative energy entrepreneurs who seek to profit from producing low-cost alternative energy. But it is not apt to be favored by unions or politicians. Again, the specter of environmental tariffs emerges. The inclination to resort to trade restrictions seems unavoidable. Yet, trade restrictions can only make all of us and our environment poorer. Our advantage is in technology, not in basic production. The administration should be up-front about this.

### A HEALTHY ECONOMY MEANS A HEALTHY ENVIRONMENT

The Obama administration's concern about the environment is laudable. Its concern about the economy and the welfare of the country's population also is laudable. These objectives are interwoven. The U.S. and world economies cannot be saddled with high costs, trade barriers, and policies that are likely to have little environmental benefit. Environmental gains are most possible when societies are prosperous and flexible. Despite the pressures from many sectors to rush forward with an aggressive carbon reduction agenda, this is not the time to do so. Candor as to what is known, what is and is not possible, and what trade-offs are likely to be encountered will be more effective in securing political support for devising long-term environmental policies for adaptation and mitigation than any hastily assembled environmental package based on a cap-and-trade system for carbon and green jobs.