

Cap-and-Trade Politics

Virtually all allowances were handed out for free under the wildly successful sulfur dioxide trading program in the U.S.

—Nathaniel Keohane,
Director of Economic Policy and Analysis,
Environmental Defense Fund, 2008

MOST ECONOMISTS, FROM LEFT TO RIGHT, agree that a carbon tax is best. But cap and trade still dominates political discussion. The public wants their emission reductions certain and their taxes hidden, or so I've heard. Understand this saying, and you will know the secret of cap and trade.

Under the sulfur dioxide trading program—the original cap-and-trade program—the government hands out 10 million one-ton emission permits, corresponding to about half as much sulfur as their recipients emitted before the program. The government gives these permits to coal-plant owners in proportion to past pollution, and lets them know they can emit what they want, but without a permit, they'll be fined \$2,000 a ton. No one emits without a permit, so this rule caps emissions. The outcome is certain, and the tax is hidden. Didn't notice any taxes, did you?

We'll find the hidden taxes shortly, but this chapter focuses on how such taxes will play out politically when the little \$2-billion-per-year sulfur-cap program is scaled up to a \$345-billion-per-year carbon-cap program. The sulfur tax was easy to hide, but a program that taxes a family of four \$4,454 per year—the price of the carbon-cap program, according to one estimate—is likely to make headlines. This is especially likely when the tax increases, say,

50 percent within a single year because of speculation in the carbon-permit market.

The chief way to hide the tax revenues, thereby hiding the tax, is to give away valuable carbon-emission permits for free. But the European public caught on to this, and word has spread to the United States. Hence, many current proposals call for auctioning most of the permits. Auctions raise visible revenues, so current cap-and-trade bills all have ways of dividing these up, as well as ways of handing out some free permits.

But what if all the permits were auctioned and all of the revenues were refunded to consumers? That would make the bitter pill of a \$4,454 tax much sweeter. The cap would still work perfectly.

Before considering the domestic politics of caps and the possibility of refunds, let us begin with a global perspective. After all, the purpose of cap and trade is to solve the global warming problem.

Do Good Caps Make Good Neighbors?

From Barack Obama to Arnold Schwarzenegger, politicians are advocating a greenhouse gas emission cap of 80 percent below the 1990 level by 2050. I'll call it the 80-by-2050 cap. This cap is meant to limit the cumulative global temperature increase to about 2 degrees centigrade, or 3.6 degrees Fahrenheit. The Council of the European Union agreed with the target of 2 degrees centigrade as far back as 1996, though it remains highly controversial among scientists and economists.

Of course, to cap global temperatures, the world must cap global emissions, not just U.S. emissions. So a policy to cap U.S. emissions only works if the rest of the world goes along. Perhaps, if the United States stops dragging its feet and firmly commits to achieving this goal, others countries will follow. By implementing the 80-by-2050 cap, the United States could lead by example. To succeed, the example must make sense to those we hope will follow.

In a purely mechanical way, having all countries target an 80 percent reduction seems simple. But consider the 80-by-2050 cap from China's perspective.

In 1990, the Chinese were emitting about 2.5 tons of carbon dioxide per person per year, so they need to cut 80 percent from that level. In 1990, Americans were emitting about 23.4 tons per person per year. So even after our 80 percent reduction, we still get to emit more than China was emitting in 1990. In fact, in 1990 the United States emitted more greenhouse gas than any other country. Starting out at the highest emission level gives us the highest 2050 target of any country in the world.

Adopting a carbon cap for the next forty years tells the world we think it is a fair policy. The United States is now doing its part, so all other countries

should follow us. Perhaps this is not what we intend to say, but others might easily think so. Environmentalists often say that any cap higher than 80-by-2050 will put us at great risk of disastrous climate change. The unintended implication of locking in the 80-by-2050 cap is to say to China and other countries, “If you do not cut back to a level far below our target, the earth is in danger, because you are not doing your part.”

This message will not make the United States a world leader, but, once again, the world’s stumbling block. Leaders of China, India, and Brazil have been saying this for years, and they mean it. At Kyoto they flatly rejected cutting back to 5 percent below 1990 levels. They have been rejecting any cap at all ever since. If we want to lead, we must first listen.

Fortunately, another approach is gaining attention. It offers real hope for international cooperation, without which climate policy is simply doomed. China has already surpassed the United States in carbon emissions and is speeding ahead. The solution to this predicament is the subject of Part 4 of this book. Instead of asking developing countries to accept the unfair caps they have already rejected, it requires all countries to commit to an effort level measured by the price they put on carbon.

Finding the Taxes

We’ve been paying the sulfur-emissions “tax” for 18 years, and almost no one notices. Of course these charges are not called taxes; that would give the game away. The government requires expensive permits and the coal plants pass on the permit costs to consumers. Just as with an untax, the government keeps not tax revenues—but, in this case, polluters get the “refunds” not consumers. The government hands out free carbon permits worth about \$2 billion a year mostly in proportion to past pollution.

Let’s take that one step at a time, so we can see the tax more clearly, and let’s consider carbon permits instead of sulfur permits. They work the same. Imagine two identical power plants that both emit about a million tons of carbon dioxide per year. One gets two million free 1-ton permits and the other gets none. So one sells the other one million permits at the market price of \$30 per ton. In reality it’s not so uneven, but a stark example makes the principle clearer.

Now the manager of the plant that buys the permits realizes that every megawatt of power he generators costs him about \$25 for coal plus a \$30 permit, which is \$30 more than it used to cost when he didn’t need permits. So with costs up by \$30 he charges \$30 more for his electricity.

The other manager thinks in a surprisingly similar way: If I don’t generate a megawatt I will save \$25 in fuel costs and I will save \$30 on permit costs. Generating a megawatt less saves me \$55 so generating a megawatt more costs

me \$55. So he also sells his power for \$30 more per megawatt hour than before the cap. This is not just economic theory, it's how European utilities have turned free permits into billions of dollars of increased profits.

As a result, consumers pay for every permit both power plants need, because those costs are passed through in higher electricity costs. It's exactly as if the government had taxed all the carbon dioxide and the power plants had passed on the tax for consumers to pay.

Consumers pay the tax, but they pay it to the power company not to the government. But who gets to keep the tax. Not the power company that had to buy all its permits. It spent all its "tax receipts" buying permits. But any company that is given free permits is, in effect, given the right to keep tax receipts equal to the value of those permits.

In this example one power company was given two million free permits. It sold half for \$30 million, and charged consumers \$30 in higher electricity prices for the other half even though it got them for free.

So, in effect, cap and trade is a carbon tax with a tax rate set by the permit market, and paid by consumers to the companies that are given free permits. Those are usually the companies that polluted most in the past. This is the system that Nathaniel Keohane, of the Environmental Defense Fund, calls "wildly successful" in this chapter's opening quote. Its great success was in getting power-plant owners to agree to reduce emissions. That was an important achievement, and now you can see why the power-plant owners agreed.

The Politics of Risky Business

A key factor in domestic political decisions is the impact on business. But does requiring carbon permits harm business? If they have to buy permits, won't they just pass on the costs to consumers? Yes and no. Passing costs through raises the price to consumers, and people buy less of a company's product. That's bad for business. In some cases, not all of the costs can be passed through at first. That's also bad for business.

But businesses adjust. In the ten years between 1998 and 2008, the price of oil went up 800 percent, and businesses did adjust, though quite a few suffered in the process, and many are still adjusting. A carbon cap or tax would be far milder in its effect, though it would hurt coal mines more and the auto industry less.

After some adjustment time, profits return to normal, which means all the costs of higher oil prices or carbon permits are passed on. If permit prices take a huge jump, the adjustment time is long, and the losses, though temporary, greater. So it is best to have permit prices or a carbon tax start low and adjust upward fairly gradually.

A cap-and-trade program can seem to start gradually, but permit banking changes everything. Permit banking allows companies to save up permits for later use, and all currently-proposed cap-and-trade programs allow it. A group at the Massachusetts Institute of Technology (MIT) has studied an 80-by-2050 cap with permit banking and found that even if the cap starts gradually, permits will cost \$53 per ton at the beginning and \$65 per ton five years later. This is much higher than prices mentioned in any bill.

Why do permits cost so much at first even though the cap starts gradually? It's because of price anticipation and speculation. If the price of carbon permits were lower—say, \$20—traders would buy them up, hold them for five years, and sell them for \$65. So banking causes speculation and speculation causes permit costs to jump to \$53 a ton the day the policy starts—even though the cap is very loose in the first few years.

This huge initial jump hurts business for the first few years. Unfortunately, permit banking is useful for technical reasons, which I won't go into, and it is here to stay. After the initial period, volatile price fluctuations in the permit market, caused by speculation, continue to be hard on business.

Can a Locked-In Cap Hit a Moving Target?

The primary argument for a cap is that it guarantees we will hit our target. This claim carries some truth. But, for three reasons, a target enshrined in law may well prove not to be the correct target forty years from now.

First, governments are rarely, if ever, predictive wizards. Does history provide any examples at all of government targets set accurately forty years in advance?

Second, scientists have not reached a consensus on what the cap should be. The Intergovernmental Panel on Climate Change (IPCC) takes no position on what emission level makes us safe and must be met. If the IPCC ever does name a target, it will, as it does with all its estimates, state a range of uncertainty around that target. Currently, the scientific consensus is that the uncertainty is too great to allow even an estimate of the right target.

We know enough to be worried and to get moving. We also know we will probably move too slowly, simply because of inertia. But the lack of scientific consensus means that some think the problem will prove worse than current estimates, and some think it will prove less severe.

Caution dictates treating the problem with caution until science speaks more clearly. But respect for the diversity of legitimate opinions dictates adopting policies that accommodate good news as well as bad news. This also broadens support for a strong initial policy, but it means admitting that the target will likely move.

Third, if the rest of the world does not buy into cap and trade, we may find better ways to spend our climate dollars than on pushing our own emissions to the lower limit. Spending our money in other parts of the world might prove more effective at reducing emissions or sequestering carbon.

In short, the science, economics, and politics of the world are far too complex to warrant locking in our path forty years in advance. Like it or not, we are shooting at a moving target. We need a policy that recognizes this and builds in flexibility. A rigid cap is not that policy.

Is Safety a Bad Thing?

Almost all cap-and-trade programs come with some form of safety valve. But one corner of the environmental camp believes that safety valves will keep us anything but safe. The Union of Concerned Scientists straightforwardly declares, “A cap-and-trade program should not include a safety valve.” The Environmental Defense Fund, on a Web page titled “Why Safety Valves Are Very Dangerous,” calls them “failure by design.”

A safety valve limits the price of pollution permits—say, to \$100 a ton—by requiring the government to offer an unlimited number of permits at that price. This effectively raises the cap, if and when the permits are selling at the safety-valve price. However, when permits sell for less than the safety price, as they have always done in the European carbon market, no one buys extra permits, and the cap is secure.

Some say any safety valve would destroy a cap-and-trade program. But when high permit prices turn the valve on, every emitter is still being taxed—forced to buy permits—at this high tax rate. That means the pressure to conserve is greatest when the safety valve is in use. The safety valve does not reduce conservation pressure below what it was before the valve opened; it only limits the pressure to the maximum level deemed safe.

Setting a cap determines emissions but not cost, so the point of a safety valve is to provide some cost certainty. Most voters reject the view that cost is no object. Although polling data indicate a large majority of Americans agree that something should be done about global warming, that majority evaporates quickly when the polling questions include moderate costs.

John Whaley, who conducted a survey for the research and strategy firm American EnviroNics in 2007, describes the results as follows: “Telling voters that global warming will lead to environmental disaster did not lead to increased support for action on global warming. In addition, when voters were told that specific proposals would lead to higher energy costs, support for policies to limit carbon dropped dramatically.” In other words, most voters place severe limits on what they are willing to spend to meet a carbon cap. A majority are opposed to any carbon tax at all.

Even environmentalists who consider such attitudes illegitimate must recognize that they are real and powerful. Although a cap without a safety valve just might become law, if voters are surprised by high costs, they can—and may well—simply change the law.

But it is also important to realize that the idea of limiting costs can be legitimate. It does not indicate an immoral or antisocial attitude. Well-meaning, intelligent people can and do believe that climate risks are uncertain and that, before we go to extremes, it makes sense to learn more. It is more than a tactical error to accuse such people of advocating “failure by design.”

Safety valves generate controversy because of a clash between a majority of voters, who seek to limit costs, and others who believe that cost should be no object when it comes to the 80-by-2050 cap.

These are, in part, moral judgments. My point is that both camps should recognize the legitimacy of the other’s judgment. If they do, I think there is room to resolve the controversy by considering practical political consequences.

Note that the two positions lead logically to opposite views on a safety valve. Those who believe that, because of the danger of climate change, any cost is justified logically conclude that “no safety valve” is the best policy—at least if the high costs cause no backlash. Those who place a limit on what they are willing to spend conclude that a safety valve helps them achieve what they want—spending what it takes to achieve the cap, but only up to a certain cost limit.

Some in the no-limit camp seem unwilling to recognize either the existence or the legitimacy of the pro-limit view. To assert that a safety valve at any level is dangerous is to assert that any attempt by me to limit my cost is dangerous. In other words, no limit that I choose could possibly be legitimate.

The first step that the no-limit camp can take toward reconciling these differences is to recognize that most people, like it or not, do have serious limits on what they are willing to spend. The second step is to realize the consequences of overrunning those limits, which could be either a weak implementation or a backlash that later undermines the cap’s effectiveness.

\$4,454 for a Family of Four

When it comes to cost, political discussions tend to steer clear of hard numbers. Fortunately, the MIT group evaluated the 80-by-2050 cap. They estimate that the initial cost of permits will be \$345 billion per year in 2007 dollars. That comes to \$4,454 for a family of four.*

Families will not purchase the permits, but the cost of the permits will be passed through to consumers in the form of higher prices for electricity, gasoline, home heating, and, indeed, every other product. The revenues from

these higher costs will flow to those who receive free permits, typically coal mines and refineries, and to the government to the extent that it sells the permits in an auction. Revenues transferred to coal mines and refineries will typically end up in the hands of wealthier individuals, while revenues collected by the government will often be spent on energy-related programs.

Cap-and-trade programs, unlike carbon taxes, do not generally refund the value of free and auctioned permits in visible ways such as by reducing the payroll tax or sending a check in the mail. Because of this, consumers will perceive most of the \$4,454 as real net costs. For many, the cost will be comparable in size to the income tax, with political implications that need closer attention.

One issue, which many environmentalists have raised, is that a cap-and-trade tax—just like a carbon tax—is regressive. The poor pay the highest percentage rate. Although some bills before Congress include subsidies that would help some poor pay their higher utility bills, this problem has not been adequately addressed.

Moreover, the market controls permit prices, and market prices fluctuate. In fact, studies of permit prices indicate that they fluctuate more than stock prices and almost as much as oil prices. It is not unheard of for permit prices to double in a year or two. This would double the “tax” from \$4,454 to \$8,580 per family of four. An event like this is likely during the first ten years of the program, and such an event—even if people expect it to be short-lived—would severely jeopardize the integrity of any cap-and-trade program. From a political perspective, I think environmentalists should be demanding safety valves to keep their programs safe from voter backlash during such speculative permit-price bubbles.

The problem I see with discussions of carbon-cap and carbon-tax designs is that they do not confront the magnitude of the required incentives. Environmentalists and politicians have ignored numbers like \$4,454 for a family of four. Without looking at dollar values, politicians make plans to spend the carbon-permit revenues on a myriad of pet projects and payoffs to businesses to gain their buy-in.

This may help get legislation passed, but in the long run it will prove catastrophic. In the long run, if cap and trade is a tax, people will see it as a tax. Any tax of this magnitude is vulnerable, especially when it fluctuates dramatically from year to year.

This raises the fundamental question of the carbon-pricing approach. Does a cap-and-trade policy or a carbon tax have to be this expensive? Shouldn't energy policy be far cheaper?

Is It Cheap or Expensive?

The MIT study found that an 80-by-2050 cap will cost \$345 billion per year right at the start—over 2 percent of gross domestic product—and go up from there. But in Chapter 2, I said a startup climate program should cost much less. Only an advanced one that cuts emissions dramatically should get into the 2 percent range. What's going on?

The permit cost is not the net cost to America as a whole.

Spend a dollar on a permit, and some other American gets that dollar. Sometimes this is a net cost, and sometimes it's just money changing hands. Suppose the government auctions all the permits and gives all the proceeds back to consumers. Now it doesn't cost a family of four \$4,454; all the visible costs vanish. All that remain are the hidden costs of reducing carbon use—which I will discuss shortly. In spite of the 100 percent refund, the cap works just as well, because the government still limits the number of permits, and the rule is the same—no emissions without permits. So a cap-and-trade system of any intensity could appear to run for free. Moreover, running a program in this way completely solves the problem of the tax harming the poor. As I discuss in Chapter 18, it would actually help the poor.

Environmentalists are missing this incredibly good news. They could have a cap-and-trade program that refunds all the extra energy costs, and it would work just as well. But there's a little bad news too. Saving all this carbon is still not free, even when permit revenues are fully refunded.

But the permit costs themselves are not the costs of saving carbon. The actual costs are all hidden. The MIT study also estimates the actual cost and comes up with about \$10 billion, rather less than the \$345 billion permit costs. That's only at the start, but for most of the forty years, actual costs are considerably less than the permit costs.

However, if the government auctions the permits and uses all the revenue to help businesses adjust, to pay for research, and to subsidize alternative energy, then much of the \$345 billion permit cost will become actual costs for less-wealthy consumers. This comes on top of the hidden costs, which are what actually reduce emissions.

From a political point of view, a cheap carbon cap is one that does not transfer much wealth from consumers to special interests. Unfortunately, cap and trade with banking of permits, as I discussed previously, is going to hurt business at the start and continue to hurt business as permit prices fluctuate. Consequently, business will vigorously demand compensation—and by the looks of the bills before Congress, they will get it. This makes cap and trade more expensive for consumers than a carbon tax.

Should Cap and Trade Fund Alternative Energy?

If the goal is to reduce carbon emissions, shouldn't we spend the \$345 billion a year on stimulating new energy technology? That would mean auctioning all the permits and devoting the proceeds to alternative energy.

But the whole point of a carbon cap or carbon tax is that a carbon pricing policy is the cheapest policy for reducing carbon emissions. The table below shows the initial years of a carbon cap program under two different revenue assumptions: either permit revenues are refunded to consumers, or they are spent on government-picked energy projects.

**Initial Years under a Cap-and-Trade Program
Used to Subsidize Energy Technology**

Goal	Expenditure	Result
Correct the underpricing of carbon	\$10 billion	26 % reduction
Subsidize energy technology	\$355 billion	Who knows?

Values are from the MIT group's analysis of a cap that declines in a straight line until it reaches 80 percent below 1990 carbon emissions in 2050.

The column labeled *Expenditure* shows the hidden costs of adapting to lower carbon emissions plus expenditures on energy technology. With subsidized technology, this is no longer a cap-and-trade program; it's a huge subsidy program hidden under a cap-and-trade fig leaf. Though small and cheap, the fig leaf may do more good than the subsidies. If more emission reductions are needed, we should make the cap stronger rather than dumping \$345 billion into subsidies.



Carbon caps impose large and unpredictable taxes that make such policies politically vulnerable. In the long run, they provide far less control than people claim for them, and as I show in Chapter 23, they provide an extraordinarily poor path to international cooperation.

It is better to minimize the real costs of carbon pricing by returning the incentive revenues to consumers. Once this is done, real costs will be surprisingly low. With a full refund, a low-cost carbon-pricing policy will be more palatable and more secure. In the next chapter, I explain the nature of the real, but hidden, costs of carbon abatement.

The Psychology of Caps

Let's not forget psychology and moral values. At first blush, caps look psychologically attractive. They seem to say, "Do the right thing, no matter what the cost." But caps are wolves in sheep's clothing.

Their most obvious deception is a false sense of security. They seem to be binding. But let's look ahead. Typically, allowed emissions decline by the same number of tons each year. At first, cheap opportunities to decrease emissions are available. But each year, the cheapest options are taken, and eventually only the most expensive are left.

On the way to 2050, the cost will likely become higher than anticipated. Then we will see that caps are not at all binding. They are just as easy to change as to install. Pass another bill, the cap goes up, and the costs come down.

But a more sinister aspect of cap psychology lies in the control it takes away from individuals. Caps corrode the ethos of the environmental and energy-independence communities.

Hundreds of books, websites, and groups and millions of individuals now promote ways we can each help save fossil fuel and reduce greenhouse gases. Even hard-nosed people like James Woolsey, a former head of the CIA and leading neoconservative, drives a small car to help fight terrorism. It's not quite rational economics, but it makes sense morally and psychologically. Caps will undermine the moral and psychological rationale for such behavior.

Suppose we have a cap-and-trade system, and you buy a small hybrid car—a little smaller and more expensive than you would like. But you want to help knock down OPEC prices and help the climate.

What have you accomplished? Under a cap, exactly nothing. Caps are met no matter what you do. When you use less carbon, someone else automatically gets to use more. This works indirectly through the trading of permits, but it does work. More bluntly, after the permits are reshuffled, your squeezing into a small, efficient car just allows someone else to drive a big gas-guzzler. The guys driving the guzzlers will be waving to the Prius owners and saying thanks—or maybe just laughing.

That's what caps do. They take all control of conservation and emissions away from individuals and small groups and give it to the authority that sets the cap. Everyone else can go home. An untax doesn't do that. When you save energy, it still matters.