chapter 16

An Untax on Carbon

We suggest a tax on carbon dioxide in which all the proceeds collected by the government would be returned to Americans each year.

—Keith Crane and James Bartis, *Washington Post*, 2007

"There is a broad consensus in favor of a carbon tax everywhere except on Capitol Hill, where the 'T word' is anathema." So says the conservative American Enterprise Institute. The conflict between the antitax politics and the consensus creates a tension at the heart of energy policy. Capitol Hill politicians have blocked the world's best energy policy with antitax slogans.*

A carbon untax breaks the deadlock by dividing the carbon tax into two steps and fixing the expensive step. The first step of a carbon tax collects the money, and the second step gives it to the government. The first step, collecting the money, makes the carbon tax work and is the reason for the broad consensus. Collecting the carbon charge discourages fossil-fuel use. The untax does this, but it replaces the second step, "give it to the government," with "give it back." That's so different that I cannot call the untax a tax. The whole point of a tax is to collect money for the government.

The simplicity of the untax hides a number of puzzling subtleties. If consumers pay all the costs and receive all the refunds, why does it work? If it refunds 100 percent of what it collects, isn't it free? If it's free, how can it possibly be a powerful method of moving society away from fossil fuels? And if it has hidden costs, won't it be unfair to the poor? I will explain the basic workings

of the carbon untax and then consider these mysteries one by one, though I leave the question of fairness for Chapter 18.

How the Untax Works

A carbon untax (or tax) is simple because it collects revenues from very few players. For example, an oil tax does not charge 200 million drivers every time they buy gas. And it does not tax tens of thousands of gas stations. It simply charges oil refineries for the amount of carbon in the oil they buy. Taxing oil refineries, natural gas producers, and coal mines would cover almost all carbon.

Refinery operators will, of course, complain about being taxed and forget to mention they are passing the tax on to gas stations. Gas station owners will complain and forget to mention they are passing the tax on to consumers. So when you hear their complaints, remember who really pays the carbon charge—it is you and I, the final consumers, and no one else.

When truckers buy gas, they will claim to be consumers because they burn the gas in their trucks. But, in fact, they will pass the cost on in their trucking rates. Anyone who can pass the cost on will pass it on, and if they pass it on they are not a final consumer. When you buy gas for your car, unless you can bill someone else for your gas costs, you are the final consumer. In essence, you pay the carbon tax.

I do not intend to discourage a carbon tax or untax by pointing this out; rather, I am encouraging self-defense. Even though businesses will pass the cost of the untax right through to us, they will demand a slice of our refund checks in addition. In fact, the cap-and-trade laws before Congress, which are basically disguised carbon taxes, include long lists of who gets how much of the tax revenue. And let me tell you, you are scheduled to get little to none. That's right. You pay the tax, and business gets the refund.

It's important to remember that even though the government collects the money from refineries and coal mines, you and other consumers ultimately pay the full charge. So the refund belongs to you—or at least it should. All 100 percent of it. I hope I am making myself clear on this, because when it comes to big bucks—and we are talking about hundreds of billions here—business is going to fight hard and fight dirty.

All right, let's look on the bright side. Say we win that fight and secure the refund for consumers. How does the refund work? It's simple. I suggest we do as Alaska does. Everyone who has been a legal resident for the past year gets a check in June. How big a check? Count the revenues for the last year and divide by the number of checks. Everyone gets the same amount.

Alaska spends less than 1 percent of the money it returns on mailing out the checks. The overhead should stay low because everyone will want to

cooperate—if they don't, they don't get their checks. It's a lot easier to find people when you're handing out money than when you're collecting it.

How Big Is the Refund?

A standard guess at how high a carbon tax needs to be, at least for the next decade or so, is $30 per ton of carbon dioxide, though guesses vary widely. The United States emits about 6.5 billion tons of carbon dioxide per year (22 tons per person). At that rate, the untax would collect about $195 billion per year. The U.S. population is about 300 million, so that generates a refund of $650 per person, or $2,600 per year for a family of four.

An oil price of $100 per barrel is probably high enough on its own to encourage conservation, so the untax rate on oil might start out near zero (see Chapter 19). Coal and natural gas would still be taxed. This would reduce refunds to about $365 per person, or $1,460 for a family of four.

On average, everyone pays the same in higher prices as they get back in refunds, so this is not a get-rich-quick scheme. However, as I've mentioned, the very rich use more energy—heating their mansions and flying their private jets, for example—than do most of us. In fact, the rich use so much more carbon than average that they raise the average to a point at which 60 percent of the population uses less than the average. Everyone using less than average gets refunds greater than their additional costs of energy.

Energy Policy Number One: The Carbon Untax

The world is at risk of costly climate change, costly oil-price spikes, and more wars over oil. But contrary to what many believe, scientists do not yet know if a climate-change tipping point exists or where it is if there is one. Terrorist activity and wars are equally hard to predict. Action is clearly warranted, but we cannot pin down just how much to spend.

A simple realization provides the key to sensible action. After thirty-five years of complex and ineffective energy policies, the country was importing a greater percentage of oil, faced the highest oil prices ever in 2008, and was emitting more carbon than ever. It would be beneficial to put in place a solid, simple, efficient policy that could be dialed up or dialed down as needed. To achieve this, the policy should start gradually to overcome reasonable (and unreasonable) concerns about cost, but it should be set to ramp up unless it causes problems or we discover a magic energy technology.

The carbon untax is such a policy. It would be gentle and powerful at the same time. Most importantly, it would end thirty-five years of ineffective policies and prepare the country for the challenges ahead. Because the carbon charge part of a carbon tax is the same as the carbon charge part of an untax, we can turn to other experts for opinions on designing the carbon charge.

> The most effective action would be a slowly increasing carbon tax.
>
> —Climate scientist James E. Hansen, 2006

> Taxes on carbon are powerful tools for coordinating policies and slowing climate change [and] are likely to be more effective and more efficient [than] quantity oriented mechanisms like the Kyoto Protocol. … Carbon prices would rise by between 2 and 4 percent per year.
>
> —Economist William Nordhaus, 2005

> A carbon tax could be relaxed [or] increased. In either event, such changes could be phased in over time, creating predictability and allowing an ongoing reassessment.
>
> —American Enterprise Institute, 2007

James E. Hansen, a NASA scientist, has long been the best-known and most outspoken scientist warning of climate change. William Nordhaus, a Yale economist, has been perhaps the leading energy economist for thirty years. The conservative American Enterprise Institute has been skeptical of global warming though concerned about energy-security issues.

Again, it is remarkable to find such a diverse group not only advocating the same policy, but describing its implementation in similar terms. Only Hansen is advocating an untax, but the others recognize the political difficulties of imposing the new tax they advocate.

A plausible path for the untax rate would be to start at, say, $4 per ton of carbon dioxide in 2010—or as soon as possible, in any case—and increase by $2 per year toward $40 in 2028. I would prefer a faster start, if it turns out to be politically feasible.[1] We should commit to following the path we adopt for, say, four years at time, and as the American Enterprise Institute report suggests, changes should be phased in over time, not implemented suddenly. A predictable approach will both save billions of dollars and accelerate the impact of the policy by many years.

Here's how I recommend implementing a carbon untax:

- Start with a low carbon charge and increase it gradually.
- Apply the charge to all fossil fuels but collect it at the fewest possible upstream points.
- Mail checks to consumers in June that refund 100 percent of collected revenues on an equal-per-person basis.
- Reassess the carbon charge regularly but change it only gradually.

1. Notice that we say "carbon" tax, but the dollar values are actually applied to carbon dioxide. A $12 tax on carbon dioxide is the same as a $44 tax on carbon.

Because of the slow start, those most concerned about the climate will undoubtedly worry that this is too little too late. But remember two points. First, climate-change advocates have been in a rush for almost two decades, without making any progress on emissions that can be measured in the atmosphere. A slow and steady start on a powerful policy is better than a continued deadlock or throwing money at wasteful policies like solar roofs and ethanol.

Second, don't forget lookahead. A predictable tax or untax rate that will only take effect in, say, ten years starts working as soon as it can be predicted. As an example of how this works, consider a new lending policy adopted by Bank of America. The *Wall Street Journal* discussed it in February 2008: "Bank of America says it has decided to start factoring a cost of carbon-dioxide emissions into its decisions about whether to underwrite debt for new coal-fired plants. Specifically, the bank says it anticipates a federal cap that would require a utility to pay between $20 and $40 for every ton of CO_2 its power plants emit."

Has a new green consciousness seeped into the Bank of America? No, it's still chasing the old-fashioned green. To make safe investments, the bank will assume a carbon permit cost or carbon tax of roughly $30 per ton, even though no such law has been passed. That's pretty amazing. The law has not even been drafted, and it's already working.

Bank of America is looking ahead at likely trends. If a nonexistent law can have such a strong financial effect in the present, so can the future tax rates of an actual law. Any scheduled increase in the carbon charge will have an impact long before it takes effect. A scheduled tax rate of $30 in 2025 affects coal plant investment decisions today.

The benefit of starting the tax slowly is that it is gentle in its effect on existing businesses, giving them time to adjust. This means less resistance from businesses and less need for handouts to get their buy-in. Nonetheless, if a quicker scaling-up of the untax rate gains enough popular support to pass, it will not do any significant harm to the economy and would benefit energy security and climate stability.

Why the Untax Works

As I just explained, consumers pay 100 percent of the untax and get it all back in refunds. At first, many people think this is nuts. But that's because they don't stop to think that, in the untax race, some consumers are winners and some are losers. Use less carbon, and you can be a winner, paying less than you get back in your refund check. Use more carbon than average, and you lose. That's why an untax works. Most people want to be winners.

It's the refunds that cause all the confusion. Sure, the carbon charge makes people want to use less carbon, but won't people spend all of their refund checks on paying the extra carbon charges? They could do that, but they will

quickly learn that it's a waste of good money. Keep in mind, the refund does not change when you spend more or less on carbon. Suppose a family of four gets a $4,000 refund, no matter what. Suppose that with the new untax, it suddenly becomes possible to save $800 a year—all costs included—by installing more home insulation. You could say, "Why bother? I've got my refund check to spend; I don't need to save $800. I can just pay the higher energy bill." A few may say that the first year, but then it will sink in: Why send $800 of my refund check to my utility company?

In the end, the tables will turn, and most people will decide it's nuts to treat their refund checks like burnt offerings to their local utility companies or gas stations, just because the money came from charges on carbon. Who cares where the money came from? No need to spend it all on carbon taxes. Consumers will find ways to cut back on fossil fuel and spend the checks on their own needs and desires.

If the Refund is 100 Percent, Is the Untax Free?

The untax works in spite of returning every penny collected. Direct costs—the total paid to the government less the refunds from the government—sum to zero. But does this mean the untax is free on average? No. If the untax works and gets people to do things that reduce emissions, the untax causes indirect costs. Indirect costs—which I also call hidden costs because people often either don't notice them or ignore them—are what people pay to get the job done. Hidden costs don't show up in untax accounting, but they are the real costs of carbon policy.

Buying a hybrid car because of an untax provides one example of hidden costs. Suppose buying the hybrid would cost you $3,000 extra but would save you $2,800 in gas cost over the life of the car. The net real cost to you of using the hybrid is $200, so you don't buy it.

Now suppose we impose an untax, which makes gas more expensive, so buying a hybrid saves $3,200 on gas. Now it saves us money to buy a hybrid. But, not counting climate or security benefits, there is still a net social cost to buying the hybrid. It still saves only $2,800 worth of gas, and we only bought it because it also saves $400 in untax payments. The untax has tricked us and rewarded us into spending $200 more on a hybrid than we save on gas (not counting the untax savings). This is the real, but hidden, cost of the untax. We don't see it because we're getting rewarded by the untax refunds.

Spending more than the true savings would make no sense, except that there's an extra benefit to using less oil that we're not counting—climate stability and energy security. That's what we get for paying the hidden cost. Carpooling provides another example of a hidden cost—the cost of inconvenience. No dollars change hands over inconvenience. But it's still a real cost.

The true cost picture shows that the hidden costs are real, and the obvious direct costs, which everyone discusses, net out for society as a whole to nothing at all. But the direct costs—the carbon charges—cause people to save carbon. Saving carbon often does cost money, and these hidden costs are hard to keep track of and are usually overlooked. But in one case, when they are zero, they are easy to count. If no one does anything to save carbon, there are no hidden costs and no net cost to society. That's worth remembering.

- If the untax fails to cause any conservation, it's completely free when averaged over all consumers.

The more good an untax does—the more it reduces fossil-fuel use—the greater the hidden costs. But there's a limit. In the hybrid example, people saved $400 on gas costs because of the untax. That tells us something about the hidden cost. It cannot be more than $400 per person, because people are smart. If the hidden cost of switching to a hybrid was $2,000, they would not do it to save $400. This puts a strict limit on the hidden costs.

- If the untax works, the maximum possible hidden cost is the amount of carbon charge (tax or untax) avoided.

This just tells us the maximum possible cost in the most extreme case. Typically, the hidden costs are much less. People conserve in the least expensive, least inconvenient ways first. In fact, the first bit of conservation is typically almost free. Economics shows that hidden costs are typically only half the maximum possible value.

- The typical hidden cost of an untax is half the amount of carbon charge avoided.

Using these standard results, I have calculated the approximate hidden costs of an untax with various carbon charges and various levels of effectiveness (see Table 1).*

Table 1. *Average Total (Hidden) Cost per Person per Year*

Charge per ton CO_2	Percent CO_2 Abatement Caused by Untax			
	10%	20%	40%	80%
$4	$4	$9	$18	$35
$10	$11	$22	$44	$88
$30	$33	$66	$132	$264
$60	$66	$132	$264	$528

Based on emissions of 22 tons of CO_2 per person per year before the untax.

Table 1 contains good news and is, in fact, much of the reason that economists favor a carbon tax. It says that imposing a $30 carbon tax, which has a direct cost of $528 per person per year, would only have a real cost that averaged $66 per person per year if it cut carbon emissions 20 percent. The direct costs, which receive all the publicity, come to $528 per person, but net to zero counting refunds. The real net costs are eight times less. That's why checking the economics is so important.

The table is based on a very simple approximation. So I checked it against the results of the complex economic model of cap-and-trade costs used by researchers at the Massachusetts Institute of Technology. Except for the first few years of their model runs, the results were quite similar. In all cases my simple approximation indicated higher costs than the more rigorous MIT model.

Of course, the untax cannot be designed to save 80 percent with a carbon charge of only $4 per ton. Only the carbon charge can be set, and then an abatement level will occur on its own. A 20 percent abatement in response to a carbon charge of $30 per ton is quite plausible, but only time will tell. The $66 real cost of such a policy is roughly the cost of one tank of gas per year. This is why a good energy policy just cannot wreck the economy.

Even in a relatively extreme case, which we would not encounter for decades, the $520 cost per person per year is barely over 1 percent of gross domestic product (GDP). Of course, decades from now, GDP will be higher, and energy use per GDP will have fallen considerably.

Impact on the Poor. A cost of $66 per year is more difficult for the poor. But this is the average cost, and a person with a very low income is unlikely to be an average user of fossil fuel. The poor don't own private planes, don't fly very much, and don't heat big homes, swimming pools, or hot tubs. If they used just 20 percent less energy than the average user, and did not bother to conserve at all, they would come out ahead on refunds by $104 per person per year. They would come out ahead by more if they took any energy-saving action that they found worth the money.

Impact on Oil Prices. One more thing to remember is that all energy policies that cause a reduction in oil use will lower the world price of oil. The effect on oil prices will be doubled or tripled if such policies become the basis of the next international climate policy. That would save the United States a lot of money. In fact, it could save enough to cover the entire real cost of the untax by, in effect, charging it to OPEC.

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The untax is the silver bullet of energy policies. It's simple, fair, and efficient. Most of the best policy experts advocate it, and most politicians fight it. The trouble is the T word. But, as the smartest conservatives are saying, we need to be free to discuss taxes. Demonizing the word *tax* wins votes but forces the

country into more costly policies. Ironically, the likely alternative—cap and trade—is simply a cleverly disguised carbon tax ultimately paid by consumers but largely refunded to polluters.

The untax is administratively simple and cheap because it collects the carbon charge at the fewest possible points, and all refunds are equal. It is fair because it rewards those who do less harm than average—about 60 percent of all families—and places a net charge on those who do more than their share of harm. Yet it is not dictatorial. Everyone is free to burn as much carbon as they can afford. But almost everyone will choose to burn less.

The untax is powerful and efficient because it is a true market mechanism. It simply raises the price of carbon to the level it would be if the market worked perfectly and included the costs of all side effects. It reaches into every corner of the economy that uses carbon and provides an incentive to use less. It is powerful for exactly the same reason that OPEC's energy experiment from 1973 to 1985 permanently transformed the world's use of fossil fuel and saved a hundred times more carbon than any other policy before or since.