

The Core Energy Plan

The entire carbon tax should be returned to the public. ... Carbon emissions will plummet far faster than in top-down or Manhattan projects.

—James E. Hansen, NASA climate scientist, 2008

PREVIOUS CHAPTERS DISCREDITED THESE MYTHS: that we will wreck the economy, that peak oil will herald doom, and that miracles are imminent. Other chapters explored why it is foolish to ignore climate change or shun money-saving policies. Leaving these misconceptions behind, I will now sketch a Core National Energy Plan that is cautious yet powerful.

Part 3 of this book lays out details of the plan. So if you find the workings of the untax, or the race to fuel economy, a bit puzzling, don't be surprised. There are a few tricks to good economics, and the full explanation will make more sense after a closer look, in Part 2, at how energy markets work.

The core energy plan flows from basic principles. A good design does not rely on incredible advances in technology. Instead, a good design requires that a plan be

- ▶ Simple.
- ▶ Cost effective—a bargain.
- ▶ A treatment for the disease, not just for the symptoms.

Simplicity helps prevent mistakes and gaming. I have learned this repeatedly in my work diagnosing and adapting electricity markets. I have

also learned that this principle is seldom respected in practice. But simplicity is still the right way to begin.

Asking for a bargain may seem superficial, but, in fact, that is exactly what economists mean when they call for “efficiency,” their primary objective. The cost of saving a certain amount of oil or carbon should be as low as possible.

Unhealthy energy markets—ones that are inefficient and do not reflect social costs—develop symptoms such as gas-guzzling cars, too few wind turbines, and too many coal plants. The symptoms are the ways energy is wasted. The underlying disease involves “market failures”—basic problems with how the market works. Treating the symptoms—for example, by subsidizing ethanol—often causes unwanted side effects. And there are just too many symptoms to treat them all one by one. A better approach is to identify underlying causes—aspects of the market that are broken—and treat those rather than the symptoms.

Energy Policy: Mostly Sound and Fury

Yale economist William Nordhaus, writing in the *New York Times* in 1980, had this to say about fixing the cause of the problem:

“A recent study by the Department of Energy, called Energy Programs/ Energy Markets, has estimated ... what the impact of all current programs would be in 1990. ... The central and surprising conclusion of the Energy Department study is that the energy programs add up to about zero. ... By comparison, the rising relative prices of energy will probably lower energy use 20 to 30 percent by 1990.”

What’s Broken?

To avoid treating symptoms, we must identify the problems. Almost everyone has a list of things they find wrong with the market, so the trick is to decide which are worth fixing. Amory Lovins, the lead optimist in the physics camp, sees market barriers by the dozen and urges us to “clear them,” “bust them,” and “vault over them.” Market “barriers,” or “failures,” as economists call them, are broken aspects of markets, such as landlords who buy inefficient appliances for tenants because the landlords do not pay the electric bills. I believe most economists are open to the idea that many little things go wrong with markets, but they take a cautious view of such problems.

Having seen many proposed and attempted market “fixes,” economists tend to shy away from jumping on the fix-it bandwagon. Market fixes usually come with their own problems, and for minor market failures the cure is usually worse than the disease. Economists recommend identifying the worst problems and focusing policies only on those few. A good solution to an important problem puts us well ahead of a multitude of poor solutions to lesser problems. William Nordhaus identified the shortcomings of piecemeal policies in 1980 (see “Energy Policy: Mostly Sound and Fury”).

The four most important energy market failures are listed below. Although the idea of consumer myopia, discussed in Chapter 6, has less backing than the others, I believe most economists will agree that the following are the energy market problems that deserve the most attention.

The Four Energy Market Failures

- ▶ **Omitted negative side effects of fossil fuel.** (1) Environmental costs of pollution and CO₂ emissions. (2) The costs to the United States and its allies to secure uninterrupted oil supplies.
- ▶ **Market power.** The Organization of Petroleum Exporting Countries (OPEC) overcharges for oil relative to the competitive price.
- ▶ **Consumer myopia.** Consumers see future energy costs unclearly and react to them less than to a product's purchase price.
- ▶ **Omitted positive side effects of advanced research.** Discoverers of basic new technologies are under-rewarded.

The first problem with the market is its failure to take into account the costs that are external to the market. These are the costs of the environmental side effects and the costs of securing oil supplies. There are many costs in each category, but I will lump those in each group together. For environmental costs, I will focus only on the cost of CO₂ emissions—the main driver of global warming. (Economists call *side effects* “externalities.”)

The cost of securing oil supplies points toward a policy of using less oil and so does the second market failure—OPEC's market power. Some will question the extent of OPEC's power in recent years, and this will be discussed in Chapters 13 and 29. But the policy I will propose will serve to lower the world price of oil in any case, so there is no harm in assuming OPEC still has a lot of power.

The third market failure, consumer myopia, is the tendency of consumers to underestimate future energy costs and buy energy-inefficient products. The fourth problem with the market is that fundamental research is risky, and the benefits from a breakthrough may be much greater than the reward. This leaves fundamental research insufficiently rewarded by the market.

What's the Plan?

A simple four-policy national energy plan is all we really need. Of course, there is room for add-ons, but four basic policies are essential and would do far more than we accomplish now. I will focus on the first three policies of the plan, as these are the least understood. The fourth policy is simply to fund more basic research.

The Core National Energy Plan:

- ▶ An untax on carbon.
- ▶ A separate untax rate for oil carbon.
- ▶ A carmakers' race to fuel economy.
- ▶ Public funding of basic energy research.

As good market design requires, the plan is simple. Because it respects competitive market principles, it's also a bargain. As we'll see in a moment, it saves money by harnessing the ingenuity of every American—from CEOs to high school students. It's also fair in that it rewards all those who help out, and to the extent the poor use the least energy, it rewards the poor for doing so.

The next three sections explain the first three policies of the plan, beginning with the “untax,” which raises no revenues for the government, but refunds all revenues to consumers. After introducing the untax, I explain why the untax rate for oil carbon should take account of OPEC's oil prices. Finally, I explain the race to fuel economy, which is more fair to car companies than standards and can be as powerful as desired.

Meet the Untax

“Among policy wonks like me, there is a broad consensus. ... If we want to reduce global emissions of carbon, we need a global carbon tax.” So said Mankiw, whom I disagreed with over fuel economy in the previous chapter. I agree completely with Mankiw on this—the central point of his article in the *New York Times*.

Mankiw says there is no disagreement “between environmentalists and industrialists, or between Democrats and Republicans” on the benefits of a carbon tax. He's right. A carbon tax is the cheapest way to solve the first, and most important, energy market problem, “the missing cost of carbon emissions.”

But as Mankiw also reminds us, both American voters and political consultants consider “tax” a four-letter word. Can we find a way around the political lightning rod of “taxes” to save Americans tens of billions of dollars a year by implementing the best energy policy?

Mankiw comes close to finding the way. There are two halves to any tax—how it is collected and how it is spent. The benefits of the carbon tax come entirely from the first half—the charges on carbon, which increase its price and makes us all look for ways to avoid using fossil fuel. So economists look for ways the government can spend the tax revenues to make voters happy. Happy enough to forget it's a tax? Not likely.

Mankiw proposes to spend the carbon-tax revenues on a “rebate of the federal payroll tax on the first \$3,660 of earnings for each worker.” That is close

to the right answer. Others propose reducing income taxes, either personal or corporate, and some propose spending it on research and subsidies.

To find the right answer, we must go north to Alaska, where it was discovered in 1976. The answer—how the government should spend the money—couldn't be simpler. Don't spend it! Just give it back to us, thank you very much. Alaska sends identical checks, for about \$1,000, to every Alaskan resident every June. It collects these revenues from its famous oil pipeline. This is popular. This is the key to an untax.

Taxes raise money for the government. The office football pool collects money and gives it back. That's not a tax. That's an incentive to correctly predict the winning team. It's also fun.

A carbon untax is an incentive to use less carbon. Use the average amount of carbon, and your refund check will exactly cover what you contribute indirectly to the carbon pool of money collected from oil, gas, and coal companies. These companies will tell you how much you're contributing, but they will raise prices to cover their carbon charges from the untax. That's exactly what's needed to discourage the use of fossil fuel.

Use more carbon than average, say by flying your own personal jet, and you will pay more in higher fossil prices than you get back in June. Because the rich tend to use far more than average, 60 percent of us are actually below average and will get back more in June than we pay the rest of the year in higher fossil prices. The less carbon you use, the greater your winnings. Or, if you fly your own jet, the less carbon you use, the less money you lose. That's why, even though it gives back all the money, the untax works perfectly. Chapter 16 gives the full explanation.

Charging OPEC

The second policy in the plan specifies a separate untax rate for oil. When OPEC pushes the price of oil high enough, that in itself is a strong global warming policy (see Chapters 2 and 8). There is no need to raise the cost of oil still further, so when the oil price is high enough, the carbon charge on oil should drop to zero.

For example, when the world price is \$80, the untax might be \$20, but if the world price rises to \$100, the untax rate would fall to zero. The sum of the world oil price plus carbon charge paid by refineries would be \$100 either way. This price stability protects alternative fuel investments, such as those in advanced ethanol plants and investments in conservation such as hybrid or electric cars. Investors worry that the price of oil may collapse and leave their investments worthless. This happened in 1986. OPEC has even threatened to do this deliberately in order to discourage energy investments that would reduce our addiction.

With a variable oil-carbon charge and an untax, if OPEC lowered the world price of oil for a couple of years, the carbon charge would rise to keep the domestic price of oil high. This would protect alternative fuel suppliers, and consumers would still capture the benefits of low world prices through higher untax refund checks.

As explained in Part 4, an untax on oil is the right basis for a consumers' cartel, and as such it's an incentive for international cooperation. This is particularly true for China, which will soon be even more addicted to oil than is the United States. A successful global warming policy requires such international cooperation, especially from China, so the untax on oil serves both goals—climate stability and energy security.

The Race to Fuel Economy

In 1975, Congress set the Corporate Average Fuel Economy (CAFE) standard for 1985 cars at 27.5 mpg. In 2010, the standard will still be 27.5 mpg. Once high OPEC prices started coming down in the early 1980s, the CAFE machine just stopped percolating. After the return of high oil prices in 2006 and 2007, Congress passed legislation that requires the standard to increase to 35 mpg in 2020. However, the bill requires nothing until 2011, and then only at the discretion of the president. The risk remains that if oil prices drop, the standards may end up lower or go into effect later, as happened in the mid-1980s.

CAFE standards have two fundamental flaws: The Big Three automobile manufacturers hate them, and they are easy to gum up. The two flaws work together all too well. As soon as the country settles down after an OPEC crisis, the Big Three gum up the standards. No good reason exists for such poor design, and after thirty-two years it's time for a change.

No one would think of requiring athletes to perform to standards at the Olympics. No one wants government standards saying how tasty the food should be at their favorite restaurant. Athletes compete. Restaurants compete. Car companies compete on everything else but fuel economy—the one thing they do poorly at. Competition is not a new idea, except to regulators.

Chapter 20 explains how to turn CAFE standards into a competitive race to fuel economy in which losers pay for the prizes. The race mechanism eliminates standards entirely; each company simply tries to do better than the others. The better it does, the greater its prize (or the less it contributes to prizes for others). With a standard, companies lose the incentive to keep trying once they reach that standard.

To keep the Big Three happy, I will suggest rigging the race in their favor a bit. Even so, every car manufacturer will get the same reward for each extra bit of fuel efficiency, so they will all try equally hard. The incentive can be set just as strong as we want by adjusting the prize.

Also, there is no need to delay the start of a race for four years, as our government just did again with CAFE standards. All car companies can do their best, whatever that is, the very first year. Incidentally, similar legislation can make appliance standards more effective and vastly simpler.

How Much Does It Cost?

The first three policies of the Core National Energy Plan are all revenue-neutral. The two untaxes pay back to consumers exactly, to the penny, what they collect. The Department of Energy pays an administrative cost, but in Alaska this amounts to less than 1 percent of the income distributed. The third policy, the fuel-efficiency race, simply redistributes funds from losing car companies to winning car companies. The last policy, public funding of basic energy research, is fairly cheap. We can beef up the research budget for conservation and non-nuclear alternative energy by ten times, and it still comes to only about \$10 billion a year, which is one-fifteenth of 1 percent of the gross domestic product.

Does being revenue-neutral mean the first three policies are free? No. Although an untax refunds all the money it collects, it still involves the indirect *net* costs that consumers incur to reduce their energy use. Net costs are small because they are the difference between the cost of saving energy—for example, buying a hybrid car—and the value of the energy saved. Because saving energy is voluntary, people do not choose to spend much more than they save. The economics of net costs will be explained in Part 3, but one point is most important and simple to grasp.

Revenue-neutral policies come with a sort of guarantee: If they don't work, at least they entail no net cost. That's because a revenue-neutral policy refunds all taxes or fees, and if we don't respond and do something to save carbon, we incur no indirect cost.

Also, because we are careful about how we save energy, indirect costs are relatively low. As an example, suppose the untax collects \$300 billion and refunds it all and that saves 20 percent of our carbon (a good start). Using the economics explained in Chapter 16, the net cost to consumers will be only about \$38 billion.*

If the race to fuel economy is designed correctly, it will have a negative net cost. The efficiency race is only intended to solve the third energy market problem, consumer shortsightedness. If it does that, and no more, it will save consumers more money on fuel than it costs them for efficient cars. I will not attempt to estimate the net savings, but consumers spent roughly \$300 billion on gasoline in 2006, leaving room to save real money.

Excluding net savings from the fuel-economy race, the total cost of the Core National Energy Plan comes to about \$48 billion per year. This is only one-third of 1 percent of the national income—wait four months and we will be

that much richer from normal economic growth. This would be a vastly stronger policy for both energy security and climate change than what we have now. When world oil prices are high, the cost of the policy would be considerably less because the carbon charge on oil would be low and perhaps zero.

Can We Charge It to OPEC?

Based on a 20 percent cut in U.S. oil use, the world price of oil would be reduced by about 6 percent, making OPEC and Big Oil together pay roughly \$26 billion of the cost of these policies. This assumes that oil will cost \$75 a barrel without an energy policy. But the full proposal of this book calls for an international consumers' cartel to challenge OPEC, which is the international producers' cartel. Such a consumers' cartel would at least double the savings for the United States. This would cover the full cost of this sample core energy plan.

By 2050, if climate change policies are ramped up to the level that is frequently anticipated as necessary, their cost would likely outstrip the savings from reductions in the world price of oil. But that, of course, depends on how much cheap conservation is available, future technological breakthroughs, and how short of oil we would be without a strong climate policy. But for the next ten or twenty years, we can charge it to OPEC and Big Oil.¹

Will the Core National Energy Plan Work?

The untax is at the heart of the policies I propose. Will the untax work? First, as Mankiw points out, the idea is close to a century old and trusted by more economists than any other approach. Second, this is very close to the policy tested by OPEC, and it passed with flying colors. It stimulated a huge amount of conservation and a significant increase in supply. It reduced carbon dioxide emissions from the United States, and it crushed OPEC's price for eighteen years. OPEC put a charge on oil, just the same as the untax, but forgot to put our refund checks in the mail.

A \$300 billion untax would mean a \$1,000-per-person refund every year. Because, it's a more balanced approach, targeting all fossil fuels and not just oil, an untax would accomplish more at less cost than OPEC's approach.

A family of four that changed from using 50 percent more carbon than average to using 25 percent less than average would save \$3,000. This is a strong-enough incentive to cause people to buy better lightbulbs, more insulation, and less thirsty cars. Businesses will have the same-strength incentive because they save the same amount when they use less fossil fuel.

1. Chapters 13 and 29 provide a complete discussion, and a box at the end of Part 4 provides a example calculation showing that we could charge it to OPEC.

The strength of the untax is the breadth of its reach. Subsidies require regulators to target particular carbon-saving methods, and even emission caps are only half as broad as an untax. The untax targets every carbon-saving method that 300 million Americans can dream up. This is the strength and beauty of a true market approach. It harnesses the creativity of every entrepreneur, inventor, high school student, and parent. It motivates the rich and the poor alike. It stimulates car pools, neighborhood organizations, citywide efforts, and state programs. It promotes innovation at national laboratories, huge corporations, and little alternative energy start-ups. And because the untax treats all equally, the best ideas win out.

Compared with such a massive and balanced approach, specialized approaches that target things like corn ethanol, hydrogen cars, wind turbines, or solar roofs hold little promise. In fact, the untax would appropriately reward the users and developers of each of these technologies and allow the market to select the real winner among them—if there is one. Compared with choosing technologies in the dark, according to which is backed by the strongest congressional lobby, the untax is like the light of day.

Don't Touch the Untax

I end this chapter with a strong warning about the untax. When the newspapers mention a gas tax or a carbon tax, the first response is often “Of course, it’s dead on arrival,” or “It’s a political third rail.” Mankiw puts it like this: “Republican consultants advise using the word ‘tax’ only if followed immediately by the word ‘cut.’ Democratic consultants recommend the word ‘tax’ be followed by ‘on the rich.’”

I favor the untax because it’s fair and it works, but in the real world its most important virtue is that it really isn’t a tax. It’s not a tax because it doesn’t collect revenues for the government. Mankiw’s carbon tax is similar, but he wants to implement it in place of part of the payroll tax. Not a bad idea, if you ignore politics. But taxpayers would not get a check in the mail, the government would keep the money, and Mankiw’s carbon tax would be doing exactly what a real tax does now. That’s “a new tax,” just as Mankiw calls it in his headline.

Now, I imagine that many on the environmental side will be suspicious of a policy that is so similar to one backed by President Bush’s chief economist, as well as most of the economics profession. But I would like to point out that the most famous advocate of the untax is none other than James Hansen. Hansen kick-started the global warming debate with his testimony before Congress in 1988 and is now Al Gore’s science adviser. A talk he gave in June 2008 was titled “Carbon Tax and 100% Dividend—No Alligator Shoes!” “Alligator shoes” refers to the lobbyists who will try to get their hands on the untax revenues,

and Hansen says our motto should be 100 percent or fight! That's his way of saying "Don't touch the untax."

Some people will want to change the untax to pay down corporate taxes, while others will want to spend it on energy programs. Both of these options change the untax into a regular old we-hate-it tax. Let me make this as simple as possible:

- ▶ If the government keeps the money, it's a tax.
- ▶ If it's a tax, you can forget it; it will never fly—especially if it's strong enough to make a difference.

As I show in Chapter 18, the untax is more fair than a tax—even a tax that is fully offset by reductions in other taxes. But that's not the point. As a true, verifiable, 100 percent untax, I think it has a good chance of becoming reality. But touch the untax revenues, and the untax vanishes in a puff of politics. The revenues belong to the American people.



The best energy plan fixes the problems of the energy market rather than just addressing symptoms. First, the energy market fails to price in the costs of climate change. So tax carbon and refund all the revenues on an equal-per-person basis—that's an untax. Because OPEC and oil prices cause even more problems, use the untax to stabilize the price of oil. This will help investors in alternative energy sources.

Because consumers ignore part of future energy savings, reward carmakers for fuel economy in the amount of the overlooked savings. Design this race to fuel economy so that it helps, rather than hurts, the Big Three carmakers. Finally, because the market fails to fully reward advanced research, increase government funding for research substantially.

This simple prescription, which includes no laundry list of complex subsidies and tax loopholes, will do most of what we need and far more than any previous energy policy.