

Global Carbon Pricing

Original text: Steven Stoft, taken from *Carbonomics*, published 2008 by Diamond Publishing.
Paragraph headings added April 2018 by Clive Elsworth, with kind permission.

National emission caps are unpopular, especially with developing countries.

HALF THE WORLD will not accept carbon caps but might accept a carbon price requirement. Such a requirement would not put a lid on growth in developing countries. Poor countries, would be compensated by international payments from a Green Fund. Individual countries could choose caps, taxes, or untaxes at the national level.

Political will can depend on financial interest.

Countries that are particularly dependent on oil imports would be free to target carbon from oil. Targeting oil would decrease political resistance and increase the policy's effectiveness at reducing oil prices. As Al Gore says, the world may not yet have the political will to get started. But that could change if people begin to see the benefit of cooler global temperatures combined with the benefit of lower oil prices. Political will is most effectively renewed with a dollop of financial self-interest.

This chapter presents a simplified design of Global Carbon Pricing

Switching from Kyoto's caps to a new, global-carbon-pricing policy will require a major reorientation of the Kyoto Protocol. In this chapter, I describe a basic design that, because of its flexibility, requires only minor adjustments to existing national carbon control policies. I present a simplified version of the design in this chapter, adding modifications for fairness and enforceability in **Chapters 9 and 10**.

Who's for Global Carbon Pricing?

Nobel prize winning economists are among those advocating Global Carbon Pricing.

Global carbon pricing goes by several names and has probably been outlined a hundred times. Several of its advocates stand out because they have written about it as a solution to the Kyoto difficulties.

These include William Nordhaus of Yale, Richard N. Cooper of Harvard, Nobel Prize winner Joseph E. Stiglitz, and the recent chairman of the president's Council of Economic Advisers, N. Gregory Mankiw.

I describe a specific approach to global carbon pricing in this book, but whenever I say someone else favors global carbon pricing, I only mean they favor the generic concept, not my specific proposal.

The Price of Carbon

Global-carbon-pricing policy sets a target global carbon price and then makes sure each nation achieves it on average over time.

To make the policy flexible at the national level, the global carbon price must be defined to work with any type of national carbon policy—cap and trade, gas tax, untax, or any other method of making carbon expensive. To achieve this flexibility, global-carbon-pricing policy defines the national carbon price as the average carbon price over all fossil fuels and does not apply the requirement to every individual purchase of fossil fuel.

Carbon or Greenhouse Gas?

By 'carbon' I usually mean all greenhouse gases.

Fossil fuel accounts for about 70 percent of greenhouse gas emissions. However, we should not ignore the other 30 percent. Carbon dioxide is the greenhouse gas emitted when people burn fossil fuel. Since this book is about energy policy, I'm most concerned with carbon.

But sometimes people use carbon to refer to all greenhouse gases. For example, Europe's greenhouse gas markets are called carbon markets. In that tradition, when I speak of carbon, in most cases I mean all greenhouse gases.

Carbon price = carbon revenue / quantity sold.

Collect \$100 from selling ten items, and we know the average price is \$10 per item. The national average price of carbon is total annual revenues from carbon charges divided by total carbon emissions during a year. So if the United States collects \$60 billion in carbon charges in a year and emits 6 billion tons of greenhouse gases, our national price of carbon is \$10 a ton.

The global policy must avoid giving any country an excuse to opt out.

Suppose a nation's carbon cap-and-trade program gives away all its permits to coal-fired power plants—not a good idea, but just suppose. How should a global-carbon-pricing policy give that country's program credit for carbon pricing? The global policy must work with any national carbon policy to avoid giving any country an excuse to opt out.

Free permits should be valued at their market price at time of retirement.

Because free permits given to coal plants collect no carbon charges for the government, it seems as if they should not contribute to the national carbon price. But if permits given out for free cost \$20 a ton in the private market, they put just as much pressure on companies that need them as a \$20 carbon tax. So these permits should get just as much carbon pricing credit. This is fair and easy to arrange. Carbon permits receive carbon pricing credit equal to their value at the time they are retired to cover emissions. If a million permits are retired in May and the average price in May is \$30 per permit, the country receives credit for \$30 million of carbon pricing revenues.

Carbon pricing shrinks wasteful energy programs such as corn ethanol and fossil fuel subsidies.

Carbon taxes, gas taxes, and untaxes all collect revenues that are easy to count. Subsidies for ethanol and wind will be unnecessary once fossil fuel costs more. However, if countries still offer such subsidies, they should not be counted, because the track record of subsidies around the world, including in the United States, is dismal. In fact, an enormous benefit of global carbon pricing is that it dramatically shrinks wasteful energy programs.

Appliance and fuel standards could be a component of a carbon price.

Appliance and fuel standards should continue, but to be counted they would need to be converted to a system of fees and rebates. Under such a system, low-efficiency appliances or cars are charged a fee for their above-average carbon use and high-efficiency appliances or cars receive a rebate. This will improve their performance and reduce their vulnerability to bureaucratic foot-dragging.

Measuring emissions is difficult but not insurmountable.

Each country would have to count total emissions and total revenues to determine its national carbon price. And greenhouse gases come in many types and from many sources. In the United States, the Environmental Protection Agency and the Department of Energy keep track of these, but would this be possible in most other countries? What about Estonia, Slovenia, and Romania? As it happens, by May 2008, these and thirty-six other countries had already filed their national greenhouse gas inventories with the United Nations under the Kyoto Protocol. This information is necessary under any climate-change protocol. So the difficulties with measuring emissions appear surmountable and, in any case, cannot possibly be an argument against switching to a global-carbon-pricing policy.

Emissions counting errors are more problematic in cap-and-trade schemes than with explicit carbon pricing.

In fact, permit prices under cap and trade are more sensitive than is carbon pricing to errors made in counting emissions. The European Union miscounted by a few percent during the trial carbon-cap period before 2008 and issued a few too many permits. The result was that the price of carbon crashed from about \$30 a ton to under \$1 a ton. Under a global-carbon-pricing policy, such a small mistake would cause only a small problem. A similar-size error might cause a country's carbon price to be miscounted as \$30 per ton instead of \$29.

Keeping track of carbon price revenues should not be difficult.

The World Bank tracks most countries' finances closely. So keeping track of carbon price revenues should not be difficult. Moreover, low-emission countries will want the Green Fund payments discussed in Chapter 9, so they have reason to cooperate.

Countries must count their carbon emissions under any workable system.

To sum things up, a nation's carbon price is its total carbon pricing revenue divided by its total greenhouse gas emissions. Revenues are not hard to count, and countries must count their carbon emissions under any system that works.

Flexibility in Global Carbon Pricing

The carbon price can be different for different fuels.

Flexible global carbon pricing, as I will call this proposal, does not require that all carbon be priced the same. The price can vary from one type of fuel to another. That provides flexibility in the design of national policies

Taxing petroleum helps lower the world oil price.

Countries can, if they like, tax oil carbon at a high rate and other carbon at a low rate, just as long as they collect enough total revenue. Because taxing oil reduces its use, it also helps to lower the world price of oil. Large oil-consuming nations can have enough of an impact to save a significant amount of money with this approach. Europe already does this, and it makes sense for the United States as well.

Focus revenue collection on oil would help reduce oil prices.

But when one country uses less oil, all consuming countries benefit, which argues for cooperation. A global-carbon-pricing policy makes it easier to price oil high and thus encourages cooperation among oil-consuming nations. Since a global-carbon-pricing policy requires countries to collect a certain amount of revenue from pricing carbon, why not focus much of the revenue collection on oil? That has the fringe benefit of reducing oil prices.

An oil consumers cartel would help hold together an international climate agreement.

In effect, flexible global carbon pricing encourages the formation of a large international consumers' cartel. As I will discuss in more detail later, this is not just good for energy security. The benefits of such a cartel would also provide much of the glue that will hold together an international climate agreement. And of course, a consumers' cartel would reduce consumption of oil. That's the only way it can work.

The Clean Development Incentive

It is probably not fair for poor countries to pay the same carbon price as rich ones.

Although a country with one-tenth the income of a rich country would pay about one-tenth the carbon charges if its carbon prices were the same, this is probably not fair. Generally, poor people find it harder to give up a certain fraction of their income than richer people do. Moreover, they have caused much less of the problem, whether we consider climate or energy security.

Fair carbon pricing is best achieved with Clean Development Incentive (CDI) payments.

Fair carbon capping requires taking into account a host of considerations, and even then, we end up with a stalemate. Fair carbon pricing is simpler and is best achieved with Clean Development Incentive (CDI) payments. The CDI serves the same purpose as the United Nations' Clean Development mechanism (CDM), discussed in the [Kyoto What Went Wrong](#) chapter. But the CDI has none of the gaming and corruption problems associated with paying countries not to emit what they might have emitted were it not for CDM. The CDI pays countries for collecting carbon revenues by pricing carbon one way or another. This is measurable and does not involve any assumptions about what might have been. It also encourages the single most effective climate policy—carbon pricing.

A fair formula for the CDI can be based on just one factor, emissions per capita.

This avoids all the bickering over individual caps. In the [Green Fund](#) chapter, I provide a specific design, which, in effect, implements a Green Fund of the type proposed by Mexico and others, and which provides an extra incentive for reducing emissions per capita.

“Even Pricing at Zero Would Be a Step Forward”

The most wasteful energy programs are fossil fuel subsidies.

As I mentioned earlier in this chapter, one of the greatest benefits of a carbon pricing policy is that it reduces wasteful energy programs around the world. And the most wasteful of all such programs are fossil-fuel subsidies. These cost governments more than the benefits they provide, besides hastening global warming and decreasing energy security. Subsidizing ordinary goods wastes money, because it causes people to overuse the subsidized goods. Subsidize wool, and people will wear wool instead of cotton, even though wool costs more to produce and even in cases where cotton works just as well.

Global Carbon Pricing would put a stop to fossil fuel subsidies worldwide.

When countries subsidize fossil fuel, they waste money, damage the climate, and decrease energy security. That's a lose-lose-lose policy. Global carbon pricing puts a stop to such policies worldwide, saving the world hundreds of billions of dollars a year. With a carbon pricing requirement, subsidies count as negative pricing. So to achieve the required price, a country must abandon carbon subsidies or apply an extra-heavy carbon tax that counteracts the subsidy.

Reducing fossil fuel subsidies lowers the world oil price.

Fossil subsidies also cause problems on a global scale. In mid-June 2008, China raised its domestic price of gasoline, and the *New York Times* reported that: “The price of light crude fell \$4.02 to \$132.66 a barrel following [China's 16 percent] fuel price increase announcement. ... After the hikes, prices [in China] rose to about \$3 a gallon. ... In 2007, China's subsidy of gasoline alone was \$22 billion, close to 1 percent of its gross national product.” If reducing the subsidy cut world oil prices, then the subsidy itself has been raising them.

This makes a strong case for a global-carbon-pricing policy.

This little report speaks volumes about Kyoto and the need for a global-carbon-pricing policy. Under Kyoto, China is spending a good fraction of what an effective anti-global-warming program would cost on subsidies that exacerbate global warming. Along with many positive programs, China is also helping to damage the climate and helping OPEC charge the world more.

China's gasoline subsidy cut of 45c/gallon saved oil importing countries over \$100Bn

The market's reaction to China's price hike gives us some idea of the past cost of its subsidy policy, but only a hint, because China's price hike will take years to fully reduce Chinese oil consumption. China cut its gas subsidy by about forty-five cents a gallon, and that immediately saved the world \$4 per barrel. That comes to about \$100 million a day saved on OPEC's exports, which is \$36.5 billion a year. And, of course, you can triple that if you want to add in all the other oil companies—including Exxon and the Russian companies.

The Kyoto Protocol's carbon credits helped China to *increase* fossil fuel subsidies.

China's domestic oil price increase does not likely indicate a phaseout of gasoline subsidies. Rather, it's an indication that the country's subsidies had gotten out of hand. The Kyoto Protocol has handed China hugely profitable carbon credits. At the same time, the protocol allows the Chinese to turn around and increase their damage to the climate by subsidizing oil imports—imports that increased 25 percent in the year ending May 2008. A global-carbon-pricing policy, on the other hand, requires all countries—including the United States, China, Saudi Arabia, and Iran—to stop subsidizing fossil fuels and start taxing them.

Global Carbon Pricing allows flexibility in the design of national policies. The only requirement is that the combined policies of a country collect enough revenues from carbon pricing to meet the global pricing target.

The best policy for both energy security and climate stability is flexible carbon pricing coordinated under a global treaty.

This flexibility encourages countries that import a lot of oil to cooperate in setting a high price on oil carbon, which helps reduce world oil prices. This makes global carbon pricing the best policy for energy security as well as climate stability. The synergy between these goals provides a strong incentive for international cooperation, as I discuss in the [Conclusion](#) chapter.