International Enforcement

What you cannot enforce, do not command.

—Sophocles (496 B.C. to 406 B.C.)

Speed limits are enforced by the police.

WHY DO PEOPLE DRIVE ABOUT 70 MILES AN HOUR on the freeway? Because the speed limit is 65. Actually, that's not exactly why, and the little 5-mile-an-hour discrepancy gives us a clue. It's the police and the courts that keep most of us from speeding, not the limit itself. The police don't usually ticket you till you are driving about 10 miles an hour over the limit. That, and a bit of caution, explains the 5-mile-an-hour discrepancy.

To be credible, emissions caps need to be similarly enforced.

This may seem obvious, and it is. But people constantly forget about it in discussions of international policy. The authors of the Kyoto Protocol set speed limits—caps—but forgot about the police and the courts. This works to some degree with a small group of cooperative players, such as about half the nations of the European Union. But bring an outlaw nation such as Canada into the mix, and speed limits without police are a joke.

In 2008, even cooperative Canada was exceeding its emission limit by 20%.

OK, Canada is hardly an outlaw nation, and that's my point. Canada is one of the most cooperative nations in the world, and a liberal, pro-Kyoto government was in power during the crucial period when nations were hammering out the protocol. But in 2008 the country was still exceeding its Kyoto limit by something like 20 percent. Think what will happen once we include a lot of countries that are less cooperative and enthusiastic than Canada and when the requirements get tighter.

This chapter describes a light-touch enforcement mechanism for a global carbon price.

Keeping 180 nations in line requires an effective enforcement mechanism. Doing without one is completely irresponsible. But enforcement need not be heavy-handed. In fact, the poorest countries can be paid to comply by implementing a Clean Development Incentive and a Green Fund to encourage compliance. And, when penalties are used, they only need to be strong enough to compel an average level of compliance, because only average emissions and average oil consumption matter for global climate change and energy security. In this chapter, I show how to enforce a global carbon price effectively but for small transgressions at least, with the lightest possible touch.

Each nation just needs to meet its target revenue on average.

Before we discuss how to enforce a global "speed limit," though, we need a clear picture of exactly what a carbon speed limit looks like. The global carbon price target determines the "speed limit" for each nation. If that target is $20, and a country emits 1 billion tons of carbon dioxide per year, its annual target revenue is $20 billion dollars. That's all that must be enforced on average for all nations—their target revenues.

Light but Effective

A simple, non-moralistic carrot-and-stick approach of fines and rewards is recommended.

The first principle of gentle enforcement is that it's OK for a country not to achieve the target price. However, in that case, the country must pay a fine. In other words, countries can buy their way out. Some people will prefer a more moralistic approach, but as we saw in the *Untaxing Questions* chapter, this benefits no one and complicates the system. A carrot-and-stick approach of fines and rewards will make the system more popular with both those buying their way out and those getting rewards. And this flexibility will not hurt the outcome at all.

All fines should pay exactly for rewards, and for no other use.

The second principle of gentle enforcement requires that fines exactly pay for rewards. Revenue from fines should not be used to pay for other projects, because this will prove costly and cause resentment. You will hear this approach, with fines equal to rewards, called a revenue-neutral mechanism. It's a popular design because it works so well and so simply; it causes no fights over where the money comes from or who should get it.

Enforcement as a Race

Think of it as a race. The winners get prizes which the losers pay for, so everyone is motivated.

Fines and rewards make up the carbon-pricing incentive that enforces the global carbon price target. But it may help to think of this as a race instead of enforcement. It's a race to higher carbon prices. The winners get prizes, and the losers pay for the prizes, so everyone is motivated. In this race, each country's score is its actual revenue collection minus its target revenue collection—that is, actual carbon revenues minus what the country would collect if it set its carbon price equal to the global target carbon price. Collecting too little revenue gives a country a negative score.

A rule for handing out prizes could be to set a prize rate of say 10%.

We also need a simple rule for handing out prizes. Remember that negative prizes—fines—pay for the real prizes. First, we set a prize rate, *Z*, which might be, say, 10 percent. Then, if a country collects an extra $500 in carbon revenues, its prize is $50. If it collects $500 too little, it pays a fine of $50.

We can attain average compliance by choosing the right prize rate.

If *Z* is too high, countries will over-comply to earn the big prizes. And if *Z* is too low, many nations will under-comply because the penalty is too small to worry about. So, we can attain average compliance—which is all we need—by choosing the right prize rate, *Z*

Maintaining neutral revenue requires adjusting the fines/rewards so they balance out.

That's a simple idea, but what if most countries do better than required or if most countries do worse? Then either the fines would not pay for the prizes or we would collect more fines than we need. Even with a good system for choosing *Z*, this can happen. Keeping revenue neutral requires adjusting the fines and the rewards when, at first, they don't balance each other out.

If we collect too much in fines we can just refund the extra proportionally to all countries. If we collect too little, it works a bit differently. We simply divide the fines among the winners in proportion to their scores.[1] In either case, the fines exactly pay for the prizes.

Adjusting the Carbon-Pricing Incentive Rate, *Z*

A simple rule can determine how to adjust the 'prize rate'.

The enforcement system I just described works fine provided the incentive rate, *Z*, is strong enough but not too strong. Economists should be able to make a reasonable first guess at *Z*. After that, administrators will have to adjust the rate. However, a simple rule can determine how to adjust *Z*. If the weighted global average carbon price is only half as high as it should be, then the next year double *Z* to provide twice the incentive. If the average carbon price is 30 percent above target levels, then reduce *Z* by 30 percent.

That's all it takes. Enforcement won't be perfect. Some years the carbon price will be a bit high, and some years it will be a bit low. But, on average, it will equal the global carbon price target. This means that the global carbon price will be accurately enforced—on average. Global warming is a slow process, and there is no need to be right every year.

How Big a Fine?

Since carbon revenues are recycled internally, fines payable externally need not be high.

Would a government collect $10 billion with a carbon tax to avoid $9 billion in fines? Wouldn't the fine need to be $10 billion—100 percent of the tax collected—to get reluctant countries to comply? Not at all. If a country collects $10 billion in revenue, it can refund all of it to its citizens while a $9 billion fine payment leaves the country. So the fines do not need to be so high. Even a $1 billion fine or less may well encourage a government to collect and refund $10 billion with a carbon tax, untax, or a cap-and-trade system.

Even less than 10 percent of revenue used for fines/rewards is likely to motivate compliance.

So a low prize-and-fine rate, even 10 percent or less of revenue collected, is likely to motivate compliance. This is good, because big fines are unpopular, even when countries deserve them. Of course, any country can avoid a fine simply by setting its carbon price to the global target level—or a little higher to get a reward.

Enforcing the Enforcement

Speed limits also need backup enforcement such as prison, ultimately.

The police enforce the speed limit by handing out tickets—little slips of paper that you can just tear up and throw out the window. So obviously the police are not enforcing the speed limit at all. Well … actually they play a crucial role, but without backup their tickets would do no good. To get people to drive slowly, we need three layers: the speed limit, the police, and backup enforcement with real muscle—prison or wage garnishment.[2]

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[1] This small change in the case when fines don't cover the prizes assures that any nation that sets exactly the global carbon price will never have to help pay for prizes. This is done to prevent any perception of unfairness. A more complete description of this rule is available at global-energy.org.

[2] Even the threat of taking away a license won't work, without backup enforcement for that penalty—something with real muscle.

Without some real threat, the whole enforcement system is a joke.

Few people get their wages garnished for speeding. But garnishing is still part of the system. It's the threat of garnishment that does the job, and because it's a credible threat the government almost never needs to follow through. But without some real threat, the whole enforcement system is a joke.

Some countries will start missing targets, albeit probably not by much.

The same holds for an international climate agreement. Without a real threat, countries will miss their targets and be issued tickets and throw them out the window, so to speak. More likely they will agree to pay, but they will never get around to it. After a while, some countries will see they don't have to pay the fines, and they'll start missing targets regularly, but not by too much.

But then other countries will miss theirs and before long the whole system falls apart.

But then the leaders of other countries will think, "If they are going to miss their target by 20 percent, we are going to miss ours by 20 percent." And eventually the whole system falls apart.

This type of large cartel tends to fall apart quickly.

I cannot prove this will happen. But an organization with members who cooperate for mutual economic benefit is basically a cartel. And economists have studied cartels for a long time, and the main thing they've learned is that cartels tend to fall apart. And the bigger they are, the faster they fall apart. Once a cartel has more than a hundred members, it's likely to fall apart before it ever gets organized. The trouble is that standard cartels can make their own rules (speed limits), but the only real enforcement they have is this: If one member cheats, the others can shut the cartel down and punish everyone.

We need to do a lot better than OPEC, and we can.

That doesn't work too well for cartels, and it won't work at all for an international climate organization. As an aside, the Organization of Petroleum Exporting Countries (OPEC) has (fortunately) had a huge amount of trouble with discipline, and so Saudi Arabia has to do almost all the work. We need to do a lot better than OPEC, and we can.

Powerful incentives and known cooperative behaviour give reasons for optimism.

I see three reasons for optimism beyond the collective benefits of climate stability and energy security. First, the Clean Development Incentive that I describe in the next chapter will reward poor countries enough that they will find it cheap to participate, and the poorest will even find it profitable. This eliminates many enforcement problems. Second, quite a few of the wealthier countries, who will have the most reason to cheat, seem to be cooperatively inclined. Third, the world has an ultimate enforcement lever that can do the job.

Sea Turtles and Ultimate Enforcement

We want the ultimate enforcement to be strong so it is rarely used.

As Joseph E. Stiglitz explains in his recent book, Making Globalization Work, the law we can use as the ultimate enforcement of the international climate agreement has already been tested—on sea turtles. We will get to them shortly, but first recall that countries should rarely be subject to the ultimate enforcement. People pay their speeding tickets rather than chance wage garnishment or prison. That's what we want for the international climate agreement—something that's strong and consequently almost never used.

The WTO allows the use of trade sanctions for enforcing global environmental policy.

Sea turtle populations exist around the globe. Several of the eight species are endangered, and one species faces likely extinction. The United States passed a law forbidding importation of shrimp caught in nets without U.S.-style turtle-excluder devices, but the World Trade Organization (WTO) struck down this law as arbitrarily and unjustifiably discriminatory. The United States lost the case because it provided technical and financial assistance to countries in the Western Hemisphere, but not to four Asian countries. They filed the complaint.

The United States then spent five years working with the complaining nations, except for Malaysia, which refused to cooperate. Next, the United States reinstated its turtle-protection policy, and Malaysia again filed a complaint with the WTO stating that the United States was not entitled to impose any prohibition in the absence of an international agreement allowing it to do so. This time the WTO sided with the United States.

The WTO made this significant statement in its initial decision: "We have not decided that sovereign states should not act together bilaterally, plurilaterally or multilaterally, either within the WTO or in other international fora, to protect endangered species or to otherwise protect the environment. Clearly, they should and do." The WTO also noted that, under WTO rules, countries have the right to take trade action to protect the environment and exhaustible resources, and the WTO does not have to "allow" them this right. These decisions declare that countries can impose trade restrictions—even stopping unwanted imports entirely—to enforce their own global environmental policy. This means it's legal for countries to enforce a global pricing policy using trade sanctions.

The WTO's ruling allows for the ultimate enforcement of a global pricing policy. Trade sanctions have real teeth. They are just what we need.

The idea of enforcing a climate agreement with trade sanctions is not new.

Harvard professors Richard N. Cooper and Jeffrey Frankel have written about the idea (Cooper in 2000 and Frankel in 2004). And Nobel Prize–-winner Joseph E. Stiglitz explains the idea in his book Making Globalization Work (2007). Although enforcement based on trade policy would be equally useful with a system of national caps or a system of global carbon pricing, Cooper and Stiglitz recommend coupling it with global carbon pricing.

Enforcement should be focused on high emission countries, Green Fund incentives on the low-emitters.

Frankel says, "Trade sanctions are perhaps the most powerful multilateral inducement that can be applied to shirkers, short of military force." Because they are such a strong measure, we should use trade sanctions cautiously. But they should be part of the system. We should use them to enforce fines, and they might induce holdouts to join the world climate agreement. But remember, this part of the

enforcement system is focused more on high-emission countries, while the Clean Development Incentive and the Green Fund are focused more on low-emission countries.

Countries that subsidise carbon will be the toughest challenge.

The oil-exporting countries, which often subsidize carbon use—for example, Iran and Venezuela subsidize gasoline—will be the toughest challenge. It is to their economic advantage to undermine the agreement and to thwart all efforts to conserve oil and gas. However, their gains from keeping the price low domestically are relatively small. Selling oil cheaply at home when they could sell it for a high price abroad cancels most of the advantage they get from subsidized consumption. Because of this, trade penalties might just do the trick and get them to cooperate—albeit grudgingly.

Trade sanctions can serve as the ultimate enforcement threat. However, if they are strong enough they should need using rarely.

Cooperation never comes easily, and when anyone can quit and still get 90 percent of the benefit, many will choose not to honor their commitments. Two levels of enforcement are necessary to secure cooperation. The first is a simple and immediate penalty schedule for noncompliance. The second is a real threat that backs up the penalties. Trade sanctions can serve as the threat and are strong enough to rarely need using.

Light touch primary enforcement will help make global carbon pricing possible.

Primary enforcement of global carbon pricing is simply a modest set of rewards for countries that exceed the target and fines for those that fall short. Some countries will choose the reward, and others will choose to buy their way out of full compliance. This freedom to choose will make global carbon pricing more popular than it would be with heavy-handed enforcement.