

Edited Transcript

Climate Change: International Competition and US Policy Responses

Trevor Houser, visiting fellow, explains the US domestic economic impact of measures to limit greenhouse gas emissions, the advantages and limits of a cap-and-trade system, and discusses how such a system might fit into the WTO trade structure.

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Sherman Katz: Welcome to Peterson Perspectives. Our interview is with Trevor Houser, a visiting fellow with the Peterson Institute and the coauthor of *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design*. This book was just published jointly by the Peterson Institute and the World Resources Institute. *Leveling the Carbon Playing Field* is an excellent 78-page introduction to and analysis of the economic challenge of climate change. It is the first in the series of publications to be issued by the Peterson Institute and the World Resources Institute that will examine the international dimensions of US climate policy. In addition to his work as a visiting fellow, Trevor is also a partner of the Rhodium Group, which assists decision makers in analyzing and understanding global economic and policy trends.

In your new book, *Leveling the Carbon Playing Field*, you analyzed the potential economic impact of measures to reduce greenhouse gas emissions, such as a cap-and-trade system or a carbon tax, on industries that are most vulnerable to such impacts. Which industries are they and why?

Trevor Houser: Climate policies are going to create winners or losers in economic terms in the United States as well as elsewhere. In this report, we look specifically at firms that in the course of producing goods require a lot of energy and that are exposed to international trade. Those are the industries that legislators in the United States are concerned would suffer the most under US climate policy, that they would be squarely in the losers' column in part because, if other countries don't take comparable action on reducing emissions to the United States, firms that produce goods and use a lot of energy won't be able to pass along the costs of climate policy on to consumers. Those industries are iron and steel, aluminum, basic chemicals, cement, and paper and pulp. These industries together account

for about 3 percent of US economic activity, about 2 percent of US employment, and account for about 6 percent of US greenhouse gas emissions.

Sherman Katz: Are these industries the most carbon intensive because they use the most energy in manufacturing?

Trevor Houser: Right, exactly. Let me give you an example, in the making of a ton of steel, you require coke, which is an energy good, and you require coal. Then you take the coke and coal and combine it with iron ore to produce crude steel, which is then further refined into the steel products that show up in an automobile or refrigerator. So, if I am a steel mill, of all of my costs, labor costs, capital costs, the energy costs are considerably higher than for example, a company that manufactures a Barbie doll, or a company that manufactures software where energy cost isn't a significant component. So while software companies and Barbie doll manufacturers will also incur additional cost in the climate policy, it's not going to significantly impact the price of their final products. For these few industries for which energy costs are a significant portion of the cost of goods sold, climate policy could raise their final cost considerably.

Sherman Katz: In the overall economic context, how important are these five industries in the US economy?

Trevor Houser: At the most aggregate level, iron and steel; nonferrous metals, which include aluminum and copper; nonmetal mineral products, which includes cement and glass; basic chemicals; and paper and pulp, altogether account for about 3 percent of US economic activity and 2 percent of US employment. And this is important in considering the types of policies that we should use to minimize cost for these industries. We have to balance concerns about the competitiveness of these few carbon intensive manufacturing industries with the competitiveness of other parts of the economy. So, policies that shift cost off of carbon intensive manufacturing may in fact put additional cost on other parts of the economy.

Sherman Katz: We're all used to seeing news stories about smoke and other emissions coming from electric utility plants. Why aren't you concerned in this context about electric utilities?

Trevor Houser: Electric utilities are certainly going to bear the largest cost under climate policy because they are the ones that burn the most coal, the most natural gas, and the most petroleum. But what's different about electric power and firms like iron and steel and aluminum firms, is that electric power is not an internationally traded good. US utilities sell all of their electricity in the United States. Any additional cost placed on US electric utilities can be passed along to consumers. For steel mills, aluminum smelters, paper

mills, and cement kilns there's less ability in a traded good to pass those costs along. So, if I am a steel mill in the United States, and my cost increased by 5 percent or 10 percent because of climate policy, if the costs of my competitors in China, India, Latin America, or Russia haven't also increased by 10 percent, I have less ability to pass those costs on. As a result, I might either see my profits reduced or I might lose market share to international competitors.

Sherman Katz: Is there less ability to pass the costs along because the goods in question can move across borders, from India or wherever, to the United States and compete?

Trevor Houser: Exactly, that's the concern. If US steel mills have to raise their prices by 10 percent then consumers of steel here in the United States, as well as elsewhere in the world will opt for cheaper steel from places that don't have a similar climate policy.

Sherman Katz: In the book, you have considered several measures to deal with this. One of them is the cap-and-trade system. What are the advantages and disadvantages of such a system compared to a carbon tax. Perhaps you might also explain the cap-and-trade system briefly.

Trevor Houser: A cap-and-trade system is where you set an absolute limit on the amount of greenhouse gas emissions that can be released in the economy. And then that cap declines over time. Basically you issue rights to pollute to different companies. Then those companies can trade their right to pollute with other companies. In theory, that ability to trade under the cap provides for the lowest cost abatement opportunities. For example, if I'm a steel mill and I can reduce carbon dioxide (CO₂) emissions for only \$12 a ton, and the market price for CO₂ emissions is \$20 a ton, then I'll reduce more and sell the balance on the market. Firms for which reducing CO₂ would be more expensive than \$20 a ton instead of reducing, can buy allowances from firms that can do it cheaper. The other way to reduce emissions is through a carbon tax that, instead of applying an absolute cap, sets a specific price on CO₂ emissions, let's say \$50 per ton.

There are advantages and disadvantages to both systems. A cap-and-trade system gives you perfect certainty about emission levels. Suppose legislation says US emissions are going to decline by 70 percent. For people who are concerned that we need to get to some absolute reduction on emissions to avoid some of the catastrophic effects of climate change, they tend to favor a cap-and-trade system. The problem with a cap-and-trade system is that you don't know what the price of carbon emissions is going to be. So there are economic concerns that that price can be volatile or will be devastating to economic growth. Many economists favor a carbon tax because a carbon tax gives you perfect certainty about what

price is. The challenge with a carbon tax is it doesn't give you certainty about what emission reductions will be. For example, 10 years ago, most economists would've said that \$130 to \$140 oil would result in significantly more demand reduction in the United States than has actually occurred. It's difficult to say what a \$50 per ton CO₂ price would do in terms of reducing emissions.

Sherman Katz: Can these rights or permits under a cap-and-trade system either be given out freely or they can be auctioned, and which do you favor and why?

Trevor Houser: That's right. Let's say the US economy emitted six billion tons of CO₂ last year, and in 2012 we wanted to reduce those emissions to five billion tons, then you create five billion tons of emission allowances. You can either give those for free to the companies who have historically emitted or you can have an auction. The benefits of an auction are that you generate government revenue. And the amount of revenue that we're talking about here is between \$80 and \$200 billion depending on what the carbon emission price is per year. The drawback with an auction is that to get certain companies and certain parts of the economy to support climate policy, many folks on Capitol Hill in Washington think it's necessary to provide free allocation to compensate investors for investment decisions they made when they didn't know there would be a climate policy. Overall we favor auction instead of allocation as it's more economically efficient. It allows new market entrants to compete on a level playing field with existing companies and promotes regular churn in the economy.

Sherman Katz: What would you do with this \$80 to \$200 billion of revenues from the auctions?

Trevor Houser: One of the things that we talked about in the book is that revenue from allowances could be used to address some of the concerns around these key energy intensive industries that are at risk of a competitive disadvantage. That revenue can be used to offset either the direct cost of compliance with climate policy to help put them on a level playing field with their international competitors. Or it could be used to offset some labor, health care, or pension costs to those industries. That revenue can also be used to offset the impact of higher energy prices on low income consumers. It can be used for research and development into the type of technology that is going to be required to get us to a low carbon economy.

Sherman Katz: And could it even be used to help developing countries move ahead on their own efforts to have some climate control?

Trevor Houser: Sure, absolutely. To the extent that the developed world is going to need to transfer some revenue to the developing world to address the fact that, of the CO₂ in the atmosphere, the vast majority of it that's up there, has

been put up there over the past 150 years has come from developed countries. So there needs to be a revenue transfer from the rich world to the poor world and auction provides revenue for that purpose.

Sherman Katz: I gather the European Union has been ahead of us on cap-and-trade. What has their experience been with auction versus allowance?

Trevor Houser: The European Union under the Kyoto protocol put in place a cap-and-trade system called the EU Emissions Trading Scheme and it's been up and running for a few years now, and there are a couple of lessons that we can draw from them. The first is in the beginning of the cap-and-trade system, prices are very volatile because there's not a lot of knowledge yet about how much emissions actually occur in the economy, where are they occur, and what the cost would be to reduce them. In the European Union emissions prices have bounced all over the chart from €7 per ton to €35 per ton. Most expect that to even out over time as greater knowledge develops about the sources of emissions and the cost of reducing them.

The other experience from the European Union is about free allocation. In the European Union during the first phase of the trading scheme, electric utilities were given generous free allocation of allowances to compensate them for investment decisions that they made at a period where they weren't expecting climate policy. What many electric utilities in Europe did was pass along the cost of allowances to the consumers as though they had purchased them, instead of being given them for free. This resulted in a bit of a windfall profit to electric utilities because they both were given a rent by the government and were able to raise prices to consumers at the same time.

Policymakers in the United States have taken note of that and are looking at how to ensure that that benefit is passed on to consumers, if free allocation is to be given to electric utilities.

Sherman Katz: Let's turn to the trade side of this picture. Some say that we could create incentives for other countries to, let us say, reduce carbon-intensity of their goods by imposing a tariff at our border on imports that were carbon intensive. An additional benefit of tariffs might be to help protect US industries against loss of market share to more carbon intensive producers abroad. What do you think about such a possibility?

Trevor Houser: We spend quite a bit of time in our book addressing these trade measures that have made their way into most of the leading legislative proposals here in Washington. Trade measures attempt to, as you say, do two things: to level the playing field for US industry and to create incentives for developing countries to reduce emissions. And the way that they attempt to do that is by imposing at the border a tax or an allowance requirement

under a cap-and-trade system for imports from countries that have not taken action on climate change that's considered comparable to that taken on the United States. There would be a review process. Starting in 2014, for example, the United States would review climate policy in India, China, Brazil, the European Union, and Japan, and for those countries that aren't deemed to have taken comparable action, their exports of carbon intensive goods like steel, cement, and aluminum would face tariffs at the US border. We in our research find that these trade measures as currently envisioned would not achieve either of their objectives. They would neither safeguard the US industry nor would they create incentives for developing countries to participate. In fact, we think that they would reduce the likelihood that we reach an international agreement.

Let me start with whether or not they would level the playing field. Most policymakers have China squarely in mind when they think about trade measures. The fear is that if the United States passes climate policy and China doesn't, steel mills, aluminum smelters, and cement companies in the United States will pick up shop and migrate to China in search of a lower cost jurisdiction. That would both deliver an economic blow and undermine the environmental effectiveness of US climate policy. While China is what Congress has foremost in mind, China is not the source of most of our imports of these goods. Most of our imports of carbon-intensive goods come either from developed countries that have either already taken climate policy or are likely to in the next few years and so would easily pass a comparability test. Or they come from developing countries that, unlike China and India, are cleaner than US producers because they have lots of natural gas or hydropower, like Brazil, other places in Latin America, and the Middle East. And so, while a trade measure may in fact create a level playing field for US industry, that level playing field may not be to the benefit of US producers.

In addition, most of the demand for these goods—steel, cement, and aluminum—isn't in the United States. The demand growth is in the developing world. Over the past 15 years, demand for steel, aluminum, and cement in the rich world has stayed largely the same. We are done building our infrastructure here, largely. Demand has doubled or tripled in the developing world. That trend is likely to continue. Trade measures only level the playing field at home. They do nothing for the competitiveness of US firms in export markets. In addition, the fact that most of the demand growth for these goods is in the developing world, means that trade measures, the threat of a tariff for Chinese or Indian exports actually doesn't provide much leverage. Chinese exports of textiles, electronics, and machinery to the United States are very important for Chinese economic growth. Exports of steel and cement are not. China today is 35 percent of global steel production, only 10 percent of that is exported, and only 1 percent of it shows up in the United States. If you

will look at all carbon intensive goods combined, Chinese exports to the United States account for only 0.2 percent of Chinese GDP. It's hardly a big stick in terms of getting China to enact climate policy that the United States would like to see them enact.

The good news is that, China and other developing countries are already taking steps to reduce emissions, and while it's unlikely we're going to get China to agree to an economy wide cap on emissions similar to the United States, because their economy is growing, it is possible to reach agreements on some of these very same industries that are of concern to folks in the United States. Many people believe that it's China's goal and intent to become the world's largest steel producer to destroy steel markets elsewhere in the world when in fact, over the past several years, the Chinese government has been actively seeking to reduce its steel exports not because of climate change necessarily, but because steel mills in China are creating a lot of local pollution that causes health consequences and economic costs. Last year, Beijing changed the tax policy for Chinese steel exports to try to discourage exports of steel. If you compute that tax change in terms of a carbon price, it's as though Beijing voluntarily imposed a \$50 per ton CO₂ tax on Chinese steel exports. There's considerable room for the developed world and the developing world to work together to address these key energy intensive industries.

Sherman Katz: Which countries do we get our most carbon intensive imports from?

Trevor Houser: Canada and Mexico, primarily, and Brazil for some goods. Basic chemicals mostly come from Trinidad and Tobago, which is our top importer actually. But Canada, Japan, and the European Union are at the top of our league tables for carbon intensive imports and nearly all goods. China ranks fifth or lower in all but cement.

Sherman Katz: Is there any precedent for having an international agreement on a key sector? Whether there is or isn't, which sector would you nominate for an experiment in the climate change area?

Trevor Houser: There are precedents on industry level agreements, for key sectors as well as international governmental agreements. I think that the aluminum, cement, and steel industries are all fairly well positioned for an agreement. That agreement could come in the form of a technology standard—countries agreeing to strive for best in class technology for steel, aluminum, and cement. It could also come in the form of a direct tax where the United States, Europe, Japan, as well as the developing world agree to impose a \$25 per ton or \$50 per ton carbon tax on internationally traded industries. To the extent that we can move the conversation in the international arena into how to level the playing field for these few industries, there's plenty of precedent in terms of WTO negotiations and

how to do that and how to negotiate tariff levels and ensure that there's a level playing field for all producers.

Sherman Katz: Are there some sectors that come to mind where we've done this kind of agreement in the past?

Trevor Houser: There are voluntary industry initiatives right now already in place on steel, aluminum, and cement. What's needed is to take that a step further where governments make commitments to impose the same type of costs or standards on their industries. Because the alternative is that early adopters of climate policy—the United States, Europe, or Japan—will seek to impose tariffs at their borders. So, either we can reach an agreement internationally on how to discipline these industries, or we risk that individual countries will start to take more protectionist actions.

Sherman Katz: What would be a typical measure in one of these voluntary nongovernmental agreements in steel?

Trevor Houser: If there was a technology standard, then countries who were signatories to the agreement would commit to improving the average carbon intensity of steel production over a set period of time, let's say reducing the amount of CO₂ per ton of steel by 20 percent by 2030. An alternative would just be to agree to impose the same tax on those industries. The United States, Europe, Japan, China, and India all agree to impose a \$50 per ton tax on steel producers. Either of those would have the effect of creating a level playing field internationally.

Sherman Katz: What are some examples of measures in the voluntary industry actions you were referring to?

Trevor Houser: Voluntary industry agreements so far have generally focused around technology agreements and standards so the steel industry will agree to start benchmarking the carbon intensity of steel production. And then individual members, like the American Iron and Steel Institute, coordinated through the International Iron and Steel Institute, agree to aspirational targets of achieving some type of technology standard in 2020 or 2030. Now the challenge is that left to industries alone, the stringency of the target is probably going to be less than what we would like to see in terms of emissions reduction. Industry association is never going to voluntarily agree to incur costs that will significantly reduce their profitability or their market share. So there's a need for governments to come to terms with agreements that would impose costs that would result in the types of emission reduction that we'd like to see.

Sherman Katz: The reason the industries apart from government voluntarily agree to these technical standards is to make it easier to sell their goods in the variety of countries that have also accepted those standards?

Trevor Houser: Right now, it's mostly been for corporate-social responsibility reasons for the steel industry and aluminum industries to show that they are committed to reducing emissions and doing their part on climate change. There are no product standards for steel or aluminum in the same way that there will be for an automobile, which has to meet certain emission standards in order to sell it in the United States. For a ton of steel, there's no market certification. Voluntary industry agreements have been more for corporate-social responsibility reasons.

Sherman Katz: Let's finally look at what you see as the ways in which the systems that you're suggesting might coordinate easily with the WTO rules for trade, or where you think there might have to be adjustment, or should there perhaps be some special code under the WTO on climate change?

Trevor Houser: We look at this in *Leveling the Carbon Playing Field*, specifically US policy. Our point of view is that, for the United States to unilaterally impose trade measures as a part of climate policy, it would be both ineffective, and it will create problems for international negotiations. That said, as we move forward with post-Kyoto negotiations and try to come up with a climate framework internationally that will get us where we need to be in terms of emission reductions, I think that there's potentially significant scope for looking at how we can address the trade component of that in conjunction with the WTO. The key is that needs to be done on a multilateral basis to preserve the health of the international trading system and to ensure that border tariffs don't become the issue that poison the welfare of international negotiations. Here at the Peterson Institute we are going to be doing a significant amount of work on this topic in the year or two ahead with our partners at the World Resources Institute, looking at how in the international realm we can address some of these issues.

Sherman Katz: Thank you very much. Your book, *Leveling the Carbon Playing Field*, is an excellent introduction to and analysis of some of these issues.