

Can We Mitigate the Effects of Climate Change by Putting a P...

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SPEAKERS

Juliet Eilperin, Tricia Johnson, Michael Greenstone

- T** Tricia Johnson 00:03
This is Aspen Ideas to Go from the Aspen Institute. I'm Tricia Johnson. Economist Michael Greenstone says the world is already paying the price for climate change. Areas in the US and around the world have experienced unusual heat waves, stronger hurricanes, bigger wildfires and elevated mortality rates.
- M** Michael Greenstone 00:23
We're living with it. The question of whether or not to have climate change or whether or not we have climate change, that's gone, we now have it. And really the decision that we're facing globally is how much of it to have and, you know, what does this portend about the future.
- T** Tricia Johnson 00:39
He says we're just beginning to experience what the planet has in store, but there are solutions. Ahead Greenstone, who leads the Energy Policy Institute at Chicago, talks about the cost of climate change. Aspen Ideas to Go bring you through compelling conversations hosted by the Aspen Institute. Today's discussion is from Aspen Ideas. The impacts from climate change may include mass migration and climate damages being

spread unequally, so that the poor and those living in hot regions are hit hardest. These are massive global problems. One solution says Michael Greenstone is to look at the social cost of carbon is the estimated dollar price to society for every new metric ton of carbon emitted. Greenstone co led the development of the US government social cost of carbon as chief economist for President Obama's Council of Economic Advisers. Under the Trump administration, the value of carbon had fallen to as little as \$1 per ton. Biden has raised it to \$51 a ton, which is similar to the figure used by Obama. Greenstone speaks with Juliet Eilperin and a Pulitzer Prize winning senior national affairs correspondent for the Washington Post. They spoke on April 19. Here's Eilperin.



Juliet Eilperin 01:56

Welcome, Michael. I'm excited to talk about climate and economics with you. So thanks so much for taking part in this conversation.



Michael Greenstone 02:04

Thank you, Juliet, it's always a pleasure to talk to you.



Juliet Eilperin 02:08

And I wanted to start with an extremely broad question, which is, you know, there are multiple folks who say that we are already paying the price for climate change. But this is an extremely hard concept for many people, whether in the United States, or in many cases overseas to grasp. So could you talk a little about to what extent we are seeing the economic impacts of climate change right now and are poised to pay a higher price in the years to come?



Michael Greenstone 02:40

I think the easiest way to demonstrate that we're paying a price for climate change is the you know, kind of the numbers exactly right. But, you know, nine of the 10 hottest years ever recorded had been in the last 10 years. And that, you know, the scientists have linked not one per one, but have linked with climate change. And those higher temperatures produce all kinds of things. Some are good, milder winters, but some are not so good. So elevated mortality rates, the heat waves in the Pacific Northwest in the last few years, the fires, there's increasing evidence or fingerprints of climate change on the strength of some of the Hurricanes we're seeing. And so we're living with it, I think, the question of whether or not to have climate change or whether or not we have climate change, that's gone. We now have it. And really the decision that we're facing globally is how much of it to have.

And, you know, what does this portend about the future? One of the features that makes us nasty, is that what economists like to say is, there's a nonlinear relationship between temperature change and human well being. And so what does that mean? It means for each little bit of increase in temperatures, there's some on net damages around the planet. But that little each little bit actually gets worse and worse. So you know, going from a day where it's 70 degrees to 71 degrees, not so bad in terms of crops or in terms of human health, but going from a day that's 95 to 96. That's a big deal. And so, we're just beginning to experience what I guess planet has in store for us.



Juliet Eilperin 04:26

And as you alluded to the cost of climate change, and its impacts are not evenly distributed. So obviously, some regions some segments of society bear a heavier burden than others. Could you talk a bit about how this is playing out again, both domestically and overseas and also how our understanding of this issue has advanced over time.



Michael Greenstone 04:58

One of the most exciting things from a research perspective, that's been the explosion of computing power and access to datasets. And that's usually a conversation killer. But the reason that it's so interesting is it has allowed us to examine what the impacts of climate change might be. Not in like, you know, by dividing the world into five regions, like all of North America, all of Europe, all of Africa, all of Asia. But actually, in some work that I've been leading with some colleagues at the climate impact lab, we've been able to divide the world into 25,000 regions.



Juliet Eilperin 05:33

So when you talk about that, how big is a region?



Michael Greenstone 05:35

A region like the US County, think of it as a US county. And so it's like, kind of amazing, like, all this information gets unleashed, that was kind of hidden in the aggregation of all we're going to treat all of North America as the same, which, on its face is crazy, because like, you know, climate change in Manitoba is going to be very, very different than climate change. No, Bassam, what begins to emerge are two very common sense things. But one, if it's already hot, not gonna be so good, it's gonna be worse. And if it's already really cool, then that's probably actually gonna be something beneficial. And also, what comes out of the data screaming out of the data, is one of those insights that economists are beloved

for, which is that it's better to be rich. And so it's really the places that are poor and already hot, that's employees to be, you know, face the largest climate challenges.



Juliet Eilperin 06:27

So in terms of how this plays out, I mean, for example, at a moment when, you know, certainly we in, in the United States are having a conversation about environmental justice, and what sort of reckoning we need to take into account when forming policy. What, you know, what do you think are some of the implications that other words, as I understand it, you know, a disproportionate number of poor Americans are going to be affected by the impacts of climate change. And overseas, clearly, there are a number of poorer countries that are going to bear the brunt of these impacts.



Michael Greenstone 07:06

Suppose we only cared about the United States. A tension that gets emerged there is how we as a society should think about climate damages being spread on equally. And do we care the same about \$1 climate damages that happens to your employer, Jeff Bezos, or as \$1 climate damages that happens to the low income family. And today, federal policy has really treated the dollar damages the same no matter who had happened to. And I think a lot of the environmental justice movement is raising questions about whether that's such a good idea, or that's fair. And I think there are opportunities to take on board this idea that we care much more about \$1 damages that have as to, you know, low income family. Globally, the consequences are kind of like wild. In the volume center, if you look at a map of where the damages are going to be around the world. What's really amazing is that you can see they're concentrated in the pretty hot regions. And then when you go higher up and latitude, and you see these large, slotted, barely populated parts of the planet, let's call them Canada and Russia. And if you look at it, it just seems like over the timespan of decades, there's just no way all the people are going to remain in the heavily populated places, and not want to go to the lightly populated places, and how we handle that geopolitically. I have no idea. And you know, the levels of political discontent about migration in Europe in the last decade, and then we're seeing more of that in the United States right now. I'm not talking about like, day to day migration, but really mass movements of people. There's a lot of pressure pushing in that direction.



Juliet Eilperin 08:54

Right. And that's actually one of the things that already in one of President Biden's earliest executive orders, climate induced migration is, is one of the things that, in theory, the government is now going to start looking at. I mean, it's obviously been raised in the past,

but it sounds like it's going to be examined in a more systematic way.

M

Michael Greenstone 09:14

Yeah. You know, if we could just one other thing, you know, just to highlight the inequality that I think, like it's striking to me, is, you know, the whole Atlantic seaboard is going to be in trouble with respect to sea level rise. And I don't know, you know, you cover Washington, like, what are the politics of deciding which parts to let go and which parts to keep? Like, I don't want any part of that decision. You can bet that we're going to spend every last dollar protecting Manhattan. But after that, I'm much less certain about which parts of the Atlantic coast we're going to, we're going to spend money protecting and it just feels to me like an incredibly thorny and painful political problem.

J

Juliet Eilperin 09:58

Yeah, no, it's definitely one of the tough things. I mean, and I want to get to a subject near and dear to your heart, which is its carbon pricing. But But before we do that I just have a question. You know, there's the potential for disastrous impacts, which, you know, again, people talk in passing, but I have not yet fully grappled with, as someone who spends so much time writing and calculating the, you know, possible economic impact of these things. And as someone who obviously has worked in the White House and has been at the heart of policymaking, do you have observations about why it's so hard for people to make rational decisions about about this topic?

M

Michael Greenstone 10:43

I guess. You could be you could mean domestically, or you could mean internationally. Right. I think it's easiest to talk about internationally. But what I'm about to say it's applied domestically to you yeah, at its core, it requires a trade off between how much income or consumption we're going to have today, and how much we're going to have in the future. And the problem is, is that we're a very unequal places right now, in the United States, on average, you know, we're pretty rich country. And so buying a little insurance against the future is not does not seem like totally impossible, but we've had our struggles with it. But like, trying to sell the idea of really reducing consumption today, or income today, in the name of benefits in the future in India, or Bangladesh, or Pakistan, like that is a hard sell. And the reason is, because like people are dying today, like basically being poor, you know, that's a really, really hard ask. And that difference in what economists like to call the marginal utility of consumption just for all the listeners, but like how valuable an extra dollar income is, today in India versus in United States is really an enormous driver of the political problems. That applies in United States as well to like, you know, very wealthy

people, it's not such a big deal. less wealthy, people are going to feel it much more strongly and, you know, ultimately be resistant to it. So it's, it seems like differences in both the costs of dealing with it. And then the differences in exposure that I think, really make it kind of the problem from health, to be honest.

J Juliet Eilperin 12:22

And there's also the question of historic responsibility for emissions, right, which, which comes up all the time in international negotiations over how to go forward and who essentially has been emitting greenhouse gases in the past?

M Michael Greenstone 12:37

Yep, that is brought up all the time. I don't even think you need to go there. To be honest, you could just say like, we're, you know, if you're India or Pakistan, you know, you got problems today, whatever was done in the past, that didn't really matter that much. It's not a does not appear to be a reasonable ask for the world to ask them to greatly reduce their emissions today, when their incomes are so low, we could bring up historical responsibility as well. But I think just the current problem is really enough to make it a very, very thorny, and you know, I'll just come back to one other thing. Another part of this that, like, internationally makes it very hard, is when you look at the pathways for emissions, you know, the vast majority and 70% or so, for the remainder of the century is supposed to come from today's developing countries. And so like, think about that, that means, let's just set aside who's paying for it. That means that the world is asking the countries that need energy consumption, cheap energy consumption the most to make the reduction that's a really hard to ask.

T Tricia Johnson 13:45

This is Aspen Ideas to Go. Thanks for listening. Today's global problems are complex, entrenched and intertwined. The Aspen Ideas team has partnered with the Skoll Foundation to produce a new podcast about solutions. Solvers features unconventional social innovators. Hear from infectious disease expert Christian Happi, activist and community organizer, Alessandra Orfino, social entrepreneur and nonprofit executive Rodney Foxworth, and many others. The first episode drops April 22. Find Solvers, wherever you're listening now, and be one of the first to leave a review on Apple Podcasts.

J Juliet Eilperin 14:25

Let's get onto carbon pricing. Let's start with just, again the basis of why would one want

to put a price on carbon and how would it help solve this problem?

M

Michael Greenstone 14:36

Okay, so the power of putting a price on carbon is that really the enemy and all of this is carbon, so why not penalize it? So when the Juliet household is spewing carbon all over the place? Shouldn't they have to pay a penalty for it? And then along with that as well? How do we make sure for that, you know, every day are devoted to that we get the biggest bang for the buck. And the challenge is, it's very, very hard to know that in advance. And so by putting a price, we kind of unleash innovation and creativity and let people figure out what the cheapest way is. And it invariably leads to the largest reduction for every dollar of expenditure.

J

Juliet Eilperin 15:22

Some listeners might be familiar with, say, the cap and trade program, which was what, you know, for example, Democrats were floating a decade ago as the way to solve this problem. Could you talk a little about how it might be different from say, first of all, its practices in a number of states and and how this would affect everything from, say, the, you know, gas that someone puts in their tank to what kind of electricity is powering, you know, your home.

M

Michael Greenstone 15:52

There's two ways to have carbon pricing. The first is you could have a cap and trade where the government sets an absolute limit on the total amount of emissions that are the second that you just apply a tax or price for every tonne of carbon that's emitted, those will in it variably raise the price of products that have carbon in them. So the way you could think of it is like a \$10. Carbon Tax is about 99 cents per gallon of gas. And what is so appealing about that is it causes people to see the damages that they're inflicting on everyone else. And slowly, but surely, people will then begin to alter their choices. And then you can see reductions in carbon, kind of the prototypical other way to do it. I like to think of as like, the double bank shot approach. And, you know, I'm not very good at pool, I'm not so hot at shooting when it's direct when I have a direct shot at the hole. But like when I have to use two bumpers to get there, I'm pretty bad. And so they're like, there's a whole range of policies that are kind of in the double bank shot category. Energy Efficiency policies, or one's tax credits for construction of renewables, or another renewable portfolio standards are another and they're just kind of, on and on. And a common feature of all of those policies is they don't actually directly target carbon, they target something that is related to carbon, like if you lose less energy, then you probably

use less carbon. If you give tax credits for building renewable generators, then you know, there'll be more of those. But whether or not there's less carbon kind of depends on Well, what are those renewables knock out a coal plant? Or do they knock out a nuclear plant? If they're not got a nuclear plant? Not so not so good, then that got a coal plant, then that's great. And so I would say the Achilles heel of all of those policies, is that it's not so obvious what the impacts are going to be on tons. And the acid test or co2 policy, is how many times the co2 can be abated? That is, how many tons of emissions of co2 can we avoid doing? So when I think a climate policy really what I think about is tons tons tons, how to get as many tons abated as possible. What would the planet care about what what our children or grandchildren care about? And at the end of the day, they really only going to care about tons, and tons of the only thing that matters, doesn't matter how many solar panels are installed, it matters, how many fewer tons are and it doesn't matter how many homes are weatherize no matter how many fewer tons are and these policies because of double bang, so you have to hit the bumper twice before you get to the co2.

J

Juliet Eilperin 18:34

So you've obviously, you've described the so called double bank shot. Obviously, if you look at, for example, what President Biden has outlined in his infrastructure proposal, there are plenty of examples of it right there. You alluded to some of them whether it has to do with tax credits for new renewable energy, whether it has to do with potentially a clean energy standard. Why is that so appealing when you're arguing that it is a less efficient, and in some cases, potentially flawed approach to cutting greenhouse gas emissions?

M

Michael Greenstone 19:11

Okay, so I think so first of all, the clean energy standard, which no one knows exactly what former will take, but if it were purely focused on carbon and treated all low carbon energy sources same, then that's pretty close to directly dark carbon, so let's put that to the side. But the double bank shot policies. I think, you know, I've thought a lot about this, like, Why are people so uncomfortable with bracing? And I think at our heart, a lot of people really are kind of like engineers. And they don't really trust it through the magic of like, facing penalties for polluting people will change your behavior. They kind of want to see touch and feel. And so they like they want to be able to point to that solar panel there that got that tax credit, or that house there that got weatherize and There's just kind of a mistrust of what markets can achieve. And, you know, it's a couple centuries after Adam Smith, I laid out the idea of the invisible hand. And I think it's that invisible hand relative to kind of an engineering See, touch, feel, thing that is a major, it's a major impediment. People just don't trust the markets to produce it.



Juliet Eilperin 20:24

I'm going to flip that around, because I would argue that particularly having spent my career covering politicians, that there is, in fact, a see touch feel element to the carbon tax that most politicians are profoundly comfortable with. Right, which is this idea that there's a reason why gas prices, for example, has been historically one of those politically fraught arbiters of how politicians are doing how in again, the 2008 campaign, which obviously you're well versed in, where brock obama was put in a really difficult spot as gas prices went up. And john mccain, in fact, used it, obviously not successfully enough, but used it to attack him for some of his climate policies. And so in fact, when you put a price that consumers can see, that makes it very real in many ways, as you're saying it does, it does provide more transparency, in terms of people's environmental actions. But it also puts politicians more on the hook for making things more expensive, in a way that's much less apparent, when, for example, you're doling out government subsidies. Right?



Michael Greenstone 21:43

I think that's a good point. So I agree on the left hand, but on the right hand, let me push back a little bit. I think you're falling prey to the boogeyman. And I actually looked up the definition Boogeyman before this. Okay. Got it. Right. So it's an imaginary evil spirit, that is often used to frighten children. And I, you know, that is just a question of like, the design features of the policy. Because there are many proposals floating around about carbon taxes, where you would rebate the revenues directly to lower income Americans, you know, in terms of see touch, feel, that'd be pretty good check every month, saying, you know, this is paid for, you know, by the carbon tax.



Juliet Eilperin 22:31

So, alright, so if that's the case, then make the argument of why you think that, for example, a carbon price might now have a little more life into it a little have a slightly higher chance of being revived as a major policy tool. We obviously have seen the American Petroleum Institute, raise this as a possibility. But tell me, what's your sense of of what's the chances?



Michael Greenstone 22:55

Oh, I think like I agree with you, I think it is still more likely than not that it won't will not happen. But why might there be a surprising amount of momentum about it, I think the American jobs plan is going to be very expensive. There's going to need to be some revenue from that there's different ways to get it. I think the Biden administration has been

somewhat quiet about how many tonnes of co2 the American jobs plan is going to reduce. And I think, you know, coming back to the acid test, do our children, their grandchildren, the planet care, I think that's a weakness as it's currently laid out. And so I suspect that there could be some centrists out there, who would like to be able to more tangibly predict, say, this is how many times we're going to get and, you know, we're going to try and be careful with the nation's resources and getting those jobs.



Juliet Eilperin 23:53

Now, let's move on to the social cost department. Yes. Given that, that is one example of a carbon price, which is being a day after lying largely dormant during the Trump administration, talking about what why this tool even exists in the first place.



Michael Greenstone 24:09

I like to say a social cost carbon is the most important number you've never heard of. And what is it is the monetary damages involved from the release of an additional tonne of co2? So every time the Juliet household puts an extra tonne of co2 in the atmosphere, this is what the climate damages are, that are spread around the world. It's history is that in 2009, Cass Sunstein and I were having lunch in the White House mess, and the economy was losing 700,000 jobs a month. And I said, Hmm, I don't know gas. You know, I'm not the political person in the White House, for sure. But I do wonder if it's going to be possible to have a cap and trade in past cap and trade and raise energy prices in the midst of all this. And you know, Castro is not a political person, either, he goes, seems like maybe something there and so on. The obvious thing that the President had made clear was that the captain didn't work, there's going to be a regulatory approach to addressing climate change. And to do regulations, you have to do cost benefit analysis. And at the end, there was going to be the spite in the cost benefit analysis of reducing tons versus dollars imposed on the economy. And it just felt like the tons, we're always going to lose because people love dollars, and no one really knows what a tonne of co2 is. And so the social cost of carbon is a way to turn the reduction in tons into money. And it unlocks cost benefit analysis, and it unlocks being able to do regulations that impose costs on society, in exchange for benefits.



Juliet Eilperin 25:42

So then, obviously, the Obama administration does develop a social cost on carbon and creates a working group to analyze how to update it right. As of now, it stands at a little above \$50 per ton.

M

Michael Greenstone 25:55

The great Trump interlude, reduced it to somewhere between one and 7 dollars.

J

Juliet Eilperin 26:00

Right. So then then it goes down and it plummets. And then one of the first things that that President Biden does is actually indicates that he's going to revive the social cost of carbon, which then the administration has done setting an initial price of, you know, whatever it is, like roughly \$50,000 per ton or something and change. But the story is not finished, because there's now going to be a process that's going to last almost a year to come up with a more accurate, updated figure. So can you talk through what needs to be done to get, you know, truly accurate social cost recovery?

M

Michael Greenstone 26:38

So I'll just add a little more color, about the day of the inauguration of the Trump, Trump, President Trump's inauguration, the National Academy of Sciences put out a report saying, hey, science and economics has advanced a lot since 2009. And 2010, you guys, administration should do all these things, to update it to return a social cost to the frontier of understanding those things weren't done. In fact, we kind of went backwards, in my view. And so what the Biden administration has set out to do, and they give themselves a deadline, I think, February 2022, is to return the social cost of carbon to the frontier of understanding. And I think there's a couple things, there's several things that would be on my to do list, if I was tasked with doing that. One is bring in the frontier of climate science. So right now, it's kind of using antiquated climate science doesn't always pick up like some of the extremes that the climate scientists now believe. The second is, and we were talking about this few minutes ago, there's been an explosion of research on what the economic impacts will be projected to be of climate change, and not just what they'll be, but like how they're going to be distributed around the world, like which places are really going to be hit hard, and which places will benefit and which places not that much will change. And so those two things kind of just had to be done straight away, in my view. The third is, there's been just profound changes in international capital markets, and the consequences that we should be using a much lower discount rate. It's a very wonky thing. But it's basically how you trade off things that happened today versus things that happen in the future. And since damages from climate change, kind of happen over a very long timescale, it matters a great deal. So I would say those are the three most important things. There's some others that are on the to do list, I guess I would also raise up one other, which is it's very common sense, which is there's a lot of uncertainty about climate change. And that uncertainty is both on like how large the economic damages will be, and on how big the changes in climate will be. And currently in our valuations, of

course, government, we ignore that uncertainty. But that just doesn't accord with our behavior. Like, I mean, I suspect, I can see your office or study there. I suspect in your home, you've actually bought homeowners insurance in case something terrible happens. And the reason you buy it is you would rather get a little money today just to protect yourself from some terrible outcome. And we haven't included that kind of certainty equivalence in the calculation of social cost of carbon. And I think we should and I think we will actually have a quite consequential impact.

J

Juliet Eilperin 29:25

Okay. And for those who want to know, what is the root, what will be the ultimate real policy impact of, for example, having, you know, say a social cost of carbon that might be say \$100 per tonne, or maybe even higher than that. If you're looking at decisions, whether it's requiring stricter pollution controls for power plants or a decision on whether to construct a new pipeline or highway, how will the higher social cost of carbon change decision making on these huge, huge projects.

M

Michael Greenstone 29:58

Suppose we have a rate that would reduce CO₂ emissions by five times. And it costs \$400 to do it, at \$51 a tonne, that policy would look dumb, we would have \$255 of benefits and it would cost \$400. And why would we ever want to do something where the costs are larger than the benefits? What if the we were miscalculating the social cost of carbon and it was actually \$100. And suddenly, this policy, which didn't look like such a good idea, would now look like a no brainer to get \$500 benefits. And it would only cost 400. And you know, full steam ahead. And so what it does higher social cost of carbon is it makes all kinds of decisions to restrict emissions in the economy, you know, it increases their benefits.

J

Juliet Eilperin 30:47

And we're talking during a week where, for example, President Biden is going to be convening virtually, leaders from all around the world to talk about what to do about climate change, we anticipate that the President is going to issue an executive order, which is going to integrate climate risk more fully into federal decisions. When you look at how much closer you think we are now to grappling with some of these issues. How do you view this landscape right now?

M

Michael Greenstone 31:16

It's totally amazing. If you go back to the Kyoto Protocol in 1995, there was definitely

some engagement by the US, kind of I would call it a recognition of a problem. And then, you know, beginning in 2001, there was a long period where there was kind of retrenchment, if anything, or just kind of looking the other way and saying, well, we're not gonna do anything to you guys do something and kind of a standstill at that. And then the Obama administration, kind of there was renewed effort to try and engage. There's a Paris accord, there were some very important successes, and obviously big steps backward trumping machine. But at no point in American history, has there been this degree of focus on climate change? And, you know, the vitamin station is setting a very loud and clear message. every agency feels like they have to have a climate person on their team. And the you know, the EU appears United States is about to, you know, double its commitment. Its Paris commitment, for reductions by 2030. You know, climate is having a moment. Does it have to last forever? No. And that's part of why I think it's so important that there be tangible progress, not just a lot of focus, but really tangible progress. And I'm going to keep coming back to the acid test for tangible progress is going to be tungsten stones, measured globally, not just in the United States.



Juliet Eilperin 32:41

Excellent. Thanks so much, Michael. I appreciate it.



Tricia Johnson 32:48

Michael Greenstone is a professor of economics at the University of Chicago. He's also director of the Becker Friedman Institute and the Energy Policy Institute at Chicago. Juliet Eilperin is a longtime reporter for the Washington Post where she's covered the environment, the White House and the House of Representatives. She's the author of two books. Their conversation was held April 19, days before President Biden's climate change summit. Make sure to subscribe to Aspen Ideas to Go wherever you listen to podcasts. Follow Aspen Ideas year round on social media at Aspen Ideas. Today's show was produced by Marci Krivonen and me, Our music is by Wonderly. I'm Tricia Johnson. Thanks for joining me.