

PLANET MONEY

# The One-Page Plan To Fix Global Warming Revisited

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ROBERT SMITH, HOST:

Hey, everyone. Robert Smith here. A couple weeks ago, we got an email from a listener named Mark Hommerding (ph). Mark listened to this episode right here when it aired back in 2013, and he heard our reporters make a promise at the very end of the episode.

MARK HOMMERDING: They said that they would follow up in five years, and so I went down to my calendar. And I set an appointment for July 1 of 2018.

SMITH: We actually forgot about it, but July 1 rolls around. And Mark sends us an image of his Google Calendar, and there's a big, red circle around a note that says ask PLANET MONEY to follow up on show number 472.

HOMMERDING: I wanted to hold you guys accountable (laughter).

SMITH: At PLANET MONEY, we keep our promises. So today we bring you an update on the brilliant one-page plan to fix global warming. This one's for you, Mark.

DAVID KESTENBAUM, HOST:

I've been covering climate change on and off for about 14 years now, and it's one of those stories where, frankly, as a journalist, you get kind of burned out because it's essentially the same story over and over again. Scientists saying, hey, this is real. It could be bad - sea level rise, giant storms, extinctions. Then, of course, you hear politicians and world leaders saying, yes, we must do something. And then not a lot happens. As a sign of how gridlocked we are in this country, President Obama the other week laid out his plans to try to reduce carbon emissions here in the United States. He's having to rely on a 43-year-old law that was originally intended to deal with smog. It had nothing to do with carbon dioxide. He actually made a kind of joke

about it.

(SOUNDBITE OF ARCHIVED RECORDING)

BARACK OBAMA: And 43 years ago, Congress passed a law called the Clean Air Act of 1978. And that law passed the Senate unanimously. Think about that. It passed the Senate unanimously. It passed the House of Representatives 375 to 1. I don't know who the one guy was. I haven't looked that up.

(LAUGHTER)

OBAMA: I mean, you can barely get that many votes to name a post office these days.

KESTENBAUM: You certainly can't get that many votes for a full-on climate bill in Congress right now.

ALEX BLUMBERG, HOST:

And this type of thing, to me, is what makes climate change seem so hopeless. The problem is so dire, and yet the world is finding it so impossible to act. And I've always imagined it's because the solutions are just incredibly complicated and expensive. And it's the standard short-term pain versus long-term gain dynamic.

KESTENBAUM: It turns out, though, fixing climate change does not have to be either of those things. There is a very simple solution that could cost us almost nothing.

(SOUNDBITE OF GREG HATWELL SONG, "DAYDREAMING")

KESTENBAUM: Hello, and welcome to PLANET MONEY. I'm David Kestenbaum.

BLUMBERG: And I'm Alex Blumberg. Today on the show - the one-page dream plan to solve global warming for free or close to it.

(SOUNDBITE OF GREG HATWELL SONG, "DAYDREAMING")

KESTENBAUM: One of the guys who's been dreaming about this simple way to deal with climate change - his name is Henry Jacoby. He's an economist at MIT's Center for Energy and Environmental Policy Research. And he told me, really, if you want to address climate change, there is just one thing you need to do.

HENRY JACOBY: If you let the economists write the legislation, it could be really simple (laughter).

KESTENBAUM: If you were to write it, how short could it be?

JACOBY: Oh, if I were to write it, a page (laughter).

KESTENBAUM: What Jacoby would write on that page is a carbon tax. Basically, he says, you tax the fossil fuels in proportion to the amount of carbon they release. That would make coal, oil and natural gas more expensive. And then - actually, that's all you have to do. To understand how this would work, I took a drive with Jacoby's colleague John Reilly. Obviously, gasoline is a fossil fuel. So under a carbon tax, it gets more expensive and driving gets more expensive.

What kind of car is this?

JOHN REILLY: It's an Infinity. With my kids all gone, I actually decided to do something luxury. This does get something like 27 miles to the gallon on the highway. So it's not the worst thing around, but it's not a Prius (laughter).

KESTENBAUM: We pull into a gas station. In the first year of a carbon tax, he imagines the price of gasoline would rise by about 25 cents a gallon. Over a year, he figures this would cost him an extra \$125. But then it would get more expensive.

BLUMBERG: So the way most people imagine a carbon tax working is that you ramp it up over time - sort of tighten the screws and gradually push the economy away from fossil fuels. By 2050, Reilly figures the carbon tax would go from 25 cents a gallon to about a dollar for every gallon. Reilly does the math to figure out how much that would cost him driving his Infinity extra per year.

REILLY: And that would be about \$500 a year. I might buy a more fuel-efficient vehicle (laughter).

BLUMBERG: And right there, Dave, that is the carbon tax working its magic.

KESTENBAUM: The idea is that people and businesses all over the economy - they would start thinking this way, making changes, course corrections - some big, some small - to avoid the higher cost. Here's Henry Jacoby again.

JACOBY: You can decide, do you want to harass your children to turn off the lights? Do you want to buy a smaller car? Do you want to ride the bus one day a week? Do you want to insulate your attic? There are a thousand things that people would think of to lower the cost of this activity that's got this - got the tax on it. The tax has small effects around a million different activities, and that's the advantage of it. It gets its influence almost everywhere.

BLUMBERG: And this is why economists generally love a carbon tax. Those tiny effects over millions and millions of people and activities can have a huge impact. One change to the tax code, and the entire economy - all of us living in the world - we shift our behavior to reduce carbon emissions.

KESTENBAUM: So to economists, this is super obvious. Fossil fuels have costs associated with them that aren't reflected in their price right now. So you just need to correct that price. Make it more expensive.

BLUMBERG: Although that does raise an obvious question here (laughter). How much more expensive should they get?

KESTENBAUM: To figure out how much more expensive, we're going to imagine John Reilly's life under a carbon tax. We're going to try to figure out how much extra everything would cost him and add it up. So we did gasoline already. In the first year of a carbon tax, he estimates gasoline would cost him a total of about \$125 more a year.

BLUMBERG: So I'm going to keep track here. John Reilly is our proxy for what life would be like under a carbon tax. We're at \$125 a year so far.

KESTENBAUM: And then the next thing, probably, is electricity.

REILLY: Yeah, so here's my electric bill (laughter). My electric bill last month was \$46.27.

KESTENBAUM: John Reilly figures that would go up but not by that much - about \$60 a year.

BLUMBERG: All right. So adding that - 125 plus 60 - OK, that's \$185 a year so far extra that we're spending. What else is there?

KESTENBAUM: There's heating, which - in New England - heating can be pretty expensive.

REILLY: You know, I think I did some calculations on - you know, the average household in New England would spend about \$1,000 on natural gas for heating their home. The carbon tax would add about \$100 to that.

BLUMBERG: All right. Another 100 - we're at \$285 right now. Anything else?

KESTENBAUM: You know, I kept trying to find big-ticket items, like airplane flights. He said that's probably \$75 a year.

BLUMBERG: All right. Let's see here - \$360 extra a year. Anything else?

KESTENBAUM: It turns out one of the most carbon-intensive activities is something I had not even thought of. It's something that's right underneath our feet actually - concrete. And to get to the bottom of this one, John and I called up a guy on speakerphone who works in the concrete business.

DAVID PERKINS: My name is David Perkins, and I'm with TXI based out of Dallas, Texas. And we manufacture cement, aggregate and concrete - building materials.

REILLY: Hey, it's fantastic to talk to you, David.

PERKINS: Likewise.

KESTENBAUM: David Perkins explains that concrete is basically cement with some gravel and sand added in. And the process of making cement produces a lot of carbon dioxide. Making one ton of cement, he says, makes about eight-tenths of a ton of CO<sub>2</sub>. There are two reasons for this. One is that there's a lot of chemistry involved. You have to heat the ingredients up to very high temperatures, and that often means using fossil fuels...

BLUMBERG: Just to create the heat.

KESTENBAUM: ...Just to create the heat. But then there's also - the process itself turns out to produce carbon dioxide on its own.

BLUMBERG: You mean the chemical reactions by which the cement is formed, that

produces carbon dioxide?

KESTENBAUM: Yes.

PERKINS: So approximately 50 percent of those emissions of the CO<sub>2</sub> that is generated from the manufacture of a ton of cement is directly related to what we call process emissions, and that's that chemical step that has to take place.

REILLY: So that's largely unavoidable.

PERKINS: That's correct.

KESTENBAUM: We do the math, and it looks like concrete under the first year of a carbon tax - the price of concrete would go up by 25 percent.

PERKINS: You'd be looking at a pretty significant impact. Absolutely.

KESTENBAUM: This is one of those industries where it's hard to imagine a way to just make the thing - make concrete - without producing any carbon dioxide. And David Perkins says concrete is everywhere.

PERKINS: It's one of those kind of things that you're likely standing on, or in a building that has cement and/or concrete in it. It's really kind of a silent thing that you don't really realize.

KESTENBAUM: Can you see cement or concrete from where you are right now?

PERKINS: As a matter of fact, I am sitting on some (laughter).

BLUMBERG: So concrete - a lot of carbon emissions associated with it, but it's actually hard to account for in my tally here, right? So John Reilly, he's not going to the hardware store regularly and buying bags of concrete. He probably doesn't buy very much concrete at all.

He walks on concrete. He may work in a concrete building. But those things are no longer emitting the carbon. They were - they emitted the carbon when they were created, but not anymore. How do we do this?

KESTENBAUM: Well, I guess, at some point - right? - if MIT does build a new building...

BLUMBERG: Where he works.

KESTENBAUM: Where he works. Or, you know, and concrete is more expensive, that means, maybe, less salary for John or something. Or if the city needs to raise taxes to cover the costs of putting in new sidewalks, you know, that could impact him.

But John Reilly doesn't actually buy any concrete. So to keep things simple for our purposes, with him as our proxy, you can add zero. Can you add zero?

BLUMBERG: (Laughter) I can add zero. All right. So is there anything else before we go on?

KESTENBAUM: There's one other thing I asked about. If you think about the stuff that we spend money on every day, there's one big-ticket thing we've left out, which is food.

BLUMBERG: Oh, I love food.

KESTENBAUM: Food's a big-budget item. So we went to the supermarket, and I tried to find things that had been shipped from far away. I was just picking up fruits and vegetables and looking at the label and asking John how much more expensive they would be. Would it be a big deal?

Oranges - oranges come from Florida.

REILLY: Not a big deal.

KESTENBAUM: Mangoes - mangoes from Peru.

REILLY: Again, not a big deal.

KESTENBAUM: Kiwi - where are kiwis from?

REILLY: Well, originally from New Zealand, so that would be, like, as far as you could get.

KESTENBAUM: Let's say this one's from New Zealand.

REILLY: Not a big deal. The transportation part is not a big cut of the cost. We look at the transportation, think, that's a big deal. But transportation, you know, people put

these on boats. It's really pretty efficient in terms of fuel use.

KESTENBAUM: So we buy a bunch of stuff, go out to the car. And then we look through the bill.

REILLY: So our grocery shopping - \$13.12, it looks like.

KESTENBAUM: And the total carbon tax would be?

REILLY: About 17 cents.

KESTENBAUM: So if it had a line saying, carbon tax, it would be just 17 cents?

REILLY: Yes, if we trace it all the way through.

KESTENBAUM: He figures food would cost him maybe 50 bucks extra a year in the first year of the carbon tax.

BLUMBERG: All right. So that's it, right? That's everything you guys have.

KESTENBAUM: We're done.

BLUMBERG: All right. So our grand total - let me calculate this up - for the additional cost to John Reilly, our proxy, under the first year of a carbon tax, \$410 per year. That's how much it would cost.

KESTENBAUM: All right. So what should we think about that? Well, you know, first of all, for a lot of families, that could be pretty painful, right? If you're in the lower income brackets, you're counting every dollar. You're definitely going to feel this.

BLUMBERG: And for some people, obviously, it will be way more than \$410. If you have a very long commute, you spend a lot of fossil fuels, if you have to fly a lot for your job, if you're a coal miner, you're probably going to be hit especially hard.

KESTENBAUM: And remember, this is also just for the first year of a carbon tax, right? The idea is that tax is going to go up a bit every year to force people to change what they're doing.

BLUMBERG: But I do have to say, I thought it would be more. I mean, this is basically a dollar a day. And you may have heard that phrase in public radio. I feel like if people



are going to pay that for public radio, it seems a bargain for saving the world.

Although, Dave, there is something that I would like to point out. You know, at the beginning of this podcast, we said, for free. Four-hundred-ten dollars - whatever you think about it - it is not free.

KESTENBAUM: That's because we're not done yet. There is one more part to this plan, which is about what you do with all that money you raise from a carbon tax. It's a tax, right? So the government is collecting money - everyone's \$410 or whatever on average.

And what you do under this plan is you would take that money you've brought in, and you would give it right back to the people.

BLUMBERG: All right. So just to be clear...

(LAUGHTER)

KESTENBAUM: It sounds crazy, right?

BLUMBERG: You collect all this money in carbon taxes from people, you divide it up by the population, and then you write everyone a check.

KESTENBAUM: That's a simple way to think about it. Yeah, sure.

BLUMBERG: How does this help? It feels like it defeats the purpose. You take 410 bucks from John Reilly, and then you write him a check for 410 bucks.

(LAUGHTER)

KESTENBAUM: Well, that's on average, right? I mean, I know it's weird. It seems like magic. But, I mean, imagine - right? - in this scenario, gas and heating your house - all that stuff - it is still more expensive, even if you get the check, right? So there's still this incentive to not use fossil fuels as much. I mean, you could think about it from individual people's perspectives, right? If you live in a city and you get the check, you might actually be making money because the check would be more than you're paying in carbon taxes. If you live in a rural area and you have a large carbon footprint, the check isn't going to offset it all. But in either case, you're still going to hate paying that tax. And you're going to try and change your habits and change what you do. And

maybe people move closer to work, or - they still make all those changes.

REILLY: The more money you save by doing something differently, that's extra money in your pocket because you're not paying the tax. And then you still get a check at the end of the year.

KESTENBAUM: It does seem like magic. It can't work.

REILLY: Well, trust me. It should.

KESTENBAUM: This is actually pretty basic economics. And there's a way to take this magic trick and make it even more magic. You give the money back in a smarter way. You don't write everyone a check. You just cut their income tax.

BLUMBERG: Right. So you give the money back by lessening their income tax.

KESTENBAUM: They get to keep more of their salary.

BLUMBERG: Exactly. The same way in polls, most economists love the carbon tax, the same economists tend to dislike the income tax. That's because when you tax something, you discourage it. And income is something we probably don't want to discourage. We want to encourage people to be able to keep more of the money that they earn on the job. We want to encourage businesses to hire people. And an income tax discourages both those things.

KESTENBAUM: So for economists, this is a chance to reduce a bad tax - the income tax - and replace it with a good tax - a tax on carbon, which is, like, a kind of pollution. In fact, if you do this, John Reilly says, a carbon tax can be nearly painless for the economy as a whole. That's right. As promised, you can fight climate change, and do it basically for free.

REILLY: This is almost magic, right? Because in some of the work we've done, the whole economy actually benefits by that tax swap. You raise the carbon tax. That does increase your energy costs, but you actually improve economic performance by reducing these other taxes. And the economy is actually better off.

BLUMBERG: Can that really be true?

REILLY: Yes (laughter).

KESTENBAUM: Alex, I called around. I talked to a bunch of economists about this. And they said, look; the basic idea is totally sound. If you give the money back by cutting taxes - some people were skeptical the economy would actually grow faster if you do that, but they said you could definitely offset a lot of the pain.

I mean, to be clear - right? - certain industries - coal mining, for instance - would take a hit. Some people will pay more than others under this system. But when you look at the economy of the whole, it doesn't miss a step, they say. It just keeps on growing.

BLUMBERG: And, of course, there is this one other benefit - the thing we're trying to fix in the first place - climate change. We're finally addressing that. And it's all because of a carbon tax, right? It encourages people to conserve energy.

And also, there's this other effect that I love about it that we haven't touched on. When you make carbon more expensive, other more environmentally friendly energy sources become less expensive by comparison. So, for example, right now, coal is cheaper than solar. But presumably on our carbon tax, eventually, coal will be more expensive than solar. And then solar becomes the financially rational choice.

KESTENBAUM: And that's how you end up switching the entire electrical system.

Henry Jacoby told me that if you could implement a global carbon tax all over the world, he says you could limit global warming to 2 degrees by the end of the century instead of where we're headed now, which could be more like 5 degrees.

JACOBY: The kind of standard line that you have in international discussions that we're trying to limit the increase to 2 degrees. That's something that would - that would avoid sort of the really bad outcomes. If you get to 5 degrees - we're talking about a world that we don't really understand - it's deadly serious business.

If we could hold it to 2 degrees, which won't be easy - if we could hold it at 2 degrees, I think that we probably would survive a lot better. But 5 degrees is - effects on ecosystems and agricultural and sea level rise and such is something that we just barely understand.

BLUMBERG: So let me get this straight. These economists are saying that perhaps the biggest environmental crisis that humanity has ever faced - one that has perplexed policymakers for decades - is utterly solvable and won't cost us barely a penny?

KESTENBAUM: Basically, yes. I mean, there are winners and losers, right? A carbon tax in the U.S. could shift a lot of money around from some people to others. And if you look out really long term, like to the end of the century, they say there is some slight drag on the U.S. economy, but it's pretty small. I mean, instead of our economy being, say, 8.6 times larger than it is now, it would be 8.4 times larger.

And, you know, what we've talked about here - this is just for the United States. You know, one of the biggest challenges with implementing something like this is that you would need to do it globally. You need to do it in all countries.

BLUMBERG: And a carbon tax would be more costly for a country like China. They're still constructing all their buildings and roads. They're using much more cement and concrete, much more energy. And this coordination problem is of course one of the main reasons that this simple solution isn't actually so simple to implement. You've got to convince the rest of the world to come along with you. Although you could still argue if it's basically free for us in the U.S. to do it, why don't we just go ahead and do it anyway?

KESTENBAUM: When I was in Boston, I talked to Gilbert Metcalf. He had just come back from a stint at the Treasury Department. He's an economist at Tufts. And I asked him, you know, is there a special binder in the Treasury Department on the shelf somewhere in the office that says secret carbon tax plan? And he said, no. You know, the Congress had debated a cap and trade plan, which, depending how you implement it, isn't that different from a carbon tax. But, you know, it's not something that's on the table right now. And I said, well, do you think a carbon tax or something like it really has any chance? And he said eventually he thinks, yes, it does.

GILBERT METCALF: It's kind of like what Churchill said about Americans around World War II, that the Americans will always do the right thing after trying everything else first. And I kind of think that's where we are around climate change. We're going to try lots of foolish and silly ideas and wasteful ideas. We'll try to ignore the problem for a while. But at some point, we're going to recognize the problem's there, and through a carbon tax, we can raise some revenue to address some other problems.

KESTENBAUM: So you think eventually we might come around to a carbon tax.

METCALF: I'd love to have this interview in five years and see how much closer we

are. Or maybe we can talk about how well it's working.

KESTENBAUM: PLANET MONEY listeners, tune in July 2018. We will have a follow-up.

(SOUNDBITE OF SONG, "FIVE YEARS TIME")

NOAH AND THE WHALE: (Singing) Oh, well, in five years' time, we could be walking around a zoo with the sun shining...

SMITH: Hi, may I get room number 232 - Gilbert Metcalf?

(SOUNDBITE OF DIAL TONE)

METCALF: You have Metcalf.

SMITH: Hey, this is Robert Smith from PLANET MONEY. Where are you right now?

METCALF: I'm in Gothenburg, Sweden, where I'm attending the World Congress of Environmental and Resource Economists.

SMITH: Nice. So do you know why we're calling you?

METCALF: Nope.

SMITH: I'll give you a hint. It's been exactly five years since we talked to you last.

METCALF: Ah, OK.

SMITH: Well, here, let me play you back from five years ago.

(SOUNDBITE OF ARCHIVED BROADCAST)

METCALF: I'd love to have this interview in five years and see how much closer we are, or maybe we can talk about how well it's working.

KESTENBAUM: PLANET MONEY listeners, tune in July 2018. We will have a follow-up.

METCALF: (Laughter).

SMITH: You were so optimistic.

METCALF: Well, I continue to be optimistic, Robert. We have a carbon tax in British Columbia. We have a carbon tax in Sweden at \$130 a ton. I'm sitting here looking at a thriving economy that doesn't seem to be, you know, on its knees because of the carbon tax. But in terms of the U.S., five years was perhaps too optimistic. Perhaps I should have said eight to 10 years. So we don't have a national carbon tax. But here's what has changed. We now have a number of very, very senior Republicans who are saying we really need a carbon tax. So I think that's progress.

SMITH: So one thing that did happen in the last five years, in 2016, a carbon tax was on the ballot in Washington state. It was very similar to the one-page plan that we talked about in the show. And voters in Washington state rejected that carbon tax, and surprisingly, a number of environmentalists rejected the tax. What was the issue there in Washington state?

METCALF: So part of the issue is that some groups wanted to use the revenue to pay for green projects. Others wanted to give it back to households through a carbon dividend. And there was just disagreement about what to do there.

SMITH: So Professor Metcalf, we're going to call you in July of - I guess it would be - 2023, five years from now. Any predictions?

METCALF: Well, I'm going to be a little more cautious than I was five years ago.

SMITH: (Laughter) Perhaps.

METCALF: I won't say that we will definitely have a carbon tax, but I think we're on the path. I think we're going to have one, if not within five years, I think definitely within a decade.

SMITH: OK, a decade - I'm going to put this down. July 2028 we'll call you back.

METCALF: Look forward to talking to you.

(SOUNDBITE OF SONG, "DAYDREAMING")

GREG HATWELL: (Vocalizing).

SMITH: Have we made any other promises that we really should follow up on? Well, let us know - [planetmoney@npr.org](mailto:planetmoney@npr.org) - or you can find us on all the usual social networks - Facebook, Instagram and Twitter. Thanks to our original hosts of this episode, David Kestenbaum and Alex Blumberg, and the original producer, Jess Jiang. This update was produced by Alissa Escarce, and our senior producer is Alex Goldmark. Our editor is Bryant Urstadt. And I - I am Robert Smith. Thanks for listening.

(SOUNDBITE OF GREG HATWELL SONG, "DAYDREAMING")

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