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CAN TAX REFORM INCLUDE A CARBON TAX?
FEATURING A KEYNOTE ADDRESS BY REPRESENTATIVE JOHN LARSON (D-CT)

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P R O C E E D I N G S

MS. MORRIS: Well, good afternoon, everyone. Welcome to Brookings. Thank you so much for being here. Greetings to the folks who are joining us by webcast. We have a terrific agenda for you today.

Afterwards if you want to share this experience or relive it yourself, we'll have a video posted online in a day or two. So, feel free to look for that link on our website, brookings.edu, and share it with your associates.

It's my sincere pleasure on behalf of the Urban-Brookings Tax Policy Center and the Cross-Brookings Initiative on energy and climate to welcome you here today to consider this question, "Can tax reform include a carbon tax?"

My name is Adele Morris and a senior fellow here in the economics studies program at Brookings. I'm also an affiliate with our Urban-Brookings Tax Policy Center and with our cross-Brookings Initiative on Energy and Climate, and I'm the policy director of our Climate and Energy Economics Project.

The perspective you'll hear from me as a card-carrying member of the dismal science profession -- those of you who know me and know my research, and I see lots of friends and associates here today, know that my research and that of my colleagues answers this question, "can tax reform include a carbon tax?"

From an economic policy perspective resoundingly in the affirmative, we know from the research, and this is in the peer review literature to which I contribute, that including a price on carbon as a revenue source is a sound and feasible way to accomplish other fiscal goals, including a fiscal reform package that my reduced tax rates on other revenue instruments.

We know this using a wide variety of analytical tools. We've got our computable general equilibrium models and our sophisticated input/output models, we look at experience of

carbon pricing around the world in other economies. I think that the consensus amongst my profession is very solid there.

Now, you're going to hear from people who are in the political trenches and -- so I'm not saying that a carbon tax is the most likely outcome of the current discussion of tax reform. Tax reform may not even be the most likely legislative vehicle for climate policy, including a tax reform, but my research doesn't put odds on that. We'll hear from the political professionals later.

I think in addition to the research on pricing carbon, another compelling case arises and that is that our tax system does need pro-growth sensible reform. We need sensible fiscally responsible amendments to our tax code to simplify it, make it more pro growth, but doing so in a way that exacerbates the already unsustainable trajectory of our federal debt to GDP ratio is wholly irresponsible.

Now, the details of carbon tax matter, and that's why my research works on that. I've been doing this now 20 years as of like probably a month ago, 20 years working on climate policy starting at the president's Council of Economic Advisers when we were analyzing the commitments we were discussing for the (inaudible) protocol.

So I've been at this a while now both in government and now here at a research institution, and I'm fully convinced that we will not meaningfully address the challenge of climate disruption and ocean acidification without leveraging the power of market forces, and that's what underlying insight of pricing carbon and other greenhouse gases is about.

So just a couple quick shameless plugs for our research and coming attractions before I get onto our esteemed guests and our panel program, we're going to be releasing a paper in about the next few days that explores the linkages between climate change and monetary policy.

We're looking at how climate policy can be optimized in its design from a

monetary policy making perspective and how monetary policy can be optimized with the kind of supply shocks to the economy that can be related to climate change.

Also another shameless plug, not just from my work but that of the Stanford Energy Modeling Forum, my co-chairs and I have assembled 11 amazing modeling teams to run coordinated scenarios of U.S. carbon tax, looking at different policy designs, different uses of the revenues with our general equilibrium models, and that will be appearing -- a big multi-model study is going to come out, all goes well, in February in the peer review journal climate change economic, so stay tuned for coming attractions.

So I am delighted to welcome Representative John Larson of the 1st District of Connecticut here today. Not only is he a champion of climate change litigation, but he is a champion of evidence-based policy making, and you can see that in the design of his legislation. There's a direct connection between the evidence in power of our research and the way he's gone crafting the kind of legislation that he has proposed long since.

So I'm going to introduce Representative Larson and he's going to give his remarks and we'll have some Q&A with him and then we'll take some questions from the audience and then we'll have our panel session to further delve into these issues.

Representative Larson in addition to his leadership on climate, and I want to just point out he is a member of several very important organizations within the Congress.

First, he sits on the all-important House Ways and Means Committee, two very important subcommittees, including the Tax Policy Subcommittee and the Subcommittee on Social Security of which he's the ranking member.

He's also a member of the Climate Solutions Caucus, which is a bipartisan collection of lawmakers who have expressed their interest in resolving issues relating to climate change, and a shout out to my -- to the good people of Citizens' Climate Lobby for their work on that.

Before his almost 20 years in Congress, he had a distinguished career in local and state policy making. He was an educator and a small business owner, and he has championed the idea of a tax on carbon pollution as the most effective means to reduce emissions.

He has introduced recently the America Winds Act, which would use a carbon tax in part to fund \$1 trillion of investment in the nation's infrastructure.

So please join me in welcoming Representative Larson.

(Applause)

HON. LARSON: Wow. Well, thank you, Adele, and it's an honor to be here and I look forward to hearing from our distinguished panelists as well. Let me say at the outset, I'm not an economist, I'm not a scientist, I'm a legislator and very proud of that.

I often refer to my legislative experience of being one of very practical, and the source of my knowledge comes from a little mom and pop hotdog stand in East Hartford called Augie & Ray's where I get most of my most unvarnished views of just about everything that goes on in Washington and around the country.

Adele -- and that you were talking about posing the question before us, usually when you say something at Augie & Ray's and you say "carbon tax", they look at you like "what".

So when we were talking about putting legislation forward, we decided that it's probably best to refer to this as something that people can get their arms around, so we call it a pollution tax. We know that oftentimes in tax policies we tax sinful things, whether it's cigarettes or alcohol. Why not?

Pollution, so the person at Augie & Ray's they will say, yeah, that makes sense, yeah, tax something that's bad for my lungs, bad for my drinking water, something that can serve a common interest of everyone that's not confusing to me.

Not that people don't understand carbon at Augie & Ray's, but just that it's been my experience in legislating that what you want to do is come up with a proposal that will allow people to get their arms around it, and that not only includes people at Augie & Ray's, but it also includes members of Congress.

So especially since carbon tax has been more often than not demonized that we thought, well, listen, why don't we put some language around a carbon tax that helps people better understand what our objective and goals are and, oh, by the way, what if we tied it to economic development. As Adele was alluding to whether you tied it to, we'll say reducing taxes or whether you tied it in fact to infrastructure improvement.

Now, we chose infrastructure, and I'll tell you why. We have again a D-plus rating by engineers and scientists. We invest about 1.4 percent of our GDP in infrastructure. It's like the lowest it's ever been in our history.

Conversely, China invests about 8.7 percent of its GDP in infrastructure. In fact if you travel around the world, and I'm sure many of you have, and you look how modernized the airport or the mass transit systems are, you got to scratch your head and say what is wrong here in this country.

As I indicated, engineers, in the society of engineers, has given us a D-plus rating in infrastructure. We know as well from everybody who runs for office, whether it be the President of the United States or a member aspiring to the House or Senate, that we talk about the need for us to invest in our infrastructure.

Then when it comes down to actually paying for it, we tend not to get serious and we know that we need trillions of dollars and we propose billions and then we propose them in a catch-as-catch-can basis and not comprehensive enough to deal with the major problems that we face, so that's why we introduced the America Winds Act.

Winning seems to be a very prevalent thing in politics today. We hear our

leaders talking about it frequently, but I think it's a good idea to engage leaders on that, especially those who have spoken about you're going to love winning and keep seeing us win all the time and want to make America great again.

Well, America can't be great again unless we improve our failing infrastructure system. If America is going to be great again, it means its people have to be working. One way to make sure that 22 million people get back to work is to have a massive infrastructure program. But of course if you're a deficit hawk and you want to make sure that we're not going further into debt, you want to make sure that you can pay for this.

Oh, by the way, if you've decided to get out of the Paris Accords because you think it's a bad deal and say you can produce something better, well, we've got a better deal. We've got a pollution tax initiative that will supersede the Paris Accords, that will put the country back to work.

Then in terms of several of the downstream ramifications, whether it be those coal miners you addressed in West Virginia or Kentucky or whether it be the rate shock that certainly people would see in their tax bills, there is a way to address these issues.

There's a way in which we can comprehensively both move the nation forward, address deep and inviting concerns. Even if you're somewhat skeptical about the science, you're not skeptical about pollution and what it does to the air we breathe and the water we drink. It's practical. It's common sense. It's straightforward. It goes to the crux of the matter so that when you're staring at the coal miner and telling him that there's going to be a future, that that future includes making sure that the more than hundred billion dollar shortfall in their pensions is going to be taken care of and that he will have an opportunity, depending upon his age, to make the transition into like-minded industries and that there would actually be money there for that transition. Whether it's the closing of mines or the further technical training or the transition that is needed, you're addressing that real and practical social concern that that

individual has.

Further, you also have the added benefit of knowing that you're going to be cleaning the environment, purifying the air, and making cleaner the water that we drink.

So that's the whole concept. When Nancy Pelosi was Speaker, we also had a select committee that we formed in the House and I had the opportunity to serve them.

I can remember being in Greenwich, Connecticut, talking with a group of hedge fund members who Nancy and I were talking about fundraising with them. They said, well, geez, we kind of find Mr. Larson's idea about a carbon tax interesting. She said to them, ask Mr. Larson how many votes he has for his carbon tax. I proudly said, well, I got three right now, and that was the reality.

So a notion of cap and trade was pitched as though -- as Adele was alluding to that somehow we could bring together the financial world and also the environmental world and people who are deeply concerned about climate change, and then we all know what happened in late 2008 and 2009 with the recession and the great recession and crash that took place.

So once again this idea that no less than George David, the then chairman and CEO of United Technologies, said to me, what we want and what the business community needs is certainty. Why doesn't Congress just come together with something that's common sense like a carbon tax that's predictable and that we can price. We can price downstream and we can do it in a manner that, well, would be common sense, and then all the other ensuing ramifications, the rate shock, we can prepare for that and deal with that. We can make a two tier.

We met with Bob Greenstein's group who says, yeah, the one thing you can't do is leave the very poor amongst us facing enormous increases in their heating and cooling bills, that can be addressed, also tax credits for the middle class, so that we can work our way through this.

But when you add to that the added incentive of rebuilding the country in the way it needs to be without further placing debt on another generation, to actually do something pretty unique in Congress, pay for it.

So here we find ourselves in a quandary that Adele points out at the outset, we're in the process in the Senate about to vote on a tax bill, that depending upon what they come up with we'll either go to conference or, unlikely as it may sound, if they were to adopt the current House proposal.

We did that without a single public hearing, without a single expert witness, without anyone having the opportunity in what we would commonly refer to as regular order to review this.

So I think that's why you see the consternation. Now, it's all couched in the terms of saying, well, what we need now is a political win. Well, politically, maybe that's true, but isn't it truly what we need is for America to win and aren't we long overdue to say, listen, as hard as it is, put the politics aside and say what is it that we need to do to have the discipline to recognize our role in the world globally, our role for our own country and our citizens and come up with a plan that will both fund the infrastructure development that we need and put people back to work and leave us with a cleaner environment in the process superseding even the Paris Accords.

So that's our simple legislation that we've put out there. I have more than three sponsors, and we're just getting started.

I do think that there will be an opportunity here. I think we're going to have an opportunity to get two bites of the apple. I do think ultimately that Congress will do an infrastructure plan. Right now we have woeful little money to pay for it.

I also think that this current stine before Congress is incredibly flawed. Pitting people against one another and dividing the nation, blue state against red state, sick people

against healthy people, lower class against upper middle class, it doesn't seem to make an awful lot of sense I think to most casual observers, but everyone kind of goes, well, that's Washington and they don't seem to get it there.

I think the trend is changing. If the look at the number of conservative Republicans that have been to the White House to talk about -- although it would be revenue neutral -- but to talk about a carbon tax, it's a pretty impressive list from Jim Baker, to George Schultz, to Art Laffer, to name a few.

When you hear people like Lindsey Graham talking about you know what, maybe it's time that we take a real serious look at this. When you experience the fallout as inevitably will occur once people actually get to see what's in this current tax reform bill, then I think there can be a very pragmatic, practical, non-partisan, based on the science and the economics discussion, in reality of what this would mean to initiate a tax on pollution.

With that, I'll turn it back to Adele and thank you for the opportunity to be here today.

(Applause)

MS. MORRIS: Thank you, Representative Larson, for those remarks and for your leadership on the Ways and Means Committee and in Congress with your sensible pragmatic problem-solving attitude. Some of us are -- still hold out affection for the quant notion of pragmatic bipartisan --

HON. LARSON: We'll settle for regular order, that would be nice.

MS. MORRIS: So you've been involved in climate policy discussions for many years now and you spoke about the legislative efforts in 2008 and 2009.

As we're approaching almost the tenth anniversary of those conversations, what's your sense of how things have evolved? How have the politics and the sentiment around the climate change issue evolved, both kind of within the Democratic caucus and also your

perception of where Republicans stand on these issues?

HON. LARSON: Well, I do think it is -- I think evolving is a good word. Let me say at the outset, because I know oftentimes when you come to a form of this nature and you wonder are people really listening to what we have to say, I'm an eternal optimist. I really believe that in the heart of every member of Congress resides that individual that still believes that the vitality of ideas in a free and open society is important.

Clearly, not being a scientist, not being an economist, when you listen to those who have dedicated their lives and have done the modeling and have looked at alternative means of coming to a conclusion that would be in everyone's interest, people are desperate for that. The American people, even more so, are desperate for solutions.

I think sometimes there's a tendency in government to present -- oversimplify a solution. I'm not being critical here of the president, I actually think the president can come around to this very kind of thought, which he inadvertently expressed throughout his time on the campaign trail how we was going to take care of the coal miners, how he was going to rebuild the infrastructure, and when he did not sign, albeit the only nation I think now that Syria is on board the Paris Accords, he said because he could create a better deal.

Well, I think it's the obligation then to present him with a better deal. I think we have it here. So I do -- I am hopeful from that perspective and the need also to return to regular order. It would be nice in a tax discussion that impacts a hundred percent of the economy and a hundred percent of the individuals to actually have experts there who are talking.

I'm grateful for whatever I'm able to read and listen to and absorb as much as I can, but frankly I'd rather be asking a lot of people like you the questions, so that we could bring greater clarity. Then if there's need to move or compromise or adjust, to do so. That's what a democracy is he is about.

MS. MORRIS: Well, we have time for a couple audience questions before we

need to move on to the panel discussion. We have somebody back in the -- with a microphone, so you can raise your hand. A couple things, please express your question as a question and identify yourself and your affiliation if you have one.

Hands up. Yeah, that would be good. So we have folks watching on webcast and...

MR. HANDLEY: Hi, this is James Handley with the Carbon Tax Network. I just want to say good to see you again, Representative Larson. I consider you a climate hero. You introduced the most aggressive briskly rising carbon tax that we'd ever seen in 2008 and it was actually easy to say and show that that bill would outperform the cap and trade measures that were being proposed at the time, which made it more comfortable for me to advocate that proposal because it was aggressive, it was going up briskly.

I notice in your current proposal the increment is only two percent a year, which doesn't hit the mark the way your earlier proposals did. I'm wondering why the change.

HON. LARSON: Well, actually in -- John Delaney is a good friend of mine, also he has a carbon tax initiative as well. His is at four percent but it's also a much lower rate.

Everybody else has kind of come in and attempt to build consensus. The other proposals that exist in the Senate are at the same percent and at a two percent growth. So the idea here, and we have cosponsors in the Senate, was to bring more members on board, so it was a very pragmatic decision, not one that couldn't be adjusted with expert witnesses, shall we say, in regular order.

We actually had a thorough discussion from both a scientific and economic standpoint and then a real practical standpoint of this economic impact in terms of what it means for jobs. When you want to boil it down to the Augie & Ray's person, he's not concerned about that two percent, or she, they're concerned about a J-O-B.

If we can't get that across to them and if we remain aloft in our views and can't

bring it down to that person so they understand it, then we can't get legislation. Then we're not legislating, we're pontificating.

MS. MORRIS: By the way, I just wanted to say I really appreciate your comments about your coal-filled communities and coal workers, because I think it's really important that we recognize that achieving our environmental goals, there are going to be people who are impacted by that.

You've taken a really proactive stance in making sure that we're cognizant of that. Obviously those folks are already hurting only to natural gas pricing, annex, and other factors. So it seems like that provision is very timely.

HON. LARSON: I can remember a discussion with the union and a gentleman said to me, do you think I like going down in the mines and exposing myself to black lung disease, do you think I really like this, he said but it pays the bills for my family so that I'm giving them hope at the end of the day.

If we cut off their ability to have a pension that is a hundred billion dollars underfunded and they have no idea when their mines may be closed or not or what cycle they might find themselves -- I think as Americans, we have a responsibility to them.

I think it also gives a pragmatic way just to (unintelligible) the ratepayer who will deal with the obvious shock. We all know that these -- any increase will be passed along. Let's mitigate that increase. Let's make sure that whether you're on a well head or whether you're in a coal mine that you have an opportunity to transition, that your pension is secure, and you have an opportunity for another job. It may be a similar or related field, but the transition is built in and minimally you know that your pension is secure.

I think that's a fair deal and a fair shake. And they just, yeah, but will it be a reality, only if we pursue it and only if we keep pushing it. In this business persistency has great value. Look at how many in this room have been calling for a carbon tax initiative long before it

was even a piece of legislation or an idea.

It gets back to the vitality of ideas and getting them across and then being able to translate them in a way that the coal miner can understand or appreciate that, that you're not trying to take his job away. In fact, you'll do everything within your power to assist him and help him in that transition.

More importantly, depending upon how old he is, let him know that after a life in those mines, that, yeah, Augie's not going to wake up and find not only did he give up his life and hard work and exposed himself to disease, but then he has no pension to boot as well.

I mean, this -- I think these are common sense ways of handling issues that are staring us right in the face. I think Mr. Trump would be open to that as well, the president.

MS. MORRIS: Maybe one -- yes, sir.

MR. DETCHON: Congressman, I'm Reid Detchon with United Nations Foundation and I'm sympathetic with the folks at Augie & Ray's about how you describe this.

I wonder if you thought and had interactions with your Republican colleagues about whether this could be not just a tax deal but a pollution deal in the sense of reshaping the way we control pollution to use market mechanisms as they have often advocated and bring back the old expression pollute or pays?

HON. LARSON: Well, I couldn't agree with you more. Yes, I have had those conversations and I daily will send them a list of Republican economists and well-respected former Secretaries of the State who are also here.

Let me say, my pitch to them primarily has been around infrastructure. Bill Shuster, dear friend of mine, he hasn't come out in favor of my tax proposal, but what he is in favor of is a robust infrastructure plan, well, how are we going to get there.

I don't think anyone buys into the fact that there will be those that will say you can pay for it through dynamic scoring, but that will only take you so far. The old saying, "I may

have been born at night, but not last night", that's what the person at Augie's is saying.

They know if there isn't real money that's put out for this, that there one be the ensuing construction job that's take place, or all we'll be doing is kicking the can down the road and saying some other generation pay for this.

The figure that I cited before, 1.4 percent of our GDP is spent on infrastructure; China, 8.7 percent. When you drive that message home, when you drive what should be a traditional conservative marketplace solution to a party that prides itself on that, you see them beginning to say, well, wait a minute, if this current plan -- whether it breaks down or not, whether they go through with this or not, there's still going to be a need to do infrastructure.

There's going to be a need -- and I'll say this about the president, he clings tenaciously to the things he said on the campaign and what he said in office. He said he was going to get a better deal than the Paris Accords, because it wasn't a good deal. He said he was going to take care of those coal miners, because he understood what they were going through and he was going to have a better deal for them.

Well, we're giving the opportunity and, when I say "we're", I think anyone that looks at the revenue that a carbon tax can bring in and then how you apply that revenue can readily see solutions that everybody can get their arms around.

MS. MORRIS: Thank you so much, Congressman Larson. I'm just so delighted that you could join us here today.

Please join me in thanking our guest and I look forward to hearing more.

(Applause)

MS. MORRIS: So we're going to transition now to our panel session. I'm going to welcome up here to the stage my colleagues. Please come on up.

So the plan is I'm going to introduce our panelists all at once and then each panelist is going to offer about five minutes of remarks that I've asked them to prepare about

their perspectives related to the question under consideration today, then we'll have a discussion amongst the panelists, and then we'll open it up to questions from you all.

Let me just start with Adam. Adam is a colleague of mine here at the economic studies program at Brookings. He's a Senior Fellow here. He's also like me affiliated with our Urban-Brookings Tax Policy Center.

Adam really has both the scholarly and practical expertise in tax policy to talk about what's going on with tax reform. Part of that credential is grounded in his work. Recently in the Obama administration at the U.S. Treasury Department's Office of Tax Analysis where he was the deputy assistant secretary for tax analysis.

I give special bonus points to Adam, because in his time there, he oversaw the U.S. Treasury Department's first official report on the analysis and implementation of a carbon tax in the United States.

I think that was a landmark report and I highly recommend it. Last time I checked it was still available online on the Treasury Department website. So some good analysis still persist, so avail yourself of that. So thank you, Adam, for your service.

Prior to going to Treasury, he was back here at Brookings at our Hamilton Project where he was, I don't know, basically running stuff as far as I can recollect, so that's Adam.

The second speaker will be Jerry Taylor, to my right here. Jerry is the president and founder of the Niskanen Center. I think it would be fair to call Niskanen Center and just its three years of existence by far the leading libertarian political savvy organization in this town?

MR. TAYLOR: That's fair.

MS. MORRIS: Yeah. So Jerry left Cato Institute to found Niskanen. He can speak to his own journey about that. If you've never read his piece, "The Conservative Case for Carbon Tax", I highly recommend it. I think it's required reading for conservatives -- people who view themselves as conservative or libertarian in helping shape their thinking about climate

policy.

I guess I would think of Jerry in that regard as kind of a modern applied philosopher, because that piece is so compelling and scholarly and thoughtful.

Then speaking of writers, we have Amy Harder who joins us from Axios. Amy's been covering the energy and climate beat for a while and she joined Axios from the Wall Street Journal where she covered similar issues. She can kind of give you the sort of objective perspective from a journalist who's watched this for some time.

So, Adam, let's start with you. What would you -- what thoughts would you like to share about our topic today?

MR. LOONEY: Well, I thought I'd start with a brief overview of what tax reform is doing and how carbon tax might relate to it.

So candidly, I think that carbon tax is a bit of a dark horse to be included in this round of tax reform, but it also seems like this is not going to be the last word on tax reform. There will be a lot of changes yet to come in the tax system. The carbon tax will always be right there on the shelf ready for the right moment.

So what I mean is that this round of tax reform, it's obviously very politically controversial. It includes a lot of elements that are controversial and unpopular. It's widely viewed as benefiting the wealthy and the well connected.

So, for instance, I think the Tax Policy Center estimates that in 2027, 90 percent of the gains of the Senate plan will accrue to the taxpayers in the top 20 percent, 50 percent will accrue to the tax payers in the top one percent.

So what that means is that not only will it be hard to pass now, but I think it will be unpopular for years to come. It will be a political -- politically unstable in the sense that I think it will be an element of elections yet to come about undoing unpopular elements of the Trump tax cuts.

Even beyond that political risk, there's the reality that in order to pass this bill, large elements will have to be temporary. It will have to aspire to meet with the reconciliation rules.

So what that means is that whatever legislation is enacted now, if it is enacted, it will be unpredictable, it will not be persistent, it will likely need to be revised in the near term.

Beyond just the political issues, I would say it adds one-and-a-half trillion dollars to the deficit over the next ten years, leaves the debt to GDP ratio at a hundred percent GDP at the end of ten years, so it's also fiscally unsustainable.

For that reason, any expansion in -- fiscal expansion that occurs because of the tax bill is likely to be reversed in short order and I expect that taxes are going to part of the solution to that problem.

Growth is not going to help them. The plan is not really a pro-growth tax plan. It's cuts are not primarily targeted on those elements that increase labor supply, increase investment, or increase consumption in the near term.

Furthermore, I think that with the economy near full employment, it's unlikely the Federal Reserve is going to allow much of an expansion over the next several years.

So what that means is that we're going to -- if this becomes law, we're going to need to make changes in tax law to address some of those problems. Anything beyond the tax code, it's also not going to be an era of stability in our regulatory systems. Obviously we're going to undergo a large number of regulatory changes. I'm sure those are going to be highly litigated over the next several years.

I notice the longer term prospect of having administration's changing -- changes in administration leading to live (inaudible) and regulatory policy, which can't be good from an economic perspective in terms of the stability and ability to plan for businesses and consumers.

So I don't actually think that the most likely solution will be carbon tax, but it

certainly will be right there on the shelf ready to go when people want to get serious about solving some of these problems.

The report that Adele alluded to earlier suggested that implementing a carbon tax, not legislatively but practically, would be relatively straightforward.

That paper, for instance, suggested that the tax could be readily collected using basically the same administrative systems we have in place, in some cases using exactly the same forms that are used to collect existing excess taxes on fuels, some modifications.

That paper estimated that tax would be capable of raising a substantial amount of revenue, so, for instance, that paper pegged the rate just as an example at \$49 a ton increasing by two percent in growth terms per year, it raised between 200 and \$300 billion a year over the window under those assumptions, so a source of substantial revenue.

It also analyzed the distributional consequences of that tax and suggested that the tax is not regressive in a way that I think many feared it would be. I think that was a surprising finding, but it basically arises from the fact that many tax and transfer systems are already indexed to inflation so that any cost to the consumer of the carbon price will be in part offset particularly for those that rely on transfers and elements of the tax system, like the EITC and child tax credit -- EITC that is indexed for inflation.

Then also it gave a couple examples of how you could recycle the revenue. The paper gave some (inaudible) examples, but in one of them was a simple rebate where consumers got back a check for \$600 a year basically per person to make sure their revenue -- that tax returns were mutual.

So that paper was very focused on the carbon tax, specifically I want imaginative -- you want to implement a policy like that you want to make substantial changes both to the tax system and to the regulatory system.

We have something like \$11 billion a year of energy-related tax expenditures,

both that promote the use of fossil fuels, which would obviously work against the purpose of a carbon tax, but also promote clean energy. The carbon price would supersede the need for many of those tax expenditures.

Similarly on a regulatory side, a carbon price would supersede the need to have a lot of energy and environmental regulations. So those could be removed, eliminated, or reduced if you implement that carbon tax.

So even if the time's not right now, it will always be available and would be a reasonable way to solve a lot of different problems.

MS. MORRIS: Thank you, Adam. I appreciate that as the resident shelf keeper here at Brookings for policy ideas like that, so we're keeping them dusted off and ready to go when the time is right.

Jerry, let's hear your thoughts.

MR. TAYLOR: Well, at the Niskanen Center, we talk primarily, though not entirely, to Republicans in the climate arena, and there's a couple of reasons for that, first of all, we speak their language. I took Russian when I was in college. That's a joke actually. I did take Russian in college, I just don't remember very much of it.

But coming from the Cato Institute and much of my staff likewise came from the Cato or Heritage, Mercatus, and the Charles Polk Institute, places like that, as apostate as we may be on certain matters like climate, we're people who have been of the right, from the right with relationships in the Republican party, so it's natural that we talk to them. But the most important reason we talk to them, it's virtually impossible to imagine meaningful climate action occurring without some substantial degree of Republican support.

Now, I know that oftentimes it's easy to think about total victory scenarios, massive ways where democrats take the House and Senate would be to approve majority, hold all three branches, and then ram their agenda through, but these are once in a lifetime events.

There was a tremendous study done by political scientist James Curry and Francis Lee, who's at the University of Maryland, released last year -- earlier this year in which they looked at every significant policy change since the end of World War II. Actually I think it was 1973 is when they began their analysis through 2017.

What they found is that on only ten occasions, on only ten occasions, was keystone legislation passed without the majority support of the minority party, ten times in 44 years, or about five percent of time.

That means that trying to move meaningful climate policy without a lot of Republican support is waiting for a lottery ticket to come in. It can come in. Every once in a grand while something like that can happen. But unless you're in the lottery ticket business, you're going to need to find the Republican support, and that's what we try to do.

Now, I'll spend the last few minutes I have here telling you a little bit what we know about Republicans and what we've learned trying to move this issue on the Hill. I'm sure it sounds like an impossible heavy lift to you. Then again like I said, it's a lift that has to be done or we're going to get nowhere, so we need to begin somewhere.

In the House there are 40 to 60 Republicans who are deeply uncomfortable with the party's present position of abject climate denial and there's probably about a dozen Republicans in the Senate who feel likewise, but that doesn't necessarily translate into an army that's about to charge the Hill on climate tax.

First what we need to do is get -- there's safety in numbers. You have to think about these Republicans if they're locked down in a denialism penitentiary. They want out, but they got to break out first.

If they're going to break out, first of all they need -- there's safety in numbers. If they just run to the fence episodically, one guy after the other, they're all going to be gunned down by the guards. They have to move together.

Now, we're seeing some progress on that. The Climate Solutions Caucus in the House, for instance, has been steadily increasing its numbers, including even people like Darrell Issa and other Republicans who up until this point had not been scared onto death to find some way to separate themselves from the National Republican Party and their highly competitive district.

So we are starting to see some numbers coalesce, but we also need windows of opportunity -- if we're going to make a break out of this prison cell, we are going to need a window of opportunity, the guards are distracted.

And there may be a window of opportunity on tax reform and with infrastructure spending coming up. In fact, there will be some degree of an opening here, but I'm not entirely sure we're going to be able to take a great deal of advantage of it, because the third prerequisite you need is an escape (inaudible).

If you're going to bust out, you need to be pretty comfortable about where you're going to go and what your plans are out. I like Congressman Larson's bill. I think that's wonderful.

But right now of the 40 to 60 House Republicans and dozen or so in the Senate who are looking for a way out, they're not quite there yet. They know we need to do something, but that something doesn't have to be a carbon tax. That something could be say subsidizing conservative clean energy, as if energy had ideological atoms within it, but apparently it does, but that's a possibility, maybe just a lot of R&D, that's another possibility Republicans have in front of them. There are a couple of other things as well.

I can say that thanks to the work that we've been doing on the Hill along with other organizations and then trying to promote a carbon tax, I would say that pricing carbon has the polled position within the GOP Caucus, there's reasons for that. It gets right down to the core identity issues.

Milton Freeman argued if you have a pollution issue, the most efficient way of addressing it is just to tax pollution and then let market signals guide individual entrepreneurs and consumers and decide when, where, and how to reduce emissions rather than going to rate with others. That speaks to Republicans. It goes all the way back to Milton Freeman.

Most every academic right and center economist who raised this apposition in the United States and we now know there's been a change in the oil and gas industry where all the majors for the most part now are either explicitly or implicitly in favor of carbon pricing. So if it's good enough for ExxonMobil, it's probably good enough for the GOP.

In fact, to give you an idea of how well it speaks, last year during a police operation undertaken in the House to nip in the bud the conversations we've been having is called Scalise Resolution, which was trying to put a vote to the carbon tax before our friends are ready to make a fight out of it, consider it like a lockdown and search of the prison cell.

After that vote, Politico asked Senator James Inhofe, who's one of the most outspoken climate skeptics in the GOP, whether if that resolution were on the Senate side, he would vote for it. Of course, it was a little bit of a silly question. He actually did cosponsor the exact same wording in the Senate that never came to a vote, so he was already on record as supporting it.

But that's not what he told the Politico reporter. He said, I wouldn't rule it out. He said, it really depends on what's part of the deal here. I mean, if we're going to have a carbon tax but we see some degree of regulatory relief as part of the trade, if it were revenue neutral, I can imagine a scenario where this would be a conversation we're having.

This isn't the first time he said this publicly or privately, as those of you who worked on the Hill know. So if James Inhofe will not rule out the idea on its face and is interested in the details and terms and conditions and whatnot, it tells you that this is a pretty futile arena.

To wrap it up, we'll go to Amy. I'm not necessarily particularly optimistic that we'll be ready to exploit the opportunities for the very reasons I mentioned in the near future. But I think in the long haul, I'm fairly optimistic.

It's easy to lose site of how difficult it is to enact major change in Congress. It takes long constant steady work. Right now what's clear is that we have the people in the GOP, at least for now, who have yet to succumb to climate denialism. They want a way out.

There's a political roadmap for them out. The numbers are getting better and better for some sort of a jailbreak. But if we keep at it, then I think down the road you can see a lot quicker change than you would have ever thought possible.

Who would have ever thought back in 1989 the tobacco industry was about to be completed upended looking how strong that lobby was only a few years before the tobacco settlement.

MS. MORRIS: Thank you very much, Jerry.

Now we turn to you, Amy.

MS. HARDER: Great. Well, thank you, everybody. It's good to be here. I have a question for the audience to start out with.

Raise your hands if you've seen the movie "Secret Life of Pets". It's a great movie. I recommend you watch it, especially if you have kids.

But there's a scene in there that I think of when I think of a carbon tax. There's these two dogs and they're running away from an angry pack of dogs and they're in the sewage system of New York City, they reach a dead end, and things seem really dire. One dog says, we got a problem. The other dog says, we have so many problems, what problem do you mean in this moment?

That could be a scene for a lot of things in this world right now, but on a carbon tax I kind of see that being the case here. There's a lot of problems with a carbon tax, not to be

the skunk in the room, but I suppose that's my job as a journalist.

Jerry got to some of them about the basic resistance within the Republican party to publicly talk about climate change. Now, in private conversations with Jerry is one thing. But to reporters like me, the Republicans who are currently elected do not feel comfortable about talking about climate change, most of them I should say -- to say nothing about supporting a carbon tax.

I don't think it's impossible to support a carbon tax without acknowledging climate change is a problem, but I do think it's certainly more intellectually honest.

Jerry and I were talking about that before we came up here that it seems crazy on its face to impose a tax on something where you don't think there's a problem, so I think that's frankly the most inherent problem.

Then the other one is that taxes are toxic and carbon is also toxic from a political perspective and also from a climate change perspective. Let's not forget that Hillary Clinton also did not support our carbon tax. You know that anecdote that Jerry shared about Senator Inhofe was under the really big assumption that most of us thought was going to happen, which is that Hillary Clinton would win.

Which brings me to my second -- my third problem with the carbon tax, which is what to do with the EPA regulations. Under a Clinton presidency, EPA would have gone into overdrive with its carbon agenda. Now with Trump, the industry, broadly speaking, those regulations are going away, so there's no longer a stick to get people to the table.

Do you preempt just the Clean Power Plan, although that's gone away so it's sort of a moot question, but where you draw that line in terms of preempting EPA regulations is a very complicated question. I know that's a topic that Republicans talk about a lot.

Where ExxonMobil draws that line is very different from where environmental groups would even consider drawing that line, so I think that's an important problem.

The concern, however real or not, that is a regressive tax is also a problem, and that gets me to the last problem I have here, which is how to spend the money.

I'm from Washington state, so I'm always interested in policies that happen there, and I think many of us are probably familiar with the ballot initiative that failed in Washington in part because environmentalists could not get on the same page or just backers of the policy in general could not get on the same page with how to spend the money and that remains a very live question.

I spoke with Governor Inslee, the governor of Washington, in Bonn, Germany, at the climate talks. He remains of the mind that the money should be spent on environmental and public health concerns. Well, that may not get the support you need from (inaudible) industry to get it over the finish line.

So I think those are all the problems facing a carbon tax in my perspective. I think the first two, the fact that Republicans don't acknowledge climate change publicly, that it's a problem in need of being addressed, and that taxes remain so toxic. I think those are the two biggest ones.

I have asked some of my conservative and Republican sources which they would prefer as carbon tax reform, a border adjustment tax, which of course seems to out of the debate entirely, or a carbon tax. I don't get a good answer. That's kind of -- to a lot of Republicans, that's kind of like asking how you want to die. So the answer to them is neither and you move forward with no big revenue reserve as the congressman has talked about.

To Jerry's point about that House resolution that passed in June 2016, that got universal Republican support in the House and a handful of Democrats.

Now, resolution is just symbolic, but symbolism matters a lot in politics, so I think it shows how politically toxic it is.

With that said, after all my skunk talk, I do have some sense that there might be

a remote possibility that something like a carbon tax could pass maybe in the next three to five years, definitely not in the next month, although I would be surprised to be proven otherwise.

It makes me remember -- and the 2015 budget deal, which many of you I'm sure are familiar with. In addition to funding the government, it also lifted the oil export ban that was in place for 40 years and it extended for five years production tax credit and investment tax credits for solar and wind.

Now, that kind of came out of nowhere. The oil export ban had been in place, like I said, for 40 years and -- but the beauty of that deal was that it was a classic Washington bargaining deal and both sides came out of it with exactly what they wanted.

Republicans talked about how great it was that their oil company constituents can now export oil, and the democrats talked about how important the wind and solar tax credits were for combating climate change.

Now, obviously the debate around climate change is a little different than a carbon tax, but to the degree that something could happen, I don't ever imagine Senator McConnell coming out and praising the merits of a carbon tax. How the deal would come out would be in a way that both sides get something they really want.

Now, again, because Trump won and not Hillary Clinton, the allure of getting rid of EPA regulations is now mostly gone, although we could argue about the legal requirements in having an EPA regulation.

So I bring up the oil export and tax credit deal as just an example of the way things can get done in Washington that can have surprising big policy results and in a way that both sides get a little bit of something they want.

MS. MORRIS: Thank you, Amy. So, Amy, I wanted to ask you about what you thought about Adam's point that if the Senate goes forward with this current tax bill more or less in the shape of what the House contemplated and it greatly increases the federal deficit and

becomes unsustainable politically once down the road folks fully come to grips with the implications of that law, how does that -- how does that change perhaps the dynamics of what you were talking about?

Is there some potential instability associated with passing tax reform that could then (inaudible) to the potential for a new dynamic along the deal making lines you just described?

MS. HARDER: Yeah, I don't think the fact that there will be a greater deficit will prompt Congress to act. It certainly hasn't in the past. What I do think is different and what so far is lacking in a carbon tax debate is a lot of industry pushing for it. Jerry mentioned that most major oil and gas companies support a carbon tax and/or have an internal price on carbon, which is certainly true, but it's very different to having a press release that says such as what ExxonMobil says, I support a carbon tax versus going to Congress and asking for one and lobbying for one.

With the oil export ban deal and the wind and solar tax credits, you had energy companies all across the spectrum asking Congress for this. The Kigali Amendment, not to get off on too far of a tangent, but have you some chemical companies, Honeywell, Comoros, they need -- they want this deal on the agencies to go through, because they have dollars on the line.

So I think what would change the game is if industry gets on board and actually starts asking for this. So far they support it when asked, but there's, to my knowledge, I would love to know otherwise, there's not an aggressive effort by industry to get anything like the carbon tax.

MS. MORRIS: That's a really interesting point, Amy. I've actually heard from some corporate stakeholders a concern about talking about a carbon tax and tax reform, because they have so many other priorities in the tax reform package.

You have a limited ability to lobby across a complex piece of legislation like this, and so maybe if we got tax reform out of the way, whether it's sustainable or not, then industry could come back to the prospects of EPA regulation in the future Democratic regime or the proliferation of state and local regulations, which we know is probably the default if there's not a federal leadership.

Jerry, what are you hearing in your conversations with Republicans about the role of industry or industry representatives themselves?

MR. TAYLOR: Well, Amy's right. The only business entities that are trying to rattle cages on Capitol Hill on carbon tax are those that aren't in the energy business. They're like (inaudible) and people like that.

Not to say they don't count Republican circles, but they only count a very small amount relative to what the oil, gas, and coal industries count for in Republican circles when it comes to energy issues.

I'm not trying to make some argument that they're in the thrall of API or anything of the kind, but the reality is that the oil, gas, and coal industry in this particular debate on carbon tax is a lot more influence than say people out of Silicone Valley.

Outside of that small segment (inaudible) they're not active. When you talk to people in the business community about why that it is, they just say, look, man, I don't see an opening here for us and it's -- I don't want to spend my company's political capital trying to move something that isn't going to go anywhere, and I need these guys on this, this, this, and this. If things change, maybe.

What I have heard, and again more than from one source, is that if a debate were to get traction for a carbon tax, if a bill were introduced and it actually began to look like it was a mover, then at that point the industry may jump in and start investing some resources.

But if we're waiting for them to do all the initial blocking and tackling to open up a

hole so some Republicans can exploit that, we'll be waiting pretty much forever. I don't think that's going to happen.

MS. MORRIS: Adam, anything you'd like to chime in on this discussion so far?

MR. LOONEY: I mean, as well I agree broadly with the concerns raised. I'm used to the economists being the skunk in the room not the journalist.

MS. MORRIS: I was thinking that too. I thought that was our job.

MR. LOONEY: I would say that the deficit has been to some extent the driver of policy compromises in the past. Over the last eight years for instance there have been substantial declines in the deficit that were the result of sometimes uncomfortable compromises where there was a sequestration and there were the expirations for tax cuts and other tax increases.

So you end up with a -- we're going to have to do something over the next several years that is going to involve tough fiscal choices and it involves revenues. That's really where I'm coming from on that. I won't say carbon tax is an obvious solution to that politically, but I'm saying that they're going to need to make changes.

MS. MORRIS: Very good. So why don't we open it up to questions from the audience. Wait for the mic, though.

SPEAKER: I'm Ray (inaudible) with a group called Market 21. I'll join the metaphor description of how Republicans move, which is breaking out of the prison yard.

I thought Amy offered one way out, which is a deal then everybody has something that's big enough for them to brag about.

I wanted to offer one other poster for that breakout, which is impacts, and I'll give you a location. The most important political statement in the country is Florida. Sea level rise is an existential threat.

It's now visible having impacts in the forecasts that are out there. In fact, in two

weeks, there's a gathering of 600 government officials mostly in Fort Lauderdale.

So question -- in other words, the issue is can impacts trump the ideological problem inside the Republican party? In Florida, there's some evidence for that in the Climate Caucus where you have Floridian members, Republicans, as part of the leadership.

So I'm asking the question: If the impacts are defined well enough, can they be a cover? Because if Lindsey Graham has to get cover, he says well, to his fellow Republicans, I can't let Charleston go. This is more important to me than your ideological problems.

MR. TAYLOR: Yes, good question. What we know is up to this point there has been zero evidence that extreme weather and climate events has moved Republican opinion on the climate. Robert Bruel, who is a -- I think he's a sociologist, has coauthored a number of different studies on this using regression analyses to try to explain movements and public opinion, particularly on the Republican side.

No evidence whatsoever extreme weather events have done that up to this point. That doesn't mean that won't be the case -- that won't change in the future, but various hurricanes and wildfires and whatnot has no effect so far.

Now, you do see a number of Republicans in coastal areas in the Atlantic not only in Florida, but South Carolina and elsewhere, including people like Mark Sanford, who is a Freedom Caucus member who has spoken out on climate change on occasion. I've met with him. He's generally concerned about it. He would like the federal government to do something.

I'm not entirely sure, however, how much further that movement can go, given the members in their existing issues, I just don't know.

So there is some reason for hope. But up to this point, it has been -- it has had very limited impact. The biggest problem we have, however, is that if you envision climate impacts that are significantly larger than anything we've seen up to this point, then moving Republican opinion is probably too late.

The reality is the climate budget is not infinite, it's dwindling. If we don't begin to act in the next few years in a very aggressive and ambitious fashion, then we're -- well, action is always better than nonaction and late is better than never.

But the reality is waiting for Book of Revelations sort of scenario from climate catastrophe to then move to Congress means little.

MS. HARDER: I think that if Congress doesn't act on gun control after all the shootings we've had, I think it's very, very unlikely that it will ever act on climate change because of extreme weather.

There was bipartisan support to issue tougher regulations on bump stocks, I think that's what they're called after the Vegas shooting, that never happened.

So I often think about this question and I compare it to things like shootings and gun control and gay marriage and these other issues. On gay marriage, there was some politicians who were impacted by it directly who had a son or daughter or close friend who wanted to get married and that was -- I think that helped move the needle here in Washington, but we're not seeing it all on gun control despite the increase in shootings, and climate change is so much more abstract than both of those issues.

I have written extensively on the link between climate change and extreme weather, but it's still relatively speaking, especially in political terms, it's a slow moving train wreck.

Where I do think there could be increased support is more policies to adapt to climate change. I would see that happening as these extreme weather events get more common.

MR. LOONEY: If can just for a second on that, because the NRA -- the gun issue is a very interesting one. If you look at opinions or surveys, you will find that there are more Republicans who are concerned about climate change than there are Republicans who

support gun control, that's first thing that's kind of interesting.

The reality is is that the NRA position on guns is one of the most unpopular set of opinions in American politics. It really is. I'm not exaggerating. There are various issue positions poll usually in the teens at best. Yet, they still have a lot of political power. Why? Because it's a very high salience issue for their members.

They have people in the NRA who would walk over hot coals to punish a politician who deviated on that particular issue.

It's not the same thing people in the climate world. People who are climate skeptics in the GOP have about 30 other things they care way more about than climate change. The fact that climate change is low salience is usually a problem for people like me who would like to see more ambitious action, but in a sense it's also kind of a somewhat disguised helping factor as well, because it means that the Republicans can move on climate and probably not pay the same kind of price they'd have to pay if they moved on say gun control. Because there is not an army of people outside of Myron Bell's immediate family at CEI who would walk over hot coals to punish a politician whoever thought about trying to make a run out of that denial...

MS. MORRIS: Rafe, you had a follow-up. I'm going to give you a small follow up in the form of a question. Can we have the mic back? Real brief.

RAFE: Real short. In the climate world, there's real distinction at the stage between extreme weather and sea level rise. Sea level rise is (inaudible), it's understandable, it's -- there's no -- it's different than the probabilities of whether an event is climate related.

MS. MORRIS: I'm not hearing a question.

RAFE: Will property values trump the NRA? That is to say property values in Florida are at stake, is that something that Republicans care enough about?

MS. MORRIS: I've actually talked to people about this issue and I think you might be onto something. I think it's just a matter of time before investors start (inaudible)

property in Miami, and that really shows up in a very concrete tangible way in the economies of vulnerable areas.

So that I think can get attention. Far be it for me to analyze the Republican Caucus from Florida, but I can only imagine that when real estate prices start coming into play, that does get attention and people start asking why aren't you doing something about that.

Hal.

HAL: It would appear obvious that our terrific panelists here are rather pessimistic about anything happening in the foreseeable future on carbon tax or pricing carbon in any other way at least in the United States of America.

I don't know what the latest figures are. I think the U.S. represents, what, 15 percent or something of total global emissions of Co2. If in five or ten years things are more (inaudible) to maybe do something about this, like a tax, and I were a Senator or a Congressman, why would I vote in favor of it if all the other major nations are not doing the same thing in unison? What would you do about that?

MS. MORRIS: Well, you were in Bonn recently, Amy. Tell me about your perception of the dynamics and how seriously other countries really are grappling with the problem. We know there's a disconnect between the Paris Accord commitments and the actual policies that countries have undertaken, not to mention the disconnect between the Paris Accord commitments and the two degrees centigraded below consensus of the parties to the conference.

So what's your perspective?

MS. HARDER: Yeah, I was in Bonn for about a week and also in Morocco for the climate talks that started literally the same week that President Trump won the election.

What's interesting to me, because the way you phrased it, shows just how much things have changed other the last year or more. President Obama made climate change a big

part of his second term priority and his legacy, and his argument and those in his administration emphasized that the U.S. needs to lead, otherwise the biggest emitting nations like China and India will not get on board if the U.S. is not leading.

So now the U.S. led and helped strike the Paris deal the end of 2015 and then Trump won. My sole job at the talks America in Morocco was to ask as many negotiators as I could find what they thought about Trump's promise to pull out of the Paris deal. At the time, people were skeptical that he actually meant that. In hindsight, it has ended up being one of the few things -- his few campaign promises that he's kept to.

I think now you have a reverse and your question shows how much things have flipped on its head. You have China and India and other countries, at least for now, moving ahead with their commitments regardless of what the U.S. is doing. I think China is doing it.

China is further ahead than say India in its development in this area and they're doing it marginally for geopolitical reasons. Their air pollution is terrible.

So they're doing it for their own reasons. They see a strategic hole being left behind. Of course, it's nowhere near the same as the U.S. in terms of credibility.

In terms of Adele's question on that point, I think for now it's not like there's any country that's plotting some sort of big attack on the U.S. for pulling out of the Paris deal for two reasons, one, because climate change is a low priority. There's lots of other issues.

I just got a news alert before I got up here that North Korea fired another missile, so the world has a lot of problems. Climate change is just one of them.

So I think for now, other countries are trying to work with the U.S. the best they can. I think the rubber is really going to hit the road at the talks in Poland next year where some of the more tougher conversations about the Paris deal are going to come forward.

I think to specifically answer your question, I think it seems that the world is moving ahead, and so I don't think it's going to be the fact that the U.S. won't sign a carbon tax

because the other countries haven't. I think they will move ahead. I just think it may not be quite as ambitious as it would have been with the U.S. in the lead.

MS. MORRIS: I would just say that my own view is one of the key advantages of a carbon tax over the regulatory approach that the Obama administration pursued is its diplomatic power.

President Obama said all the right things, but backing him up was a very flawed legal authority to control greenhouse gases. We see one of those flows in action right now, which is it's subject to the priorities of whoever is in the White House.

Moreover, really try explaining Section 111(d), the Clean Air Act, to other countries and develop credibility and transparency about what it is you're doing when you've got a whole host of regulatory implementation and Supreme Court litigation processes to go through before you can even call it in effect.

So I think everybody around the world knows what \$40 per ton of Co2 means. They know what \$25 per -- you put it in those terms, you can't get more transparent about the level of additional effort.

I really look forward to the day when we can leverage a policy that's that powerful diplomatically into analogous action, because I think they are waiting in some ways for action by the United States.

It's not until we're in there really making it an economic negotiation not -- you know, finance ministers talk -- I mean, all the environment ministers talking about collective temperature targets, but really saying economically what are we committing to doing here, that's when we know it's going to get serious and I think a carbon tax would be an extraordinarily powerful tool for the U.S. diplomatically so.

I think that those who are worried about us taking unilateral action, should fully comprehend the global ramifications of an action like that in the processes as you saw in Bonn

and through all the economic relationships we have.

How about another question. We got time for maybe -- let's gather three more and then we'll let the panelists go for it. Yes.

MS. ROY: Thank you and thank you to the panel and to Representative Larson as well and for the program today. I'm Jean Roy with the Faith Alliance for Climate Solutions in Fairfax County.

While I hear the pessimism on the federal level, it seems that the local and state level there may be a little more optimism about acting and there does seem to be quite a movement now of action on the local level and the city level and state level that's being very much supported by Bloomberg.

So in terms of a pollution tax, how do you see or might you see the possibility of that happening at the state levels in terms of infrastructure, because at the local level is where the lack is felt the most; so what are your thoughts on that?

MS. MORRIS: Yes, sir.

SPEAKER: (Inaudible), question for the comments on the panel. There will be net economic losses from carbon tax. I'm just wondering where those land in terms of their distributional impact and does that explain the political resistance to the implementation of carbon tax?

MS. MORRIS: Good question. In the back there in the yellow shirt.

SPEAKER: In 2016, the Democratic party in its national platform had zero carbon by 2050. What price would you have to tax carbon at to get to zero carbon by 2050 and how painful would the tax have to be to make me never get on an airplane, not live in (inaudible), and never take a vacation?

MS. MORRIS: So we've got state and local action and prospects for that and it's significant. The net economic losses that might accrue from climate change and the feasibility

and economics associated with achieving zero carbon by 2050. Anybody on the panel want to grab one of those?

MR. LOONEY: I'll do a driveby on two and I'll answer one more thoroughly. As far as the whether the distributional impact of a carbon tax reduces political salience, I can guarantee you the answer is no, because most people -- one out of 1 million Americans could tell you anything sensible about the distributional impact of a carbon tax and probably only about a third of them can even tell you what a carbon tax is.

So that's not to say these are not issues politicians will care about and elected officials, but they are not matters that are of great political concern as far as the American public is concerned.

I think it's probably safe to say that they -- whatever extent they ever thought about energy tax, you probably don't like it because they don't want to pay more for energy and that's pretty much all we've got on this conversation to begin with. Notice, however, it didn't stop John McCain from getting the Republicans nomination in 2008 promising a cap and trade program and elimination of carbon not quite by 2050 but pretty close.

What would be the cost of that? There have been modeling. Adele can talk more about it, which she will tell you, I'm sure, because she's the modeling genius and not me, is that the air bars in those estimates are massive. It depends on how optimistic you are about low carbon energy how competitive it is.

If you're like say Michael Liebreich, who is the head of Bloomberg New Energy Finance and you're on the bleeding edge of optimism, you would say it wouldn't take a very ambitious carbon tax to get there.

If you are more bearish, let's assume you were for Grover Norquist, then you would probably say it would take a massive carbon tax to get you to reduce even a little bit of my energy consumption, but I'll let Adele get into the numbers on that.

State and local, I want to dwell on this for a moment, because I have little patience for the conversation, no offense, for a couple of reasons: One, state and local governments, which have acted thus far in climate have acted anemically. You have a (inaudible) trading system that prices carbon at around \$4 a ton. It's not very ambitious.

California has a floor price of about 11 or so a ton and it regularly bounces on that floor. Now that has been revised and we'll see how the new program works out.

Even in California, 80 percent of the emissions reductions occur in that state haven't occurred because of pricing carbon, it's occurred because of the regulations.

If you look at the states that are looking forward toward the possibility of a carbon tax, what do you know, you find a couple of things -- one, there's virtually no carbon in those states. It's an easy vote, right, Washington, Vermont -- oh, come on. There are coal collected subs there.

Even in Washington state, it would have been a fairly moderate lift. In Massachusetts what they're looking at -- it doesn't even apply to utility sector, it's just a gasoline tax.

If you look at what kind of emission reductions you're going to get from these carbon price (inaudible), virtually none and it's only blue states. That doesn't mean to minimize it. There are a lot of blue states we want to be worried about, and 30 percent of the U.S. economy does have a carbon price on it from state action. But the reality is it's never in a place where the carbon emissions really are, which is Virginia, Ohio, Texas, places like that.

So, yeah, I'll be pretty blown away if a red or a purple state can be put a carbon pricing regime on its -- in an arena where we actually see significantly meaningful -- greenhouse gas emissions, but we've never seen that sustainable.

What we see is virtue signaling from blue states which have very little down side to pricing carbon. As long as that's the case, I'm not against virtue signaling. I do it enough

myself sometimes, but it's by no means a substitute for federal action.

MS. HARDER: I just had a couple thoughts, not to be more of a skunk than Jerry, but on the local efforts -- so I spend a lot of time at the U.S. Climate Action at the Bonn Climate talks that's was funded by Tom Steiner and Michael Bloomberg. They talk a lot about how they have this coalition, it's 40 percent of the U.S. economy. Their 40 percent of the U.S. economy, they would be the third largest economy -- third largest country in world if they were their own country, but they only represent 35 percent of U.S. emissions, only five percent of global and gas emissions.

So just to underscore Jerry's points with some numbers, I would say that in light of Trump pulling out of the Paris deal or signaling his intent to, the blue states are getting bluer and the red states are just kind of keeping their status quo. It's not to say there's not movement in some of these red states, Wyoming has a growing wind industry and things like that, but it won't be on the level of say a carbon tax.

Although you do see an increase in the amount of states both red and blue that are passing gasoline taxes, which is an interesting aside.

The gentleman's point about the zero carbon by 2050, I think just from a qualitative perspective, I think it's interesting what that represents, because there is a growing debate within the Democratic party about whether or not to try to be 100 percent renewable and how aggressive to be.

That dividing in the Democratic party is a very real one. I think you've seen it play out a little bit in the carbon tax debate as we saw in Washington state.

MS. MORRIS: Adam, last thoughts?

MR. LOONEY: So I think on the state issue, that the appropriate level of -- the appropriate government entity to levy the taxes is probably at a federal level or world level, not the state level I think for reasons that have been articulated.

On the burden of tax, I think people do see it as a -- it would be a tax increase and people would see it in the price of the goods that they consume. There are ways to mitigate that. But, again, it's not -- it's tax increase.

I would say more generally in terms of economic activity, it would also be a tax increase from the perspective of its macroeconomic effects, so other things equal slow growth unless other distortionary taxes were eliminated or reduced. I think those are headwinds in an economic sense in that regard.

What was the last question?

MS. MORRIS: The zero carbon.

MR. LOONEY: The zero carbon, I will defer on that one.

MS. MORRIS: So I get the last word, privileges of the moderator here. So state and local, I applaud state and local governments. I validate their frustration with the lack of leadership at the federal level, but I have to agree with Adam that the nature of this challenge has to be solved with high level action by the federal government.

I'll just say two reasons among many, one is we need to harness American capital markets with price signals. To do that, you need the whole of the American economy deployed to develop that technology, look, we're going to -- if we do this right, the U.S. will be the crucible in which the technology that can be applied globally affordably will be forged.

Without us at scale working on this problem, I don't think we're going to have the technologies that achieve like a deep decarbonization scenario of any kind by anybody.

Similarly government state and local governments don't have the standing internationally. God love Jerry Brown, but he's not a party to the cop; right?

You can go there and you can use his platform, but without someone sitting in the chair with United States in front of them, it's a severely handicapped diplomatic approach with regard to the net economic losses.

So people talk about that with regard to carbon tax, but you really got to compare it to the alternative and there are two alternatives. One is a regulatory approach, which we -- I think we can -- most economists would agree would be far less efficient, more costly, less effective, and have its own distributional consequences. Unchecked climate change will have potentially devastating distributional consequences.

So I think that if a well-designed price on carbon can be included in a pro-growth fiscal package, that's probably about as good as we're going to do and I think the research that -- that we and my colleagues around the analytical community have been developing can demonstrate that.

As far as zero carbon goes, I'm a little bit sympathetic to your question. I probably have a different tone with it, but I get what you're saying. If you just kind of say make up a target and a date and you're not really grappling with, well, what is the policy you're going to use to get there, what technologies do we have to get there, then it's kind of a -- it's sort of a political exercise, but it's not really a genuine policy formation and a serious consideration of the options and there are various pros and cons.

So I tend to appreciate objectives that are tangible, measurable, transparent in their economic and environmental ambition, so I -- if I'm developing the platform and nobody's asking me, I kind of like more concrete goals, yes, you have your aspirational statements, but you want to translate that into something that kind of meets Representative Larson's pragmatic test as well.

So I'm going to conclude with that. Please join me in thanking our panel. Thank you, thank you for being here.

(Applause)

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