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ONE YEAR LATER: THE INFLATION REDUCTION ACT AND CLIMATE PROGRESS

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WELCOME AND INTRODUCTION:

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PANEL I: IMPACT OF THE IRA IN THE US

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PANEL II: GLOBAL IMPLICATIONS OF THE IRA

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BRAHIMA SANGAFOWA COULIBALY

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**COULIBALY:** Good morning, everyone. All right, morning. All right. I was beginning to doubt the quality of our coffee. Brahim Coulibaly, I'm the vice president of our Global Economy and Development program. And I also helped to lead the cross-program initiative on climate. So on behalf of myself and our interim president, Amy Liu, warm welcome to all of you in the room and those of you online as well for this important conversation on the one-year anniversary of the Inflation Reduction Act and the progress on the climate agenda hosted by the Brookings Initiative on Climate Research and Action.

It's been just over a year since President Biden signed into law the Inflation Reduction Act, or IRA, as it's known. It is the most ambitious investment in clean energy legislation in U.S. history that includes more than 20 new and modified tax incentives and tens of billions of dollars in grants and loan programs that aim to unleash new energy technology, investment, and deployment, and accelerate the transition to a clean energy economy by unlocking transformative change that not only builds on low carbon energy systems but also delivers low energy costs and good paying job, particularly for communities that are underserved or overburdened by pollution. According to the Department of Energy, the IRA, in combination with the bipartisan infrastructure law, will allow the U.S. to cut emissions 40% below the 2005 levels by 2030 and put the country on the path to achieve net zero by 2050 in line with the long-term strategy plan unveiled two years ago.

But as with most plans, we all know that success is not predetermined, particularly plans as ambitious as the IRA. And the one university who think it's a good time for some stocktaking: How is it working across the country? What are some practical on-the-ground challenges and how do we overcome them to maximize the potential of the IRA and importantly, on whether the benefits are getting to the people and communities that need them the most? These are some of the questions that our Brookings climate experts have been working on, among others. I believe that the IRA has the potential to be beneficial not just for the U.S., but for the world, notwithstanding some understandable concerns expressed by some countries, including around diversion of direct foreign investment, local content requirement provisions, and the implications for the WTO free trade principles as the second largest emitter. I think a successful net zero transition in the U.S. will make a significant contribution to the shared goal of cutting global emissions to acceptable levels and containing global warming. The IRA bolsters also the U.S. standing and reaffirms its leadership and commitment to the global climate agenda and incent-- and incentivizes similar policies in other

countries. And our climate experts at the forefront of the global climate policy have been attentive to how other countries are reacting to the already, including in Europe and Canada. So we'll get to hear their take on the impact rate in the U.S. and then also the global implications.

We could not have been more honored to have John Podesta open this event and share his perspective and that of the administration. As you know, John is the founder of the Center for American Progress and currently serves as senior advisor to President Biden for clean energy innovation and implementation. In this role, he oversees the implementation of the IRA and chairs the president's National Climate Task Force. He is a devoted public servant who lent his expertise to previous administrations, including as coordinator of the climate policy initiatives in the Obama administration, and as White House chief of staff under the Clinton administration. So, John, thank you for your continued service and dedication to the nation. We are truly honored you could find a time in your very busy schedule to be with us today. The agenda for the remainder of the day, or the half day, is we will hear first from John and his remarks, then will be followed by a fireside chat with David Victor, who is one of our climate experts and a nonresident senior fellow in foreign policy and global programs. Afterward, John will depart to attend to the business of the nation, and we will begin the scholar panel discussions.

So, the first panel will focus on the domestic implications of the IRA for the U.S. economy, clean energy, employment, and equity. We will then take a ten-minute coffee break for you to recharge, and we resume the second panel on the global implications of the IRA, including its impact on trade markets and and the climate ambition. We are-- indeed, we are indebted to Lisa Friedman, who, who will moderate both panels. Lisa is a New York Times reporter on climate on the Climate desk, focusing on climate environmental policy in the-- in Washington. She has covered several international climate talks, and she has climate related stories from the bottom of a Chinese coal mine to the top of the snowcapped Himalayan mountains. She will bring all that expertise and experience to the discussion. So thank you, Lisa, for doing this. So without further ado, please join me to welcome John to the podium.

**PODESTA:** Well, thank you, Brahim. And it's great to be here with all of you. It's great to be at Brookings, my second favorite think tank in Washington, D.C. We're gathering, of course, at the end of a summer that really was defined by the climate crisis. It's only October, and this year has already set a record for the number of climate disasters costing over a billion dollars. From the

devastating fires in Maui, to Hurricane Idalia and Hurricane Lee on the East Coast, to the rare Tropical Storm Hillary in California, to catastrophic flooding in Vermont and New York, to 31 straight days in Phoenix that were over 110 degrees Fahrenheit. And that's just in the United States. I could spin around the world and repeat that on virtually, on virtually every continent. Over the past few months, 98% of the people on the planet experienced higher than normal temperatures. It was the hottest summer on record. July 4th, perhaps in honor of America's birthday, was the hottest day ever recorded. But it may well be one of the coolest summers that we all experience for the rest of our lives.

The climate crisis is already here, and we know what we need to do to create a livable future for ourselves and our children. As the IPCC, the U.N. body of climate scientists, said in the 2018 report on 1.5 degrees Celsius when they analyzed what was the difference between a world that was - where global average temperatures were raised by two degrees C — which was what the world was trying to manage towards in Paris and, and beyond — and what was the difference between that and a 1.5 degree world, refocused the entire conversation on the difference in damage to the natural world that would result from overshooting and hitting that two degrees C mark. But they said in that report that what we need to do it really to stabilize the atmosphere was to get to a world by mid-century where we were net zero, where we were taking as much carbon out of the atmosphere as we were putting into it.

And that would require a transformation of the global economy on size and scale. That's never occurred in human history. Just let me repeat that quote from the report. A transformation of the global economy on a size and scale that's never occurred in human history. That kind of transformation, I would contend, is not achievable by the market alone. We need public and private investment. It's why President Biden passed his Investing in America agenda, the bipartisan infrastructure law which makes the biggest investment in our nation's infrastructure and spurs innovation in the energy sector; the CHIPS and Science Act, which positions us to lead on innovation; and, of course, the Inflation Reduction Act, the biggest ever investment in clean energy and climate change, not just in the history of our country, but in the history of the world. This legislation at its core is government enabled, but it's private sector led.

Unlike past legislative efforts, the Inflation Reduction Act invests in every emitting sector, power, transportation, buildings, industry, agriculture, and forestry. And the last ten years of tax

credits create unprecedented policy certainty for clean energy in this country. We've already seen a tremendous response to the passage of the bill from the private sector over the past year alone. Just since the bill passed and was signed into law last August, a year ago August, a hundred and fifteen billion dollars in clean energy manufacturing investments have been announced. And by the way, there's going to be another added three billion dollars to that because Stellantis is announcing today a new battery factory in Kokomo, Indiana. So, a hundred and fifteen billion dollars in new clean energy manufacturing investment from GE's new union-made onshore wind assembly line in their Schenectady, New York plant that was previously in decline. That's the original GE factory and it's coming back to life building the onshore wind assembly enables new solar manufacturing facility in Oklahoma that will create 1,800 construction jobs and 1,000 permanent jobs.

On top of that, utilities have announced. More than \$120 billion dollars for clean energy generation. This investment is adding up over the last year. Four percent of total investment in structures, equipment, and durable consumer goods was in clean energy, more than double the share four years ago. And it's fostering economic growth in the first half of 2023. Manufacturing, construction, construction contributed the most to real GDP growth of any six months on record going back to 1958. These are real results for the economy, for our planet, and for the American people.

The Department of Energy has found that the Inflation Reduction Act and bipartisan infrastructure law are putting us on a path to achieve President Biden's goal of cutting carbon pollution by 50 to 52% by the end of the decade. They estimate that because of these laws, we'll have 80% clean power in 2030 and we'll exceed President Biden's goal of making half of new vehicle sales electric in the same year. And this legislation doesn't just benefit the United States. BCG found that the Inflation Reduction Act is expected to drive down the costs of clean energy technologies by as much as 25% globally. More than that in some of the more advanced technologies, helping speed deployment, making every dollar go further across the globe. And the Rhodium Group found just recently that for every ton of carbon pollution reduced here in America because of the Inflation Reduction Act will slash up to 2.9 tons of carbon pollution outside the United States. That's a complete sea change from where we were just over a year ago.

As we enter year two, in order to maximize the impact of the Inflation Reduction Act for climate jobs and justice, we need to resolve a few key challenges. And that's what this conversation today is all about. I would say the first challenge, the thing I spend lawful lot of time on is permitting in

order to reach the Biden-Harris administration goal of 100% clean electricity by 2035. We need to deploy high-performance transmission lines at twice the current pace. We need to build out 60% additional capacity. To achieve that, President Biden has elevated the permitting issue to the highest levels of government. For the first time, you know, I've been around the trap a few times in Washington, and I've never seen this happen before. We meet regularly at the Cabinet level to track nearly two dozen high-impact transmission projects that, if approved, would unlock 56 gigawatts of transfer capacity for renewable energy.

Our administration is using every tool at our disposal to accelerate and improve the federal permitting process. We are investing \$1,000,000,000 from the Inflation Reduction Act to increase capacity at key federal permitting agencies to add their personnel and information technology to move this process forward with finalize a new rule at the Federal Energy Regulatory Commission that streamlines the interconnection process for transmission providers. But even as we work to resolve these permitting challenges, we need to also pay attention to the fact that we need more raw inputs for clean energy and strong, sustainable supply chains here in the U.S. and across the globe. We're in a completely different position than we were, I think, when President Biden took office. Over the course of this administration, the private sector has announced more than 135 billion dollars for the U.S. battery and EV supply chain, including today's announcement that I mention, including LG Energy's 5.6-billion-dollar battery factory in Arizona. There's a battery belt being built from north Georgia all the way through Michigan. And companies announced nearly 13 billion dollars in solar manufacturing investments, including 2.5 billion from Hanwha Q cells in Georgia to build a full solar supply chain in the United-- in the United States. It's true that China dominates the supply chains for many upstream clean energy technologies, frankly, because we've been ceding ground to them for decades, letting jobs and factories go overseas. But we're rewriting the playbook, and we have more ground to cover. China still extracts more than 75% of the world's graphite. They process a majority of the lithium, cobalt, and graphite supplies/ And they completely outpace the U.S. and our allies on the production of batteries and their components. On solar, China controls about 90% of the module and cell pr-- Chinese companies control about 90% of the module and cell production and nearly all wafer and ingot manufacturing.

It's why President Biden's Investing in America agenda targets every stage of the supply chain for critical clean energy technologies. That's why we're working with our allies around the world,

from the EU to South Korea, to secure reliable supplies of critical minerals. And it's why we need the friend-shore sustainable, secure, resilient global supply chains for clean energy that break our collective reliance on China for production of those, particularly those upstream technologies. As we build up these supply chains, bringing new industries to our country, we encounter a third challenge, and that's workforce development. External groups estimate that the Inflation Reduction Act has already created over 170,000 clean energy jobs just in the past year alone and could create more than 1.5 million jobs over the next decade.

President Biden and Vice President Harris want these jobs to be good-paying jobs you can support a family on, that offer a chance to join a union. Jobs that attract and support a workforce that looks like America. That-- jobs that can lead to an entire career in clean energy. It's why the Inflation Reduction Act in its structure offers up to five times the value of certain energy tax credits for companies that pay their workers a prevailing wage and use registered apprenticeships on projects. That's a game changer in the way we're bringing people into the workforce. In August, Treasury released a proposed rule on this provision that would also provide incentives for taxpayers to meet these requirements by using project labor agreements between developers and unions.

And in September, the White House launched the American Climate Corps, a workforce training and service initiative to help young people gain the skills they need to launch good-paying careers in clean energy and climate resilience to attack the problem directly by giving back to their communities. In its first year, the American Climate Corps will put more than 20,000 young people to work, prioritizing workers from communities that have historically been left behind, including energy communities that are powered our nation for, literally, centuries. New data shows that women account for more than half of all new clean energy jobs. And more than 75% of the jobs created by the Inflation Reduction Act won't require a four-year college degree. We're focused on inspiring that next generation to build a clean energy future and knocking down the barriers that stand in the way. And we've got plenty of room to grow.

Globally, we're not yet on track to reach the annual installed clean energy manufacturing capacity that we're going to need as a globe to achieve net zero by 2050. We especially need more capacity on wind, heat pumps, and hydrogen electrolyzers. For each technology, North America is expected to contribute less than 15% of production, particularly if we don't change our trajectory. But make no mistake, there's plenty of room for both developed and developing economies to take

advantage of the boom in clean energy. To tackle the climate crisis, to boost our energy security, to build a thriving clean energy economy, we have to see this seize this opportunity to lead on energies-- on industries of the future.

We have to create that virtuous cycle of innovation that's going to drive down costs, deploy at scale, go faster every year. To do that, we need experts to provide more research, data, and best practices on emerging technologies. And we need allied governments and the private sector to work together. It's a big task, but our administration, I believe, is up to the challenge. And we all must be if we're going to build a safe, sustainable, and secure future for ourselves and for the planet. With that, I want to thank you all for listening to me. And I'm gonna invite David up and we're going to have a little bit of a conversation here.

**VICTOR:** Well, John, thank you so much. It's really terrific to hear about what's going on. Thank you for your service. Thank you for you-- I gather you have 135 programs or so that you're managing. It sounds like herding cats. And I guess the way you heard cats is you move the cat food, and you have a lot of cat food. I want to pick up on where you end your remarks, which is around this transformation, this virtuous cycle. And you quoted twice, this-- the IPCC report talking about the need for this transformation unlike anything in human history. So, I want to ask you a little bit about the industrial side of this. You've got all these different programs. What should we be focusing on at the programs that really make the biggest difference? Where-- what are the keystones?

**PODESTA:** Well, look, I think there's there's the near term and the programs that are really driving emission reductions now. And then there's long-term, the technologies that we're going to need to move forward towards that net zero world we're talking about. In the near term, I think you go where the emissions are, which is clean energy and transportation. This transformation — the combination of the incentives in the in the Inflation Reduction Act with other efforts by the administration, including by EPA — to ensure that we're driving emissions down in the power sector and transportation sector, are really, I think, as I said, leading to this boom in investment and deployment across the country. There have been a lot of commentary about, particularly on the manufacturing side, about how much this has been concentrated in red states versus blue states, etc. That's right.

Make no mistake, this is happening all over the country. I mentioned the LG factory in New York, you see it in Nevada and California, from Georgia to Michigan, as I noted. But, you know,



everywhere there is investment happening, whether that's in in in deployment of clean energy, in the build-up of what people have referred to as manufacturing renaissance in this country, as well as in the effort to really drive that investment towards places that have often borne the brunt of the pollution from the priv-- from the industrial and power sectors. And so, that's happening. It's real. It's going on. Steel is going in the round. That's exciting and that's driving emissions down.

Over the long run, we still need to develop better technologies in climate-smart agriculture, and clean hydrogen, and removing carbon dioxide from the air. The National Academy of Sciences, at a global level, said that by 2050 we're, you know, we're on the best trajectories, we need to take about nine gigatons of carbon out of the atmosphere. And so we need a lot-- we need to do a lot of work in that space. And I think what's, what we're seeing is a certain level of excitement, but that's, I think, those are technologies — small modular nuclear reactors, etc. — those are technologies that are gonna more-- where you'll see them come online more in the 2030s and 2040s.

**VICTOR:** And how should we think about whether we have the balance right? It seems like most of the money is being spent through the tax code being spent on deploying things we know how to deploy near-term. Much less of the money is being spent on these transformative innovations. Do we have the balance right?

**PODESTA:** Well, you know, I think we do. I think that there was a significant amount of of effort, money, and support in the bipartisan infrastructure law to do demonstrations of the newer technologies. And largely, that's the province of the Department of Energy. Dave Crane is is over there now leading that effort with Secretary Granholm. And we're seeing, I think, momentum across a range of technologies. But-- and we're using, as I said, there's a whole of government effort. We're using all the, the authorities that the president has, including the Defense Production Act, to kind of stimulate more investment. But we have a challenge. This is the critical decade. So there's a reason why I think we're seeing these more mature technologies, but ones where still price is being driven down. That, as I said, that cost reduction, that cycle of innovation is still happening. We're seeing that being the you know, most of these announcements are at the forefront of that.

**VICTOR:** So, the next panel after ours is going to be about the domestic politics and economics of this. Glen Rudebusch is here. He's gonna talk about some work they've done to look at stock valuations of companies. And when the Inflation Reduction Act passed, stock valuations of green companies soared. Brown companies, or traditional companies, went down, but I think not as

much as people really expected. And I think the logic there is we're subsidizing a lot of stuff, but we're not taxing and regulating the externality of the pollution. Do we have that balance wrong? What do we need to do to fix-- when do we need to fix that problem?

**PODESTA:** Look, I, you know, I think fundamentally the shift in thinking in the United States was if you go back to 2009, 2010 — you were engaged with that, David, Waxman-Markey — I think we stop asking the question, "What do we need to shut down?" as the first matter of interest. And started asking the question, "What do we need to build? How do we build for a future that's clean?" And I think that's at the heart of the Inflation Reduction Act. But I think on the, on the stock valuation, the profit share, the oil companies, etc., I mean, there are a lot of external factors, not just the inflation that they--.

**VICTOR:** They seem to be doing okay.

**PODESTA:** So, you know, the war in Ukraine, now the war in Israel, you know, those things have impact on oil prices, the shift of resources and the production of natural gas to support our allies and partners in Europe are in their need, largely because of their overdependence on Russian fossil fuels was real. So, I mean, that's happening, but I think that there are ways in which we're trying to deal with with the supply side. I mentioned the regulations from the EPA. We've raised the royalties on fossils that are being extracted from public lands. We canceled the leases in ANWR, you know, so there are a variety of things that we are doing. But I think that fundamentally, that kind of political economy, as you're describing, shifted towards one that I think the American people can see themselves in the transformation. And that's a good thing because we need to stick with this for a very long time.

**VICTOR:** Let me ask you about the politics. There's this poll that you've heard that I heard over and over again from Washington Post in August, early August, that seven out of ten Americans basically knew nothing about the Inflation Reduction Act. Do we-- should we be worried about that wind or is this a little bit like Obamacare, initially unpopular then becomes more popular over time? When is it going to become popular and known?

**PODESTA:** Well, it's, it's like and it's unlike it. It's like--.

**VICTOR:** That's a good answer.

**PODESTA:** In that it takes, you know, it takes a while for people to feel it for-- I mentioned those 170,000 jobs. But on the way, a 1.5 million jobs. So, you know, as the investments gain

momentum, more communities across the country are going to feel the real impact of that. The programs that are really consumer-facing are just really kicking in the rebate programs to provide more efficient appliances, conversion to heat pumps, etc. Those are really just getting off the ground. The tax credits to pay for the whole house efficiency improvements for the use of better appliances, people won't file their taxes until the spring, when they finally will notice that they've gotten this benefit from it. We're on track. I think we just announced, Treasury just announced, new rules to make the availability of the, of the tax credit for consumer vehicle-- electric vehicle purchases will be available at the point of sale. That's a very important change. But it took a while to get that system built so that when a consumer goes to a dealer's lot, they can get the credit right off the sticker price.

**VICTOR:** So, we're on the cusp of seeing a lot of this.

**PODESTA:** Yeah, and I think, so in that sense, I think it's like the ACA. It took a while for people to understand how much impact the ACA had. The way it's not different is while people may not know what, you know, look at what's going on in the world, people don't pay that much attention to like bills and legislation, etc., etc., but the underlying provisions of the bills, the buildout of clean energy, the support for clean technologies, the approach on reducing pollution remains highly popular. So by the time the ACA passed, it was underwater, and it took a while to build that up. All of the components of the Inflation Reduction Act remain popular and including across the board, including by Republicans. But I think it's going to take you know, it'll take a while for people to feel it. But we also have an obligation to go out there and try to ensure that people know about it. And we're, you know, we're fanned out across the country, including the president, vice president, trying to do that.

**VICTOR:** Couple more questions on domestic politics. One is on environmental justice. You said in an interview with Bill McKibben in the New Yorker, that the folks who've borne the brunt of industrial pollution should be first in line to get the benefits from this. There are these targets of just 40% of the resources going to less advantaged communities. I think the politics of that are clear enough. My question is, do we know how to do that? What's, what are the good models for how the resources of the Inflation Reduction Act can be rebalanced to the folks who need it most?

**PODESTA:** Well, I say, I'll answer that in kind of two parts. There are structural elements that really help in this regard and are different. You know, not-- you know, normally people pay no attention to this in building support for whatever policy, but particularly in the clean energy space, now

you get-- there's bonus credits for for deploying in energy communities, in disadvantaged communities. And I spent a lot of time talking to business leaders and people who are trying to make those investments, and they sure want to know. That's why I think Treasury prioritized getting guidance out on what constituted that bonus for domestic content, for investing in an energy community, for investing in a disadvantaged community, for investing in federally supported housing projects. There are specific programs targeted also to deployment, like the Greenhouse Gas Reduction Fund, the so-called green--.

**VICTOR:** Those are a much lesser part of the total, total money, right?

**PODESTA:** Yeah, but I think don't, don't underestimate how much that 10% — maybe it doesn't sound like a lot, but on \$100 million, that's \$10 million — that is influencing people's decisions about where to site projects. You know, that's why we, you know, we see a battery factory springing up from the remnants of the Weirton steel factory. That's why we're seeing people decide to make investments where they are, because they, they're taking advantage of that.

And then there's the specific programs that particularly target disadvantaged communities. One huge challenge is the disadvantaged communities also have the least capital in order to take advantage of federal investment often or to really structure deals with the private sector. So one of the things I think we've tried to do both through EPA grantmaking that covers all the federal agencies, but also by pushing the philanthropic community to invest in technical assistance so that those communities are not left behind, that they can access the federal resources. And I think, you know, it's incumbent upon all of us in the federal government to make sure that works.

**VICTOR:** Yeah. I mean, one of the ironies here, it requires capital to attract capital. Before I go to the audience for audience questions, I want to ask you at least one international question, which is about our allies. Seems like there's a tension here. You, in your remarks, mentioned that investments here are gonna drive down the global cost of this technology that's going to a global impact. That tells me that global trade, global investments a good thing. What I'm hearing from lots of other countries is that they see the Inflation Reduction Act — I think the G20 Sherpa in India called it the most protectionist act ever written, maybe that's a little dramatic — but the European allies are pretty concerned about the impact on jobs and investment back at home. Should--are they just resigned now to the fact that we're doing this? Are-- should they be happy about it? How should we think about this?

**PODESTA:** Well, first of all, I think almost everybody's pretty happy that the United States is back in the lead. Having watched four years an administration tried to dismantle every clean energy provision that was put in place by previous administrations, Republicans and Democrat, they're pretty happy that they have a president who's taking this challenge seriously, trying to work cooperatively and in dialog, and that the United States is making good on its commitment to reduce its own emissions. Secondly, I think we've tried to have a serious dialog about how we can work together to do that. I just came back from Brussels. We're in the throes of, with the EU, on trying to negotiate a critical minerals agreement which would give the the mining and production of critical minerals in Europe access to the credits here. The president will see the president of Vanderlande soon.

**VICTOR:** Does that-- is that what friend-shoring means then? Things like that?

**PODESTA:** I think it means working cooperatively to ensure that we're not in a position that Europe was in at the forefront of the Ukraine war. That. We don't have that overall dependency. And like, yeah, there's a certain amount of bitching, but I think in, in reality what it's done is spurred action. So when you see the green industrial policy that the EU built-in spring, that wouldn't have happened without the Inflation Reduction Act passing. So with the bitching comes a little bit more of a shoulder to the wheel so, and that's a good thing.

**VICTOR:** Why don't you raise your hands? And we're going to go first to Lisa Friedman and then we have one question back there. We're going to have sharp, short questions in limited time. Lisa.

**FRIEDMAN:** Thanks. Thanks for taking my question. John, back to permitting. I mean, I guess with the speaker issues, not much is getting done this year, but do you see realistically any opening for something to move on permitting also?

**PODESTA:** Well, you know--.

**FRIEDMAN:** I mean, the compromise that--.

**PODESTA:** Two-part question.

**FRIEDMAN:** Seems to be on the table--.

**VICTOR:** Yet these are inflationary times. We have question inflation.

**FRIEDMAN:** The compromise that some renewable energy trade groups and others a proposed, transmission for judicial review making it easier to cite fossil fuel projects. Is that a compromise the administration is willing to accept?

**PODESTA:** I would say two things. We made, we made our key changes, improvements to the permitting process clear as far back as last spring before the debt deal was done, where a relatively modest set of changes of was made, which we we're already implementing, which helps speed things up. On the question of they-- whether there's still any hope for further legislative reform, I would say two things. One, we're not waiting for that. I mentioned the fact that we're all in on trying to use, at the very senior levels of the administration, at the cabinet level, people trying to move projects along. But we remain hopeful that there still is room for bipartisan dialog. I think we have a constructive conversation going on with, on the Senate side, with Senator Carper, Senator Manchin, and others-- Senator Schumer, and we'll see if something can emerge from that.

And I'm not going to prejudge the outcome, but I think that as-- Lisa, as you know, they are, there are certain red lines that we won't cross. H.R. 1 undermined the original legislation that came out of the House, undermined core environmental laws, including the Clean Air Act, Clean Water Act, and Toxic Waste Act. And we're not going to cross those red lines, but we think we can permit these projects without having to do that. And we were open to some changes in NEPA. We're open to increasing the process. We signed a memorandum of agreement between the agencies, and the president directed the use of a provision in the Federal Power Act that gives the secretary of energy on transmission the authority to consolidate both timelines' documentation and enforce those. And we're implementing that. So we're going to do what it takes.

**VICTOR:** While we get the microphone to the gentleman in the pink tie, and quick follow up, which is just all the examples you cited in your remarks, John, were about federal permitting reform. Are we not paying enough attention to the states?

**PODESTA:** Yeah. That's a very good question, David. I think that, you know, some states have taken this on, including California.

**VICTOR:** Well, we have a lot to do in California.

**PODESTA:** But we had, in the Inflation Reduction Act, there was about \$300 billion to support state reform of their permitting processes. But often the worst NIMBY problems happen at that state and local level where you, you-- I think we're pretty clear about if you get in early, you can use mitigation strategies, other strategies to work around problems that are real. But I think at the state, local level, there's still the need for focus and reform. And the NGA, under the chair, Governor Cox, has made this a priority.

**VICTOR:** Sir.

**AUDIENCE MEMBER:** Hi, Chris Knight with Argus Media. So to do a different flavor of the same question--.

**VICTOR:** How about one flavor because we're short.

**AUDIENCE MEMBER:** Is the, is the default assumption now that Congress will not pass further permitting changes and you're going to flex some more authorities in the executive branch to make some of these clean energy projects happen, permitting happen?

**PODESTA:** Well, I mean, I'll, I'll let others be a judge of the productivity, what you, what you estimate the productivity of the current Congress is likely to be. What I'm, what I'm basically saying is that where we have authority and we could utilize it where we have money, the billion dollars I mentioned, add personnel change systems, etc., we're going to utilize it to get the job done. We're still hopeful that there will be legislative legislation produced but, you know, the House, you be a judge about whether, you know, they're going to be, you know, how well they're functioning these days and how much you can anticipate a focus on the serious problems that are facing their country or how much they're more internally focused.

**VICTOR:** Just before we go to this gentleman right here, one quick question, very different subject. China. Two biggest economies. Seems like there's bipartisan agreement we should beat up on China. Are-- what's most promising in your eyes in terms of these small steps that the United States and China are taking to try and find ways to do things together?

**PODESTA:** Well, David, as you know, I spent a lot of time on this question during the Obama administration and--.

**VICTOR:** It's not like we know who the people are. We don't know what to do.

**PODESTA:** And look, I, you know, Secretary Kerry, in his most recent visits trying to stimulate more a more positive dialogue, there's no question, I think, that the whole world needs to pressure China to begin to stop building new coal fired power and start retiring the coal fired power that they have. And there's an obligation, I think, on all of us to try to keep that pressure on the Chinese government to move away. You know, they're deploying a lot of renewable energy. But until they begin to turn the corner and really reduce their-- the coal fired power, and do it now, not do it in the 2030s where the world's in trouble. But I think in terms of where there's possibilities, it's more-- I think our our division is really focused in the technological area, and you see that in place in the CHIPS and

Science Act and other places, but I think there are places like methane reductions in agricultural production. Maybe one place where we can do a better job is on our coordination on international finance, where we, you know, we could move towards high standards. But right now, it's, you know, it's not 2015 anymore.

**VICTOR:** We've got one minute, maybe two, a crisp question, crisp answer, and then we're going to move on.

**AUDIENCE MEMBER:** If the IRA is successful--.

**VICTOR:** Please tell us who you are.

**AUDIENCE MEMBER:** Sorry, Bob Wyman. If the IRA is successful at encouraging the beneficial electrification of buildings, gas consumption will reduce. However, the costs of infrastructure are fixed largely over the next 50-60 years. So if the gas consumption is reduced, the per unit cost of gas is going to have to go up because of stranded assets. That will have a significant impact on low and moderate-income communities. What can we do to protect the low and moderate-income communities from essentially getting stuck with the stranded asset costs of the transition from, from fossil fuel to renewables?

**VICTOR:** Good Question.

**PODESTA:** I think that, I think it's an excellent question. I think what we're trying to do with the current programs that we have, I mentioned the Greenhouse Gas Reduction Fund, the Solar for All program, the, for those of you who follow this in detail, the 48 little e credit net is intended to build out rooftop solar, community solar. The rebate programs are targeted at moderate and low-income communities that can reduce the cost of energy for households in communities. But I think we have to be extremely attentive to the question that you're describing whether that ultimately has the effect in terms of averaging out. I mean, we've seen that a little bit in the telecommunications world, but I think that we have to be-- that's what Justice 40 is all about, trying to make sure those resources are targeted at the communities that are more burdened.

One of the things that — maybe it's because I grew up in a, you know, blue-collar neighborhood in Chicago, but that had some trees — that we just did, in order was-- in record time put out 1.2- 1.5 billion dollars of urban forestry money to 400 communities across the country to reduce the heat load on people who have often borne the burden of tree deserts. That means there is a difference of as much as ten degrees or sometimes more between the urban core and suburban



neighborhoods in, in cities across the country. So, I think that's intended to improve the health and well-being of people in those communities, and I think it'll it'll work. But we have to, I think we have to ensure that this is multifaceted, that we're paying attention to costs. It's not enough to just say that average costs are going down, which they are, we have to make sure those, those benefits are spread across the country, in every pocket of the country, and particularly in disadvantaged communities.

**VICTOR:** As moderator, I have two more jobs. One job is to remind all of you to stay in your seats while we do a changing of the guards up here for the next panel. And the second job, and one with pleasure, is to thank John Podesta for such terrific remarks. Thank you, John.

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**FRIEDMAN:** Hi. Is my mic working? Yeah. Thank you guys so much. Thank you, everyone, for being here. I'm Lisa Friedman. I'm a reporter on the climate team at the New York Times. And I am very grateful to have two stellar panels, beginning with this one that is really going to, to drill down into a lot of the things that, that David and John Podesta just covered. First, let me introduce our panel.

All the way by my far right, Sanjay Patnaik is the director of the Center on Regulation and Markets here at The Brookings Institution, the Bernard L. Schwartz Chair in Economic Policy Development, and a senior fellow in Economic Studies at Brookings. He also is a fellow for the Initiative for Sustainable Energy Policy, ISEP, at Johns Hopkins University. Adie Tomer, in the center, is a senior fellow at Brookings Metro and is an expert in infrastructure policy and urban economics with a particular focus on transportation and digital technology issues. Mr. Tomer leads a team whose work aims to better understand how infrastructure policies from the federal through the local level impact economic development, social prosperity, and environmental resilience. And directly to my left, Glenn Rudebusch is a senior — pardon me — a nonresident senior fellow at the Brookings Institution with the Hutchins Center on Fiscal and Monetary Policy. He is also a senior fellow at New York University in the Volatility and Risk Institute of the Stern School of Business. In recent years, Glenn played a key role in introducing climate change considerations into the Federal Reserve's analysis, research, and policy.

Thanks to all of you for being here today. You know, I had like a larger introduction planned, but I don't think there's much that I can say about the the Inflation Reduction Act that John Podesta

didn't go over. So I'm going to just repeat a couple key statistics. Companies have already announced over 115 billion in clean energy manufacturing investments in the last year. That has created about 170,000 clean energy jobs. The investments include more than about 70 billion in EV supply chain and more than 10 billion in solar manufacturing. But this isn't just industrial policy, this is climate policy. And I want to start with the climate considerations. President Biden has said he would cut U.S. emissions 50 to 52% below 2005 levels by the end of this decade. The IRA, combined with regulations, is estimated to get us to about 40%. So first let's start with what has happened already. Sanjay, what do we know about how much-- how far the IRA has gotten us either to reduce emissions or to set up the dominoes to do so?

**PATNAIK:** Great. Thank you. Well, this is the billion-dollar question, right? And so there are two parts to it. As you mentioned, the first part is what is the IRA intended to do? And when we look at a lot of the models that came out before the IRA, as you pointed out, they, they take us from about 25 to 28% reduction that we would have seen anyway on the business as usual, to 40 to 44% by 2030. And this is the plan. But then the question is, how much of that will materialize? And here it's much more complicated to really assess because we don't have a central tracking system or accounting system to see how many of these emissions reductions are happening. What, what are these investments actually facilitating in the economy? And so this is a key difference to the Europeans, because the Europeans, they implemented a carbon price in 2005, and so every facility that has to pay a carbon price has to publish emissions data on a yearly basis. So it's much easier to account for the emissions reductions.

And for the IRA, I think what we really need is very good data, very good research to assess whether the IRA's working as intended or not. I think one year is very early. A lot of these investments work on a much longer time frame, so we can't really say yet whether the emissions reductions are happening as planned. What we do see is definitely that the IRA has catalyzed a lot of market forces that existed before the IRA towards a transition to a low-carbon economy. And it really has changed market dynamics and is pushing these original market forces on an accelerated way towards decarbonization and has attracted a lot of investments around the world. We talked a little bit about the Europeans before. They are really worried that a lot of companies are actually deciding to invest in the U.S. rather than in Europe because of the IRA. So, I think the biggest effect that we've seen so

far is really the dynamism in the marketplace and among investors to put the private and public money into this project.

**FRIEDMAN:** Do you have a sense of how soon we will know if it's working as an emissions reductions tool?

**PATNAIK:** So, I think we will see some things earlier than later. We'll have to wait a few years to see how many of these tax credits, for instance, consumers are taking up for cars, for instance. We'll probably get a better sense in a few years in the power sector, which is a bit more visible. But again, a lot of it depends on the permitting, like we mentioned before. A lot of it depends on whether these tax credits are being taken up. And there's a lot of uncertainty which was baked into the models. But we can only see as it plays out.

**FRIEDMAN:** Yeah. I mean, that's an excellent point. The emissions reductions are not guaranteed. It does depend on whether, whether people, as you say, take up the tax credits, whether we get people into electric vehicles and-- as opposed to combustion engine vehicles, whether we use the, the electric heat pumps in our, in our homes, and solar panels, and the like. Adie, David brought up in the last panel with with John Podesta, the very low even recognition rate of the IRA. What, what do you see as the biggest problem? John seemed to indicate that it's just a matter of time, momentum is building. Do you think that's true? Is it-- is this a failure of the administration? Is it a failure of media? What's happening?

**TOMER:** Yeah. First of all, thank you, and thanks to Brookings for putting this on, all of you joining us here today. With a level of humility, I think this is going to be a permanent challenge. You've got all the recipes here to have difficulty breaking through to a public that has a certain amount of skepticism of what government delivers for it. I'm reminded, and also living through it, in a Brookings seat, if you will, the ARRA or the prior recovery — now we can't even call it that anymore because of the recovery stuff from now — of how difficult it was. Many of you probably remember they put logos on infrastructure projects that under the Tiger Grant program and others, and it just really struggled to break through. Those were publicly owned assets.

Now we're talking about, right, tax credits moving through a system where you are often procuring a privately manufactured product or seeing a change in the, like the energy form of calories, right, that are coming into your system, right? Or is this clean food effectively, right? Delivered by a private company, along a transmission and distribution system you've never even really understood or

maybe even seen. And that is just going to be challenged. You wrap all of that up though, in an epoch where people's trust in civic institutions is way down. And you have an entire in a two-party system, right, one side of the coin trying to throw shade, at least through public messaging, even if back home they're more than willing to cut ribbons on facilities inside their districts, right? And that is just all wrapped up in a communication set of challenges. And frankly, I think that is far bigger than any administration to solve. It is inherent in the process.

And so I think we've got some kind of underbrush here to deal with from a communications standpoint. And again, I say this as a non-communication expert. We work in infrastructure, though, and there's a there's a joke on the freight side — which I know sounds disconnected, although it's a huge actual carbon emitter — that freight doesn't vote, right? That things just magically show up at your home. Everyone expects it to work, but when it when it doesn't, you want to point fingers. But when it does work, it's really hard to understand why. And I think the IRA is a perfect kind of met-- it's a perfect metaphor for what they're going to try to break through here on the IRA. So, it's gonna be, as you heard from from John Podesta, it's gonna be a persistent set of messaging. This is not going away.

**FRIEDMAN:** But before we get to the financial markets with you, Glenn, I want to-- I mean, Sanjay, you were, you were saying when we were talking backstage that while consumers may still be learning about the IRA, businesses know exactly what's, what's available.

**PATNAIK:** Yeah, for sure. We see a lot of interest in the IRA tax credits in the business community in venture capital and investors. And as I mentioned, a lot of multinational firms actually that have production plants in Europe and the U.S., are thinking of shifting their production over to the U.S. because of the IRA. So in the business community, these credits are there. People know that they're there and they're catalyzing a lot of investments. And ironically, going back to your point, a lot of these announced investments and announced jobs that we have seen so far are in Republican districts or Republican-leaning districts, but a lot of people don't make that connection.

**TOMER:** If I could jump in with one thing really quick, though. The-- I totally agree. The distinction though are local businesses who are going to be responsible for delivering much of the local investment here. They, by some accounting — and there's been some great public reporting as best we can do right now — kind of showing there's not necessarily awareness, let's say among local

mom-and-pop HVAC companies, right? We're gonna be really big to push these installations on the home retrofit side of it.

**FRIEDMAN:** This is a good area. Let's come back to this. Glenn, Glenn, you've studied the role the financial sector will play in the energy transition, tell us a little bit more. David mentioned you have done a study just recently on the stock market reaction to both the early assumption that there would be no climate clean energy measure and then to the IRA itself. Can you can tell us a little bit about what you think?

**RUDEBUSCH:** And why this is important? You know, the financial sector is, I think, an underappreciated or often overlooked area. I mean, it's got an important role in the transition to a sustainable economy. An important role for both allocating funds, of course, to sustainable investment, but also in terms of managing risk. What's useful about looking at the financial sector is that it's got this forward-looking element. So, Sanjay talked about it's going to take a decade. We've seen some progress over the, over the past year, important progress in investment. But to really, you know-- we won't know for several years, maybe a decade, how the investment projects have gone through. They say nothing of the emissions reductions. And then, of course, the climate, presumably the positive climate effects. So, the forward-looking nature of financial markets can help give us an early read on, on how useful, how effective the IRA is. Again, financial markets have that allocating funds role, managing risk, but they also have this aggregation of information, and so we can leverage that. So there were two events during the gestation of the IRA. It was a, it was a whipsaw. It looked like all, all hope was lost on July 14, 2022.

**FRIEDMAN:** Excuse me. Just PTSD from covering.

**RUDEBUSCH:** All hope was lost. The probability of major climate policies seemed to go to zero. And then two weeks later, on July 27th, 2022, the IRA was released. You know, the entire, the entire bill was, was released. And so that was a surprise. So that makes it a, a great case study, a great event study. Typically, you know, the climate policy comes out in dribs and drabs, and is negotiated, I mean, poor Waxman-Markey was tortured for a long time before it was put to put to death. So, these make a great event study. And we see in this, in this research work with-- it's a Brookings Institution working paper under the Hutchins Institute-- Hutchins Center with Michael Bauer and Erik Offner as coauthors.

But we're responding, we're looking at the stock market response to these two events where the probability of climate policy went to essentially zero and then jumped to essentially one, looking at both broad indexes and individual firms. And you really see that the greener firms, or the low carbon firms, or the low emissions firms measured in terms of emissions intensity or by rating agencies, e scores or emission scores, that the, that the greener firms really did much, much better when the IRA was announced. I mean, that was a huge jump in relative value relative to brown firms certainly, or to more carbon-intensive firms.

**FRIEDMAN:** You'd not expect that, right?

**RUDEBUSCH:** You might expect that. But to see it-- I mean, that's what we're looking for. But, but I think it's an early indication that investors expected this to have important effects in terms of profitability of these firms, you know. Either through a cost channel where their investment was subsidized or through a demand channel, where their products, clean energy products, or also EVs for instance, were also going to be subsidized. So, this cost channel and demand channel makes perfect sense in terms of the asset pricing perspective or the economics perspective. We don't always see that in the data. Our predictions don't always come from true. But, but here you, you found that effect. And I think that's an early sign that the IRA is going to be-- it's gonna have that, those positive benefits in terms of investment in emissions.

**FRIEDMAN:** If it is implemented as, as hoped. So let's turn to to what some of the major challenges are. And I do want to dig into permitting. But, but maybe first, Sanjay, what do you see at this stage as the biggest hurdles towards implementing the IRA as it's, as it's envisioned?

**PATNAIK:** So, I think it's it's two main things. One is the uptake of these tax credits by the consumer and how many people are actually using these tax credits, and then the second is permitting. We need to build a lot of infrastructure to actually materialize those gains that the IRA is promising. And as we heard before, these permitting timelines can take a very long time. We currently don't see any--anything in Congress that would focus on really reforming it. And just to give you an example, I mean, we did an article and we looked at different timelines, and for a lot of those projects, just to get the right of way takes nine years on median, and that's crazy. I mean, if you really want to build a lot of this infrastructure, transmission lines, power generation, you need to speed it up much more. And so I think that's a major challenge. And I think the third one maybe is also unintended

consequences. And we have to be very careful that there's not a cost on the low and middle-income families because that could happen in the transition. And I think we have to be very careful of that.

**FRIEDMAN:** I don't want to put words in John Podesta's mouth, he seemed to indicate, it seemed to me that, you know, the administration is doing everything it can. And those comments sort of brushed the line on whether that is enough. Is that enough? Does this require Congressional action, or can the administration on its own address the the transmission woes?

**PATNAIK:** I think they can definitely do a few things, but I don't think it would be enough. And as David pointed out before, a lot of it happens at the state level and at the local level too. When you look at permitting a transmission line, for instance, or a new power plant, it really is at the federal, at the state, and the local levels. And a lot of the positions happens at every level. And so I think this would need concerted effort to to improve it and to speed it up. To give you an example, currently, we have a federalized a system for natural gas pipelines because it speeds it up and it can overcome some of the opposition by states. We don't have that for transmission lines. And so that allow states to hold up transmission lines, especially those states where maybe the line is going through, but they don't get much of the electricity. And so if we don't federalize that, for which we would need action from Congress, it, it could really prolong things.

**FRIEDMAN:** I mean, the other major issue, of course, is workforce. John mentioned that as well. A year in, Adie, how-- you know, what, what problems are still remaining? How do they get addressed?

**TOMER:** Yeah, I keep getting the "there's trouble" questions. I know there's a lot of trouble on workforce. You know, our team at Brookings Metro does a ton on infrastructure focused workforce, which is inclusive of what's kind of defined as as green jobs. Although, saying the word define and green jobs next to each other is actually problematic too. Folks cannot agree on exactly what a green job is. We've tried our best in the past. So, by a study we did a few years back, you know, judging the size of what could be the inclusive clean economy, which I'll get to in a second, there are, by our estimation, over 6.5 million people that already work in are what effectively clean or could be clean jobs. That stretches across — and this is even more important than that jobs number — over 300 unique occupations. So this is an exhaustive set of workers that are going to need to help deliver what the IRA promises.

Now, John Podesta already mentioned two key numbers. You will very quickly find them on a White House press release as well, over 170,000 jobs — and this is really key when you go to the, the hyperlinks here that it gets to, we're talking about really announced jobs — and then 1.5 million ideally over ten years. I'm not necessarily questioning those estimates. I don't know about each of you, though. I don't want an announced job. I want an actual job. And that's going to be a real big question going forward is how many of these jobs are sustainable? Again, to try to work in metaphors again, the — or whatever you want to call it — we often talk about construction in this industry as a green job, but it's much like constructing a stadium, right? Those are not sustainable jobs. That is just a short-term infusion of cash and-- for those workers. We are looking for sustainable employment, which has real opportunities. Similar to what Sanjay just mentioned on eventually what's going to happen, right, on the actual energy-based transmission-- transition, both on generation and transmission and distribution, it's going to take some time to see how many sustainable jobs we get here. What is the green nature of them? So, we have some work that, that's just come out — just to kind of put a final point on it — at the local level, which is really, really important to actually delivering, delivering jobs, there is a continued breakdown in city climate action plans on the actual connections between workforce intermediaries and the infrastructure related agencies that actually would employ these folks, at least on the public sector side.

Increasingly, there is a lack of money committed to actually training people, too. So even if they have workforce ambitions, there's no certainty on where that money is going to come from. So, so to connect it all, we've got some movement in jobs, much of it — as we can see by other economic data too — is tied up in the construction of facilities. That is really good. We're going to need to see what's the total durable amount of jobs. And then how do we make sure all of that seeps through the system, not just related to EV and other related manufacturing investment or construction, ideally, of new power plants and transmission lines, but all through the entire kind of economy, right, related to green jobs.

**FRIEDMAN:** You know, while we're on the state level, I mean, we've seen some states rejecting, declining Inflation Reduction Act money. What, you know, even beyond that, what are some of the differences we're seeing in how states, how ready states that wants to accept money are in their ability to do so? What, what are the sort of the variations that we're seeing in state and local governments, you know, in their both willingness to embrace the IRA and ability to do so?



**TOMER:** Yeah, we're seeing a big mix. Workforce is just one of them. The-- you know, I already kind of mentioned it, I think it's been well told in the media and through others truly to their credit, right, of folks that say one thing publicly and then are happy to show up for a ribbon cutting, right? And understandably because they should want jobs in their district. And I think it's been said — well, it might've been by Representative Graves, right — about it is your job to both vote in one way, but once something's law, you need to protect your constituents.

So, my kind of two cents on this is that unlike what we saw during the Recovery Act — again, back to '09 when governors actually were sending money back to Washington — so far, excluding the state of Florida, my home state — really, really nice to hear — we have-- that is not, that is not the general attitude we've seen across the country, is that there's a willingness and acceptance of that. I think part of it's because so much of what we've seen move on the IRA so far is through the, through the tax code, right? I mean, it's really not up to these governors in many ways. I also-- it's, you know, I've worked in Washington long enough to know, like you tend to not see Republicans fight against tax credits or in general, right, anything that can be seen as a reduction there on the private sector side.

So, I think we're gonna continue to see states and locals being able to benefit from the system, but they're going to need to put more laws into place. One final quick point on this. John-- again, John mentioned the home rebate programs and what's going to happen there. That's going to require, actually, state offices to be set up to be able to process it. The feds have really done their job there. It's gonna be incumbent, and we're not going to know yet for quite some time, which states are best equipped to actually get the word out to their mom and pop, let's say home retrofit actors, that will be responsible there to make sure the credits actually get down to consumers. They can make those choices, and the money sloshes through the — in a good way — slosh through the state economy.

**FRIEDMAN:** Glenn, did you want to-- I thought I saw you wanted to jump in.

**RUDEBUSCH:** In terms of implementation, certainly there's a lot of a lot of implementation hurdles and details still being worked out. There's also a political element, just like the ACA, not to trigger any more, PTSD--.

**FRIEDMAN:** Thank you for that one.

**RUDEBUSCH:** There is the possibility of a reversal or repeal, or a partial repeal. I mean, that is, that is certainly also a possibility.

**FRIEDMAN:** Can we pause on that for a moment?

**RUDEBUSCH:** Sure.

**FRIEDMAN:** Should there be a Republican elected and Republican, you know, Congress?

Let's, let's envision another trifecta. What, what are the most likely-- well, A, I'm told repeatedly that it would be very difficult to repeal the IRA, more likely that parts of it would be attempted to be repealed. Do you agree? What parts are most vulnerable? What would you see a Republican White House and Congress eliminating?

**RUDEBUSCH:** I don't think we'll, we'll get-- it's not so much a wholesale repeal. Of course, there are issues in terms of some of the specifics, but I think it's more of an administrative-- sort of implementing the details can be reversed and that new regulations over time could be, could be developed.

**FRIEDMAN:** Do either of you have thoughts on on what's most vulnerable?

**PATNAIK:** So, I think--- I mean, a lot of the implementation of the IRA is actually up to the agencies, the executive agencies and regulatory agencies. And I think that's also one reason we-- that it would take time to be implemented. So that's something the next administration can definitely slow walk. So it could be kind of like a death by a thousand cuts because you're just like, maybe eliminate that grant program or you slow walk it. And so that would hamper a lot of the intended effect of the IRA. And we have seen that in many other areas, I would say over the last 15 years, that because Congress often doesn't act, what happens is really in the regulatory agencies. So, we have one administration coming in, they implement regulations. The next administration tries to roll all of them back or kind of like put new ones in that are opposed to the previous ones. And I think that's where the area is quite vulnerable.

**FRIEDMAN:** Interesting. Yeah.

**RUDEBUSCH:** I want to sort of inject a positive note. Right. So, I thought I'd better inject a positive note. Again coming out of our study, financial markets also are important in terms of thinking about the financial risks, the climate risk. Particularly, there's been a lot of discussion about transition risk, sort of policy-induced-- you get a new, you get a new climate policy in order to implement a climate mitigation strategy. And that transition risk produces stranded assets potentially. And there are, you know, financial risks and even to the to the extent that there may be financial crises or disorderly adjustment. In our study, you know we did not see that for the IRA. There were certainly

large movements in green and brown stocks, but, but it was certainly not disorderly, and it certainly looked like something that was manageable.

And again, this was the largest climate policy action ever enacted in the U.S., probably the largest climate policy act that will be enacted in the next ten years, and it happened in a very short time period. So we had this news come out over and over a very, very narrow window. And if that type of event, that sharp, important climate policy event didn't create a disorderly transition, that might give some support to some hope to-- again, the financial regulators, the Treasury, the Fed, the SCC, are very worried about this issue and international financial regulators as well, the supervisory institutions, so it may be that financial risk is more manageable from climate transition and that's less of a worry going forward when we do have to make a huge transformation of the economy.

**FRIEDMAN:** Let's, let's look beyond the IRA. It gets us to 40ish percent emissions cuts below 2005 levels by the end of this decade. The goal is 50 to 52. And after that, the administration has pledged that the United States would be carbon neutral by 2050. So, given a chance, what would IRA 2.0, look like? Maybe, Sanjay?

**PATNAIK:** I mean, as an economist, I would strongly favor a carbon price, but we know politically that's not feasible in the U.S., at least in the foreseeable future.

**FRIEDMAN:** Can I, can I pause on it? I mean, does-- there is a school of thought that the IRA, if it works as intended, would make it perhaps easier to to impose a carbon price? Is that crazy talk?

**PATNAIK:** I think it's hard because if you look at the political spectrum, there's kind of like 50% that is completely opposed to any carbon price at the domestic level. Although it's interesting, when you look at the IRA, there is a carbon price in there, which is the methane fee, and it's actually pretty significant, but it didn't receive much attention. I think where we do see some potential is actually the carbon border tax. And the reason being that we see the European Union that has rolled out their own carbon border adjustment mechanism and they are really dead set on implementing it. And a lot of other countries are thinking of following suit because they're worried about it. And it comes down to a very simple question, do you want to have your companies that export from, for instance, products to the European market, pay the Europeans the carbon border tax, or you have a domestic price or some similar mechanism at home where you can get the revenue? And I do think that there are a lot of discussions, even on a bipartisan basis, that we could see some will for a

carbon border tax in the U.S. without a domestic carbon price, which is crazy when you think about it conceptually. But there are ways that it could be done, and I think there's--.

**FRIEDMAN:** How does a carbon border tariff work if we don't have a price on carbon?

**PATNAIK:** You have multiple ways. One is, for instance, you look at emissions intensity in certain sectors. One is you look at what kind of like a shadow price would look like when you take into consideration regulation. So there are ways around it. It's a bit more complex than a regular carbon border tax, even if a domestic price. But I do think because you see kind of like that, that will of potentially using a carbon border tax as a bulwark against China on the Republican side. And on the Democratic side, obviously to put us in line with the Europeans and kind of like with the rest of the world.

**FRIEDMAN:** Glenn, what do you think are the chances of a carbon border tariff?

**RUDEBUSCH:** I think I would agree with Sanjay that carbon pricing in general in the U.S. seems like a very heavy lift and it's not likely to happen. But a carbon tariff, you can put tariffs on all sorts of things people love. Among all the taxes, the tariffs are the most popular in the U.S. and I think there's a good chance that a carbon border adjustment mechanism or tariff would be, would be instituted.

**FRIEDMAN:** Would we then have to attach a price to regulation? I mean, democrats wouldn't love that, acknowledging the price of regulations.

**RUDEBUSCH:** There would be a question of how to, you know, maybe what the optimal level of this carbon tariff would be. But you could implement a carbon tariff without any sense of a domestic carbon price, much like we implement, you know, we put carbon tariffs on-- we put tariffs on solar panels. Sort of the opposite of what you would do under a carbon tariff. So, that would be, I think, that would be an open, open case and something that I think will be implemented. I wouldn't be surprised if it was implemented in the future.

**FRIEDMAN:** Beyond a potential border adjustment tariff. You see the U.S. primarily sticking with carrots rather than, than sticks.

**RUDEBUSCH:** I certainly do. But I think it's important, there's important, there's an important role for more disclosure. And certainly, we've seen this in California, where they're going to a new law passed about getting disclosure from private and public companies. So, I think we've got a lot more in

terms, a lot more to do in terms of, you know, understanding the emissions and accounting for the emissions, and actually figuring out the source of both indirect and direct emissions.

**FRIEDMAN:** I'd love to go back to sort of public opinion. You know, many reporters, including the New York Times, we've been doing a number of stories on the energy transition. One of the stories that we've looked at is, you know, to what extent if at all, is the money from the IRA — so much of it as as we've been seeing going into red states and districts — changing opinions about renewable energy or even climate change? The answer seems to be: It's hard. It's very hard. I, you know, I spoke with a woman who drives a Prius and is open to an electric vehicle but railed against the radical climate agenda. And I've spoken to folks in Georgia who are very happy to see, you know, expansion of Qcells and, you know, the other manufacturing coming to their states, but are very suspicious of policies aimed at climate change. It's, it is, it's a — I'm almost embarrassed to ask at this stage in reporting — but like what, you know, why is this still so deeply ideological? And Adie, do you see the the IRA having any impact down the road on public opinion?

**TOMER:** I'd love to connect the last two questions. If we're going to have an IRA 2.0, I would argue hard that resilience and adaptation are going to be central to it because that helps answer the question you just asked, which is, it's almost a requirement for everyone doing climate writing now. When you start, you have like two options. I don't know what the second one is, but the first one always feels, "Hey, let's remind everyone of the last 3 to 5 climate events that are top of your head to explain why this matters." And it's, it's a really effective rhetorical device. I really like reading it every time, and I really like writing it too. And the-- what we are seeing is that — and actually some great work that David's done in the past too, others both at the institution or other peers across town and across the country — we are seeing more and more Americans moving to climate risky locations. It's not just the growing risk of it. So, when you mention, right, the the-- anyways, the investments that are both happening, let's say Arizona and Georgia, right? Proverbial purple states by federal terms, but, you know, mixed at the more state and local level, as they either see higher heat days, right? Or loss, relatively speaking, of water resources.

As other parts of the country see different kinds of climate risk, it becomes a whole lot easier to de-politicize, in my mind, what the needs are. What we know is that to now bring in the other I-bill, the IIJA, or the infrastructure law, as it's more colloquially known, had more investing in resilience and adaptation. But we still have not figured out yet at the federal level the right way to do this. When, at

the end of the day, resilience and adaptation comes down to local land use decisions, which for a bunch of reasons, that's a whole different event, right? Around why those are typically local decisions, kind of deeply seeded in American governance. So to connect those I, again, I really think we're seeing a tide changing on Americans understand that the climate is changing, that it will impact them and their loved ones wherever they live in the country, and we're going to need to do something about it. And that kind of that natural force, I think, can rise above politics. And I'm really hopeful that it's going to such.

**FRIEDMAN:** Sanjay, I'd love to hear your thoughts. And while he is talking, if you think of questions, start raising your hands and I'll call in folks next.

**PATNAIK:** I think what would be really important is to pull climate out of the ideological debates that we see both from the left and the right and really look at climate for what it is, which is it's an economic issue and a risk management issue, right? If you buy a beachfront property that is going to be underwater in the next ten years, that's going to be your money at risk there. And that's something that everyone can understand across the political spectrum. What we see is oftentimes the debate has been driven by the extremes on both sides. We see in Europe, for instance, a lot of climate activists gluing themselves to the street, holding up computers, and that creates a lot of backlash against really sensible climate policies.

And so what we need to focus on, I think as experts and as journalists, look at it objectively as an economic issue and explain to people, "Look, this is your wealth at risk here. Because we have more extreme weather events, this is your property at risk here." How can you prepare for this better? By, for instance, maybe reducing emissions by adapting your home, by trying to maybe vote for people in your local elections that are willing to make the community more resilient to climate change. And I think that crosses boundaries ideologically and across parties if you boil it down to that simple economic aspect of climate. And we don't see too much of that, I think that's the problem. We don't see enough of that. We see kind of like the ideology playing a role on both sides, the right and the left.

**FRIEDMAN:** Glenn.

**RUDEBUSCH:** To the extent that I don't think we'll see an IRA 2.0 that comes in the sense of a of a bill, but I think we can make progress through standards. Something like a clean power, the equivalent of a Clean Power Act, in terms of actually drilling down and through the regulatory process,

making progress on that, on that. You know, we still have more to do on emissions and emissions projection.

**FRIEDMAN:** Isn't the assumption that any power plant regulations that are finalized by this administration would just be rolled back by a new one?

**RUDEBUSCH:** That, you know, that's also true for the IRA. You know, the, you know, the administration ac-- the administrative actions taken there. So that's, that's always a worry. And so, these political loggerheads over climate, but really over everything else is, you know, puts these things at risk.

**FRIEDMAN:** A woman in the orange put her hand up right behind? Yes.

**AUDIENCE MEMBER:** Hi. Sanna Kurronen, Bank of Finland. I'm an economist too, so I'd love to see some carbon pricing going on, but it's also difficult in Europe to introduce it for the whole economy. Like transportation is an example where, where we still don't have an emissions trading system. But would it be possible to have a limited amount of industries included in some kind of carbon pricing or emission trading that is not so emotional for people and voters as, for example, gasoline price?

**FRIEDMAN:** Sanjay?

**PATNAIK:** So, I think there are two things. Where you see some potential in the U.S. is at the subnational level. We already have a carbon price in California, and I do think there's interest in other states on an industry level. That's an interesting question. I think if we get a carbon border tax, you might be able to kind of like see that as a backdoor for potential industry-level carbon prices. But I think much further down the line, I think we'll see much more happen at the state level first, or at least some will. I don't know how the implementation will look like, but at least there's more political will at the state level in some states.

**FRIEDMAN:** Gentleman in the second row had his hand up.

**AUDIENCE MEMBER:** Yeah. Bob Wyman. Question about risk. The rating agencies, who are, of course, important for understanding risk, seem completely unconcerned that things like the IRA and other efforts are going to have the effect of reducing the useful economic life of certainly gas utility assets if we transition off gas into heat pumps and that sort of thing. Yet every year, billions of dollars have been spent by the utilities investing in new gas infrastructure. In your city, New York,

ConEd spends about a billion dollars a year on new gas infrastructure or maintain gas infrastructure. But the problem is that-- so the rating agencies don't seem at all concerned that the utilities are using like 85-year depreciation on assets that the policies are trying to get rid of over the next 20, 30, 40 years. Is it that they don't believe that the policies will be, will be successful or that they think that the costs will go on to taxpayers, electric customers? Why are the rating agencies ignoring the fact that we have these new policies? It's had no impact on the utilities estimates of the useful life of their assets.

**FRIEDMAN:** That's for you.

**RUDEBUSCH:** Yeah, I think these are still early days for reading climate risk. There are probably about at least eight, 10, 15 providers, data providers. I mean, just think about how hard it is to rate credit risk, and how we come across credit crises or when a bank gets into trouble and the credit rating agencies had very little advance warning, gave a little advance warning of that. So, I think these are still early days in terms of, again, accumulating information about emissions, and understanding exactly what the transition will look like. So, I don't know about the gas utilities in particular, about, about what the appropriate trajectory for their asset prices are, given their regulated nature. But there's a lot more still to be done in terms of what the credit rating agencies need to do.

**FRIEDMAN:** In the middle with the scarf time. Gentleman with the blue. I'll get this side for the next.

**AUDIENCE MEMBER:** Thank you. I'm Patrick McCown with the representative of German Industry and Trade here in D.C. Mr. Tomer, I'm very glad you mentioned workforce in all of this because it's repeatedly been the number one challenge for our companies and German subsidiaries in the U.S. There's just not enough awareness on the federal, state, local-regional level of this problem, especially in green tech. It's, it's rough when companies can't find the workers they need to produce what they need to do. We don't need more engineers, we need more floor shop workers, trained workers, mechatronics, mechanics. And it's one thing to require, you know, apprenticeship programs in the IRA, it's another thing to set them up, because it's not happening, not to the degree that we need. So, talking about an IRA 2.0, you know, years down the line potentially, what is an avenue here? Because the way we see it right now, after infrastructure, that's the second biggest challenge to make this transition work. Thank you.



**TOMER:** Yeah, thanks. And not a surprise on our side to hear the Germans are noticing we're not as good at this. I think it's a huge credit to many of the workforce programs that have been happening in multiple different countries in Europe, right? We are-- you've probably been feeling on your side that the Americans are absolutely trying to play catch up here and to learn. You know, just to remind folks, and I think it's in the spirit of what you're you're speaking about, the vast majority of these jobs do not require a four-year degree, absolutely not necessary. Wages exceed averages, certainly in those 300-plus occupations I mentioned further back in the clean economy. Across though, the infrastructure sectors or what's often called the skilled trades, you see higher wages at every skill level and experience level across. They also do extensive amount of on the job training, both in scientific knowledges and skills that again, don't require actually formal education. It's done actually at the worksite, whether through apprenticeships or others. There's a lot to like here, but America is — and this-- I just speak for myself — multiple decades deep in an education system that really over promoted four-year degrees at the expense of other skill development, if you will, right? And we're now seeing the deserts of that. There are some benefits to that system we had, but this is one of the weaknesses.

So now what you're experiencing firsthand, it seems like professionally, is how do we, how do we rightsize ourselves, right? So there's some real opportunities here. I'll just kind of finish here with one quick concept. We need new kinds of metropolitan-scale or regional-scale partnerships between local government, workforce intermediaries, and then employers. Both inside the public sector, as I mentioned, right, from infrastructure agencies, but critically from the private sector too. We really don't have that kind of defined system yet. The good thing is that even the federal government, including the Department of Labor, is moving forward with regional workforce systems that can address this, so that's going to be one area to keep your eye on. And I'd be happy to talk after this, too, and connect you to our colleague who actually really, really leads this work.

**FRIEDMAN:** Adie, is there anything legislatively that should have been done or should be done to address some of these issues?

**TOMER:** Well, it's a great question, Lisa. We've actually put out some research on this that there are billions of dollars available for workforce development inside both the IIJA as well as effectively the IRA, but it's more so in the IIJA. But that — let's be clear for anyone who works in workforce in here — when you say billions for workforce development, that easily is orders of

magnitude more than you need. So, there's a lot of money available. The challenge here — so, the quick answer is no, congress actually did their job — the challenge is it passes the buck to states, specifically the States' Departments of Transportation, and their versions of the state EPA, they go by different names. They have to — and this is kicker — they have to decide to spend less on capital projects and more on workforce development. And that inherently requires culture change. So, there's-- this kind of what we're getting at. A lot of this is about information rather than necessarily dollars or a new law, frankly.

**FRIEDMAN:** Interesting. Second row? Let's wait a moment for the--.

**AUDIENCE MEMBER:** John Mulligan, the Carbon Zero Project. I-- we talked a bit about ratings agencies, but it feels as though insurers are really on the front line in a number of states. We can talk about Florida; we can talk about California. There's a narrative that the number of the-- and I may think substantiated ones, that a lot of these are on the brink, one disaster away. It feels as though the insurance and reinsurance industry have not been quite as effective politically as I would imagine they would be inspired to be. Is there a way in which they can be increased in their effectiveness in terms of how we think about legislation and regulation?

**FRIEDMAN:** Go Ahead.

**TOMER:** I can start, being very fast, but Glenn can really bring it home. When we asked earlier about the attitudes around politics of climate, the insurers are going to do some of the work here, right? When you lose insurance on a home and there's no one else to come in, that's a very quick way to understand the risk of climate change. The-- we have just been doing some work, actually, in California around climate risk and use of extremely granular risk data, which is what insurers have both been gobbling up. There's some private firms that also offer this kind of data. It's an emerging model. Local governments do not yet know even what to do with it. This is clearly an emerging field, but I think it speaks to how the economics can actually lead the conversation, even if politics tries to hold it back. The other short part of the answer is I don't even think we're close to the maturity of our insurance models yet on what we need to do and in terms of how we pool risk in this new world, it's not even close.

**RUDEBUSCH:** And again, it's very much a state. I mean, you know, 50 insurance commissioners. California has been grappling with this. They have not been able to-- all of their insurance models had to be retrofitted, had to be backward looking. They weren't allowed to use

forward-looking-- aren't allowed to use forward-looking models. So in the changing climate, that's that's problematic. So, there's still a lot to be done.

**FRIEDMAN:** Does anyone think they have the perfect last question that's short and-- gentleman in the middle. The one, two, three, fourth row.

**AUDIENCE MEMBER:** I'm Jon Strand from the World Bank. It doesn't mean that I'm representing the World Bank here, but just myself. But it was good to hear that the ice now is broken on the issue of carbon pricing. With John Podesta's presentation, there was not one mention of that issue. And I just want to mention one issue that hasn't been talked about yet in that regard, namely what what kind of model does the U.S. policy have for the poor world? Is it a good model? The question is whether poor countries could do something similar to what the U.S. is doing. The U.S. is typically a model for much of the poor world.

**FRIEDMAN:** Gonna pause there, sir. We'll ask the panel – is this a model? --

**AUDIENCE MEMBER:** Yeah, it's a long issue, but maybe you can just try to --

**FRIEDMAN:** We have one minute to wrap up. So, is-- to what extent is this a model for other countries, including developing countries and poorer countries. Sanjay and then --.

**PATNAIK:** I think it's not a model for a lot of developing countries because they don't have the funds. They can spend so many-- so much money on kind of like climate action. I think what they will benefit from is the technology that we develop and if we transfer the technology to these countries at low cost or for free, that they can leapfrog some of those dirty technologies that we used.

**FRIEDMAN:** Glenn?

**RUDEBUSCH:** And again, in terms of the financial system, it requires public seed money through the World Bank, the IMF, other places, and then leveraging private sector investment. So, the funds can come from the international community. But they also have to worry about the risk that has to be-- that may be undertaken.

**FRIEDMAN:** I'm sure folks will have a million more questions for you over the coffee break. I want to thank all of you for a very engaging discussion. Thank you.

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**FRIEDMAN:** Thank you all for for sticking around for another terrific panel. Let me introduce for panel two, "Global implications of the Inflation Reduction Act," in the middle, Samantha Gross is the director of the Energy Security and Climate Initiative and a fellow in Foreign Policy at Brookings.

Her work is focused on the intersection of energy, environment, and policy, including climate policy and international cooperation, the transition to net zero emissions energy system, energy geopolitics, and the global energy markets. To my far left, Joshua Meltzer is a senior fellow in the Global Economy and Development program at the Brookings Institution. He leads the Forum on Cooperation in Artificial Intelligence, and he also leads the UMS, pardon me, USMCA Initiative, which focuses on how the United States-Mexico-Canada agreement can strengthen international cooperation in North America. His research focuses on international economic relations and the intersection of technology and trade policy. And Ken Lieberthal, with the longest bio and deservedly so, is a senior fellow emeritus in the Foreign Policy program at Brookings. From 2009 to 2016, Ken was a senior fellow in the Foreign Policy and Global Economy and Development programs. From 2009 to 2012, he also served as the director of the John L. Thornton China Center. Ken was the special assistant to the president for National Security Affairs and senior director for Asia on the National Security Council from 1998 through 2000. And someone that I would constantly call to explain to me what was happening in the world of climate cooperation between the United States and China.

Thank you all so much for being here, for holding this discussion. I am particularly happy to, to learn from this panel because I have struggled to sort of get my arms around the sort of international assessment of the IRA. I've covered 11 COPs, it'll be 12 this year. I should stop. Should I stop? And, you know, for as long as I've been covering this, the global community has said America needs to lead. And now that the United States has its first significant and really globally significant climate law, nobody really likes the way we've done it. So, Samantha, I'd love to start with you for really just a global — and I think we have a good handle — though I'd love for you to touch on you know, Europe specifically, but how other countries both perceive the IRA and, you know, and think about what the United States is doing.

**GROSS:** Thank you, Lisa, and thanks for being with us here today. Appreciate it. Yeah, when the IRA was first passed, I spent a lot of time talking to Europeans, but also folks, our friends in Asia, particularly Japan, South Korea, folks from Singapore, and the general consensus that I got and I paraphrase was, "Yeah, we're so glad you're doing something serious on climate, but we didn't want it to be like that." Okay, fine. I think the two things that other countries and the Europeans in particular were most frustrated with was first, just the size of the subsidies. I mean, John Podesta said it earlier today. This isn't just the largest, largest climate bill we've ever seen in the United States, this is the

largest investment in climate and green energy and transition that the world has ever seen. And I think it was, frankly, kind of intimidating. We are the world's largest economy. Kind of makes sense that we might make the world's largest investments. But particularly when you look at Europe, they don't have the ability to do it the way that we do. The European Union isn't a taxing authority. It can't use its tax code to provide benefits to investments and so that has to be done at the individual country level. And the individual countries have different abilities to act in that way. And so it's a really different thing-- difficult thing for Europe to replicate. And so that's one important reason why the Europeans looked at it and were frustrated with the way it went down. I had a lot of conversations with them about politically, why it happened the way it did. We can talk about that if you want. But that was one source of frustration.

The second source was the protectionist aspects of it. And I think John Podesta touched on those too. Those protectionist aspects weren't aimed at our friends and allies in Europe or in Asia. They were aimed at China. As I look at my friend and colleague Ken, there is an understanding that China is an important leader in the green, green energy technologies, everything from solar panels to batteries to electric vehicles to critical minerals. And there is this concern — and I get asked this question more than any other — are we trading dependence on Middle East and regimes we're concerned about for dependence on China? You know, are we just trading one thing for another? And the answer to that, I think, is largely no, for a lot of reasons. But that's why you saw these protectionist instincts. In addition to a desire to create these jobs, these industries of the future here in the United States, it's part of the administration's general policy to grow our economy from the middle-class outward. And so both of those were challenging and upsetting to kind of our allies. But for a lot of political reasons, that was the way it was gonna go down. And I've spent a lot of time over the past year or so explaining that how we got here, why it is the way it is, and how, hopefully, we can find room in the middle to relate.

**FRIEDMAN:** Thank you. So do we trade our dependence on Middle East for dependence on China? That is the exactly the question. Before we get into U.S.-China and, you know, and China's climate policies itself. Ken, I'd love for you to talk about this as well. The, the primary Republican argument against the IRA and clean energy policies is exactly that, right? That we are dependent on China for the-- that China dominates the supply chain. The clean energy policies are making us

dependent upon China. We heard John Podesta cite all of the figures, which I'm sure you know off the top of your head as well, of China's dominance in critical minerals, etc. Is there truth to this?

**LIEBERTHALL:** Well, there's no question that China is way ahead of us in most of these areas in dealing with, with climate change. They're way ahead of us because years ago, with the big bump up in 2015, but even before that, they determined that they had to make enormous investments to deal with their environment and with climate change and its impact on the environment. And so they've ramped that up dramatically. We did not.

Now we're, you know, eight to 10 years later, the Chinese have done a tremendous amount, including getting control over entire value chains. And we're now jumping in, you know, with both feet, jumping into something to a, to a set of issues where, in many cases, the Chinese are ahead of us on technology. They have production capacity that we have not built. They have control over supplies that we do not have. And they know how to do it. They put the whole system together. For us to go in and not deal with the Chinese, cooperate with them where we can buy from them or, or license technology from them when we must is simply to delay our transition and our capacity to deal with these problems more on our own. I think the U.S. government, the Biden administration, recognizes very clearly that we have to develop our own capabilities over time, but it's gonna take time. And if we don't seek to learn where the Chinese are ahead, learn from them how they're doing this, license their technology so we understand them better and can build, build plants here is simply going to delay our transition.

**FRIEDMAN:** Should we be worried about the near-term dependence?

**LIEBERTHALL:** Well, I think the Chinese are very anxious to export. I think they're happy to sell us stuff and, you know, including the batteries that Ford deals with China, with CATL and China, to build a battery plant in Michigan that's now in trouble politically. But CATL was perfectly happy to license that battery technology to us and show us how to build those batteries. And they are well ahead of what we are able to build here. So, you know, I think if you go back a way, the Chinese leapt ahead in their industrialization over the last 30 years because they recognized they had to learn from the United States and from the advanced industrial countries. So they let us in big time in their financial system in all aspects, their industrial systems, etc., and learned from us and eventually bought ahead of us in some areas. That's the way you get ahead if you are behind.

To reinvent the wheel is a very expensive, very long, long-term approach and very likely to leave you falling farther behind as the other folks who are already in the game are moving ahead, ahead of pace also. So, you know, to say we're-- that we're being we're becoming more dependent on China. I'm sorry, what should we be doing if the Chinese have capacity to dominate these industries and we're just going to sit there and say, "Well, we can't deal with any of them, we're gonna have to do it on our own and we're going to be fairly protectionist in the way we approach this so even our friends and allies have concerns about how we're doing it." I think that multiplies our problems. So, we need to be nuanced about this and not categorical about it.

**FRIEDMAN:** Josh, can you walk us through how the IRA has affected America's trade relationships?

**MELTZER:** Yeah, sure. So it's probably worth-- I -- thanks for having me and it's great to be here. It's, you know, it's worth reflecting, I think, on the way that the IRA is trying to achieve multiple objectives at the same time. It's got clearly a climate objective. It's got a national security objective, with respect to reducing reliance on critical minerals in particular, and other clean technologies from China. And it's got an industrial strategy component to it as well. And I think when you have these multiple important, complex objectives, you are going to have a variety of unintended consequences domestically and globally. And we saw very quickly that there were a range of provisions in the IRA which raised a number of trade tensions.

The main one which got a lot of focus initially, was access to the tax credit for electric vehicles and the requirement for essentially there to be an assembly-- originally, it was actually going to be just the United States then. That was expanded to include Canada and Mexico. So our North American partners, I think, were somewhat relieved by that particular outcome, but then very quickly it became apparent that the Europeans and the Japanese, the South Koreans, large car producing countries, that, that this was going to be a problem. And it's clearly a violation of, you know, norms. To require certain amounts of domestic content in order to essentially get access to a tax credit is a non-- is a violation of a nondiscrimination, you know, commitment in the WTO. So it was sort of a fairly straightforward, I think, WTO issue from a strict trade lens.

And the way that the IRA was drafted essentially is that if you had a free trade agreement with the United States, you could essentially be exempt from this. And so, the United States, the administration, to its credit, seemed to — I have no insight into, into the veracity of this — but, you

know, seem to be somewhat taken by surprise, I think, by the fact that this became a trade problem and the reaction of allies to it. And they moved fairly quickly, I think, to address that. So we got the, the what this so-called critical mineral agreement with Japan, which is been deemed a free trade agreement under the IRA, to get around essentially that provision. And the U.S. and the E.U. are sort of in protracted negotiations to reach a similar deal on that, on that as well.

So I think if there's sort of progress on those fronts, sort of those immediate trade concerns get resolved. I think there's sort of a bigger set of trade issues that comes up, which is the shift to, you know, heavy reliance on tax credits and subsidies, more generally, to push the green transition. Yeah, it's a complex debate because the WTO rules and the rules that we generally have on subsidies have always been contentious and they've always been somewhat economically incoherent. There's sort of a legal approach to them, which is, you know, and really needs to be understood through a political lens as trying to balance a sort of economic view of subsidies with a realization that it is politically difficult for countries to absorb large amounts of subsidized imports, even though it may make a lot of economic sense. There's a lot of political constituents that get, you know, upset by this, understandably so. There's safety valves in trade agreements, which essentially allow governments to countervail or essentially, you know, try to neutralize the impact of the subsidy embedded in the import.

But, you know, we're now in a world where, you know, the U.S., the EU, China, you know, Japan, you know, moving to subsidize this transition to the clean economy. So these subsidy rules increasingly look out of date, generally speaking. And the final point I want to make is that the need for subsidies to enable that transition needs also be considered in light of the subsidies that are given to the fossil fuel sector. So, it's not a neutral playing ground, right? And there's been a lot of work by the OECD, by the IMF, and others on the G20, on trying to transition the world out of fossil fuel subsidies, which has been completely unsuccessful, essentially. Like subsidies are significantly higher today than they were three years ago, for instance. And so it's also not a level playing field. One thinks about how do you kind of enable these technologies and allow them to compete with fossil fuel technologies as well.

**FRIEDMAN:** I want to come back to the subsidies, but I want, I want to turn back to climate as a climate reporter. You know, from where I sit, the success of the IRA really rises and falls on whether it ultimately cuts emissions, encourages other countries to cut emissions. Samantha, I mean, we're



still still seeing, you know, raging debates at every COP over, even the phrase, "Phase out or phase down of fossil fuels." I think last year wasn't, you know, it didn't even make it in at all. You know, the sort of, you know, when we heard all these years, "America has to lead," the assumption was other countries would rally once the United States had really acted on climate. Why is that not happening?

**GROSS:** That's an excellent question. And yeah, I feel like some of the debate that we're having at the COPs and at other events, at New York Climate Week a couple of weeks ago, things like, "Are we going to phase out or phase down fossil fuels?" I have to be honest; I find that debate incredibly frustrating because the demand for fossil fuels is still going up. So the fact that we're arguing whether to phase out or phase down is downright silly. They're basically arguing over the exact same thing. We need to reduce our use of fossil fuels. Let's agree to phase down at an increasing rate and stop talking about it and move on to practicalities. And one thing that I'll say in the IRA that is a good example, it may be difficult for other countries to subsidize at the level we have for any number of reasons.

But there are some things in the IRA that I think are exemplary and that when I talk to folks in European industry and industries in other parts of the world, they really like. And that is that it's quite technology neutral, it's focused on emissions, which is the thing that the environment really cares about. For instance, if you look at the hydrogen subsidies, they're not focused on what color the hydrogen is, whether it's made from natural gas or whether it's made from solar energy, or any other color — and there are too many to count out there. It's focused on the emissions associated with it, and the subsidy phases in as the emissions go down. That's very appealing because it allows folks in industry to go out and do projects that bring the emissions down and not worry about whether they're meeting a specific technology standard, and it allows the technology to change and develop.

You see that in our power subsidies as well. Zero carbon power is subsidized. It's not specifically wind or solar from a specific manufacturer or place, that's very appealing. And so I think about how the U.S. is leading, I feel like we're leading in policies that allow technology to flourish both in the way that we are supporting technology development, as John touched on a little at the beginning and also that we're quite neutral in the way that our policies support technologies, as long as they take us towards the goal of lower emissions. And so, that's a leadership part on the part of the U.S. that I really like and that I hope is followed.

**FRIEDMAN:** Interesting. Ken, what does, what do Chinese leaders think of the IRA? What do policymakers-- how do they view our law?

**LIEBERTHALL:** I think, first of all, the Chinese leaders were not surprised by the IRA or its protectionist provisions, especially. They, back in the teens, looked ahead and said, "At some point, the U.S. is going to try to cut back our development, our rate of development, and is going to regard us as as a competitor, not as a partner, and will take measures to cut us out and build up their own capabilities. And our response to that, preemptively, has got to be that we're, we're going to develop basically self-reliant systems." And they started doing that en masse, very much including the array of areas that are directly related to climate change and environmental sustainability. So when the IRA was passed, it's interesting, it's not discussed much in China. That hasn't been a big-- you know, you go looking for articles about the IRA and China, that isn't what it's about. It's about competition with the United States and how the United States is trying to limit China's development. And so we were right to go on a more self-sufficient path, and we're increasing our focus on being able to do that.

And so in a sense, the IRA for Xi Jinping has been confirmation of how smart he is. You know, and that's, you know, that is as it is. Frankly, I'm glad that we are now in this game at a very, you know, a very high level. And I hope that when we deal with the Chinese, we are both open to benefiting from what they have accomplished but also, at the same, time taking substantial measures to prevent them from doing to us what they have done in the past and continue to do to many, which is to use unfair trade practices, huge hidden subsidies, etc., to undermine your capabilities as you're buying from them. And so we need we need intelligent policies to limit the damage that they can do to us. At the same time that we have to recognize that we really need to be able to absorb some of the advances that they've made and build on them ourselves.

**FRIEDMAN:** What would you describe as U.S. climate policy toward China? I don't mean to be glib here, but it feels like it is, "Gee, we hope John Kerry can convince the Chinese government to do more."

**LIEBERTHALL:** You know, the -- John Kerry is a terrific climate diplomat, and he deals primarily with Xie Zhenhua, who is his equivalent in China. And Xie Zhenhua is really committed to climate response and international cooperation on it, so he's got a good partner. The problem, as I see it, is that we focus tremendously on the top-line carbon reduction commitments that China will make. When are you going to do it? What's the percentage that it's going to be, etc.? It's a fruitless

discussion. Xi Jinping has said — and this is not just in response to John Kerry, he's been saying it for years--.

**FRIEDMAN:** So, he did say it when John Kerry was in China?

**LIEBERTHALL:** He also said it when John Kerry was in China — but it shouldn't have been a shock because it's not by any means the first time he said it — that China will determine its own pace and timing of carbon reductions and will do it in a way that fits with China's conditions. You're setting a peak emissions goal for 2030 or before, carbon neutrality by 2060 or before. A lot depends upon how high all this gets before they hit those, those kind of benchmark years. But I have no doubt that they will do a lot on carbon reduction, on greenhouse gas emissions reductions, but they aren't going to do it because we're pushing them. And so-- but actually below that level, on methane, on all kinds of other issues. I think there's a lot that can be negotiated in terms of cooperation, and I deal with a lot of people in China who are tech, technicians and, you know, serious players in those other areas, and they're very anxious to cooperate with the United States. I think the barriers to that are much lower. It's when you push them on the top line number that they, you know, they push back very hard. And frankly, I don't know how accurate the numbers are for top --.

**FRIEDMAN:** And on coal?

**LIEBERTHALL:** Well, coal is, in my mind, one of the biggest failures in China. They have tried for years to reduce coal as a percentage of their energy sourcing. They have made modest progress in that at best. They continue to build coal power plants, including in provinces that already have an abundance of coal, don't need it at all, and I think that it's a, it's a combination of several things. One, what they talk about, which is say, "We need coal to smooth out when, when our renewable energy resources have gaps." You know, the sun don't shine at night, wind dies down, you know, etc., and so we need that as our baseline to bring online so that the new coal power plants they say will operate at somewhere between five and 15% capacity just be utilized as a stopgap. Secondly though, clearly, there's a lot of local politics with coal, with coal. A lot of localities depend on it for employment, depend on it for building their own GDP, and they get rewarded for it in that system, even if the top is saying, "Don't do that." You know, it's a multilayered system, and by the time we get down to the local levels, the politics are complicated. So they have a hard time cutting back on coal. I think they need to take a much more serious, much, much more seriously than they are.

**FRIEDMAN:** Right. Joshua, what, what do you think of the prospects of a carbon border adjustment tariff and what would that do to, you know, sort of global trade relations?

**MELTZER:** So let me maybe back into that question by picking up on your previous question to Sam about, you know, the world for the U.S. rallying, and it'd be great, and why is it not so smooth? Because I think, you know, if you've been paying attention to the implementation of ambitious climate policy, particularly in terms of how it would deal with the so-called carbon leakage and competitiveness implications, it was clearly going to be a deeply challenging and messy process. And so, I think there was a COP world that was focused on targets and commitments and financing where just more of that was just an unadulterated good thing. But then I think once we moved out of that space into what the domestic politics were going to be around this, what the policies would look like to actually achieve those targets, it was always going to look very complicated. I think even if you go back to the Obama years where there was a serious push on, you know, a carbon tax in the United States, you know, that was deeply, you know, I wanna say pollute — I was gonna say, say polluted — but, I mean, you know, a part, a big part of that conversation was, you know, what do we-- how do we deal with the implications of a domestic carbon tax for competitiveness of industries that are going to be taxed more and carbon leakage where industries would just go to low tax jurisdictions, right?

**FRIEDMAN:** Conversation was around a--.

**MELTZER:** A domestic carbon tax --

**FRIEDMAN:** From a border adjustment.

**MELTZER:** A border adjustment, right? And that was --.

**FRIEDMAN:** Sorry, I can't think. Yes, please go ahead.

**MELTZER:** Yeah. So, you know, that came up in in, in the, in the various bills that went through, through the House and Senate at the time, you know, '08 or '09, and so forth. And, you know, there was a lot of intellectual effort that was put into how could you stitch different carbon taxes in different jurisdictions together. And it was all, though, based on the premise that the U.S. would have a carbon tax and that you could have a price that would ultimately allow for some comparability of effort. And that would allow for some ability to then make assessments about the applicability of your own domestic carbon tax to imports. It's vastly more complicated, even this world that we're in, where the U.S. has essentially, I think, concluded that there is no viable political pathway to a carbon tax. And that instead, the approach is the IRA, you know, huge amounts of subsidies and tax credits

and so forth. And that makes it a lot more complicated because there is no obvious way to draw benchmarks or to determine when essentially there is an equivalent level of effort in the U.S. that would satisfy something like a EU carbon tax.

And so, how you stitch these systems together, we're really at the beginning of that conversation. I think this is sort of now part of the discussion that the U.S., is having with the EU over the impact of the IRA. And this has been bringing in the impact of the sea ban, which will come into effect in in a couple of years. And your failure to resolve that is ultimately going to mean that there's going to be, you know, to put it in blunt terms, a deep sort of clash between the climate and the trade systems. And you can care about that at an institutional level, but it's also going to be deeply important at just determining the cost of carbonization-- decarbonization pathways, because it is undoubtedly true.

I mean, this is sort of, you know, picking up on Ken's point, that in a world where we were not concerned about China's massive production of clean technology and solar, we'd just be essentially taking all that from them. It'd be a low-cost pathway and we'd be happy about it. That's clearly not where we're in and that's, that's where we are. But ultimately, you know, there is a role for, you know, relatively free trade in carbon technologies between trusted partners, between allies, and so forth, that has to include the U.S. and the EU. Certainly, that will reduce the marginal costs of our decarbonization pathways. And if we can't get there, and if we end up in essentially trade conflicts where the EU is essentially taxing exports of, you know, U.S. products, the U.S. is undoubtedly going to respond in kind, then we've got a much more costly decarbon-- decarbonization pathway ahead of us.

**FRIEDMAN:** Yeah. Samantha what-- John essentially said, "IRA was great for Europe." What is, what's next in Europe?

**GROSS:** You know, Europe is coming around on the IRA. I have to say, particularly European businesses. There are a lot of businesses that are investing in the United States because they're excited about the subsidies, and they frequently tell me that they're excited about the carbon neutrality that I talk about. But you've also seen European responses to the IRA, the Repower EU program, the amendments to the European Green Deal, where they're actually doing some subsidies of their own on a smaller scale and on a much of shorter timeframe because they have less ability to do this. But this is happening in Europe. And so in some sense, they're responding to the IRA in IRA-like ways.

But, I mean, I'd like to hope that this will continue to encourage the, the energy transition, not just in Europe, but in other countries as well. We heard the question earlier about what does this mean for the developing world, not just the wealthy countries that we've been spending this panel talking about. And ideally, what will happen between the work that's happening in China, technologies that we may develop and lead here in the United States, the ones that China doesn't have a running start on us? All of these technologies will start to buy down the costs. We'll learn by doing with hydrogen in particular. Carbon capture and storage is another one where I really think the U.S. has the potential to lead in technology and development. Ideally, we will bring down the costs of these technologies. We'll learn how to do it, we'll develop economies of scale and supply chains, and that will help everyone. This will be ideally a rising tide that raises all boats. And so that is an area where I think the IRA really benefits not just Europe, not just Asia, but the developing world as well.

**FRIEDMAN:** You know, just to close the loop on sort of China's emissions growth, Ken, how high do you expect emissions to go before they peak in China? Which is-- and you said is kind of one of the central questions.

**LIEBERTHALL:** God, I wish I knew the answer to it. The emissions in China leveled off for a while in the early teens. They have now gone up again and they're on an upward trajectory. And I really don't know what's going to happen. A lot depends on the Chinese economy itself and how rapidly that's developing. And I would say it's certainly going to be higher than now. China now, keep in mind, has a greenhouse gas emission that are equivalent to the sum of the greenhouse gas emissions of all the developed countries in the world. And every year, it's contributing those emissions to, to our carbon budget.

**FRIEDMAN:** How far until they become the largest historic emitter?

**LIEBERTHALL:** I think, you know, frankly, I think those numbers are squishy to begin with. But my-- I've heard people say around 2026 or something like that. But, you know, whatever it is, what counts for the world now is how much, how much greenhouse gas emissions are there gonna be that are going to be around for the rest of our lifetimes in the atmosphere? I mean, these things don't disappear over time. And so what China does between now and 2030, you know, where they're peaking, assuming they peak then, makes a hell of a difference, and they don't provide numbers on that.

**FRIEDMAN:** I mean, we've talked about John Kerry's trip in July. He came home essentially empty-handed. President Xi Jinping gave a speech while he was in the country saying, as you said, that China is going to cut emissions its way and its pace. Also didn't meet with John Kerry, but next day met with a different former secretary of state. I mean, is there much hope for diplomacy anymore on this issue? Both John Kerry and his counterpart are receiving a lot of heat at home from, you know, in the case of Secretary Kerry, even from his own party on negotiations with China.

**LIEBERTHALL:** I think there's a lot of room for diplomacy at a lower level.

**FRIEDMAN:** At a lower? What does that mean?

**LIEBERTHALL:** Where you can deal with issues about how do you scale up this kind of technology? Can we cooperate on tech development and, you know, doing pilot projects, and then scaling up, and can we make standards more compatible between the two countries? Which, again, contributes to the potential to scale up new technologies. There are all kinds of areas where we can do good work together that should not be threatening, should be a win-win for the two sides. And I think lower-level work on that can happen. Some of that is taking place now at a state level. California has very active ties with various Chinese [inaudible] --

**FRIEDMAN:** Governor Newsom, I read, plans to go to California soon.

**LIEBERTHALL:** I'm sorry?

**FRIEDMAN:** I read that Governor Newsom is planning a trip to California — pardon me— is planning a trip to China. Been up here too long. Is planning a trip to to China soon.

**LIEBERTHALL:** Does he have a--? I don't know. But my point is there's a lot that can be done in terms of global, you know, the equivalent of do we do a U.S.-China bargain that then becomes a standard for the world. I'm skeptical about that. I just think the vibes on both sides make that very, very tough at this point. But, you know, I went back and looked when President Trump announced that the U.S. would withdraw from the Paris Agreement, emissions in China went up almost immediately. And it's because local level governments had much less pressure, felt much less pressure to, you know, really put the brakes on emissions because of the U.S., you know, Paris agreement, the U.S. and Chinese commitment to that agreement. When the U.S. defected, it's kind of like, "The pressure's off, guys." And so that's-- you know, what we do has an impact, but I think negotiating the top level is going to be very, very tough.

**FRIEDMAN:** Samantha, what's the best thing that could come out of COP 28 this year?

Obviously held in a very controversial country, and, you know, oil and gas is front and center at this, at this COP.

**GROSS:** Yeah, that's a great question. I've seen a lot of frustration with the choice of Dr. Sultan, who leads Abu Dhabi's national oil company, but he also leads a very large renewable energy company and has served at their climate minister. The man wears many hats, not just as a leader in the oil industry. I've seen some frustration with his selection. I'm actually quite pleased with his selection. I think he has a very wide view of the industry that can be useful. I'm really looking for two things, and I think these are in line with what the Emiratis are looking for as well. One is I would really like to see more solid results for the financing problem for the developing world. This is a really big challenge.

What we've seen, a lot of the agreements that we've seen happen with, with Indonesia, Vietnam, South Africa, these are taking place outside the negotiation room. And they work because there are significant emissions in these countries and also significant investment opportunities. And so these sort of side deals that happen at the COPs but outside the negotiation room, make a lot of sense. But the real challenge is the smaller developing countries. They don't even have a lot of emissions right now. They need to develop their energy systems from scratch. There's not a lot of space for emissions reductions because they don't have any. Those are really hard. And those kind of get stuck in the negotiation room where we're really focused on consensus and agreement, and those are really difficult to do. I would really like to see those loosened up somewhat. I expect to see the Emiratis throw some money at this problem and try to catalyze this and get it, and get it moving. So, I'll be looking for that.

And also, and probably less popular among many folks, I would really like to see-- I'm glad that the energy industry is involved in this COP. I'm delighted to see them there. Despite the fact that we need to phase out and then-- phase down and then phase out fossil fuels — notice how I got everybody there — we're going to be in the fossil fuel business for a while, and what that industry does now matters. I really like to see the work that the industry is doing to reduce its own emissions. It's not everything, but it's not nothing either. I was at a conference in the Emirates last week that's a gigantic oil and gas conference. Every single session that was about policy or about technology was focused on emissions, bar none. And what I see in the press is frustration that they weren't talking



about phasing out their products. Well, they'll phase out the product when we stop demanding the product. This is a systemic issue. But in the meantime, I'm actually glad to see the industry included.

And what I hope to see is energy companies, oil and gas companies, the national oil companies in smaller countries that don't have public faces, that don't have as much pressure to do this, I want to see them come on board, too. And I think that's something that the Emiratis are well-placed to do. I want to see them reduce their emissions and their operations. I want to see methane emissions stop or nearly stop, period. Methane is responsible for nearly a third of the global warming that we see today, and we know how to stop this. So, let's do it. And so those are, those are outcomes I hope to see from the COP. Other things will be going on, I'm sure, but those are the two things that I'm watching most closely.

**FRIEDMAN:** While you are getting your questions ready, I'll start calling on folks in a moment, but let's talk about demand. Joshua, are-- you know, is the IRA sufficient to drive down demand in the U.S.? What more should the U.S. do, or, you know, at a UN body, at COP, what can be done?

**MELTZER:** So the short, the short answer, I mean, as situating this globally, it's clearly not enough. You know, there's been various estimates about the investment in clean energy that's needed to secure a safe transition or to hold a 1.5, which is approximately \$5 trillion annually. So, it's unclear how much private sector capital, the 350 billion or so in the IRA will essentially bring into the market, but it's going to fall well short of what we actually need to do globally. So there's a huge amount of investment I think that's actually needed globally to build that. I'm honestly not paying a ton of attention to the COP at the moment, but I think it underscores the climate finance piece, how crucial that's going to be.

There's only so much the COPs are gonna be able to do I think on the climate finance part, in any event. You know, it's a small — whatever has been promised over the years — is a small part of the total that's ultimately going to be needed for the kind of clean energy infrastructure transition. So, I think this is also where the World Bank, the various multilateral development banks, you know, are gonna be playing a key role I think in kind of scaling their financing capacity, the public money that they can bring to the table, the private investment that they can pull into enable the types of investment that's going to be needed in the developing world where the growth in emissions is essentially happening now. So, that for me is really a key focus. And I think there's, I think the COPs important, but I think it's, it's a small part of I think what's ultimately needed here.

**FRIEDMAN:** Let's start on this side. David Victor gets the first question.

**VICTOR:** Thanks so much. Let me just acknowledge that the themes on this panel — trade, China, international cooperation — were themes that our friend and colleague, David Dollar, worked on. And all of us at Brookings were just shocked by the news last week of its passing. I want to ask a question to you, Josh, about trade. How should we-- what should we make of these agreements now — the Japanese agreement, nascent European agreement — about critical minerals? Are these the new face of trade agreements? Or are these one-offs, and WTO reform, all these other things, are basically just going to go sideways and we're not going to be doing a lot on trade?

**MELTZER:** Yeah. Interesting question. I think that there's probably a couple of elements going on here. I think if you go back to, again, the last serious effort in the U.S. to do a carbon tax, there was a lot of attention paid to the WTO consistency of doing a carbon border adjustment. And, you know, there's sort of, I think, a general consensus that either it's probably going to be okay through an exceptions provision, you may need to look at bringing back an environmental kind of exception provision for subsidies that used to exist and so forth, but it was central to the discussion. In the United States, it's almost quaint to think about the WTO being an institutional barrier to doing these types of action at the moment.

But if you go to Europe, it's not. It's still central to the way they think about their carbon border adjustment mechanism, the type of measures that they're going to take. So, I do think this is-- the extent that the trade rules have I think become deeply secondary, if not tertiary, when thinking about these types of actions, I think is quite a currently U.S. phenomenon. But as the WTO is increasingly less able to be active on the dispute settlement front because the appellate body has been muted, it's not able to develop new rules that might be relevant for this space. I think that view of, "How seriously do we need to take WTO rules when we think about these actions going forward?" I think will play out in other countries.

And what that will mean, I think, is a loosening of what we've already seen, which is a lot more subsidies, which I think the approach was initially quite constrained by concern about what it would mean for WTO rules. But I think it will also mean that when it comes to carbon border adjustments, that we will see that they will also be less kind of, you know, bounded by concerns about WTO consistency and how that might play out. So, we might, we may-- you know, because there's a very strong domestic political constituency in favor of them every time you seek to raise the cost of

doing anything energy intensive. And one of the key pushbacks has traditionally been "We're going to end up in a trade war and we've got WTO commitments." We're still probably going to end up in a trade war, but we don't have the WTO commitments. When you're a big country like the U.S., there's always a sense, well, we can handle this.

To your question a little bit more specifically, I think this unraveling means that we're probably going to see a lot more of this idiosyncratic kind of practically-- sort of like pragmatic approaches that will be problem solving in the moment but will be probably challenging from a systemic perspective. So, the Japan critical minerals deal is not an FTA under anyone's concept of an FTA. You know, it's a, it's a genuine work around. And, you know, as a pragmatic workaround politically, that sounds fine, but it sort of deeply sort of undercuts the idea of what it would mean that you have to have a free trade agreement with the U.S. to kind of get access to these tax credits, right? So, I think we going to see a lot more of that going forward.

The final thing I'll say is I think that this notion of a climate club that builds on trade principles to sort of enforce, you know, energy efficiency standards has been around for a while. I mean, you've written tons about this, you know this better than I do. But I think that's possibly now gonna play-- whereas I think that was constrained by sort of a previous predisposition towards multilateralism, so forth. I think that's become more central.

**FRIEDMAN:** Let's try and get a couple more questions in on this side. In the back, woman in the glasses. While we're waiting for the, for the switch, let me ask you, Samantha, on, on international finance, which of course was not part of the IRA, but is a critical part of the Biden administration's climate policy. What-- you know, the administration has made promises that it has not been able to keep. What do you make of the fact that it has not even pledged in the other week to the GCF? The U.S. didn't even pledge. You know, obviously, this is all up to Congress. Is there any way for the U.S. to meet its, its promises?

**GROSS:** I'll be fast with that. I think it's difficult to get anything through Congress. The House doesn't have a speaker right now. We can't seem to fund the government; we're looking at another shutdown. The only way that we could make a pledge is if we could find a way to redirect other funding. And I don't know that the particulars behind that, but an appropriation looks less than likely.

**FRIEDMAN:** But, but I don't wanna, I don't wanna, you know, put all of this on, on, you know, a floundering Congress right now, because in the past, it seems that this administration has not fought

for money, right? I mean, there's been-- there was a billion dollars compared — and I'm gonna mess up the original ask — but a sliver of what was asked for. That is an indication that someone didn't fight, and that is likely the administration. Why is the admin-- you know, do you think that's true? Are they not fighting for this money?

**GROSS:** That's an excellent question. I think the administration has had a lot of fish to fry in a difficult environment. I admire what they have been able to do and certainly wish on this front and on others, frankly, that they'd been able to do more. What went on on the inside, as to who fought how hard for what, I just don't have a view into that. But I will say that there has been so much to do and a fairly narrow political road through which to drive.

**FRIEDMAN:** Good point. In the back. Is the mic working now? Great.

**AUDIENCE MEMBER:** Take two. I'm Erika Gerstenberger. I'm with the Institute for Governance and Sustainable Development. My question is for Joshua, but for everyone. You spoke about the WTO, whose dispute mechanisms are available to state parties. I'm wondering to what extent do the protectionist provisions of the IRA make the U.S. more vulnerable to challenges, legal challenges, from private entities under investor-state dispute settlement agreements and others?

**FRIEDMAN:** Let's take one more and do them in tandem because we only have a couple left. In the front on the same side.

**AUDIENCE MEMBER:** Thanks. John Mulligan from the Carbon Zero Project. You alluded to this earlier that the U.S. has the opportunity to lead in nascent technologies like DAC and carbon capture and so forth, but with more established technologies, I think the current generation of announced solar manufacturing is two-gigawatt capacity. I think the current generation of fleets in China has 20-to-30-gigawatt capacity. There's a lot of economies of scale, there's a lot of learning effects. Are we a dog chasing a bus that's accelerating? And if so, what's the Chinese reaction to that?

**FRIEDMAN:** So let's first jump on the legal implications.

**MELTZER:** Short question, short answer. Good question. I don't know. I'm trying to think through when I was a negotiator for investment treaties and we had pre-establishment clauses, but I don't know if tax got caught up in that. So you were protecting investment and giving it national treatment, but I don't know if that extended the national treatment to the types of tax credits that are under the IRA. So I'd have to look at that, but good question.

**FRIEDMAN:** Ken, can we catch up?

**LIEBERTHALL:** I'm not optimistic over the short run. You know, I think the U.S. has tremendous technological dynamism, enormously creative. Chinese have a big head start, and they continue to be, you know, very rapid in technology development. Look at their battery sector, look at EVs as a whole, and a lot of areas. It isn't just that they can produce for less money and on a large scale, it's that they keep improving the product. And they're going to be directing that now very rapidly, as much as they can, toward exports. Exports to Europe for higher end stuff, but also within their Belt and Road Initiative of moving to pushing out more and more clean energy, clean transportation, and that kind of thing as a component of that. It's going to be much cheaper than we can do. So we've got to, you know, we got to noodle through that and figure out how we can leverage what they're doing, partner where we can, have our own creative industry go to work, but then we can have the problem that's been mentioned earlier of the workers. You know, what kind of labor force do we have for that? At the higher end, are we getting enough people with with necessary education and skills coming to the United States to live here? We've always been very good at that in the past. We're not as good at that recently. And we need, we really need to adjust-- to address that.

**FRIEDMAN:** Well, I have a lot more questions. I'm sure you do, too. But here is where we have to stop. Thank you all so much. This was a great discussion. Thank you.

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**COULIBALY:** Applause for the panelists and for all of our our speakers. I think it's hard to summarize the whole day, but I think one thing that's clear is that a lot is being done, but we can agree also that a lot remains to be done, but I'm really encouraged by the ramping up of ambition that we're seeing both in the U.S. with IRA and what it could mean for the rest of the world as we work towards trying to secure a livable planet for the next generation. So here at Brookings, we're going to continue doing what we can, our part, but also ramping up our work on climate. And we'll continue to monitor the IRA and also its implications for the rest of the world, and also tracking progress globally toward our net zero ambition that we have.

I think you can follow all of our latest research, analysis, commentaries on our dedicated Brookings website called Planet-- Planet Policy, where you can also sign up to receive those updates. And I encourage you also to check out Climate Sense, which is a podcast here. The host is none other than our own Samantha Gross. And last but not least, I think I'd like to thank all the colleagues

who've really work hard to make today possible. Central communication led by Andrea Risotto here, along with Christa Lanning, who's sitting there in the back, and all the other people in central comm that I can't name in the short period of time that we have. And I'd like to also thank really, Samantha Gross for her leadership, working with other scholars to bring us together and put this event up, and to you all for sticking with us through the entire morning. A round of applause again. And we are adjourned.