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TRANSCRIPT
Energy 360

“Moving Global Ambition into COP26 with Jonathan Pershing”

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Jonathan Pershing: There is not just one path for the U.S. or for other countries to achieve the kind of outcome that we seek. There are many paths.

Lisa Hyland: Welcome to Energy 360, the podcast from the energy security and climate change program at CSU. I'm your host Lisa Hyland this week. I'm pleased to welcome back to the show, Jonathan Pershing. Jonathan is the deputy special Envoy for climate at the U.S. Department of State and joins us today to offer his insights on what we may expect from the upcoming climate negotiations in Glasgow, the COP26 with my colleague, Joseph Majkut, Jonathan discusses what is on the table for these negotiations and which countries are helping to raise global ambition by stepping up their commitments to reduce greenhouse gas emissions, and which are lagging behind meeting their own national commitments. Jonathan and Joseph also dive into some of the issues facing countries as they seek to meet their climate targets, including growing technological innovations, climate and industrial policies, climate finance, and domestic and international pressures. Finally, they look at what the Biden administration brings to this particular meeting and how the U.S. has been working with other countries to find a pathway to a successful agreement coming out of COP26, here's energy security and climate change program director, Joseph Majkut to lead the conversation with Jonathan.

Mr. Majkut: Jonathan, the Paris agreement set global ambition for climate to keep global warming below two degrees C and with an intention toward 1.5. As we look toward Glasgow, is this going to be a reality check for how far we have to go?

Mr. Pershing: Yeah. So, I think it actually will be. We expect a number of different things to come out of Glasgow. One of the things that we expect is that the countries that have made commitments over the course of the last year or so, will be able to put them forward in explicit forms because the convention gives you a reporting structure of the nationally determined contribution, which is what countries do at home is reflected back in a report out that come to the global community. But, there are a number of countries that have yet to act. And, I think we're hoping that more will in fact step forward. The convention secretary did a review of the countries that had committed and formally submitted reports. But, even with those we've been growing global emissions. On the other hand, if you look at the countries that have in fact, announced targets. Have made commitments, we're seeing a significant reduction in global emissions. So, the problem is which ones have yet to step forward. Which countries have yet to move something. And, what we're hoping for Glasgow is that more of those countries that have yet to act, have yet to announce, will in fact step forward. But, there's one more piece, which I think is relevant here and that is the function of not the national numbers, but sub national actors. States, cities, non-governmental actors, corporations, banks, big players that could actually really change the outcome. I think we'll see a lot of those commitments and announcements as well. It'll begin to be able to tally up how far we've come and how far we still have to go. I don't think people are expecting that the announcements that are currently being made are going to get you all the way to where we want to go. I don't think they will, but they'll move a big step forward and put us

on a trajectory I hope, that'll be consistent with holding the temperature rise well below two and seeking to put us on a pathway of keeping temperatures to 1.5.

Mr. Majkut: Jonathan, you mentioned that these NDCs and the process of sort of checking in on progress over time, how do you think about the tension between countries providing ambitious versus realistic NDCs? Should one be favored? And, for this structure that was established by the Paris agreement to really work, how should we think about the potential conflict between those two?

Mr. Pershing: I think you want both. I think if you have insufficient ambition, it doesn't matter how well you execute because you do not get to the outcome that we seek. I think if you have an ambition, which is not tethered to some set of policies and measures that you can implement, the ambition is hollow and that doesn't generate an outcome that's believable. So, I think what you want to do is to develop your ambitious outcome and then to develop a set of policies and measures that will enable you to achieve it. We've seen that from a number of players, right? U.S. is trying to do that. We're working on a set of policies. We're having a debate in Congress about where those go, but we have a set of policies that would enable us to achieve the outcome. Others have been much too conservative. We've heard a number of countries say, "Well, I really can't get to zero soon enough because I don't know how to do it yet." And yet, if you succeed in taking the actions that they claim that they will take, you do not solve the climate problem. And, I think that's in our interest either. So, I think you want to marry the two up.

Mr. Majkut: So, with that in mind, what is the U.S. bringing to the table?

Mr. Pershing: So, the U.S. has got a commitment of 50 to 52% that was announced by President Biden at the summit that he held for the major economies on Earth Day, April 22nd of this year. And, within that number, he is now seeking to develop a set of domestic policies that will enable us to achieve that outcome. Of course, it has a secondary piece. He's also committed to having United States get to net zero by 2050. The first one though is a decade long endeavor. It's an exercise which includes all sectors and all greenhouse gases. And, in that context, the agenda is one that we're currently debating in a very public way. Congress is having that conversation. But, it's been clear there is not just one path for the U.S. or for other countries to achieve the kind of outcome that we seek. There are many paths. So, some of the pathways could pass through a set of policies like tax subsidies for renewable energy.

Some could pass through aggressive programs at the state and local level. Some could pass through a significant commitment to reduce greenhouse gas emissions from things like the power sector, through carbon capture and storage. Those are all pieces that are being debated. You could have the clean power plan which right now, is a contested area and on the hill, that would certainly help. But, it's by no means the only mechanism through which you could achieve the outcome. And, I'm still quite optimistic today

that we will find something like that, that will be moved in U.S. domestic legislation. I'm also struck by the financing pieces, because those are significant. One of the areas that we're seeing coming out of the work that the secretary of treasury is doing, that Janet Yellen is doing, is to really think about risk and what the calculation of risk is in the marketplace. If you're a company with that new calculation, you'll make different investment choices. And, those investment choices will lead to different emissions outcomes. So, I'm a big bank and I'm investing in power. I said, "Well, the risk of gas might be higher than I wanted. The risk of coal is certainly higher than I wanted." How do I think about debating those emissions through carbon capture? What's the cost of that? What's the alternative that might have lower emissions. What's the cost of that? How do I create a balanced portfolio with these risks calculations in, and we're not the only ones looking at that there's a global outcome here. So, investments that the U.S. makes at home are not only a function of the economics at home. They're a function of global prices. There are a function of global demand. So, as we look for example, at the rapidly declining costs of renewables, that is partly a function of what the global price has been. And, the global commitment to that technology, which has enabled that it states to make investments at much lower cost. So, all of that factors into the outcome.

Mr. Majkut:

Well, I'd love to talk about the market dynamics that will accompany or follow COP, but I want to spend one more moment on these sort of the national plans and how we should think about interpreting them. Because, I take from you that domestic agendas really drive at least the short-term commitments that countries make to this process while the ambition seems to be set by the negotiations themselves. But do we have a good way of understanding? Like, who becomes a laggard and who becomes a leader in the context of an event like Glasgow? So the EU has what I would call it ambitious NDC, right? A targeting 55% emissions reductions by 2030, which was a 15% improvement over their last target. But it's 7% of global emissions. China by the other hand is nearly a quarter of global emissions. And, their announced target says will peak before 2030 instead of peaking in 2030. So, how do we think about sort of relative effort in this context and how does this process expose who needs help?

Mr. Pershing:

So, I think the first part of the question really has to do with where the numbers come from. Where does our assessment of adequacy come from? And, I would submit it's actually not a negotiated outcome. It's more of a technical assessment that comes out of the scientific literature. There are a couple of organizations, probably most notable among those is the intergovernmental panel on climate change, the IPCC. Which provides assessments of where we are and where you'd have to be globally, collectively, if you wanted to solve the problem. And, they say to have a reasonable probability of holding the temperature increase to 1.5 degrees, you'd need about a 45% global reduction in emissions by the year 2030. So, it's against that kind of trajectory that you then have to make assessments. So, if you look at a small player, while a small player by itself, isn't going to have a huge influence on that outcome in aggregate, they could matter. I use the G20 as an interesting case in point. So, the G20 is responsible collectively

for between about 75 and 80% of global emissions. But, that means there's on the order of 20 plus percent not in the G20. Now, on an aggregate that 20% would make them collectively the second largest emitter in the world. If they don't want to move, you can't get there. But, if any one of them doesn't move well, it's a 0.1 or 0.2% of the total. It's not going to be the big game-changer. At the other end, you do have the big players, China, obviously the biggest somewhere between 25 and 30%, depending on which calculations you review. The United States, the second biggest, quite a lot smaller, certainly less than 15%. Some numbers suggest as small as 11% of the total. They're a big, big part of the total, but between the two of them that still represents less than 40%. So, what are you going to do about the remainder? You need a lot more players. So then how do you evaluate the second part of your question? What makes you a laggard? Are you a laggard if you do not meet the average that the world has to do? which is on the order of 45 or so percent reductions by the year 2030. Well, the atmosphere sees a couple of things. The atmosphere has sees both rate of change and the atmosphere sees total volumes. So China, for example, has indicated that it would get to net zero by the year 2060. It's a bit late. The world science suggests that you really should be at zero more like about 2050. So, from that perspective, it's a laggard from the perspective of what it's currently doing, what would you describe? Well, China's indicated it would peak before 2030. That is consistent. Now how much before matters. If it turns out to be late 2029, that's probably not going to solve the problem. If it turns out that they've already peaked and we see reductions in this decade, which is not inconsistent with the characterization, that would be consistent with the science. Now, what we're hearing is that there may be a plateau, that they may have peaked or being close to peaking, but it may be flat for the next decade, not coming down. That would be less than we'd need to see, or what the science suggests for a country, as large as China and as influential as China. Still others, however, have done even less. If we look for example, at the work that's been committed to by Australia. The Australians are indicating that they are likely to exceed their current level. Their current level is a 26 to 28% reduction by the year 2030. That's clearly substantially less. That's clearly substantially less than the 45% that the science would suggest the world should be on a trajectory for. In that context, they're clearly lagging. Australia's arguing that what it's doing instead is investing significantly in technologies that will enable a future decline. The problem is the atmosphere doesn't see the future declines, it sees the current emissions trajectory, and in that sense, arguably Australia is lagging what it ought to be doing. The last piece that I'd put in there is what about capacity? Arguably Australia has capacity. China has capacity. But what about some of the other actors that have much less wherewithal, much less of an ability to move forward aggressively now? Countries in Africa, for example, which cumulatively have only a few percent of global emissions, but they're a substantial portion of the impact. Well, what you could argue is that some countries like the United States, which is doing 50 to 52 [%] instead of 45, could slightly offset those that could act more slowly. Europe, which is doing 55 could offset those that are moving more slowly, that don't have the capacity. Therefore, are they laggards? Well, in the context purely of the science, yes, they're moving more slowly. In the context of capacity, as long

as they are moving and taking these actions and we can facilitate additional effort, then maybe you'd use a different term.

Mr. Majkut: Do you expect to see the idea of carbon trading or international agreements, leading countries being able to offer laggard countries some sort of credit, evolve either in this COP or future COPs?

Mr. Pershing: The idea of emissions trading has been around for a great deal of the history of the climate negotiations. The language in the original climate convention from 1992 includes provisions that ultimately became as part of the Kyoto Protocol, both an emissions trading provision, as well as an offset market provision through something called the clean development mechanism. That's still there today and countries have adopted it at various levels. The United States has done it at the state level. We've got a regional greenhouse gas initiative, which is the work of the Northeast states. We've got the California Trading Program, which is both within California, but also has some international linkages in particular, up to Canada. The European, they probably have the most evolved market. It's currently got substantial prices at the market is trading at for offsets and for carbon tons. China is developing its own market moving from what had been a purely provincial state program to a federal program. We're currently seeing that. At the same time, there are some rules that are being developed in the international program for emissions trading under the Paris Agreement. Those rules have yet to be finalized. That's one of the elements that will be incorporated and, I believe, completed at the COP in Glasgow. Then the question is, will that be continuing to be advanced? Do we envision a much larger trading system in which countries around the world will operate in that fashion? Currently you're not seeing Congress debating such a provision. They may take it up, but that doesn't seem to be the current direction of travel. It doesn't seem likely in the near term for the United States, but conversely, you do see it in some other economies which are moving forward. New Zealand's had a trading program. We've seen that, not just in the EU, but some of the EU satellites or connected countries like Switzerland and Norway, which have taken up that kind of provision. It's not as if you can't get there. Then the last piece is, there are these project based offsets. Programs in which things may not be part of a national target, but could be counted because there's reporting and standardization and mechanisms for appropriate accounting. Those projects, which really do reduce emissions, could be counted against a commitment taken by a country. Those may not just be national. Those could also be corporate. We're seeing voluntary markets for emissions trades and project offsets emerging and scaling up. So one imagines those continuing, even if there's not ultimately a single universal global trading mechanism.

Mr. Majkut: On the theme of integrity versus ambition. We're seeing a lot of coverage right now on climate finance. In particular, the idea that developed countries are financing or helping to finance the low carbon transition in developing countries. But we've also seen reports from the OECD and independent groups that there's a pretty big shortfall between what was promised in previous negotiations and what countries have been able to deliver. The US

is part of that shortfall. As you look at increasing demand for climate finance, are we going to be able to meet what developing countries are asking for and how do we ensure that in this negotiation we're making more reliable promises?

Mr. Pershing:

So, the OECD is in the process of updating its report. We haven't yet seen what that's going to look like. I'm actually quite optimistic that when it comes out, it will give us a pretty good sense that we are on the right trajectory. That we will, in fact, meet and probably exceed the hundred billion. I say that for a couple of reasons. The first is that the report used 2018 data. There's been a fair amount that's happened since 2018. The second is that we've seen a host of new announcements about increases in the commitments being made by countries, not least United States. When President Biden made his statement in April, he said that we would double the levels from the Obama administration. He was not talking about the Trump administration, which largely zeroed out those tons and those finances, but at the end of the Obama administration. And then as the conversation continued over the course of the year, he said, that's really not going to be sufficient. We do want to be meeting these totals and he doubled it again. So we're now in a position of, that's not being counted in those 2018 numbers. But in part because the U.S. step forward and in part because others also look at the same trajectory and believed that we were insufficient in our totals, others too have been coming to the table with new announcements and additions in their own financing. I'm reasonably optimistic that that will move forward, but that's only one part of the equation. The other part of the equation is what about the private sector? What about the investments that are coming forward and what are we seeing there? On that front, I'm also optimistic. What we're actually seeing, and these are conversations that Secretary Kerry's been having with the banking community, with the investment community. There's an enormous amount of capital that seems poised to move into the marketplace. We measured the U.S. contribution in billions of dollars. That's a big number, but it's a much smaller number than the reality of what we face. The International Energy Agency has suggested that we need to invest trillions of dollars per year in the energy system for it to be decarbonized. Now, before you get too worried about a number like that, you have to put it into context because that's how much we're already investing in the current system. And it's not that you're looking to incrementally add that much, it's that you're looking to redirect those investments. What we're seeing from the big asset owners like BlackRock and State Street, from the big banks like Goldman and Citi and Barclays and USBC, what we are sitting and seeing from those partners is an intent to rapidly ramp up. To scale up investment literally measured in the trillions of dollars for green investment. I'm both optimistic about the governmental number and I'm optimistic about the financing and the intent to finance from all of these players. I think both of those things will be areas to pay attention to at the meeting in Glasgow, both the OECD report, which will characterize what countries have done, and the private sector contributions, which will be captured in various marginal meetings and announcements coming from that constituency at the session.

Mr. Majkut:

Yeah. I don't put you on the spot for the decisions that Congress takes, but the president can't make all these financial commitments by himself. One of the criticisms we've seen, at least in the United States, is that these institutions that are trafficking in international finance are not reliable. They're untrustworthy. People don't want to give them money. As developing countries are asking for higher flows of climate finance, whether that's private or public, are our institutions in a place to govern that higher degree of finance, and who are the intermediaries who decide what counts and what doesn't as climate finance?

Mr. Pershing:

So the decision about what does and doesn't count is an exercise that has had a lot of different iterations. We've used the OECD work. That's a body of really technical analysts that are reviewed for a long-time development assistance from all of the donor countries. It's got long history in making those kinds of calculations and those kinds of assessments. We'll look at what they say. They said that as of 2018 data, we were short. I'm hopeful what they'll now say, is with all the new numbers that have come in, we're on a pretty good trajectory, but that's where that assessment comes from. I think the second part of the question though, really has to do with what is the confidence that Congress will act and the countries will deliver on these kinds of totals. I'd say two things about that. The first one is the institutions that we are using are institutions that now have developed substantially greater experience. We have worked with the World Bank for a long time. Is it perfect? Of course it's not perfect, but it actually does a lot of what we asked it to do in terms of providing development capital for changing outcomes in countries. It doesn't work with all countries. You've got to have a threshold. If you're below a certain threshold, you can get qualified. If you're above it, you should be expected to do it on your own. Countries have graduated out of those thresholds as they become wealthier. But we're also looking at investment that comes through other mechanisms. An adaptation fund. Which is really going to be governed in no small measure by those who feel the impacts most significantly. That seems pretty appropriate. If I'm looking at a place in central Africa, that's really seeing the consequences of increased drought of increased temperature. It's not so clear that sitting here in Washington I'll make the best judgment about what their best adaptation strategy is. I would like representation from that community in my institution. I want the donors, but I also want those who are bearing the brunt to be part of the governance. We've got a fund called The Adaptation Fund, which is exactly designed to do that. We've got other mechanisms. There's a new mechanism being developed, sits in the context of the World Bank, but it's an independent body that's looking at transitions in the area of coal. What do you do for the communities? How do you think about workforce? What are you thinking about the cost of retirement of debt and capital? That's a mechanism that's independently managed, but in the office of the World Bank, which has a trust fund mechanism and can set up that kind of institution. The same is true for something called the Climate Investment Funds. (The CIF). These are institutional arrangements, largely set up by the donor countries, in order to facilitate the legitimate robust transfer with clear environmental integrity around the outcomes.

Mr. Majkut: Well, let me jump in there on the climate investment funds. As you know, CSIS has done some work trying to understand issues that you're talking about related to coal transition, and a just transition for workers in coal communities. In particular, we're looking at up and coming, though, developing countries, South Africa, India, both highly coal dependent. As you look at COP and one of the other themes that has come up is some sort of planned coal phase out for the planet, do you see just transition as a way to help those conversations along in these countries?

Mr. Pershing: I see it as essential. Unless you've got some mechanism in which you can work with the communities that are affected, in which you can ensure, not just the technical reliability of the grid through alternatives, but the community development, the jobs, the transitions, you will have enormous difficulty in making the shift. I think it's essential. I don't think it's just a function of developed countries or developing countries. Everybody who's trying to make that transition's got to work for developing countries, everybody who's trying to make that transition's got to work it out. Now, a country like the United States or Germany, we actually have capacity. We can bring support to those constituencies. The Biden administration's done that in the U.S., Merkel's been trying to do that in the context of the German transition, but other countries don't have that wherewithal. And I think in that context, we collectively need to help, because we know we need the transition, we know there needs to be workforce capacity, retraining, different job opportunities, we know the politics are difficult. So we have to manage that. We have to find ways to move those transitions both quickly, but also legitimately. And legitimacy here, in this context, means justice for the people who work there, and management of a smooth transition so communities don't decline and disappear, or much worse, fall into horrible straits because the transition's been badly managed. We have places where we've done it pretty well. We've seen situations in which retraining occurs, where you can actually have an alternative outcome. I had a conversation earlier with someone from Hungary who's been working exactly on this problem. And what they're looking at currently is whether they can actually convert some of their very large remaining coal capacity into industrial sites, where they put something else in its place, retrain the workforce, make that workforce part of the solution and part of the advocacy group for the solution, as opposed to a barrier to movement. I think that's the kind of model we have to explore.

Mr. Majkut: And do you have an optimistic sense of how those discussions will filter up into COP regarding coal phase out?

Mr. Pershing: So, I think there are a lot of countries that are proposing to make an explicit number. And I'd like to actually think about it slightly differently, I'd like to call it a carbon phase out. There may be some countries and some countries that choose technologies in which carbon capture is a big play. At the moment, it's a pretty expensive choice. So I think very few will take that route forward. Right now, if I've got a coal facility, it's mostly much, much cheaper to retire it and put in a new renewable capacity than it is to

maintain it and install carbon capture. But it doesn't mean that the objective here is to phase out coal, the objective is to phase out carbon, and that's a useful distinction to draw. Having said that, I do see that moving quite quickly. Certainly moving in the United States, we've had hundreds of coal facilities retire over the last number of years, and that's only partly a function of climate policy and a bit of function of economic policy, because it turns out if you're a power company you have a cheaper alternative, you have a cleaner alternative, and that's a pretty compelling argument. By the way, it's also one of the arguments that suggests to me that the course is not reversed. A number of people have suggested that a new administration in the US or in any other country will just change course. We're going to go down the route of doing renewables for a while and we'll move back to coal, except that it doesn't really work that way, because what you found including the United States was that the alternative to coal was really not to restart it, but to find the cheaper way forward. And that's what's been happening. I think that probably continues to happen.

Mr. Majkut:

Yeah, I think in many of these issues it's always a danger to mistake weather for climate. So, carbon capture's a great example of a technology that we think we need to meet long-term ambition but has struggled to get off the ground in the short term. There are numerous others that you could point to, heavy emitting industries like steel, shipping, aviation. Bloomberg has reported that former Secretary Kerry has been looking to put together a sort of group of the willing or a coalition of industry actors to start taking leading steps, either making advanced purchase commitments or internal emissions targets. How do you think about those efforts? What do you hope to see from them? And how should we from the outside gauge their effectiveness?

Mr. Pershing:

So if we look at the countries around the world, countries are all in slightly different places about what represents the largest share of emissions. For United States, the largest share is the transport sector. For much of Europe, the largest share is still the energy sector. For China, the largest share is the industrial field sector. So each of us have slightly different priorities, but those are the top three for pretty much everybody. Historically, the easiest one to manage has been the power sector. We've seen a sharp decline in things like the cost of renewables, and as an interim measure in the question of the cost of gas which has made coal more or less obsolete almost everywhere in the world. We haven't seen quite as much progress on industry. And that's been an area that there's been, in the last year or two, much, much heightened focus. There are a couple of interesting announcements in that regard that have come forward. The shipping company, Maersk, for example, which is the largest shipper in the world has said that it will have zero carbon shipping by the year to 2050. They only know how to do part of it. They know how to more or less get for the next 10 years and get to a deep reduction, and they've put a massive investment into the R&D necessary to find the alternatives in the next 10 years. Some technologies are pretty robust. For example, if we look at ArcelorMittal, it's a major steel company, it's based out of India. It's got the world's largest zero carbon steel facility, but it didn't build it in India, it built it in Scandinavia. So here's a really interesting example of a company that's looking at the new

technology and trying to find a way through, and it's been doing it through a series of different options. One, you can use hydrogen. Well, we know how to do hydrogen. That's a pretty clear technology. Two, you can do the electric arc furnace, and that gets you a whole set of the steel requirements that don't come from raw steel, but come from reprocessed steel. Three, you can use carbon capture and storage. All of those technologies we know how to do, the question is how do you bring the price down? Hydrogens increasingly competitive, the arc furnace is already competitive, and I can decarbonize the electricity mix. Carbon capture and storage is still more expensive than we want, but price is coming down pretty sharply. The same kind of thing is happening in cement. There are now technologies available to produce cement that doesn't emit carbon dioxide, but that actually captures carbon dioxide in the processing. So new exercise, we can do it, we only do it at fairly small scale, it's somewhat more expensive. The French, however, have decided to make a mandate that they'll now purchase zero-carbon cement for large scale national infrastructure investment. Well, now I've got an economic incentive, I've got a structure to drive that forward, I've got big like Holcim beginning to invest in the R&D and the manufacturing capacity to use that incentive structure to their benefit. So all of this I think is coming fairly quickly, and we certainly see trajectories which make us much more optimistic about the future. If we have the same kind of 10 to 15 years development of that industrial set of capacities, as we've had around renewable energy, solar wind, geothermal, I think the price comes down pretty sharply and we're likely to see a much more optimistic future. In most models of the future, people start with a low-cost alternatives. They start with energy. They go to transportation where we know how to do electric vehicles, and then they go to industry with the assumption that these technologies, with the R&D phase, the development phase, the deployment phase coming will then be ripe for significant penetration within the decade.

Mr. Majkut:

One of the things I think we're seeing is countries or firms see the clean future and they want to own a piece of it, right? There's going to be a lot of money flown around for clean goods, but we also know that there's certain benefits that come from large global markets, scale and trade. And raw innovation is not the only tool that countries are going to try to use to own different parts of these markets. So how do we maintain the benefit benefits of scale and global supply chains at a time when countries are trying to seek innovation across these different technology sectors? Do we need to think about new trade rules, not at this COP, but maybe to follow?

Mr. Pershing:

I'm much less focused on the trade rules. I think there are others who really made that a high priority and a piece of attention. I certainly think that that'll be a continuing debate. There'll be a conversation. I'm not sure we need them to drive this forward. I think they might drive it forward expeditiously if some rules were modified. But I don't know that that's the barrier. I don't think the trade rules are the barrier. I think you can succeed as companies have been doing across the board without changing those. Let's look, for example, just renewables, which are the furthest down the road. It's not as if the trade rules were designed to promote renewables, and yet the penetration of renewables around the world has grown at an incredible

virtually geometric rate. It's extraordinary. And part of that's because the prices come down. And you could do an interesting historical analysis, which suggests more or less that the United States was one of the biggest proponents in developers of the R&D. The Germans were one of the biggest developers of the regulatory structure, which brought a German market with its million Solar Roofs Program. And the Chinese took significant advantage of that to make low cost, essentially, commodity panels. At the same time, the value now in the installation is much more diffused. So if I look today, I don't hire Chinese workers to install an American roof, I hire an American worker. I don't hire a Chinese worker to install a German roof, I hire a German worker. So, the value, and the benefit, and the corporate potential there certainly plays out. And different countries have different niche elements in that market. The U.S. is in all of them. China's in most, but not all. We probably have much more sophisticated capacity on managing grid and grid variability management, which turns out to be an issue when you've got supply like solar or wind, and we can sell that technology into others. Others are really quite good at commodity production. China's very good at that, but that leads not to a new trade rule, that leads to niche markets to advantage, to competition, and currently, as we are seeing, to a sharp price decline and widespread penetration.

Joseph Majkut:

So, what conflicts do you think we should look out for in the future though? So, commodity and solar coming from China is very inexpensive, but we're now realizing or coming to learn that the labor issues associated with those cheap prices might be hard to swallow. And in some cases, have created actual legitimate barriers into entry in the US market. So as we start doing these sorts of niche market application throughout the globe, across a wide variety of technologies, what should we be aware of? And what are countries expressing that they're concerned about?

Mr. Pershing:

One of the things that I find fascinating about the energy market is the difference in the new technologies versus the old technologies. With the oil, in particular, the oil market, if I stopped importing oil things grind to a relatively quickly, because that market is really almost a just-in-time market. It doesn't have a lot of reserves or a lot of capacity. If I stop importing solar panels, my existing solar panels don't stop working the way my cars did when I ran out of oil, they keep working. So there's a very, very different kind of a structure in the energy market. One that add substantially greater security to most countries around the world. And that has a very substantial benefit, which I often think is missing from some of the calculus. The second thing which I'd say is that that market's continuing to grow, and we will see new supply chains emerging, certainly in as much as the world is now looking closely as it should. At the production mechanisms for things like solar panels we're seeing new markets develop and new producers coming along that meet the appropriate tests of human rights and appropriate labor force, but we're also seeing questions around how the basic resources are produced. If the old market was one about who makes and produces oil and refines it, the new market is who produces lithium. What about the big sulfur batteries that are coming forward? How do I think about nickel metal hydride batteries? Those are commodities which are in very, very different

places, and they give a lot more credence and credibility to a market player like Chile, or perhaps in Australia, or maybe in South Africa. That's a very different structure than one that focuses on Saudi Arabia, or Kuwait, or Venezuela. So, to me, those kinds of shifts are ones to pay attention to. The last piece that I would say is there's a technology development play here, and this is an area which in my mind, the US excels at. We are one of the primary drivers of technological innovation for the globe. I don't think that stops because we've shifted from one commodity to another. We spent the last number of years on telecoms and on computational capacity. We're now moving much more aggressively into alternative renewables. Who is going to invent that next big grid scale electric battery? There are an awful lot of people who see a lot of money in that provision and a bunch of them are Americans. So I think this is going to be a competition for the future as well and one that I think it behooves us to pay attention to.

Mr. Majkut: So I'd like to talk a little bit about the bilateral US China relationship, which is all over COP coverage. You testified in July that one of the outcomes of Special Envoy Carry's engagement or trip to China was an agreement that before COP each country would set respective long term strategies aimed at net zero. How are we doing it on that front? And more generally what distinguishes a strong strategy from net zero in your mind from a vague nod toward that goal?

Mr. Pershing: So China's indicated that it would try to get to net zero by 2060, the U.S. by 2050. The science suggests that 2050 is a better number if you want to hold the temperature increased down to an appropriate level. So what makes it a strong strategy? I think a strong strategy is one that's based on some clear evidence of rates of change that you could imagine achieving. I think it's based not on some magic that has to happen to get to an outcome, but on credible technology pathways that you can see. So what does that mean? It means that if I've got a rate of change that is three or fourfold, the ever-previous high rate, I probably should look again. We've had very, very rapid penetration of renewables. Can I imagine tripling that rate? Actually, no, but I could imagine maintaining that rate. If I maintain or slightly increase it and I act starting immediately, I can get to zero. If I wait for a decade, I have to go about three times as fast. That's very, very hard to see. It's not impossible. It's just less plausible. So to me, what you're looking at is robustness. You're not looking at is it doable? Well, how likely is it that I could do it? What are the kind of provisions that I'd have to install?] This for me is one of the most powerful arguments for why you should start acting sooner rather than waiting and being more aggressive later. We don't have that many examples where rapid penetration has taken place in a decade. We have many examples where it's taken over 20 to 30 years. That's how much time we've got left. We're in 2021. We should be at zero 30 years from now. If I wait for a decade before I act, I have very few examples where it's moved in 20 years. If I wait for 15 years before I act, I'm really hard pressed to see it going forward. So to me, this accounts for the urgency. This speaks to why the Intergovernmental Panel on Climate Change talked about starting right away and why they gave us some of the numbers they gave us. To me, robustness, therefore, is calibrated in part with those kinds of assessments.

Mr. Majkut: So this also seems like a place where cooperation becomes very important, right? The time scale you're talking about. I'm not a young person. It's very possible I'll still be working like before retirement, before countries start hitting that zero or major economies start hitting that zero, right? There are a few that probably are already there if you count forestry, but this is a place where I think cooperation becomes really important. So how do you look at the two largest economies working together on climate versus a perceiving rising tension in other sectors? Can we compartmentalize or do we have to kind of view our ability to cooperate on climate in a bigger context?

Mr. Pershing: Listen, I think we've got all sorts of examples where to use a somewhat a hackney idiom, where people can walk and chew gum at the same time. In this context, you've got an existential threat globally from climate change. I believe that when those threats exist, people work on them. I look at the history of say the U.S. and the USSR in the context of the Cold War, we were still able to work on managing our nuclear arsenal. And it was not easy, but we did it. And we did it with a country where there was an adversarial relationship that was much stronger than the current one with the United States and China. It doesn't mean that we are going to agree on other things, just as we didn't agree with the Soviet Union, but we were able to work on things that were different and distinct and that mattered. In my mind, climate is one of those very, very significant things that we don't have a choice on. It will affect us. It will affect China. And if the two of us don't move, our inaction will affect the rest of the world. So there's both a lot of pressure on both of us and a lot of pressure that we bring to each other. And let me put one last point on it. I think that there's going to always the need to be areas where countries, no matter how difficult a relationship, have got to find ways to engage. Climate may be one of those ways. It may be a bit of a safety valve; a place we can say we can work on this. And that gives us optimism and hope that these other intractable issues can be negotiated, and we will find an acceptable outcome. They will be hard. I don't minimize them. It's not my portfolio and I'm not working on them, but I believe that climate is one that we will be able to move forward on. I would note, however, it does not mean that we are going to give up any of the dearly held beliefs and values that we have vis-a-vis China. This is not a function of saying I'm going to trade climate for something else. It's a different model. It's a model that says climate must be addressed. And I will work on that. And I will try to set aside when there's other things and say, those are things we disagree on it, and we will not let you off the hook on those things. And we also have to work on climate. Climate matters. It's killing people. It's going to kill more people. It will be devastating for our economies. We have to address it. So for me, that's an option that we have that we will take advantage of that we've done before and that I see us doing again.

Mr. Majkut: As a final thought, I ask you if you're able to muster it and look forward a year from now, what is the message that we get from Glasgow? And how has it formed our efforts going beyond this meeting?

Mr. Pershing:

I think Glasgow is one in only a handful of salient tipping point meetings. They come every five or six years in this process. The first one came in the climate convention, which was done in 1992 when we actually had the first clear call from the global community about intent to move. The second came in the Kyoto Protocol in 1997, in which countries decided they were going to try to move with ambitious targets, quite specifically set. The third came essentially in Paris and it had ascendant meeting a little bit earlier in Copenhagen, but really in Paris where we not only had developed countries but developed and developing countries, all the major economies making major commitments. This one's another such milestone. It's an indicator of robustness of effort, of stringency, of collective action, and of the intent to stand up and not only say what they're going to do, make a pledge for 30 years out, but commit to a near term series of policies and measures that would implement those long-term pledges. I think we'll look back at this and say major countries stepped up and we'll then be looking at an implementation agenda. No longer is it necessary to say, what's my target? Now it's a question of saying, am I meeting it? Have I found lower cost ways to get there? Am I engaging communities that may see some disruption? And am I seizing opportunities, both for those communities and others to grow a much wealthier economy that's also a much cleaner economy. I think this is going to be one of those tipping points. That's a mark that we'll look back at as a place where this really did take place.

Mr. Majkut:

Well, thank you for your time and your perspective.

Ms. Hyland:

Thanks to Jonathan for joining us ahead of a very busy week preparing for COP 26. The CSIS team will also be following the meetings very closely. We look forward to hearing your thoughts about this year's COP. Be sure to let us know your insights and takeaways as the meetings progress. You can find more episodes of Energy 360, wherever you listen to podcasts and on our website, CSIS.org. And for more updates, follow us on Twitter at CSIS Energy. As always, thanks for listening.