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FEATURING
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Nikos Tsafos: Good morning, good afternoon, good evening wherever you are. My name is Nikos Tsafos, and I'm the James Schlesinger Chair for Energy and Geopolitics here at the Center for Strategic and International Studies. And it is a great pleasure to welcome back to CSIS Amos Hochstein, Special Advisor – Senior Advisor for Global Energy Security at the U.S. State Department, to talk about energy security in the current moment, but also energy security as he's thinking about it, and the U.S. government is thinking about it as we advance further the energy transition. One piece of logistics, on the website there is a button you can click on to get questions to me. My colleagues here are going to pass them to me. So please keep those coming during the conversation. I'll do my best to integrate them into our discussion with Amos. Amos, welcome back to CSIS. So good to have you. Let me begin with where we are in energy markets. It's been a crazy few weeks, months. We've seen gas prices, oil prices, electricity prices, coal prices, carbon, everything kind of go up. Give us your initial read. What is happening? What are we observing? How are you reading the data points?

Amos Hochstein: Well, first, it's great to be back here, Nikos, and to be here with you and CSIS, and to do it in person. So really appreciate the opportunity to come and have this conversation. You know, especially because this is – we're at a critical time. We're at a moment where almost everywhere you look, at any aspect of the energy value chain, prices are extremely high. And it happened without a specific disruption, right? 2011, we had prices skyrocketing as a result of the Libyan War, and oil production, you know, went off the market at a huge level all of a sudden. Or we had Hurricane Katrina or other big events. This just happened. And here we are, not only that we're having an oil crisis, right, because prices are very high. But it's oil, and it's natural gas, and it's coal, and it's metals, and it's electricity prices, and it's across the board. We are feeling it in the United States with high gasoline prices already, looking into the winter on natural gas. Natural gas prices in the United States never rise that much, but they are – relative to where they were, they're higher. Europe is experiencing record highs in natural gas prices, and not momentary spike. This has been a slow, gradual, and then reaching a peak and plateauing, with a little bit of a decline over the last 24-48 hours. And then coal prices rising. And in Asia, it's a combination of all of these things. So, this is really a critical moment of an energy – a beginning of an energy crisis that I – you know, we worry that it could become a real crisis and continued crisis as we go into the winter, on a global basis. And that's something that I think we all need to work together with our allies around the world to prevent.

Mr. Tsafos: Let me take you through sort of a series of possible, let's call them, culprits, factors, whatever you want to call them. Let's begin with underinvestment. There's this thesis that, you know, this is happening because we're underinvesting in fossil fuels. Obviously to an extent this is true. That could

get a more complicated story about what's driving that, and especially also in the U.S. You know, how are you gauging sort of that explanation for what we're observing?

Mr. Hochstein: Oh, I don't think the underinvestment is actually having an effect here. Let's realize where we are. We had COVID, where demand dropped all of a sudden. And, you know, I think oil dropped to the lower-mid 80 million barrels a day of demand from about 100. But we're kind of back to 100. The supply side is there. There was a – OPEC-plus had cut production as a result of COVID, when prices collapsed, which was understandable. But it has not – it is bringing production back very, very slowly. And the – it's not catching up with the fact that demand is rising faster than we thought because economic recovery is happening faster. Post – even with Delta, we still did not see a new decline. On the contrary, we're seeing economic recovery. And as a result, demand for energy is going up. And the supply side hasn't been there. But there is supply. And I – you know, long term, the lower levels of investment in fossil fuels are going to have an impact. And hopefully what the world needs to figure out how to do is to have a timing mechanism of – and that's very hard to do. And that's why it's a transition. We are going – not only are we going towards a greener future; it's consistently happening faster than we predict. And that's something that we need to address. But the underinvestment is not the cause right now. We have multiple causes for what's leading to this energy crisis. And that's, one, as I said, the post-COVID recovery and demand coming back. But we also had a number of natural phenomena and weather-related causes, whether they are – you know, we're so interconnected that a dry season in China and Brazil leads to no hydropower in those areas, which leads to higher demand in natural gas, then coal, then oil. So, we're – there's a number of things that have come into this – into the position that we're in today. I don't think underinvestment is really the cause right now.

Mr. Tsafos: And so, more broadly, I mean, what I'm hearing from you is that you would not classify this as a particular energy transition-driven or, like, climate policy-driven crisis, which is, again, another sort of discussion we hear a lot from a number of corners.

Mr. Hochstein: Look, the idea that the climate action and the energy transition caused a fossil-fuel crisis to me has no – that's a political talking point. It has no merit and is not backed by the facts. If anything, I would say that this underscores the need for hastening and making the transition more effective and more efficient and faster. But I don't think it's caused by it, no. I don't think there's any facts to back that up.

Mr. Tsafos: That's fair. You talked a little bit about OPEC. And I don't want to put words in your mouth, but it seems that you would like to see more production out

of OPEC, or at least the pace at which they're increasing production is too slow for what the realities of the market are calling for, if that's fair.

Mr. Hochstein: I think OPEC has to make their own decisions. And they're going to have a meeting on November 4. I think that OPEC has always – OPEC-plus now, I guess – has always talked about their role in the market. You know, the United States, we don't really necessarily support cartel – the concept of cartels. But that's their view of the market. And I think that they should have the same look at the data that we are. And we see a tight market, that growth is happening quite fast. Prices are going up. And look, these are unusual times. We're still coming out of the – of COVID. The economic recovery has been remarkable but fragile. And what we don't want is, in the middle of a global recovery, to imperil that recovery and to threaten that recovery due to energy prices. In other words, we're seeing people coming back to work. There is – the administration here has been – our administration has been working hard on trying to revive that economy across the whole spectrum of the economy, so at all levels. And if you have suddenly elevated energy prices, that's just going to set us back. So, my message to producers has been consistent of take a look at the market; don't allow us to be in a place where we all lose, consumers and producers, if energy prices stay elevated for a lengthy period of time and start threatening a recovery in different parts of the world.

Mr. Tsafos: Speaking of producing countries that have been unhelpful, let's talk a bit about Russia. A lot of incredibly mixed messages, and I would say unhelpful messages, coming out of Russia one day or another: We don't have gas. We do have gas, but you have to be nicer to us. We do have gas, but you have to sign long-term contracts. We don't have gas because we're filling up our storage. We would love to sell you gas if we had Nord Stream Two. Just a lot of very sort of contradictory messages from various voices coming out of Russia. You know, how are you reading their position in the current market? And, obviously, you know, a big part of your job and your career has been spent on sort of issues of European energy security. You know, if you step back, you know, what does this tell us about the role of Russia in the European energy system, like, today versus earlier times? You know, how are you – how are you piecing together all those pieces?

Mr. Hochstein: Well, I agree with you that the messages coming out of Russia at different levels have been a bit confusing and difficult to follow the straight logic. I don't – Russia did – look, let's be clear, Russia did not create the natural gas crisis in Europe. It happened, again, for a variety of factors and some of them were out of everybody's control, of having a late winter, a burst of cold weather at the – you know, in April last year. So, the filling season started a little bit later. But there's no doubt that Russia has not done what it could have done to mitigate it and to slow the price increase and to actually eliminate the crisis from – a potential crisis from happening. And in Europe,

really, we don't know if we have a crisis until we know what the weather is going to be. So, you know, I don't know. But we know that if it's a colder than average winter it's going to be a problem, and I would say that parts of the crisis are already there in the sense that when you have prices at \$30 an MMBtu of gas in Europe, that leads to somebody has to pay that price. Neither the consumers do, or the utilities do or the government, and that's, again, the consumers because that's the taxpayer. So, we've seen in the U.K. they've forced the continuation of buying gas, meaning they took the price signal away from demand destruction and that created bankruptcies in gas utilities. We've seen other countries in Europe put in price controls but also try to put public money towards the utilities so that there's no dislocation. But somebody has to pay these 500 percent increase in average price. And so, we've already seen damage being done and certain industries, fertilizers and other, already curtailing their investment and their production, which also will have a knock-on effect of supply chains of different kinds. So, we're already in the damage. Russia could have increased production on the upstream side to deliver more gas into Europe, and let's break that down. One, they say that they are meeting contractual levels. That is true. They are. But I don't know when we got to the point where contractual levels were what we do in crises. That's the minimum. A company doesn't contract a guaranteed amount at higher levels. They try to do it at what they think is their base case, and then if they need more, they buy from the spot price – from the spot market. And the second – so contractual level doesn't really mean anything. It just means they're not violating a contract, or you can't take them to court. But a responsible producer, especially one that is such a dominant supplier into Europe, should be doing what Norway is doing, and we've seen Equinor take extraordinary steps in order to be able to increase gas output into Europe for this winter, and we have not seen that on the Russian side. And then that last piece is there's been two arguments. One, we don't have the gas because we're filling storage in Russia, although I can tell you that Russian storage is pretty darn high, from public data. And the other message, you know, in parallel to we don't have the gas to give you is if you approve Nord Stream 2 outside of a legal structure and waive the – all the restrictions that are there for the process of approval, well, then we'll have the gas and we'll send it to you. So it's either/or. There are pipelines today that are in existence that are fully functioning and are not – there's no issues with them; there's no physical problems or threats to those pipelines, despite what has been said – that can carry that gas into Europe and solve the problem. They just need to be used. And after several weeks of saying that there was no gas available, I was actually very happy to see that President Putin has given an instruction that on November 8 they will be in a position to start filling storage in Europe. I just wish that it was October 8, not November 8, and if you do November 8, perhaps you can do it November 1. The time is now to address this. I don't know what the weather is going to be and I don't know where we're going to be from a price perspective. But if you can solve the crisis and you want to be a responsible supplier to the

European market, then you should do that. And finally, I'll say the last point on this: You asked about the role of Russia playing in European – the future of energy security. I did this job before and we always talked about diversification, not to eliminate Russia as a major supplier into Europe. I think Russia should continue to be a big supplier. It makes a lot of sense. They have the resource and Europe needs it. But I think that diversification was tool number one to ensure that there are other options. Tool number two is to accelerate the transition away from the dependency on natural gas itself. And what I haven't seen yet in Europe and in other parts is how we deal with the heating sector rather than the power sector. So, gas for power we can all look to as renewables become less intermittent. Well, they'll always be intermittent but having battery storage and other technology that will make it more sustainable. But we have to start thinking about the heating sector, since that's a bigger structural change, and perhaps hydrogen will be the answer, but we're not at commercialized hydrogen yet. So, I think that this crisis shows us again that we need to solve it for this winter and next winter and we need to accelerate and come up with new options for a lower level of reliance on natural gas itself towards other fuels – other power sources and heating sources that are not natural gas.

Mr. Tsafos: And I think the point that you're making on the heating season – I wish we talked more about it; to me, that's the more interesting structural question here, right, which is that gas goes up and down a lot between summer and winter and, in fact, this is a, as you said, a "do we have enough gas in the pantry for the winter" kind of crisis, right? So, it really underscores the need for reliable supply during the winter. So really appreciate that comment. One more question on the current moment before I step back and look a little bit more broadly. Talk to us a little about Asia because we've also seen, obviously, in China curtailments of electricity, the coal shortages, India as well. You know, what is the story that you're seeing kind of like in that part of the world, and how might it be different than what we're seeing maybe in Europe?

Mr. Hochstein: Yeah, Europe is a very specific natural gas story that then has a spillover effect actually into coal as well in Europe, which shows you the fragility of the transition and how much we have to strengthen it if we're – if we have – that quickly can flip back to coal, that's not good. Asia's a very different story where the demand pull from China for energy as a result of just economic growth after COVID, as well as hydropower being curtailed, needing all the supplies led to buying up an enormous amount of LNG, which caused the prices to go up, and essentially kind of a price competition between Europe and China, which China won the competition, especially when you get a headline in the press that says Chinese government instructs their companies to buy LNG at any price.

Mr. Tsafos: Buy everything. (Laughs.)

Mr. Hochstein: Well, that's a signal if I ever heard of one to anybody who's selling; don't even bother with Europe, you're going to get it, you know, five cents – the price is five cents more than whatever Europe's willing to pay and Europe will never end up getting the cargo. So that's also a problem. But as a result of this huge demand in the middle of a supply crunch of their own supplies, the world wasn't able to accommodate and therefore they switched to coal and increased coal and we saw some evidence of, you know, banks giving credit lines again to coal companies that would maybe not necessarily have gotten those credit lines before, and a significant increase in coal mining, production, processing, and usage for coal power plants in order to keep the lights on. And it wasn't enough. That is – we still saw energy-intensive industries being shut down in order to direct power towards consumers, towards homes and other businesses. So that is – you know, whether it's aluminum or other intensive industries, that caused a call on coal, which created high prices and affected India, which is now – has been struggling with trying to identify strategies to have enough fuels, whether it's coal or gas, for power. Again, underscoring how much work we have to do to get more renewable power that is sustainable, but so much more installed capacity in countries that have massive population, massive amount of diversified energy needs, and we're not – we're just not making as much progress there as we should. So that's a real – that's a real crisis there. But I think what's making it worse is that the producer side is not attuned to the economic hardship that this is causing on budgets across Asia in the middle of a – we're still not in post-pandemic. And so I think this brings us back. Asia is another story of we need to have a better balance right now between the tightness of these markets and the producer side. And I think that leaders are getting together in the G-20 tomorrow, and I think this will be – this is top of mind for many leaders, is to ensure that an imbalance in the energy market right now doesn't continue to cause economic hardship in this recovery.

Mr. Tsafos: So, you mentioned the G-20, and I wanted to talk about the G-20 and also, of course, COP26. You know, as you kind of, like, deal with this crisis the world is getting together to talk about – take stock of where we are, talk about the next steps. You know, how do you see what is happening in energy markets feeding into that discussion? Does it affect it at all? Does it nudge countries to do more? Does it empower people that are saying we should be slower? Is it we have enough stuff to fight about at COP anyway, we don't need this to fight over? You know, how are you reading kind of like the impact of this discussion both, at the G-20 but more crucially sort of on COP?

Mr. Hochstein: Well, first, at the G-20 I think that the president of the United States will have conversations there and will have the opportunity to talk to other major consuming countries, who are all concerned about the energy price and the position that we're in. And they're all hearing from their finance ministers

and economy ministers, as well as their energy ministers, that the markets are tight and that the price – elevator prices are causing economic dislocation in their own economies, and they're worried about that. And I think that we're going to have – we're going to continue the conversations in person there, but these are discussions we've been having at a variety of levels already, and with our friends, allies in other consuming countries, discussing making sure that we see the markets in the same way. And I can tell you that we do. I think there's a lot of unanimity of opinion between the major consumers around the world. And I think you've seen some of the public statements by ministers from other consuming countries over the last several days and last couple weeks toward – directed towards the producers and wanting to see a better balance in the market. As I said before, there's going to be a meeting on November 4th that OPEC-plus is having. And hoping that they hear the message that some of these countries have been saying publicly. So I think the G-20 will be an opportunity for the president to talk to some of his – some of our partners and understand and think about the pathway forward of how to – how to resolve this issue. And then from there, fly over to Glasgow and have what is the matching conversation of saying: Look, if we want to be in a continued cycle of dependency on fossil fuel crises because of prices, the best way to avoid that is to start making big commitments, putting big investment behind it, and to accelerate the energy transition. That's going to give us an enormous amount of additional security, but not enough security. But we'll diversify enough that even in the early stages of the transition we won't be as beholden to – or, rather, these price shocks won't have as big an impact on economic shocks as they are right now.

Mr. Tsafos: So let me to go to that structural conversation. Let me just tell the audience, I'm getting some of your questions. So, thank you. I'll leave some of them in, and please keep them coming. Let's talk about that broader sort of structural conversation because I think – you know, one of the things that we're spending a lot of our time here at CSIS thinking is, you know, we have set up a number of institutions domestically and internationally and structures to deal with the energy world that we had, which was largely hydrocarbon-based, and we've done this for 50 years or more for some countries. So if we have secure energy, it's largely because we've been working at it for a long time. You know, you've had sort of a pass at this topic during the Obama administration as well, thinking about global energy security and the architecture. You know, where are we now in that conversation? Do we have the tools and the institutions that we need for where we're going? What is sort of your vision about the things that we need to be doing to be preparing ourselves for the world that's coming?

Mr. Hochstein: So, I think we have an arc, right? We had – the United States was – when I joined the Obama administration, we were largely a coal-to-power country by – that was the majority of our power sector. And within a few years, we

had a massive coal-to-gas transition while increasing our investments and by using the tax code to encourage and incentivize investment in renewable energy. And we saw – while we were moving from coal to gas, we started the increase in renewables. And then that arc continues. And then – now we are at the point where we want to see a gas-to-renewables transition and to have a majority of our power sector be backed by nuclear and renewable, so cleaner – a cleaner power system. And that’s true globally. So, as you make this transition from coal to gas to – now to renewables, and addressing the investment in technology to make sure that the intermittency of renewables is secured by battery storage, we have to look at the evolution also of the concept of what is energy security. The way I see the 2020s – so the next decade – is that transition of not just the fuel source, but also what are the threats, are what are the concerns, and what are the risks, and they require entirely different mitigation strategies. And that’s how I see my job of energy security, is one is the transition is always a tricky place. I mean, I can see where we’ll be in 2040 and my job will be much easier. The problem is getting there. And how do you – we throw around these words “energy transition” and “the future of energy” and “climate action,” but basically what we’re doing right now – this generation – is having a massive overhaul of the entire global energy system while at the same time we are electrifying everything. So while we’re trying to make this fundamental change of the energy sector, we’re also increasing the pull, right – the demand for energy – because we’re moving cars from gasoline to electricity, we’re moving – everything we do is becoming electrified. So we need bigger and more stable power systems. So that’s a huge undertaking that I think we don’t spend enough time actually telling people, guys, this is really hard to do. And how do you make this transition when the world is still using 80 percent fossil fuels in the energy system? That’s not because I want it to be so, but that is a fact. So how do I increase the pie so that as I bring on more and more renewable energy and installed capacity of renewable energy, but the demand for energy grows so it stays at the same percentage? I need that to change. We need to – huge increase in that while at the same time making sure that the supply in the short term is consistent. After all, right now it’s not, and that’s why we have high prices, and that’s going to threaten our investments in everything else. So, we have to have a consistent supply of the fossil fuel for the short term while we grow the renewable side to get this. So that’s the energy security question number one, that – how do you manage that? And then, of course, number two is: How do you look at – what is energy security in a renewable world? And people – OK, it’s going to be great. We’ll just have solar, wind, and electric vehicles, batteries, and we won’t need fossil fuels, so we don’t have – the old paradigms of energy security are gone. Far from the truth. Far from the truth, because the geopolitics of energy of the 20th century that centered around producing countries of oil, gas and coal is now changing, not in 2040 but today and in the last five years, changing to the producing countries of all the inputs for solar and electric vehicles and batteries. And that is things that we haven’t

talked about in the 20th century. That's the nickel and magnesium and graphite and cobalt and lithium and rare earths and other critical minerals. There's no difference. We need those things because those are the foundation of our future. And we need to make sure that the world has an increased supply of that, because if we're going to go to electric vehicles from 4 percent that we have today to 100 percent, well, that's a massive amount of rare-earth and critical minerals that need to come out of the ground. And who controls them? Where are they mined? How are they mined? Are they mined by protecting labor rights and child labor and forced labor and human rights? Are they clean? Large parts of the world are using coal to bring down the price of processing of the minerals that we need for renewable energy. That's not sustainable. We have to change that. So, the energy security of the future is going to be not who controls oil and gas but who controls the inputs into a solar-panel cell or into an electric-vehicle battery. And technology is going to change, so the minerals are going to change what we need. How much cobalt we need today is going to be different than how much we needed it before and how much we're going to need it in the future, because the chemistry is changing as we get more efficient. But these are the questions. If we don't have answers for these as we go into a future of electrifying everything and not controlling the process and making sure that it's not in one, two or three countries, but rather a well-diversified system, we are all going to pay the same price that we paid before; price shocks for our cars and for our electricity grids and for our solar panels and insecure delivery system and supply chains that can be used – that can be abused politically or just because of constraints in supply chains. So, these are the things that I think, as we – this fascinating evolution of the energy system is how do you deal with today's market in a transition setting, and how do you ensure that the greener future is secure?

Mr. Tsafos:

Well, I think that was as good of a statement as you can get for a research agenda, for those of us in think tanks for the next 10, 15 years. And it's very much aligned with what we're thinking a lot about. There's one graph in the World Energy Outlook that shows international trade in 2050 under a net-zero world, and its critical minerals and hydrogen and a little bit of oil and gas, right. So that's the world that we will be dealing with; so very much appreciate that. I did want to ask one question in the first part of your answer, like aligning the existing world with the new world, and that is sort of the role of the U.S. You know, we are a massive hydrocarbon producer and also trying to steer the system away from hydrocarbons at the same time. We are now a massive gas supplier to the world, oil supplier to the world. There was a little bit of a discussion – thankfully, it only lasted, I think, about 24 hours – of would we tamper with LNG exports in the current crisis. But, you know, you're at that point where you can't really do that without a massive disruption of global energy markets. But how do we think about the role of the U.S. now that it has this huge position in this hydrocarbon system?

You know, what happens to that over time as we make this transition? How should we be thinking of that from a strategic level?

Mr. Hochstein: Well, I think the president has made it clear that our goal is to increase the investment in renewable energy and cleaner technologies and to see that shift, that transition, happen in the United States. As you just said, these are not things that happen overnight. You don't flip a switch. But we want it to happen as fast as possible. So, the idea that we say it doesn't happen overnight is not an opening for it prolonging it. It has to happen quickly. We have to put the investment in the infrastructure. And that's going to require – if you wanted to be accelerated – if you want to accelerate the system, you can't just say let the market do it, because that will take too long. So, we need public money and public investment to upgrade the infrastructure and to send the investment signals to the market to do that. I think that if you look at the amount of money available in the United States from the investor side, into renewable energy compared to fossil fuels, you'll have the answer to your question. All the money is on the side of renewable and cleaner. That's where the investment's going. We just have – we're not at the output yet, right? That hasn't translated yet into the transformation at an accelerated basis. When it comes to oil and gas, we have a big system in the United States. It's changing already. And it's not even changing necessarily by regulation. It's changing by the fact that shareholders, investors are sending the signal. We don't want long-term investment in fossil fuels. So that's going to dictate the fact that there is going to be less money available for increased new assets in oil and gas. And I think that's the right way to look at it. We have what we have today that is supplying the world. It needs to continue to supply us because we need it still. We are still reliant on it. If I stopped all oil production today, our system would collapse. We're not there yet. But I also, on the flipside, I don't think it makes a lot of sense to make investments in fossil fuel infrastructures that are going to last a long time. And putting something new today that will cost billions of dollars and will do two things: Cause some slowdown in the transition and become a stranded asset as we go into the future. So, building massive new pipelines doesn't necessarily make a lot of sense. Building new infrastructures that will last 60-80 years, that doesn't seem like that's where the investment needs to be. But ensuring that we have consistent supply today to ensure that we have the economic growth and stability so that we can support the energy transition, I think that's a delicate balance of what's the right amount of investment that is needed in order to sustain the existing without derailing the future.

Mr. Tsafos: Let me ask you a little bit more about international initiatives and institutions. In the last administration a number of ideas came up. Some of them were earlier ideas, some of them were new. I'm thinking of, you know, Blue Dot Network, Three Seas Initiative, the Energy Resource Governance Initiative that looks at critical minerals. Without getting to the details of

anyone individually, you know, how are you thinking about that broader sort of architecture of institutions that the U.S. has helped launch, and encouraged, supported around the world? Where is sort of your time going, your emphasis, the place that you see potential for real improvements in energy security, especially as you work with, you know, our partners and our allies around the world?

Mr. Hochstein:

Well, as we – you know, especially post-COP, right, where we’ll have – we’ll finish sort of a phase of countries coming through with commitments of where they’re going to go in the future, we have to switch to the implementation side and really put a lot of emphasis on implementation. How do we, the United States, how do we as – just alone? How do we work with our allies? How do we work with institutions – multilateral institutions to – and multilateral development banks to support the implementation of the goals? And that’s where you have to take this enormous amount of money that’s sitting on the sideline and say: OK, I’m willing to invest. What do you not want? You don’t want all that money to go to the easy places to invest, right? To the United States, to Europe, China, Japan, Korea, et cetera. What you – what we want is not to have a – this two different worlds of energy that one is heavily invested in and one stays behind. And so how do you take the money that’s there, use international institutions to support infrastructure development in the developing world, and make it not just a transition but a just transition, so that we don’t have an unequal, an uneven movement forward? So, when you look at Three Seas, I think that’s – that started, actually, under the Obama administration. Continued in the Trump administration. And is continuing now – we continue to support it, looking at projects and so on. So, you have to look at what makes sense into the future, what can be transitioned from looking at fossil fuels and making – using the same type of expertise and work towards minerals – critical minerals and rare earths, and how do you ensure that we bring our values into this new space. So those are the things that I think I – that I would like us – to see us working on more and focusing more. How do you take – how do you create a transition and make it just? How do you make sure implementation of goals are supported so that whatever the United States needs to do with our allies is there to promote and build and facilitate? And what forums do we have to create, perhaps, in order to do that more efficiently and more effectively, and sunset certain infrastructures that may not make sense because they were too focused on yesterday’s world of the fossil fuel support system? So I think that’s where – I would look at any one of these forums that we are a part of and say, OK, does this fit the overall goal of the energy transition work or not? I think that the structures that we need for the current supply system are already there. I don’t need to support the current. I think we need a lot of work. We are nowhere near what we should be doing in parts of the world that – where investment into renewable energy and putting up that infrastructure, that physical infrastructure, we’re way behind on addressing that crisis and that concern.

Mr. Tsafos: And let me then continue on that front. I mean, there's – obviously, going into COP, climate finance is one of the big issues of contention. We've seen this administration sort of articulate a strategy for the various agencies of the U.S. government – you know, Exim, DFC, the Millennium Challenge Corporation, other – to sort of support this energy transition. I mean, how would you rate our efforts so far? It seems that, as you were pointing out, there's just a huge gap between what we need to be doing and what we are doing. You know, what – how should we be thinking about our efforts to close this gap and our success so far? You know, as you say, like, the money is there in some way or another. The money – the supply of money doesn't seem to be, like, the real bottleneck as much as it's absorption capacity. Is that fair?

Mr. Hochstein: I think it's somewhat fair. Look, I think the U.S. DFC, if you look at the work that they're doing right now, it's – that should be expanded. They're doing amazing work in exactly what I just talked about now: identifying, looking at where the critical nodes are for matching our development goals with our energy transition goals and our climate goals, specifically in the developing world. I think that's one of the biggest success stories, what DFC has been able to do, and I think we need to expand that. I think we have to work closely with our allies to make the money work more efficiently, more effectively, and much faster. So, identifying projects; working with developers, investors, suppliers to build out capacity in parts of the world that don't have it; utilize large countries. I mean, I think we're underutilizing our relationship with India. Here's a country that has the ability to take technologies and bring them to scale at a lower production cost. So utilizing different parts of the world and partnering. And I don't think we've done enough on that. And again, this is an arc of transition. Back in 2015, we launched – you know, during the Obama administration, I helped launch a – with India, as part of sort of the post-Paris discussions – the U.S.-India Renewable (sic; Clean) Energy Finance Task Force, where literally we were trying just to figure out what needs to change in the system. The Indians wanted to make changes in the system, but how do you get investors to provide credit where utilities were largely either bankrupt or sitting with enormous amounts of debt so American companies, European companies didn't want to invest in installing renewable energy? And a remarkable amount of work had been done. And look at the installed capacity in India over the last five years. So this is the kind of thing that I think we have to go back to, is looking country by country, region by region, how do we take that money that you said was available from the investor side and say, OK, what do you guys need in order to make the investment in South Asia, Southeast Asia, Latin America, sub-Saharan Africa? How do you – how do you make that money work? What do we need to do with other countries? Do we need to step in and provide guarantees, credit, to places that don't have credit ratings? Do we need to put in technical advisers and support? Do we need

to have laws that are changed in order to allow for that? These are – it sounds easy to do. This is extremely hard. And I think we, the United States, can't do it alone, but without our leadership on it, it ends up not happening. So people will sometimes say, well, we don't need the U.S. to lead on everything. It's true, but we also need it to happen. So, we're good at coming in and being at the table and convening and getting everybody to play a role, and we need to be back in that position of leadership on this because I don't want to be in a position in 2035 where 15 car manufacturers say, I'm only making electric vehicles, but I have almost no charging stations and no infrastructure, and the grid can't take it in certain countries. And then what are they supposed to do? So we have to prepare for these times. We have lead times where companies have told us exactly what's going to happen. I will only be making electric vehicles on this date. Well, that's the date that by then I need to have infrastructure in every country in the world that can support that. That's just one example.

Mr. Tsafos: Absolutely. No. Thank you for that. I am mindful of the time, and we have run out. But I just want to say to you I am just so thankful. There are a lot of people that look at energy security, but few have spent quite as much time and are as thoughtful in dealing with this topic as you have been, and I really appreciate that you gave us both a great grasp of the moment but also a call to action for thinking about where we need to go. So just really appreciate you coming by here and talking to us about the current and the future look of energy security. So, thank you for that.

Mr. Hochstein: Well, thank you, and we are reliant on CSIS and the work that you do here to come up with some of the ideas of – I know what solutions we need. I just don't know what they look like necessarily. So, we rely on the expertise and the smart human capital that you have here to really, hopefully, think more about this and come up with ideas and share them with us so that we can put those into action and implement them. But thank you very much for today.

Mr. Tsafos: And on that note, thank you so much for tuning in. Until next time.