

WELCOMING REMARKS

PARK In-kook

Good afternoon, ladies and gentlemen.

It is my great pleasure to welcome all of you to today's webinar entitled "The Biden Administration and Global Supply Chains."

The Biden administration has taken a tougher stance than any previous administration on China. This is very unusual in light of the time-honored tradition to negate the previous presidency's key political agenda as a knee-jerk reflex. Some years ago, many people had doubts on whether decoupling of U.S.-China economy was possible or feasible. But some believe that Washington is focused on how the U.S. could achieve decoupling now. "Thucydides' Trap" coined by Prof. Graham Allison seems to become a haunting reality. We are faced with the escalating strategic competition between the U.S. and China. And technology and scientific innovation have become the epicenter.

President Biden issued Executive Order 14017 on America's Supply Chains in February to assess risks and vulnerabilities in critical supply chains. And White House announced key findings from 100-day reviews in last month to enhance U.S. supply chain resilience. It specifically identified four sectors: first, semiconductor manufacturing and advanced packaging; second, Electric Vehicle battery; third, rare earth elements; and pharmaceuticals. Among the four sectors, this afternoon, I'd like to focus on the first two items: semiconductors and EV batteries.

To help us navigate through this daunting journey ahead of us, I invited the world's top specialists from the U.S. and Korea. I hope we could identify where we stand now and further think about future of global supply chains.

- Today, we have President Robert Atkinson of Information Technology and Innovation Foundation. ITIF is recognized as the world's top think tank for science and technology

policy. Dr. Atkinson served under several Republican and Democratic presidents. During Obama administration, he served on the National Innovation and Competitiveness Strategy Advisory Board. And President Trump appointed him to the G7 Global Partnership on AI.

- And then, Ms. Wendy Cutler, Vice President at the Asia Society Policy Institute. Ms. Cutler served as Acting Deputy U.S. Trade Representative. During her time in the USTR, she worked on various kinds of negotiations, including the U.S.-Korea FTA, the TPP, U.S.-China negotiations, and the WTO negotiations.
- We also have Dr. Evan Medeiros, professor at Georgetown University. He served for six years in the National Security Council as Director for China and Taiwan and Mongolia, and subsequently as Special Assistant to President Obama and Senior Director for Asia.
- We also invited two outstanding panelists from the Korean side. Senior Vice President Lee Sanglae is currently Head of Marketing at the SK Hynix, who can shed light on the current strategies and future of semiconductors.
- Professor Kang Kisuk of Seoul National University will focus on developing new materials for batteries and on the future of the industry. He received several distinguished awards, such as Energy and Environmental Science Lectureship Award from Royal Society of Chemistry, United Kingdom, and Scientist of the Month from Korean government.
- Last but not least, Ambassador Joseph Yun. Ambassador Yun is Senior Advisor at the United States Institute of Peace (or USIP), and previously served as U.S. Special Representative for North Korea Policy. He served as Acting Assistant Secretary for East Asian and Pacific Affairs and U.S. Ambassador to Malaysia.

This afternoon, each speaker will have 10 minutes for the first round of presentation. Then I'll give additional 5 minutes respectively for the second round with some questions raised by panelists, or by myself, to be continued by additional round of Q&A session. We have more than 100 questions from the audience. Without further ado, now I'd like to invite Dr. Atkinson. The floor is yours.

PRESENTATIONS

Robert ATKINSON

So, let me start by framing the question briefly. The period of essentially 1990 to 2015 was one of expansion of global supply chains and think about it as an inflating balloon that just keeps getting bigger and bigger. The extent and breadth and depth of global supply chains grew. Information technology certainly was a major enabler of that and a wide array of free trade agreements supported it. And there was a pretty clear goal. That goal was to have integrated global markets to maximize what economists call ‘allocation efficiency.’ There was always an optimistic vision. I don’t think anyone ever expected the perfection of it, but it was a goal that people were trying to achieve. I would argue that we’ve reached peak globalization, if you will. And you think about that as a balloon that was going out and out; now the balloon is back losing air.

So, what happened? Obviously, China. Nobody or very few people expected China to engage in the kinds of mercantilist policies that they used. And those policies essentially led them to create what economists call ‘agglomeration economies’ for manufacturing. So, they strengthened manufacturing. That allowed them to gain even more strengths. And that big gravitational pole meant essentially over-dependency of the world on one place - there was just too much manufacturing in China. I don’t think that was ever the vision. I think the vision was that overall lower wage countries were going to get broad-based, commodity-based manufacturing and rich countries would develop and move more into higher value added. It really was very distorted with China getting virtually all of those gains.

Again, the other problem was China. It turns out it wasn’t moving on the path to democracy and human rights. It appears to be moving on the path of trying to become a global power that is certainly not in the U.S. interests. So, that was one thing.

Second thing now - I don’t think it’s a real issue, but it’s certainly a perceptual issue and that’s climate. There’s a misguided view, but it’s a real view that somehow global supply chains make climate worse. And so, a lot of people are saying ‘let’s shorten supply chains to help climate.’ And then obviously, COVID brought to light a lot of vulnerabilities and risks. Now there’s a sense of, maybe we’re too dependent on things like masks and ventilators and drugs.

So, what's the result of that? I think there are a lot of results of it, but the major result is really a bipartisan consensus in the United States that we need to do more to be less dependent certainly on China and more independent and producing more, particularly critical products in the United States.

I don't think anybody who's serious in Washington is contemplating a complete decoupling from China. This is not going to happen. It's not realistic. It wouldn't be in our interest. It wouldn't be in China's interest. It wouldn't be in the global interest. But there is a serious discussion of sort of strategic decoupling, strategic reshoring, and President Park talked about that with the executive order to create the supply chain report. President Biden issued an executive order before that – A “Made in America executive order”, which would strengthen existing “Buy America” provisions. We have “Buy America” provisions in federal law for a number of things already, but the president's executive order would strengthen that even more to require that the federal government and potentially private contractors that are selling to the federal government buy more American products. So, that's sort of the first shot, if you will, in the war.

The second is that, this supply chain report which you saw, there's an event on our website where we had a White House official, a commerce official and department of energy official talking about their supply chain report two weeks ago. And what's interesting is that it's very clear that they want to use incentives and other programs specifically targeted to domestic production. So, for example, during the Obama administration, when they were pushing for the adoption of electric vehicles, it was essentially supply neutral. It was basically all on the demand side. What the Biden administration wants to do in electric vehicles is authorize expanded incentives, but only for the purchases of U.S.-made electric vehicles. So that's a very different approach than what was going on in the Obama administration. Now, those incentives could go to a Korean company, who's making a vehicle in the U.S. But it's only for vehicles made in the U.S. We see the same thing now in pharmaceuticals, where they're wanting to have more transparency in the pharmaceutical supply chain as a way to make sure and improve that there's more production in the U.S.

President Park talked about that supply chain report. They're working now on a second phase of that report that's going to look at six additional sectors, including ICT, energy, transportation, and the defense industrial base.

The other component I would add to this important piece of that is what's the Senate and the House are doing. The Senate passed what was called the United States Innovation and Competition Act (USICA). And USICA includes a wide array of efforts in there around the supply chain.

Part of the core of that Senate bill is to improve the competitiveness and production and innovation in core U.S. industries. So, they identified 10 critical technologies like autonomous systems, AI, biopharmaceuticals, and they allocated a significant amount of money to that, more than we have before, particularly through a new NSF Innovation Directorate, but also through programs at the National Institute of Standards and Technology to beef up U.S. manufacturing.

The House has its own bill, but it's a different bill. So, it's not clear where we will end up with when those two competing bills go to what's called 'conference.' But what I think is distinctive about the Senate bill is, it's really the first time that we've had – quote, if you will – 'industrial policy' or 'advanced industrial policy.' Since the 1980s, when we were addressing the Japanese economic challenge, and we had a wide array of important industry and technology policies that had bipartisan support.

In addition, the USICA bill – it's a massive bill, it's over 2000 pages. But there's a long set of provisions in there about supply chains. How do we understand supply chains? How do we support companies to bring back work into the U.S. to be more competitive, to have that work here?

So, I don't think this is going to change. I think, in some ways or many ways, it's really independent of what party is in power. You have a lot of national security Republicans now – members like Senator Marco Rubio, for example, a Republican from Florida, or Senator Tom Cotton, a Republican from Arkansas who are also very focused on supply chain integrity. So, this, to me, is something that will be here through the decade, if not longer. And it probably won't be resolved until we get a stronger economic and manufacturing base. The reality is the U.S. produces less in manufacturing than we did a decade ago. So, we have been hollowing out our manufacturing production and policymakers understand that.

Now, what's the impact on Korea? I think it's important to recognize that this – and I'll just close here – this impetus, this push, it's really directed largely if not solely at China. It's not directed at Korea or either UK or Canada. I mean, there's a little bit of that. Certainly, the president's Buy

America provision is directed at everybody who's not in America. But most of the supply chain efforts are really directed at China. And to some extent, at Taiwan where there's those view – and I think rightly so – that we can't be dependent upon Taiwan and particularly TSMC for memory and other chips.

But I think the lesson here is very similar to what happened with Japan in the 1980s. There was a big push, a bipartisan push, including from President Reagan, that unless Japan started producing more in the United States – producing autos – they were going to be faced with import limitations. And Japan, the car companies and many government leaders understood that. So, Japan decided to open up factories and they were smart. They opened them up in...I think almost there were almost not two factories in each state. So, there would be a factory in Indiana and a factory in Illinois and a factory in Tennessee and a factory in Kentucky, because they knew that gave them political support particularly in the Senate. So, Japan understood that and they expanded their foreign direct investment in the U.S. And you see, certainly, Korean companies are doing that now with LG and batteries and Samsung with a big semiconductor investment in Texas. And certainly, I'm sure other companies as well. But I think that's something Korean companies now have to cope with in this new environment much more than they were in pre-President Trump. With that I'll stop and I'll look forward to the discussion.

PARK In-kook

Thank you, President Atkinson.

Especially in the semiconductor and batteries, what kinds of incentives the U.S. could provide to Korean companies when Korean companies try to establish new fab system in the U.S.? You can answer these questions during the second round of presentation. I thank you. Now, I'd like to invite Ms. Cutler. You have the floors.

Wendy CUTLER

Thank you very much. I did have some slides. Are they going to be put on the screen? Okay. So, let's go to the next slide. I've been asked to share some views on the new trade policy of the Biden administration, which is called a 'worker-centered trade policy.' And then what I'd like to do is then move to supply chains. And really, my conclusion is the supply chain discussion is very interrelated with the discussion of trade policy. They're not two separate issues. There's a lot of overlap.

So, with respect to the Biden administration trade policy, it's called a worker-centered trade policy. There were a lot of questions on what this means. At a very high level, the Biden administration has explained this policy as a policy that's going to work for our workers. And it's based on the premise that our past trade agreements really have not delivered on the promises made to U.S. workers and in fact, it's contributed to growing income inequality in the United States. There's also a view that past trade policies, particularly with respect to labor and environment, did not result in lifting standards around the world. In fact, there's a concern that these standards, if anything, we've seen what is being called a 'race to the bottom.' This worker-centered trade policy – it's more than just about creating new jobs. It's about creating good jobs. It's about improving the livelihood of workers and communities. And I think that's a very important point to understand as people try to figure out how this policy is going to transform into specific proposals and initiatives.

So, what does this mean for the U.S. trade agenda? We're already seeing that U.S. trade policy is really not front and center for overall priorities of the Biden administration and trade policy very much is being closely aligned with domestic policy priorities, whether they be supply chain resiliency, whether they be climate change or 'build back better.' Trade negotiations are taking a back seat. And just yesterday, the six-year-old Trade Promotion Authority granted by Congress to the past and current administration has now expired. Our trade initiatives will be viewed through the lens of how they're helping the livelihood of workers and communities more than how they're opening markets or promoting exports. And we're also going to see what is being called an inclusive process, bringing more stakeholders to the table to contribute to an input on what our trade policy should look like.

So, there's going to be and we are already seeing an emphasis on trade enforcement. And I think this underscores the desire by the U.S. working class and middle class that they don't view trade as a bad thing, but there is a view that trade is unfair and that we need to level the playing field.

We are going to see more dispute settlement cases under our trade agreements. And just in the past two months, we have seen two labor cases initiated under the U.S.-Mexico-Canada agreement. And I think we'll be seeing more there.

As I mentioned, trade agreements will be taking a more of a back seat. Right now, the trade agreement template of the United States is being reviewed to see how it can be improved and updated to reflect a worker-centric model. And here, I would just emphasize that the administration is not just looking at the labor and environment chapters of past FTAs. It's a holistic review, because the view is, other chapters and rules affect and impact the livelihood of workers and the middle class.

With respect to China and China trade policy, I know that the next speaker, Evan Medeiros will be speaking more about this. But I would just contrast that the China trade policy with Trump's trade policy. And that is, trade policy is not going to be the driving force in U.S.- China relations. It's one component of the overall review of U.S.' China policy. It's focusing on working with allies and partners and working in international groupings like the G7. There is a continued focus on implementation of the so-called U.S.-China Phase One Agreement. But with respect to next steps on how issues that were not either sufficiently addressed in the phase one negotiations or not addressed at all like subsidies and behavior of state-owned enterprises (SOEs) – it's still unclear how the United States will want to address those issues with China, whether bilaterally, or, I think more likely the case, in concert with allies and partners.

So, now I want to just to pivot to the supply chain discussion. And here, Dr. Atkinson has done a very good job in giving an overview of the latest supply chain report that was issued by the Biden administration just a couple of weeks ago. And I would just emphasize, this is a very early report coming out from a new administration. And I think this just underscores the importance of this issue to the administration. And I agree wholeheartedly with Dr. Atkinson that this is going to be a focus. Resilient supply chain is going to be a focus of the Biden administration over the next few

years and, and longer, perhaps, as well. We have seen a report that's been mentioned. It's focused on four product areas, including batteries and semiconductors of great interest to Korea. But it also touches on others. And there's a second phase, as mentioned as well, where six sectors will be subject to a-year-long review.

What I took away from the report is that there's no silver bullet. There's no one action that's going to be able to somehow alleviate concerns with our vulnerabilities in supply chains. It's going to need to be a multifaceted approach that involves allies and partners including Korea, but it also is going to be a whole-of-government approach by the United States government.

And then if I can just emphasize that there is an international component to the supply chain report. As Dr. Atkinson mentioned, it's not all about reshoring or building up our stockpiles. It does envision working with our allies and partners and through international groupings to reduce our vulnerabilities and create resilient supply chains. Now, trade was mentioned in this report, particularly with respect to the need for a greater focus on getting rid of unfair trade practices that are hindering free supply chain movement and hindering the U.S. ability to reduce our vulnerabilities.

As Dr. Atkinson mentioned, although it doesn't mention directly, I think there is a definite focus on getting more foreign direct investment in the United States in these sectors. And it also mentions the use of government procurement and Buy America as an incentive to encourage local production. Just a few concluding thoughts here. Again, I think supply chain resiliency is going to continue to be a priority for the administration. And in many ways, I think people are going to be more comfortable talking about supply chain resiliency and supply chain agreements versus trade agreements. But I would argue that supply chain policy and trade policy are interrelated. And in fact, when people talk about creating trusted supply chain agreements, my response is: many of our free trade agreements are indeed 'secure supply chain' agreements. They're all about getting rid of barriers between countries and encouraging trade between the countries that are parties to those agreements. And our current FTAs, including KORUS, I think, are a good foundation to build on. And so, my closing remark would be, with respect to U.S.-Korea cooperation, I think with KORUS in place, along with the focus on semiconductors and batteries, Korea is going to be an ideal partner for supply chain cooperation. Thank you.

PARK In-kook

Thank you, Ms. Cutler, for your brief but very succinct introduction of the new trend of U.S. policies. And our third speaker will be Dr. Medeiros. The floor is yours.

Evan MEDEIROS

It's a pleasure to be here. And I would also like to thank the Chey Institute for convening this very important meeting. And it's a pleasure to share the forum with President Atkinson, Madame Cutler, and Ambassador Yun. All of us have worked together over the years. So, this is a wonderful opportunity to talk about one of the central dilemmas facing great powers. So, my presentation today is going to differ from Wendy Cutler and Rob Atkinson. My presentation is about geopolitics. It's not about economics, it's not about economic policy. And the reason why this is important is because the supply chain discussion fundamentally is being driven by geopolitics and national security. The sense of over-reliance on China, the fear that there are a variety of technologies that are being produced in China that could create vulnerabilities for the U.S. and U.S. companies.

So, when we think about the future of supply chains, we shouldn't think about it exclusively, or even in a majority sense of being an economic calculation. It's fundamentally a national security conversation, and that national security conversation is about the intensifying and diversifying U.S.-China competition. So, I want to talk about that. I think there are four dimensions to what I call a 'new normal' in U.S.-China relations – a new normal characterized by persistent and consistent tensions going forward.

- Dimension number one – a new framework. I think both in the United States and increasingly globally, though other countries are taking time to sort of catch up with the United States, thinking about China has shifted. In the United States, in the Obama administration, the discussion about China was focused on balancing cooperation and competition. They believed that we could have two dimensions of the relationship and both pursued them vigorously. I believe that's changed now. It's changed for a variety of reasons. Not the least of which is Chinese behavior, Chinese capabilities, and how China

uses its power. And that conversation has shifted from balancing cooperation and competition to now balancing competition and enmity. In other words, strategic competition is the core dynamic at the heart of the relationship. And the question is, how do we compete with China – a country in which our differences are growing and intensifying, but also a country with which we have intensive economic interdependence? But strategic competition is the core dynamic. And how do we prevent that from slipping into long-term enmity? So, a new framework. Other countries aren't quite there with the United States. But I think that globally, the conversation is moving in that direction.

- Point number two – new politics. There's new politics in Washington. There's new politics in Beijing. In the United States, you see both elite and popular alienation. The polling data in the United States is very consistent and clear whether or not you look at the pew polls, or you look at the Bloomberg polls, or you look at the Gallup polls. The evidence is very clear – Unfavorability ratings toward China are at an all-time high. You see the elite alienation within the Congress. There is broad bipartisan support in an era of deep political polarization in the United States. Perhaps, the one issue that both parties can agree on is the concern about China. That's reflected in the quick passage of the Senate legislation that Rob Atkinson talked about – USICA. But it's more than just popular and elite alienation. The business community in the United States on the whole is frustrated. You do have to look sector by sector, but nonetheless, what I would say is, with the exception of perhaps healthcare and financial services, who see growing opportunities in China, I would say the business community is increasingly concerned about the ability to operate within China and newly growing Chinese competition in third country markets - the Middle East, Africa, Europe, etc. And the last part of changing politics in the United States is declining people-to-people ties. Growing suspicion on both sides had led to a decline in educational exchanges, and then COVID accelerated all of that simply because it led to a stop in people going back and forth. The fact that Xi Jinping has made a variety of decisions that, for example, have resulted in a net reduction in American journalists in China and Chinese journalists in the United States, and the fact that civil society in the United States, because of China's NGO law, and U.S. NGOs have had to reduce their presence in China. So, you really do see this very broad-ranging shift in American views

of China. But I think you're seeing similar phenomenon in China. There's far more political space for nationalist voices. Perhaps some of you are well aware of the phenomena of 'Wolf warrior diplomacy,' - Chinese diplomats, who are much more pointed in their criticism and their use of rhetorical coercion against other countries. Of course, this came out most prominently in the early days of COVID. You see the propaganda organizations in China that's particularly acute today and for the next few days as the Communist Party celebrates its centenary. And then you have a broader bureaucratic phenomenon in China - the growing centralization of decision-making around Xi Jinping that just reinforces these more nationalist instincts in policy. So, you are in an era in which China is more confident and China is more capable. And I believe the Chinese are indignant. In other words, they are simply frustrated by the criticism by the United States and the West. Look no further than Yang Jiechi's intervention publicly at the meeting in Alaska. He simply said that the United States has no ground morally or substantively to criticize Chinese politics or Chinese economic choices, and certainly China's management of COVID. So, I think you are now in a world in which the Chinese believe that their governance choices politically and economically are just as valid as the United States. And so, I think the sense of indignation will drive the politics in China, which will complicate and frustrate this era that we're in of strategic competition.

- A third aspect of this new normal is what I call 'new dynamics' at the heart of the U.S.-China relationship. I've studied the relationship for 20 years. The relationship has existed for 40 years. And in the last ten years, there were a variety of new dynamics. Number one, there's broad spectrum of competition. The U.S. and China have always disagreed about security issues and economic issues, right? Taiwan, market access, IPR protection - that's not new. But what we're seeing is an intensification of competition on security and economics. And now you have new areas of competition coming out - technology and even ideology. So, you now have competition in four areas - security, economics, technology, and ideology. You have a broad-spectrum competition in this relationship. Two, the tolerance for risk and friction on both sides is growing. Both sides, Washington and Beijing, are now willing to push and prod one another in a variety of different ways on all four sets of issues. Both sides are pursuing much more openly confrontational

strategies. We saw this most poignantly in the Trump administration and some of those policies continue under the Biden administration. There's simply more tolerance in Washington and Beijing for having instability in the relationship. And you're seeing a decline in sustained cooperation on issues like climate or global health or global economics, or non-proliferation. There's a lot more skepticism in both countries about the virtue of cooperation. So, the ability of having shared interests, balancing out the broad spectrum competition, the tolerance for risk and friction, is changing.

So, the risks in the relationship are myriad - You could have a trade war, we could have a technology war. We may be in an information war. And of course, there's always this risk people talk about - a financial war. I don't see that as particularly likely, but just giving you a sense of where the risks are in the relationship.

- The fourth and final dimension of this new normal is what I call new global impacts. In other words, what happens in the U.S.-China relationship no longer stays in the U.S.-China relationship largely because of the two largest economies in the world. So, what you're seeing is, when tensions occur in the relationship, whether it's over Taiwan, maritime issues or economic or technology questions, it manifests in different geographies, domains, and institutions, which means that other countries like South Korea are going to struggle with U.S.-China tensions. And what that means is – countries are going to have to make some politically difficult and oftentimes costly decisions about economics and national security. The most prominent one to date, I think, is decisions about supply chains. In other words, countries are going to have to start making decisions that may not make perfect sense economically. But when you bring in the national security and geopolitical calculation of being overexposed, or specifically exposed to a production in China, then that's going to lead to decisions about moving supply chains. Final point from me – I think that the supply chain conversation, at least in the United States, has gotten a little ahead of itself in this sense. And I think Rob Atkinson and I agree on this point - which is to date, there really hasn't been that much sort of economic decoupling or movement of supply chains out of China. It's often talked about in the United States as if there's this, because of the Trump trade war and then because of COVID, there's been this massive shift. It's

not really the case. There has been some supply chain movement out of China, but where there's been movement from China to other countries, it's largely been in lowing manufacturers that were already going to move out of China because of rising labor and material costs. Where there has been movement out of China, it's less movement and more diversification. In other words, because of the trade war, and because of COVID, what you've seen is, in some sectors, countries not so much shutting down their factories in China, but their future production being in other geographies. So, it's less of decoupling per se, supply chain decoupling, and much more supply chain diversification. In other words, as a way to build more redundancy into supply chains. In some sectors, you've actually seen a doubling down of supply chains like in new energy vehicles and Tesla's production facility in China being an obvious example.

So, the supply chain debate is an interesting one. Largely because of that. When I talked to major American multinationals, very few of them really have an interest in leaving China. What they're interested in doing is building redundancy and resilience into their supply chains. So, I think that where we're going to see actual movement out of China is when you have a convergence between an economic reality and a national security reality. So, if there is any decoupling between the United States, I mean real decoupling, it will largely be very sector-specific. It may even be more detailed than that – technology-specific, where there is a technology that has direct national security implications. If it's tied to a DOD (Defense Department) production chain, you may see some actual movement out of China and specific reshoring and the economics of that will be affected perhaps by subsidies in the United States.

But the core insight here is, because of the intensifying and diversifying competition at the heart of the U.S.-China trade relationship, you're going to see the unstoppable force of economics meet the immovable wall of national security. And it's going to be very difficult for companies and countries to try and reconcile in these two very difficult imperatives. So, going forward, debates in the United States, and probably in Korea, Japan, and other countries whose national security interests and identities are tied to the United States, the debates at the heart of U.S.-China competition are fundamentally going to be about risk and costs. In other words, what are the risks and what costs our governments and businesses going to be willing to pay given the intensifying

competition at the heart of the U.S.-China relationship. And I think it's that debate about risks and costs we need to have more in the United States. And I think that other countries like our good ally and friend, South Korea, are going to have to have as well. Thank you, President Park. Over to you.

PARK In-kook

Thank you, Evan, for your very insightful introduction of the four elements under the new normals in the relation with China. I'd like to pay attention to your first element – that is a new framework. You properly stated from balancing cooperation and competition to competition and confrontation. So basically, I'd like to side with you, but my question is – this kind of competition is nothing new. What brought such drastic changes from previous presidencies to Biden administration? So, why such radical changes from balancing to re-enforced competition. And then you mentioned some issues on the Taiwan issues. I'd like to quote Admiral Philip Davidson, Commander of the U.S. Indo-Pacific command, when there were some hearings in the Senate last March. He mentioned – I quote – “China might attempt to take over Taiwan in six years.” Do you believe this is a viable scenario for Chinese military action against Taiwan in the near future? I raised this question based on your six-year service as a key player in the White House. So, if you don't mind, I'd like to ask you for your personal comment on the possibility of such scenario. So, my next speaker will be Senior Vice President Lee Sanglae from SK Hynix. Vice President Lee, you have the floor.

LEE Sanglae

Thank you, Mr. Park. My name is Robert Lee. I prefer to be called as Robert and am currently Head of Marketing at SK Hynix. SK Hynix is the fourth largest semiconductor supplier in the world, or second largest memory product supplier. Currently my job is to oversee the global politics, economics, and industry dynamics, including supply chains as well as delivery of my products to my customers.

Let me start my presentation by explaining the supply chains from the chipmaker's point of view. I must not undervalue other chains, small supply chains. Each chain has a different, complex supply chains. So, from the left side – wafers, materials, and equipment, we source those things to our fabs. IDM is the integrated device manufacturer, such as Intel, SK Hynix, or Samsung. And similarly, we have foundry fabs, which are the service providers for fabless. Fabless is Qualcomm, Nvidia, AMD and etc. Next, the outsourced assembly and tests (OSATs). And then ODMs, EMS (electronic manufacturing service) providers for set-makers like Apple and Dell Computer and IBM. So, these supply chains are very well-distributed over the world, from Taiwan, Korea, and Japan, and to even China and some U.S. bases. These are, I think, globally well-orchestrated supply channels.

Currently, we are facing some issues in demand and supply. Especially, last year, COVID-19 worsened the demand-supply imbalance. On top of that for years, the U.S.-China dispute has worsened the supply and demand issues. But happily, this year, the situation is improving and [we are seeing] more demand from mobiles, servers, PCs, home appliances, and automotive. Actually, home appliances are a little bit decreasing, but they're not so bad. But the supply side, we still have some problems, mostly PC sectors and home appliances. Those sectors are troublesome sectors. There are huge backlogs. Even at the end of this year, we will see many backlogs. So, until the first half of next year, we will have some supply shortages in the industry, specifically the memory situation. Happily, we almost have no problems in the memory industry, except some parts such NAND Flash controllers and power management ICs, which are produced in the TSMC foundry fabs. We have some similar problems as fabless companies like Qualcomm, Nvidia, etc. Because of the overall supply chain problems, system- and set-makers like Apple and Dell are building more buffer inventories, and that can cause more shortage of supplies. So, overbuying may cause another byproduct of shortage problems. Meanwhile, more fundamentally, semiconductors, especially memory products, have fundamental problems. The output growth rate is lagging due to technology challenges. So as the technology evolves, the difficulties of scaling is worsening, which means less [improvement] in the products than several decades ago. Gradually, we see difficulties.

As we all know very well, for several years we have seen the U.S.-China dispute, e.g. sanctions against Huawei, SMIC, and additional Chinese companies. Actually, SK Hynix lost one of our biggest customers, which possessed more than 10% of our sales. That was my job. I successfully moved our customer base from Huawei to other companies. Now we are okay. But for years we had trouble and problems. Many countries are considering building their fabs inside their regions, inside their territories, including Japan, the EU, and even the Korea government is considering giving some stimulus packages to the industries.

COVID-19 elevated the uncertainty for logistics and chip productions. As I've told you, there is a tendency of stacking more buffer inventories. Some delivery schedules are delayed, so we have to consider additional inventories in our hand. From those two trends, we are seeing some re-shoring in these regions, especially in the U.S. In the re-shoring policies, we will clearly see benefits such as supply stability, economic boost, and stronger national security. These are clear benefits. But other than those benefits, we still have to consider some concerning points, such as continuous benefit packages—how can we support manufacturers for over 10 years? We can collect some additional taxes, pouring capitals on those specific industry sectors. Also, some delays on the return of investment. It takes more than three years from the ground-breaking to the first shipment of products from those fabs. And additional cost means additional price, so that's another issue. Also, more capacity can mean regional oversupply. So those are concerns.

These are Hynix operations. In Korea, two sites, Incheon and Cheongju. In China, Wuxi and Chongqing. Chongqing has backend operations and Wuxi has DRAM operations. We owe about 50% of our DRAM productions to the Wuxi plant. Gradually, we will reduce the portion by increasing the capacity in the Korean sites. So, we are saving a substantial portion of the cost by operating fabs in Wuxi and Chongqing so far. I have to tell you about this. During the 20 years of operating fabs in China, we have had zero technology leak. They are very strictly controlled by the Korean government, and in various ways, we are closely watching for technology leaks.

Next, this is the last page. I'm very proud that we are the first Korean and global memory and chipmaker to announce that we will achieve the RE100 by 2050. Specifically, next year we will achieve the RE100 in the China fabs. Other social activities include enhancing our employee's

happiness, enhancing our social networks' welfares, and also more transparent governance. Incorporating those things, we believe, is a key success factor for future growth.

Thank you for listening to my presentation and the next slide is the questions. What roadmaps for not only the fabrication plant, but also materials or components? Do you have a roadmap to support those ecosystems? Also, another question is, to maintain such highly advanced facilities, we need to have highly educated engineering talents. How can we have those engineering talents in the future? Thank you.

PARK In-kook

Thank you. Now I'd like to invite Professor Kang Kisuk to talk on electric vehicle batteries.

KANG Kisuk

Okay. Thank you, President Park, for inviting me to very interesting discussions on the global supply chains. I'm Kang Kisuk from Seoul National University. I'm the expert of the batteries. So, let me very briefly talk about the global battery supply chains for electric vehicles (EV) and share some of my thoughts on it.

You know, the batteries represent a key component of electric vehicles, which accounts for about 40% of the value of the vehicles. And 97% of current EV demand is supplied by the battery firms from China, Japan, and South Korea. And as global demands for EV rapidly increases, many are questioning about the sustainability of existing global battery supply chain. And with this growing demand, we need more raw materials, the skilled talents, and machines to extract these raw materials. The primary processing factories to turn raw materials into precursors, the secondary processing factories to produce the cell components, such as cathode and anode, and from these precursors and the manufacturing lines that can assemble those components into the cells. Looking at the raw materials of lithium batteries, they are lithium, nickel and cobalt. There's plenty of lithium around in the ground, but unfortunately there's an economic shortage of the lithium, which

is that the current lithium prices do not usually compensate for the mining investments that is required to get it out of the ground profitably.

So, there are only a few places for these kinds of things like South American countries. So, for the nickel, they are in North America, Russia, and China, and for cobalt, they're in Congo, in Africa, and some other areas. But one thing that I need to notice that these metals need to be refined to be used for battery grades. And there's quite a limited number of places we can do that. So, the most of the refining capacity is currently in China and the most competitive primary processing factories actually rely on their accessibility to the refining capacity. So, the major supply companies in primary processing are actually located in China. Regarding the secondary processing factory and the battery manufacturing lines, more than 90% of them are located in Korea, Japan, and China.

And how about the EV manufacturers? As we all know, they are usual car makers in United States, Europe, Japan, and Korea. So, this overall picture evidently shows that the current battery supply chain for EV is very global. But nowadays, the energy storage in the form of lithium-ion batteries is also regarded one of the most important strategic assets for the clean energy and the national security. So, recently the *Wall Street Journal* reported "The rise of rechargeable batteries is now a matter of national security and industrial policy. Control of the minerals and manufacturing processes needed to make lithium-ion batteries is the 21st-century version of oil security." So, from a national security perspective, battery production is a strategic asset, very important strategic asset. And battery production and batteries are actually integral equipment in military missions. So, the Biden administration actually started on the initial efforts by federal consortium for advanced batteries "to innovate here, make here, and deploy everywhere," and also is trying to establish a full supply chain in the United States from material mining to battery production.

But the battery production is tough business, tough business, even though the fundamental battery science is very strong in United States as evidenced by two American Nobel prize winners for chemistry, for inventing the lithium-ion battery technology. But I'd like to note that batteries have very tight margins, often require huge amounts of capital investment and bear incredible risk with the possibility of massive quality recalls. So, building a domestic battery supply chain to level that is sustainable will require major investment, intentionality, and long-term thinking. And it also takes a lot of time, long time to build them.

But let us think about the speed of EV market growth. Many market and technology experts, analysts predict that the EV market will rapidly grow. We estimate 30% compound annual growth rate over the next 10 years. As we know, the battery performance and production determine EV range price and the performance.

So, the nature of the competition in battery manufacturers for electric vehicles is now winner takes it all. It is simply because it is the matter of dollar per kilowatt hour – for example, \$100 per kilowatt hour versus \$50 per kilowatt hour. It's not a matter of apple versus orange. As I said, the battery price is about 40% of the value of the electric vehicles. So simply put, if you do not take the position to produce cost-effective, high-performance battery on time of 10 years, you will lose the growing market of EV, which will be one of the biggest markets in the economy. So, I think the most reasonable and realistic path for the United States would be to work with Tier 1 battery producers in strategic allies like Korea and Japan within the global supply chain, which will hugely reduce the risk of losing the growing economy. Very good example in this field is a partnership between General Motors and LG Chemistry or Ford and SK Innovation. This is an important step in the right direction, and I think is a winning strategy. So synergistic partnership makes more sense than ever, I think.

PARK In-kook

Thank you. If I just add one question regarding the role of the European car makers or OEM companies. Because the European car makers have been preoccupied with securing some market share in China. So maybe what kind of impact Biden administration's supply chain review could have on European car makers or European market? I hope you could respond to that question. Now last but not least, Ambassador Joseph Yun. You have the floor. You just listened to both sides. Even though you came from the American side, you carefully listened to U.S. voice and Korean voice. Maybe you might have some more synthesized conclusion or some suggestion for the further consolidated coordination between Korea and the United States. Ambassador Yun, you have the floors.

Joseph YUN

Thank you very much, Ambassador Park. It's great to be here. And as you mentioned, I'm usually sitting on the other side, along with Wendy, Rob, and Evan, but it's good to travel. I've been here about a week and you guys should know that in that one week I've had three COVID PCR tests. My nose is wondering what is happening because they are sticking the sticks up there. And I think, I feel like sometimes it's going up to my brain. It's good to be here. Robert Lee and also Dr. Kang was really, really enlightening to see kind of detailed work being done on the field in sectors, such as EV battery and semiconductors, that we talk about as a diplomat, as someone who does foreign policy. We really don't know that much about this field, but to get into that area, I found fascinating.

To me, these sectors – batteries and semiconductors – represent what I think is fundamentally...we're going through a transition in the U.S.-South Korea relationship. Now, before suddenly throughout my diplomatic career, when I dealt with U.S.-South Korea relationship, it was all about North Korea. It was all about deterrence. It was all about how we strengthen the alliance. The security was by far the biggest pillar. And then we, of course, had economic pillar too. But mostly they were contentious market access issues, IP issues. And for example, I'm sure Wendy might even have nightmares about it, the beef crisis, where you have nice lady like Wendy being characterized as a wicked person, negotiating, trying to push American beef in Korea. But now you look at the new emerging relationship and you see much more of what I call synergy. And I think Wendy very much referred to it – the emergence of cooperation. And let's face it, economic dependence by United States on South Korea. And that is something quite new, I think. But I think this is going to be the defining feature. And this was made very clear during President Moon's visit, his summit meeting with President Biden some five, six weeks ago. At that time, South Korean delegation came with an investment of \$40 billion. Now that's a huge amount of direct investment and that speaks volumes to what is needed in supply chain security that Rob and Wendy spoke so much about it. And so, when I look at this and see the emergence of the relationship, I think it will be characterized by what Wendy and Rob spoke about – that is the concept of trusted partnership.

In addition to making a huge investment, I think products from South Korea will be differentiated than products from China.

And so that will give it a huge advantage. And I do think within Asia, there are not many places that can substitute some of the Chinese high-end goods, such as semiconductors, EV batteries, and chemicals and raw material. And suddenly South Korea is one. So, I would look for South Korea to play a bigger role on that. The other element is, what does it mean that Evan spoke so much about emerging strategic competition between U.S. and China? And I'm always asked this question by Koreans here, which is how do you expect South Korea to choose between China and South Korea? I mean, China and the United States: one, we depend on our security, the other one, we depend on our economy. And I think that question to me is somewhat misplaced because I do think in your own way, South Korea has already made a decision.

And this is a decision that goes back a long way. That is South Korea has an alliance relationship with the United States. The U.S. has what, 29,000 troops here, the U.S. has signed a bilateral mutual security treaty with South Korea. So, through conventional forces, as well as nuclear umbrella, U.S. guarantees South Korea security. So that is unshakeable. And so, I think, we can assume that South Korea has made up its own mind. So, making a choice is no longer something that suddenly Americans think about. The second aspect of that is of course that there is tremendous amount of popular support that remains by South Koreans on the United States. Typically, approval rating for the Alliance relationship has been over 70% for decades. Now, it goes up and down a little bit, depending on the U.S. administration and South Korean administration, but it is very high.

And also, if you look at it, the development of South Korea, economic development, political development, democracy, values issues, those much more mirror United States than China. So, I really don't think it is something that is contemplated, but still, we are asked that question as American diplomats. I mean, in that context too, I would say having been in the government, the U.S. government and officials are completely aware of the difficult place that South Korea is in. And they're quite sensitive. I think U.S. did make a mistake during the last round of missile defense here, which is THAAD defense system. And I think U.S. is still paying a little bit credibility for not having come out strongly about it. But I do think when you look at which way South Korea is linked to, I really do see a trend leaning to the U.S. and I think that's good for South Korea, and that's certainly good for U.S. and the emerging economic relationship synergy, and you'll be

beneficial to South Korea and U.S. as well. So, I really got a lot out of this discussion and thank you for CHEY Institution for inviting me. Thank you, Ambassador Park.

DISCUSSION

PARK In-kook

Thank you. Now it's already 20 minutes behind the schedule. So now I'll give you a second-round presentation maybe maximum five minutes for everybody. Maybe you may freely present as a second chance based on my questions which I raised in the wake of you have a presentation, but you don't have to strictly respond to my questions, it's up to you. And then you might have some comments on all the panelists' presentation. So, I will give you as I told you five minutes. But if I just raise one short question to my American colleagues, I wonder if you could explain what is actually the target of the United States government, especially the Biden administration's, in terms of percentage of world market share of the key components as we discussed. As of now it's my understanding that the market share of the semiconductors of the United States is around 13 percent plus minus.

So what percent is the ideal target if the supply chain review is successfully implemented? Maybe anybody could respond to that question not on behalf of your government, but just on your personal capacity. Okay. now can I invite President Atkinson first?

Robert ATKINSON

Sure. Thank you. So, let me directly respond to that. There's, I think, oftentimes misunderstanding of U.S. policy, particularly from countries like Korea, where you have more thoughtful and systematic and organized industrial policies. This is not our system. And so, there isn't a number, there's no grand national plan. It's much more bottom-up and competing and interest groups and all that. Having said that, with regard to semiconductors, I think there's a generalized view. And I don't speak for the administration, this is just my own speculation that we were at 30 or so, and we went down to 13 and that's too low. There are just too many vulnerabilities for America at 13. I don't believe the answer, I don't believe the goal is to get to 30 again. I'm guesstimating here, I'm going to say something north of 20. I think if we could get to that, I think most people would be satisfied.

And I also want to raise one other key point related to that. And that's something that Evan related to about national security and defense capabilities underlying a lot of this. I can't stress that enough. I would encourage everybody to look at the most recent DOD office of industrial policy report. So, the defense department has an office of industrial policy. Every year they're mandated to have a report to Congress on the state of the defense industrial base. If you look at that report from a number of years ago, it was much more, I don't want to say Pollyannish, but it was much more than "We're fine. Not a lot of problems here." If you look at the last two years' reports, it's a wakeup call. It goes through technology after technology, after technology. And it really raises alarms that we overly lack the capabilities in the United States. If we had to go to war to produce the kinds of things we're going to need for our soldiers and sailors and airmen again, all up and down the list, it wasn't just a couple of things. And if the U.S. wants to maintain itself as a global military leader, you just can't have that. Now you could have it if all of our allies were strong in those areas. Sure. But not when China is strong in those areas and not when we're dependent upon China. So, I think that is going to be a big factor.

I think in terms of maybe one last question, and that's related to what's the policy in the U.S. and how would it affect a Korean company. So, if you look at the CHIPS Act, which was last year and was around semiconductors, and now again it is in the USICA bill. Hopefully we'll get appropriated money to it, but it's around \$50 billion. It's very important to understand that, to the extent that there is money in that bill for foreign direct investment incentives, because some of that money is going towards advanced research and development here in the U.S. To the extent it's around FDI, a Korean company would be fully eligible for incentives to build a fab in the United States. A Chinese company would not be, I don't believe, but a Korean company, a German company, a Taiwanese company, a Japanese company, there's really no incentive...there's no desire in that policy to say, we're only going to help American companies. If a Korean company wants to put a fab here, they would be eligible at least as it's currently designed for an incentive. So, and I think that's generally the view, that we want to be open to our allies, but we want to make sure that we reduce the risk vis-a-vis China. So, I'll stop there.

PARK In-kook

Okay, Wendy.

Wendy CUTLER

Well, thank you. And it was really great listening to everyone's presentations. I just wanted to make a few concluding remarks to, again, underscore the integration between trade policy and supply chain policy. And at least in the United States, people are very comfortable and it's very popular to talk about supply chains and supply chain resiliency at a time when trade remains very politically divisive. And I don't think there's a great comfort level about moving forward with trade agreements. And at the same time, if you look at particularly the U.S.-Mexico-Canada agreement, USMCA – in many respects, that is just on the forefront of what I would call a supply chain agreement. The integration between the companies, the production goods and services between those three economies is large and growing. And I would also argue that our other free trade agreement partners like Korea, we have also seen kind of a promotion of investment in trade flows between the two countries through the KORUS agreement.

Now with respect to that I just wanted to kind of pick up on what Ambassador Yun was saying about U.S.-Korea cooperation going forward. I really think the days of trade friction between the United States and Korea are behind us. I don't think we should renegotiate KORUS, but I do think we should really focus on how we can strengthen our cooperation. And particularly with respect to supply chains, I think U.S. and Korea can be on the forefront of kind of defining and shaping what secure supply chain agreements look like, or what can they look like. I mean, they can be minimal and just basically focus on transparency and understanding the supply chains of each country. They can go further than that and come up with policies about what to do if there are shortages. But they can go even further than that and talk about co-production, getting rid of barriers, having common rules of origin. And so what I would like to leave the conference with the idea that I think there's a lot of opportunities here for U.S. and Korea to work together and really kind of set the table for further discussions and set the model for what agreements, what supply chain agreements could look like going forward, because I think that's where the United

States is going to be much more interested in pursuing from a policy perspective than looking to enter into new trade agreements, at least at this point in time.

PARK In-kook

Okay. Thank you. Evan?

Evan MEDEIROS

Thank you, President Park, I'll make one broad final point. As I stated in my presentation, we're now in an era of a new normal of persistent inconsistent tensions. Shorthand forward is strategic competition in the U.S.-China relationship. This creates both opportunities and challenges for the U.S.-South Korea relationship. The opportunities are to shape China's behavior, shape their behavior on North Korea, shape their behavior on climate and other global issues. The question is, is South Korea willing to coordinate with the United States to shape Chinese behavior? And that means in some instances, being willing to accept some friction in the China-South Korea relationship to shape them. So, there are opportunities there. But to be very frank, President Park, I worry more about the challenges presented by this new era of strategic competition. And I agree very much with Wendy Cutler's assessment that the era of U.S.-ROK tensions over trade may be over.

What I worry about is we may enter a new era of U.S.-ROK tensions over the China-ROK trade relationship. In other words, America will carefully, quietly, respectfully start pushing and encouraging South Korea to be more judicious in its trade and investment relationship. In other words, South Korea is simply too important an ally both from a defense policy perspective, and as Rob Atkinson said, also from an industrial supply chain perspective. I mean, two of the critical technologies to the future – semiconductors and batteries in new energy vehicles – are key to South Korea. South Korea is a major producer. And of course, South Korea is also an ally. But at the same time, South Korea is substantially and increasingly exposed to China.

So, to finish off, as Joseph Yun said, the United States doesn't want to ask countries to choose between America and China. America doesn't really want to be able to have to choose between its national security interests and economic prosperity innovation. But even though the U.S. is not going to ask countries to make a big choice, to avoid having to make a big choice, countries do have to make some choices. In other words, they will have to make some choices about the degree of their reliance on China and the degree to which they're going to put national security slightly ahead of pure economic decisions in how they think about industries of the future, like semiconductors and industrial policy. You know, again, it's balancing the national security imperative with the growth and the innovation imperative, and that's where I worry some tensions might result. And so when I think about the future of the ROK relationship, I think we really do need a high-level commission of government officials, former industry leaders in both countries that we can begin talking about the intersection of these two major forces that are going to be acting on the U.S.-ROK relationship, because there's no American grand strategy with China that works without strong, close coordination, not just on national security, but also on economic policy with South Korea. Thank you, President Park.

PARK In-kook

Okay Evan, I wonder if you could just add any short comment on the future of tension surrounding Taiwan?

Evan MEDEIROS

I'm quite concerned about Taiwan, but I see Taiwan is a medium-term issue, not an immediate issue. In other words, I think the situation, while very fluid, is unlikely to result in any kind of major conflict until after the next Party Congress. So, the period that I'm looking at very closely, President Park, is 2023. So that's after Xi Jinping gets his third term and consolidates power even further. And in 2023, you have the beginning of the next presidential election cycle in Taiwan. But the reason fundamentally I'm concerned about Taiwan is because China's becoming more anxious.

The United States is increasingly concerned about Taiwan and looking to do more with Taiwan and Taiwan itself is moving farther and farther away from the mainland, both the DPP and the sort of traditionally mainland leaning KMT. The political spectrum in Taiwan is simply shifting. And so, the trajectory of the Taiwan issue is not towards stability. And the question becomes – is it possible to maintain this current status quo without it tipping into conflict. And I’m concerned. And if Taiwan becomes a major flashpoint in the Asia Pacific, it’s going to affect everybody. South Korea and Japan, not just because they’re allies, but of course, because there are supply chains that flow right through Taiwan that directly affect South Korea. We’ve talked about many of those today. Thank you.

PARK In-kook

Thank you so much. Vice President Lee?

LEE Sanglae

Today I have learned about meaningful points, especially about [the point that] the U.S. and the Korea is not a matter of choice. And so, as allies, we will maintain the current relations and enforce the relationship further. And as the result of that bilateral relations, we will clearly consider more about the U.S.-based operations in the future. And less, I mean, focusing on the China, that’s the clear directions from now on. And for the importance of the initiatives in the semiconductors and the batteries, I think Korea will make a key role in the future. So those two sectors will contribute to the U.S.-Korea relations. So as a member of this industry, I am very proud to be part of that initiatives. Thank you.

PARK In-kook

Thank you. Professor Kang?

KANG Kisuk

I really enjoyed the discussion today. And my final remark is that there is certainly a view that the peak of globalization has passed in overall, but for some new emerging areas where global competition is very high, the strategic alliance with respect to supply chain is still very important for the greater good

PARK In-kook

Ambassador Yun?

Joseph YUN

Thank you very much. I really like Evan's point by the way. And I think he does clarify very much the expectation in Washington, what we expect our alliance partner to do. So, but at the same time, if you put it too upfront, it becomes a difficult question. You know what I mean? It's like sometimes my wife asking me, is playing golf more important than family? No, of course not. But you do want to play golf now and then. I mean, as I said it is quite clear to me, at least that South Korea has made that choice. Second thing I'm confused about is all this talk about supply chain. Are we putting an additional barrier on markets and private sector? And have we seriously thought about consequences of so-called security, putting defense first and so on, on activities that we may regret some other day as having provided a big set of bureaucratic regulation, where maybe we go overboard now and we regret later on. And so, I'll just leave that out. Okay. Thank you.

PARK In-kook

Thank you. We just started our long discourse on the pressing issues in the name of global supply chain. So, maybe we should meet again and again, I hope we could have some more insightful

discussion in Washington as soon as possible. Okay. Thanks so much for your great contribution, providing great insight and future idea. I thank you.

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