US Senator Maria Cantwell

Center for Strategic and International Studies (CSIS) Fireside Chat on Protecting America's Spectrum with Dr. Tom Karako, director of the Missile Defense Project and senior fellow in the Defense & Security Department at the CSIS

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[VIDEO]

Tom Karako: It's the most controversial debate on Capitol Hill that no one seems to know about, and it doesn't break along partisan lines. It's about a scarce and invisible natural resource that's highly valuable for both national security and commercial interests. We're talking today, of course, about the electromagnetic spectrum.

I'm Tom Karako, Director of the Missile Defense Project here at CSIS, and this issue has a lot of implications for missile defense and a whole lot of other things.

So to discuss the spectrum, we're delighted to welcome Senator Maria Cantwell, Ranking Member of the Senate Commerce Committee from the great State of Washington, the Evergreen State. Senator, thanks for coming over.

Sen. Cantwell: Thank you so much for having me this morning. Look forward to it, Tom.

Karako: And welcome to CSIS.

So before we kind of get into the weeds, I wonder if you could just tell us, what is the electromagnetic spectrum? Why does it matter to the American people? How do we feel it in our daily lives, given that it is, after all, invisible?

Sen. Cantwell: Well, I think the key thing for everybody to understand is we live in the Information Age, and data is the new source of what our economy is going to be, but data is also used for national security. And when you think about this, all this data, that is, if you will, flowing through our system, that spectrum is like the arteries that help deliver it, and you need them to go to the right places and be the right infrastructure for that.

I think everybody probably understands the time they've tried to tune their radio and heard interference, when they get that there is something happening that is allowing that signal to be distributed, and now we're in a debate with so many applications, so much data, how can we make these arteries that have been the old system continue to work effectively for us?

Karako: Well, it's everything from WiFi to radio to cell phones to military radars and a whole lot of other important things.

And Congress is right now debating whether to reauthorize the FCC's auction authority, which expired a couple years ago in '23, and there's some proposals to auction off to the commercial world, some pretty significant chunks of the electromagnetic spectrum.

And I'm going to pull up here a graphic kind of depicting what this bill would do, the Cracker Jack CSIS missile defense project team put this together. And there's a lot of moving parts here,

but it kind of shows what is up for auction as it were potentially being sold off. It also shows at the bottom there what these things are used for: DoD, the intelligence world, and things like that.

So, Senator, how do you kind of see this bill? This is a reflection of, specifically the Senate proposal by your colleague, Senator Cruz. I wonder if you could talk to us about how you view this view, this particular provision, and how you see it playing out in the Senate?

Sen. Cantwell: Well, I think it's a very dangerous proposal, because it really doesn't look at all the details about the incumbent users, in this case, a lot of military applications, and plan for what is the use of the future of that spectrum if it's allocated to the private sector? And while we know we have an unbelievable need for new spectrum, the question is: How can we do things like dynamic spectrum sharing and test bed and really understand what these applications are and what they're going to do to create interference?

So at a time now, when we know that international adversaries really are using -- if you think about it, they're attacking our infrastructure. It used to be in the old days, if you wanted to intimidate or escalate, you might send a submarine into US waters, or you might fly into US airspace. Now, you basically attack infrastructure. It could be a pipeline, it could be the grid, it could be lots of different aspects.

And now, we have to worry that even our defense system is now, if you will, moving more towards Space Defense, and the success of being able to use a very protected secure communication system.

So, why at the time when warfare is moving to the sky -- and you need to secure it in a more significant way than we are doing today -- why would you all of a sudden just tear open that whole space and basically say, “Throw in a lot of interference from commercial users. Oh, by the way, it could be the Chinese, and they could do something very deleterious,” just like if you think about the infiltration of the Chinese balloon. How did that get this far into the US airspace and we didn't even know it?

This is the same thing. You're opening up, if you will, the arteries for anybody to flow in, in a way that could be very, very dangerous. And so I think if you listen to people like the IEEE, electrical engineers who know the subject well. They will say, “Don't do this. Don't do this. There are ways to proceed, but this isn't it.”

Karako: Well, and we hear all the time about how the future of war is going to be more about electronic warfare and this sort of thing, non-kinetic, this, that and the other thing. It's a constant refrain. And so, you're involved in these negotiations. What's driving the push for these spectrum auctions? Where is this coming from? We also hear that this is a spectrum arms race with China. How do you see that?

Sen. Cantwell: Well, I wish we were involved in the negotiations, because I would definitely go to the White House and say to the President of the United States, “You have a vision of what you want to do to make the United States more secure with Golden Dome and all of these ideas. And you did help in the initial creation of a Space Force, but I got news for you. You are disarming. This is about disarming, and you are basically going to hand the Chinese a victory.”

I’m not the only person saying this. This is written up in lots of different articles about what's happened, particularly because of O-RAN. This was about us getting a secure network that the United States could depend on for our communication, and this proposal also disrupts O-RAN.

So, it makes no sense that you would not only basically say, I'm going to stop building our own secure network for communication, but you're going to basically open up our system for interference and lots of avenues for the Chinese and other perpetrators who aren't friendly to the United States to have access and avenues.

So I think, if you think about the telecom sector, they're saying, “Well, we just need it, because we want more 5 and 6G.” But you're basically saying, “I'm going to open up critical defense infrastructure to the infiltration by a lot of people to come in and interfere.” So it would make the Chinese balloon thing look like nothing.

Karako: What is it from your understanding that the telecom industry wants? In other words, what is the impetus behind this from the Commerce Committee?

Sen. Cantwell: Well, I get that they want to sell more cell phones and sell more policies, and they're all in a heated debate over whatever the monthly cell phone bill is. But I think we see from Salt Typhoon that they got their own problems. Not all of them, but some of them, basically didn't even understand the attack.

And we as Americans, should take this personal because it's attacking our information. It released a ton of information on us. So you have to build more secure networks, telecom sector. But instead of building those more secure networks and putting money in. They're out there asking us just to vacate DoD spectrum for missile defense, so you can sell some more, whatever it is, $29.99 plans.

Karako: I want to get to the missile defense stuff in particular here in just a moment. But there's a long history here. There's been a lot of past auctions. Not too long ago, the FCC sold off some C-Band stuff, and that had interference with aircraft and altimeters, and you've talked about that. What lessons are there from some of these past auctions?

Sen. Cantwell: Well, catastrophe could happen. And so when you think about uses and what people depend on, and planes depend on altimeters. And altimeters are what -- if you think about everything in society getting more sophisticated, even this set here, for example, but in airplanes more driven by a brain of a plane based on an input. What's that input? The altimeter telling you the altitude.

But now, if that altimeter can be interrupted or get the wrong information, get the wrong signal because of interference, all of a sudden now, the entire plane's brain, driven by what it thinks the altitude is, could be catastrophic.

And so, when people just threw caution to the wind and said, “Okay, we're going to auction some of this,” it created chaos between the aviation sector and between the telecom sector. And the telecom sector saying, “Oh, don't worry about this.” And the aviation sector saying, “Oh my God, absolutely worry about this, and let’**s** get it right.”

Now, this legislation basically would not only have every commercial plane having to get a new altimeter because it has to be sensitive enough to the interference. The planes that we're flying today do not have altimeters that are sensitive enough. Every DoD plane would also have to get a new altimeter calibrated to deal with the interference.

Now, if that isn't enough to stop a bill right there, I don't know what is, but I guarantee you no one is telling my colleagues, every plane and every DoD asset will need a new altimeter. And it's not just a new altimeter. It's not just like, "Oh, I'm going to replace this part." It is, how do I get a new system to drive these planes that will be able to resist this kind of interference that could come in a system?

And so it's really, again, just think of it. Warfare in the future is going to be about disrupting communication, and disrupting that communication means build a system that is secure -- encrypted -- secure in the ability to have a closed loop system, the ability to protect us and our assets.

Karako: We both spend a lot of time on airplanes. It is good to know what altitude they're flying at. Let me just stay with this for a minute, which is, I'm trying to understand what's the itch that's trying to be scratched here. How much is it needed for beaming lots more energy outdoors, specifically? In terms of, everybody wants data, everybody's phone is using more data, but 80% of it is indoors. And so, it seems like those prospects for low power indoor use of more stuff, but protecting the outdoors to not have interference.

On Tuesday of this week, I noticed that AT&T's CFO was saying that actually they've got a lot of spectrum-- that he said that there's no pressing need that I feel like we have to go out and acquire spectrum in the next 12, 24, even 36 months, because they're using the spectrum they have more efficiently. What's your thoughts on that?

Sen. Cantwell: Well, if that's the case why are we going to disrupt our national security on behalf of this telco sector? Then why are they pushing? So if they want to send a letter to the President saying, "Don't do this, because we haven't achieved this," great, but what Americans need to know is that we're not doing this just at the behest of industry.

Now, I will say we do want to be the leaders in 5 and 6G, that the commercial applications -- I think of innovation as we want -- the United States has been good at innovation. We could talk a lot about the budget cuts on all sorts of science, things that are horrific, but our goal should be for innovation to happen all across America.

We don't want it just in Seattle or Silicon Valley or in Boston. We have so much innovation in the information age. We want it to happen more places. Well, if we want it to happen more places, we need better distribution of broadband capabilities with 5 and 6G, and we want to lead in telecommunications.

If I had anything I want out of this, it is to create a new regime where DoD and the outside most sophisticated technology companies and their CTOs are communicating about the future and working together on how to successfully navigate this very challenging time. That way we'll be the leader in both 5 and 6G and the military applications.

Karako: Well and on the military side, you sent a letter just about a month ago to Secretary Hegseth, and you described the auctioning of least some of these spectrum bands as a grave error, and highlighting the tension between, I think, short-term commercial interest and long-term national security.

And one of those bans was called the Low 3, the S Band, which, until about five minutes ago, was targeted for auction. So what's the response that you've heard from DoD leadership? This topic came up, I think, in every single DoD nomination hearing this spring for all the new officials. What's been the response from the DoD folks in terms of this?

Sen. Cantwell: Well, in all my meetings with them – and first of all we helped usher through the CHIPS and Science Act, and that too was about national security. What does it take for us in the United States to have the most sophisticated systems, and obviously the most sophisticated, advanced chips? And now you have to think about this as the most sophisticated way for those chips to be effective in delivering the mission that they are set out to do.

And so the fact that you again would not protect this particular band for effective use, basically, is almost like saying you're disarming the United States, or you're basically inviting the interference that could make us less effective.

And again, it's not like this was 10 years ago. This is lots of evidence now -- just look at what just happened in Ukraine -- that this is the warfare front of the future. And so we see real applications on the ground right now that if you could interfere with any kind of system, you're putting something at risk.

So, I think the DoD in the past has been very clear. I'm not sure what's happening of late, I'm not sure Secretary Hegseth understands this technology. I think that's really a big thing that's going on. I'm not sure a lot of these people understand the technology at all. If they did, they wouldn't be advocating for this level of openness to a system that should be more secure.

Karako: Well, I will say Secretary Hegseth was asked about this in his nomination hearing, and his response said that he would go to the mattresses when it comes to national security on this issue specifically.

Sen. Cantwell: Well he better hurry.

Karako: And the Pentagon's, I think, Acting Chief Information Officer has, I think, commented recently that some 1,100 weapon systems, platforms, missiles, etc, use this, what we call Low 3 S Band spectrum. And if we could pull up the weather graphic, this Low 3.1 to 3.45Ghz in particular, which is called the Goldilocks Zone for military radar, specifically. Not all Gigahertz are created equal. The Low 3 penetrates weather, just a lot better than others, for instance.

And so it's really, really important for the missile defense mission, in particular, the past Biden Administration estimated something like $100 billion with a B to recreate our all of our missile defenses. And as it turns out, it may not even be possible because you can't just substitute one Gigahertz for the same qualitative effort.

You've written to Secretary Hegseth, for instance, about the Low 3, in particular, as relevant for Golden Dome. I wonder if you could speak a little bit about why this part of the spectrum is so important.

Sen. Cantwell: Well, it's the use that you just described is important because, again, when you think about warfare, moving to the sky, and ability to disrupt or intervene or change a signal that is being sent. Again, we see lots of avenues already where we're being attacked, as I mentioned before on pipelines and security, which is just somebody being able to infiltrate that infrastructure and cause a disruption, a shutdown. And so here, though, when you think about that kind of activity happening, you are disabling or allowing us to not be able to effectively deliver.

But in Golden Dome, we're trying to say, how do we create a more secure network, a system that protects the United States overall from being attacked by more advanced missiles or systems that people are developing internationally? And so you want to be able to create that layer of a secure system.

And again, if you aren't making it secure, and we all know from the Huawei example, we made mistakes by allowing an infiltration that could be from a company backed by a foreign government, in China's case with Huawei. So, we had to say, "Look, we can't have that. We can't have that." I do think everybody on the Hill gets that: "Okay, we can't have Huawei equipment." Okay, well, why are you going to then let Golden Dome basically be interfered with that could be the same potential? And it just doesn't make sense.

Karako: You mentioned that a lot of people on the Hill understand the Huawei thing, but it took some education. It took a while to get there. What is your sense of the level of understanding of where education among your colleagues in the House and the Senate?

Sen. Cantwell: On this issue?

Karako: Yeah.

Sen. Cantwell: Oh, very small. Very small, unfortunately. I mean, it does get technical quickly. It is a changing landscape. It is an interest that we have to be competitive in the private sector and fulfill an innovation agenda, and also make that innovation agenda a top priority in DoD.

So, I do think people understand that we need to do both of those things, and want to do both of those things. That's why, I think last year, when we were able to get DoD and NTIA to agree on a process to move forward on ideas of test bedding technology that you know would work for the future, was the right approach. This approach is kind of like, "Oh, we just have a big resource fight. We're going to give the private sector the resource, and we're going to take away basically the -- really the backbone of DoD's ability to deliver the services that they have to deliver."

And so, it just makes no sense that you would make this big swap in a bill that is really very little debated, not seen the bright light of day yet -- it probably will just be debated on the Senate Floor, and you're going to make this massive, massive infrastructure change on the fly, when you have a lot of past you know, concerns about it. It just makes no sense.

Tom Karako: Well, it is good that the bill, in its current form, does protect the lower three, but let's walk up the let's walk up the spectrum, as it were, together you mentioned the altimeter issue, which is kind of the low four gigahertz. And anybody who picks up a newspaper sees the importance of electronic warfare in Ukraine, but they also see the importance of drones. And as it turns out, the four gigahertz is also almost exclusively for UAVs for DoD. You called that out in your letter to Secretary Hegseth, I wonder if you could talk a little bit about how are we supposed to have military superiority. How are we supposed to go out and do all this UAV stuff? And there was an executive order on going out and having drone dominance. How are we supposed to do that if we potentially will have this interference?

Sen. Cantwell: You know, I saw a little company in my state develop a drone technology that was very used in the, you know, in Iraq and Afghanistan. They were later acquired. But I've seen this whole industry in the last decade or two decades grow up into now being really kind of, if you think about a DoD likes this, because we're not using humans in the in the delivery. So we, this is going to be the warfare of the future and so again, making sure that it can deliver what it's supposed to deliver, and can't be disrupted by a signal or thrown off track, or never get on, you know, or diverted back in some way to a place you don't want it to be delivered, is all, you know, is all part of the new warfare landscape. And we want to be the best at it and but you have to have the spectrum and the protections and the capability.

So asymmetric warfare is always the threat of the future, for sure. But if you think about it, asymmetric warfare with drones, where you stand down on the technology, and again, you let somebody else become more superior. It is, it is really the battle du jour. And we can see that from what happened to Russia, with Ukraine, and now what would happen. And when you think about it, I know we spend a lot of time thinking about this as it relates to our officials and when they're abroad and how do you make, how do you make them secure? How do you make sure that the whole system is secure? So again, this is, these are important issues that need, if we're going to be leaders, then we, then we have to be in an environment where they know that they can develop that capability, and they're going to have, again, that network that is secure.

Tom Karako: Now, I think you alluded to this a little bit earlier, but in 2021 the 5G rollout had a little bit of a bump, and there was some lot of cost to airlines. Passengers stranded. Why don't you talk a little bit about that.

Sen. Cantwell: Well, I think it was an example of catastrophe. It was an example of use of, somebody saying, okay, we can just do this. You move. And it wasn't simple, and they had to have big White House meetings. And I'm pretty sure that the FAA felt very frustrated and were still dealing with what a real rollout. Again, this is why they had to focus a lot on altimeters and costs. But no, no one is saying you have to, now, even those decisions that were made would have to be changed. You'd have to go back to now say, how do I protect this plane from interference? How do I do that? And so, we don't even know what it would take at this moment. We'd have to develop something. So, when you think about that cost in the and the cost of the development and telling the aviation sector, yes, it's a, it's a cost impact, but it's a really scary issue because of security.

Tom Karako: Yeah, the six gigahertz band is kind of an interest for cable and some other Wi-Fi kinds of things. And I think you again mentioned Huawei here, and they have some something of an advantage there. So what's going on with the six gigahertz and how's that?

Sen. Cantwell: Well, it's kind of like a stand down, go ahead. So this is where China has an advantage. And by us just saying, we're going to we're going to go ahead here, could put the United States at huge advantage, disadvantage, but also it's empowering China, because it's the one area where they already are in the lead. And so the United States can lead in wireless. It can, it can lead in in these technologies of the future. But a proposal that basically helps China right now is not, is not. What I would say is the way to beat the competition.

Tom Karako: And I think the House version had a protection for the six, six gigahertz, but the Senate does not. Now, one band that the Senate version, in addition to the low three, does protect is in the seven to eight gigahertz. And this is also a number of your colleagues, Senator Rounds, Senator Fisher, a number of folks, Senator Cotton, have talked about the importance of this for national security. What are we to understand about this? And does the bill adequately protect that seven to eight band?

Sen. Cantwell: Well, I really this is a very sensitive area, so can't really say a lot about it, other than it's very important to us as a nation. And, I guess you would just say, like all of these gigahertz, there's various uses that people have depend upon to create secure networks, for secure communication, for vital national interests. And, and if, if you disrupt that, and, and so I don't, I don't the, I don't know exactly what the latest language said on this, because they're, they're trying to protect it. But I think the problem here is that you know to adequately protect it, to give us all the certainty. Again, what happened before through caution to the wind, lots of problems between aviation and the wireless industry, just because somebody said, go auction it. I think the overall bill is basically, go auction things and give the FCC the approval again. And so I do think that it, you know, you want that appropriate policy protection, just not to say, Oh well, we'll figure this out later. There's nothing in here that says we'll figure it out later. There's nothing that says you can't move forward. It basically is giving this authority.

Tom Karako: Yeah, I think the Senate bill might protect I think seven, four and up. Other folks have talked about kind of the importance of the lower seven, maybe 7.125, to four as being of interest as well. Can you talk about,

Sen. Cantwell: I think all of seven is of interest, is my understanding?

Tom Karako: Yeah, okay, well, that might that would be another thing to look at in the negotiations on this. Talk to us a little bit about the Citizens Broadband Radio Service or CBRS. What's, what's kind of the history? What is that this is a part of the upper three, or mid three, excuse me, that the DoD and CBRS has had to share what's going on with that.

Sen. Cantwell: Well, it's one of the good news stories of what you can get from cooperation. And this is, you know, something that the military and the Navy, particularly in parts of the United States where they didn't have to worry. Basically, we're able to make this available, and the private sector has been able to scale a lot of business use - of having this, having this broadband ability. So I think it's kind of like an efficiency, if you will, right? It's like it's a way

for the military to still keep the spectrum, but give some of it for some very specific, I think factories, really, if you think about in the Midwest using this as a way to drive down cost and be competitive, it's a great a, great access, and now somebody's taking that away. So, it's actually, if you this is what we should be studying more. What, what does this portray for the future? That makes sense anytime you've reached this collaboration and cooperation and you're getting a benefit here, then you know, it's kind of like in our state, we have public and private power, right? We, we have both, and they actually intertwine more than people realize. But public power being cost based, power, obviously, is very cheap, and it's built our economy over and over again. So CBRS is like having access to a more affordable broadband that has helped manufacturing in the Midwest achieve some good success. And look, the cost of energy is a big issue generally, and being able to continue to innovate with, you know, affordable spectrum is a very positive thing, so why now all of a sudden disrupt that and basically put a bunch of industry that was using that spectrum? Why throw them out? And basically said, now I'm going to go rebid that, and I'm going to make everything more expensive again. So, I do think there's elements to that equation that are very interesting, very interesting, if you think about the fact that spectrum is so dear and yet, here is a particular thing that benefited both industry and defense, that seems to be like something that you would want to continue.

Tom Karako: Can't we all just get along? Why can't we just share this? You've talked about the jamming thing, but help us understand why sharing is hard. Is the technology there to do this, and what is dynamic spectrum sharing?

Sen. Cantwell: Well, listen, I spent, I don't pretend to be an expert on spectrum. I did spend five years working in software, and I do have a huge appreciation for the IEEE electrical engineers. I keep thinking about Marconi and, you know, the advent of, you know, electrical engineers even giving us this ability to, you know, to figure this out. And I keep thinking, those are the people we need to be leaning on. We need to be leaning on the engineers to tell us what is the next great innovation. And we have a lot of great innovation in the Northwest, and there's been breakthroughs in technology. I was remembering Dan Hesse, and when Sprint made a big breakthrough. And there are more good things to come. But if I was going to focus on this, I would say, you know, there's another great technology in in the Northwest, the Otter Pup. It's a software company in Tukwila that is figured out how to move satellites around. So it is, it is pioneering, the ability to go up and move these, you know, almost like a moving company.

But how they got to their point is they had created a very dynamic way, for both DoD and the private sector, to share information so that that technology could move forward. And that is what we need to do here with dynamic spectrum sharing.

We need to break down the barriers, and we need more CTOs. And of course, there's national security implications, but we need to create frameworks where CTOs and DoD people can best outline the future.

There's a lot the private sector can do in helping the DoD think about the future and be a couple of steps ahead. And that is what we should be focused on.

Karako: Well, yeah, I'm still trying to understand what's the need here? Why is the legislative onus on DoD to vacate, as opposed to kind of encouraging innovation. We hear a lot of hand waving about innovation and more agile use of the spectrum, this kind of stuff.

But again, I go back to not merely Verizon and T Mobile telling Wall Street they need more spectrum. But again, that comment in the press from the AT&T CFO that they don't need it, but he also said that they made more efficient use of the spectrum that they already have. I think, again, that's…

Sen. Cantwell: Who is saying that?

Karako: This is the AT&T CFO just…

Sen. Cantwell: Oh, you mean in that 'I don't need this?' Well, trust me, they should get up to the Hill then, and tell people that they don't need it, because you have this very dangerous situation playing out basically on their behalf, so that somebody can say, 'Oh, we delivered something.'

And this has been an ongoing dispute, challenge, fight. I can't tell you, even within the government, just as I mentioned before about radio interference, which I think most Americans get and understand. Yes, it could be mountains, it could be another radio station, it could be this.

Okay, now as you look at spectrum, you have more of this potential interference, and what do you do about it? Well, I'm saying, let's work collaboratively. The next success, I didn't coin this, but other people did. The next success of implementing innovation is collaboration.

Think about it. There's so much innovation, but if you don't sit around a table and talk about how to get it implemented, you're going to fall behind.

So, Congress needs to be part of that collaboration and convene DoD in these interests. But just think about this, you have NOAA satellite issues for weather, you have launch issues for space, you have the DoD interest.

So, there is lots of spectrum issues that are just within the government. And if we want to be good at both, then that kind of collaboration that focuses on the testbedding of next generation technology. That's what we do best. That's what chips and science was about. Testbed, testbed, testbed, things that other people can't get done. That will give us the answers and secure US leadership.

Karako: Yeah, you mentioned on the innovation front, you mentioned earlier the Open RAN, which is trying to create secure networks that reduce dependence on the likes of Huawei, for instance.

Does the reconciliation bill, the current provision anyway, does it do anything for O-RAN? What's going on?

Sen. Cantwell: No, it cuts it out. Basically, let's stop, let's stop doing O-RAN. Why? Wait, we made a decision I'm pretty sure based on national security interests. Mark Warner has been a great leader here, basically saying, "Our national security interests mean let's have our own."

We know for sure- Plus, we're trying to create an ecosystem. The United States is trying to create an ecosystem. I'm a firm believer that we should be, that we should have a technology NATO. That we should be going to the five biggest technology countries and democracies and setting the rules of the road.

We should be going and saying, 'Okay, if you want to produce products, you can't have a government back door. And nobody, nobody in any country should go buy technology from somebody that has a government back door. Because now you're just allowing for the infiltration of the system.'

But just think about that. If we, and Japan, and Australia, and Israel, other countries, India -- we all said, 'the Information Age deserves rules of the road, these are the rules of the road, don't buy technology from countries that do this.' We would be putting China in a box. Instead, right now, we're opening the door.

Karako: Well, I know you've got to get back to the Senate here in just a bit. But let me kind of wrap it up with where I began. The first observation that this is a contentious issue, but it's not a partisan issue.

I wonder if you could just talk a little bit to close this out in terms of, across party lines, what kind of commonality you're seeing with, again some of your colleagues in the Senate, or the House.

Sen. Cantwell: Well, I think, probably, even dividing people within states. And I think those who have deep backgrounds on either technology, as I do, or on defense issues, kind of look at this one way.

And those who are a little more just like, 'I just think I want more.' And look, they can be earnest about it. They can be real about it. They might come from a more rural state, and they're like, 'I need more broadband because I want more economic development. I want these things to transpire.'

And I do, too. Trust me, I didn't work so hard on CHIPS and Science to have it only take place in the Northwest. Listen, the Northwest is going to continue to unfold in unbelievable ways on innovation. I see it every time I go home.

But again, we want innovation to be cheaper, so we do want it in other places. So, this need of continuing to build out is real, but it is not so essential, according to the AT&T [CFO], it's not so essential that it has to happen right now.

And there are ways for us to move forward, but the collaboration is the key. So I do think that our colleagues, I wish, I hope, that they will take a pause and really ask some hard questions. Listen to our colleagues who do have those national security chops or those technology chops to understand the dynamic here, and don't make a mistake.

What happened on the last go around between the aviation sector and the Telco sector on this is nothing compared. And it was very disruptive, very disputed. That's minor. This is massive. And…

Karako: 800 megahertz, it's a lot.

Sen. Cantwell: It's massive in like, as you said, why are you asking DoD to basically vacate? So there's a big premise that no one has proven. Big premise that this is easy to be done. It's not easy. There's nothing easy.

If you're saying every plane and every DoD asset needs to get a new altimeter, that alone just says it is not. But even that isn't even the biggest issue. That is an infrastructure issue and a very serious one, because we don't know the answers yet.

But when you think about, why would you vacate for drones, missile defense, CBRS, and a bunch of other, you're basically throwing the whole system open and without the technology answers.

So, let's get the answers. Let's get collaboration. Let's be good at both. Let's be successful here as a country. Let's not fall behind. Certainly, don't make it easier for the enemy.

Karako: Yeah, don't jam my missile defense radars, especially. It's good that the lower three is protected in the current form. As you know very well, on Capitol Hill, nothing is done until it's done so again.

Thanks for taking the time to talk us through this, and I know you got to get back to the Senate, but thanks for coming over to CSIS.

Sen. Cantwell: Thank you. Thank you for your interest.

Karako: Thanks all for tuning in, and we'll look forward to further discussions.

Sen. Cantwell: Thank you.