Boost Phase Missile Defense from Space

[Mr. Riki Ellison]

Good morning, ladies and gentlemen. Good morning from a sunny golden day here in Alexandria, Virginia. We've got the daffodils en masse. It's beautiful here in Washington, D.C. I'm Riki Ellison. I'm the founder and chairman of the Missile Defense Advocacy Alliance. We have one single mission, and that is to make our world and our nation safer through the deployment and the evolution of missile defense. This is our 70th virtual, boost-phase missile defense from space. The timing of this is golden. And we have two of the world and national experts in space defense.

I'm just excited, very excited. As a young kid, way back in 1985, after our Super Bowl victory, I got hired to work on the Exo-Atmospheric Reentry Interceptor System, ERIS, out of Sunnyvale. And that's my connection with Mike, going all the way back there on that as he was the genius behind the Clementine experiment and the movement of that first-generational GBI that is now the NGI aspect of it. We have, ladies and gentlemen, Dr. Mike Griffin, who has been through the entire generational history of our missile defense, all the way back from SDI, from SDIO, from BEMDO, NDA, from Clementine, through all the elements that we've gone through. He's also been remarkable in his courage to stand up to systems as we knew in the past with RKV and being able to tell the truth. And we are excited that he's here. He's also was with us with President Trump as the head of R&E and prior with George W. Bush as the head of NASA for that.

We also have Lisa here, Dr. Lisa Porter, who is equally the world expert from our perspective, on non-kinetic and left of launch. A lot of that is secret, but this is not just a kinetic energy solution. It is both. And we're just honored to have her here to speak to us today.

So we are eight days away from the executive order report that is due eight days from now on that. And I think it's very important that we look at that executive order, specifically the section three, which is an implementation that has this report due in eight days. I believe this is still very fluid. It is going to be fluid even after those eight days. It's going to be [fluid] going into the DoD. They're going to be fluid. But there are four key points here that we want to discuss on that plan that was listed by the President.

So the first one is defense of the United States against ballistic, hypersonic, advanced cruise missiles, and other next generation aerial attacks from peer, near peer, and rogue adversaries. Can we do that? What's doable? What's the cost of that? When can we have that? The third point there is the development and deployment of proliferated space-based interceptors capable of boost phase intercept. That is huge. Same questions. How much is this? Is this doable? Can it be done?

The fourth point is the development and deployment of capabilities to defeat missile attacks prior to launch and in the boost phase. And the last point, development and deployment of non-kinetic capabilities to augment the kinetic defeat of ballistic, hypersonic, advanced

cruise missiles, and other next generational aerial attacks. So that's the architecture. That's a big ask in 60 days for anybody to come up with that. And everybody, I think, wants to know if this is real, if this is a ridiculous amount of money. It's doable. Can we have something in 18 months that says we're going down this path? And at the end of it, what's the right architecture, if you have a chance? So I'd like to go with you, Mike, first to take a shot at some of those questions on this.

[Dr. Michael D. Griffin]

Thanks, Riki. As you've emphasized, I am an old, with all emphasis, old kinetic guy. So I'll confine my remarks to that area and some of the other ways that one might interfere with boost phase, Lisa will take up in a few moments.

But I want to start out by frankly expressing my concern about the title of this talk, Boost Phase Missile Defense from Space and Boost Phase Interceptors from Space as outlined in the EO. Now, I'm hugely supportive of the EO as, again, an old missile defense guy. And I would remind everybody that in the end, the purpose of defense is to cut some casualties, cut your losses, and to buy time. That perfect defense just gets you back to even. It doesn't do anything to dissuade the attacker. So let's keep defense in its proper place. We also need offense. We don't have the kinds of offense we need by that which I mean long-range kinetic non-nuclear conventional strike. We're working on it, but that's a key part of the future because it has to be paired with defense to create an effective deterrent. So let me, having put that card on the table, I want to return to the issue of boost phase defense from space. Most people, when they think about space-based defense, they immediately default to interceptors. Space-based interceptors have, statistically, and this goes all the way back to brilliant pebbles and singlet interceptors, you almost never, by that I mean sub-1% or so, you almost never have a shot from space at an actual ICBM booster. The easiest shot we would have ever had to take would have been against the Russian - Soviet, sorry, SS-18, which was a long burn liquid booster carrying, I think, if I recall correctly, 10 warheads. It was just a monstrous weapon. That flew long enough that you could get a shot at it with not a very high probability, but some probability. Even in the brilliant pebbles days when that architecture was on the table, we were most of the shots you would have would be at the post-boost vehicle. And it's important to remember that. Not that you wouldn't take that. You're happy to have a shot at a post-boost vehicle.

[Mr. Riki Ellison]

I think there's a narrative out there the first four minutes that we can do something. So this is why this needs to be cleared up on this.

[Dr. Michael D. Griffin]
In most cases, there are always some, but in most cases, you do not have a shot from space at an ICBM in the boost phase. You can't get to it with reasonable probability. And by reasonable probability, I would say greater than a percent or so.

[Dr. Lisa Porter]

And this is physics. This is not engineering. This is physics.

[Dr. Michael D. Griffin]

Yeah.

[Dr. Lisa Porter]

You can't overcome laws of physics no matter how good an engineer you are.

[Dr. Michael D. Griffin]

So if you can't get to it, then from space, what are you shooting at? And I'm hardly the guy who would be against space-based defense. I want to use it to shoot at what you can shoot at. What is available for you to shoot at is regrettably mid-course objects. Okay. It would be nice to be able to say that you had a shot at boost phase. Generally speaking, you don't.

[Mr. Riki Ellison]

Would you go back to the ABL? That's not a solution, but we did do that. We proved we could do it, but that's not...

[Dr. Michael D. Griffin]

I don't want to get off into airborne laser or space-based laser, because I just don't think that as weapons, those are credible. I don't think they're technically credible.

[Mr. Riki Ellison]

Okay. Well, we'll just move on to...

[Dr. Michael D. Griffin]

And we can have a discussion about that, but for now, I want to focus... When people talk about space-based intercept, they really mean interceptors. Interceptors can reach, with good probability, can reach mid-course objects. You have a mid-course object in a 15 or 20 minute flight time, and in that period of time, 20% of a space-based constellation will sweep through the battle space. The problem with mid-course is, as it has been from the earliest days of missile defense, which thing is the RV and which thing is the decoy? I'll take a minor offshoot. That's the value of the lower end Aegis and later THAAD defenses, is the decoys have been stripped out. But in the long mid-course phase, your problem is discrimination.

Space-based intercept is a trade. It's a system trade against, do I want to do that from space, go against a mid-course object? Do I want to do it from space? Do I want to do it from the ground? Do I want to do it from both? Okay. To confuse and confound the enemy and give them more problems to solve, those are legitimate questions to ask. But if you look at the physics of the problem, you can hardly ever get to a shot from space at an ICBM booster.

And I will absolutely also put on the table that the probabilities are even lower for submarine launch ballistic missiles, because they just don't get high enough for long enough. And boost phase defense against a hypersonic is just not possible at all. You're just not going to get it. It flies too low.

[Mr. Riki Ellison]

What about the fractional orbital, the FOBs?

[Dr. Michael D. Griffin]

A fractional orbital bombardment scheme puts a hypersonic missile in orbit. And if you see it in orbit, yes, you could get it. An orbital target is a good target for another orbital interceptor. The point to remember is that boost phase defense, as it is normally talked about, the booster doesn't get to work.

[Mr. Riki Ellison]

Can you distinguish the late accent of the boost phase as part of that?

[Dr. Michael D. Griffin]

The only shots you ever have in boost phase intercept are late in the second stage, if you have that.

[Mr. Riki Ellison]

So you still think that probability is still not worth it?

[Dr. Michael D. Griffin]

I know it's very low.

[Mr. Riki Ellison]

So we need to spend our money not on that.

[Dr. Michael D. Griffin]

You need to spend your money on what is doable.

[Mr. Riki Ellison]

That's the discussion here. We're trying to help this along a little bit. So thank you.

[Dr. Michael D. Griffin]

So from a kinetic perspective, I have seen and participated in studies on this going back 40 years. It is not worth spending your money on a space interceptor constellation that is targeting the boost phase.

[Mr. Riki Ellison]

That's 40 years ago when we, in the discrimination part of this, I think we're, I would think, most people think that we'd be much better to discriminate with new technologies now to find the decoys from the RVs in space. Is that?

[Dr. Michael D. Griffin]

I don't want to go down the discrimination rat hole because I would not agree that we're much better at that than we ever were.

[Mr. Riki Ellison]

Really? Okay.

[Dr. Michael D. Griffin]

I just wouldn't agree that we know a lot about discrimination.

[Mr. Riki Ellison]

Can you go into the space to space if, you know, CubeSats or our ability to put an object from space in front of that, that kill vehicle that's going forward, or what would be the way to do this in space?

[Dr. Michael D. Griffin]

Well, if you have a space-based intercept constellation, it can go against other objects in space. And now you're arguing about how many interceptors do I have to deploy to have good access to the battle space on the number of targets I want to go after. And that's a relatively, it's complicated, but it's a relatively straightforward system trade.

[Mr. Riki Ellison]

And that's got a much higher percentage of success from your perspective on this.

[Dr. Michael D. Griffin]

Yes.

[Mr. Riki Ellison]

What would that entail? Is that 8,000 satellites?

[Dr. Michael D. Griffin]

I don't know. We first have to figure out what problem you're trying to solve. So what size raid do you postulate? Okay. How many do you want to take out from space versus leave to the underlayers? We have to think about layered defense. Again, sitting here in front of the TV today, we can't size that constellation, but It's not small.

[Dr. Lisa Porter]

It's not going to be small.

[Dr. Michael D. Griffin]

It's not cheap, but it is technically feasible to have orbital interceptors going after targets that are in orbit or in a high mid-course flight.

[Mr. Riki Ellison]

How long would it take if they're going to, what's your thought on investing correctly and how long would it take to be able to have a capability up there to do that?

[Dr. Michael D. Griffin]

Well, it would be, even with a crash program, it would be measured in years. It's not measured in months, 18 months or 24 months. That's not a feasible target. If you go to recent experience, a space-based interceptor is not conceptually different from putting up another satellite. It just has a different purpose. So I believe SpaceX has orbited 7,000 or 8,000 Starlink satellites over the course of the last, what, five years about. Okay. So those numbers, who can... Those are numbers that are in the ballpark. I frankly would take my hat off to SpaceX for how many satellites they've put up in the time they've done it. I don't believe anything like that's been done before. So that's a good benchmark against how fast you could deploy thousands of satellites of any kind. It comes down to, leaving aside the purpose of satellite, it comes down to mass on orbit and numbers of satellites on orbit. So I think SpaceX's accomplishments represent...

[Mr. Riki Ellison]

What do you think the cost would be over those years to get, say, 10,000 of these up there?

[Dr. Michael D. Griffin]

I'm not carrying those figures around in my head, but if you go, it would be an easy calculation on a spreadsheet to go back and say how many Falcon 9 launches have deployed, how many Starlink satellites, how many 20 or 30 go with each launch. The cost of the booster is... I think SpaceX advertises $60 to $70 million for a launch. Maybe in quantity it might be lower. So if you said, you know, I need 3,000 satellites and they can carry 30 at a time and it's $60 million for a launch, well, you can do the math. That would get you in the ballpark.

[Mr. Riki Ellison]
What about the actual technology inside the vehicle, like an NGI? Is that the cost of this or not?

[Dr. Michael D. Griffin]

Of course, that goes into the cost. But the cost, I think, would be comparable to the cost of today's EKV or today's, the upcoming NGI. Well, the EKV is what's in the ground now. You're probably talking about longwave infrared to be able to see the midcourse object against the dark sky. You're talking about similar divert capabilities. You're just basing them in space. Instead of having a big booster on the ground sitting in a hole in Alaska or Vandenberg, you're talking about...

[Mr. Riki Ellison]

And would that be obviously cheaper than $100 million?

[Dr. Michael D. Griffin]

That's a cost trade yet to be done. Silos and boosters are not free. Launch to space is not free. Okay. Do you, as a system architect, do you get something from having a dual mode deployment of defense? I think you probably do. You have to cost it out and see if what you get is worth the money to you, but you can...

[Dr. Lisa Porter]

And sustainment costs of space have to be factored in. You have to replenish.

[Dr. Michael D. Griffin]

Yep. Sustainment in space is a big deal.

[Dr. Lisa Porter]

They always forget on the cost what the O and N tail is, and it doesn't matter what the system is you always forget that.

[Mr. Riki Ellison]

We do a Clementine type of experiment. In under two years, you have a space up there to do an intercept on a test ICBN.

[Dr. Michael D. Griffin]

Certainly do a Clementine type test or a Delta-180 type test or a Delta-181 or Delta-183 type test in a couple of years. We did those things. This nation has done those things. You can't deploy... I'm just going to say bluntly, you can't deploy a full-up constellation in a couple of years.

[Mr. Riki Ellison]

Right, but you can prove it, right?
You can prove... Like we did with the Clementine. If you go back to the earlier discussion of deterrence of what you did to the Soviet Union, this is the same thing, I think, in that perspective, because China's ahead of us a little bit on some things.

[Dr. Michael D. Griffin]

You can do informative and interesting tests in a couple of years, yes.

[Mr. Riki Ellison]

Okay. Okay.

[Dr. Michael D. Griffin]

One-of-a-kind prototypes, but maybe we should get off the kinetic stuff and have a chance to transition to something else.

[Mr. Riki Ellison]

Yeah, just one more thing before. How would you balance the, because there's some narrative out there that's saying, hey, we don't need the NGI if we have space. Just a little perspective from your viewpoint. Those are very expensive. We have very little of them. Go ahead.

[Dr. Michael D. Griffin]

Well, I can only offer my perspective is that my assessment is that defense in depth is what is required. If we say we're going to put up space-based defenses, which includes the sensors that provide the fire control, which is a whole other thing, then that layer, even if it's quite effective, won't get everything. The Aegis underlay is very capable. It has proven itself. We would need many more of them, but I would not want an architecture that did not have the Aegis SM-32A and later 2B underlay. I would not want an architecture that did not have that, the successor to the ERIS that you worked on. I would not want an architecture that did not have Patriot PAC-3 and beyond. If you want a golden dome, then you have to give yourself every shot you can. And then, by the way, and Lisa will probably talk about this, you have to think about how you want to integrate the command and control of that architecture, which we have never done. We have never done.

[Mr. Riki Ellison]
So, when they talk about bubbles, that's what we're talking about. The word Aegis on the shore is the wrong word, but putting SM-3s on the ground in the United States.

[Dr. Michael D. Griffin]

On the ground, on ships.

[Dr. Lisa Porter]
On ships.

[Mr. Riki Ellison]

Is important to do.

[Dr. Michael D. Griffin]

It's critical because one layer will, if you give the adversary one layer, they have one problem to solve. In the horrible event that China and or Russia or China and Russia together decide they want to attack the United States with nuclear capability, then I don't want to rely on one layer.

[Mr. Riki Ellison]

All right. All right, Lisa. This is the fun part. This is where the public, they don't get to talk about what you know and how you supplement. And Mike's point in the beginning, we're not just defense, we're offense too, but we got to get the defense right a little bit to get going. But this is a delicate subject, but it's also good for people to understand what else is out there besides kinetic options to defeat.

[Dr. Lisa Porter]

And I'll just, just to hammer on a point Mike was ending with, because I think it is really important. The best defense is a good offense. So for those who think we should reallocate our focus only on defense from space at the detriment of having our, or upping our opportunities with Aegis, PAC, THAAD, I think that's completely misguided, because if you invest in your terminal defense systems, and Aegis in particular, a very impressive system, you're obviously also investing in the production that we need to accelerate for our offensive capabilities, which has been frankly not nearly impressive enough, let's say, in the past few years. So I think now you're seeing so around, not just your traditional incumbents, but a lot of new players who want to contribute to the offensive side. So to me, I look at this EO as a call to action to ensure we have a good offense as well as defense. To Mike's point, we want to tell them you have, you know, you're going to have holy terror raining down on you if you try to do anything to us, not just we're going to sit here and, you know, do our best to defend.

[Mr. Riki Ellison]

Has the policy allowed this now to do this?

[Dr. Lisa Porter]

I'm not a policy person, so I don't want to comment on policy. I just want to say from a technology perspective, if I'm going to invest in capability to defend at the THAAD and Patriot and Aegis level, I'm naturally developing capabilities that allow me to have a more robust offense, which I think is excellent.

[Mr. Riki Ellison]

And with that going back to Rod's from God and that kind of stuff?

[Dr. Lisa Porter]

Well, that would be more ground-based, but still the same point, right? I mean, you brought up the FOB capability that China has demonstrated. The Indo-Pacom theater is at significant risk right now from the Chinese hypersonic threat. We need a lot of hypersonic capability over there to counter that threat, and that's where I'm saying the best defense can be a good offense.

But that aside, let me talk about non-kinetic for a while. And it's not really non-kinetic so much as I was lucky enough to spend time in the intelligence community, and one of the things I learned there is they try to think about their mission as if we do our job right, there will not be a war ever. Now, maybe I shouldn't put it quite that way because then that begs the question of how well they've done their job. But that aside, that's the focus. And what they really mean by that is if you know enough and you understand enough, you can take the right actions to deter and create enough chaos and uncertainty in the adversary that they're never going to take that first shot. Because frankly, if they take that first shot, it's going to be a bad day. We don't even want to get close to that point. And so it's more important, I think, to sort of use an analogy, it's more important to play chess than checkers, right?

So we need to think about what would an adversary have to have to be a credible threat against the US and particularly against CONUS, right? Well, it would be the same kinds of things we would need if we were developing an offense. And we understand that very well. And part of what we know about the space domain is they're going to rely on space for eyes in the sky, for command and control, and for IFTU, which includes IFTU updates. They're going to rely on all the things that we know they're going to need to do. So think about that battle space and say, rather than focusing on T0, when they've already launched and you're trying to get after boost and you're extremely low probability, why don't we make it a situation where they are so unsure of what we can do to them ahead of time that they're never going to take a shot. And by that, I specifically mean, think about the assets they'll have in space for IFTU, right, inter-flight target updates that they're going to need to have. How are those going to position those satellites? We're going to know where those are. We can do a demonstration to show them. We can take your IFTU satellites out anytime we want.

[Mr. Riki Ellison]

So you're saying that that type of development, demonstrations, and testing should be included in the...

[Dr. Lisa Porter]

Yes, that's something we could do in the nearer term, I would argue. So you were talking about what could be done in 18 months, and you were pulling on, I think correctly, what kind of demonstrations can we show our adversaries that we're capable of now, so they don't even think about messing with us, because they seriously, you know, let's show them what we can do. I think one of the things we want to remind them of, by the way, we can deploy right now capabilities to take out whatever you think you're going to use in space to attack us, and they're going to need to use space to attack us, because we will know where their other ground station IFTU sites are, for example. We'll take those out. Do you see what I'm saying?

So this focus on offense versus defense, in the cyber world, the best capabilities come about when people realize you've got to share the information, and you've got to share the mindset of how do I operate as an offense, how do I take all the knowledge I understand there, and now think about a defense against that, and that allows you to move T-0 way back. You see what I'm saying?

[Mr. Riki Ellison]

I got what you're saying. Let me just go a couple things on that, because you're right on the nuclear level, but you're seeing adversaries go underneath those technologies with cruise missiles, with drones.

[Dr. Lisa Porter]

They still need updates if they're going to attack.

[Mr. Riki Ellison]

So you're jamming everything that they're talking to.

[Dr. Lisa Porter]

You're jamming, you're attacking, you're making it clear. Look, you have any asset in space that guides your missile, that guides your drone, that guides your hypersonic, all of those things are going to need guidance, all of them. In an EW contested environment, do you think we're not going to contribute to EW? We're always talking about what they're going to do to us. Anything they do to us, we're going to do to them. They know that, and so they are going to have seekers. They're going to have IFTU capability. They're going to understand that has to be distributed. We're going to say, we know you're going to have that.

We're going to take it out before you ever press go, and now you've got the deterrence, because how are they going to know they can actually act effectively if they know you can take out their stuff? Do you see what I'm saying?

[Mr. Riki Ellison]

I see what you're saying.

[Dr. Lisa Porter]

I think that's why people get excited about the booth phase. But they've got to rethink that objective.

[Mr. Riki Ellison]

We think that. Now, you mentioned how in the heck are we going to merge these two? We're not doing it. The joint seems to fail on that. It's very difficult doing joint things. Part of the Golden Dome is they're looking at restructuring how to build this with offense, defense. I would assume with both of them.

[Dr. Lisa Porter]

They need to think about it that way. Yes. I would argue. I would argue.

[Mr. Riki Ellison]

And then, okay. You want to have an opinion on how that should be done?

Do you think you need to have a four-star billet? Do you think you need to have a task force? What do we need to get this thing together?

[Dr. Lisa Porter]

The last thing you want is another task force, and whatever they do, please don't do a cross-functional team. Oh, my God. Those things are a waste of time.

[Mr. Riki Ellison]

I think that's what's happening.

[Dr. Lisa Porter]

Don't do that crap. When we were in the building, thank God we didn't have a Space Force cross-functional team. It was hard enough just getting the Space Force stood up, not to mention SDA, not to mention the fact - we just ignored all that crap. You have to move out of that bureaucratic mindset of, we need a bunch of people in the room talking. No.

[Mr. Riki Ellison]

So how do we do that?

[Dr. Lisa Porter]

You need to identify someone, I would say, four-star or somebody who is fully empowered. Perhaps three-star.

[Mr. Riki Ellison]

Beyond acquisition and development.

[Dr. Lisa Porter]

That person has to be empowered.

[Mr. Riki Ellison]

Bigger than that. Do you break those down?

[Dr. Lisa Porter]

In my opinion, this is really important. This EO is awesome in terms of its intent. It is sending a message to China and Russia, don't F with us. We're serious. Awesome. We need a really high-ranking person who has the president's ear, who's in charge of it. And then you need probably a civilian-level deputy, whatever you want to call them. That person has to have the technical chops. You need like a 40-year-old Mike Griffin. Okay. Sorry. He's a little older than 40. You need somebody with enough scars that's actually been to the show before, but is young enough to really see the future.

[Mr. Riki Ellison]

So that four-star, is that an acquisition development officer or is that a commander? What is it?

[Dr. Lisa Porter]

It's somebody who understands how to get stuff done. It's the equivalent of in Trump 1, when we had a COVID problem, and he was like, we got to fix this. We got to get a vaccine. What did he do? He put a get stuff done guy in charge.

[Dr. Michael D. Griffin]

He put Gen. Gustave Perna in charge. And nine months after we declared a problem, we had vaccines.

[Dr. Lisa Porter]

I mean, it's amazing. That's what we need. This is the equivalent of that. This is like the COVID vaccine. Nobody thought you could do that in nine months. Nobody.

[Mr. Riki Ellison]

So would you say right now, there is out there that this is very much like what happened in Guam for five years recently on the bureaucracy aspect of it?

[Dr. Michael D. Griffin]

I'll give you examples of the kind of person.

[Dr. Lisa Porter]

And I'm sorry if my language is too salty.

[Mr. Riki Ellison]

You're good. You're in the locker room. I'm from Boston. I'm just going to say.

[Dr. Michael D. Griffin]

So I'm worse than she is. So you need the kind of national attention that caused the leaders of that time, the Trevor Gardeners and DOD to put a Benny Schriever in charge of the ICBM program,

[Dr. Lisa Porter]

Yes.

[Dr. Michael D. Griffin]

To put Hyman Rickover in charge of nuclear submarines, to put Wayne Meyer in charge of Aegis,
[Dr. Lisa Porter] Yes, exactly.

[Dr. Michael D. Griffin]

To put Red Rayburn in charge of ballistic missile submarine development, frankly, to put General Jim Abramson in charge of SDIO in the early years.

[Dr. Lisa Porter]

Exactly.

[Dr. Michael D. Griffin]

Now, you mentioned the level of the person. Frankly, if it's not a four star, then it's a three star, and three stars get coffee for four stars. Sorry to be so blunt, but that's how it works.

[Mr. Riki Ellison]

Do we have a four star right now that could do this?

[Dr. Michael D. Griffin]

You can make one. The president can make anybody that...

[Mr. Riki Ellison]

No, we have to find a personality like that.

[Dr. Lisa Porter]

You need to find the right person. It's the person, not the...

[Dr. Michael D. Griffin]

And it doesn't matter, actually, if it's a military rank or if it is a...

[Dr. Lisa Porter]

Equivilant civilian.

[Dr. Michael D. Griffin]

...Senate appointed and confirmed civilian. It's about the quality of the person.

[Dr. Lisa Porter]

And then them being empowered to do the job.

[Dr. Michael D. Griffin]

And empowered to do the job with an organization. If you want a Golden Dome and you want it in a timely way, they have to have the money, they have to have the authority, they have to have the chops.

[Dr. Lisa Porter]

And then they need a small technical set of people, frankly, like a Mike Griffin team, who will tell them the truth, who will say, sir, don't go after boost phase intercept. That's going to be the thing that wastes your effort. Let's focus on this part. They need people who are going to say, this is technically what's credible.

[Mr. Riki Ellison]

How would you fit MDA in this? SDA? Or would they be...

[Dr. Michael D. Griffin]

Undetermined. You have to figure that. That's part of the task, is to figure out what pieces of those organizations you want and which ones you don't.

[Mr. Riki Ellison]

Okay. And then which co-com would you... Is this a North Com problem? Is this a Space Com problem? Is this a Strat Com? Command for this whole thing. Or you don't...

[Dr. Michael D. Griffin]

I don't think you know yet. I mean, how do you know? What are your criteria for knowing?

[Mr. Riki Ellison]

Defense of the U.S. homeland, I would assume. But he's got North Com and Strat Com and that XO. But I'm just curious on that with the deterrent part of it.

[Dr. Michael D. Griffin]

It... Riki, it involves space. It involves airborne. It involves seaborne. It involves land-based assets. It needs to be put together in a new way to solve the problem, not with a preconception about what co-com is going to do what or what existing organization is going to do what.

[Dr. Lisa Porter]

I mean, this is a classic team of teams. You put the best people in charge. If you put a four-star who was an equivalent of Rickover in the Navy in charge, and you say, you're in charge, go get your team and make this happen. That person, by virtue of who they are, will attract the best. They will know who in the MDA, which team of MDA people they're pulling in. They're going to know who in the space.

And they're going to go, guys, step one is let's figure out what we're going to go do. And we have to nail that down. And then step two is go do it. This is how you get stuff done in a bureaucracy. And we've done it. So I know this is doable. When people ask us, how did you do this and that? We didn't care about rank. We cared about capability. We cared about who could do what. And we cared about empowering those best people to go get the job done.

[Mr. Riki Ellison]

So let's go back to Abramson. What happened? Why didn't we get that thing beyond? Can we take lessons learned from our history, from the missile defense history?

[Dr. Michael D. Griffin]

Space-based defenses were certainly contemplated in the SDIO years, along with ground-based and all the different layers and all that. But remember that there was an election held

in 92 where President Clinton won. And he immediately took missile defense out of space. I mean, all the space-based stuff was canceled. So I don't know. I personally can't divorce; I can't divorce progress in the United States from political considerations. Why do we not have people on the moon today from the United States? Those are political decisions.

[Mr. Riki Ellison]

Did you see George Bush change that? Or he had the opportunities that were too far? Once Clinton took that out, it was difficult. We had policy there to allow us with the missile defense.

[Dr. Michael D. Griffin]

Well, I think you've got to look again at the times. By the time George W. Bush took office, the United States was in a post-Cold War frame of mind. We had won the Cold War. It was the end of history. And people such as us who would say, you're kidding yourselves, were not frankly listened to. I mean, we were totally soaked up in the war on terror. And the threat that President George W. Bush saw was a rogue threat from Iran or North Korea.

The ground missile defense system does a good job against one or two launches from a rogue threat. So they were solving a different problem.

[Mr. Riki Ellison]

So now you've worked for the current president. So now we have a new political...

[Dr. Michael D. Griffin]

Well, we don't work...

[Mr. Riki Ellison]

Sorry.

[Dr. Michael D. Griffin]

We haven't been asked to work..

[Mr. Riki Ellison]

The last time he was in. But now, this environment now looks to be very positive for looking at this.

[Dr. Michael D. Griffin]

The threat looks different than it did 20 years ago when George W. Bush was in office. It looks very different. The threat today looks like a resurgent Russia and an insurgent China that is developing, it's in the public literature, developing ICBM capability in the hundreds.

[Dr. Lisa Porter]

Not to mention the hypersonics that are incredibly impressive.

[Dr. Michael D. Griffin]

Thank you. Yeah. And China has developed an offensive layer that fits between naval gunfire and ICBMs. And that's, as Lisa just mentioned, that's their hypersonic offense for which we...

[Mr. Riki Ellison]

Where do you think we're going to take the money from? We're going to take it from the... I mean, we have to get this brand new money to do this.

[Dr. Michael D. Griffin]

Neither of us are in policy or finance and...

[Dr. Lisa Porter]

But I will say that, even if there were no DOGE or whatever, there is plenty of opportunity to identify funds within the building to be repurposed. There's a lot of stuff the DOD spends money on that doesn't make sense. So, with the activity now very focused on identifying those areas, I would think we could get a good head start tomorrow, honestly, if that money...Now that the SCR has passed and there's been flexibility given to the DOD. This is a matter of will, and very importantly, it's a matter of talent. So the biggest concern is people with really strong passion and love for this country and all that good stuff we love but not understanding some of the things they need to understand to put together a credible system. And frankly, therefore being vulnerable to all the charlatans that are going to come in and tell them they got the problem solved. So that's why, as you had said earlier, the technical background is required to know what to do and what to bet on. And that is going to have to be part of the success formula.

[Dr. Michael D. Griffin]

You can bet that our adversaries, the Chinese are far from stupid, and the Russians are brilliant engineers and mathematicians. If we offer up a non-credible architecture, an architecture that on its face is not suited for the job, they will know that. We're not hiding what we do from knowledgeable people. We're only hiding what we do from ourselves.

[Mr. Riki Ellison]

Lisa, would the cost of the offense stuff be two or three times more than defense stuff?

[Dr. Lisa Porter]

It's usually less.

[Mr. Riki Ellison]

What's that balance you think that is?

[Dr. Lisa Porter]

It's always easier to go on offense, right? No matter what.

[Mr. Riki Ellison]

They always get paid the money. I'm familiar with offense.

[Dr. Lisa Porter]

It's not even just that. It's an easier problem. It's an easier problem to be on offense than defense. All it takes is one guy to get through, right? Whereas for offense, you just launch as much as you can.

[Mr. Riki Ellison]

But the balance of this and expenditures for the Golden Dome, is it between 50-50? 70-30?

[Dr. Lisa Porter]

So we talked before, I think we have to get out of this false duality or false choice. If we start saying offense is more important or less important, we're doing ourselves a disservice.

[Mr. Riki Ellison]

So the whole package.

[Dr. Lisa Porter]

The whole package. The whole point here is I heard the president when he was talking, frankly, I thought very effectively about the Chinese threat and the Russian threat. And he's looking at it. I remember I was a kid when Reagan was president. I didn't even get to vote for him. But I remember being inspired by his real genuine desire to eliminate nuclear war as a potential. He was serious. And that was his goal. And when I heard Trump talk about this, I similarly felt that's what he's afraid of.

He really is afraid of nuclear war, and I'm glad he is. So when you look at that, you say, how do you achieve that when you have a tripolar world? And that's what he was saying. Look at what China has, look at what Russia has, and look at what we have. We have a tripolar world. The best thing we can do is ensure that nobody pulls that trigger. Now, we know we're not going to because we're not the aggressors here. But we've got to make sure China doesn't, we've got to make sure Russia doesn't, we've got to make sure those two entities don't join up and decide to do it together.

And so what I view the dome as, the Golden Dome, now I think that's a better name, the Golden Dome is really about that absolute deterrent. And that's why I'm encouraging, and I was glad they actually called out, when they're talking about non-kinetic, I think they're talking about real left of launch. I think they're talking about obvious cyber things you do. But I'm also saying, think strategically about what they are going to have to have in place, and make it clear to them that all of those things will be at risk.

Whether it's their fusion capabilities, and their AI algorithms, and how we attack those, whether it's cyber, whether it's the IFTU, all that stuff we were talking about, make it so uncertain for them that they're not going to take the risk. So, don't think, how much do I spend on offense, and how much do I spend on defense? They're not thinking that way. They're not. Why would we think that way? Our, we need to do as much in offense as we can, and we need to make sure that they don't.

[Dr. Michael D. Griffin]

Is it offense or defense? If I fly a high-powered microwave-equipped satellite past a Chinese or Russian asset, and fry its electronics, I don't create any debris? I do a close pass, and fry its electronics. Is that an offensive or a defensive thing?

[Dr. Lisa Porter]

If we make it clear, we have 2,000 hypersonic weapons ready to launch in the PACOM. Is that offense or defense? We're not going to launch them unless they do something. I'm very passionate about this, because I don't want people to think this is an either-or choice, and I think we do ourselves a disservice. I think we ramp up our production, and by the way, the missile capabilities we're going to need in next-gen, with EW contested, means everything offensive and defense needs a seeker. Everything.

Everything's going to need improved range. Everything's going to need the very similar capabilities, so let's just go. Build as much missile capability as we can. Let's figure out what space is great for. You can see everything in space, and you talk to everything in space, but guess what? That means they need space for the same reason, so let's think about space in that way, rather than trying to shoot down ballistic missiles from space and boost space. He's getting frustrated.

[Mr. Riki Ellison]

No, you're good. You're good. I just want to go, because I want to get the question done.

[Dr. Michael D. Griffin]

You asked where the money's going to come from. The choices, the nation's policy is about what you decide to do, and it's about what you decide not to do, and that's a really critical thought. You have to make choices about what you're going to do with your pushing a trillion-dollar defense budget. There's some things we're not going to be able to do if you want to build the kind of deterrent layer that the President was talking about.

[Dr. Lisa Porter]

There's things you don't need to do.

[Dr. Michael D. Griffin]

And there’s plenty of things you don’t need to do.

[Mr. Riki Ellison]

I'm going to ask Mark to come in. Mark, you've been listening to this the whole conversation. I'd like to offer you a couple minutes here, Mark, on this, and then open it up for questions coming to you from the public.

[Rear Admiral (Ret.) Mark Montgomery]

First, I want to say we're very lucky to have both Dr. Griffin and Lisa here. I think this was an excellent discussion, very sobering and accurate compared to almost every press release, which are not sobering. They're fairly drunken. I agree completely. The most sobering fact is the short timeframe you have for a boost phase intercept. The reality is this is going to be complex. It's going to involve a lot of midcourse, and then in the end, some terminal intercept on these things. I like the good discussion of the importance of the space base, but the recognition there's some underlayer that's still going to be required. By the way, for the next five to seven years, it's going to be an underlayer. There's not a piece of magic that puts 3,000 or 2,000 or even 1,500 satellites in space over a short period of time. We've seen with the Space Defense Agency, their launch of the start of their first 148 satellite tranche has been delayed now a full year from its original. That is common, not uncommon.

I really like that. I love the discussion of the underlayer, recognizing that Aegis, VLS, THAAD, you're going to need some of that. That's where we can't get drunk again, because those interceptors are in the $10 million to $22 million in intercept range right now. I do also argue for, as you know, Riki, for dirigibles. I think that that plays a role, particularly in glide phase intercept with hypersonics. To get to Lisa's point, they've talked about ignoring the offense versus defense. In hypersonic missile defense, the actual spending number of the government has been 19 to 1 for every $19 on hypersonic offense, which is normally about $4 billion a year. We've spent $1, so $19 to $1 on defense. Even in your worst paid year, Riki, the defense of the 49ers got more than 5% of the team's salary. You just can't do that. You know, we've taken risk with this for almost five years now.

One last thing I'd say is where the money comes from, Lisa, I never thought you were an optimist, but the idea of reprogramming, the one thing that's driving me crazy is they're saying 6% to 8% will get reprogrammed. They'll be lucky if it's 1% to 2%, because they'll reprogram four or five, but they'll be congressional favorites. In the next budget cycle, they'll be reprogrammed back in. We all know how that game works. Almost as perfidious as the services not getting rid of systems that they should have is Congress not getting rid of systems built in their district.

I do think there's a solution, though. I think the reconciliation bill is going to be between $150 and $200 billion. We'll take that $150. It's going to be split in four parts, the nuclear

enterprise, shipbuilding, restoring readiness in the three services, and missile defense. If missile defense can get its fair share of that $40 billion, that's a good jumpstart. Then some of the savings you pointed as you start to look at what legacy systems die.

I think over time, we could squeeze money out of things. I think initially, we're going to need that reconciliation money. I thought that was a great discussion, Riki. It absolutely was honest and fair about the challenges of discrimination, the real challenges of boost phase, and the fact that you're still going to need some underlayer, but there's an opportunity in space. Thanks very much for leading that. We've got time for two or three questions for Mike and Lisa. Do you want me to go ahead and put those up?

[Mr. Riki Ellison]

Do you want to have anything to respond to Mark? Are you good?

[Rear Admiral (Ret.) Mark Montgomery]

If they responded to me, that would have been rough, since I think I generally agreed with everything they said. One of these is, what is the role – and Mike, I think both of you are great on this – how do you envision MDA in this, recognizing the actual Missile Defense Agency and their people and their role in the execution of this? Are they still the architect of missile defense for the Department of Defense?

[Dr. Michael D. Griffin]

Do you want to go first? Do you want me to?

[Dr. Lisa Porter]
He said you can go first.

[Dr. Michael D. Griffin]

Okay. Well, part of the point we were making earlier, Mark, was that this is a new and more comprehensive enterprise. So, saying that a legacy enterprise like MDA can automatically up its game and be in charge of the architectural and acquisition and technical thinking that's required, I think is probably wrong. So, there's an awful lot of technical expertise at MDA, at Space Development Agency, in Space Force, frankly, in Navy, Aegis, and Army, THAAD, and Patriot, that you want to pull all of those in after some thought, what is determined to be the right way. I would not hand it to any existing agency.

[Dr. Lisa Porter]

Yeah, and I would add to that that I think one of the biggest cultural barriers they have is the way they think about command and control, which we didn't have enough time to go into that. But the command and control challenge here is just not going to permit the standard way that they think about this problem with centralized control and a man in the middle. That just doesn't work. And I think there are people within MDA that certainly understand that. But to Mike's point, you pull those people in to a separate group that is empowered to

do the right thing as opposed to having to go back and please their boss because there are rice bowls at risk if they actually speak truth to power.

[Dr. Michael D. Griffin]

The command and control is probably the more difficult problem in this. We actually know how to build interceptors that provably work. We can argue about cost. We know how to build sensors that provably work, provably provide fire control quality information, can argue about cost. We don't yet know how to do the kind of distributed autonomous command and control that is going to be necessary for an actual golden dome.

[Mr. Riki Ellison]

And that's got to be offensive. That's got to be everything for the entire joint force. That's right. But let me just go back to MDA because aren't they, they are the experts or have the depth of knowledge on space intercept with the EKV and all that knowledge. We're not going to do space intercept?

[Dr. Michael D. Griffin]

I never, neither one of us said even once that we would not avail ourselves of the knowledge. What we said was this is a more integrated problem than any agency, any service has yet dealt with, and you need to start fresh.

[Dr. Lisa Porter]

Yep.

[Dr. Michael D. Griffin]

Okay. Yep. Exactly.

[Dr. Lisa Porter]

And you need the people who really do understand the problem to be able to attack it without concerns about the equities that are challenged if they bring truth to power.

[Rear Admiral (Ret.) Mark Montgomery]

I'm glad Dr. Griffin said cost at least three times that answer because he's right. One of the things that drives me crazy is the way that we drive competition out of the program by trying to down select to a single missile as fast as possible. You and I saw this in the go down to one company fast, one solution, I don't even say one company, one solution fast, you guarantee a non-competitive environment over time in the costing of that weapon. And that's what we've seen happen is really significant increases in the cost of weapons after they're picked. And I just think one of the things we need to kind of insist on is be whether it's in the space-based systems, whether it's an underlayer systems that we emphasize competition. America kicks butt, our businesses do in competition, but for some reason inside the defense or industrial base, we drill that out.

[Dr. Michael D. Griffin]

You're singing our tune, Mark. I mean, how many times do you want us to say we agree?

[Dr. Lisa Porter]

Totally agree.

[Mr. Riki Ellison]

Hey, Mark, can you bring up, I didn't articulate correctly enough, but can you bring up the Guam situation and how this is somewhat looking like that today on how they're solving this problem?

[Rear Admiral (Ret.) Mark Montgomery]

This is where Dr. Griffin was exactly - what both Lisa and Dr. Griffin said, you can't use the existing system. Literally, the Guam system, if they replicate what they did for Guam, whether it's in terms of assigning architectures and responsibilities the same way they did for Guam, it's going to be a grotesque misappropriation of funds. I mean, Guam was a $2 billion waste of money. This will far exceed that if they do that. What happened in Guam was they allowed a small unit within the joint staff to articulate an idea, not based in engineering, with a handful of engineers, one or two engineers, not 10 or 20 or 40 or 60, to articulate a theory, pass it to a portion of DoD CAPE that doesn't historically do mission architectures. And shockingly, when you have poor architects give something to poor developer, poor is the wrong word, insufficient architects to give it to an organization, not based on designing and producing a plan. Amazingly, it was a cluster. And I would say, in the defense of Guam, it's fair to say that four years after we started, we have very little to show except for $2 billion in bills and a lot of bad blood between services, MDA, CAPE, and the joint staff that is going to make what we've just discussed here even harder. Many of these people are in their same jobs or back in a more senior job if they're military. I just think this is one of the main reasons I would say you may have to have a senior person over the existing things, like Mike was arguing for, come on, fresh, because the current system is coming off not just a loss, they're coming off like a New Orleans Saints 0 and 16 season.

[Dr. Lisa Porter]

I totally agree. That's what we were trying to say. And that person has to be in charge of everything. Absolutely.

[Dr. Michael D. Griffin]

And it wasn't just me that was saying that, it was Lisa as well.

[Rear Admiral (Ret.) Mark Montgomery]

I would ask, there's one final question here, Riki, in our time remaining, but it's one that I think is implied in all the answers but wasn't stated, but how much emphasis do we need to put on survivability and resilience in this space-based layer, given emerging Russian and Chinese cyber and other space-based threats?

[Dr. Lisa Porter]

That has to be part of it for sure. Everything that we were talking about in terms of thinking ahead to what they're going to do, they're going to do the same with us. And that's the way it's always been, and that's the way it will always be. So yes, that has to be part of the calculus for sure.

[Rear Admiral (Ret.) Mark Montgomery]

I guess I'd also bring up today's article on we're observing China do what they call dogfighting in space. Space Force still got a lot of Air Force in them. But the idea that satellites are maneuvering in a way that clearly shows a threatening posture, but appear to have tools that could impact another satellite.

[Dr. Lisa Porter]

That is correct.

[Dr. Michael D. Griffin]

That's the point of their demonstration, and that's what we're saying.

[Dr. Lisa Porter,]

And we should be doing that too. There's no reason we can't be doing that. Rather than just hemming and hawing over how horrible that is, let's just make it clear we can do the same.

[Rear Admiral (Ret.) Mark Montgomery]

And I love that. And I love that at no point have we had to explain that the space treaty does not actually apply to anything we have said. None of us have said, I'm planning on putting a nuclear warhead on one of my satellites and flying it around in a threatening manner. None of us have violated the International Space Treaty. Riki, I want to pass it back to you to see if you want to get final comments from the two.

[Mr. Riki Ellison]

We'll get final comments on the discussion today. Lisa, we'll start with you.

[Dr. Lisa Porter]

So yeah, I've never been called an optimist before, so that was kind of nice. I do know that if people are willing to just do what has to be done and not worry about getting their

promotion. I mean, Rickover retired as a three-star. The people that Mike cited were all people who ultimately got punished for being bold and brave, but I don't think they would do it differently. So, you can actually move money around. I mean, the things Mike and I did when we were in the building to get stuff started, we didn't make any friends. We were not well-loved, but we didn't care. So, I don't mean to sound so much as an optimist as to be championing people who are willing to do whatever it takes to get it done. And if you've got the President of the United States behind you, then that should be sufficient to tell people to go pound sand when they start getting in your way.

But I would say with regard to the EO, I think we have to make sure that we do the right things. We've emphasized that. Don't waste the money on the bad stuff. Don't waste the time on the bad stuff. And there are things we can do in 18 months, experiments, or demonstrations, I should say, on a variety of examples I would just brought up today, that would be quite compelling, I think, to both Russia and China and remind them, you know, we're not going to sit back on our heels and just admire what you guys are doing. We can do everything you're doing more. That's really what we have to make sure that they understand.

[Dr. Michael D. Griffin]

I would echo what she said. I don't need to repeat it. Mark was talking about congressional rice bowls and moving money being an impediment. If winning your next election or getting your next promotion for a leader is more important than getting the job done, then we're doomed. Okay. So there are things where many things we're buying today for the DoD that are not relevant to a peer conflict with China and Russia in a tripolar world. And it's not that hard to go through and figure out what the totem pole is and what should come off the bottom in order to create that which needs to be done at the top.

[Mr. Riki Ellison]

Thank you, Mike. This has been a great, great discussion at a timely place before this thing.

[Dr. Michael D. Griffin]

This is a great executive order. I mean, leaving aside some of the details, but this is a great executive order.

[Mr. Riki Ellison]

Today, you framed this thing for us, not wasting money on boost-based defense, focused on the space-based stuff that we've done, creating some wins that we could do in 18 months.

[Dr. Lisa Porter]

That are very credible.

[Mr. Riki Ellison]

Reflecting on the inefficiency of the process that we've lived with, that was built for North Korea. It was built for North Korea, North Korea a small threat. And we have now, we are playing with the big boys, and we have to have everything available.

And this has got to be tooled, and it's got to be re-looked at it correctly. So I think that the discussion is so timely and so important. And I appreciate your candor and truth and your experience from what you've done. So, thank you for this discussion. Mark, thank you. I really appreciate coming on.