Defending the Homeland: Establishing Superiority in Space and Missile Defense

Moderator:

- Mrs. Kristin Fisher, Endless Void Media

Panelists:

- Senator Deb Fischer, U.S. Senate, Nebraska
- General Michael Guetlein, Director of Golden Dome
- The Honorable Troy Meink, U.S. Secretary of the Air Force
- Ms. Kathy Warden, Chair, CEO, and President, Northrop Grumman

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Kristin Fisher:
Well welcome everybody. I am Kristin Fisher and I am so honored to moderate such a distinguished panel. To my right, we have Senator Deb Fischer of Nebraska. Next to her, General Mike Guetlein, the Director of Golden Dome, the Honorable Troy Meink, Secretary of the Air Force, and Kathy Warden, the chairwoman, CEO, and President of Northrop Grumman.

I can't imagine a more fitting place to have this conversation than right here because of course it was President Reagan who first proposed the idea of a space-based missile defense system to protect the homeland. And he called it the Strategic Defense Initiative, I think most of us called it Star Wars. And now here we are 42 years later talking about essentially the same thing but with a different name.

So before we get into it though, I just want to get a show of hands. Okay, how many of y'all have seen the new Netflix movie— *House of Dynamite*? Okay, it's a pretty good number. I was expecting about that, but for those of you that have not seen it, this is just a very small spoiler. Okay. The premise of this movie is that the U.S. attacks an incoming nuclear missile and we can't take it out. Our defenses fail and the President

has about 15 minutes to decide what to do. So Secretary, let me start with you. Did you see the movie? If so, what did you think of it and how would you assess the United States' current ability to defend the homeland in a moment like that?

Troy Meink:
Well, thanks Kristin. Happy to be here, and great venue. This is the first time I've been here, so this is phenomenal. So I'm really enjoying it. So I did see the movie, it took me three times to watch it. It was a little stressful and I already said it took me a bit to get through. It felt a little bit too much like work sometimes, so I had to stop and take a break. I think it was a great story,
it was a really good story. I think two things come out of it and I apologize for those of you who haven't seen it, but what really set up the drama of the program was that we didn't know where the weapon was coming from. And to do that they kind of had to play space away, they had to get rid of space because with the space systems we have, we would've known where the weapon's coming from. So that just reinforces the importance of space power going forward and why we now have a Space Force is how important that is and giving the President and the national policy makers and understanding what's going on in the world, obviously in this situation as well. I almost love the fact that they had to actually play away right out the space systems to make the storyline work. And then the second part that I really take away from it is—and I'm not going to talk about how accurate or accurate the movie was—but we obviously need to give the President as many options and decision timeline as we can. And to some degree, that's our job—General Guetlein, that's your job going forward—and I think that's really what I took away from it. We need to make sure that we give the President and national security infrastructure more time and more options in situations like this.

Kristin Fisher:
So, General, this is the first time that you're speaking publicly since right after you were named the Director of Golden Dome. Can you explain in as much detail as you possibly can, what Golden Dome is, what is the architecture, and how would it better prepare and defend the United States against a moment like the one that was put forward in that movie?

Michael Guetlein:
Yeah, thanks Kristin. It's a good question. So Golden Dome is about building a layered defense capability for the nation to protect the nation against an attack against the homeland. For years—decades—we've relied on the oceans to keep us safe and to take the fight to the enemy. And our adversaries have become very capable and very intent on holding us at risk in the homeland. And unfortunately, we don't have a lot of capability to protect and defend ourselves, which makes deterrence by denial a

challenge, it makes it a challenge to have consequences for bad behavior. And Golden Dome is about changing that equation, building a systems to systems architecture, collaborating with our industry partners and our national labs to come up with next generation technologies to build that layered defense capability to protect the homeland.

Kristin Fisher:
I have to ask, can you give any more details in terms of the architecture for Golden Dome?

Michael Guetlein:
I cannot.

Kristin Fisher:
Okay. I tried guys. I really tried. So Senator, there is a line in the movie, probably the most famous line in the movie—and I'm going to stop talking about the movie in just a second—but the Secretary of Defense says $50 billion and the best we can do is a coin toss. And I get that that figure, the stat, and the prize tag is fictional, controversial, but with that in mind, you help write those checks in the real world. What is your view on what the U.S. investment in missile defense has gotten us so far?

Deb Fischer:
It's kept our country safe, just bluntly, it's like our nuclear triad. It's kept our country safe. How do you measure the safety of this nation and what kind of price tag do you put on it? I'm excited about Golden Dome and since we can't say any more about it, thank you very much for coming.
But it's extremely important to be able to have this. And Kristin, you brought up President Reagan and Star Wars, and in last year's NDAA I was able to get a piece in that to be able to put in place a proposal that would allow for the Department to study this and to be able to look at what is needed in order to have the sensors, the radars that we need for it to work. And the problem I think before was there wasn't a sense of urgency about that. I compliment President Trump for coming up with the name for what we did on the Armed Services Committee and he's called it Golden Dome. And we're moving ahead and we have bright qualified people that are working on this to be able to have a system in place to identify, to discriminate incoming for the United States of America. That's a deterrent in itself to our adversaries. It protects the American people and I think— equally important—it gives the president of the United States time to be able to make decisions and how to respond if you have a missile defense system that works in that way.

Kristin Fisher:

So Kathy, Northrop Grumman is now poised to become one of the lead contractors of Golden Dome and the General can't give us more details on architecture, but he has said that it is on the order of magnitude of the Manhattan Project. So from an industry standpoint, what is it going to take to actually build this?

Kathy Warden:
Well, thank you for the question and for the confidence in the role that Northrop Grumman will play—that will be up to the General—and certainly it is going to take an all of industry effort for this capability to be fielded over a period of time. And I told General Guetlein that I'd follow his lead, so it is a layered defense against multispectral threats to our nation, and that's about all I can say about the capability itself. But what I can tell you is there are many capabilities that exist in our nation today that can be brought to bear to this problem. There are tens of thousands of engineers and this nation has the most innovative set of engineers in the world to go after a problem like this. And there's an industrial base with companies of all sizes that are ready to get behind this mission and support it with investment in not only people but also the capacity needed to build it out. And with that in mind, I'm very confident that this industry has what it takes to field this capability for our nation, just as Senator Fisher has pointed out, we have done before as a nation with our strategic deterrent that has kept this nation safe now for over 50 years.

Kristin Fisher:
So, General, for Golden Dome to work, it really hinges on a close partnership between industry and DoD, but there has been some frustration that's been expressed about the secrecy—just not a lot of information, but there have been a lot of headlines. What is your message to those in industry who feel like they're being asked to invest in the dark?

Michael Guetlein:
I think our industry partners have a pretty good insight into what we're doing. We've been having a lot of one-on-ones. I've met with well over 200 to 300 companies, one v. one to explain to them what we're trying to do. I want to go back to what Kathy was talking about. If you look at what are our core competitive advantages of the United States over adversaries, there's three of 'em. It's our people, it's our allies, it's our industrial base. And the amount of innovation coming out of our industrial base today is like never, ever seen before. So if you've heard me talk a little bit about Golden Dome when I was allowed to talk about it, I have told you that the technology exists. This is not a technology problem. We have proven all elements of the technology in one way or another. The real challenge is how do I bring together capabilities that have never been integrated [or] networked together into a system-to-systems type architecture and then

how do I leverage the entire innovation industrial base of the United States? And we had an acquisition system that kind of slowed us down from doing that and you just heard Secretary Hegseth couple weeks ago roll out the new acquisition system, taking a lot of those handcuffs off. Golden Dome is about partnering with industry in new and innovative ways to tap into the innovation, and to do it in a partnership and to do it with transparency. That transparency may not come in an industry symposium, but it is coming on one v. ones. It's not coming to an industry symposium because you guys are not the only ones in the audience. And there are people in that audience that I don't want to know what we're doing, I don't want to tell what we're doing. I don't want to give them a heads up, but I do know that our competitive advantage being our industrial partners are all in on it and are supportive. So they are pretty well well-informed to the maximum amount I can inform 'em today and we'll continue to do more.

Kristin Fisher:
Is there a point in time when you think the public taxpayers will learn a bit more and if so, do you have a timeframe for that?

Michael Guetlein:
Absolutely. I'm hoping—hope is not a good strategy, but I'm still hoping—that we can start opening up dialogue up in the New Year. We'll have some things in place that allow us to start having those kinds of conversations. You started with *House of Dynamite*. I think *House of Dynamite* was a good place to start the dialogue. It opens up the dialogue to the American public that we have to change the defense equation. We have to provide decision space to the United States President so that we don't get ourselves boxed in. We have to have a deterrent strategy— deterrent strategy means I have to have credible capabilities to deter the adversary. That dialogue kind of started with that movie regardless of how much that movie is actually based on reality and how much isn't; it is a movie, it is built for Hollywood, but it has at least started the dialogue that we need to have as a nation.

Kristin Fisher:
Senator, you have overseen missile defense oversight for over a decade now. Are you satisfied with the level of transparency that you've received from DoD so far on this?

Deb Fischer:
Oh, most definitely. I believe that the Armed Services Committee and specifically the Strategic Forces Subcommittee that I chair, we have a very good relationship in working with General Guetlein and with the Department as a whole, working with industry members. Kathy was just in Washington a few weeks ago to be able to update us on where we are. So we're conducting our oversight responsibilities. We are read into

what's needed and where we are in the process of this, and as the General said, it's going to be up to him and to the Department to decide at what point they would be comfortable in making more information public. We have major adversaries who are very interested in anything that we do in this country and especially with regards to this, and so we need to be very careful in holding a lot of this information close for the time being.

Kristin Fisher:
Secretary, from your vantage point overseeing the Air Force and the Space Force, what do you see as the biggest hurdles in integrating all of these systems and sensors with the unified command-and-control, but everything that involves something as complicated and complex as this? What's the biggest challenge that you see with pulling this off?

Troy Meink:
I think you actually hit a little bit on it in the question, and that's in integrating a lot of the technologies with sensors and the defensive systems together in a way that will meet the timelines—pretty tight timelines in some cases—that's going to be a big challenge, but it's actually a challenge we see not only within Golden Dome, but really across everything we do in the Department is how do we make sure that we're stitching everything together that we can accomplish the mission effectively and efficiently. That allows a lot more efficiency as well. I think the second thing, as the General mentioned, is the multilayer. The challenge we have is everything from when we were about in a larger context everywhere. Everywhere from cheap drones like we're seeing all over the world, all the way to advanced ICBMs like that was portrayed in the movie. It's a pretty broad sweep of things we have to figure out how to deal with. And again, it's not just in support of Golden Dome, a lot of the systems, a lot of the capabilities we field everywhere in the world to protect our forces and protect our allies and partners working with them. But that is a big part of it, it's just in the question how you integrate that all together.

Michael Guetlein:
Yeah, Kristin, the challenge here, as Secretary Meink just said, there's an integration technical challenge— that has always been hard doing a system to system engineering aspect of it—but the social engineering and organizational behavior challenge because we are integrating capabilities across all services and agencies and in some cases in the future we might be integrating allies. Each one of those comes with a different organization that we have to deal with a different set of rules sets that we have to deal with, a different culture that we have to deal with. Integrating all of that together is a social engineering challenge. And the reason the Secretary stood up the direct report

program manager concept is because it required a new set of authorities, a new set of authorities that I have to be able to integrate horizontally across the entire DoD and interagency environment to bring to bear an integrated capability to protect the homeland. That's where the real challenge is. That's something we haven't done before. That's a culture challenge, a behavior challenge, a process challenge, a policy challenge, in some cases a legal challenge. And then we got to somehow stitch all that together in new and innovative ways and that's the path that we're headed down. That's really where the complexity is going to come in building out something the size of Golden Dome.

Kristin Fisher:
And do you feel like you have the authority that you need to do that to make that happen?

Michael Guetlein:
Absolutely. I have the full support of the Secretary and the Deputy Secretary as well as the President on down and the trust and confidence of the Hill to move forward on this.

Kristin Fisher:
And can you share it all? A rough timeline for what it would take to do something like that to fully integrate

Michael Guetlein:
The President has requested that we deliver this capability and operational capability in the summer of 2028 and we are on that timeline. We're to deliver an operational capability by 2028. That will not be the final capability, but we will have the ability to protect and defend the nation against advanced threats by the summer of 2028.

Kristin Fisher:
That feels very ambitious. What is your level of confidence that you can pull that off?

Michael Guetlein:
We believe we can get there. We believe we have a solid plan that we have delivered to the Secretary and how we're going to do that, we are meeting all of our suspenses and our objectives to date. So I think we're on a good trajectory, but I will tell you it is not a gimme putt. It is an extremely complex thing that we're getting ready to do and there's a lot of risk in there that we're trying to get after and to mitigate.

Kristin Fisher:
Senator, what do you think of that timeframe? Realistic?

Deb Fischer:
I'm from Nebraska and we're pretty positive there, and being able to work with the quality of people that are on this stage with me, yes, I have faith in them.

Kristin Fisher:
I'd like to spend a minute talking about SBIs— Space Based Interceptors. I hope I don't get myself into too much trouble here. But I think it's important because this is really where Golden Dome could help make Reagan's Star Wars a reality. It's arguably one of the more ambitious and controversial pieces of Golden Dome. Kathy, Northrop Grumman has signaled some interest in building SBIs. How ready is your company, how ready is Northrop to do that? And not just to do it, but to do it at scale?

Kathy Warden:
So Kristin, this is an area where our company has invested in capabilities and those can be brought to bear, but I think the start of your question is absolutely right. This is one of the aspects of Golden Dome and it's really an aspect of future capability where more invention is required than other parts of the architecture where we already have mature demonstrated and operating elements. So this is going to take a whole of government and industry approach to define what is the right design for those systems and how can we aggressively not only field a few, but the real goal is here to field many. And so when we think about a problem set like this, the design has to not only be to develop a system, it has be to develop a system that can scale, and scale affordably. And so all of those parameters have to be considered when we think about something like space-based interceptors.

Troy Meink:
If I could jump in a little bit. As a much younger engineer, I worked on a number of the SDI programs—the space defense back in the Reagan days, both on space base laser and some of the Brilliant Pebbles and the other programs. It was really challenging with the technology we had at the time, which is why some of those systems never went into operation. We are in a very different place now than we were. You think about what it would take to build a cellphone in the 80s versus where we are right now. It is a very different world. So the opportunities—not that it's easy by any stretch of the imagination—but it is a very different technical environment now that I think is enabling a lot of things that just really were not possible back then.

Kathy Warden:
Yeah, if I can add on to that, a couple of examples of those. We're developing the B-21 and we're doing that with digital modeling and the modeling that we're doing there makes it such that by the time we get to test, the aircraft in a physical environment is

performing almost exactly to the models. We didn't have that capability as an industry 15 years ago, but we do now and we can bring it to advanced weapons systems. And we also are focused on how do we move through, still with a focus on quality and development for product, but move through with a design process that thinks about manufacturability and that too can be modeled. We think about manufacturing floors and the layout of those and modeling all of that before we even build a single footprint. That kind of technology enablement is going to allow us to do things much faster in the future.

Kristin Fisher:
General, would you like to add anything to this conversation on SBIs, please?

Michael Guetlein:
I do. So let's start with Reagan. Brilliant Pebbles worked. It wasn't scalable and it wasn't affordable, but it worked. I went up to Livermore and actually got to see one, the very last one that still exists. So the technology's there. What was a challenge back then based on the technology as Secretary Meink talked about, is it wasn't mature enough where we could do it at scale and do it affordable, like Kathy talked about. I think all that has changed today. But what we're going to have to do is change our culture, our warfighting culture, because right now we demand the most exquisite kit and we have the most exquisite kit. It doesn't miss, it is highly effective, highly lethal, but it costs an enormous amount of money and as a result we have a very small magazine depth of that kit. When we start talking about things like space-based interceptor, I've got to flip that equation on its head. I've got to have high magazine depth, low cost per shot, how do I do that? We're going to have to tap into the industry innovation to bring to bear into solving those problems. It's not the technology itself, it's back to scalability and affordability.

Kristin Fisher:
So Senator, it may be technically feasible. Is it politically feasible to deploy SBIs? And I mean just to put a really fine point on it, we're talking about weapons in space—interceptors essentially mounted to satellites that are orbiting the earth. And so what is your level of concern that this could lead to or accelerate an arms race in space and what is your level of concern that this could then be reversed by a future administration?

Deb Fischer:
I think you've seen the majority buy in to what we're doing here. We have a very strong support of the National Defense Authorization Act. It came out of the Armed Services Committee with only one “no” vote. It passed by I think 80 and some votes in the Senate. We're going to see what the final is going to be announced here in a day or so.

So there's support for defense and national security in this country. We heard that this morning with the survey results that were discussed at the opening panel. Obviously cost is a huge concern. You have to be able to know what we need and prioritize that and I think those decisions are becoming clearer for those of us in Congress when we work with the Department and with the military and really get the information there. So I think as long as we can have that open dialogue and continue to have the facts brought before us when we know that technology is advancing at a remarkable speed and what that means when we're looking at changing acquisition rules, so things I think are moving really, really quickly that will make those decisions easier for us in the future.

Michael Guetlein:
And Kristin space is not a sanctuary anymore. The adversary has been holding space at risk for years now. The Chinese have the ability to launch a missile at a satellite, take out a satellite. The Chinese have the ability to have a robot in space, kidnap another robot, another satellite and take it someplace else. The Russians have nesting dolls in space as a satellite that spawns another satellite that spawns a kill vehicle. So space is already contested. We're not starting that discussion.

Kristin Fisher:
Well, and it seems like the public agrees, the RNDF survey on this, they did a survey and you have 68% strongly or somewhat supporting Golden Dome, 25% oppose. Do you think that there is a world in which you will be able to share a bit more about the current threat environment to explain why to the public Golden Dome is so necessary?

Deb Fischer:
I'd love to answer that. That has been my mission for many, many years as a member of the Armed Services Committee to try and unclassify a lot of the information that we receive as Senators and that we are then able to talk to the people of this country about the threats that we face. We can talk about that we have two peer competitors, we have two peer adversaries with Russia and China who have a nuclear triad and all the platforms as well and who the Russians have completed modernization and the Chinese are advancing at a breathtaking speed. So we can explain in detail what's happening there because I believe the American people, when they fully understand the threats that we face, there's going to be even greater support for what we need as a country for our national security and so we don't see escalation.

Troy Meink:
I think to understand the threat, you just need to watch the news. You see massive raids going on against Ukraine on a regular basis; it's like every handful of days or something we see a pretty significant raid. And then with the Iran-Israel conflict, that was really

what spurred it off is a large number of all sorts of medium range and drone attacks on Israel. So the threat, you just have to go to the actual real news, not even the movie like *House of Dynamite*. It's happening all the time and we need to make sure that the homeland is protected from that.

Kristin Fisher:
We've talked a lot about kinetic weapons, the BS interceptors. What about non-kinetic? Because General you've referenced that this is a layered defense system, cyber, directed energy that is a component of it, too. I dunno, Secretary or General, whoever would like to take this one. Can you explain what some of the other layers other than SBIs are or could be?

Michael Guetlein:
So multidomain: we have the air layer, we have the sea layer, we have the ground layer, so it is everything from the seabed to space is going to be brought to bear. You talked about kinetics,
everything from seabed to space has kinetics. Everything from seabed to space has a very small magazine depth, very exquisite capabilities, very high cost per shot. In order to change that equation, we've got to start leveraging non kinetics, directed energy, and left of launch capabilities. And that's going to require us as a nation to invest in research and development—some next generation type of capabilities—, to leverage all the innovation coming out of industry, but to also bring our national brain trust—being our national labs—back to the table to have conversations about how can we do this different? How can I drive up magazine depth, how can I drive down cost per shot, and how can I increase deterrence?

Kristin Fisher:
To do all this it's going to take a very robust defense industrial base. Kathy, we've heard a lot about two potential chokeholds or bottlenecks from your perspective, solid rocket motors microchips, literally the engines and brains essentially of missile defense systems. How is Northrop—what changes are you making to prepare for what you will need to do to scale up for Golden Dome in those two areas in particular, solid rocket motors and chips.

Kathy Warden:
Yes, so solid rocket motors range in size from supporting tactical missiles all the way to strategic launch and those will be key in many aspects of the architecture that General Guetlein spoke of. So we have been investing, we've doubled capacity already in our factories for production of solid rocket motors and we're building out more capacity to further increase so that we can support the growing demand, not just for Golden Dome

for America, but more broadly. And as we think about what that looks like over time, we expect that this will also be global demand so we are incorporating not just U.S. need, but our global partners. We are thinking about more commonality amongst solid rocket motors, getting qualification for one to support many. We are looking at ways to re-engineer manufacturing floors so that we can build faster. So all of that work is already underway and supports the expansion that's going to be necessary.

We're doing the same thing in microelectronics, building new factories but building them smarter, moving more to automated feed lines for those. We're even changing our foundries to be more innovative in how we produce and get through R&D in our foundries. And by the way, we do produce in the U.S.—you hear so much about microelectronics that come from outside of the us. We have two foundries here in the U.S. where we are building from silicon to chip. So we're able to do that today, it's just a matter of scaling. This isn't a we have to go build something new; t’s we have to scale what we have, which is a much simpler problem and we're throwing the resources at it to make it happen.

Kristin Fisher:
Secretary, you've repeatedly stressed the need for speed. Do you see what Kathy was just talking about as one of the biggest bottlenecks here or something else?

Troy Meink:
Yeah, I think it's really important. I'm pretty certain Kathy and others would agree in the room is one of the challenges we've had with the capacity of the industry base in the U.S. is that we haven’t had stability. It's hard for them to scale both the people and the facilities to meet the demands and unless the government is more consistent as a buyer—not just on the technology side, but really on the production side, which is where you do have some of the really long lead facilities, constructions, and everything else going on. You got that a little bit this morning right from the discussion by both the Senators and the Congressmen, that kind of multi-year procurement, that kind of stability is something we're all going to be having to drive for by the Secretary as well over launch to enable that and scale up the production. I see that as one of the biggest challenges we have is becoming a consistent and stable partner so that we can facilitate and get the production rates that we need.

Now, I am also that we have to do it affordably. We can scale production all we want, if it's not affordable, we're not going to get the magazine depth that we need across the board, so those have to be worked together. And then secondly, we need to learn how to improve how well we integrate technologies as it evolves? How do we bring in new capability into these systems, new digital, but also how do we deal with parts

obsolescence? That's a big challenge in how we work with the contractors, how we manage that risk to do that sort of thing. All those things have to be addressed for us to scale production that we need, affordably.

Kathy Warden:
And I will note—and Secretary Meink and I have talked about this—affordability comes with scaling. So if you have a clear demand signal that the production needs to ramp to X quantity, you actually can drive affordability just through the scaling itself, the economies of scale that come.

Deb Fischer:
And you have to have contracts made without a bunch of changes going forward too because that only adds to cost and time.

Kathy Warden:
That's absolutely right. Stability and consistency.

Kristin Fisher:
General, since we have Kathy here and so many other people in industry here, I'd like to just talk a little bit about the timeline for awards and contracts, if you can say anything on this. I know that the first prototype IDIQ contracts have recently gone out, but when do you expect the first major production awards to follow?

Michael Guetlein:
So, part of the Golden Dome concept is to be lean. So we're actually leveraging the other services and the other agency's contracts to acquire capability. So we have already submitted our needs to the Department of War for munitions. So Secretary Feinberg is working really, really hard to scale out the industrial base for all the reasons we just talked about and to expand our magazine depth on our weapons. We have injected our requirements into that process. So they're already moving out on acquiring the interceptors that we need for Golden Dome. And you just mentioned we just issued 18 OTAs last week for boost phase space base interceptor, so that's now off and moving. We have a team of industry partners working on the command-and-control and the fire control software already. We're on ramping others into that. So we have already moved out on our contracts and our contracting strategy going forward.

Kristin Fisher:
And what about satellites? The very top of the dome so to speak.

Michael Guetlein:

We are in discussions with the Department on the need to acquire more transport capability—which is the ability to move data through space—, more sensing capability, more missile warning, missile track capability. We are waiting on those contracts to come in and to be able to move forward on those, but we have given our needs to the department.

Kristin Fisher:
Okay.

Troy Meink:
General Guetlein and I talk a lot about those schedules. I'm one of his providers.

Kristin Fisher:
I imagine you do. I'd like to just take a minute since we have Kathy here and the General and the Secretary to have just a mini therapy session. Can the two of you just kind of say in order for this to work, what does industry need from DoD and what does DoD need from industry? And you guys can just speak to each other.

Michael Guetlein:
I thought you were going to ask me to give him a hug. So I'm not sure I'm going to hit it, but I'm going to tag in with what Kathy said. Industry is delivering exactly the demand that I put upon them. And that demand has been for those exquisite systems. And because I'm not buying very many of them because they cost so much, they have sized the entire industrial base all the way down to the third and fourth, fifth level suppliers for efficiency, not for capacity because I didn't demand capacity. In order for us to change that equation, I have to change the demand signal on my side of the equation and that's what Secretary Feinberg has already kicked off in spades with munitions. That's what Secretary Meink and the Space Force have done on the space side. That's what we're going to do on the Golden Dome side. And a lot of the reforms that you saw Secretary of War roll out two weeks ago were about how to change that demand signal and how to make it consistent across several years, not just one year at a time.

Kathy Warden:
I don't need therapy anymore because when your customer knows exactly what you need and we are communicating and know what they need, that's when it works, right? Acquisition transformation starts with us knowing what shared success looks like and both be working in that direction. And I speak for all of industry here, that clear demand signal consistency, the funding to support it, and clarity not just on technical capability, but what is the trade between cost, schedule and capability that we are moving toward

collectively, and the fact that we're even having those conversations, that is the step in the right direction that we need

Kristin Fisher:
Secretary or General, whoever wants to take this. People hear Golden Dome and you make the inevitable comparison to Iron Dome, but this of course is quite different— much larger territory that you are trying to defend clearly with the United States. Can you just provide any specifics on what level of protection Golden Dome is aiming to provide? I mean, is it truly a hundred percent security across the entire United States or is it something more limited?

Michael Guetlein:
Golden Dome is first of all much bigger, as you said, than what Iron Dome is. I actually worked with Israel on Iron Dome and Iron Dome is actually three systems that gets named Iron Dome, but it's really Iron Dome, which is the lower tier, David Sling, middle tier, and Arrow, which is upper tier. But even then they are defending an area the size of New Jersey. So we are defending a much greater area than what Israel is challenged with, with more advanced threats than what Israel is challenged with. We, at the direction of the executive order from the President, are protecting the homeland against ballistic missiles, hypersonic missiles, cruise missiles, and counter 3, 4, 5 UASs— that's larger size of UASs. We will deliver that capability in 28 to protect the homeland and we are focused on the entire homeland to include Hawaii, Alaska, and Guam. And we won't bring all that to bear immediately. The Army is already working really diligently to protect Guam today. When they have got that capability in place, it will become part of Golden Dome. Until then we're focusing on Hawaii and Alaska along the way as well. But we are looking at all of the homeland, not just a subset of the homeland.

Kristin Fisher:
Senator, you have championed missile defense for over a decade in the Senate, hearing what the General is saying today, I mean, how hopeful are you that we're going to get to a place that you feel more confident that you have that the U.S. can really do what is needed to be done in a moment of true crisis like was displayed in that movie?

Deb Fischer:
That movie was fiction, and as was explained earlier, just what we have available to protect this homeland currently is good. It is going to take time to be able to protect, I think, to protect our country. Just when you look at the size and how are we going to be able to do it. But once again, I have confidence in this guy next to me here [General Guetlein] and I know that we have the capability. We have the people who are working on it and we have to work on it. What do you want to do? Do you want to just say, gosh,

we can't get the whole country protected in a year so we just can't do it? Well, instead we're saying no, we're going to get the whole country protected in a few years and we're going to provide the resources that we are going to be able to do this.

Kristin Fisher:
So I'd like to open it up to some questions from the audience and I forgot to say at the opening, so I apologies, my apologies. But if any of you have any questions for our panelists, feel free to use your app to get 'em in. But I've already got quite a few populating and kind of to that point— one question from the audience, do I click on it and does it pop up? No, I'll just ask it. The question is, “Instead of immediately aiming for a nationwide umbrella—a hundred percent coverage—should we focus on deploying mini domes, localized agile defense systems to protect our most critical infrastructure?” Secretary, General, Senator, anybody want to take that?

Michael Guetlein:
So I would say, I think that's exactly what we're doing. I cannot deliver everything I need to deliver instantaneously on day one. So we're going to incrementally deliver capability and we're going to incrementally deliver capability based on the lethality and the probability of the threat that we are trying to protect against. So we will be incrementally building out that layered defense capability.

Kristin Fisher:
Okay. Can you just talk in a bit more specifics, if you can, about the things that you could actually do right now that you don't need to wait on?

Michael Guetlein:
We have proven in the Middle East in recent months that we have the ability to protect our troops against ballistics, some cases hypersonics, and some cases UASs; that capability works today and we can bring and will bring that capability to bear on protecting the homeland as needed.

Troy Meink:
I think there's been, particularly in the drone area, there's been a lot of innovation already developing low class munitions that we can use within our fighters to shoot down the drones. That has evolved very rapidly. I've been really impressed with how innovative both industry was and the government was in bringing that and fielding that capability quickly. So there's already a lot of progress being made there. And of course we have a series of air defense systems, the Army and across the services that are very, very capable. And this is some of the discussion in the industry and others are hearing about scale. How do you scale up those weapon systems that we already have

today to the level that we need? And then of course SBI was mentioned, there are other weapons that don't exist today that we'll have to develop, but I think the key is we're not starting from scratch. We do have pretty capable systems today, but in some ways, it's a growth in more layers in that defense system.

Kristin Fisher:
One of the other big advancements obviously lately has been AI and machine learning. Kathy, how is Northrop using that to enhance missile defense?

Kathy Warden:
So we have for many years been looking at artificial intelligence and how we not only utilize it inside the company to support our design cycles and our manufacturing and even our back office, but also how do we embed it in weapon systems. Autonomy at its core, when you have an aircraft that's flying itself, the vehicle management system is an autonomous artificial intelligence system. It can adapt without pilot intervention—meaning remote piloting—and fly itself and avoid and sense danger. Those kinds of capabilities exist today in weapon systems. The progression of artificial intelligence embedded into actual weapon systems, though, is an area that we need to have governance over so that we are looking at things like fire control differently than we look at flying an uncrewed system. And so through partnership with the government, we are looking at ways to bring artificial intelligence into many different types of weapon systems, but in a very responsible way.

Kristin Fisher:
Here's a question: “Part of the Golden Dome's executive order involves a left of launch strategy in which the United States is seeking to develop capabilities that prevents a missile from launching.” This person says, “What does that look like and what does that involve?”

Michael Guetlein:
Can't talk about it.

Kristin Fisher:
It's always better when the audience is asking a question like that and not me, right? Another question from the audience: “As an object orbits faster the closer it gets to earth. What are the current solutions to the coverage issues posed by space-based intercepts in low earth orbit? How many SBIs are needed to maintain the persistent coverage of a satellite in geosynchronous earth orbit?”

Kathy Warden:

Definitely can't answer that.

Deb Fischer:
This is like a final test here that you're trying to get the answers to, right?

Kristin Fisher:
Hey, if I couldn't get the answers, I was leaving it to the audience to give it their best shot. Those are your questions.

Troy Meink:
There are a large number of knobs that can be turned in solving that problem, and that's why we've gone out to industry with such a broad look across industry to kind of get those different ideas, get those different options so that we can do that kind of top level system engineering. You turn those knobs and figure out what's the most effective way to go after the problem. So there is definitely not a one size fits all approach to this, and that's what we're assessing out right now and that's why we try to go out so broad under General Guetlein's direction, such a broad look across industry to kind of get the new innovative ideas in.

Kristin Fisher:
One final question from the audience and then we're going to kind of wrap it up here. And this question is about, as this project diverts resources from other projects, how do you ensure that in seeking to develop Golden Dome, that we maintain progress in other critical areas? Senator, would you like to tackle that?

Deb Fischer:
I believe you have to set priorities. We don't have the funding to move forward on every project that's out there, and that's why you've seen every Secretary of Defense, every President has always said that our nuclear deterrent—our triad—it underpins everything else we do, and that is the number one priority for the security of this country. Then you have to look at what's next. Is it Golden Dome so that we have the missile defense? Is it a lot of the new technology that's coming out and make more investments there? And I think it just boils down to setting priorities with knowing what our adversaries have, or having a good guess at what our adversaries have, in order to combat what they may be using. And while at the same time being able to develop a number of offensive weapons that we may have to employ in the future.

Kathy Warden:
I would also add that I don't look at the technology base that's going to support Golden Dome for America in isolation from other missions. The reason we have capabilities

today that can be applied to Golden Dome for America is because that technology base has a lot of commonality. And as I think about the future—10, 15 years from now—this investment will lift all boats. As we think about work that we need to do in not only space, but other domains, this technology base will support that. So it's not one or the other, it is complimentary when we invest in a mission because it will fund and develop technology for other missions as well.

Michael Guetlein:
Yeah, I think the Chairman said earlier, homeland defense is national defense. If you look at everything I'm building, it supports multiple COCOMs. I'm not just supporting NORTHCOM simultaneously, I'm supporting INDOPACOM, STRATCOM and SPACECOM. The satellites that we're putting on orbit—whether they be sensors, whether they be transport communicators, or whether they be SBIs—are simultaneously flying over every single combatant command that we have. So they're simultaneously supporting every combatant command. There is nothing that we are doing in support of the homeland that does not transfer to the other combatant commands.

Kristin Fisher:
We've talked quite a bit about the threat environment, but in our final minutes of this panel, I'd like to just spend a little bit of time asking each of you about the why. Why Golden Dome in its current—well, the architecture that we do know, this multilayered approach, why it is so necessary, and it appears to have broad public support. But if each of you could maybe speak to what the why is right now with recent developments that China and Russia have made and the things that we have seen in the news, what is each of your whys for why Golden Dome is needed now? Senator?

Deb Fischer:
My why would be to meet the threats that this country faces and be able to provide for the defense of the homeland. And as General Guetlein just said as well, this transfers to providing for a safer world to be able to serve our allies, our partners, the world as a whole. And it is a deterrent. It is a deterrent. People, our adversaries need to think twice before ever taking any action against this country.

Michael Guetlein:
In order to have a deterrence, there's got to be a credible capability behind it. So we've got to build that credible capability to actually deter the bad and nefarious behavior that we are seeing today. There's got to be consequences for that behavior. We've had a lot of conversation in my lanes about strategic stability, and although there's no set definition of strategic stability, I would argue there's two fundamentals that have got to happen. One, is I've got to have a stable arsenal of nuclear weapons across the United

States and not growing. I mean across the world and not growing. And the second thing is we have nobody rattling their saber saying they're going to launch a nuke. We've got both those today. China and Russia are rapidly modernizing their nuclear weapons and building additional ones, and Russia is threatening to use nukes against their adversaries. So I don't have strategic stability today. Well, what am I going to do to deter that bad behavior? I need credible capability for deterrence and Golden Dome brings to bear that credible deterrent capability.

Kristin Fisher:
Secretary.

Troy Meink:
Yeah, I started my career as a young officer in strategic air command and our entire focus was deterring the Russians and it was a pretty stable set of deterrence that we had between them, between the two of us. The problem is, as the General mentioned, and as Senator mentioned, is a lot of those capabilities now proliferated to—even at the Russia case—to much less stable countries that are more willing to use those, and it's much more challenging to stabilize them in ways that we diplomatically have in the past—MAD back from the strategic air command days. So since that is no longer an option, we have to have other options to protect ourselves, General Guetlein walked through it. We can't leave ourselves vulnerable just because the proliferation of these weapon systems that can strike us from afar with who knows what type of warhead on them, you just can't allow your country to be in that situation, right? And I think if anything, that's one of the things that the *House of Dynamite* really highlighted is the fact that you can't let yourself be in a situation where you either you have a very low chance of stopping it or you go full nuke and return, right? You can't let yourself get into that situation. That's why we need this.

Kristin Fisher:
Avoid that at all costs. Kathy?

Kathy Warden:
I would say the why now is weapons can go further, they go faster, more countries possess those capabilities, and so the threat has advanced. And we need our deterrence and our defenses to keep up with that. Our Constitution provides for the common defense. And I would say that for all of us, there's no more important defense than of our own homeland. I came into this industry following 9/11/2001 because of an atrocious attack on our homeland that I thought I would never see in my lifetime. And I certainly don't want that to ever happen again. And that requires a strong deterrent and

a defense—a layered defense against a wide variety of threats. So I think that's why the moment is now.

Kristin Fisher:
Alright, well we are at time. Thank you all so much for listening and thank you to all the panelists.

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