# REAGAN NATIONAL DEFENSE FORUM

## PEACE THROUGH STRENGTH IN AN ERA OF COMPETITION

NOVEMBER 30 - DECEMBER 1, 2018
THE RONALD REAGAN PRESIDENTIAL LIBRARY
SIMI VALLEY, CALIFORNIA

**DECEMBER 1, 2018**
**1:00 PM – 1:45 PM**

**PANEL 6**
**STAR WARS: WHAT DOES SDI TEACH US ABOUT TECHNOLOGY IN MILITARY COMPETITION?**

**Panelists:**
• General Hawk Carlisle (USAF, Retired), President and CEO, National Defense Industrial Asscociation (NDIA)
• Dr. Thomas Kennedy, Chairman and CEO, Raytheon
• Senator Jon Kyl, U.S. Senate, Arizona
**Moderator:** Ms. Morgan Brennan, *CNBC*

**Video:**
https://www.youtube.com/watch?v=a_IZcFxkIY&list=PLHNOi2zcxo7sBxM7HfhmB_tf6QXeqj48K&index=9

Brennan: Well first I want to say thank you all for being here today, it's been an incredible forum so far. I just want to introduce our panelists. Star Wars: What Does SDI Teach Us About Tech and Military Competition?

Brennan: Sitting next to me is Senator John Kyl, US Senator representing Arizona. Dr. Tom Kennedy, Chairman and CEO of Raytheon, and General Hawk Carlisle, 4-Star retired US Air force General, and now President and CEO of the National Defense Industrial Association.

Brennan: So great to speak with all three of you today.

Brennan: So, I think the first place to start is, what actually was SDI, the Strategic Defense Initiative, and how did it birth modern day missile defense, and the technology we're now talking about today?

Brennan: So, Senator Kyl, I would love for you to just start with a little bit of background on this, given the fact that you have been a life-long advocate of nuclear defense, and your public service does date back to the Reagan years.

Kyl: Thank you very much.

Kyl: You can think about SDI as a roughly decade long effort, first begun by President Ronald Reagan, to create a new system. And it's actually more than just sensors and kill-vehicles and satellites and command and control systems and so on. President Reagan actually viewed SDI, or the Strategic Defense Initiative, as an organizing principle for a much larger commitment that would involve the entire nation and including both the military and our industrial base.

Kyl: He articulated this vision in 1983. One of the things he said in his famous speech, and I quote, was "Tonight we are launching an effort which holds the promise of changing the course of human history. There will be risks, and results take time, but I believe we can do it." End of quote.

Kyl: His vision was that defending against a ballistic missile attack from the Soviet Union was a more moral way of deterring such an attack and potentially being able to win if deterrence didn't work, than trying to outdo them with offensive capability and getting into a situation of mutual assured destruction. And the assured part would be the most important part of that.

Kyl: He felt that by having a defense, you had a more moral way of blunting the potential attack from an enemy, and he always say it, I believe, as a deterrent. Not that this would win the war, not that we would be able to destroy every incoming missile from the Soviet Union, but that it would so complicate their planning that they would never decide to try to attack us.

Kyl: It did for a while involve development of some previous US Army concepts that already existed in terms of some middle range kind of ground-based missiles, but quickly evolved into some scientific study of different concepts that certainly took significant advantage of space. It included space sensors, satellites, and geo-synchronic orbit that could identify a launch just about any place on earth of any kind of a major missile. And then, a series of other kinds of satellites, ground senors, radars, both on ground and ships at sea.

Kyl: In other words, a variety of ways to keep track of, and eventually queue our missile defense against an incoming missile. And there were a variety of kinds of interceptors that were envisioned and that were experimented with.

Kyl: One of the most famous that was toward the end of the Reagan administration was called Brilliant Pebbles, and the idea was to have a constellation of many hundreds of satellites in space that could quickly reach and upcoming missile in its ascent phase, in it's boost phase hopefully, which is the easiest way to kill a ballistic missile. Before it gets to the apogee and begins releasing multiple RV's or decoys.

Kyl: These concepts, along with all of the experiments, the research that was done, and the development of various kinds of, again, sensors and radar and kill-vehicles that might be used, all resulted in technology that advanced not just a missile defense program for the United States, but other things as well.

Kyl: In fact, there was a space program called Clementine which actually used some of these concepts and validated their capabilities. But, when the Soviet Union collapsed, the

need for a missile defense against a Soviet attack obviously was deemed much less significant, and support for the program waned. Eventually when Secretary Aspin, Les Aspin, in 1993 decided to basically kill the program, he said he took the stars out of Star Wars.

Kyl: That was the rough decade, the evolution of the program from the Reagan conceptualized total defense against an attack by the Soviet Union, to a point where it no longer had the space component that would have characterized a Reagan program.

Kyl: But I do want to sort of summarize this very quick description of SDI with a brief description of where we've gotten today, because in the intervening decade, from about 1994 through the early part of the 20s, we had a much more limited vision of what a missile defense would do. It wouldn't deter an attack from a China or a Russia for example, but rather would be strictly a theater kind of concept to protect troops deployed abroad. Military assets and the like.

Kyl: And that language was actually in US policy at the time. Limited Defense. But limited at the time that that was written, characterized approximately 200 attacking missiles, because that was the number that a rogue Soviet submarine commander could launch. The term limited became much more limited as time went on, to maybe a single launch by mistake. And therefor, the way that we planned it in the Congress and in the military, was greatly constricted from the original intent.

Kyl: But in 2017, the Nation Defense Authorization Act changed the description of US policy, and I just wanted to concluded with this. The National Defense Act, at that time, stated that "It's our policy to maintain and improve an effective, robust layered missile defense system, capable of defending the territory of the United States allies, deployed forces, and capabilities against the developing and increasingly complex ballistic missile threat."

Kyl: This is at a time where the threat from Russia was re-emerging, and was pretty well understood by the congress. And this language, I believe, launches us into another maybe 2.0, SDI 2.0, to deal with the threat from these peer competitors of Russia and China. Not only the theater kinds of defenses or lesser range defenses that we would need against an Iran today. North Korea, by the way, does present a long-range ballistic missile threat, but, hopefully one of my panelists can discuss the kind of system that we have today, ground-based system that we have today, to kind of deal with a North Korean threat.

Kyl: I'll conclude by saying that, just as during the Reagan area it was believed that space was a critical component for an effective deterrent against a robust threat, I believe that same deterrent effect would exist today, only if the United States had space-based sensors and eventually, space-based interceptors, that could deal with the size of a threat that we would be facing from a Russia or a China, in the event that that occurred.

Brennan: And I think that's what's fascinating, and why the title of this panel is what it is today, is because this was a discussion. This was a policy put in place by a president 35 years ago. It has not been a straight line, in terms of the technology, or what has been implemented. But just the fact that we're talking about a space-based sensor again, some of the other technologies that were put forth in SDI originally.

Brennan: Dr. Kennedy, let's talk tech. Because when it comes to Raytheon, you're developing a lot of the technology, a lot of the hardware, whether as a prime contractor or key supplier for all of the different missile defense systems we have today.

Kennedy: So Morgan, you did bring up the fact that it's been 35 years since the SDI program, and that range, and obviously technology's changed considerably over that period of time. Both on the threat side, and on the ability to counter the threat side.

Kennedy: And so, the bottom line is that the range the threat, it's a multi-range threat, multi-level threat. But we also need a multi-level counter to that threat. All the way from the Patriot systems we use today, very effective in Desert Storm over 27 years ago. Also very effective recently, since the 2015, there's been 150 plus launches of tactical ballistic missiles in Middle East region that have been taken down by the patriot system in killing those type of missiles.

Kennedy: The fact that we do have a layered approach, the Patriot, the THAAD system, and the ground-based interceptors, is part of our, I would call it our position, today. However, I believe that there's more that we need to do. And the reason we need to do the more is because technology has changed and the threat has significantly evolved based on that technology.

Kennedy: First one Senator Kyl did mention, and it actually comes back to the SDI. And it's have a space sensor layer, to be able to pick-up this advanced threat. For example, the hypersonic threats, not only just to pick them up, but to be able to track them from birth to death. Death being the killing of the ballistic missile.

Kennedy: That's number one, that's an absolute must for us to get on board and to develop that technology. Which, by the way, is significantly cheaper today than it was back in the SDI days, because of the commercialization of space, and especially the launch element of space.

Kennedy: The second element is to take advantage of some technology, and again I'll mention back to the SDI days. High-energy lasers have made significant progress over the years. There's significant breakthroughs that have been made, and it's ready to take the ingest of technology money to take it to the next step.

Kennedy: Along with that is another direct weapon capability, high-power microwaves. Again, ready to take into the front to counter this evolved threat that is out there.

Kennedy: The last stage that is a very important stage, is that we do need to develop a new capability relative to directed weapons, to take out threat and the next level of kinetic type of vehicle. And that vehicle is going to have to concentrate on a counter hypersonic ability, so that counter will have to be a hypersonic type of weapon, to be able to counter the hypersonic system.

Kennedy: So that's the technology elements of it. Now underlying that is Artificial Intelligence, machine learning, cyber, and several other technologies that are coming on the brink of today.

Brennan: I wanna dig into all of that a little bit more. But first, General Carlisle, I wanna get your thoughts on the architecture we have in place. The potential challenges, especially from

a real world perspective, and especially on a day when we do have Iran, for example, testing a ballistic missile.

Carlisle: Well thanks Morgan, it's great to be here, I'm honored to be on the stage with Morgan and Senator Kyl and Dr. Kennedy.

Carlisle: So I think what SDI did for us, and kind of to start from the theme of this panel is, he really did, just as Senator Kyl said, gave us an organizing construct. I think we're at that inflection point today.

Carlisle: We kind of went laissez-faire for a couple of decades, you know. Cold War ended, the wall came down, and then peace dividend. How did that work out for us? Missed it by that much.

Carlisle: But if you look at where we're at today, the proliferation of missile technology, and I will tell you the combatant commanders out there, and I did it in the Pacific, you have to think about every day, you have to have a sensor suit that includes that space-based capability that Dr. Kennedy is talking about across the board. You have to have a ground-based capability, you have sea-based. Sea-based expand. You have to have that all inter-connected so it shares and talks and learns from each other. You have to be able to characterize the launch as rapidly as you can, and then determine what the trajectory is and what the probably impact point is, and then you have to have the shooters, and you have to have the command and control to be able to do all that simultaneously.

Carlisle: We're not there yet. We're working on it, obviously, but like President Reagan did with the SDI initiative in 83, I think this is the inflection point, this is where we have to make the decision to strategically look at technology that Dr. Kennedy's talking about. We need the capability to look across the entire spectrum of ballistic missiles, and cruise missiles and ICBM's, because our adversaries and potential adversaries will use every single one of them.

Carlisle: And when we put that architecture together, and this is a little different than what happened in 1983 I think, when you put that architecture together, in 1983 I don't really think we thought about the cost imposition because the Soviet, if you remember, their economy was draining, and their social structure was falling apart. And Gorbachev had to turn to something, 'cause he knew he was in a bad way.

Carlisle: I think as we go forward with these technologies and move forward, the cost imposition part of this strategy is going to be a key component of this. If you think about it, especially what we looked at in the Pacific all the time, was a proliferation of missiles, by the thousands. They would swarm in on a particular target.

Carlisle: So, Patriot and THAAD are great systems, [inaudible 00:14:58] are great systems, GBI are great systems, but if they're just swarming you with missiles every time you send a ten million dollar missile down to take out a 50 thousand dollar rocket that's inbound, then you're losing the cost imposition strategy.

Carlisle: So I think that's gotta be part of the dialogue as we go forward, whether it's [inaudible 00:15:16], directed energy I think, as Dr. Kennedy mentioned, is a big part of that. Space-based layer changes, a space-base not only sensored layer but a space-based

kinetic capability as one. I think that's on of the great by-products of the significant increase in discussion on space is, everybody's thinking about this stuff now and I think as General John Heighten said, people said, you can't talk about warfare in space, it's warfare. It just includes every domaine, it's not warfare in space, it's warfare across every domain that we operate in, and how do we accomplish that.

Carlisle: So I think as we go forward, [inaudible 00:15:54] back to 1983 when President Reagan made this speech, I think we need to have that same focus, we need to have that same movement forward, because the -

PART 1 OF 3 ENDS [00:16:04]

Carlisle: Of focus, we have to have that same movement forward, because the proliferation of missile technology is what is gonna drive much of the future combatant commander challenges as we go forward.

Brennan: I wanna put up a graphic right now. Let's see, there we go, okay. This is a question in the Reagan National Defense survey that was asked ... that the U.S. can shoot down, if I can read my handwriting, nuclear missiles launched by another country. If you take a look here, it looks like the vast majority of Americans that were polled are confident, 42% a great deal of confidence and 43%, some confidence. I'll start with you, Senator Kyle. What do you think of those results?

Kyl: Well, this is one of the urban myths, we can shoot down enemy missiles. Yeah, we can shoot down a few, in a couple of years we will have 44 ground based interceptors, stationed in Alaska and California, which based upon the number of shots that you need to take against an incoming missing to be sure you get it, might mean that we can defend against maybe something like 20 North Korean missiles. I think most Americans would be surprised to know that that's it.

Kyl: Now, that's an intercontinental ballistic missile. In theater, in shorter range, we have a much larger capability, with Thaad and with our Egis system, and the Patriot system. But those, well they can shoot down an enemy missile, and theoretically Russia could tip a missile with a tactical warhead, even in theater, that's not the kind of thing we're talking about and that we're concerned about here as an existential threat to the United States. And I think that's where the American People misperceive our capability. We have the ability to create that kind of number, but we haven't done it so far and it will take a lot of political will, and money, and more application of technology to get there.

Brennan: Dr. Kennedy, are Americans too optimistic right now?

Kennedy: I'm optimistic that we can take out a threat and that we can kill a ballistic missile.

Kyl: A ballistic missile.

Kennedy: A ballistic missile coming at us, the technology exists, we have to multiply that technology and I described some of the ways of multiplying it by, before relative to having a space layer of sensors, I think those continuous track of these missiles in their inner launch. Bringing in the directed energy capabilities that I mentioned, will also help in that area, but also looking at the boost phase part of the launch and working cyber effects and other techniques in that area. Potentially borrowing from some of the SDI

architecture, relative to having some type of effectors in space that can be launched down, and at the same time doing it in a very cost effective way. I think what's changed since the SDI days, which actually had a, I would call it, a very good architecture, is technology has changed where I believe it's viable to be able to achieve that type of a system with a reasonable cost.

Kennedy: Now, you're going to ask what's reasonable. I'm gonna say the reasonable is gonna have to be tied to the commercialization of space. We've already started that, you're seeing that the price of launches has come down significantly because of the commercialization of the launch vehicle business. We're starting to see high end sensors, the costs of high end sensors come down significantly with advanced technology, combining that together with a sophisticated ground stations that can integrate all those assets together. Then use that as our ability to get the multiplier effect, to be able to multiply the fact that we can take down intercontinental ballistic missile, we just don't have enough effectors and enough directed energy weapons today to enable that. Is that ...?

Kyl: May I just make a point? Yes we can kill a missile, the question is, can be deter an attack for an enemy like Russia or China? And because they have such a large volume of missiles that they could throw at us, we're only going to deter them if we have the capability of defeating many of those attacking missiles. And my point was, we don't have that capability deployed.

Kennedy: Today, is correct.

Brennan: General Carlisle, get your thoughts, especially given that fact that the conversation is starting to shift toward things like hypersonics?

Kennedy: Sure, I think Senator Kyl is exactly right. We have GBI's and we know how to do this and we can do this, we can take out some, small number of incoming missiles. But I do think you have to broaden that discussion. I kinda go back to what Secretary Mattis said at the lunch today, can we beat Russia? Yes. Can we beat China? Yes. And I believe he's right, but the capacity, which is what Senator Kyls getting at, is how much of that can we do and how many places at one time can we do?

Kennedy: In the ballistic missile, ICBM in particular, would that happen with zero strategic warning? I don't know. I doubt it, but, you know ... and then you think about the multiple, talk about deterrents, you think about the Triad, which I believe, and I think John Heitner at STRATCOM, believes, it is critical to have all three legs of the Triad, because even if we can't stop every missile, the deterrent is, yeah, there is counter. And there's a lot of capability out there to counter whatever you're doing. And if you have strategic warning, as the saying goes, take out the archer before he shoots the arrow, we can do that too depending on who the adversary is and where we're going after that.

Kennedy: I agree with what Secretary Mattis said, we have the capability. We need to, in my opinion, strategically develop the technology, and we need to put the effort forth. We need to determine where we're going and make that happen, and then the capacity of what we're gonna try to do and cost imposition is part of that capacity.

Brennan: Dr. Kennedy, are you already developing that technology? Does some of it already exist out there and could it be deployed if the government said yes, pretty quickly?

Kennedy: There's some elements in development at low levels, I would call it more on the research side but there's not a full blow program like the SDI program to go and implement with the deadlines to put that in place. There's kill vehicle upgrades that have significantly improved the performance of systems that we are developing new missiles. There's a new missile being co-developed with Japan called the SM-3 Block IIA, which has its own kill vehicle on top, and it had a very successful test here recently against a very, very challenging threat. So there is some new launch vehicle capability that's coming online that can be on Egis ships, and therefore, we can deploy more of them. That could help on some of this capacity issue. The item here relative to the, I would call it the layered space sensor element, is an element that could go into development today and essentially get into orbit in near term. So there are elements that can be done, the question is, is there money set aside in the budget to be able to enable those to be brought online.

Brennan: Senator Kyl, is there? Could there be?

Kyl: This is the challenge that the recently released report of the National Defense Strategy Review Commission, challenged the Congress in this regard. After agreeing with Secretary Mattis' prioritization of Russia and China as the largest threats that we face, over the terrorists, and North Korea and Iranian threats, the Commission report said the strategy for dealing with those peer competitors, as well as the lesser competitors, is a sound strategy as long as it's properly resourced. But if we maintain the Budget Control Act, which is the law today and will remain the law unless it's repealed by Congress, it has the potential for sequestration, and if we fund the Defense Department through continuing resolutions, rather than the regular appropriation process that the two committee chairmen talked about today, which is the right way to do it, and unless we increase the top line number, this defense strategy of Secretary Mattis' will not be properly resourced. And therefore, we won't be able to get to the kind of things we're talking about here.

Brennan: I just wanna take a moment and I just wanna just let everybody know that we are accepting questions for this panel. In terms of the live audience, you can submit questions via the RNDF app. The www.rndf2018.org, plus for those viewing across the country right now online, you can also submit questions via Twitter at #rndf. I probably should have mentioned that at the top but I'm going to do it now. And we will be setting some time aside for those questions at the end of the panel.

Brennan: Moving on here, General Carlisle, in terms of ... two words, Starry Sky 2

Carlisle: Say again?

Brennan: Starry Sky 2, I think it was a hypersonic aircraft that the Chinese tested not that long ago. When you are thinking about hypersonics versus the missile defense systems we have in place right now, when you're thinking about potential adversaries in China or Russia, how quickly does the U.S. need to be moving to put some of these new technologies into play?

Carlisle: I think that's a critical point. I think that what you're talking about in the Chinese test, if you talk to Dr. Michael Griffin, the head of R&E inside the Pentagon, he'll tell you that that's his highest priority right now. It's what he thinks about every day. We're working on hypersonics, one of the challenges I think, and Dr. Kennedy can relate to this, is we

haven't got that cohesive group. We got a lot ... the Army, Navy, and Air force are all working on it, we haven't brought that together.

Carlisle: If you remember SDI, there was a three star General that got put in charge of SDI at large. I think in the hypersonics discussion we've got to, again, that's a strategic technology that we cannot allow ourselves to fall behind in, anymore, because I think we already are. So, I think that the effort that we need to put forward, we need to bring the National Labs, we need to bring industry and their expertise, which are paramount to success in that. And then we need to make sure that we're all working together and we're not doing duplicitous work. Again, there's not enough time or money in the budget to do multiple events, trying to get to one endgame of a hypersonic capability.

Carlisle: I do believe in having talked with Dr. Griffin recently, I do believe that he sees that and he's working hard and I think, again, I'd asked Dr. Kennedy, but I think he's reached out to industry. I think industry knows the departments interest in it, and the way to move forward is, that's one of the key strategic technologies that we've got to move out on.

Brennan: Dr. Kennedy, when I think about SDI and I think about what the world is like at that point in time, you had President Reagan propose his vision for missile defense, the ABM was in place, it was really the U.S. versus the U.S.S.R. Today, we don't have ABM, we're talking about multiple adversaries and then we're also talking about missile defense systems that we not only implement ourselves, but we sell to our allies, internationally. How has the landscape changed and how important are those international sales to this conversation?

Kennedy: Well, I would say the, I'm going to go back to the National Defense Strategy, and one of the founding elements of the National Defense Strategy, actually was brought up again by Secretary Mattis today, is our working with our coalition partners. And I just mentioned earlier, the development program called the Standard Missile 3 Block IIA, which is a co-development of a ballistic missile killer, with a kill vehicle on top, went between the United States and Japan. So not only is it a sale, it's also a co-development. In getting our coalition partners engaged from that perspective, in other words, investing not just in buying the article after the United States develops it but also in the co-development of it [inaudible 00:28:33] reduced the, obviously, cost to the United States and helped get the dollars required to be able to put this kind of capability in place.

Brennan: Senator Kyl, I wanna go back to the point you just made before, and that is, how do you prioritize missile defense and what our defenses need to look at as we move forward and as things like budget and cost become an ever greater focus given or deficit, given a change in Congress?

Kyl: Let's divide it first into a more localized or theater kind of defense and then the National Homeland protection. We need to protect our military assets wherever they're deployed and we need missile defense system that can do that, because our adversaries want to take out those assets as soon as possible. And so we have developed and deployed systems that can do that. That's Patriot and Thaad and some other systems. The Israelis have found the importance of that kind of defense because they've faced the shorter range attacks and been able through two of their missile defense systems to be able to protect their citizens against those attacks.

Kyl: The more significant question for us, I think here, because it relates to SDI, is the protection of the homeland. And there you're probably mostly talking, at least today, about a ballistic missile, intercontinental range, launched from an adversary. And right now they're three that can do it for sure, and that's North Korea, China, and Russia, and having enough of a protection there to deter the would be adversary from even thinking of the attack. So, while we have the capability of knocking down a very limited number, the question is does that deter anybody? It might deter the North Koreans if their deterrable, but it certainly isn't enough to deter China or Russia today.

Kyl: So the point here is to develop, and I would say to answer the question about prioritization, we can, under the treaty, the New Start Treaty, we can't develop any more nuclear warheads to match Russian warheads. They're supposedly bound by the treaty as we are. Meanwhile, China keeps on building and they're not bound by the treaty. So, is there an upside to developing more nuclear warheads? I don't think so. What is another option? To compromise an attack by the opponent, and therefore, deter them, and I think missile defense represents a good investment if it's done right, the way that my two colleagues have talked about it.

Kyl: It has the potential to really complicate the planning of a Chinese or Russian leader that decides maybe I can accomplish what I need to by quickly striking the United States and they can't strike back. If you can demonstrate that you can take your best shot pal, but you're not gonna achieve your objectives because we've got a defense which can defeat a lot of them. Some may leak through, but we can defeat most of them. If we had that in place, just think about the value of the Russian Nuclear enterprise today. As President Reagan said, it makes it impotent, it's irrelevant now. So, the priority depends upon the costs involved, the timeframes, the availability of technology that.

PART 2 OF 3 ENDS [00:32:04]

Kyl: ... involve the timeframes, the availability of technology that we can employ, other strategic factors, and you put all that together and develop your defense strategy with the appropriate place here for a missile defense. I would personally put it at a pretty high level in our planning, again partly because of what I said about we've already committed [two or three guards 00:32:23] to our offensive, strategic capabilities.

Brennan: Carlisle, I want to get your thoughts on this as well. Especially since I think that we've established here today that we need more. We continue to need more. So from your vantage point, what should be advertised?

Carlisle: Well I- excuse me. My throat.

Brennan: My timing is off, I can [inaudible 00:32:46] a few moments if you want.

Carlisle: I apologize but um, well, I agree Senator Kyl, homeland defense is the first priority. You always have to put that first. I think theater defensive and missile defense is something that will come with the technology that Dr. Kennedy is talking about. And it's just a question of that strategic approach to the technology development and where we're going forward. Apologize. Man.

Brennan: Dr. Kennedy would you mind picking that up?

Kennedy: I think I'm going to try to see if I can summarize. I think what we were saying is that we believe, all three of us believe, we have the capability of shooting down one of these ballistic missiles. The question is if multiple are launched, what is your capability there? In other words, capacity and Senator Kyl used those words there. So in terms of priority, I think you need to make defense of the homeland the priority and that's what the ground-based interceptors are about.

Kennedy: This example, this standard missile, the three box 2A, that does have an inter [inaudible 00:33:57] missile kill capability that we can bring online very quickly. It can be launched from eegis' ships, it can be launched from eegis' shore. There are things that we can do to start to help us relative to the capacity, or the magazine, is sometimes a term used in the military. That does take a budget, that does take money. It takes the department of defense to make that a priority and taking that to congress.

Brennan: To that point, Senator Kyl, it's really fascinating when you actually look at the history of missile defense, it's almost been like this. Like it or not, that wave has been ridden based largely on politics. I think it begs the question, how do active missile defenses contribute to deterrence? I know you were touching on that before, but just to dig into it a little bit more.

Kyl: It's politics but it's also been the threat. Once the Soviet Union collapsed, I think there was a general relaxation in this country about all things defense. Not just missile defense. You do have match what you're trying to do to the threat. I look at the new prioritization of the defense strategy by secretary of defense right now. Who says, "Now we have to really start worrying about Russia again and about China now and in the long term." If that is our number one priority, what is the threat? It is of hundreds of missiles being thrown our way, inter-continental ballistic missiles.

Kyl: There's only one way to deter. If Putin decides that we're too much of a impediment to his designs, whatever they may be on Europe or whatever, we get into a war and it's not hard to see a thrust into the Baltic countries, for example, waiting to see what the NATO response is and we don't have enough to stop them from taking over the Baltic countries. Now they're in and now we've got to get them out and digging them out is a lot harder than getting them in. That may require a significant use of the US military and NATO assets. He then decides to use tactical nuclear weapons under his new doctrine of escalate to deescalate. Meaning, "I'm going to show them that I'm willing to use nuclear weapons. And I'll basically challenge them to decide whether they are too."

Kyl: Well, today we have nuclear weapons that can cause an enormous amount of destruction all over Russia. What we don't have, except in one case, is a dial-able weapon or a very low yield weapon. Or other kinds of weapons with a lot of radiation as apposed to blast capability. In other words, a kind of weapon we want might want to use in that context to prevent us from escalating all the way up to the big weapon. That is an area I think we need a lot more discussion about. It's been recommended as part of the nuclear posture review. The national defense strategy commission picked up on it and agrees with that. That's one of the things we could use to deter Russia for example.

Kyl: The other is to develop a kind of missile defense that would so complicate the planning that even if they're going to send 200 missiles over and they only figure 40 of them are going to get through, will they really have achieved their objective? If we can do that for a cost that fits into our national strategy, to me that is the most logical way to prevent

war from ever breaking out. After all that's what we're talking about here folks. If we ever get into a nuclear conflict [inaudible 00:37:45] with Russia or China, it is virtually unthinkable, as Ronald Reagan put it.

Kyl: Just think about the horrors of what that would involve. You've got to stop it from ever occurring. That means you've got to stop an adversary from miscalculating. And how do you do that? By being strong enough in many different ways that it's just too hard for the other side to plan around that and to know that that adversary can succeed in an attack. That's called deterrence and I think missile defense can play a very large role in that.

Brennan: General Carlisle, are you ...

Carlisle: I'm [appropriate let me 00:38:15] try that again. I apologize.

Brennan: I didn't want to put you back on the spot there. I want to pose the same question to you, which is how do active missile defenses to deterrence?

Carlisle: I think Senator Kyl is exactly right. As President Reagan called it, the suicide pact of man is not the right answer. I don't think the American people want that, I don't think the people of the world want that. I guess the discussion that goes on is if you develop an exquisite missile defense capability, is that destabilizing or stabilizing? I think it's something you got to look at for what it is and that is your ability to defend your people. It's not an offensive weapon, it renders an opponents capability, less capable, swarm is a challenge. Even given the argument over stability versus instability, it is the right answer to go down versus a suicide pact of mutually [inaudible 00:39:17] destruction.

Carlisle: If you look at the other strength of the United States that's not often talked about is our friend and partners. Our allies, by [with and through, 00:39:29] as Secretary Madda said which, I lived it, most people in uniform lived it their whole lives. Is that, we have friends and partners. If you build a missile defense capability and you have nations like China and Russia, they don't. Even if it's destabilizing with those two particular regimes, you go, "This is the right way to go to protect our people, our way of life, world order and our friends, partners and allies."

Brennan: I want to take some questions from the audience right now. I'll pose them to all three of you, Senator Kyl we'll start with you. Will the US withdrawal from the INF treaty result in a substantial US investment in ballistic missiles? Should we make such an investment?

Kyl: Russia has been in violation of the INF treaty as I think you've heard earlier today for over five years and is clearly not going to come into compliance. It would be very difficult for them now to come into compliance since they've already deployed these systems. The only alternative for the United States is to withdraw from the treaty. No other country is bound by a treaty like that. It's just Russia and the United States. The question is, what would the United States do when we withdrew from the treaty? It's not just to say that the treaty no longer exists because you're violating it, we need to do something to respond to the threat.

Kyl: How they violated it was to develop a cruise missile, with a range between 500 and 5500 kilometers. Intermediate range is what it's called. They're very hard to deal with. Unlike a ballistic missile, which has a lot of minutes going up and coming back down

again. Cruise missile is hard to detect, there's not very much time to pick it up, to track it. It's not easy to have a weapon that can intercept it. This is an effective weapon that Putin has clearly calculated, is worth having despite whatever costs we may come up with.

Kyl: So we pull out of the treaty. So what, he's still got a very effective threat in the European theater. You got to develop defenses against it. They could be anything from directed energy and lasers to some kind of cyber or other kind of non-kinetic threat or even a kinetic capability to defend. You may also have to develop your own similar kind of weapon to have the capability and theater that the Russians then have.

Kyl: I know that we have, from a congressional standpoint, authorized the defense department to begin looking into these things but I don't think they've had much time to do much about it yet. The President will end up withdrawing from the treaty sometime in the relatively near future.

Brennan: Alright, we have less than a minute and a half so we're move through this very, very quickly. Maybe a sentence or two from both of you and I'll do the last question very quickly. Dr. Kennedy?

Kennedy: As citizens of the United States, I challenge you to get together with your senators and your congressmen and congresswomen and make sure that they understand the importance of missile defense to you, as a citizen of the United States. As you probably heard here today, the proliferation of ballistic missiles and cruise missiles, that could challenge our homeland are out there.

Kennedy: We need to ensure that we take the technology that we have in hand today and put it in place to protect the citizens of our country, the sovereignty of our nation. I think that's very important. Unless the halls of congress hear those words, it doesn't do us any good because we can't get the funding to move forward.

Brennan: Okay. Next question. General Carlisle, which organization should lead the development of a new space sensor layer for missile defense: MDA, the Air Force or a new space force?

Kyl: Hot Potato.

Carlisle: Thanks for that question. You know at the end of the day, I think as I said earlier, I think the increase dialogue on the need to be able to do all the things we do in space. Space situational awareness, you need to know what's going on up there, you need to be able to defend your own assets because they're critical. We will evolve to different types of capabilities in space to do different things in support of this nation. I think the dialogue has been great.

Carlisle: I really believe that today we're standing up a unified command, a space unified command and that is the place where that should take place. Because when you think about it, it's the Army portion of space, the Navy portion of space, the Air Force portion of space and then you have the intel portion of space include the NSA, NRO, and all of their assets.

Carlisle: I think a unified space command has inter-age sea capability with intel world is where that should occur. I believe the dialogue on space is ... you know, John Hightman and Jay Raymond will tell you, this is exactly what this country needed to do is get the dialogue, have the discussion as we go forward. The new space command that is in the process of being stood up and I believe by one January, we'll be at least operational, should be the place [set up course 00:44:53].

Brennan: I wish I had another 45 minutes with you but I don't. Our time is up. I want to say thank you to all three of you for a wonderful panel. Senator Jon Kyl, Dr. Tom Kennedy and General Hawk Carlisle. Thank you.

Kyl: Thank you.

Carlisle: Thank you.

PART 3 OF 3 ENDS [00:45:13]