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Fireside Chat on Modernization and the Future of Warfare with Secretary Frank Kendall, 26th Secretary, U.S. Air Force

Moderator: David Ignatius, Columnist and Associate Editor, *The Washington Post*

Ignatius ([00:25](#)):

Um, our session this afternoon is about modernization of defense systems. Everybody's favorite goal. Uh, but as we know, difficult to achieve in practice our speaker, this, our speaker is somebody who has had deep experience, both in sketching, the goal and trying to achieve it. Uh, Frank Ken secretary of the air force, uh, west point grad served 11 years on active duty served in a number of senior, uh, Pentagon positions, including five years as under secretary for acquisition technology and logistics as secretary of the air force. He is also, uh, overseeing the space force. I asked, uh, secretary Kendall, if he could tell me something about himself, that's not in his bio. And he said, long pause. And he said, well, when I was a young man, I set out to sail single handedly from the Virgin islands to North Carolina and a storm came up and the self steering system on my single handed vessel broke.

Ignatius ([01:35](#)):

And if you wanna know the end of that story, you're gonna have to ask secretary Kendall afterwards, but it's a great story. I'm here. So <laugh> so, uh, Ms. Secretary, uh, we're gonna talk about modernization and your, uh, agenda for it, but I want to begin by asking about Ukraine and about deterrents in that war. A number of senior Pentagon officials have said privately that they think this moment is more dangerous for the United States in the world than any, since the 1962 Cuban missile crisis. And I want to ask you if you agree with that, and as sector of the air force, you're in charge of two legs of the triad. So I want to ask what are you doing as you frame the budget for the next fiscal year and beyond to strengthen deterrence in this period of unusual danger?

Sec. Kendall ([02:31](#)):

Yeah, I don't, I don't think I'd agree that it's as dangerous at time as the Cuban missile crisis. We're not in the brink of a potential nuclear conflict. Um, but we do have to sustain the triad. We do have to modernize recapitalize, really our strategic triad and all the programs to, to do that are, are underway. Um, I am concerned about achieving schedule, uh, because the existing systems are, are aging out over time and we need to be sure we can replace 'em in time. Uh, but that that's a very, very high priority for the administration. All those programs are gonna be

fully funded and stay that way. And we're gonna try to execute as, uh, the schedule as it's currently, um, uh, exist.

Ignatius (03:14):

So in, in terms of specific spending, um, there'll be some in the next budget, um, and more coming.

Sec. Kendall (03:23):

Yeah. Our plans for the triad are pretty well laid out. I, I think we've been pretty clear about that and we're gonna make adjustments as we have to, to, to hold schedule as best we can.

Ignatius (03:32):

So turning to, to modernization you listed, uh, some months ago, a set of seven, uh, operational imperatives as you put it to drive, uh, modernization. Um, number one, and this goes to your responsibility overseeing the space force, uh, is space. And you said specifically that you wanted to define a resilient and effective space order of battle and architecture. And I want you to ask you to unpack that for us and in that answer, um, explain, uh, what we lack in that regard today.

Sec. Kendall (04:15):

Yeah. The, what David's referring to is the we're calling seven operational imperatives, and they're all essentially about our conventional deterrent. And I came back into government. Uh, one more time, I think, um, uh, for a couple of reasons, one was concerns that I've expressed for about a dozen years now about Chinese military modernization, particularly, which is quite clearly designed to defeat our ability to project power in the Western Pacific. Um, another is because I bring back 20 years of cold war experience and dealing with a near peer or peer competitor who was aggressively trying to invest to defeat our ability to, to fight conventional warfare among other things. So the operational imperatives are laid out to address what I see as in some cases, current capability gaps, but certainly future or anticipated capability gaps. If we don't react, um, the Chinese continue to modernize very aggressively.

Sec. Kendall (05:11):

They're being very thoughtful about it and their intention is to attack what they see as vulnerabilities in the us' ability to project power in the region. Space is the first of the seven it's, uh, the broadest it's it's about getting, uh, it's about fulfilling the strategy in space that we actually started in the Obama administration, which recognized that we were being challenged in space in a way that we really hadn't been even in the cold war, uh, China's fielding a suite of anti-satellite capabilities of various types. Russia is doing the same basically, and it was quite clear that we cannot operate the systems that we rely upon in space with impunity as we have over the last 30 odd years. So going to more resilient architectures, uh, is part of that. We also have to protect the joint force. The space force has two fundamental missions.

Sec. Kendall (06:00):

It has to provide a certain range of services to our war fighters, uh, uh, intelligence collection, missile, warning, communications, position, navigation, and timing. And it also has to protect the joint force against targeting by other other CA other four other our adversaries potential adversaries assets in space. And the Chinese have always, you thought of space, I think is an operational domain. And they've, they've worked to field systems that are there to threaten our terrestrial forces. So we have to deal with that as well. So the first of the operational imperative is designed at figuring out, and they're all, they're all basically built around the premise that we have an operational problem and we need to solve it. So we need to do the analytical work, uh, assess technology what's available and determine what a, a reasonable path is to get that technology fielded. The overarching guidance I've given to people is in my acquisition people in particulars, I want meaningful military capability in the hands of operators as quickly as possible. That's how we should be structuring programs. We are in a race for technological superiority. Uh, no. So, uh, more so than in space.

Ignatius ([07:06](#)):

So I should ask, um, how vulnerable we are in space today to the Chinese and other adversaries and, and how soon that window of vulnerability, if, if it exists, can be closed. If we proceed with the programs you're describing,

Sec. Kendall ([07:24](#)):

Uh, the Chinese, the Russians also to some degree have already refueled that antisatellite capabilities that threaten our, our, our assets in orbit. They also have systems in development where they've done some initial testing and we can, we can project, I think, reasonably accurately when those will arrive and again, meaningful military capability. Um, so we need to react quickly and we need to move forward. Uh, we've done it with missile warning. We've put forth in this last budget that we just submitted a plan to, to go to a more resilient missile warning architecture. We also have a lot of good work underway from the space development agency to feel a more resilient communications architecture. So those two parts we we've, we've got a good start on other parts, not so much. So we, we have a lot of work to do there, and I don't think we have any time to lose the, we, we, we have, I think today a very effective deterrent, uh, under the doctrine of integrated deterrence. I think together with our, our partners and our allies, uh, we, we pose a formidable threat to any act of aggression by China. And they would certainly be misjudging us to think that our will is not there to do that, but, uh, over time, that picture is changing and it's been changing for some time. And I don't think quite frankly, that, uh, we have reacted as aggressively as we can, or as we should to, to the modernization, uh, problem that we face

Ignatius ([08:42](#)):

General noon, uh, at cyber command is said that in the cyber domain, there is what he called several years ago, a level of persistent engagement, meaning that there's a low level of cyber

conflict going on all the time in that domain. What about the space domain? Is, is there a low level of conflict, uh, of challenge that we might not be aware of, but that you are, that you'd be willing to speak to?

Sec. Kendall ([09:13](#)):

Well, the question is, how much can I talk about it? Right. Um, what, what is happening right now, I think is, is in some degrees could be characterized as preparing the battlefield and building forces that could potentially be effective. Uh, so the, the space domain is, is very different. Okay. It's, it's, it's been characterized as the high ground new high ground to some degree. It is that one way I think about space is that it's a sort of a no man's land where both sides have observation of it, pretty UN impeded. It's also a very, uh, uh, vulnerable place to be. And what we have relied upon for very long time now, uh, is, is systems that are fairly well understood and predictable in small numbers that provide fairly lucrative or high value targets to our ever series. And that's where we have to move away from.

Sec. Kendall ([10:04](#)):

We also have to move to an environment in which we again, can protect the joint force from observation and, and deny our potential adversary. Some of the services they're getting from space. So we we've got a lot of work to do there, but the first step is identifying what needs to be done and, and getting on the path to feel that the us is a little unique in that. Uh, we have divided the missions and space up between the intelligence community and the operational defense community. So I am working very closely with my counterparts and in the intelligence community to ensure that we're meeting all the operational requirements that the air force and the joint force actually have. The space force is responsible for integrating all the services requirements in space and we're well underway at, uh, formulating all those, some of those we're gonna try to do together in cooperation with the intelligence community. So we have a lot of work to do there, and again, there's really no time to lose.

Ignatius ([10:59](#)):

Should I understand that within the limits of what you can say in this, uh, room that, uh, yes, there is a low level of persistent engagement in space.

Sec. Kendall ([11:11](#)):

We're, we're certainly trying to understand each other's capabilities and systems in space actively doing that. Um, I think both sides to some degree are working to actively field the systems that they think will be important to, uh, successful military operations in space.

Ignatius ([11:29](#)):

So I want to skip to number three in your list of, uh, of operational imperatives and that is defining next generation air defense. Um, that's fascinating in part because it involves both, uh, crude and unru, um, uh, fighter jets in effect. Um, describe what, what your vision is, uh, what

that might look like, what advantages you think it will have in dealing with our adversaries in the future.

Sec. Kendall ([12:02](#)):

Sure. David, several things come together there. This is, uh, next generation of air dominance. It's, it's the family of systems we're calling it that, uh, is the follow on to the F 35 and the F 22, basically. And it's a family of systems, cuz it's not just about the next fighter plane that we might might acquire. It's also not just about a manned aircraft that we might acquire crude aircraft. I started a program when I was the under secretary for our acquisition technology and logistics called next generation a dominance, which was aerospace innovation initiative, which was a program to demonstrate and prove out the technologies that would, would, would be in the next generation of Adom systems. And that program came to maturation. It was fairly successful and it gave us one of the things that positions us to move forward with operational capabilities. But it's not just a, and that was for a platform, right?

Sec. Kendall ([12:54](#)):

That was for an air an aircraft. There's not, that's not all that there is that's needed. There's also weapons, communications, uh, external support to what we use our, our, our systems to control the air and also crude combat capability. One of the, one of my observations from my four years outta government is that the technologies for crewed systems have moved forward substantially. And this is through programs like the DARPA ACE program or the air force Skybird program or the Australian loyal wingman program and others. And that those technologies have matured enough that we can now talk about committing to an unru collaborative combat aircraft that would work in conjunction with a manned aircraft, a crude aircraft. So the, the idea is that the, the crude aircraft would control one to five. Let us say more is better unru aircraft that were, uh, had a suite of capabilities on them were substantially less expensive than that crude aircraft potentially.

Sec. Kendall ([13:55](#)):

And they could then be act as a formation and that the play call in that formation would be the crude, uh, aircraft, the manned aircraft. So that's the concept, um, where we are going to commit to significant amount of resources going in that direction. In our next budget submission, we spent the last year going through the analysis of all this and sorting it out and understanding what technologies are mature enough. Part of the idea is to create a platform that we can then insert technologies into and mature over time. As those technologies advance a lot of the tech technology associated with autonomy and with the kinds of tactical behaviors that I just talked about. And with the subsystems, it might be involved is involve, involve software, and it's gonna proceed at its own pace. So what we want to do is as we develop a platform, which will take a few years to do at the same time, we're developing the, the, the associated technologies. So we get to an entry level or an initial level of capability, and then we

can continue to improve it over time. There, there isn't any question in my mind that this is the direction in which technology is essentially leading us. Uh, there we are in a race to do this. The only question in my mind is who's gonna get there first. And, and I intend for the us air force to be there. First.

Ignatius ([15:07](#)):

I I'm looking at general brown as I, as I ask this question. And I'm wondering how the, well, the two of you are doing in selling this concept to, uh, fighter pilots, uh, like, like general brown who's, whose whose cockpit seats will be, uh, taken, uh, in this vision you're talking about of, of the future

Sec. Kendall ([15:31](#)):

CQ and I, and I'm delighted Amir. And I think you mentioned on crew combat aircraft during his talk this morning. Uh, I am incredibly lucky to have a, an innovative creative far thinking, uh, uh, team of senior leaders at the top of the air force. You heard from Jay Raymond earlier this morning, you heard from CQ, uh, they're tough acts to follow. Uh, the other member of our senior leadership team is the under secretary at gene Ortiz Jones who isn't here. Uh, but I, I have a great leadership team. We meet every day, uh, first thing in the day and talked about what we're doing, uh, any, a number of a range of topics, but I am especially, uh, pleased that we are really in sync on this. I think CQ recognizes that if we're only going to buy, uh, aircraft like F 35 and F 15 ex even, and, uh, uh, an end GAD sophisticated replacement for the F 22, that we can't afford the air force that we have, or the air force that we need. So we're gonna have to move in this, this direction. Uh, and I think we're in, in complete sync on that

Ignatius ([16:32](#)):

We were talking, talking with general brown this, this morning about top gun Maverick. And although that's on the, the Navy, uh, it does have the air force trailer, which pretty spiffy. And, you know, I was thinking, getting ready for this interview, that top gun Maverick set back defense modernization a decade. Um, so you, you're free to comment on that the movie or the, or the modernization issue.

Sec. Kendall ([17:00](#)):

Uh, but you've been raising a couple of interesting topics there, CQ and I were just at the Royal international air tattoo, and we both had a chance to meet Tom cruise while we were there. I had, I got two wonderful things that happened to me in, in the UK. I got to, I, I dunno if it's wonderful or not. I got to meet Tom cruise, which was certainly interesting. Um, but what was wonderful was I gotta ride a Spitfire and got to see, uh, a very earlier generation of technology firsthand, uh, which was in its own way important at its time. Um, I've lost track of your question now, David, but <laugh>

Ignatius ([17:31](#)):

The how Tom cruise set back defense modernization?

Sec. Kendall (17:34):

Oh, no. As CQ mentioned, we got a great air force, uh, recruiting, uh, ad into the beginning of the, of the movie and people associate both of the, the Navy and the air force and the Marine Corps too, with, with fighter blinds to some degree, but primarily the air force. Uh, and as someone who's also had the experience of landing on a carrier, um, I th I think, uh, the air force has a lot to offer. And, uh, as a, for people who, who are interested in, in being pilots in the future,

Ignatius (18:02):

I, I want to think that Tom cruise is telling us pals right now. I got to meet air force, secretary Frank Kendall <laugh>. Um, so you have said, uh, in, in, uh, comments recently, uh, talking about defense modernization and I'm quoting, we need to go fast, but in the right direction. So I wanna ask you, what are some of the wrong directions?

Sec. Kendall (18:29):

Um, I think we need to move from just doing interesting experiments or things that may be even technologically interesting to things that have a defined future, and that we're confident are gonna contribute to our overall capabilities. Uh, a lot of the things that CQ and, and Jay Raymond and I are doing are about getting technologies across the value of death. And one of the things that, uh,

Ignatius (18:53):

You should explain the value of death to those in the audience who don't know what

Sec. Kendall (18:56):

The, the value of death is, the idea that you have really interesting and technologies with with high potential, which you put some funding into over on the science and technology side of the house, but you never get them into the field. You never get them built and, and out to operators. Um, and the response to that to a large extent has been doing more on this side of the valley, you know, creating organizations that would look in Silicon valley and other places, or that would do more experimentation and prototyping from my perspective, the real problem isn't that it isn't the availability of our access to technologies, or even the recognition that they're there, it's the priorities and the resources to actually move them across. So what the operational imperatives have pointed out as much as anything is that we have a number of technologies that are ready to transition, and we just need the programs, uh, funded and prioritize to get them into the hands of our operators.

Sec. Kendall (19:49):

So I, I would say that R large, that is an, a, a result of the work we've done over the last several months in operational imperatives. And it's been, um, encouraging to me that we've identified some things that are far enough along in some stage of early development, that we can latch onto them and, and start to push, move them across. And that, that is really what we need to

be doing. And I feel a very strong sense of urgency about this because of the threat. And I think CQ and J both share that. Uh, and now it's gonna be about getting the resources to make that happen. You know, there, when people have criticized the department for not feeling technology more aggressively, I think they missed the missed the point. The reason that hasn't been done is more about requirements and priorities and resources than it is about anything else. And that's about pulling things across that value death.

Ignatius ([20:39](#)):

So now obviously we're getting to the heart of this, this conversation. When we talk about resources, a and I want to ask you, um, about what you are advocating that we do less of. So as to spend more, to pull these key systems across the valley of death, uh, so that, so that they're usable you and, and general brown, uh, wrote in a joint article this month, that that modernization means letting go of familiar systems and concepts. So I wanna ask you to be specific, like what, what is it that the air force and the other services, but let's focus on the air force needs to let go of in your legacy package,

Sec. Kendall ([21:20](#)):

Um, in terms of existing capability, there are a number of things. The, uh, veteran bowl, a 10, which is an army officer, I supported for many, many decades actually, um, is, is not a system that we're gonna need against the kinds of adversaries we're, we're, we're, we're concerned about most now. Um, we have older systems like AWAC and J stars, which we designed for different era and are very hard to maintain. So we're trying to move some of those outta the inventory and replace them. And we started down that path by, uh, putting Wedgetail, uh, E seven aircraft in, as an AAC replacement in our budget. Uh, we also need to move away from, uh, or to a total reliance on airborne systems for those, those, uh, uh, those, those capabilities, just space based capabilities, uh, resilience, space based capabilities. In that case, there are, there are some systems that were required to prosecute the counterinsurgencies or the war on terror, uh, adversaries that we dealt with that still have utility, but that we required awful lot of, uh, and we're gonna move some of that out of the air force over time as well.

Sec. Kendall ([22:22](#)):

So the things that you know are in existence that we need to replace with things that are more suited to our needs today. And there are also things in the, in our pipeline that I talked about that, uh, and general brown and I are gonna do this together. And so general Raymond, we're gonna take a look at some of our prototyping things and say, okay, the question we need to ask is even if this is successful, are we going to fund it and buy it? And if the answer is, no, we should stop. Now. Now that's a work in progress. We still have a little bit of work to do there. We can't afford to do everything that we need, and we need to, and frankly, we need to repurpose dollars that are not focused on our, our driving adversaries, our pacing challenges

are as, as we call it, uh, and get those dollars applied to those, those problems, cuz we have a lot of work to do there. Uh, and again, we don't have a moment to lose,
Ignatius (23:08):

Uh, parenthetical thought, why don't we give those eight, 10 S to Ukraine,
Sec. Kendall (23:13):

Uh, John Brown address that question this morning about what a fighter's Ukraine might, might, uh, be interested in. That's largely up to Ukraine. I think as, as UQ pointed out, there are a number of international opportunities that are possible there. Um, older us systems are a possibility. Uh, and so as Ukraine, you know, who is pretty busy right now doing with the right now problem, um, uh, tries to sort out what its future will be longer term. We'll be open to discussions with them about what their requirements are and how we might be able to satisfy them, but there are a number of possibilities.

Ignatius (23:43):

So coming, coming back to this question of, of what, uh, we, uh, do less of, you've been pretty Frank in, in addressing that, but I, I want to ask you the obvious, uh, question to be blunt, will Congress lets you do what you want to do.

Sec. Kendall (24:00):

Yeah, I'm, I'm encouraged by the response I've gotten from the Congress. So far, I put together a threat briefing, which is fairly highly classified and took it all the committees that oversee the department of the air force as well as to others who are cleared and interested in that. And I think that's had an impact made a pretty impassioned plea last year to allow us to some of our older systems, something that's historically been difficult. And we succeeded with one exception in our, in FY 22, uh, FY 23, we have some additional divestitures we've asked for. And so far, uh, there's been pretty broad support for that. So I'm encouraged by, by what's happening with the Congress so far. Uh, this isn't easy for them. Okay. And, uh, as I was going through confirmation and I understand the political, uh, uh, interests that aren't there as I was going through confirmation, every Senator, I talked to had a sentence for me, something like I understand that you're concerned about China and I think that's really important, but by the way, I've got these C one 30 S or fill in the blank in my state or, and I really think that they're important.

Sec. Kendall (25:01):

Uh, so we, there, there, there is an interest there that we have to come to grips with and we will try to work with people on the political spectrum, uh, on both sides of the aisle to come up with solutions that are win-wins for all of us, but we, again, we have to move forward.

Ignatius (25:15):

Let's talk about Taiwan. We just, uh, had a, an unusual exchange with the Chinese ambassador to Washington. I'll, I'll leave comments on that to, to others, but I I'd like to ask you to, to, uh,

put on an imaginary PLA uniform, if you will, and think with us about what the Chinese military leadership would think about Taiwan in light of what they've seen in Ukraine. What, what are the lessons for the Chinese, uh, in, in terms of, uh, the difficulty of, of, of, of that operation, uh, and the ways to succeed.

Sec. Kendall ([25:56](#)):

I've got that question. Any number of times it's come up in the, uh, here at the, at the forum, a number of times, um, there are some lessons I think China should get from, from what's going on. One of them that I hope they get is, uh, that the economic consequences of an act of aggression are extreme. Uh, and that you should definitely try to avoid that at all costs. Now that's a, a lesson that isn't entirely complete yet and, uh, we need to stick together to make sure that is a lesson that they get another, the senior political leadership for China is that all those things about that, my military is telling me about how great they are, might not be as true as they would like them to be. Uh, I, I am sure that, uh, uh, Mr. Putin was told how, uh, successful and how capable his military was, and that turned out not to be the case.

Sec. Kendall ([26:45](#)):

So hopefully leadership at the senior level in China is, is, is being thoughtful about that. The, um, CQ mentioned some of the, the things that about air, air superiority, and the ability to the importance in conventional operation of taking control of the air. I guess the third thing that, uh, the Chinese leadership I hope will get from this is that your, your, your, your attempt to have a very quick win may not be successful. And you may find yourself bogged down in a long campaign that you really didn't anticipate and weren't prepared for. Um, but again, back at the military side, uh, air power matters space, power matters too. And there are things that are being done through the space domain that are very important to, uh, the conflict in Ukraine, the, uh, efficacy of mobile air defenses and man portable air defenses against the, the Russian military, uh, should give people, pause the utility of precision munitions, which we're showing right now, I think should give people pause. And I think as people learn lessons from this, I'm, I'm hoping that their time on east learned some lessons about what would be most effective in their defense and that they apply those lessons as well.

Ignatius ([27:51](#)):

One of the points that came through for me in the Chinese ambassadors comments was his, uh, repeated discussion of avoiding miscalculations with the United States, uh, talking with the United States, et cetera. Um, the question of strategic stability talks with the Chinese similar to the dialogue that we've had for decades with the Russians because of the arms control process is something that administration officials have spoken about privately. And I I'd like to ask you if you would, um, address what your own view would be about the utility of strategic stability talks with China and what you think would be issues that ought to be on that agenda.

Sec. Kendall ([28:38](#)):

It's, I'm not a policy person. I'm an organized training equip person like John Brown, general Raymond, but my cold war experience and is very illuminating to me here. Um, we do need to have dialogue, uh, with China much more so than we are. We are having general milli, uh, chairman of the joint cheese, uh, spoke with me very recently about a conversation he had with his counterpart. It was very candid. We need to have more of those, and we need to talk about stability in particular. The, the most concerning thing that I may have seen in my entire career is the, is the recent revelation of the Chinese nuclear breakout that they're going to bring their force up to something wealthy, comparable to the forces that the us and and Russia have. Um, we've never lived in a trip nuclear world before. Uh, I lived in the bipolar nuclear world for a long time, and I was very involved in the issues of strategy and, and deterrence associated with that.

Sec. Kendall ([29:31](#)):

And we analyzed to death ladders in the escalation, uh, uh, train and how one move by one or the other would affect each other. You started the conversation, I think talking about the Cuban missile crisis. Um, we do not wanna be back in a situation that's that perilous for the, for any of our countries. So we need to be talking to each other. One of the experiences I had in the cold war was that the Soviets would say things that I didn't believe. Um, I thought that there's no way they can actually believe this. They're just trying to, you know, manipulate us some way after the cold war ended. I discovered that they actually did believe those things, and there was a cultural mismatch or gap between ourselves and the Soviets at the time. That was more significant to our understanding of each other than I appreciated while I was a participant in that exercise, the cultural gap we have between ourselves and the Chinese is vast compared to the one that exists. I think between ourselves and the Russians, we need to be talking, we need to be able to understand each other better. We need to understand each other's motivations and incentives, uh, and how we see each other. And we need to take positive steps to address, uh, uh, instability. You know, if, if the world ever gets into a nuclear exchange, I, I think it will be because of a severe miscalculation by one side or the other premised by both sides. And we need to do everything can, that we possibly can to avoid that.

Ignatius ([30:52](#)):

I wanna ask you about, um, the one exotic military technology that gets a lot of attention and that's hypersonics, uh, you and I, in conversations that we've had, um, I've been struck by your skepticism, um, that just because the Russians and Chinese are, uh, spending a lot of money on hypersonics, that doesn't mean that we should too. And maybe you could explain for, for this audience, why you're skeptical about the UTI, the utility of some of these systems for the United States.

Sec. Kendall ([31:25](#)):

Um, I don't regard hypersonics as a truly revolutionary capability or as a panacea for our operational needs. I think I understand why China is pursuing them. Uh, they have a certain target set they're interested in and hypersonics can be useful for that. Um, we have a very different target set, so we don't have a symmetric situation regard to China. Um, we will pursue hypersonics. We will field hypersonics. They will be a part of our inventory. Um, I don't regard them as a, a dramatic or I don't, I don't see a big capability gap. I'll put it that way that I'm concerned about between ourselves and others with regard to hypersonics. Um, they, they have several features, which are interesting. They're very fast, obviously. So they get where they're, you intend 'em to go much more quickly. Um, they're very hard to defend against, uh, they follow unpredictable trajectories.

Sec. Kendall ([32:16](#)):

It makes it harder to assess and attack and determine where it's going. You need different centers, particularly for the very long range systems, uh, to, to track them during their flight and understand what the attack intends. Uh, but they're also very expensive and they have somewhat limited capabilities in terms of the target set that they can address. So you have to look at them from a point of view of cost effectiveness based on your military needs, not somebody else's. And if, if, if that hadn't been the case, right, we would've invested much more aggressively in hypersonics much earlier than we did. You know, we did do, uh, programs like the DARPA program, which had a couple of failures to try to move the technology forward, cuz it was of interest. Um, but I, I don't see it as a, uh, truly revolutionary capability. Like some other capabilities might be,

Ignatius ([33:05](#)):

We have just a minute left, but I want to ask you one more, um, hard question and that takes us back to Ukraine and really where we begin our, our conversation. Um, as we all, uh, know tactical, uh, nuclear weapons are part of Russia's, uh, military doctrine and they keep dropping hints that they might use them. The United States after the inf treaty basically gave up its uh, tactical nukes. And I'm wondering as you think about the future, uh, and the dangers that we now see, so obviously you think we're gonna need to have tactical nuclear weapons of our own going forward because we have an adversary that, uh, clearly threatens to use them.

Sec. Kendall ([33:50](#)):

Yeah. The, for a long time, Russia has had a, uh, a doctrine of increased reliance on tactical nuclear weapons. The, I think they saw our conventional advantages as being overwhelming to their conventional forces and therefore went down the path of building, uh, fielding, fielding and putting into their doctrine, greater reliance on tactical nuclear weapons. And that's, that's where they sit today. So as we watch what's happening or we, as we are involved in the, in, in what's happening in Ukraine, we are very conscious of the fact that they have that capability. Uh, we don't see any clear evidence that they would be inclined to use it. It would be certainly

not to their advantage to do that, but it's something that's a possibility. Um, I am, I am not involved in those kinds of discussions right now. Uh, we do have some tactical capabilities. We have dual use capabilities with some of our allies in, in, uh, in Europe.

Sec. Kendall ([34:44](#)):

Um, so they're part of our, our suite of capabilities that we use to, to, to for deterrence. Um, it, it, I think it depends again on the course that our potential adversaries in this case now, particularly China take, uh, with regard to their own modernization. You know, we've just seen, uh, the public evidence that they're expanding their strategic nuclear force substantially. They have a lot of weapons which could carry both tactical and nuclear weapons, I'm sorry, conventional and nuclear weapons at the tactical level as well. And so that's something we need to be watching. And again, something we need to be talking about with the Chinese I'm I spent a good part of my career avoiding working on nuclear weapons. I think they're inherently, uh, extraordinarily destructive and dangerous. I was thinking earlier that the only time that they've been used was by the United States and they were used for the purpose of bringing an end to a devastating global conflict. And since that time, no, one's crossed that threshold. And I think we should do everything we can to make sure that nobody ever does.

Ignatius ([35:44](#)):

Uh, air force, secretary Frank Kendall. Thank you very much.