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Senate Armed Services Committee Holds Hearing on U.S. Space Force Proposal

LIST OF PANEL MEMBERS AND WITNESSES

INHOFE:

The committee meeting will be--will come to order. We want to welcome our witnesses, Secretary Shanahan, Acting Secretary of Defense; Secretary Heather Wilson, Secretary of the Air Force; General Joseph Dunford, the Chairman of the Joint Chiefs of Staff; and General John Hyten, Commander of the U.S. Strategic Command.

Before we begin today's hearing, I'd like to provide special recognition to Secretary Wilson. She--today is likely her last appearance before this committee as she's transitioning to her new position of President of the University of Texas El Paso. And I--I spent about 20 years of my life down there, so I know what you're in for, and we'll miss you dearly. Your service has been--to our country has been commendable, and first serving as the United States Air Force from '82 on, and as Congresswoman from 80--from '98 to 2009, and culminating as the 24th Secretary of the Air Force. We appreciate all of your service. We will miss you.

I've got to applaud and thank both President Trump and Vice President Pence for their renewed focus and cohesive approach to America's resurgence in the space domain, and the support to our National Defense Strategy, this document here, which is our blueprint. The reestablishment of the National Space Council chaired by the vice president, has provided multiple space policy derivative--directives, including the establishment of the unified Combatant Command and U.S. Space Command, as well as standing up the Space Development Agency and providing us with the United States Space Force proposal we are discussing today.

Space is a warfighting domain, and future conflicts with Russia and China will invoke attacks from, in and through space. This would profoundly disrupt our society, which is heavily dependent upon satellite communication, positioning, navigation and timing and other vital space-based technology. We must restore our margin of dominance in space over our adversaries. The president's leadership and continued attention to this space domain protects the freedom of action these great power competitors would like to disturb. And the unwavering presidential support we have received ensures our war fighters we have the technology and ability to bring America back to greatness in space.

Today's hearing will provide us with an opportunity to continue to gather facts, to fully explore the proposal as presented to us, as just only four weeks ago, if you remember, that was right after our budget discussion, and talking with members of the committee and their MLAs, we're all open-minded on the plan that are wrestling with different aspects of it. And this is one of those rare times when we're having a hearing where people haven't already made up their minds, so we look forward to that.

When we first heard about the proposal I asked two simple questions. What will the organization fix, and how much will it cost? Now I was going to say I have yet to get satisfactory answers on either one of these, but we have already talked--it's come out of the administration that this is going to be a \$2 billion program. So for my purposes, I'm going to assume that's right, but I'm still waiting for the answer for the other question. So I look forward to talking about the options and considerations. Another option could be making the National Reconnaissance Office, the NRO, the Space Office. I consider that would be a viable alternative. We'll be discussing these alternatives in the time to come.

Since the--this--Senator Reed and I have concluded that since this is such a high visibility and there is so much interest in this, we're going to have instead of five-minute rounds, we're going to have six-minute rounds, and we look forward to dealing with the--with our committee members. Senator Reed.

REED:

Well, thank you very much, Mr. Chairman, for holding this hearing to discuss the department's proposal to establish a United States Space Force. Again, I think the timing is appropriate. The administration understands the different challenging demands in space that have evolved very quickly over the last two years, and their proposal gives us something to work with, and I thank them for that. Let me welcome our distinguished visitors and join the chairman in saluting and thanking Secretary Wilson for her distinguished service. Thank you, Madam Secretary.

All of us would agree that space is essential to the security and progress of the United States. It is a critical component of almost every aspect of everyday life, from communications, financial transactions, and navigation to the weather. For decades the United States enjoyed unfettered access to space. However, as near peer competitors increase their space presence, space is becoming contested. Eventually it could be a warfighting domain, and we must prepare accordingly. The question is how.

There are legitimate concerns that the Department of Defense is not effectively organized to address the threats posed by our near peer adversaries in space. Congress has grappled with how to address these concerns. In fact, in 2017 we debated a House proposal on whether or not to create a Space Corps. Ultimately, due to strong opposition in the Senate and questions from senior officials within the Department of Defense, Congress did not create a Space Corps, but we did strengthen the space cadre and space acquisition authorities within the Air Force and specifically within the Air Force Space Command. Last year Congress took an additional step and created a sub-unified command for space reporting to the U.S. Strategic Command.

This year the administration has proposed to establish the U.S. Space Force as a new military service within the Air Force responsible for organizing, training and equipping all forces who will fight in the space domain. The proposal is essentially the same House proposal we debated in 2017. I fully agree that the threat is real and that changes need to be made to better address the threat. However, creating a new branch of the Armed Forces for the first time in 70 years is not a decision Congress should make lightly. Such a major reorganization

would have long-lasting consequences, both intended and unintended, for how our forces will fight the decades into the future.

While the department's proposal appears comprehensive, there are areas where I have questions and concerns that I hope we can discuss during today's hearing. My first area of concern is the creation of what seems to be a very top-heavy bureaucracy. According to initial estimates, the Space Force will be a military service of approximately 16,500 people. Roughly 1000 personnel will serve in headquarters positions. Presently the smallest force is the Marine Corps with a total force of 246,000 military and civilian personnel and a headquarters staff of 1200. This Space Force would be in the Department of the Air Force, similar to the Navy Marine Corps model. However, this proposal creates an undersecretary of the Air Force for Space, whereas the Marine Corps does not have a separate undersecretary. The proposal also creates two new four-star general officers in Space Force, one for Chief of Staff and the other for the Vice Chief of Staff of the Space Force. The Chief of Staff of the Space Force would be a member of the Joint Chiefs of Staff. I hope our witnesses will explain why the Space Force requires a separate and dedicated undersecretary, unlike the Marine Corps, and whether such a top-heavy bureaucracy is necessary for such a small fighting force.

The department states that a new military service will significantly increase focus in leadership, expertise, personnel and culture. With regard to the personnel actions requested, I have some concerns that this proposal may actually have the opposite effect. Of the 16,500 members of this force, 10,500 would be active duty service members almost exclusively from the Air Force, and a significant number of Space Force general officers would be drawn largely from the Air Force. Therefore the future pool of officers from which the Space Force would grow field-grade (PH) and general officers would be small compared to other services and predominantly from one service. This raises a question about the depth, breadth, diversity and long-term quality of the (INAUDIBLE) corps.

While predominantly made up of Air Force personnel, the proposal seeks to consolidate much of the space activities of the other services in Space Force. The department is specifically requesting authority for the secretary of defense to transfer military and civilian

personnel, both voluntarily and involuntarily, and their associated budgets and billets to the Space Force. While it is possible all these transfers could be done voluntarily, I believe that scenario is highly unlikely. The connection a service member has to their individual military branch is often deeply rooted and a part of their identity. Furthermore, the department has not yet decided on what role the Guard and Reserve will play in this new service.

This proposal will--would authorize a new civilian personnel system exclusive to the Space Force that would be exempted from the statutory rules and protections applicable to most other federal employees, including antidiscrimination laws and whistleblower protections. Most notably, the proposal would create a statutory exemption from collective bargaining rights for this workforce and would authorize the department to involuntarily transfer civilian employees, stripping them of their collective bargaining rights in the process.

The department's initial cost estimate for Space Force in FY '20 is \$72 million. However, the department has provided only notional budget numbers for out of your budgets with an estimate the Space Force will require approximately \$1.6 billion over the FIDIP (PH) based on a flat \$500 million recurring cost for personnel. It is highly unlikely that the bureaucracy of the Space Force will remain flat over time. I think providing DoD with wide legislative authority to create a new proxy without more robust budget details is risky.

On a final point, the National Reconnaissance Office is responsible for our nation's intelligence collection of space. It is the joint organization between DoD and the intelligence community. Clearly, it will play a critical role in space as a warfighting domain, yet it is not yet part of this proposal in any way. I understand there are difficult issues to address in both the administration and Congress and any changes to the status quo, but I'm interested why this obvious seam in the organization of space was not addressed, and I'm interested in hearing from the witnesses on this issue.

REED:

Again, the threats we face in space are real and clear that require action. I commend the administration and the department for taking such action and we will consider this issue very, very carefully. Thank you Mr. Chairman.

INHOFE:

Thank you. Thank you Senator Reed. Well, we have four witnesses. All four will have opening statements and we will ask you to try to keep your opening statement down around five minutes because we have a lot of members here and we are going to have six minute round so it's going to take a while so we will start with you, General Dunford. You are recognized.

DUNFORD:

Chairman Inhofe, Ranking Member Reed, distinguished members of the committee thanks for the opportunity to join Secretary Shanahan, Secretary Wilson and General Hyten here today.

Last month I testified before you that China and Russia have developed capabilities to contest our ability to operate across all domains. This includes space which is now a fully contested more fighting domain along with sea, air, land and cyberspace. As you know we have conducted joint military net assessments each of the last two years to determine our readiness to execute the national defense and military strategies.

At the unclassified level our assessment include several observations that are relevant to our discussion this morning and highlight that our competitive advantage in space has eroded. China and Russia have taken significant steps to challenge our traditional dominance in space. They have reorganized their armed forces and developed robust space capabilities to include space-based intelligence, surveillance and reconnaissance. These steps provide the ability to more effectively target U.S. and allied forces.

China and Russia are also capable of searching, tracking and characterizing satellites and all the earth orbits in support of space and counterspace operations. Their counterspace capabilities include jamming cyber operations, directed energy weapons, on-orbit capabilities and ground-based anti-satellite missions. China and Russia clearly recognize the implications of space from both an economic and the warfighting perspective and as a result they are adapting.

As Secretary Shanahan has in his written statement Secretary Wilson is (INAUDIBLE) and-- in both the Chairman and the Ranking Member have mentioned space is no longer a sanctuary. Traditionally the Air Force has been the principal driver of our efforts in space and because of airmen like John Hyten who joined us here today our capabilities today are second to none but our current organizational construct was developed before space was a contested domain. As a result of our analysis over the last few years I have become convinced that we need change to maintain our competitive edge.

In the past we have often affected change in a wake of failure. Today we have been opportunity and I would argue in imperative to change based on our ability to anticipate. We have an opportunity to look to the future and posture ourselves to seize and hold the high ground of space. We have already acted to establish the United States space command which will ensure we can most effectively operate in and from space.

Taking a next step to create a Space Force will allow us to develop and maintain a singular focus on developing the people, the capabilities, the doctrine and the culture we will need to maintain our competitive advantage in space. Together I believe these steps will accelerate our efforts to develop, field and operate the capabilities we will need for joint for finding in the future.

Thank you, Chairman, and I look forward to taking questions.

INHOFE:

Thank you, Gen. Secretary Shanahan?

SHANAHAN:

Chairman Inhofe, Ranking Member Reed, members of the committee thank you for this opportunity to testify in support of the Department of Defense's U. Space Force proposal. Before we begin let me pay my respects to the families of the U.S. Marines we lost this week in Afghanistan. While we will discuss elements of national security here today we know it is

America's young men and women who ultimately deliver that security for us and our families each and every day.

Let me open my comments on the Space Force by expressing my admiration for our U.S. Air Force. Because of our airmen and Secretary Wilson's leadership in particular we are the best in space. This proposal is about maintaining the margin of dominance they have given us and accelerating the capabilities we need in this increasingly competitive domain.

Establishing the Space Force within the Air Force lets us do just that.

It is all the more vital now because our \$19 trillion economy, our American way of life and our American way of work all depend on space.

16 months ago at your direction in the FY 2018 NDAA I began a review to quote identify a recommended organizational and management structure for the national security space components end quote. We are here to respond to that direction to address the problems Congress, multiple bipartisan commissions, the GAO and others have all characterized. DOD's base efforts are disaggregated resulting in a slow bureaucratic approach.

Today DoD has five Senate-confirmed that officials who are responsible for more than 10 organizations developing the spoke space capabilities in a very federated fashion. Failing to integrate across DoD and to capture the cost synergies of standards. The current approach has served its purpose. We are at an inflection point. Threats are increasing and the importance of and the opportunities in space are growing.

Both China and Russia have weaponized space with the intent to hold American capabilities at risk. Every member of this committee has access to the classified threat picture but the bottom line is the next major conflict may be won or lost in space. At the same time an explosion in commercial space innovation is adding thousands of satellites and a new range of capabilities unlocking the trillion dollars in economic opportunity. There is widespread agreement the status quo is not sufficient; changes required to stay ahead. Approach correctly this is an opportunity for a generational improvement. Future space capabilities should be system engineered from the start to include launch, commercial innovation, the network, the sunlight, the ground segment, user equipment and cyber security.

Our military is organized around physical domains, Army on land, Navy on sea, Air Force in the air. Given the significant change confronting us we now need a military service dedicated to space. Instead of chording across more than 10 organizations we will consolidate and concentrate into the Space Force so that we have clear lines of accountability and responsibility. Two elements of the Space Force, organize, train and equip mission are worth elaborating on.

First, today's space personnel go through a professional military education system focused on air, land or sea. Space is an add-on. The Space Force will build a professional development system that recruits technical talent educating our people in space from the beginning to produce the quantity and quality of leaders we need.

Second, organizing and equipping includes force design and force development. This means understanding the domain, the technology and warfare deeply enough to design and deliver future capabilities ensuring space power today and in the future.

The Space Force has two related components. First, a unified combatant command for space with a full-time commander focused on space operations. Second, the space development agency will develop and deliver the next generation of space-based communications and earth observation while existing organizations continue current efforts. The status quo is not sufficient. We need to outpace threats in space, not simply keep up with them. Because our current system isn't organized to move fast enough the Space Force will consolidate, elevate and focus our efforts for results. Our partnership with Congress is critical. Our proposed response to your FY 18 NDAA direction and we stand ready to work with you and resolve any questions or details. We ask for support in making this strategic initiative to establish the U.S. Space Force and FY '20 NDAA.

America has enduring interest in space. Just as the U.S. Navy insures freedom of navigation of the seas America Space Force must now insure the freedom to navigate the stars. Thank you and I look forward to our discussion.

INHOFE:

Thank you, Mr. Secretary. Secretary Wilson?

WILSON:

Thank you, Mr. Chairman, and--and thank you and Ranking Member Reed and this committee for this hearing and for your--for your service.

I would just highlight a couple of points very briefly in addition to what has already been said. The United States is the best in the world at space and our adversaries know it and they are seeking to develop the capability to deny us the use of space in crisis or in war. Our responsibility is to make sure that doesn't happen.

Second, I would say that it is absolutely imperative that we change the system of acquisition that is modeled more for the Cold War. We have to buy things faster and smarter. The authorities that you have given to the Air Force and to the other services into the Department of Defense over the last three years

WILSON:

are in the midst of being implemented and we are stripping time out of programs and increasing the performance of those programs. In respect to that, the on-time budget this year was absolutely critical and the fiscal year 20 budget proposal will be the third consecutive year of double-digit percentage increases proposed by the president, and I hope supported by the Congress.

The third thing I would say is that the Air Force has set up a planning cell underneath the Air Force that includes all of the services and the relevant defense department agencies to do the detailed planning necessary so that within 90 days of legislation, we would stand up the initial element of a space force. That planning cell is led by a two-star general and, as I mentioned, includes all members of the different services. We want to be able to move out smartly when legislation is passed. Thank you, Mr. Chairman. I look forward to answering your questions.

INHOFE:

Thank you, Madam Secretary General Hyten.

HYTEN:

Thank you very much, Chairman Inhofe, ranking member Reed, distinguished committee members. It is an honor to be here today and a continuing privilege to represent the hundred and 62,000 Americans accomplish in the mission of U.S. Strategic Command. I want to begin by thanking the committee for rightly approaching space as a war fighting challenge and I very much appreciate the president weighing and confirming spaces as a war fighting domain. Now we have to make sure we are ready for that challenge.

StatCom is a global war fighting command. Success in all our missions require us to make-- maintain freedom of operations in space and today, as the secretary just said, I sit here fully confident in our nation's superiority in space. Although we have a distinct advantage today, I fear that this will not continue unless we take action immediately before our superiority begins to erode.

Space is fundamental to our economic vitality and the American way of life, including how we conduct warfare. Certainly, our adversaries understand this and are actively building and deploying weapons to threaten us in space. We must take these actions seriously. But as the commander of U.S. StatCom, I am responsible for space operations in our military today. And I've been in space my entire career. It is my passion.

And as much as I'd like to focus on space, my priorities are first, strategic deterrent, second, nuclear command and control, and space can never be higher than my third priority. So the most important thing we can do in the near term is create a new unified command U.S. space command separate from my command, StatCom, focused solely on war fighting in space, and we need a four-star commander to do that. It's that important.

The department has already taken steps as well as the president to nominate General Jay Raymond for this position. He is the right person for that job, and I encourage the Senate to

take up his nomination as soon as possible.

The second piece is to stand up a new space force inside the Air Force focusing on organizing, training, and equipping forces for this space command and for the joint forces at large. This is the pathway that best gets us there. The president said we need a structure inside the Pentagon focused on space all the time inside the Air Force and I support this model.

The force needs to be streamlined from inception. I understand your concerns about inefficiencies. I believe the creation of the space force within the Air Force is the best way to reduce redundancies and bureaucracies by focusing on the most essential tasks, so I pledge to continue to work with the Congress to develop the most efficient war fighting organizational structure possible. So thank you again for allowing me to be here today and I look forward to your questions as well.

INHOFE:

Thank you, General Hyten. Now, we are going to have six-minute rounds and were going to try to stay within that timeframe, I tell myself fellow senators. But we also in--in my opening statement, I talked about I had a couple of questions that never have been answered to my satisfaction. Forgetting about the cost thing, because we've pretty much established at least an opinion as to what it's going to cost, but I have essentially the same question worded little bit differently to have each one of our witnesses.

So I'd like to ask you to respond to this question. First of all, Secretary Shanahan, I agree with--when you often say the United States margin of dominance in space is diminishing, but my question to you, a direct question is how will establishing a space force help the United States reassert its war fighting dominance? Yes, sir.

SHANAHAN:

Sure. Thank you, Chairman. The fix I think what you've--you're really speaking to is, you know, how do we expand that margin? Our proposal addresses all of the changes that are

occurring simultaneously in space. And maybe just to set up the answer, these are the significant changes we have to address. Environment is contested. We are about to modernize for the first time in about 30 years, modernize the department.

So how do we incorporate all the modernization and address this very different environment, which is a binary change from the past? And as we broke down the problem, we said the fastest way to do this, and it's all about speed to expand our margin, is to compartmentalize the problem into three areas. The first was make sure we have war fighting operation so that we can operate in a contested environment.

INHOFE:

Yeah, quickly now.

SHANAHAN:

The--the second was make sure that we have the doctrine in the training so that we can equip our forces with the right space cadre. And lastly, how do we acquire and develop the right systems?

INHOFE:

So you assume that we're going to do a better job with the space force than were doing right now in those three areas. Thank you very much. Secretary Wilson, given your experience, which is vast, can you provide your assessment as to how the proposal will better organize, train, and equip space force as compared to the present mission of the Air Force command today?

WILSON:

Mr. Chairman, I agree with General Hyten that the most important step the Congress has already taken and the president has put into action, which is a unified combatant command for war fighting. But I do think that there is an opportunity to align, defense space Programs

in a space force underneath the Air Force, including acquisition. And I think that that alignment will help.

INHOFE:

Okay, that's--that's a good answer. General Hyten, through your role as commander of the U.S. strategic command, you are currently in the nation's most qualified expert in war fighting--in space war fighting. Can you identify--differentiate between the mission of the U.S. space command, unified combat command--combatant command, and the service mission as proposed in the--in the hearing today?

HYTEN:

Yes, chairman. The--the structure is--is basically built around the same structure we have in all our combatant commands. The way our military is--is organized as we have combatant commands that fight our forces. They fight our battles, they win our wars, they conduct strategic deterrence. All the missions are executed through our combatant commands. The new US space command will execute the space mission through the combatant command of US space command.

But the services organize, train, and equip forces for those commands. So the Army, Navy, Air Force, Marines builds, organize, trains, and equips forces for the unified combatant commanders. The space force will do that for the space command and for the joint force at large. That's the difference between the two.

INHOFE:

All right, well that's a very good specific answer. General Dunford, you are a--you're a war fighting Marine, so you have a different perspective than some of the rest of them do on this panel. Do you believe establishing a face--a space force will contribute to the development of a space war fighting echoes in culture that does not exist already today?

DUNFORD:

Chairman, first I'd say I think we do have a--a good culture in the Air Force. And again, we are the best at space. But I also believe that an organization that has a leadership team and people that are singularly focused on a single core competency, that being space, will contribute to culture but, more importantly, will contribute to a focus in those areas that Secretary Shanahan, Secretary Wilson and General Hyten highlighted.

INHOFE:

that's good. Thank you very much. Senator Reed.

REED:

Well, thank you very much, Mr. Chairman, and thank the witnesses. Secretary Shanahan, as I mentioned in my opening statement, basically, the--the space corps is roughly 16,500 personnel. What you will create is a 1000-person sort of overhead. That is the highest, you know, overhead to operation ratio within the military service by a great deal.

For example, the Air Force has 2300 personnel in their headquarters and 320,000 airmen and air women. So how--how do we avoid that and why did--why did we think harder about coming with a leaner structure?

SHANAHAN:

Sir, let me start with philosophically, as we consolidate, there should be a reduction in cost. That's a--how I'm approaching this. The--the basic proposal has been formulated from an Air Force estimate based on traditional constructs. And what I'd like to do is ask Secretary Wilson to speak to how that proposal was derived.

REED:

Madam Secretary?

WILSON:

Thank you, Mr. Chairman. We--when the--when the department went through this whole evaluation, we looked at a whole range of options, everything from a kind of JAG corps, medical corps model, to a completely independent standalone department and a lot of things in between. Where we--where we landed was a space force underneath the Air Force so that you don't have to duplicate all the acquisition budgeting, finance personnel kinds of functions, but with a member of the joint Chiefs.

Now, if somebody is going to be a joint chief and they're going to have the credibility in the building and to be able to operate, they need to have the support of a member of the joint chiefs. About--of the additional personnel, which I think is about 1200, half of those are in the headquarters, which makes for a quite small headquarters for members of the joint chiefs. The other half was proposed to be what is a professional development element to get after the--the business of developing people.

So it is recruitment, professional development, doctrine centered kind of things, which is not really a headquarters element. So we did those--did that costing and that would be the concept.

REED:

Well, thank--

REED:

thank you, Madam Secretary. And Madam Secretary, your thinking about this--this proposal has matured over the last couple of years. In 2017, I think you were--raised some opposition to a Space Force.

And one of the--the points you made, which I felt was compelling, was that you need a joint warfighting team and this Space Force would, in your terms, be counterproductive in that respect. It would be not a joint enterprise, but essentially an Air Force enterprise, given the--the distribution of officers and the fact it would be placed under the Air Force. I see value to

the jointness in everything we do. And are you concerned that we might lose that, that this might be more silent out than a joint enterprise?

WILSON:

Senator, I think that there is a--there--you know, each of our services has our own identity, but we contribute to a joint team. I think that one of the most important things in standing up a separate Space Force will be to establish a warfighting culture within that organization that's part of a joint force.

One of the things that really has surprised me, when I came back to the service having been away and having served as a young officer, is just how--how much more joint operations really are today than they were 20 years ago when I was a young officer. And it's a real--it's a real tribute to the decisions made under Goldwater-Nichols.

REED:

Again, I think this is an issue that we'll return to again and again. But there is this tension between creating a service, a separate service, separate identity, and this notion of jointness, which I think you're correctly stating emanated from Goldwater-Nichols and has been, I think, a very effective way to organize our military efforts.

One of the issues that has been mentioned several times, Secretary Shanahan, is the--the sense that--that, well, now we're unifying our entire effort in space on the Space Corps, but actually we have the National Reconnaissance Office, which has a great role in space, and we also have military intelligence programs that have roles in space, and they are outside this proposal. And there is--in fact, there is no, at this point, explicit sort of linkage to them other than informal communication.

So, are we missing something here question I think, again, the intent that we suggested in our--in setting up the unified command would--would be an agency that had all services focused on space and with active participation.

SHANAHAN:

Yeah.

REED:

Maybe one good analogy would be Cyber Command--

SHANAHAN:

Right--

REED:

Active participation with the civilian agencies that are in that in that realm too. Can you comment?

SHANAHAN:

Sure. The--you know, the bias in the proposal is towards speed. The proposal we submit really represents the stakeholders that we have control of. Early discussions were with the NRO, and I continue to have discussions with Sue Gordon principally at the technical level as we start to evolve these new architectures so that we can provision at one point in time to do the integration. Technically, I think we'll be aligned from the start.

The challenge organizationally, and I think, you know, when we look at the many stakeholders, there is real work to be done there to negotiate. So, we thought of it as a multistep process, that eventually there would be more alignment and integration, but not in the first phase.

REED:

Thank you, Mr. Secretary. Thank you, Mr. Chairman.

INHOFE:

Thank you, Senator Reed. Senator Fischer?

FISCHER:

Thank you, Mr. Chairman. Secretary Shanahan, if I could just follow up on the NRO a little bit, our--are you saying that at the--at the onset now of the Space Force you didn't feel a need to have that included, but possibly down the line you would? Did I understand that correctly?

SHANAHAN:

There is a need. It was an issue of timing. So, if we could do it all concurrently, that would be ideal. I don't think we can move that quickly. So, rather than delay, we said this is what we can do immediately, provisioned for that integration and realignment in time.

FISCHER:

Will that affect the need to unify the national security space activities? Do you see that as--as possibly a detriment in trying to unify? We keep hearing about unification.

SHANAHAN:

Um-hmm.

FISCHER:

Is--obviously, you don't think that that will be a detriment.

SHANAHAN:

Well, I'd rather do more sooner. And this is really about how do we move out quick. The proposal we've put together is really a threat driven proposal. So, as quickly as we can get after the threat, we want to move. If we could do more, we'd like to do that. I think some of the--the organizational--you know, this is really more about how to--the equities of stakeholders. If we could, you know, resolve some of those more quickly, we would, you know, incorporate more.

FISCHER:

Okay. Thank you. Secretary Wilson and General Hyten, can you offer your views on the NRO and Space Force? Madam Secretary, if we could start with you, please?

WILSON:

Senator, the National Reconnaissance Office was a black program established--for a secret program established between the Air Force and the CIA a long time ago.

In 1992, it was--its existence was acknowledged. But while it was a black program, it was headed by the Undersecretary of the Air Force, who was simultaneously the head of the NRO. That--that ended in 1992 when the NRO became a--had its own director who was not the Undersecretary of the Air Force.

There remains a very deep connection between the Air Force and the NRO. About 40 percent of the people in the NRO are--are airmen. The rest are civilians or CIA employees. So, there is a deep organic connection there, and we have deepened the already close connection between military space and space elements of the intelligence community over the last several years. And that's because many of the things we'll have to protect are actually NRO assets.

So, deepening that connection is important. It may not require actual structural change in the organizational chart. And we'd be happy to work with you on--on kinds of things that might continue to deepen that already very close connection between the Air Force and the NRO.

FISCHER:

Thank you. General Hyten, do you have anything to add?

HYTEN:

Yes, ma'am, just a couple things. I think, first of all, we should recognize that right now the--the partnership between the National Reconnaissance Office and the Air Force is as strong

as it's ever been. And I've been working with the National Reconnaissance Office for well over 30 years, and it's very strong.

The second piece is that there is no doubt that the Space Force of the future will have to have a very strong relationship with the National Reconnaissance Office. The administration recognized this in Space Policy Directive 4. That gave us 180 days, which I think is out to the middle of August, to come back with a report that said this is how we would partnership-- partner with the National Reconnaissance Office and the broader intelligence community in the future. I hope we can do that faster than August, because that partnership is very important to the future.

FISCHER:

Okay. Thank you. General Dunford, there's tension between the desire for a streamlined efforts unified under one roof and the desire for a joint integrated approach here. This was Admiral Rogers' concern and the reason he actually opposed the creation of a separate force for cyber.

In our attempt to unify space activities, are we running the risk of creating another silo here, and we're going to surround it with a silo and we're going to distance it from other services? And how do we make sure that space is going to remain integrated?

DUNFORD:

Thanks, Senator. You know, Senator, in--in my assignment, what I've kind of come to learn is that the real strength of jointness is actually diversity of perspective brought by different services and organizations. But what's key is to leverage that diversity of perspective in processes that make sure we have coherent force development, force design, command and control, and planning. And I think those three areas are how we bring the joint team together.

But I am not at all concerned about a silo of space. The key is to have individuals that are singly focused on space and make sure we incorporate that perspective, that very healthy

perspective, into the outcome, which is a joint force that can fight.

FISCHER:

Okay. Thank you. Thank you, Mr. Chairman.

INHOFE:

Thank you, Senator Fischer. Senator King?

KING:

Thank you, Mr. Chairman. Thanks to all of you. In Maine, there are certain basic principles of life. One is you don't drive on the ice after April 15th. Second is you hate the Yankees. And third is, if it ain't broke, don't fix it.

My impression is you all are doing a good job. We are getting the data that we need, we're getting the support from the Air Force. We're working together with the NRO and other agencies. And as I think many of you or all of you have testified, we're dominant in space right now.

I understand the threat and I understand our--our adversaries are moving forward, but I don't understand how adding a box to an organizational chart is going to--is going to give us some kind of qualitative military edge, to use a--a term that we've heard in this committee. General Hyten, I'm--I'm like the Chairman. I'm genuinely undecided, although as you can tell, I'm skeptical. I don't think it's broken. I think you're doing a good job. Why are we going to fix it?

HYTEN:

So, Senator, I think we have been doing a good job, but we've been doing a good job in an--an environment where space has not been contested. What is changing is we have adversaries that are building significant capabilities that can challenge us in space.

KING:

I understand that, but I don't understand how putting a new box in an organizational chart is going to help us to respond to the new challenge that we face.

HYTEN:

Problems we have to fix -- one, we have to have a commander focused on it all the time from an operational perspective. That's the space command issue we talked about.

KING:

And I agree. I think that's the answer, frankly.

HYTEN:

And the second piece, Senator, is we have to have somebody in the Pentagon that focuses their total attention on space all the time. I've known every chief of staff of the Air Force for the last 20 or 30 years, and they've all carried space effectively into the tank. They've all cared about space. But it is a secondary issue. And as they've cared about space in the tank, the Pentagon has built a structure around them with dozens and dozens of people and organizations that are all in charge of space in many ways. I had one chief of staff tell me-- well I can't--I won't share the exact words that he told me, but

(LAUGHTER)

it was very difficult to walk around the Pentagon and not bump into somebody who said they were in charge of space. So the goal is to put one person in charge of space, a four-star chief of staff that (INAUDIBLE)--

KING:

And I understand that, too, but one of the problems with this proposal is it doesn't put one person in charge of space because we've got NRO, we've got NASA, we've got the private

sector, which is very active in space, and by the way I'm not suggesting that NRO and those other agencies, NGA, should be absorbed into this. That's the last thing I want to propose. But again, if the argument is we need a centralized authority, we don't have it here. And the other piece that I don't understand is we talk about a space force. That implies people. Nobody's going to go up and fight in space. We're not talking about soldiers here. We're talking about acquisition, design and placement of hardware. And that's an important function, but I just don't understand why this has to be in a particular special box. I think space command makes sense. I understand that. But to create a new bureaucracy that's going to cost us half a billion dollars a year, I've got to be convinced that there is some incremental value there. Mr. Secretary, do you want to tackle that?

SHANAHAN:

I'd love to. Thank you. The--if the environment were going to be the same as it is today going forward, I'd say don't fix it. When I--and I've studied this problem for 18 months, so it's not as though someone, you know, passed me a report. I've spent a lot of time on this subject, and the focus has been what is changing, and do we have the capacity and the ability to make that change? And when I break the problem down, the first is how do we set up space command so we have operations that now can compete in the contested environment? So that was, you know, one problem. And you need a dedicated leader whose attention is that.

KING:

But isn't that the combatant commander of the space command?

SHANAHAN:

Correct, correct. So that's one. Then the second piece--and this is where I think you were headed, is why does that new box called the Space Force create a lot of value? And there's two major changes that we have to get after. One is how do we professionalize the generation of this cadre of space specialists? Today it isn't--it isn't a formal training and development program, a recruiting program.

KING:

But again, couldn't that take place in the context of the space command? It's a combatant command. It's going to have personnel and (INAUDIBLE)--

SHANAHAN:

It could, it could, and this is--this is what the Space Force is intended, men trained and equipped like the other services. The equipping part is the other major component here. So as we look to modernize across the department--and this is an area where the department has struggled over time, and this is the most significant modernization in 30 years--do we have the bandwidth and capacity, the focus and the accountability to drive that? That's what this really gets after so that when we do modernize we execute to the schedule, we execute to the budget, but more importantly, we deliver the technical capability at a department hold (PH), not by service.

KING:

I appreciate that. Thank you. Thank you all. Thank you for your testimony. Thank you, Mr. Chairman.

INHOFE:

Thank you, Senator King. Senator Cotton.

COTTON:

Thank you for your appearance today and for your work on this very important problem. I want to share the sentiments of several members of this committee, is that space is unfortunately now a contested domain, and our enemies are putting weapons in space, and they're targeting our assets in space, and we don't really get a choice to whether we want to fight in space. We don't get a choice of whether we want to win or lose in space. I know you've all put a lot of effort into thinking through that problem. As to the members of this

committee, I think you'll see it's not really a partisan matter either. It's a--but it's a major, major question, and I think we're all committed to getting it right, not getting it fast.

I do want to continue on the line of questioning that Senator King started, and I want to start with your perspective on this, General Hyten, as a combatant commander. You said, rightly so, that space can never be more than your third priority given your priorities of our nuclear strategic forces. You can imagine a world in which those nuclear strategic forces would have been their own service, you know, where we would have put our missiles, and our ballistic missile submarines, and our strategic bombers, in addition to our command and control functions, into a separate nuclear forces, if you will. We didn't do that. We have strategic command to do that. Can you explain why we need to put all space assets, space forces into a separate service as opposed to a combatant command?

HYTEN:

Yes, sir. Thank you, Senator. The--when you look back at the history of our nuclear forces, the three basic capabilities are the submarine launched ballistic missiles, the intercontinental ballistic missiles, the ICBMs, and the bombers. And if you look at how those systems operate, the submarine clearly operates in the maritime domain. The bombers and the ICBMs operate in the air domain. And so the expertise you need to operate those weapons systems come from the domain expertise you achieve from the Air Force and from the Navy. When you look at the space capabilities that we operate, the satellites, rockets to get us into space, the capabilities there require expertise in the space domain. That's the difference between the legacy of strategic command, which then took domain focus capabilities and put it together into one unified command and a Space Force that will take another domain capability together and put it into another unified command.

COTTON:

Those capabilities, though, I mean, to me they do seem pretty Air Force-centric. They don't--I mean, I understand, and I see General Dunford looking at me--that the Marine Corps and the Army uses space assets a lot to fight. It's critical to our way of fighting. But you know,

unless as Senator King said, we're going to have a large number of actual soldiers in space fighting and they need a different set of skills, this is primarily going to be about technology and acquisitions and so forth. So I think what a lot of us on the committee are trying to figure out is what's the incremental advantage of having a separate space force like the Marine Corps is to the Navy within the Air Force as opposed to say the Air Force having the training and equipping function that the five services have for a combatant command like yours, for the geographical commands and central command, or European command or so forth. Secretary Wilson, that may be a question for you to take.

WILSON:

Thank you, Senator. I would just add one thing to what General Hyten mentioned, which is the importance of the development of space professionals. And I think that that's an important thing for the committee to consider, particularly the potential advantage of separating out promotions for Space Force members, and particularly Space Force operators, that that would be a benefit, and to be able to promote to need rather than just take the chance that you will get the right numbers of people. That's particularly important for small career fields.

And I also think that continuing to strengthen professional development around space and space warfighting is important. Obviously we're moving forward with this irrespective of what decision is made by the Congress and the administration on formal structures, but the shift to warfighting, things like we've established the Schriever Scholars this year, which is a specific area of professional military education on space, opening undergraduate space training to allies, going to four months on the floor operating systems to four months of training in combat operations for our space operators. So that shift of a culture to warfighting and professional development is actually, it's an important element for your consideration.

COTTON:

Secretary Shanahan, I see you reaching for your button. You can respond if you'd like. I had one question for General Dunford before the chairman gavels me down, but if you would like to respond.

SHANAHAN:

And I'd--you know, part of this, and I'm hoping this gets conveyed today, five years from now is going to look much different. I think sometimes we look through the lens of today and we extrapolate going forward, but there is going to be literally explosion of thousands of satellites. So you think of just the growth in space. You think about this contested environment and then how quickly we need to be able to adapt commercial innovation, and then the Army is going to modernize their C2 system. The Navy is going to modernize their C2 system. We have all this modernization going on concurrently, so how do we organize ourselves to be able to accomplish this amount of change in an environment that's getting, you know, increasingly dangerous? That's--that's really what we've tried to do here, so we could dedicate the skill and the resources to be able to move quickly instead of bureaucratically trying to organize ourselves across so many different organizations.

COTTON:

General Dunford, you look like you're about to push your button. Do you want to?

DUNFORD:

(OFF-MIC)

COTTON:

Well, I think the chairman's going to gavel me down. I will say this, though, before my time expires. Bob Gates, who I think is one of the finest secretaries of defense that we've had, wrote in his first most recent book, *Passion for Leadership*, that normally when you face a bureaucratic challenge moving boxes around is not the right solution. That doesn't mean it's the wrong solution here, but he said that normally what you need is a cultural change from your leadership. Well whatever happens in this year's National Defense Authorization Act, I

want to commend you, Secretary Shanahan, General Dunford, Secretary Wilson and General Hyten, for the cultural change you've driven inside the department to recognize that we need to significantly increase the level of our capabilities in space given what we face in Russia and China because your leadership on this has been very strong. Thank you.

INHOFE:

Thank you, Senator

INHOFE:

Senator Cotton. Senator Peters?

PETERS:

Thank you Mr. Chairman and thank you for all of your testimony today. I just want to concur with what I am hearing from my colleagues. I don't think there is any disagreement from folks on this committee that space is something that we need to focus a great deal on, that it is now a contested domain in ways that simply didn't exist in the past and we need to do a better job of coordinating and integrating space into our overall defense strategy.

But I think our question on it is this approach that we are being--that we are looking at is just going to add a whole lot more cost at a time when the department of defense needs to be a whole lot more nimble, has to be a whole lot more innovative, it has to be able to do more with less because we can't just keep throwing money after dollars after dollars. I mean there are so many other needs that we have in our economy here. But I would like to have folks coming to the committee saying we can do this and we can do it more efficiently and we can have more liberality and we will be able to defend American interest and do it in a cost-effective way and I am not hearing that.

And--and Secretary Wilson I hate doing this but I think it's important because I think you said this best of anyone. In 2017 after a meeting with the Senate appropriations subcommittee talking about the space force you said quote the Pentagon is complicated

enough. This will make it more complex, and more boxes to the organization chart and cost more money. If I had more money, I would put into the locality not bureaucracy. Secretary Wilson, I think that is profound. I agree.

The Air Force chief of staff went a step further and stated quote if you are saying the word separate and based in the same sentence, I would offer you are moving in the wrong direction. That is why the Sec. and I are focused on how we integrate space. Every mission that we perform in the U.S. military is dependent on space. Now was not the time to build seams and segregate and separate; it is time to integrate.

And I--I couldn't agree more with those statements. I haven't heard any kind of responsible for functions including led of those very strong statements. And if I think about growth of bureaucracy what we have to do is look at the past of agencies and inevitably folks come and say we are going to do this efficiently and it's going to be different this time. I am the Ranking Member on homeland security and Government affairs committee which of course oversees the Department of Homeland Security and when we stood up that department, I mean just look at what has happened in that department over the years.

Since 2005 the DHS department management operations staff responsible for functions including legislative affairs, Public affairs, General counsel has grown at a very large rate. What started at 723 employees now is close to 2600 employees. Bureaucratic organizations always grow. I have never seen a bureaucratic organization actually shrink.

So this one is particularly rank heavy switches--usually has its own bureaucracy that comes as ranks increase and essentially the proposal would have two four-star Generals and an undersecretary in charge of the organization the size of a Marine expeditionary brigade which is usually commanded as you know General Dunford by a Brigadier General who is conducting operations in both the air and land domains, very complex contested environments and we are going to be adding an incredible number of folks in what is being done officially in other places around the Department of Defense now.

So my question is what would happen to the end strength of the existing services if personnel are transferred to the Space Force? With the Air Force, Navy and Army back fill

those positions or are we looking to reduce the in strength of those forces as we create this new bureaucracy? Secretary Shanahan?

SHANAHAN:

No, we would not back fill the in strength. So net zero.

PETERS:

So we would see a reduction?

SHANAHAN:

In those other areas--

PETERS:

Because we--we are moving.

SHANAHAN:

Yes, yes.

PETERS:

I also--we have talked about and Senator Reed brought it up which I think is important is the--the joint in his factor and that certainly was one of the important and I think paramount achievements of Goldwater Nichols to make sure that we are fighting jointly. That is why I concur with some of the comments I have heard from my colleagues having the joint command structure. But if the creation of the Space Force is approved, we consolidate all of the service-based equities into one branch the unified--the unified U.S. Space Command will only have one service as a force provider is my understanding. General Dunford how does this proposal fit into Goldwater Nichols and--and how do you propose senior officers in the Space Force would broaden and gain joint experience if we are consolidating all space equities into a single service providing force for a single functional combatant command?

DUNFORD:

No, Senator, I think it is a great question and or clarity I would envision that each of the services would still have expertise and the staff planning level to employee space capabilities and then also the necessary tools to take advantage of space. So ground systems, staff planners and those kind of things would be in the other services.

But--but Senator from where I sit now particularly as a former joint force commander operational and as the Chairman, I mentioned a minute ago the diversity perspective actually brings strength to the joint force so I don't have concerns about space come in being a cylinder of excellence if you will because it is largely a single service. I think it is imperative on the joint force to make sure they enforce development, enforce design and command and control. In our planning we leverage that diversity that each of the services brings.

My--my perspective is and--and I was probably where many members of the committee are to date two years ago, skeptical that we are moving in the right direction. And at the end of the day I asked the question we have a space domain now. It is a war fighting domain. What is the optimal organizational construct to make sure that we are positioned to fight in space and that is where I have landed now on the Space Force? So I do believe that the framework within which we develop joint capabilities will allow us to leverage both Space Command, the operational element here as well as Space Force to train, organize and equip organization.

PETERS:

Thank you.

INHOFE:

Thank you, Senator Peters. Senator Rounds?

ROUNDS:

Thank you, Mr. Chairman. First of all let me just say to all of you thank you for your service to our country. I certainly appreciate all of the expertise that you provide and once again Secretary Wilson it has been truly an honor and a privilege to be able to work with you and we are going to miss you.

I have to share with you all I guess I am open-minded as to whether or not this is a good idea or not. At the same time I think all of us have an obligation to come in and in a sense to be skeptical because what we have right now appears to as you have all indicated we have the best with regards to our approach right now to space compared to our near peer competitors. So what we are trying to do is to make improvements for the long-term based upon the issues that we see that we are not able to do as well as we would like to.

I see the Air Force though in many ways having learned a lot from previous projects and so forth the Air Force right now has a be 21 project which is not only on time, it's on budget. It would appear to me that there are acquisition processes within the Air Force right now that are showing improvement, that we are actually seeing that work its way through and I am wondering what it is within the space processes that would be different and why it is that space is a challenge.

I am also trying to figure out what happens when we start talking about this new bureaucracy. We have actually considered the fact that we want to if I'm not--if I am understanding this that we would actually have a General officer--a chief of staff who would be a four star responsible for the Space Force but we would also have another individual who would serve as commander of the U.S. Space Command.

Let me just start with this. Any possibility that we could follow the same guidelines as we found within cybercom, where we have a dual-hatted? Has that been considered as one way to perhaps promote some deficiencies in this proposal? I will start with Sen-- Secretary Shanahan and if you would like to pass that off you are welcome too, sir.

SHANAHAN:

Know, I--let me--let me start there and I will add on to your comments about the B 21. The first is let's say we did have the dual hat and you just look at the work that that individual would be accountable to deliver it's too much work. When I--when I just look at it and if it was General Raymond it would be too much work given what's taking place across the department so it's just a band with.

I would--I would offer if we were to compare acquisition processes to the B 21 in our situation, we have the opportunity to take advantage of innovation that is taking place in the commercial sector and the B 21 is really indigenous. We are going to have to make changes to our acquisition processes in order to be able to take advantage of all of this new technology and innovation.

ROUNDS:

Would not a Space Force have the same unfortunate bureaucratic problems that the Air Force has to deal with today?

SHANAHAN:

That was--that was the--the nature of the space development agency. Car the development portion out so that we can address the bureaucratic red tape of acquisition so we can really leverage the commercial innovation and the fact that how we design is going to be fundamentally different because it is now a contested environment.

ROUNDS:

You know, this wouldn't be the first time we made a change like this. I mean this has gone through processes in the past. There is no such thing as a perfect layout. The one we have today is clearly not perfect. It could be improved upon. General Dunford, I see that you were looking over as though you may have something to add to that particular thought?

DUNFORD:

Senator, do you mind if I address the dual hat issue?

ROUNDS:

Yes, sir.

DUNFORD:

So--so when I look at General Nakasone, the benefit of the dual hat arrangement up there is he is able to combine intelligence with cyber capabilities to quickly execute operations and we saw combined with the authorities the benefit and the power of that last fall in protecting our democracy.

In the case of Space Command and Space Force, Space Command will be singularly focused on integrating the joint force for operation so integrating capabilities and integrating across capabilities to conduct operations. The four-star which Space Force really is in the train, organize and equip world and I see the benefit of having somebody singularly focused on developing human capital, the doctrine, the capabilities and the culture of a Space Force. But that same individual I don't believe can also be the one we count on day to day to conduct operations.

ROUNDS:

Let me ask just a couple of real quick quest--General Hyten, I am going to come right to you with this because clearly you have a number of these items under your responsibility right now but let me just run this by. Satellites are going to be separate right now in terms of maintaining the MRO separate, number one.

Number two, what about hypersonics? Who's role is this going to play and how does that fit into this whole process? Are we going to find that under a Space Force or a Space Command? Is that going to remain separated out?

HYTEN:

You--you will organize the structure of the weapons that we are building and the capabilities that we are building based on the--the organization with the best expertise. I--I think the

Space Force structure will likely build the sensors that will see hypersonics

HYTEN:

but I think the other services will more likely build the hypersonic capabilities because they will operate in--in their domains. The hypersonic capabilities we're talking about right now are not space capabilities, they operate from the sea, from the--from the land, from the air through the air, and so that structure makes sense to go through there.

If I could just build on a little bit to the previous discussion though, because I think it's important for the committee to understand that, well, just look at the uniform I'm wearing. I am an airman at heart. When I bleed, I bleed blue. I--I love my Air Force and I love the history of the Air Force and space. I mean, the term aerospace was--was created at this committee in 1958 by the Chief of Staff of the Air Force to talk about the integration of air and space. I love that background but every physical domain we have when it becomes contested, we create a military service to deal with that.

So we're going to have a space force someday. I think what the committee has to decide is when is that going to happen. And I think now is the time to go to what the Chairman said. Do you want to get ahead of the problem not trail it, not, and the response to a catastrophe, get ahead of the problem. But I hope everybody understands, I love the uniform that I wear.

ROUNDS:

Thank you. Thank you, Mr. Chairman.

INHOFE:

Thank you, Senator Rounds. Senator Jones.

JONES:

Thank you, Mr. Chairman. Thank you all for--for being here today. I think you can understand, or I hope you can understand that--that while this committee seems to be open

to this idea, we are still seeing a lot of generalities after being studied for a while and it's-- it's--we're having a hard time grasping. And my--candidly, unlike some colleagues, my needle may be a little bit more inclined to create a space force, but I've still got questions.

For instance, Secretary Shanahan and General Dunford, there's a statement that you in issued that said current service specific entities that provide global space capabilities would become part of the US space force. For example, the Air Force space and Missile systems Center, the Navy mobile user object to system in the Army's operation of wide and narrow band global satellite communications all become part of the space force.

But then you go on to say as necessary, DoD components would retain organic space capabilities uniquely required to support the core mission of that military service or defense agency. So what exactly would and wouldn't become start part of the space force? I mean, do you have a list of the entities that would have and--and we have that list or can you get that list to us? Go ahead, General

DUNFORD:

Senator, I can--I can start and just--and just give you an example. In my own service, the Marine Corps, we don't have space capabilities in the Marine Corps. We do have personnel that are trained in capabilities to take advantage of space. And so where I see is going is that the preponderance of space capability would be in that single service to space force.

But each of the services, because it's--space is integral to the war fighting capability, is going to have eight--have to have expertise inside those services to make sure that space is properly integrated into their war fighting capability and then they're going to have to have some capabilities to take advantage of space, ground systems and so forth. But--but this would move, you know, on order of 95 percent plus of the capabilities and the Department of space into a single force. So the--what would be residual in the other services would be minimal and it would be designed specifically and only to make sure they can take advantage of space.

JONES:

Okay, Secretary, do you want to add anything?

SHANAHAN:

Absolutely. Senator, if--if you--we can come brief you. We've done the architectural and programmatic analysis service and agency for over--for over the FIDAP (PH). So I can show you where today we have 10 different organizations working on similar architectures. This is really not about the systems that we have in place.

Whole--wholesale, they stay--in place, but the department is about to embark on command and control, new command and control for all the services. We have an opportunity here to have all domain command and control at the Department of Defense level. That's--that's never been an opportunity. And why that's--why that such a big deal and that's with the space development agency represents is we're going to have a common ground stations--common terminals. So that infrastructure that's necessary to really be able to strip out cost and be able to upgrade capability, we'll finally have the baseline that allows us to do it and, you know, I think this is where Senator Peters was, where does the value come from? 10 efforts to 1, there is real cost to real schedule, real capability that gets delivered in the much more effective fashion that's what this proposal is about.

I'd trade 500 people in a heartbeat to implement this proposal. If that's--if that's where the negotiation is, I--I think we have a winner here. The--the real benefit is delivering capability at a much lower cost and--and those dollars are in the billions.

JONES:

On a--on a specific, you know, just to bring it home to Alabama, is the Army space and Missile Defense command at Redstone Arsenal going to be part of the space force? Do you know?

SHANAHAN:

Well--

JONES:

--Or do you want to get back to me?

SHANAHAN:

No, I actually, you know, it depends, you know, which part because the--so when we think of SMDC, you know, of some of the critical roles in--in the SMDC, some of that will be aligned with the space force as we do Army modernization. Some of the existing resources that support ongoing I call them legacy Army operations, they'll stay in their current capacity and their--and their current alignment.

JONES:

All right. Secretary Wilson, I just kind of want to ask it in a different well way, this--this question about the need for this. Because I've--I've read statements of yours in the past where you have talked about the need for a space command versus space force, maybe not both. Let's put aside the fact, and I--and I get it about acquisition. I see that, but I--I sometimes think that that can be done within the Air Force, but let me just put it this way. Had the president of the United States not issued an order about creating this and you--you have been the secretary now for a couple of years, would this be something that you would be coming to the Senate armed services committee recommending after having served two years as Secretary of the Air Force?

WILSON:

Senator, I think the president of United States has done us a service by elevating this conversation and making a--the--the challenge we face in space a kitchen table conversation. And--and when I came here to be confirmed in front of you two years ago, I was told by a holdover from the previous administration--by the folks who were still kind of in the previous administration or holding over or what--what not that I had to take out the word space and war fighting in the same sentence.

Look at where we are today. The president has proposed and you all have supported three--two consecutive years of double-digit percentage increases in the space budget and there's another one before you today in the FY 20 budget. And we're having a hearing on how America needs to dominate in space. And I think we need to give him credit for that.

JONES:

Thank you. Thank you, Mr. Chairman. Thank you for that answer, Secretary Wilson.

INHOFE:

Thank you, Senator Jones. Senator Ernst.

ERNST:

Thank you, Mr. Chair and--and thanks to all of our witnesses today for being here. This is obviously very important to all of us. And--but making sure that the structure is right is also very important. I think we've determined that it's a necessity, it's just how we establish the forces.

So I hope we can get--get this sorted out. I'm going to throw--I know we talked about this so many times over and so many different ways we've given a lot of different examples of different types of structures of organizations within our military. I guess we need some convincing that there is a necessity for a sixth branch within our armed services.

We do have the United States special operations command, SOCOM, and it's components. They were stood up to organize, train, and equip our nations special operators and--and they were established to address a gap in our war fighting construct without standing up a separate branch of service. So with that, we have Naval special warfare, we have MARSOC (PH), we have USASOC (PH), and we got AVSOC (PH), all of our branches represented within SOCOM. So why is that not a great example than of what we could do for a space command instead of a space force question mark could somebody address that?

SHANAHAN:

I'd be--I'd be happy to do that. Let me just start with in my previous life, I did weapons system development for SOCOM and I've done weapons systems development for space and then also the Missile Defense agency. So a--a full spectrum of different classes of engineering and different levels of complexity. The--the SOCOM model is very much different from what we are proposing, and that's what you're--you're recognizing.

In the SOCOM model, the very advanced engineering is actually done by the service. And in--in this model, it would be the same. So the--the advance capability would be done by the space force so there's--there's similarity that the actual research and development that's done by SOCOM today, so today if we just looked at the budget as about 600 billion.

If we look at what's in the--in the Air Force today, it's about 11--I'm thinking it's--it's 11 billion and acquisitions, about 8 billion in RD&E. It's a--it's a different scale and the complexity of the engineering and the complications is just a different class. So I would just--I would just argue it's--it's different missions on different scales and I think would be much more difficult to manage in that environment given the amount of acquisition we're going to do as a department going forward.

ERNST:

I understand the acquisition challenges. I would say that right now as well we also have challenges with personnel, simply, to move into a--a space force and--and what those requirements might be. And Secretary, I know we had spoken just several weeks ago about maybe some of the challenges because anytime we do stand up, even if it's a brand-new unit just somewhere, and you know whether it's a company or a battalion, I mean, you're trying to field new positions. And could you address for me the challenges with pulling a lot of talent primarily from our Air Force but also from some of our other service branches and the implications of what that might do to hollow out some of the other forces without talent and just some of the challenges we'll face in filling some of those top-heavy slots? Secretary, can you address that may be?

WILSON:

Senator, with respect to the people, I think that part of this has to do with at what time scale. How do we develop our people and then how do we gradually promote them and get them ready to take on positions of responsibility?

I think--I think you've identified one of the issues that will be one of the hard parts we're dealing with in the working group, the task force, that's been set up under a two star general to look at how do we make sure we have the right expertise and on what time scale could that Space Force grow into a fully robust support for a member of the Joint Chiefs.

ERNST:

So, as we are looking, and again understanding that these are decisions that will be made along the way, but what kind of timeline will it take to fully establish a Space Force rather than a Space Command?

WILSON:

Senator, the concept that is in the draft working group paper that--that was finished by the end of March and is currently being refined is that, within 90 days of passage of legislation, we would stand up the cell of a Space Force in--a staff inside the Air Force. And then it will move on to two other phases, one to initial operating capability, and then full operating capability. Each of those phases are conditions based, but the concept is that it would be fully operational sometime between--sometime in the 20--in the window of 2023, 2024 timeframe.

ERNST:

Okay, that sounds very fast, actually, to stand up a whole separate branch of service. But it is something that we'll continue to look at as Congress. I appreciate the input that you have all provided here today. Thank you very much.

INHOFE:

(OFF-MIC)

KAINE:

Thank you, Mr. Chair, and thanks to the witnesses. I--I have appreciated my colleague's questioning. I think they've addressed a lot of the questions I have, and I want to take it in a different direction.

I would say take it to 30,000 feet. We're talking about a Space Force, so I should probably call it a low Earth orbit and talk about problems in space and how we're going to deal with them. And maybe if we talk about problems, then we could work backward to structure.

So, here's a recent one that I was interested in. Just in the last couple weeks, March 27th, India announced that it had successfully conducted a test of an anti-satellite weapon. So, they had something in low earth orbit. They used an anti-satellite weapon to down, and it resulted in--the estimate's right now 400 pieces of debris, 24 which are large enough to potentially pose a threat to the International Space Station.

There have been other instances like this. There was a Chinese--a similar effort in 2007 that led to the--catalogued 100,000 pieces of debris, many of which are still observing in debris fields that pose danger to other assets in space. There was a collision in '09 between a working U.S. satellite and a--and a sort of defunct Soviet era satellite that--kind of a fender bender that produced debris. And then this debris causes challenges.

If we think that space is going to be more of a traffic jam, more satellites for all kinds of purposes up there, what should we be thinking about as a Senate in this committee or in Foreign Relations about sort of the rules? What--what should the rules environment be, and what should we be doing to try to promote rules? India is an ally. We're not talking about an adversary doing something. We're talking about them testing some capacity, but then that creates challenges for all kinds of uses of space. How should we be solving problems like that? General Hyten, you look like you wanted to jump in.

HYTEN:

So, Senator Kaine, I think it--the first lesson from the Indian ASAT is just the simple question of why did they do that? And the answer should be simple, I think to all the committee looking at it, is that they did that because they are concerned about threats to their nation from space. And therefore, they feel they have to have a capability to defend themselves in space.

KAINE:

And can I just interrupt for second? And I think they have a second concern as well, that there's no rules right now. There may one day be rules. And often when we write rules about this, we--we benefit those who already have the technology and say, okay, you already have it. We'll establish rules for you. But then we usually establish nonproliferation rules for everybody who doesn't.

So, if they are concerned about the weaponization of space, they want to be able to get in their first. Sort of the rules are created, they--they are sort of grandfathered in. I think that's part of the issue.

HYTEN:

Well, the second issue from my perspective is that I've advocated for a long time for the development of some kind of international norms of behavior in space. And where those norms of behavior should begin, from my opinion, is with debris, because I don't--as the combatant commander responsible for space today, I don't want more debris.

KAINE:

Yeah.

HYTEN:

But we don't have any international conditions that say that that's not a good thing.

KAINE:

And you would think that even our adversaries would have the same concern about the debris effect on their programs. So, that should be something where there could be some international common ground and ability to find rules of the road.

HYTEN:

And I think that's how it should be worked, in an international perspective to start walking down that--that path to make sure that space can be used for future generations, because if--if we keep creating debris in space, eventually we're going to get to the point where it's very difficult to find a place to launch, very difficult to find a place to put a satellite, to operate a satellite without having to maneuver it all the time to keep it away from debris. All those kind of things are very complicated, but it has to be worked in an international perspective. And I hope we get there.

KAINE:

Well, what is the--what is the international forum, or what is the international group that could do something like this?

HYTEN:

I'll continue--

KAINE:

--Yeah--

HYTEN:

--Senator Kaine. They--the--the place where that's debated now is in the United Nations in the Committee on Peaceful Uses of Outer Space.

KAINE:

Um-hmm.

HYTEN:

That's where that is debated mostly.

KAINE:

Um-hmm.

HYTEN:

And the United Nations is a good place. But I would like to think the United States could take a leadership role in that, working with our allies to define what we believe is--is the proper norms of behavior in space, and then bring that into the broader international community. It's very difficult when you--if you try to work something like this in the broad context. And that's clearly a State Department led to function.

KAINE:

Um-hmm.

HYTEN:

Others in the government will lead that. But from a military perspective, it's important, I think, that we have those structures.

KAINE:

I mean, there is some concern that adversaries create debris intentionally too. If they create debris fields, that can then, you know, prohibit access to portions of space.

One of the most scintillating federal publications is NASA's Debris Quarterly that NASA--but NASA has an office whose job is to monitor debris so that those of us putting up satellites so we can get Sirius in our car are not going to be affected by that, I mean. So, this is an issue that really needs rules. I think, Secretary Shanahan, you were about to say something.

SHANAHAN:

Yeah, I was just going to maybe add on to your comment when you said what are some of the areas that we should be spending more time as a--as a committee or a body. Space is clearly one. Cyber is another one of those domains that needs a--a better rule set.

You know, AI and autonomy, all these new technologies are going to unlock an enormous, you know, very positive capabilities, but there's also a downside. And we need to really be investing time to think about those so we can, to the earlier point, set some rules or established some norms so that someone doesn't take an advantage or, you know, leverage--

KAINE:

--I hope we will play a leadership role in that. I think treaties have kind of gone out of fashion in the Senate. We don't ratify treaties much anymore, but treaties are necessary.

I mean, the notion that we could just have our own set of rules and a treaty is a bad thing because it involves some incursion into sovereignty, if we don't have some rules about space, it's going to affect our ability. We create a Space Force like that and it's perfect, but we find a lot of the domain is a domain that we really can't adequately invest in because of debris fields or other things, it's going to be to our detriment.

Very helpful; thank you, Mr. Chair.

INHOFE:

(OFF-MIC)

SULLIVAN:

Thank you, Mr. Chairman. And I appreciate the witnesses testifying today. I also appreciate from the President and the Secretary and Chairman the \$750 billion DOD request. I hope we can move on that and, you know, appreciate the President putting this idea forward.

You can tell that we're all wrestling with it. We're kind of struggling with it. To be honest, it's pretty clear that--watching some of your evolutions, that you've struggled with it as well and wrestled with it. And I think that's okay. That's what this committee is supposed to be trying to address.

General Dunford, your statement on the fact that reform usually comes after some kind of disaster, and we can try to be preemptive or in front of this, actually, I think is a very powerful one. And General Hyten, I think what you're talking about, saying this is going to happen at some time in the future, I think you're probably right about that. My questions actually relate to this issue of timing.

And let me give you a concern that I have. It relates to readiness of the entire force. So, I commend all of you and everybody else at the Pentagon for working on this readiness. A lot of people forget 2010 to 2016 the Department of Defense budget was cut by 25 percent, an amount that was almost close to \$540 billion, which is an entire DoD budget year. And we all know that readiness plummeted. I chair of the subcommittee on readiness, and we--I've held numerous hearings, and readiness in the force plummeted, period.

And what we've all been trying to do, and I commend you and the President and everybody else in this committee, the Chairman, Ranking Member, is get the readiness of our five current services back up to the level that the American people expect from all of us and from all of you. That is a hugely important mission.

And here has been one of my overriding concerns with regard to the Space Force, not that it is not important, not that it might not even be a good idea, but I'm concerned that is it prudent to take on what would be a fairly disruptive element of a new aspect of the--of the services in the United States military when the current five services, let's face it, are not up to the level of readiness that they need to be? Do any of you think that we are at the level of readiness that we should be right now? General Dunford?

DUNFORD:

Senator, I'll start. No, and--and as you know, each--

SULLIVAN:

So, isn't that a concern?

SULLIVAN:

I mean, I know you think we can walk and chew gum, but shouldn't we try to get to the level of readiness that we all really think we need and then (INAUDIBLE) this?

DUNFORD:

Let me tell you how I think about this. I don't look at it's either space or readiness. I actually look at making sure that we have a singular focus on the interdependencies of the joint force on space as a readiness issue. We can generate all the squadron of battalion readiness we want, and if we're not capable of defending ourselves in space and taking full advantage of space from a command-and-control and intelligence, surveillance, reconnaissance perspective, precision munitions, timing of our systems, if we can't take full advantage of that and we can't protect ourselves in space, battalion and squadron readiness will amount to naught. And so I view this issue actually from my perspective, which is my why my evolution on the issue has taken the direction it has is I actually now have come to much better appreciate as a result of our analytic work the interdependencies on space and the fact that this whole issue of Space Force really is, in my judgment, related to readiness.

SULLIVAN:

So in your professional judgment, which I respect immensely, you do not think this is going to take away what I believe is the most important mission everybody here should be doing is getting our five current services back up to the readiness that are demanded by the American people?

DUNFORD:

This is, in my judgment, a joint--whatever direction the committee decides to go, this should be addressed as a joint warfighting readiness issue. That's what it is. It's not an organizational issue. It's a joint warfighting readiness issue.

SULLIVAN:

Let me be a little bit more specific as it relates to a readiness concern. This committee and all of you have made, all of us together, significant progress with regard to building up our nation's missile defense, and Mr. Secretary, you recently said in testimony that was vital. I agree with that. I think the whole committee does. It's been very bipartisan. One of the elements, General Hyten, you have mentioned that's actually critical to our nations missile defense is having and deploying as soon as possible space, space sensors that can look at both hypersonics and the ballistic missile threats coming to our nation. I think it's your number one unfunded requirement that you've mentioned that, again, I think the committee agrees that that's critical. My understanding is that the space sensor layer system is being shifted from MDA, the Missile Defense Agency, to the Space Development Agency, which hasn't even been stood up yet. General Hyten, doesn't something like that almost automatically, in your mind, indicate that we're going to have a delay in deploying a space-based sensor system, which you and others and we all agree is critical to missile defense? When you're taking it out of the Missile Defense Agency into a new agency that hasn't been stood up yet? How can that help with regard to readiness on missile defense? I'm very concerned about that topic.

HYTEN:

So I think there's a number of interesting observations. I would say that the secretaries to my right will probably have an interesting perspective on where they live. Where I live as a combatant commander, I have a requirement for a space sensor layer that will see the threats that will enable our deterrent and enable our defense.

SULLIVAN:

How quickly can we deploy that?

HYTEN:

That's the question, and we need that by the mid-2020s. That's what the threat requirements are showing us, and therefore we have to go fast in order to do that. I've testified in front of this committee before for that issue. We've pushed that. There are so many people that are involved in space now, it makes it difficult. So it was going to be SMC, then the Missile Defense Agency. The Space Development Agency is focused on that. The structure that needs to be, and the Space Development Agency is supposed to look at evolutionary not--or revolutionary not evolutionary concepts. This is a good place for them to do that. They have the right ability to go fast. But the key from a combatant commander perspective is that's my requirement. I need that requirement, and we need it filled by the middle of the next decade.

INHOFE:

(OFF-MIC).

DUCKWORTH:

Thank you, Mr. Chairman. As I understand it, under its current organization the Air Force does not have a good track record of being able to effectively manage the prioritization of its missions in both air and space, and so space frequently falls to a lower priority or lacks a consistent seat at the table. I contrast this with the U.S. Navy, which has successfully managed to prioritize its own air, surface and submarine missions to include the establishment of separate training, acquisitions and doctrinal (PH) development centers across these very different domains. Why has this been such a problem for the Air Force under its current structure, and what role does a new U.S. Space Command play in helping prioritize space across departments? And how does that differ or duplicate the intent of the proposed Space Force? Madam Secretary or General, do you want to address that?

WILSON:

Happy to. Senator, the biggest shift that we're seeing is the shift from an uncontested domain to a contested domain. Over the last three years, including the budget that you have before you, this president, the president's budget has included double-digit percentage increases in the budget that are driven by an analysis of the threat, the strategy to meet that threat, the concepts of operations and the programs to support it. So I think what you're seeing in the difference between what you describe with the Navy is that the Navy has been operating in a contested domain for hundreds of years. The Air Force in space has been operating in a contested domain for a much shorter period of time. We have set up the National Space Defense Center. We have schoolhouses and specific focus on space, most of which have been set up in the last decade. So you're seeing in the Air Force that focus, and I would also say that for the missions and the requirements the combatant commander the United States Air Force has provided what the combatant commanders needed in an uncontested environment. So the Air Force built a glass house before the invention of stones. We now have the invention of stones, and as Jay Raymond said just yesterday to a very large audience, he said a year ago that the Air Force was in a 9G turn towards space superiority, and he was wrong. It's a 12G turn. And so I'm proud of the force that we're presenting.

DUCKWORTH:

So how will the U.S. Space Command help prioritize across departments, and will it? And how does that differ from intent or duplication in terms of the proposed Space Force? I mean you've got this very complex system. You're saying you're standing up a new training and you think you're capable--just as--will be just as capable in the Air Force to doing multiple things at once the way the Navy can do it. So how does this differ between, you know, Space Command and Space Force?

WILSON:

Senator, I was trying to explain why I thought the Navy structures were different from the way the Air Force evolved with respect to space, but in the proposal that's before you one of the elements that's before you in addition to there's the additive personnel that's in the

proposal. Some of it is to support the four-star who will be a member of the joint chiefs. The other large number of people is to set up a training and doctrine center specifically focused on the challenges of space as a contested domain.

DUCKWORTH:

So then the Air Force will send your people to their training programs? Is that what you're saying? Or how does that work?

WILSON:

That training and doctrine center would be primarily for members of the Space Force and other officers to get joint experience, and honestly also our allied officers. The Air Force has already opened up its space 100, 200 and 300 programs to our Allied officers, and we have opened up and created a combined space operations center this last year that includes our allies in California.

DUCKWORTH:

Thank you. I also serve on the Committee on Commerce, Science and Transportation, so I want to talk a bit about the intersection of military and commercial space assets. As you are all aware, this is an area where we don't yet widely have accepted norms, and we've had that discussion here today already. The multipronged proposal we have here would likely increase complications even further. In the realm of great power competition we see countries like China who are rapidly expanding their space presence, but they don't have issues of de-confliction because their military and commercial assets are intermingled, and they operate almost as a single unit. So how does DoD and the proposed Space Force plan to work with other federal agencies and our commercial sector to de-conflict these issues before and while they are arising?

SHANAHAN:

Senator, let me take that one on. The Space Development Agency, in its design, is intended to do--really undertake four different activities. The first is consolidation so that we can take

all the requirements of the department, and then to do fundamental systems engineering so that we can take advantage of a space ecosystem, so everything from, you know, launch to sustainment, and then, by design, tap into the commercial space industry where significant innovation has occurred. But for us to actually be able to incorporate that technology, we have to accommodate or make corrections to our acquisition system. Our rules and regulations won't allow us to leverage that new innovation, and the Space Development Agency, which is modeled after the Missile Defense Agency, allows us to be able to take advantage of all those things. And I think that is what would allow us to be able to develop capability more quickly and at a lower cost.

DUCKWORTH:

But I'm also concerned about security, and how do you force the civilians to work closely with you and security and share information? You've got people selling tickets for tourism into space, for crying out loud. How do you de-conflict that, whereas the Chinese don't have these problems because they have total control over their commercial sector?

SHANAHAN:

You know, we have--we have procedures, protocols. We've worked with commercial segments. We have a long, long history of doing that. That's really the intent of standing up an organization like this, so we can really leverage that commercial space.

DUCKWORTH:

I'd love to explore this further, but I'm out of time. Thank you, Mr. Chairman.

INHOFE:

Thank you, Senator. Senator Tillis.

TILLIS:

Thank you, Mr. Chairman. Thank you all for being here. I want to talk more about organizational transition. I think the president was right to make this a target that we need to achieve. So to me it's not a matter of whether we should do it; it's how we should do it and when we should do it. Secretary Shanahan or Secretary Wilson, a part of what I'm trying to do is when you stand up the force, a part of what you're doing is realigning current operations in a more cohesive unit, and so if you're looking at the end state of a Space Force, have you done the analysis to determine how much of that is just realigning existing commands, training doctrine center? In other words, if I

TILLIS:

am building a new enterprise, how much of the current enterprise is simply being realigned and then what is the net new? And what I am specifically talking about is the underlying cost associated with that because in reality you are not going to get a whole lot more money and so you are going to have to build, you are going to have to create this force within current spending run rates for the most part and so I am trying to figure out when General Hyten rightly suggests that there is a capability he needs by the mid-'20s what potentially shifts to the right after we have already quantified that that incremental cost just for the overall structure of a--of a separate force?

SHANAHAN:

Sir, the way we have been looking at this is how quickly can we respond to the threat. And then behind all of this how do we do it more effectively. Standing up the space command is not an incrementally large change in cost. So I would--I would argue it's not really moving lines and boxes. It is eliminating overhead and--and competing priorities. So 100 percent of the time the space commander can focus on the new mission it's not about just getting separation from STRATCOM. It is 100 percent focused on the new mission, which is contested space and the authorities, our rules of engagement in the TTP and the technology to support that.

The other piece of this was and this is where the real value was created in the space development agency for incremental capability that we are going to deploy given that and I will use Secretary Wilson's metaphoric, given that we have been designing glass houses how do we quickly transition so that we are no longer building glass houses? That's the race. It's really not about reorganizing for people and professional development. We can pace that based on how much change and cost we want to absorb.

But the race to get out of building glass houses is where we have looked at consolidation. How do we go from 10 people attempting to get out of bed operation to one and then leveraging the infrastructure because we duplicate? And so--

TILLIS:

Right. I--I think this could represent an opportunity for driving out the efficiencies and coming to find out that maybe there is a way to do this without in the net incremental cost but if you don't get that right then you say the good news is, we have a very clear vision for a Space Force. The bad news is we need that incremental money that we don't have today and then the bad news we are likely to give you is we don't have any more money so what are you not going to do? So that is really my focus. Secretary Wilson?

WILSON:

(INAUDIBLE) just to add on here. 90 percent of the forces that we are talking about our currently in the air force. In the design phase that we are in with the task force that we have stood up that includes all other services but is led by the Air Force by a two star general we are in the design phase now. And one of the task in that design phase is to recognize the preliminary macro organizational design of the US Space Force, field units as well as subordinate headquarters. So that planning work is underway.

TILLIS:

General Hyten, do you have anything to add to that?

HYTEN:

I think it is just important to emphasize that the Space Force that is in our proposed legislation is under the Air Force.

TILLIS:

Right.

HYTEN:

If--if the Space Force existed today, I would be sitting next to the service Sec. responsible for space. That decision by the Pres. and the vice president to put the Space Force under the Air Force was the--the big driver for me because that will allow us to drive efficiencies and fix problems and not focus on what is the song, what is the recruiting structure, what is the personnel structure, what is the base structure?

TILLIS:

(INAUDIBLE) I saw that proposal. I felt a lot more comfortable with the organizational concept. So that is why I said I don't think it's a matter to the point that General Dunford made in his opening comments I don't think it's a matter of whether or not we need this focus, it's just the organizational construct and I think that what has been laid out to this point is a good one.

The last thing I will leave you with because I want to end on time in deference to my colleagues is that I still while we are taking a look at this organizational evolution I still think that we need a lot of work done on the overall organizational evolution of these operations that are now embedded within the service lines that we should really take a look at to drive efficiencies, has nothing to do with the space command.

But there is one best practice for acquisitions, there is one best practice for a lot of these operations that are now sideload and my guess is if you did that you would free up a lot of resources within the current spending levels that could actually be made to accelerate a lot

of the things that I know are your top priority. So that is something I look forward to speaking with you all when we can do it in a more meaningful basis back over at the Pentagon. So thank you all for being here. Thank you for your service.

INHOFE:

Thank you, Senator Tillis. Senator Manchin is recognized. Senator Reed presiding.

MANCHIN:

Thank you, Mr. Chairman. Mr. Chairman. Thank you all again for being here and I am sorry I have been running back and forth to committee meetings. I do have a view. In the proposal this--this could be to anybody who would want to answer. In the proposal delivered to Congress there is little reference to the reserve component other than to say that it would be part of the 15,000 people in Space Force. What staff was told last week at a briefing was that the department was not really sure what the reserve components role would be until we stood up the active component and that it would take additional legislation to make clear what the role of Space Force guard and reserve look like. If we vote on the Space Force later this year spring or early summer, whenever I'm being asked by the department to vote on a proposal that does not have a real plan for a National Guard or reserve which is a big constituency base of mine. So my question would be if total force is going to be as important to the Space Force as it is to of their branches isn't it important that we think critically about the reserve components?

WILSON:

Senator, it is impossible for me to imagine a Space Force without a reserve component. We have--

MANCHIN:

Because there's no plans. I'm saying you are moving without that in part of your plan right now as we see it.

WILSON:

I am very happy to work with you to make that more specific.

MANCHIN:

You all do have it--you can get more specific with that?

WILSON:

I think we are happy to work with you on that. There--there are within the Air Force in particularly guard units that have--

MANCHIN:

Very much so. I know that. But I am saying if you have something, we haven't seen it yet. I'm sorry but if you could share that with us it would be very helpful. That can relieve a lot of tension. Yes, sir general?

DUNFORD:

Senator, if I could--if I could just talk about where I think we are. So there is a number of issues. You know I have looked through this and had some of the same concerns you have. There is a number of issues unresolved in the real question before the committee is do we stand at the organization and get that four-star leaders singularly focused on what the right organizational construct is or do we wait for the perfect organizational construct to stand it up and where I fell was to move out and refine as we go and the committee will have plenty of time to provide oversight. So initial you know first step to take in this next fiscal year would be standup the organization, get the leadership in place and then begin to address these very important issues, one of which he raised.

MANCHIN:

Let me go a little bit further. You talked about the culture, this whole new Space Force is a culture, right, and you want to diversify it well, I can tell you the Army has a certain culture

and the Marines definitely have a certain--they are in first. They are going with the guns in a blazing. The Air Force basically the culture has always been the same, this is where the space professionals have come. This is basically been your bailiwick. How are you going to change the culture when everyone is still going to come from the Air Force? Or what culture do you think could diversify it?

WILSON:

Senator, our focus on changing culture is to shift from providing a service to the other combatant, to the combatant commanders almost like a utility to a war fighting ethers. And we are doing that within the space cadre of the Air Force today and the way in which we train our people, the way in which we assign them is just one example. You have people walk around satellite systems at Treiber Air Force Base in Colorado Springs. They spend four months on the floor operating their satellite systems in a peacetime environment and then four months in training for a contested environment and how they would operate--

MANCHIN:

Sec., I am just having a real--you know and I think Secretary Shanahan and I have talked about--I'm having a real hard time understanding why we need this other agency. You have got everything at your disposal right now and this doesn't make any--I mean I am just having a hard time with it. I am trying to understand it and Sec. is--was very patient with me trying to explain it. But you've got--if I had everything you all have at your disposal right now and the Air Force has the expertise and there are some flaws in it and you want more attention to it, we will give you what else you need. This doesn't make any sense to me. I'm sorry. Sec., I know--do you want to take another shot at me?

SHANAHAN:

No, I am happy to take another shot at it. That's why we're--that's why I'm here. I think--

MANCHIN:

Go ahead and give me your spiel again because they might want to hear why you think we need this other agency.

SHANAHAN:

The very short story is the amount of change that is taking place in this environment we are not prepared to address.

MANCHIN:

The way you are set up now?

SHANAHAN:

The way we are set up now.

MANCHIN:

But can't you redirect what you have within the Air Force right now which is where most of the culture is going to stay, it's not going to go over to the Marines, it's not going to the Army. It staying right over there.

SHANAHAN:

Yes. Yes. So most of this is really within the Air Force and as--as Senator Tillis was talking about restructuring this is a fundamental shift that now treats space as a domain so if the culture is changed because the mission has changed the leadership will change, the prioritization of the resources will change and then our approach to developing capability will change.

MANCHIN:

I've got you. I'm just if I can lead into this back to Secretary Wilson. Sec., you have also publicly stated you didn't think the space development agency is a good use of resources citing the air forces own space rapid capability offices and effective acquisition volume. Can

you elaborate on why you think our money and effort is better invested in processes and are organizations that already exist which is the point I'm trying to make?

WILSON:

Senator, the space development agency is not part of the President's proposal or the legislation in front of you and the first project that this agency is apparently going to take on is actually funded by the Air Force and is in our budget. It is how do we use low Earth orbit commercially based satellite constellations. It is in our budget at \$140 million over--over five years and is intended to be--

MANCHIN:

It's in your purview, also and that--that's part of your bailiwick.

WILSON:

That is and it's--we propose to do it with DARPA. The question is how best to buy them and whether we need a new agency to do so.

MANCHIN:

Do we need a new agency just to get into lower orbit?

WILSON:

I think so.

MANCHIN:

Are we justifying a new agency just to get in lower orbit.

Wilson senator, you know what I am saying here is not new. My memorandum to the Sec. on this subject has been reported on publicly and I did not support it.

MANCHIN:

Thank you, Madam Chair.

REED:

On behalf of Chairman Inhofe Senator Cramer.

CRAMER:

Thank you, Mr. Chairman. Thanks to all of you for being here. I've only been in the Senate for less than four months but this is the most fascinating two hours so far so thank you all for being as prepared as you--you are.

I am going to summarize a few things I have heard this morning before I run out of time to do that and ask some questions. General Dunford you said space is no longer a sanctuary. I think Secretary Wilson you both said it's not contested. Great points, important points. General Hyten you said there will be a Space Force one day and I'm going to hone in on that because we hear a lot of reluctance and a lot of questions about efficiencies, business model, you've answered them all brilliantly, not necessarily convincingly to some but I think you have answered those questions very well.

Secretary Shanahan you said something interested I wanted to go through maybe a little history. You said the existing forces are based on that place, on geography. I think it's an important point that sometimes we are missing when we draw parallels between this and other efforts and missions. As you said that I started thinking about the Air Force itself but the Air Force wasn't always the Air Force. It was once the Army Air Force and prior to that it was the Army air Corps and prior to that there weren't airplanes.

But as new domains became contested, we had to lead. I was also thinking about some other--some of their Proverbs including Proverbs where it says that without revision people perish. I am pretty sure it was a Minnesota Viking fan who said the logical conclusion of defense is defeat. Being second is not a great place to be and I know we are first but I just feel so strongly if we are going to have a Space Force one day why wouldn't we start sooner rather than later? Why would we let somebody else get there?

So from

CRAMER:

a strategic standpoint, and--and I asked guess I'd ask the generals first about this, how important is it to have this--this public kitchen table level discussion? I--I appreciate your terminology, Secretary Wilson, when he said the president has elevated this topic to a kitchen table level. I think that's exactly right.

But our adversaries are watching. They're probably watching this hearing right now. How did--how did China and Russia roll out their space forces for their space activity? Did they do it in a real outward way or did they try to do it under the radar? Maybe the generals could answer that for me. And is it important, by the way, that we send a message?

DUNFORD:

Senator, I don't mean to be flippant, but the Russian military and the Chinese military are not typically afforded the opportunity we have been afforded this morning in full transparency with initiatives like this.

HYTEN:

Senator, both the--the Chinese and the Russians both look at space as a critical element of their defensive capabilities, as their military. They've also organized differently about space in the Chinese are integrating a lot of their capabilities into a single command, space, counterspace goes into a single command, they have a--an office officer responsible for space, an officer responsible for counterspace. I--I'd be glad to talk to you in a different setting about what I think they are doing and what--with the strings of what they're doing and the weaknesses are, but I--I really don't want to talk about that in a public forum.

CRAMER:

I appreciate both answers very much. We've had a lot of discussion about cost and benefit and I--you know, I understand the concerns of a couple of years or several years of cutbacks that now have us at catch-up mode on readiness and lethality and all those things that are important, and I--and I appreciate the answer, Chairman Dunford, about this is part of readiness. This is probably essential to readiness. But maybe Secretary Shanahan, is a cost-benefit analysis, a liberal cost-benefit analysis even--is that a possibility here?

SHANAHAN:

No it--no, it is and implicit in the space development agency is a cost-benefit analysis. It--it's a twofer. More capabilities sooner and lower cost. And that's--that's, you know, this is about moving more quickly. I mean, this is, you know, a threat driven response and it's really not even a response, as I think what the chairman has been highlighting here is how--how do we get ahead of things?

The--maybe the other piece here, and we touched on it briefly is we're about to usher in a new age of technology. I mean, this is, you know, we are on the dawn of a, you know, some major changes and if we adapt properly, we'll be able to take advantage of it and increase our--our dominance in space.

CRAMER:

And maybe just the last question for Secretary Wilson then, with that in mind, I mean, are the increment support--and I--I appreciate what--I appreciate what my colleagues are saying about--about--what about--why isn't this in the plan or why isn't that part of the proposal and whether it's, you know, the guard or--or reserves or others things. And yet, aren't the increments sort of an important part of the rollout? In other words, we're not--were not going from here to here, we see here, but we are going incrementally. Is that not an important part of the strategy?

WILSON:

I'm not sure it's incremental. I do think that--that what we have now is a set of programs a strategy to dominate and space. And you know, we all prefer that space remains people peaceful because that support everyone loses if war extent expands into space. But we are developing the capabilities to deter and, if necessary, to fight and win in the space domain as we do in all other domains so that our adversaries will choose wisely to deal with our diplomats and not with our war fighters, and that's what this is about.

CRAMER:

Beautifully said. Thanks to all of you. And I might just wrap up my comments by saying I just don't want to be sitting here for years from now and have four people look at me and go I wish we would have started this four years ago. With that, I yield.

REED:

On behalf of Chairman Inhofe, Senator Shaheen.

SHAHEEN:

Thank you, Mr. Chairman. And thank you all very much for being here and for your responses. I--I totally agree with everything that you all have said in your opening statements about the--the importance of space, the--the competition at first base that we have entered into, space as the next potential battleground. I may even be convinced in the future that we need a new space command and--and I do appreciate President Trump's focusing on space. I just have questions based on what I've heard and what I understand, and may you need to know more, that we have not gotten there in terms of the planning and the commitment and that, rather than spending a lot of time debating and questioning which direction we're going to go, we be better to continue to work on that and focus on what we need to immediately to address the challenges that we are facing.

Let me--let me begin with that and ask, I share Senator Manchin's concern about the failure to address guard and reserve as part of any planning for a new space command. It's a--a question, as you all alluded to, I guess it was you, General Dunford, that, or Secretary

Wilson, that many of our National Guard folks are already doing work in space and so I think they have a question about what their future role might be in any new space command, so I think answering those questions is going to be very important in order to ensure that there is support from states who control the guard.

But I want to go on to the whole civilian side of this question because, as I understand, as space activity increases, as our ability to detect debris improves and right now my understanding is that DOD tracks more than 20,000 objects in space and that number continues to grow and that we are making investments and situate situational awareness in space, I had the opportunity to see some of that recently to try and track some of that space debris, and that the space policy directive of this administration contemplates a larger role for the department of commerce space situational awareness and space traffic management.

We just had a hearing with the commerce committee last week where they were talking about organizing reorganizing all of the space elements in the Department of Commerce and to the office of the secretary. So I'm trying to figure out which functions would actually go to commerce and which would stay in DoD and how that response ability gets sorted out.

WILSON:

Senator, I think I can--I can take that one. The Air Force has really, since the late 1950s, taken on the responsibility of warning people when a piece of debris might hit their satellite. We do that out of Vandenberg Air Force Base in California. You're right that we currently track about 24,000 pieces of debris that are larger than 10 cm and we provide that information to every country in the world. We are also expanding our ability to know what is going on in space. This year, we will go operational with something called the space fence out of Kwajalein, which is a space facing radar, and we will increase the number of pieces of debris that we are tracking to probably over 100,000 with that space offense and it will go out to geosynchronous orbit.

This shift to the commerce department is that they will take over the response ability of telling commercial companies and de-confliction and those things, and were working very closely with them. We are happy to transition that responsibility of working on commercial

space, on space traffic management to the Commerce Department. They have had people out working alongside our folks at Vandenberg on how that would probably work.

As the--as the military service, obviously we would continue to have to have space situational awareness and collect the data. We would feed that over likely to the Commerce Department who would combine it with other sources of data and work with industry.

SHAHEEN:

And is--would that be the plan in any new space command that operational?

WILSON:

The--the concept is that Vandenberg would be part of the space force and the combined space operations center there is where we have all of the services as well as our allies and partners that track space debris.

SHAHEEN:

But we would continue to shift the--the collection of that information to the Department of commerce?

WILSON:

yes, ma'am.

SHAHEEN:

General Hyten?

HYTEN:

So the--that mission today is--is accomplished by airmen in the United States Air Force, but it's under my command, U.S. strategic command. And we provide that data and we have, today, 98 space situation awareness sharing agreements with others. We have to do that because we want to be able to operate safe space, but is not a military mission. That's a civil

mission. And the Department of Commerce is just taking over that civil responsibility so we can focus on the war fighting more.

I met with Secretary Ross this week. He is not going to try to build all of the data and the sensors that we have in order to do that. He'll take our sensors and our data, and he will just become the face to the--to the commercial sector and the face to the world so the military doesn't have to do that. But that function that is in StratCom will transition to the SpaceCom.

SHAHEEN:

And so will the personnel who are currently working at StratCom transition to the Department of Commerce? Is that the plan?

HYTEN:

No, ma'am. The Department of commerce will--will have that front facing peace, the--the airman of the United States Air Force today that would be in the space force in the future working for the space command. They still have to do that mission so we can do our defense of mission and our--

HYTEN:

space control missions in the future. That's why we started doing that. We just fell into the space traffic management business. We do it for defense.

SHAHEEN:

No, I'm just concerned about the expertise that might be required in the Department of Commerce, and are they going to have to hire that new. Are they going to take it from the Air Force?

HYTEN:

We're working very close with them to understand what kind of personal requirements they would have to have, how would they do that. In the conversations I've had with Secretary Ross this week, what I pointed out is that if we do it right, most of the capabilities they need can actually be automated and--and acquired through commercial agreements. They wouldn't have to have this army of people doing that. They could do it a whole lot better if we didn't do it right from the beginning, and we're working closely with them to make sure we do it as efficiently as possible.

SHAHEEN:

Thank you. Thank you, Mr. Chairman.

REED:

On behalf of Chairman Inhofe, Senator Blackburn, please.

BLACKBURN:

And thank you, Mr. Chairman. And I want to thank each of you for being here today, and I want to thank you for the time that you spent individually with us. I may be the outlier on this panel, but I totally appreciate why you need to have a Space Force. I get it.

You know, when you look at technological advancement, when you look at 5G that is coming on you look at the cyber pressures, you look at the lower orbit component, when you look at the integration that is taking place in the new space economy, I fully understand why you need to make this a priority and why you need to focus on this, why we as a nation need to focus on this, because 21st century warfare is most likely, from what I understand, going to be a good bit different than what we have seen in times past. So, I appreciate that we are putting an emphasis on this so that we are not left and caught flat footed at some point when we need to respond.

Secretary Wilson, I want to say all good wishes as you leave. It's--it truly is an honor to have you here, and we appreciate the work you've done, whether you were wearing the uniform or in the House or here. And of course, I thoroughly enjoyed serving in the House and on

Energy and Commerce with the Secretary. And I know, because of that expertise, you do have an understanding of the commercial side and also of the military side. It is a unique perspective.

One of the things I do want to come to, and Secretary Shanahan and I discussed this a little bit, as you look at this new space economy that is growing--and Senator Duckworth talked a little bit about the Chinese. And, of course, we've discussed this. You don't know where their commercial sector and their military sector end and begin because they are one and the same. And that is a great power competition. And we want to make certain that we are focused on what that means.

So, are we doing enough to encourage and leverage the dynamism of the commercial space industry so that we are going to be able, as we conduct this transition, to meet our national security needs? And Secretary Shanahan, I want to hear from you briefly on that. And then, since we are near the end of this hearing, I would like to just go down the dais, anything that you all want to add that you haven't had the opportunity to add. Secretary, do you first.

SHANAHAN:

Sure. Thank you. I--I think we're in the unique opportunity, given that now we have to design and deliver capability that's more resilient, that we can draw in the advances the commercial space industry has developed. I mean, I think that's--that's this unique point in time. That's why it's so important that when we do the development and the acquisition, we--we start at a different place than where we are today with our acquisition system.

And there are--there are two big opportunities. One is we systems engineer the ecosystem to draw in launch, to draw in the ground segment, to draw in 5G. It's not about how do we procure a micro satellite or a cube sat. It's how do we design this system so we can ingest the large volumes of data that we're going to obtain.

BLACKBURN:

With a focus on interoperability--

SHANAHAN:

Correct--

BLACKBURN:

And cross-platform--

SHANAHAN:

Yes--

BLACKBURN:

And integration of all the different--the--the different agencies that come under DoD.

SHANAHAN:

Absolutely. And we--we'll benefit.

BLACKBURN:

I think that is a very important point.

SHANAHAN:

Thank you.

BLACKBURN:

Yes. Secretary Wilson, anything to add?

WILSON:

Senator, with respect to architectural design, the Air Force has just finished a 90 day study looking at different--different--looking at the threat, looking at the phases of conflict, looking at all of our missions, and calculating and doing about--several thousand iterations

of war games to figure out what are the best architectures and how do we get there fastest to a dependable space.

There are a few conclusions from that. One is that different missions require different solutions, that an increase in number of satellites, particularly a large number of commercial satellites, helps, but numbers alone are not enough to prevail. It--we also found that--that the Congressional direction to consolidate all of space communications under the Air Force is actually a tremendous step forward. And I can explain in classified session why that would be.

And then the--the space missions that are not well aligned with commercial low Earth orbit satellite systems should probably stay where they are, possibly with changes in protection, but that--that using only commercial space, so putting hundreds of small, cheap satellites into orbit mean--does not work--

BLACKBURN:

Okay--

WILSON:

As a strategy. And it would mean that in combat that low Earth orbit system would be quite vulnerable and would fail. So, this is a complex problem. We've done some pretty good war gaming, and we will be happy to come up and brief the committee at their convenience.

BLACKBURN:

Appreciate it. General Hyten, anything to add?

HYTEN:

Senator, I'll just say it's all about the threat, how do we stay ahead of the threat. The threat right now, especially in China, is going much faster than we are. We have a significant advantage over them, but that's the advantage of--of history and what we built over the last

few years. We have to stay ahead of them, and I--I just thank this committee, thank the Congress for taking on the threat. When it comes right down to it, that's what it's all about.

BLACKBURN:

General Dunford?

DUNFORD:

Senator, the only thing I'd say, in the interest of time, would be that, you know, we really have two choices, either have a bias for action now and move out and establish an organization, knowing that there's many questions to be answered, or wait until we have all the questions answered before we stand up the organization.

And--and my best military advice, given the importance of space and the consequences of not doing all we can to optimize the department to move forward in space would be to move out now with might--with what might be the 80 percent solution, refine as we go, and the committee will have a--will have an opportunity to provide oversight to address some of the issues that have been raised this morning.

BLACKBURN:

Thank you for the service.

REED:

Thank you. On behalf of Chairman Inhofe, Senator Heinrich, please.

HEINRICH:

Thank you, Ranking Member Reed. I guess first I--I just want to say, as somebody who's Ranking Member right now on Strategic Forces and sits on intel and obviously sits on this committee, and as somebody who has oftentimes fought the Pentagon over the last decade about the value of disaggregated space architecture and--and rapid capabilities, I--I really appreciate the focus we have on space right now. I think it is welcome. There are

disagreements on--on--or at least some skepticism about this construct at this point, but I think all of us can agree that this is a conversation that's been coming for a long time, and we need to have it.

I want to give it from Space Force real quick to Space Development Agency for a minute and just ask Secretary Shanahan and General Dunford, one of the--my concerns there is that we aren't simply shifting money and missions around to do what we're already doing in places like Space Rapid Capabilities Office, Air Force Research Lab, SMC, and some of the things that are--are working under the current construct. So, just what assurances can you provide that--that we are not reinventing the wheel, but we're adding value?

SHANAHAN:

You know, I think there are two domains or--or two capabilities that the department is going to invest in in its modernization. And it has to do with command and control and communications and then Earth observation. Each of the services has its own plan. So, it's really more about the systems engineering and the architecture rather than the technology that's being developed at the--at the RCO.

We do need to, when we look across all of the--the labs, start to make decisions on what are the standards we want to employ, not necessarily direct technology development, but how do we develop standards so integration becomes more seamless and less costly.

HEINRICH:

Yeah, I--I would not disagree. And I think--as we're looking at this, I think there is some real value in looking at collocating the new SDA with some of the existing ecosystem so that we get those economies of scale.

General Dunford, do you have anything to add to the Secretary's comments there?

DUNFORD:

The only thing--the only thing I'd say, Senator, is, I mean, this makes sense to me as an initial step. And I think the broader question you're asking about is how do we make sure that all the processes in the department are aligned.

HEINRICH:

Right.

DUNFORD:

And that's going to be, you know, the responsibility of all of us, to ruthlessly drive alignment over time, ruthlessly drive efficiencies over time, and get this thing moving and make the refinements that I know are going to come. There's probably the only one thing I'm 100 percent confident of as I sit here this morning, and that is five years from now it's going to look slightly different than it does today, or what we propose today.

HEINRICH:

Great. Secretary, I want to--I want to talk a little bit about NRO. Obviously, a lot of exposure to that on--on one of my other committee assignments, and they have a pretty unique role right now, both under Title 50 and under Title 10. And I think they're working well. Can--can you give some certainty around, is in NRO in or out of the White House legislative proposal right now? And what's the logic?

SHANAHAN:

It's--it's out.

HEINRICH:

Right.

SHANAHAN:

And it's--it's not out because there aren't enormous synergies.

HEINRICH:

Um-hmm.

SHANAHAN:

It's really out because of organization and, you know, agreement on timing and alignment. There are a lot of details. This is General Dunford's point about, you know, how quickly can you move. We can move out on the things we can control. It doesn't mean that we could move out in the integration with NRO.

To your earlier point around architectures and technology, as we build out the future, we need to be provisioning with the NRO, because that integration's going to take place in the future. And if we do that, that makes the integration that much easier in the future.

HEINRICH:

I think that's probably the right answer. I know there are some questions on this committee about where that belongs, but I--I think that's the right approach.

Secretary Wilson, General Hyten, I wanted to ask you. I know we talked before about the importance of leveraging small space and commercial assets, and last week you spoke about Blackjack. But I'm more interested in the--the issue around giving small launch providers an opportunity to put some of the small sats in place. Does this space proposal do anything more to leverage the--that emerging industry to meet our national security objectives, and is there a place where--is that one place where SDA might also play a role?

WILSON:

Senator, the--the Air Force is responsible for--for launch, but as you know, we don't build rockets. We buy launches.

HEINRICH:

Right.

WILSON:

the--the biggest challenges on the heavy end. But on the light end, we have a variety of things that we're doing. And General Hyten may be able to add to this some. But we have contracted, for example, with--with Virgin Galactic to--to launch off of the--off--under the wing of a 747. We--we are working with a number of very small, very innovative companies on different ways to launch. And launch flexibility and reconstitution from unexpected places is one of the ways in which we keep our adversaries guessing.

HEINRICH:

General?

HYTEN:

And Senator, we've--we've made a lot of progress in the last few years of taking advantage of that. I think one of the strengths of the proposal that's before you, though, is the structure we're proposing will allow us to better leverage all of the industry that this country has to offer. And we've struggled a little bit with the commercial sector in particular. We've struggled with the smaller companies figuring out how to do that. The Air Force recently has made huge progress in walking down that path. I think Space Development Agency can walk down to real commercial leverage. So I think the total of this proposal really gets after a lot of the things you're talking about.

HEINRICH:

Thank you (INAUDIBLE).

REED:

Thank you. On behalf of Chairman Inhofe, Senator Hawley, please.

HAWLEY:

Thank you, Mr. Chairman. Thank you for--to the witnesses for being here. Thank you for your work, your diligent work on this important proposal, this important topic. And you've nearly made it to the end here, so six minutes to go. I want to ask you about a few specific challenges. We've talked a lot this morning about the space domain, the importance of the space domain in general. Let me ask you about some of the challenges, as I understand them, that make the space domain important. And you can tell me if my understanding needs revision. One of the major issues, as I understand it, that that makes space so important is our global C4ISR architecture that runs through space, sort of the central nervous system of the joint force. We were able to build that central nervous system in and through space in years past because it was largely uncontested space, but now as you've said over and over today, it's contested, it's congested, it's competitive, and so our C4ISR and precision navigation timing networks are at risk. So what I want to ask you is what are we doing to make our global C4ISR networks and our PNT networks more resilient and survivable? And how does the Space Force, how will a Space Force contribute to that? Absolutely, go ahead, General.

HYTEN:

So Senator, the--I think you described the space challenge quite well. I think we have a significant element of everything that we do that goes through space. There's not a single military operation that exists on this planet that doesn't involve space in some way, and the C4 network that we operate leverages space especially because we operate away from our homeland. We operate overseas, and when you do that you need to bring your communication, bring your ISR, bring all those capabilities with you, and a significant amount of those capabilities today come from space. And so as we look to the future, we have to make sure we protect that, and we defend that, and we can still provide those capabilities. And our adversaries have seen that, too. As they've seen that, they're developing capabilities to counter those. So we have to adjust. We have to be able to build different architectures that we can fight with more effectively, that can guarantee that capability is always there. We have to build the ability to defend ourselves and the ability to deny an adversary the use of space at a time and place of our choosing if we have to. As the

secretary discussed earlier, we don't want conflict to go into space, but if it does,
(INAUDIBLE)

HAWLEY:

In this setting, General, can you give us some idea about what are some of the steps that we are taking now or that need to be taken to make that infrastructure, that C4 infrastructure, architecture and our PNT architecture more resilient? I mean, what I'm driving at, as I think you can see, is what are the specific things we need to be doing to meet this very pressing challenge? And then how does that tie into this large structure, structural change that you've been proposing here today?

HYTEN:

So the secretary described one of the big changes is the integration of satellite communications in one place. As we move to a space command and a Space Force, the benefits that we'll get from that unity of effort will be we'll have one command focused on operating satellite communications, and we'll have one force looking at acquiring the capabilities we need to. And the integration of those two capabilities will allow us to better defend ourselves and operate in the future. You can apply that to position navigation and timing. You can apply that to overhead weather, missile warning, all the capabilities we have, you can apply that same content. And we can talk in a classified session about the specifics of what we're doing, but in broad terms that's the structure.

HAWLEY:

Madam Secretary, do you want to add to this?

WILSON:

Senator, before the fiscal year '19 budget that we brought up before your election, we did some work on what should our strategies be, and how do we shift our programs to implement those strategies. And we did a tabletop exercise with many of the members of the committee to show what the strategies were and the program shifts. Those strategies really

kind of revolve around five things in general. The first is to protect and defend. So defend our satellites, think chaff and flares, but other kinds of things, and it's different mission by mission. Second, be able to stop an attack. It's not good enough to stand in the ring and dodge and weave and take punches. You need to be able to swing back. Third, proliferate. Now proliferation alone does not solve the problem, but it does complicate the problem for an adversary. Fourth, undermine the confidence of the adversary that they really understand what's going on around them. And fifth, all of this rests on a foundation of excellence in our people. So those are the five lines of effort, and they are all supported by programs and programmatic change that was supported by the committee in the FY '19 budget.

HAWLEY:

Thank you. That's very helpful. I think that my set of questions around your proposal for this major structural change for the standing up of a Space Force relates to this line of questioning. Is it--what are the specific pressing challenges we face in that domain, and will this new structure help us meet those specific challenges, or is there a danger that we are too focused on the domain as a domain and we're not focusing enough on the specific challenges? Mr. Secretary, before my time expires, let me just ask you a somewhat related question. The relevance of AI and new technologies, you touched on this briefly I think with Senator Cramer, but tell us something about how Space Force may help us--help the whole, the joint force, continue to develop the new technologies, whether it's AI or otherwise, that we need to be leaders here in the 21st century.

SHANAHAN:

Right, so the Space Development Agency in our modernization for the National Defense Strategy addresses building an integrated transport layer for the Department of Defense so that we can ingest and move significant volumes of data that facilitate artificial intelligence. It's this buildout of the broader infrastructure that also includes the ground network that will connect sensor and shooter and then all other decision-makers. It's not just about the closing the fire control loop, but we're trying to scale and address latency. And this is the

need. This is why we need fundamental systems engineering as we approach this problem set.

HAWLEY:

Thank you very much. Thank you, Mr. Chairman.

REED:

Thank you. On behalf of Chairman Inhofe, Senator Blumenthal, please.

BLUMENTHAL:

Thank you, Senator Reed. Thank you all for being here today, and thank you for your service. You know, I've been in and out as I've attended other committee hearings, and I sort of feel like the most important facts for us and the American people understand are the facts that haven't been said today. And the reason why they haven't been said is that they are largely classified. And the reason that's important is that the American people have no idea, really no idea, about the immensity of the threat in space. And I've made this comment in a classified setting, that I wish the American people could be present in this room, not this room, but a skiff (PH) because our adversaries know what they are doing. We know what they are doing. They know we know what they are doing, but the American people have no idea. And so this discussion and debate will have very little interest in the American public. It's carried on in a level of, forgive me, bureaucratic language, that most Americans would have trouble seeing an immediacy in their daily lives. But if they were privy to what we hear, and you know it much better than we do because you live it, I think they'd be pretty alarmed. And this is not by way of criticism of you because you're living with the strictures of what is classified and not, but I think we have a real obligation to explain to the American people why space is a domain that matters, why the threats there are real and urgent, why they are growing in importance.

So I think we all agree here that space is an important domain. Undersea warfare is an important domain. But we don't have a separate command for it. Cyber is important

domain, as my colleague and friend, the late John McCain, used to say. And so I found very persuasive, Secretary Wilson, what you said in July 2017. I know it's been quoted to you before this morning. And others of you, the reasons for your opposition to that separate domain or the separate command for the space domain. But I would like to ask in terms of the personnel issues that I think are of immediate concern to a lot of folks, this proposal would exempt Space Force civilian personnel from Title 5 rules and protections. It would create a new accepted service that is separate from the federal government competitive service or a senior executive service. It would create

BLUMENTHAL:

And alarming precedent I think that potentially could erode the merit-based civil service within the Pentagon and eliminate the rights of Space Force employees to participate in collective bargaining for example. There is currently no civilian workforce that is statutorily exempt from collective bargaining rights. Can you tell me, Secretary Shanahan, why that is a part of your proposal?

SHANAHAN:

The title five that you were referencing was based on the discussion we were having earlier around integration with the NRO, that is the model that they employee there and as we think about the talent management practices that we will need in the future we wanted a provision for that much like in your reference to the undersea domain our approach to systems engineering is the same as the you know Navy has undertaken so there are a lot of examples that we are trying to draw from that have been successful. That was--that was the nature of that insertion.

BLUMENTHAL:

With there be protection for whistleblowers, in the same way, there is throughout the rest of the government?

SHANAHAN:

The baseline that we are coming off of is the existing personnel system. This was to incorporate you know the ability to integrate with the NRO. So I would you know I would have to go back--sir, I would have to go back and confirm that for you but I--

BLUMENTHAL:

If you would that would be appreciated.

SHANAHAN:

You bet.

BLUMENTHAL:

Because based on this proposal the Secretary of Defense could terminate any Space Force employee quote in the interest of the United States end quote and as drafted it says notwithstanding in the other law which leads me to think that they would be exempted from a lot of other protections of law and could simply be dismissed whenever you determined it is in the interest of the United States.

SHANAHAN:

Yeah, let me--let me go back and confirm. That is not our interpretation.

BLUMENTHAL:

My time has expired. Thank you, Mr. Chairman. But I think there are essentially and I have a lot more and I am going to submit them for the record, a lot more questions than answers here and as others have remarked each of you has raised objections or reservations or questions in the past, very recent past, about this idea which I am not sure have been fully addressed here. Thank you.

REED:

Thank you. On behalf of Chairman Inhofe, Senator Warren, please.

WARREN:

Thank you, Mr. Chairman. So we are here today to examine a proposal to set up a Space Force within the Air Force and before we haul off and authorized spending billions of dollars on this, I just want to ask a couple of questions about what problem this Space Force is supposed to solve.

So let me start with you Chairman Dunford. Is it correct to say the Department of Defense has proposed a Space Force because the U.S. is that risk of losing its competitive advantage in space and our space assets including critical asset-- satellites are becoming increasingly vulnerable? Is that a fair statement?

DUNFORD:

That is--that is a fair statement, senator. And just a quick caveat based on your opening comment. In the organization that we have today is an organization that we have built when space was--

WARREN:

I understand that. I understand that. So I want to think about what the basis of the problem is then. A 2016 GAO report that it examined our existing space acquisition programs noted quote we and others have reported for over two decades that fragmentation and overlap have contributed to program delays and cancellations, costing increases and inefficient operations end quote.

Secretary Shanahan, is it the DoD's view that unifying space programs under a single service will address these problems?

SHANAHAN:

Senator, unifying and aligning certain programs under the space development agency will address that problem that you spoke to.

WARREN:

So you say the problems of delays and cancellations, cost increases and inefficient operations will be solved if there is a separate branch of the military but still under the command of the Air Force. You know this is particularly surprising to me since the proposal to leave the Space Force headquartered under the Air Force would still leave exactly one person responsible for acquiring hardware for both the Space Force and the Air Force.

So it's not clear to me how this solves anything. In fact, it's hard to see how that person would be able to balance the competing needs of both services without a massive increase in overall spending. So Secretary Shanahan let me ask obviously DoD has not been able to solve the problems identified by the GAO over the last 20 years. Why do you think another layer of bureaucracy will suddenly solve this problem?

SHANAHAN:

Well, I think the department has solved a lot of problems. I think we can point to a lot of programs where inefficiencies, delays in decisions, redundancies, overlaps have--have been corrected. I think there is (INAUDIBLE)--

WARREN:

I'm sorry. The report is from 2016 from the GAO thing you have not solve these problems.

SHANAHAN:

And all I am arguing is we have made lots of improvements. I think we can point to--

WARREN:

And how is having one person as you have now in charge of the acquisitions for these two programs, space program, and the Air Force, how is that going to solve the problems that were identified by the GAO?

SHANAHAN:

Well, specifically there are a set of fragmented programs today that will be consolidated and they will allow us to get at many of the issues identified in the GAO report.

WARREN:

There is just one person in charge right now and you still haven't fix this problem.

SHANAHAN:

No, this is about one person. This is about an organization, an organization that has certain capabilities and decision rights.

WARREN:

Well, look, I understand that DoD says that unifying space acquisitions is going to help improve outcomes but I'm concerned that it won't because program delays and cancellations, cost increases, and inefficient operations are the rule, not the exception, and the entire defense acquisitions system already has this problem and nothing in this proposal makes it any better.

You know none of the ideas that I have heard today clearly spell out how a Space Force leads to improve security in space. Instead, all I see is how a new these force will create one more organization to ask Congress for money and there is no reason to believe that adding an entirely new Space Force bureaucracy and pouring buckets more money into it is going to reduce our overall vulnerability in space.

I just think the taxpayers deserve better than this. I yield back my time, Mr. Chairman.

REED:

Thank you Senator Warren. On behalf of Chairman Inhofe let me thank the witnesses for their testimony and declare that the hearing is adjourned. Thank you.

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WITNESSES:

DEPUTY SECRETARY OF DEFENSE PATRICK SHANAHAN

AIR FORCE SECRETARY HEATHER A. WILSON

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