

Stenographic Transcript
Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
THE PROPOSAL TO ESTABLISH A UNITED STATES SPACE
FORCE

Thursday, April 11, 2019

Washington, D.C.

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6 U.S. Senate

7 Committee on Armed Services

8 Washington, D.C.

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10 The committee met, pursuant to notice, at 9:30 a.m. in
11 Room SD-G50, Dirksen Senate Office Building, Hon. James M.
12 Inhofe, chairman of the committee, presiding.

13 Committee Members Present: Senators Inhofe
14 [presiding], Wicker, Fischer, Cotton, Rounds, Ernst, Tillis,
15 Sullivan, Cramer, McSally, Blackburn, Hawley, Reed, Shaheen,
16 Gillibrand, Blumenthal, Hirono, Kaine, King, Heinrich,
17 Warren, Peters, Manchin, Duckworth, and Jones.

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1 OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S.
2 SENATOR FROM OKLAHOMA

3 Chairman Inhofe: The committee meeting will be -- will
4 come to order.

5 We want to welcome our witnesses: Secretary Shanahan,
6 Acting Secretary of Defense; Secretary Heather Wilson,
7 Secretary of the Air Force; General Joseph Dunford, Chairman
8 of the Joint Chiefs of Staff; and General John Hyten,
9 Commander of the U.S. Strategic Command.

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

22 I've got to applaud and thank both President Trump and
23 Vice President Pence for their renewed focus and cohesive
24 approach to America's resurgence in the space domain and the
25 support to our National Defense Strategy, this document

1 here, which is our blueprint.

2 The reestablishment of the National Space Council,
3 chaired by the Vice President, has provided multiple space
4 policy directives, including the establishment of the
5 Unified Combatant Command and U.S. Space Command, as well as
6 standing up the Space Development Agency and providing us
7 with the United States Space Force proposal we are
8 discussing today.

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

21 Today's hearing will provide us with an opportunity to
22 continue to gather facts, to fully explore the proposal, as
23 presented to us. It was just -- only 4 weeks ago, if you
24 remember. That was right after our budget discussion. And
25 talking with members of the committee and their MLAs, we're

1 all openminded on the plan, but are wrestling with different
2 aspects of it. And this is one of those rare times when
3 we're having a hearing where people haven't already made up
4 their minds. So, we're -- we look forward to that.

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

18 Since the -- this -- Senator Reed and I have concluded
19 that, since this is such a high visibility and -- that
20 there's so much interest in this, we're going to have --
21 instead of 5-minute rounds, we're going to have 6-minute
22 rounds. And we look forward to dealing with the -- with our
23 committee members.

24 Senator Reed.

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1 STATEMENT OF HON. JACK REED, U.S. SENATOR FROM RHODE
2 ISLAND

3 Senator Reed: Well, thank you very much, Mr. Chairman,
4 for holding this hearing to discuss the Department's
5 proposal to establish a United States Space Force.

6 Again, I think that the timing is appropriate. The
7 administration understands the different challenging demands
8 in space that have evolved very quickly over the last 2
9 years, and their proposal gives us something to work with.
10 And I thank them for that.

11 Let me welcome our distinguished witnesses and join the
12 Chairman in saluting and thanking Secretary Wilson for her
13 distinguished service. Thank you, Madam Secretary.

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

23 There are legitimate concerns that the Department of
24 Defense is not effectively organized to address the threats
25 posed by our near-peer adversaries in space. Congress has

1 grappled with how to address these concerns. In fact, in
2 2017, we debated a House proposal on whether or not to
3 create a Space Corps. Ultimately, due to strong opposition
4 in the Senate and questions from senior officials within the
5 Department of Defense, Congress did not create a Space
6 Corps. But, we did strengthen the space cadre and space
7 acquisition authorities within the Air Force, and
8 specifically within the Air Force Space Command. Last year,
9 Congress took an additional step and created a sub-unified
10 command for space reporting to the U.S. Strategic Command.
11 This year, the administration has proposed to establish the
12 U.S. Space Force as a new military service within the Air
13 Force responsible for organizing, training, and equipping
14 all forces who will fight in the space domain.

15 The proposal is essentially the same House proposal we
16 debated in 2017. I full agree that the threat is real and
17 that changes need to be made to better address the threat.
18 However, creating a new branch of the Armed Forces for the
19 first time in 70 years is not a decision Congress should
20 make lightly. Such a major reorganization would have long-
21 lasting consequences, both intended and unintended, for how
22 our forces will fight, the decades into the future.

23 While the Department's proposal appears comprehensive,
24 there are areas where I have questions and concerns that I
25 hope we can discuss during today's hearing.

1 My first area of concern is the creation of what seems
2 to be a very topheavy bureaucracy. According to initial
3 estimates, the Space Force will be a military service of
4 approximately 16,500 people. Roughly 1,000 personnel will
5 serve in headquarters positions. Presently, the smallest
6 force is the Marine Corps, with a total force of 246,000
7 military and civilian personnel, and a headquarters staff of
8 1200. This Space Force would be in the Department of the
9 Air Force, similar to the Navy/Marine Corps model. However,
10 this proposal creates an Under Secretary of the Air Force
11 for Space; whereas, the Marine Corps does not have a
12 separate Under Secretary.

13 The proposal also creates two new four-star general
14 officers in Space Force, one for Chief of Staff and the
15 other for the Vice Chief of Staff of the Space Force. The
16 Chief of Staff of the Space Force would be a member of the
17 Joint Chiefs of Staff. I hope our witnesses will explain
18 why the Space Force requires a separate and dedicated Under
19 Secretary, unlike the Marine Corps, and whether such a
20 topheavy bureaucracy is necessary for such a small fighting
21 force.

22 The Department states that a new military service will
23 significantly increase focus in leadership, expertise,
24 personnel, and culture. With regard to the personnel
25 actions requested, I have some concerns that this proposal

1 may actually have the opposite effect. Of the 16,500
2 members of this force, 10,500 would be Active Duty
3 servicemembers almost exclusively from the Air Force, and a
4 significant number of Space Force general officers would be
5 drawn largely from the Air Force. Therefore, the future
6 pool of officers from which the Space Force would grow
7 field-grade and general officers would be small compared to
8 other services, and predominantly from one service. This
9 raises question about the depth, breadth, diversity, and
10 long-term quality of the officer corps.

11 While predominantly made up of Air Force personnel, the
12 proposal seeks to consolidate much of the space activities
13 of the other services into Space Force. The Department is
14 specifically requesting authority for the Secretary of
15 Defense to transfer military and civilian personnel, both
16 voluntarily and involuntarily, and their associated budgets
17 and billets to the Space Force. While it's possible all
18 these transfers could be done voluntarily, I believe that
19 scenario is highly unlikely. The connection a servicemember
20 has to their individual military branch is often deeply
21 rooted and a part of their identity. Furthermore, the
22 Department has not yet decided on what role the Guard and
23 Reserve will play in this new service.

24 This proposal will -- would authorize a new civilian
25 personnel system exclusive to the Space Force that would be

1 exempted from the statutory rules and protections applicable
2 to most other Federal employees, including
3 antidiscrimination laws and whistleblower protections. Most
4 notably, the proposal would create a statutory exemption
5 from collective bargaining rights for this workforce and
6 would authorize the Department to involuntarily transfer
7 civilian employees, stripping him of their collective
8 bargaining rights in the process.

9 The Department's initial cost estimate for Space Force
10 in FY20 is 72 million. However, the Department has provided
11 only notional budget numbers for out-of-year budgets, with
12 an estimate that Space Force will require approximately \$1.6
13 billion over the FYDP, based on a flat \$500 million
14 recurring cost for personnel. It is highly unlikely that
15 the bureaucracy of the Space Force will remain flat over
16 time. I think providing DOD with wide legislative authority
17 to create a new bureaucracy without more robust budget
18 details is risky.

19 On a final point, the National Reconnaissance Office is
20 responsible for our Nation's intelligence collection in
21 space. It is a joint organization between DOD and the
22 intelligence community. Clearly, it will play a critical
23 role in space as a warfighting domain, yet it is not yet
24 part of this proposal in any way. I understand there are
25 difficult issues to address in both the administration and

1 Congress on any changes to the status quo, but I'm
2 interested why this obvious seam in the organization of
3 space was not addressed. And I'm interested in hearing from
4 the witnesses on this issue.

5 Again, the threats we face in space are real and clear,
6 they require action. I commend the administration and the
7 Department for taking such action. And we will consider
8 this issue very, very carefully.

9 Thank you, Mr. Chairman.

10 Chairman Inhofe: Thank you. Thank you, Senator Reed.

11 Well, we have four witnesses. All four will have
12 opening statements. And we will ask you to try to keep your
13 opening statement down around 5 minutes, because we have a
14 lot of members here, and we're going to have 6-minute
15 rounds, so it's going to take awhile.

16 So, we'll start with you, General Dunford. You are
17 recognized.

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1 STATEMENT OF GENERAL JOSEPH F. DUNFORD, JR., USMC,
2 CHAIRMAN OF THE JOINT CHIEFS OF STAFF

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

7 Last month, I testified before you that China and
8 Russia have developed capabilities to contest our ability to
9 operate across all domains. This includes space, which is
10 now a fully contested warfighting domain, along with sea,
11 air, land, and cyberspace.

12 As you know, we have conducted joint military net
13 assessments, each in the last 2 years, to determine our
14 readiness to execute the National Defense and Military
15 Strategies. At the unclassified level, our assessment
16 includes several observations that are relevant to our
17 discussion this morning and highlight that our competitive
18 advantage in space has eroded.

19 China and Russia have taken significant steps to
20 challenge our traditional dominance in space. They have
21 reorganized their armed forces and developed robust space
22 capabilities, to include space-based intelligence,
23 surveillance, and reconnaissance. These steps provide the
24 ability to more effectively target U.S. and allied forces.
25 China and Russia are also capable of searching, tracking,

1 and characterizing satellites in all Earth orbits in support
2 of space and counterspace operations. Their counterspace
3 capabilities include jamming, cyberoperations, directed-
4 energy weapons, on-orbit capabilities, and ground-based
5 anti-satellite missiles. China and Russia clearly recognize
6 the implications of space from both an economic and a
7 warfighting perspective, and, as a result, they are
8 adapting.

9 As Secretary Shanahan has in his written statement,
10 Secretary Wilson has addressed, and both the Chairman and
11 the Ranking Member have mentioned, space is no longer a
12 sanctuary. Traditionally, the Air Force has been the
13 principal driver of our efforts in space. And, because of
14 airmen like John Hyten, who joins us here today, our
15 capabilities today are second to none. But, our current
16 organizational construct was developed before space was a
17 contested domain. As a result of our analysis over the last
18 few years, I have become convinced that we need change to
19 maintain our competitive edge.

20 In the past, we have often effected change in the wake
21 of failure. Today, we have an opportunity and, I would
22 argue, an imperative, to change based on our ability to
23 anticipate. We have an opportunity to look to the future
24 and posture ourselves to seize and hold the high ground of
25 space. We've already acted to establish United States Space

1 Command, which will ensure we can most effectively operate
2 in and from space. Taking a next step to create a Space
3 Force will allow us to develop and maintain a singular focus
4 on developing the people, the capabilities, the doctrine,
5 and the culture we'll need to maintain our competitive
6 advantage in space. Together, I believe these steps will
7 accelerate our efforts to develop, field, and operate the
8 capabilities we'll need for joint warfighting in the future.

9 Thank you, Chairman. And I look forward to taking
10 questions.

11 Chairman Inhofe: Thank you, General.

12 Secretary Shanahan.

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1 STATEMENT OF HON. PATRICK M. SHANAHAN, ACTING
2 SECRETARY OF DEFENSE

3 Mr. Shanahan: Chairman Inhofe, Ranking Member Reed,
4 members of the committee, thank you for this opportunity to
5 testify in support of the Department of Defense's U.S. Space
6 Force proposal.

7 Before we begin, let me pay my respects to the families
8 of the U.S. marines we lost this week in Afghanistan. While
9 we will discuss elements of national security here today, we
10 know it is America's young men and women who ultimately
11 deliver that security for us and our families each and every
12 day.

13 Let me open my comments on the Space Force by
14 expressing my admiration for our U.S. Air Force. Because of
15 our airmen, and Secretary Wilson's leadership, in
16 particular, we are the best in space. This proposal is
17 about maintaining the margin of dominance they have given us
18 and accelerating the capabilities we need in this
19 increasingly competitive domain. Establishing the Space
20 Force within the Air Force lets us do just that.

21 It is all the more vital now, because our \$19 trillion
22 economy, our American way of life, and our American way of
23 war all depend on space. Sixteen months ago, at your
24 direction, in the FY-2018 NDAA, I began a review to, quote,
25 "identify and -- a recommended organizational and management

1 structure for the national security space components," end
2 quote. We are here to respond to that direction, to address
3 the problems Congress, multiple bipartisan commissions, the
4 GAO, and others have all characterized. DOD's space efforts
5 are disaggregated, resulting in a slow bureaucratic
6 approach. Today, DOD has five Senate-confirmed officials
7 who are responsible for more than ten organizations
8 developing bespoke space capabilities in a very federated
9 fashion, failing to integrate across DOD and to capture the
10 cost synergies of standards. The current approach has
11 served its purpose. We are at an inflection point. Threats
12 are increasing, and the importance of and the opportunities
13 in space are growing.

14 Both China and Russia have weaponized space, with the
15 intent to hold American capabilities at risk. Every member
16 of this committee has access to the classified threat
17 picture, but the bottom line is, the next major conflict may
18 be won or lost in space. At the same time, an explosion in
19 commercial space innovation is adding thousands of
20 satellites and a new range of capabilities, unlocking a
21 trillion dollars in economic opportunity.

22 There is widespread agreement the status quo is not
23 sufficient. Change is required to stay ahead. Approached
24 correctly, this is an opportunity for a generational
25 improvement. Future space capabilities should be system-

1 engineered from the start, to include launch, commercial
2 innovation, the network, the satellite, the ground segment,
3 user equipment, and cybersecurity. Our military is
4 organized around physical domains -- Army on land, Navy on
5 sea, Air Force in the air. Given the significant change
6 confronting us, we now need a military service dedicated to
7 space. Instead of coordinating across more than ten
8 organizations, we will consolidate and concentrate into the
9 Space Force so that we have clear lines of accountability
10 and responsibility.

11 Two elements of the Space Force organize, train, and
12 equip mission are worth elaborating on:

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

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

24 The Space Force has two related components. First, a
25 unified combatant command for space, with a full-time

1 commander focused on space operations. Second, the Space
2 Development Agency will develop and deliver the next
3 generation of space-based communications and Earth
4 observation while existing organizations continue current
5 efforts.

6 The status quo is not sufficient. We need to outpace
7 threats in space, not simply keep up with them. Because our
8 current system isn't organized to move fast enough, the
9 Space Force will consolidate, elevate, and focus our efforts
10 for results. Our partnership with Congress is critical.
11 Our proposal responds to your FY18 NDAA direction. And we
12 stand ready to work with you and resolve any questions or
13 details. We ask your support in making the strategic
14 initiative to establish the U.S. Space Force in FY-2020
15 NDAA. America has enduring interests in space. And, just
16 as the U.S. Navy ensures freedom of navigation of the seas,
17 America's Space Force must now ensure the freedom to
18 navigate the stars.

19 Thank you. And I look forward to our discussion.

20 [The prepared statement of Mr. Shanahan follows:]

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1 Chairman Inhofe: Thank you, Mr. Secretary.

2 Secretary Wilson.

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1 STATEMENT OF HON. HEATHER A. WILSON, SECRETARY OF THE
2 AIR FORCE

3 Dr. Wilson: Thank you, Mr. Chairman. And thank you
4 and Ranking Member Reed and this committee for this hearing
5 and for your service.

6 I would just highlight a couple of points very briefly,
7 in addition to what's already been said.

8 The United States is the best in the world at space.
9 And our adversaries know it. And they are seeking to
10 develop the capability to deny us the use of space in crisis
11 or in war. Our responsibility is to make sure that doesn't
12 happen.

13 Second, I would say that it is absolutely imperative
14 that we change the system of acquisition that is modeled
15 more for the Cold War. We have to buy things faster and
16 smarter. The authorities that you have given to the Air
17 Force and to the other services and to the Department of
18 Defense over the last 3 years are in the midst of being
19 implemented, and we are stripping time out of programs, and
20 increasing the performance of those programs. In respect to
21 that, the on-time budget this year was absolutely critical,
22 and the fiscal year '20 budget proposal will be the third
23 consecutive year of double-digit percentage increases
24 proposed by the President and, I hope, supported by the
25 Congress.

1 The third thing I would say is that the Air Force has
2 stood up a planning cell underneath the Air Force that
3 includes all of the services and the relevant Defense
4 Department agencies to do the detailed planning necessary so
5 that, within 90 days of legislation, we would stand up the
6 initial element of a Space Force. That planning cell is led
7 by a two-star general and, as I mentioned, includes all
8 members of the different services. We want to be able to
9 move out smartly when legislation is passed.

10 Thank you, Mr. Chairman. I look forward to answering
11 your questions.

12 Chairman Inhofe: Thank you, Madam Secretary.

13 General Hyten.

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1 STATEMENT OF GENERAL JOHN E. HYTEN, USAF, COMMANDER,
2 UNITED STATES STRATEGIC COMMAND

3 General Hyten: Thank you very much, Chairman Inhofe,
4 Ranking Member Reed, distinguished committee members. It is
5 an honor to be here today, and a continuing privilege to
6 represent the 162,000 Americans accomplishing the mission of
7 U.S. Strategic Command.

8 I want to begin by thanking the committee for, rightly,
9 approaching space as a warfighting challenge. And I very
10 much appreciate the President weighing in, confirming space
11 as a warfighting domain. Now we have to make sure we're
12 ready for that challenge.

13 STRATCOM is a global warfighting command. Success in
14 all our missions require us to maintain freedom of
15 operations in space. And today, as the Secretary just said,
16 I sit here fully confident in our Nation's superiority in
17 space. Although we have a distinct advantage today, I fear
18 that this will not continue unless we take action
19 immediately, before our superiority begins to erode.

20 Space is fundamental to our economic vitality and the
21 American way of life, including how we conduct warfare.
22 Certainly, our adversaries understand this, and they're
23 actively building and deploying weapons to threaten us in
24 space. We must take these actions seriously.

25 But, as the Commander of us USSTRATCOM, I am

1 responsible for space operations in our military today, and
2 I have been in space my entire career. It is my passion.
3 And, as much as I'd like to focus on space, my priorities
4 are, first, strategic deterrent; second, nuclear command and
5 control. And space can never be higher than my third
6 priority. So, the most important thing we can do in the
7 near term is create a lean, new unified command, U.S. Space
8 Command, separate from my command, STRATCOM, focused solely
9 on warfighting in space. And we need a four-star commander
10 to do that. It's that important. The Department's already
11 taken a step, as well as the President, to nominate General
12 "Jay" Raymond for this position. He is the right person for
13 that job, and I encourage the Senate to take up his
14 nomination as soon as possible.

15 The second piece is to stand up a new Space Force
16 inside the Air Force, focusing on organizing, training, and
17 equipping forces for this Space Command and for the Joint
18 Forces at large. This is the pathway that best gets us
19 there. The President said we need a structure inside the
20 Pentagon focused on space all the time, inside the Air
21 Force, and I support this model. The force needs to be
22 streamlined from inception. I understand your concerns
23 about inefficiencies. I believe the creation of Space Force
24 within the Air Force is the best way to reduce redundancies
25 and bureaucracies by focusing on the most essential tasks.

1 So, I pledge to continue to work with the Congress to
2 develop the most efficient warfighting organizational
3 structure possible.

4 So, thank you, again, for allowing me to be here today.
5 And I look forward to your questions, as well.

6 Chairman Inhofe: Thank you, General Hyten.

7 Now, we are going to have 6-minute rounds, and we're
8 going to try to stay within that timeframe, I tell my fellow
9 Senators. But, we also -- in my opening statement, I talked
10 about the -- I had a couple of questions that never have
11 been answered to my satisfaction. Forgetting about the cost
12 thing, because we've pretty much established at least an
13 opinion as to what it's going to cost, but I have,
14 essentially, the same question, worded a little bit
15 differently, to have each one of our witness. So, I'd like
16 to ask you to respond to this question.

17 First of all, Secretary Shanahan, I agree with -- when
18 you often say the United States margin of dominance in space
19 is diminishing. But, my question to you -- a direct
20 question -- is, How will establishing a Space Force help the
21 United States reassert its warfighting dominance? Yes, sir.

22 Mr. Shanahan: Sure. Thank you, Chairman.

23 The fix -- I think what you've -- you're really
24 speaking to is, you know, How do we expand that margin? Our
25 proposal addresses all of the changes that are occurring

1 simultaneously in space. And maybe just to set up the
2 answer, these are the significant changes we have to
3 address. The environment is contested. We are about to
4 modernize -- for the first time in about 30 years, modernize
5 the Department. So, how do we incorporate all the
6 modernization and address this very different environment,
7 which is a binary change from the past? And as we broke
8 down the problem, we said the fastest way to do this -- and
9 it's all about speed to expand our margin -- is to
10 compartmentalize the problem into three areas. The first
11 was, make sure we have warfighting operations so that we can
12 operate in a contested environment.

13 Chairman Inhofe: Yeah, quickly, now.

14 Mr. Shanahan: The second was, make sure that we have
15 the doctrine and the training so that we can equip our
16 forces with the right space cadre.

17 Chairman Inhofe: Okay.

18 Mr. Shanahan: And lastly, how do we acquire and
19 develop the right system?

20 Chairman Inhofe: So, you assume that we're going to do
21 a better job with a Space Force than we're doing right now
22 in those three areas.

23 Mr. Shanahan: Yes.

24 Chairman Inhofe: Thank you very much.

25 Secretary Wilson, given your experience and -- which is

1 vast -- can you provide your assessment as to how the
2 proposal will better organize, train, and equip space
3 forces, compared to the present mission of the Air Force
4 Command today?

5 Dr. Wilson: Mr. Chairman, I agree with General Hyten,
6 that the most important step that Congress has already taken
7 and the President has put into action, which is a unified
8 combatant command for warfighting. But, I do think that
9 there is an opportunity to align defense space programs in a
10 Space Force underneath the Air Force, including acquisition.
11 And I think that that alignment will help.

12 Chairman Inhofe: Okay. That's a good answer.

13 General Hyten, through your role as Commander of the
14 U.S. Strategic Command, you are currently the Nation's most
15 qualified expert in warfighting -- in space warfighting.
16 Can you identify -- differentiate between the mission of the
17 U.S. Space Command, a unified combat command -- combatant
18 command -- and the service mission, as proposed in the
19 hearing today?

20 General Hyten: Yes, Chairman. The structure is,
21 basically, built around the same structure we have in all
22 our combatant commands. The way our military is organized
23 is, we have combatant commands that fight our forces. They
24 fight our battles, they win our wars, they conduct strategic
25 deterrence. All the missions are executed through our

1 combatant commands. The new U.S. Space Command will execute
2 the space mission through the combatant command of U.S.
3 Space Command. But, the services organize, train, and equip
4 forces for those commands. So, the Army, Navy, Air Force,
5 Marines builds, organize, trains, and equip forces for the
6 unified combatant commanders. The Space Force will do that
7 for the Space Command and for the Joint Force at large.

8 Chairman Inhofe: I see.

9 General Hyten: That's the difference between the two.

10 Chairman Inhofe: All right. Well, that's a very good,
11 specific answer.

12 General Dunford, you're a warfighting marine, so you
13 have a different perspective than some of the rest of them
14 do on this panel. Do you believe establishing a Space Force
15 will contribute to the development of a space warfighting
16 ecos and culture that does not exist already today?

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

25 Chairman Inhofe: That's good.

1 Thank you very much.

2 Senator Reed.

3 Senator Reed: Well, thank you very much, Mr. Chairman.

4 And thank the witnesses.

5 Secretary Shanahan, as I mentioned in my opening
6 statement, basically the Space Corps is roughly 16,500
7 personnel. What you will create is 1,000-person, sort of,
8 overhead. That is the highest, you know, overhead-to-
9 operation ratio within the military service, by a great
10 deal. For example, the Air Force has 2300 personnel in
11 their headquarters, and 320,000 airmen and airwomen. So,
12 how do we avoid that? And why didn't we think harder about
13 coming with a leaner structure?

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

21 Senator Reed: Madam Secretary?

22 Dr. Wilson: Thank you, Mr. Chairman.

23 We -- when the Department went through this whole
24 evaluation, we looked at a whole range of options,
25 everything from a kind of JAG corps/medical corps model to a

1 completely independent, standalone department, and a lot of
2 things in between. Where we landed was a Space Force
3 underneath the Air Force so that you don't have to duplicate
4 all the acquisition, budgeting, finance, personnel kinds of
5 functions, but with a member of the Joint Chiefs.

6 Now, if somebody's going to be a Joint Chief, and
7 they're going to have the credibility in the building and be
8 able to operate, they need to have the support of a member
9 of the Joint Chiefs. About -- of the additional personnel,
10 which I think is about 1200, half of those are in the
11 headquarters, which makes for a quite small headquarters for
12 a member of the Joint Chiefs. The other half was proposed
13 to be what is a professional development element to get
14 after the business of developing people. So, it is
15 recruitment, professional development, doctrine center kinds
16 of things, which is not really a headquarters element. So,
17 we did those -- did that costing, and that would be the
18 concept.

19 Senator Reed: Well, thank you, Madam Secretary.

20 And, Madam Secretary, your thinking about this proposal
21 has matured over the last couple of years. In 2017, I think
22 you were -- raised some opposition to a Space Force. And
23 one of the points you made, which I thought was compelling,
24 was the -- you need a joint warfighting team, and this Space
25 Force would, in your terms, be counterproductive in that

1 respect. It would be, not a joint enterprise, but,
2 essentially, an Air Force enterprise, given the distribution
3 of officers and the fact it would be placed under the Air
4 Force. I see a value to the jointness in everything we do.
5 And are you concerned that we might lose that, that this
6 might be more siloed out than a joint enterprise?

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

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

19 Senator Reed: Again, I think -- this is an issue that
20 we'll return to again and again, but there is this tension
21 between creating a service -- a separate service, separate
22 identity, and this notion of jointness, which I think
23 you're-- correctly stated emanated from Goldwater-Nichols
24 and has been, I think, a very effective way to organize our
25 military efforts.

1 One of the issues that has been mentioned several
2 times, Secretary Shanahan, is the sense that, well, now
3 we're unifying our entire effort in space under the Space
4 Corps, but actually we have the National Reconnaissance
5 Office, which has a great role in space, and we also have
6 military intelligence programs that have roles in space, and
7 they're outside this proposal, and there is -- in fact,
8 there is no, at this point, explicit, sort of, linkage to
9 them, other than informal communications. So, are we
10 missing something, here? I think, again, the intent that we
11 suggested in our -- in setting up the unified command was it
12 would be an agency that had all services focused on space
13 and with active participation --

14 Mr. Shanahan: Yeah.

15 Senator Reed: Maybe one good analogy would be Cyber
16 Command.

17 Mr. Shanahan: Right.

18 Senator Reed: -- active participation with the
19 civilian agencies that are in that realm, too. Can you
20 comment?

21 Mr. Shanahan: Sure. The -- you know, the bias in the
22 proposal is toward speed. The proposal we submit really
23 represents the stakeholders that we have control of. Early
24 discussions were with the NRO. And I continue to have
25 discussions with Sue Gordon, principally at the technical

1 level as we start to evolve these new architectures so that
2 we can provision, at one point in time, to do the
3 integration that, technically, I think, will be aligned from
4 the start. The challenge, organizationally, and, I think --
5 you know, when we look at the many stakeholders, there's
6 real work to be done there to negotiate. So, we thought of
7 it as a multi-step process, that eventually there would be
8 more alignment and integration, but not in the first phase.

9 Senator Reed: Thank you, Mr. Secretary.

10 Thank you, Mr. Chairman.

11 Chairman Inhofe: Thank you, Senator Reed.

12 Senator Fischer.

13 Senator Fischer: Thank you, Mr. Chairman.

14 Secretary Shanahan, if I could just follow up on the
15 NRO a little bit. Are you saying that, at the onset, now,
16 of the Space Force, you didn't feel a need to have that
17 included, but, possibly down the line, you would? Did I
18 understand that correctly?

19 Mr. Shanahan: There is a need. It was an issue of
20 timing. So, if we could do it all concurrently, that would
21 be ideal. I don't think we can move that quickly. So,
22 rather than delay, we said, "This is what we can do
23 immediately, provision for that integration and realignment
24 in time."

25 Senator Fischer: Will that affect the need to unify

1 the national security space activities? Do you see that as
2 possibly a detriment in trying to unify? We keep hearing
3 about unification. Is -- obviously, you don't think of that
4 will be a detriment.

5 Mr. Shanahan: Well, I'd rather do more, sooner. I
6 mean, this is really about, How do we move out quick -- the
7 proposal we've put together is really a threat-driven
8 proposal, so as quickly as we can get after the threat, we
9 want to move. If we could do more, we'd like to do that. I
10 think some of the organizational -- you know, this is really
11 more about how to -- the equities of stakeholders. If we
12 could, you know, resolve some of those more quickly, we
13 would, you know, incorporate more.

14 Senator Fischer: Okay, thank you.

15 Secretary Wilson and General Hyten, can you offer your
16 views on the NRO and Space Force?

17 Madam Secretary, if we could start with you, please.

18 Dr. Wilson: Senator, the National Reconnaissance
19 Office was a black program established -- or secret program
20 established between the Air Force and the CIA a long time
21 ago. In 1992, it was -- its existence was acknowledged.
22 But, while it was a black program, it was headed by the
23 Under Secretary of the Air Force, who was simultaneously the
24 head of the NRO. That ended in 1992, and the NRO became a -
25 - had its own director, who was not the Under Secretary of

1 the Air Force. There remains a very deep connection between
2 the Air Force and the NRO. About 40 percent of the people
3 in the NRO are airmen. The rest are civilians or CIA
4 employees. So, there is a deep organic connection there.
5 And we have deepened the already close connection between
6 military space and space elements of the intelligence
7 community over the last several years. And that's because
8 many of the things we'll have to protect are actually NRO
9 assets. So, deepening that connection is important. It may
10 not require actual structural change in the organizational
11 chart. And we'd be happy to work with you on kinds of
12 things that might continue to deepen that already very close
13 connection between the Air Force and the NRO.

14 Senator Fischer: Thank you.

15 General Hyten, do you have anything to add?

16 General Hyten: Yes, ma'am, just a couple of things.

17 I think, first of all, we should recognize that right
18 now the partnership between the National Reconnaissance
19 Office and the Air Force is as strong as it's ever been.
20 And I've been working with the National Reconnaissance
21 Office for well over 30 years. And it's very strong.

22 The second piece is that there's no doubt that the
23 Space Force of the future will have to have a very strong
24 relationship with the National Reconnaissance Office. The
25 administration recognized this in Space Policy Directive 4

1 that gave us 180 days, which I think is out to the middle of
2 August, to come back with a report that said this is how we
3 would partnership -- partner with the National
4 Reconnaissance Office and the broader intelligence community
5 in the future. I hope we can do that faster than August,
6 because that partnership is very important to the future.

7 Senator Fischer: Okay, thank you.

8 General Dunford, there's a tension between the desire
9 for a streamlined effort unified under one roof and the
10 desire for a joint integrated approach, here. This was
11 Admiral Rogers' concern and the reason he actually opposed
12 the creation of a separate force for cyber. In our attempt
13 to unify space activities, are we running the risk of
14 creating another silo, here? And we're going to surround it
15 with a silo, and we're going to distance it from other
16 services? And how do we make sure that space is going to
17 remain integrated?

18 General Dunford: Thanks, Senator.

19 You know, Senator, in my assignment, what I've kind of
20 come to learn is that the real strength of jointness is
21 actually diversity of perspective brought by different
22 services and organizations. But, what's key is to leverage
23 that diversity of perspective in processes that make sure we
24 have coherent force development, force design, command and
25 control, and planning. And I think those three areas are

1 how we bring the joint team together.

2 But, I'm not at all concerned about a silo of space.

3 The key is to have individuals that are singly focused on

4 space, and make sure we incorporate that perspective, that

5 very healthy perspective, into the outcome, which is a Joint

6 Force that can fight.

7 Senator Fischer: Okay. Thank you.

8 Thank you, Mr. Chairman.

9 Chairman Inhofe: Thank you, Senator Fischer.

10 Senator King.

11 Senator King: Thank you, Mr. Chairman.

12 Thanks, to all of you.

13 In Maine, there are certain basic principles of life.

14 One is, you don't drive on the ice after April 15th. Second

15 is, you hate the Yankees. And third is, if it ain't broke,

16 don't fix it. My impression is, you all are doing a good

17 job. We are getting the data that we need, we're getting

18 the support from the Air Force, we're working together with

19 the NRO and other agencies, and, as I think many of you, or

20 all of you, have testified, we're dominant in space right

21 now. I understand the threat, and I understand our

22 adversaries are moving forward, but I don't understand how

23 adding a box to an organizational chart is going to give us

24 some kind of qualitative military edge, to use a term that

25 we've heard in this committee.

1 General Hyten, I'm like the Chairman, I'm genuinely
2 undecided, although, as you can tell, I'm skeptical. I
3 don't think it's broken. I think you're doing a good job.
4 Why are we going to fix it?

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

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

14 General Hyten: Well, there's two problems we have to
15 fix. One, we have to have a commander focused on it all the
16 time from an operational perspective. That's the Space
17 Command issue we talked about.

18 Senator King: And I agree, I think that's the answer,
19 frankly.

20 General Hyten: And the second piece, Senator, is, we
21 have to have somebody in the Pentagon that focuses their
22 total attention on space all the time. The -- I've known
23 every Chief of Staff of the Air Force for the last 20 or 30
24 years, and they've all carried space effectively into the
25 tank. They've all cared about space. But, it is a

1 secondary issue. And, as they've cared about space in the
2 tank, the Pentagon has built a structure around them with
3 dozens and dozens of people and organizations that are all
4 in charge of space in many ways. I had one Chief of Staff
5 tell me -- well, I can't -- I won't share the exact words
6 that he told me, but --

7 [Laughter.]

8 General Hyten: -- it was very difficult to walk around
9 the Pentagon and not bump into somebody who said they were
10 in charge of space. So, the goal is to put one person in
11 charge of space, a four-star Chief of Staff --

12 Senator King: And I understand that, too, but one of
13 the problems with this proposal is, it doesn't put one
14 person in charge of space, because we've got NRO, we've got
15 NASA, we've got the private sector, which is very active in
16 space -- and, by the way, I am not suggesting that NRO and
17 those other agencies -- NGA -- should be absorbed into this.
18 That's the last thing I want to propose. But, again, if the
19 argument is, we need a centralized authority, we don't have
20 it here.

21 And the other piece that I don't understand is, you
22 talk about a Space Force. That implies people. Nobody's
23 going to go up and fight in space. We're not talking about
24 soldiers, here. We're talking about acquisition, design,
25 and placement of hardware. And that's an important

1 function, but I just don't understand why this has to be in
2 a particular special box. I think Space Command makes
3 sense. I understand that. But, to create a new bureaucracy
4 that's going to cost us half-a-billion dollars a year, I've
5 got to be convinced that there's some incremental value
6 there.

7 Mr. Secretary, you want to tackle that?

8 Mr. Shanahan: I'd love to, thank you.

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

20 Senator King: But, isn't that the combatant commander
21 of the Space --

22 Mr. Shanahan: Correct.

23 Senator King: -- Command?

24 Mr. Shanahan: Correct. So, that's one.

25 Then the second piece -- and this is where I think you

1 were headed -- is, Why does that new box, called the Space
2 Force, create a lot of value? There's two major changes
3 that we have to get after. One is, How do we
4 professionalize the generation of this cadre of space
5 specialists? Today, it isn't a formal training and
6 development program, a recruiting program --

7 Senator King: But, again, couldn't that take place in
8 the context of the Space Command? It's a combatant command.
9 It's --

10 Mr. Shanahan: Yeah.

11 Senator King: -- going not have --

12 Mr. Shanahan: Yeah.

13 Senator King: -- personnel and a mission.

14 Mr. Shanahan: It could. It could. And this is a --
15 this is what the Space Force is intended -- man, train, and
16 equip, like the other services. The equipping part is the
17 other major component, here. So, as we look to modernize
18 across the Department -- and this is an area where the
19 Department has struggled over time, and this is the most
20 significant modernization in 30 years -- do we have the
21 bandwidth and capacity, the focus, and the accountability to
22 drive that? That's what this really gets after, so that,
23 when we do modernize, we execute to the schedule, we execute
24 to the budget, but, more importantly, we deliver the
25 technical capability at a department hole, not by service.

1 Senator King: I appreciate that. Thank you.

2 Thank you all. Thank you for your testimony.

3 Thank you, Mr. Chairman.

4 Chairman Inhofe: Thank you, Senator King.

5 Senator Cotton.

6 Senator Cotton: Thank you for your appearance today

7 and for your work on this very important problem.

8 I want to share the sentiments of several members of
9 this committee who say that space is, unfortunately, now a
10 contested domain, and our enemies are putting weapons in
11 space and they're targeting our assets in space, and that we
12 don't really get a choice to whether we want to fight in
13 space. We only get a choice of whether we want to win or
14 lose in space. I know you've all put a lot of effort into
15 thinking through that problem. As to the members of this
16 committee, I think you'll see it's not really a partisan
17 matter, either. It's a -- but, it's a major question, and I
18 think we're all committed to getting it right, not getting
19 it fast.

20 I do want to continue on the line of questioning that
21 Senator King started. And I want to start with your
22 perspective on this, General Hyten, as a combatant
23 commander. You said, rightly so, that space can never be
24 more than your third priority, given your priorities of our
25 nuclear strategic forces. You can imagine a world in which

1 those nuclear strategic forces would have been their own
2 service, you know, whether -- where we would have put our
3 missiles and our ballistic missile submarines and our
4 strategic bombers, in addition to our command-and-control
5 functions, into a separate nuclear forces, if you will. We
6 didn't do that. We have Strategic Command to do that. Can
7 you explain why we need to put all space assets, space
8 forces, into a separate service, as opposed to a combatant
9 command?

10 General Hyten: Yes, sir. Thank you, Senator.

11 The -- when you look back at the history of our nuclear
12 forces, the three basic capabilities are the submarine-
13 launch ballistic missiles, the intercontinental ballistic
14 missiles, the ICBMs, and the bombers. And if you look at
15 how those systems operate, the submarine clearly operates in
16 the maritime domain. The bombers and the ICBMs operate in
17 the air domain. And so, the expertise you need to operate
18 those weapon systems come from the domain expertise you
19 achieve from the Air Force and from the Navy. When you look
20 at the space capabilities that we operate -- satellites,
21 rockets to get us into space -- the capabilities there
22 require expertise in the space domain. That's the
23 difference between the legacy of Strategic Command, which
24 then took domain-focused capabilities and put it together
25 into one unified command, and a Space Force that will take

1 another domain capability together and put it into another
2 unified command.

3 Senator Cotton: Those capabilities, though -- I mean,
4 to me, they do seem pretty Air Force-centric. They don't --
5 I mean, I understand -- I see General Dunford looking at me--
6 - that the Marine Corps and the Army uses space assets a lot
7 to fight. It's critical to our way of fighting. But, you
8 know, unless, as Senator King said, we're going to have a
9 large number of actual soldiers in space fighting, and they
10 need a different set of skills, this is primarily going to
11 be about technology and acquisitions and so forth. So, I
12 think what a lot of us on the committee are trying to figure
13 out is, What's the incremental advantage of having a
14 separate Space Force, like the Marine Corps is to the Navy,
15 within the Air Force, as opposed to, say, the Air Force
16 having the training and equipping function that the five
17 services have for a combatant command like yours, for the
18 geographical commands, and, you know, the Central Command or
19 European Command or so forth?

20 Secretary Wilson, that may be a question for you to
21 take.

22 Dr. Wilson: Thank you, Senator.

23 I would just add one thing to what General Hyten
24 mentioned, which is the importance of the development of
25 space professionals. And I think that that's an important

1 thing for the committee to consider, particularly the
2 potential advantage of separating out promotions for Space
3 Force members, and particularly Space Force operators, that
4 that would be a benefit, and to be able to promote to need
5 rather than just take the chance that you will get the right
6 numbers of people. That's particularly important for small
7 career fields.

8 And I also think that continuing to strengthen
9 professional development around space and space warfighting
10 is important. Obviously, we're moving forward with this,
11 irrespective of what decision is made by the Congress and
12 the administration on formal structures. But, the shift to
13 warfighting, things like we're -- we've established the
14 Schriever Scholars this year, which is a specific area of
15 professional military education on space, opening
16 undergraduate space training to allies, going to 4 months on
17 the floor operating systems to 4 months of training in
18 combat operations for a space operator. So, that shift of a
19 culture to warfighting and professional development is
20 actually -- it's an important element for your
21 consideration.

22 Senator Cotton: Secretary Shanahan, I see you're
23 reaching for your button. You can respond, if you'd like.
24 I had one question for General Dunford before the Chairman
25 gavels me down. But, if you'd like to respond --

1 Mr. Shanahan: I know I'd -- you know, part of this --
2 and I'm hoping this gets conveyed today. Five years from
3 now is going to look much different. And I think sometimes
4 we look through the lens of today, and we extrapolate going
5 forward. But, you know, there's going not be, literally, an
6 explosion of thousands of satellites. You think of just the
7 growth in space. You think about this contested
8 environment, and then how quickly we need to be able to
9 adapt commercial innovation, and then, you know, the Army's
10 going to modernize their C2 system, the Navy's going to
11 modernize their C2 system. We have all this modernization
12 going on concurrently. So, how do we organize ourselves to
13 able to accomplish this amount of change in an environment
14 that's getting, you know, increasingly dangerous? That's
15 really what we've tried to do, here, so we could dedicate
16 the skill and the resources to be able to move quickly
17 instead of bureaucratically trying to organize ourselves
18 across so many different organizations.

19 Senator Cotton: General Dunford, you look like you're
20 about to push your button. Do you want --

21 General Dunford: I was waiting for you.

22 Senator Cotton: Well, I think the Chairman's going to
23 gavel me down.

24 I will say this, though, before my time expires. Bob
25 Gates, who I think is one of the finest Secretaries of

1 Defense that we've had, wrote, in his most recent book,
2 "Passion for Leadership," that normally when you face a
3 bureaucratic challenge, moving boxes around is not the right
4 solution. That doesn't mean it's the wrong solution here,
5 but he said that normally what you need is a cultural change
6 from your leadership. Whatever happens in this year's
7 National Defense Authorization Act, I want to commend you,
8 Secretary Shanahan, General Dunford, Secretary Wilson,
9 General Hyten, for the cultural change you've driven inside
10 the Department to recognize that we need to significantly
11 increase the level of our capabilities in space, given what
12 we face in Russia and China, because your leadership on this
13 has been very strong.

14 Thank you.

15 Chairman Inhofe: Thank you, Senator Cotton.

16 Senator Peters.

17 Senator Peters: Thank you, Mr. Chairman.

18 And thank you for all of your testimony today.

19 I just want to concur with what I'm hearing from my
20 colleagues. I don't think there's any disagreement from
21 folks on this committee that space is something that we need
22 to focus a great deal on, that it is now a contested domain
23 in ways that simply didn't exist in the past, and we need to
24 do a better job of coordinating and integrating space into
25 our overall defense strategy. But, I think our question is

1 that this approach that we're being -- that we're looking at
2 is just going add a whole lot more cost. At a time when the
3 Department of Defense needs to be a whole lot more nimble,
4 has to be a whole lot more innovative, and has to be able to
5 do more with less, because we can't just keep throwing money
6 after dollars after dollars, when there are so many other
7 needs that we have in our economy, here. But, I would like
8 to have folks coming to the committee, saying, "We can do
9 this, and we can do it more efficiently, and we can have
10 more lethality, and we'll be able to defend American
11 interests, and do it in a cost-effective way." And I'm not
12 hearing that.

13 And, Secretary Wilson, I'm going to -- you know, I hate
14 doing this, but I think it's important, because I think you
15 said this best of anyone. In 2017, after a meeting with the
16 Senate Appropriations Subcommittee talking about the Space
17 Force you said, quote, "The Pentagon is complicated enough.
18 This will make it more complex, add more boxes to the
19 organization chart, and cost more money. If I had more
20 money, I would put it into lethality, not bureaucracy."
21 Secretary Wilson, I think that's profound. I agree.

22 The Air Force Chief of Staff went a step further and
23 stated, quote, "If you're saying the word 'separate' and
24 'space' in the same sentence, I would offer you're moving in
25 the wrong direction. That's why the Secretary and I are

1 focused on how we integrate space. Every mission that we
2 perform in the U.S. military is dependent on space. Now is
3 not the time to build seams and segregate and separate.
4 It's time to integrate."

5 And I couldn't agree more with those statements. I
6 haven't heard any kind of refuting of those very strong
7 statements.

8 And if I think about growth of bureaucracy, all we have
9 to do is look at the past of agencies. And, inevitably,
10 folks come and say, "We're going to do this efficiently, and
11 it's going to be different this time." I'm the Ranking
12 Member on Homeland Security and Government Affairs
13 Committee, which, of course oversees the Department of
14 Homeland Security, and when we stood up that Department -- I
15 mean, just look at what has happened in that Department over
16 the years. Since 2005, the DHS's department management
17 operations staff responsible for functions, including
18 legislative affairs, public affairs, general counsel, has
19 grown at a very large rate. What started at 723 employees
20 now is close to 2600 employees. Bureaucratic organizations
21 always grow. I've never seen a bureaucratic organization
22 that actually shrinks. And this one is particularly rank-
23 heavy, which is -- usually has its own bureaucracy that
24 comes as ranks increase. And, essentially, the proposal
25 would have two four-star generals and an Under Secretary in

1 charge of the organization the size of a marine
2 expeditionary brigade, which is usually commanded, as you
3 know, General Dunford, by a brigadier general who is
4 conducting operations in both the air and land domains, very
5 complex, contested environments. And we're going to be
6 adding an incredible number of folks in what is being done
7 officially in other places around the Department of Defense
8 now.

9 So, my question is, What would happen to the end
10 strength of the existing services if personnel are
11 transferred to the Space Force? Would the Air Force, Navy,
12 and Army backfill those positions, or are we looking to
13 reduce the end strengths of those forces as we create this
14 new bureaucracy?

15 Secretary Shanahan?

16 Mr. Shanahan: We would not backfill the end strength.

17 Senator Peters: So --

18 Mr. Shanahan: It would be net zero.

19 Senator Peters: So, we would see a reduction.

20 Mr. Shanahan: When --

21 Senator Peters: In those other areas, because --

22 Mr. Shanahan: Yes.

23 Senator Peters: -- we're removing --

24 Mr. Shanahan: Yes.

25 Senator Peters: -- them.

1 Mr. Shanahan: Yes.

2 Senator Peters: I also -- we've talked about -- and
3 Senator Reed brought it up, which I think is important -- is
4 the jointness factor. And that certainly was one of the
5 important and, I think, paramount achievements of Goldwater-
6 Nichols, to make sure that we're fighting jointly. And
7 that's why I concur with some of the comments I've heard
8 from my colleagues on having the joint command structure.
9 But, if the creation of the Space Force is approved and we
10 consolidate all of the service space equities into one
11 branch, the unified U.S. Space Command will only have one
12 service as a force provider, is my understanding.

13 General Dunford, how does this proposal fit into
14 Goldwater-Nichols? And how do you propose senior officers
15 in the Space Force would broaden and gain joint experience
16 if we're consolidating all space equities into a single
17 service providing force for a single functional combatant
18 command?

19 General Dunford: No, Senator, I think it's a great
20 question. And, for clarity, I would envision that each of
21 the services would still have expertise at the staff
22 planning level to employ space capabilities, and then also
23 the necessary tools to take advantage of space. So, ground
24 systems, staff planners, and those kind of things would be
25 in the other services. But, Senator, from where I sit now,

1 particularly as a former Joint Force commander, operational,
2 and as the Chairman, I mentioned, a minute ago, the
3 diversity of perspective actually brings strengths to the
4 Joint Force. So, I don't have concerns about Space Command
5 being a cylinder of excellence, if you will, because it's
6 largely a single service. I think it's imperative, on the
7 Joint Force, to make sure that, in force development, force
8 design, in command and control, and on our planning, we
9 leverage that diversity that each of the services brings.

10 My perspective is -- and I'm -- I was probably where
11 many members of the committee are today, 2 years ago:
12 skeptical that we're moving in the right direction. And, at
13 the end of the day, I asked the question -- we have a space
14 domain now. It is a warfighting domain. What is the
15 optimal organizational construct to make sure that we're
16 positioned to fight in space? And that's where I've landed
17 now on the Space Force. And so, I do believe that the
18 framework within which we develop joint capabilities will
19 allow us to leverage both Space Command, the operational
20 element here, as well as Space Force, the train, organize,
21 and equip organization.

22 Senator Peters: Thank you.

23 Chairman Inhofe: Thank you, Senator Peters.

24 Senator Rounds.

25 Senator Rounds: Thank you, Mr. Chairman.

1 First of all, let me just say, to all of you, thank you
2 for your service to our country. I most certainly
3 appreciate all of the expertise that you provide.

4 And, once again, Secretary Wilson, it has been truly an
5 honor and a privilege to be able to work with you, and we're
6 going to miss you.

7 I have to share with you all. I guess I'm openminded
8 as to whether or not this is a good idea, or not. But, at
9 the same time, I think all of us have an obligation to come
10 in, in a sense, to be skeptical, because what we have right
11 now appears to -- as you've all indicated, we have the best
12 with regards to our approach right now to space, compared to
13 our near-peer competitors. And so, what we're trying to do
14 is to make improvements for the long term based upon the
15 issues that we see that we're not able to do as well as we
16 would like to. I see the Air Force, though, in many ways --
17 having learned a lot from previous projects and so forth,
18 the Air Force, right now, has a B-21 project which is not
19 only on time, it's on budget. It would appear to me that
20 there are acquisition processes within the Air Force right
21 now that are showing improvement, that we're actually seeing
22 that work its way through. And I'm wondering what it is
23 within the space processes that would be different, and why
24 it is that space is a challenge.

25 I'm also trying to figure out what happens when we

1 start talking about this new bureaucracy. We've actually
2 considered the fact that we want to -- if I'm not -- if I'm
3 understanding this, that we would actually have a general
4 officer, a Chief of Staff, who would be a four-star,
5 responsible for the Space Force, but we would also have
6 another individual who would serve as commander of the U.S.
7 Space Command.

8 Let me just start with this. Any possibility that we
9 could follow the same guidelines as we found within
10 CYBERCOM, where we have a dual-hatted position? Has that
11 been considered as one way to perhaps promote some
12 efficiencies in this proposal?

13 I'll start with Secretary Shanahan, and if you'd like
14 to pass that off, you're welcome to, sir.

15 Mr. Shanahan: No, I -- let me start there, and add on
16 to your comments about the B-21.

17 The first is, let's say we did have the dual hat. And
18 you just look at the work that that individual would be
19 accountable to deliver. It's too much work. When I just
20 look at it, it's -- and if it was General Raymond, it would
21 be too much work, given what's taking place across the
22 Department. So, it's just a bandwidth. I would offer -- if
23 we were to compare acquisition processes to the B-21, in our
24 situation we have the opportunity to take advantage of
25 innovation that's taking place in the commercial sector.

1 And the B-21 is really, you know, indigenous. We're going
2 to have to make changes to our acquisition processes in
3 order to be able to take advantage of all of this new
4 technology and innovation.

5 Senator Rounds: Would not a Space Force have the same
6 unfortunate bureaucratic problems that the Air Force has to
7 deal with today?

8 Mr. Shanahan: That was the nature of the Space
9 Development Agency. Carve the development portion out so
10 that we can address the bureaucratic red tape of acquisition
11 so we can really leverage the commercial innovation and the
12 fact that how we design is going to be fundamentally
13 different because it's now a contested environment.

14 Senator Rounds: You know, this wouldn't be the first
15 time that we've made a change like this. I mean, this has
16 gone through processes in the past. There is no such thing
17 as a perfect layout. The one we have today is clearly not
18 perfect. It could be improved upon.

19 And, General Dunford, I see that you were looking over
20 as though you may have something to add to that particular
21 thought.

22 General Dunford: Senator, do you mind if I address the
23 dual-hat issue?

24 Senator Rounds: Yes, sir.

25 General Dunford: So --

1 Senator Rounds: Go ahead.

2 General Dunford: -- when I look at General Nakasone,
3 the benefit of the dual-hat arrangement up there is, he's
4 able to combine intelligence with cyber capabilities to
5 quickly execute operations. And we saw, combined with
6 authorities, the benefit and the power of that last fall in
7 protecting our democracy.

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

18 Senator Rounds: Let me just ask a couple of real quick
19 questions. General Hyten, I'm going to come right to you
20 with this, because clearly you have a number of these items
21 under your responsibility right now, but let me just run
22 this by and --

23 Satellites are going to be separate right now, in terms
24 of maintaining the NRO separate, number one. Number two,
25 what about hypersonics? Whose role is this going to play,

1 and how does that fit into this whole process? Are we going
2 to find that under a Space Force or a Space Command, or is
3 that going to remain separated out?

4 General Hyten: Well, you'll organize the structure of
5 the weapons that we're building and the capabilities that
6 we're building based on the organization with the best
7 expertise. I think the Space Force structure will likely
8 build the sensors that will see hypersonics. But, I think
9 the other services will more likely build the hypersonic
10 capabilities, because they will operate in their domains.
11 The hypersonic capabilities we're talking about right now
12 are not space capabilities, they operate from the sea, from
13 the land, from the air, through the air. And so, that
14 structure makes sense to go through there.

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

1 So, we're going to have a Space Force someday. I think
2 what the committee has to decide is, When is that going to
3 happen? And I think now is the time to go to Chairman said,
4 Do you want to get ahead of the problem, not trail it, not
5 come in the response to a catastrophe, get ahead of the
6 problem?

7 But, I hope everybody understands, I love the uniform
8 that I wear.

9 Senator Rounds: Thank you.

10 Chairman Inhofe: Thank you.

11 Senator Rounds: Thank you, Mr. Chairman.

12 Chairman Inhofe: Thank you, Senator Rounds.

13 Senator Jones.

14 Senator Jones: Thank you, Mr. Chairman.

15 Thank you all for being here today.

16 I think you can understand -- or I hope you can
17 understand that, while this committee seems to be open to
18 this idea, we're still seeing a lot of generalities after
19 being studied for awhile, and it's -- we're having a hard
20 time grasping. In my -- candidly, unlike some colleagues,
21 my needle may be a little bit more inclined to create a
22 Space Force, but I'm -- still got questions.

23 For instance, Secretary Shanahan and General Dunford,
24 there was a statement that you issued that said, "Current
25 service-specific entities that provide global space

1 capabilities would become part of the U.S. Space Force. For
2 example, the Air Force Space and Missile Systems Center, the
3 Navy Mobile User Objective System, and the Army's Operations
4 of Wide and Narrow Band Global Satellite Communications all
5 become part of the Space Force." But, then you go on to
6 say, "As necessary, DOD components would retain organic
7 space capabilities uniquely required to support the core
8 mission of that military service or defense agency."

9 So, what, exactly, would and wouldn't become part of
10 the Space Force? I mean, do you have a list of the entities
11 that would have, and do we have that list, or can you get
12 that list to us?

13 Go ahead, General.

14 General Dunford: Senator, I can start, and just give
15 you an example. In my own service, the Marine Corps, we
16 don't have space capabilities in the Marine Corps. We do
17 have personnel that are trained in capabilities to take
18 advantage of space. And so, where I see us going is that
19 the preponderance of space capability would be in that
20 single service, the Space Force, but each of the services,
21 because it's -- space is integral to their warfighting
22 capability, is going to have to have expertise inside those
23 services to make sure that space is properly integrated into
24 their warfighting capability, and then they're going to have
25 to have some capabilities to take advantage of space --

1 ground systems and so forth. But, this would move, you
2 know, on order of 95 percent-plus of the capabilities in the
3 Department of space into a single force. So, the -- what
4 would be residual in the other services would be minimal,
5 and it would be designed specifically and only to make sure
6 they can take advantage of space.

7 Senator Jones: Okay.

8 Secretary, you want to add anything?

9 Mr. Shanahan: Oh, absolutely. Senator, if you -- we
10 can come brief you. We've done the architectural and
11 programmatic analysis, service and agency, for over the
12 FYDP. So, I could show you where, today, we have ten
13 different organizations working on similar architectures.
14 This is really not about the systems that we have in place.
15 Wholesale, they stay in place. But, the Department is about
16 to embark on command and control -- new command and control
17 for all the services. We have an opportunity here to have
18 all domain command and control at the Department of Defense
19 level. That's never been an opportunity. And why that's
20 such a big deal -- and that's what the Space Development
21 Agency represents -- is, we're going to have a -- common
22 ground stations, common terminals. The infrastructure
23 that's necessary to really be able to strip out cost and be
24 able to upgrade capability will finally have a baseline
25 that'll allow us to do it. And, you know, I think this is

1 where Senator Peters was. Where does the come from? Ten
2 efforts to one. There's real cost, real schedule, real
3 capability that gets delivered in a much more effective
4 fashion. That's what this proposal is about.

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

10 Senator Jones: All right. On a specific -- you know,
11 just to bring it home to Alabama, is the Army Space and
12 Missile Defense Command at Redstone Arsenal going to be part
13 of the Space Force? Do you know, or do you want to get back
14 to me?

15 Mr. Shanahan: No, actually, you know, it depends which
16 part, because the -- so, when we think of SMDC, you know,
17 some of the critical roles in the SMDC, some of that will be
18 aligned with the Space Force as we do Army modernization.
19 Some of the existing resources that support ongoing, I'll
20 call them, legacy Army operations, they'll stay in their
21 current capacity and in their current alignment.

22 Senator Jones: All right.

23 Secretary Wilson, I'm just going to -- want to ask it
24 in a different way, this question about the need for this.
25 Because I've read statements of yours in the past, where you

1 have talked about the need for a Space Command versus Space
2 Force, maybe not both. Let's put aside the fact -- and I
3 get it about acquisition. I see that. I -- but, I
4 sometimes think that that could done within the Air Force.
5 But, let me just put it this way. Had the President of the
6 United States not issued an order about creating this -- and
7 you're -- you have been the Secretary now for a couple of
8 years -- would this be something that you would be coming to
9 the Senate Armed Services Committee, recommending, after
10 having served 2 years as Secretary of the Air Force?

11 Dr. Wilson: Senator, I think the President of the
12 United States has done us a service by elevating this
13 conversation and making the challenge we face in space a
14 kitchen-table conversation. And when I came here to be
15 confirmed in front of you 2 years ago, I was told, by a
16 holdover from the previous -- you know, by the folks who
17 were still kind of in the previous administration or holding
18 over or whatnot -- that I had to take out the words "space"
19 and "warfighting" in the same sentence. And look at where
20 we are today. The President has proposed, and you all have
21 supported, three -- two consecutive years of double-digit
22 percentage increases in the space budget, and there's
23 another one before you today in the FY20 budget. And we're
24 having a hearing on how America needs to dominate in space.
25 And I think we need to give him credit for that.

1 Chairman Inhofe: Thank --

2 Senator Jones: Thank you.

3 Thank you, Mr. Chairman.

4 Thank you for that answer --

5 Chairman Inhofe: Thank you, Senator.

6 Senator Jones: -- Secretary Wilson.

7 Chairman Inhofe: Senator Ernst.

8 Senator Ernst: Thank you, Mr. Chair.

9 And thanks, to all of our witnesses today, for being
10 here.

11 This is obviously very important to all of us, and --
12 but making sure that the structure is right is also very
13 important. I think we've determined that it's a necessity.
14 It's just how we establish the forces.

15 So, I hope we can get this sorted out. I'm going to
16 throw -- I know we've talked about this so many times over,
17 in so many different ways. We've given a lot of different
18 examples of different types of structures of organizations
19 within our military. I guess we need some convincing that
20 there is a necessity for a sixth branch within our Armed
21 Services.

22 We do have the United States Special Operations
23 Command, SOCOM, and its components. They were stood up to
24 organize, train, and equip our Nation's special operators,
25 and they were established to address a gap in our

1 warfighting construct without standing up a separate branch
2 of service. So, with that, we have Naval Special Warfare,
3 we have MARSOC, we have USASOC, and we've got AFSOC, all of
4 our branches represented within SOCOM. So, why is that not
5 a great example, then, of what we could do for a Space
6 Command instead of a Space Force? Could somebody address
7 that?

8 Mr. Shanahan: I'd be happy to do that. Let me just
9 start with -- in my previous life, I did weapon system
10 development for SOCOM, and I've done weapon systems
11 development for space, and then also the Missile Defense
12 Agency. So, a full spectrum of different classes of
13 engineering and different levels of complexity. The SOCOM
14 model is very much different than what we're proposing. And
15 that's what you're recognizing.

16 In the SOCOM model, the very advanced engineering is
17 actually done by the service. And in this model, it would
18 be the same. So, the advanced capability would be done by
19 the Space Force. So, there's similarity. The actual
20 research and development that's done by SOCOM today -- so,
21 today, if we just looked at the budget, it is about 600
22 million. If we look at what's in the Air Force today, it's
23 about 11 -- I'm thinking it's -- it's 11 billion in
24 acquisition. It's about 8 billion in RDT&D. It's a
25 different scale, and the complexity of the engineering and

1 the complication is just a different class. So, I would
2 just argue, it's different missions and different scales.
3 And I think it would be much more difficult to manage in
4 that environment, given the amount of acquisition we're
5 going to do as a Department, going forward.

6 Senator Ernst: I understand the acquisition
7 challenges. I would say that right now, as well, we also
8 have challenges with personnel, simply, to move into a Space
9 Force, and what those requirements might be.

10 And, Secretary, I know we had spoken, just several
11 weeks ago, about maybe some of the challenges. Because
12 anytime we do stand up -- even if it's a brand-new unit,
13 just somewhere, you know, whether it's a company or a
14 battalion, I mean, you're trying to field new positions.
15 And could you address for me the challenges with pulling a
16 lot of talent, primarily from our Air Force, but also from
17 some of our other service branches, and the implications of
18 what that might do to hollow out some of the other forces
19 with that talent, and just some of the challenges we'll face
20 in filling some of those topheavy slots?

21 Secretary, can you address that, maybe?

22 Dr. Wilson: Senator, with respect to the people, I
23 think the -- part of this has to do with at what timescale.
24 How do we develop our people, and then how do we gradually
25 promote them and get them ready to take on positions of

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

8 Senator Ernst: So, as we're looking -- and, again,
9 understanding that these are decisions that will be made
10 along the way -- but, what kind of timeline will it take to
11 fully establish a Space Force rather than a Space Command?

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

22 Senator Ernst: Okay. That sounds very fast, actually,
23 to stand up a whole separate branch of service, but it is
24 something that we'll continue to look at, as Congress.

25 I appreciate the input that you've all provided here

1 today.

2 Thank you very much.

3 Chairman Inhofe: Senator Kaine.

4 Senator Kaine: Thank you, Mr. Chair.

5 And thanks, to the witnesses.

6 I have appreciated my colleagues' questioning. I think
7 they've addressed a lot of the questions I have. And I want
8 to take it in a different direction -- I would say, take it
9 to 30,000 feet, but we're talking about a Space Force, so I
10 should probably call it a low-Earth orbit -- and talk about
11 problems in space and how we're going to deal with them.

12 And maybe if we talk about problems, then we could work
13 backward to structure.

14 So, here's a recent one that I was interested in. Just
15 in the last couple of weeks, March 27th, India announced
16 that it had successfully conducted a test of an anti-
17 satellite weapon, so they had something in low-Earth orbit
18 that used an anti-satellite weapon to knock it down. And it
19 resulted in, the estimates right now, 400 pieces of debris,
20 24 of which are large enough to potentially pose a threat to
21 the International Space Station. There have been other
22 instances like this. There was a Chinese similar effort in
23 2007 that led to the -- cataloged 100,000 pieces of debris,
24 many of which are still observing in debris fields that pose
25 danger to other assets in space. There was a collision in

1 '09 between a working U.S. satellite and a sort of defunct
2 Soviet-era satellite that -- kind of a fender bender that
3 produced debris. And then this debris causes challenges.

4 If we think that space is going to be more of a traffic
5 jam, more satellites for all kinds of purposes up there,
6 what should we be thinking about, as a Senate, in this
7 committee or in Foreign Relations, about, sort of, the
8 rules? What should the rules environment be, and what
9 should we be doing to try to promote rules? India's an
10 ally. We're not talking about an adversary doing something.
11 We're talking about them testing some capacity. But, then
12 that creates challenges for all kinds of uses of space. How
13 should we be solving problems like that?

14 General Hyten, you looked like you wanted to jump in.

15 General Hyten: So, Senator Kaine, I think it -- the
16 first lesson from the Indian ASAT is just the simple
17 question of, Why did they do that? And the answer should be
18 simple, I think, to all the committee looking at it, is that
19 they did that because they're concerned about threats to
20 their nation from space. And therefore, they feel they have
21 to have the capability to defend themselves in space.

22 Senator Kaine: And can I just interrupt for a second?
23 And I think they have a second concern, as well, that
24 there's no rules right now, there may one day be rules, and,
25 often, when we write rules about this, we benefit those who

1 already have the technology and say, "Okay, you already have
2 it, we'll establish rules for you," but then we usually
3 establish nonproliferation for rules for everybody who
4 doesn't. So, if they're concerned about the weaponization
5 of space, they want to be able to get in there first so
6 that, if the rules are created, they -- they're sort of
7 grandfathered in. I think that's part of the issue.

8 General Hyten: Well, the second issue, from my
9 perspective, is that -- I've advocated, for a long time, for
10 the development of some kind of international norms of
11 behavior in space. And where those norms of behavior should
12 begin, from my opinion, is with debris. Because I don't --
13 as the combatant commander responsible for space today, I
14 don't want more debris.

15 Senator Kaine: Yeah.

16 General Hyten: But, we don't have any international
17 conditions that say that that's not a good thing.

18 Senator Kaine: And you would think that even our
19 adversaries would have the same concern about the debris
20 effect on their program. So, that should be something where
21 there could be some international common ground and ability
22 to find rules of the road.

23 General Hyten: And I think that's how it should be
24 worked, in an international perspective, to start walking
25 down that path to make sure that space can be used for

1 future generations. Because if we keep creating debris in
2 space, eventually we're going to get to the point where it's
3 very difficult to find a place to launch, very difficult to
4 find a place to put a satellite, to operate a satellite
5 without having to maneuver all the time to keep it away from
6 debris. All those kind of things are very complicated.
7 But, it has to be worked in an international perspective.
8 And I hope we get there --

9 Senator Kaine: What is the international forum, or
10 what is the international group that could do something like
11 this?

12 General Hyten: I'll continue --

13 Senator Kaine: Yeah.

14 General Hyten: -- Senator Kaine. The place where
15 that's debated now is in the United Nations in a Committee
16 on Peaceful Uses of Outer Space. That's where that is
17 debated, mostly. And the United Nations is a good place.
18 But, I would like to think the United States could take a
19 leadership role in that, working with our allies to define
20 what we believe is the proper norms of behavior in space,
21 and then bring that into the broader international
22 community. It's very difficult, when you -- if you try to
23 work something like this in the broad context. And that's
24 clearly a State Department-led function. Others in the
25 government will lead that. But, from a military

1 perspective, it's important, I think, that we have those
2 structures.

3 Senator Kaine: I mean, there is some concern that
4 adversaries create debris intentionally, too. If they
5 create debris fields, that can then, you know, prohibit
6 access to portions of space. One of the most scintillating
7 Federal publications is NASA's Debris Quarterly that NASA --
8 but, NASA has an office whose job is to monitor debris so
9 that those of us putting up satellites so we can get Sirius
10 in our car are not going to be affected by that. I mean, so
11 this is an issue that really needs some rules.

12 I think, Secretary Shanahan, you were about to say
13 something.

14 Mr. Shanahan: Yeah, I was just going to, maybe, add on
15 to your comment when you said, "What are some of the areas
16 that we should be spending more time as a committee or a
17 body?" Space is clearly one. Cyber is another one of those
18 domains that needs a better rule set. You know, AI and
19 autonomy, all these new technologies are going to unlock
20 enormous, you know, very positive capabilities, but there's
21 also a downside, and we need to really be investing time to
22 think about those so we can, to the earlier point, set some
23 rules or establish some norms so that someone doesn't take
24 an advantage or, you know, leverage --

25 Senator Kaine: I hope we will play a leadership role

1 in that. I think treaties have kind of gone out of fashion
2 in the Senate. We don't ratify treaties much anymore. But,
3 treaties are necessary. I mean, the notion that we could
4 just have our own set of rules, and a treaty is a bad thing
5 because it involves some incursion into sovereignty -- if we
6 don't have some rules about space, it's going to affect our
7 ability -- we create a Space Force like that, and it's
8 perfect, but we find a lot of the domain is a domain that we
9 really can't adequately invest in because of debris fields
10 or other things, it's going to be to our detriment.

11 Very helpful. Thank you, Mr. Chairman.

12 Chairman Inhofe: Thank you, Senator Kaine.

13 Senator Sullivan.

14 Senator Sullivan: Thank you, Mr. Chairman.

15 And I appreciate the witnesses testifying today.

16 I also appreciate, from the President and Secretary and
17 Chairman, the \$750 billion DOD request. I hope we can move
18 on that. And, you know, appreciate the President putting
19 this idea forward. You can tell that we're all wrestling
20 with it. We're kind of struggling with it, to be honest.
21 It's pretty clear that, watching some of your evolutions,
22 that you've struggled with it, as well, and wrestled with
23 it. And I think that's okay. That's what this committee's
24 supposed to be trying to address.

25 General Dunford, your statement on the fact that reform

1 usually comes after some kind of disaster, that we can try
2 to be preemptive or in front of this, actually, I think, is
3 a very powerful one.

4 And, General Hyten, I think what you're talking about,
5 saying, "This is going to happen at some time in the
6 future," I think you're probably right about that.

7 My questions actually relate to this issue of timing.
8 And let me give you a concern that I have. It relates to
9 readiness of the entire force. So, I commend all of you and
10 everybody else at the Pentagon for working on this
11 readiness. A lot of people forget, 2010 to 2016, the
12 Department of Defense budget was cut by 25 percent, an
13 amount that was almost close to \$540 billion, which is an
14 entire DOD budget here. And we all know that readiness
15 plummeted. I chair the Subcommittee on Readiness, and we --
16 I've held numerous hearings in -- readiness in the force
17 plummeted, period. And what we've all been trying to do --
18 and I commend you and the President and everybody else in
19 this committee, and the Chairman, Ranking Member -- is get
20 the readiness of our five current services back up to the
21 level that the American people expect from all of us and
22 from all of you. That is a hugely important mission.

23 And here's been one of my overriding concerns with
24 regard to the Space Force. Not that it is not important,
25 not that it might not even be a good idea, but I'm concerned

1 that -- is it prudent to take on what would be a fairly
2 disruptive element of a new aspect of the services in the
3 United States military, when the current five services,
4 let's face it, are not up to the level of readiness that
5 they need to be? Do any of you think that we are at the
6 level of readiness that we should be right now?

7 General Dunford?

8 General Dunford: Senator, I'll start. No. And, as
9 you know --

10 Senator Sullivan: So, isn't that a concern, then? I
11 mean, I know you'd think we can walk and chew gum, but
12 shouldn't we try to get to the level of readiness that we
13 all really think we need --

14 General Dunford: Sir --

15 Senator Sullivan: -- and then turn to this?

16 General Dunford: -- let me tell you how I think about
17 this. I don't look at "it's either space or readiness." I
18 actually look at making sure that we have a singular focus
19 on the interdependencies of the Joint Force on space as a
20 readiness issue. We can generate all the squadron and
21 battalion readiness we want, and, if we're not capable of
22 defending ourselves in space and taking full advantage of
23 space from a command-and-control and intelligence-
24 surveillance-reconnaissance perspective, precision
25 munitions, timing of our systems -- if we can't take full

1 advantage of that and we can't protect ourselves in space,
2 battalion or squadron readiness will amount to naught. And
3 so, I view this issue, actually, from my perspective, which
4 is why my evolution on the issue has taken the direction it
5 has, is, I actually now have come to much better appreciate,
6 as a result of our analytic work, the interdependencies on
7 space and the fact that this whole issue of Space Force
8 really is, in my judgment, related to readiness.

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

15 General Dunford: This is, in my judgment, a joint --
16 whatever direction the committee decides to go, this should
17 be addressed as a joint warfighting readiness issue. That's
18 what it is. It's not --

19 Senator Sullivan: Let me --

20 General Dunford: -- an organizational issue. It's a
21 joint warfighting readiness issue.

22 Senator Sullivan: Let me be a little bit more specific
23 as it relates to a readiness concern. This committee, and
24 all of you, have made all of us, together, significant
25 progress with regard to building up our Nation's missile

1 defense. And, Mr. Secretary, you recently said, in
2 testimony, that was vital. I agree with that. I think the
3 whole committee does. It's been very bipartisan. One of
4 the elements, General Hyten, you have mentioned that's
5 actually critical to our Nation's missile defense, is having
6 and deploying as soon as possible space-based sensors that
7 can look at both hypersonics and the ballistic missile
8 threats coming to our Nation. I think it's your number-one
9 unfunded requirement that you've -- you've mentioned that.
10 Again, I think the committee agrees that that's critical.
11 My understanding is that the space sensor layer system is
12 being shifted from MDA, the Missile Defense Agency, to the
13 Space Development Agency, which hasn't even been stood up
14 yet.

15 General Hyten, doesn't something like that almost
16 automatically, in your mind, indicate that we're going to
17 have a delay in deploying a space-based sensor system, which
18 you and others and we all agree is critical to missile
19 defense, when you're taking it out of the Missile Defense
20 Agency into an -- new agency that hasn't even been stood up
21 yet? How can that help with regard to readiness on missile
22 defense? I'm very concerned about that topic.

23 General Hyten: So, I think there's a number of
24 interesting observations. I would say that the Secretaries
25 to my right will probably have an interesting perspective on

1 where they live. Where I live, as the combatant commander,
2 I have a requirement for a space-sensor layer that will see
3 the threats that will enable our deterrent and enable our
4 defense. That's --

5 Senator Sullivan: How quickly can we deploy that?

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

22 Chairman Inhofe: Thank you, Senator Sullivan.

23 Senator Duckworth.

24 Senator Duckworth: Thank you, Mr. Chairman.

25 As I understand it, under its current organization, the

1 Air Force does not have a good track record of being able to
2 effectively manage the prioritization of its missions in
3 both air and space. And so, space frequently falls to a
4 lower priority or lacks a consistent seat at the table. I
5 contrast this with the U.S. Navy, which has successfully
6 managed to prioritize its own air, surface, and submarine
7 missions, to include the establishment of separate training,
8 acquisitions, and doctrinal development centers across these
9 very different domains. Why has this been such a problem
10 for the Air Force under its current structure? And what
11 role does a new U.S. Space Command play in helping
12 prioritize space across departments? And how does that
13 differ or duplicate the intent of the proposed Space Force?

14 Madam Secretary or General, do you want to address
15 that?

16 Dr. Wilson: Happy to. Senator, the biggest shift that
17 we are seeing is the shift from an uncontested domain to a
18 contested domain. Over the last 3 years, including the
19 budget that you have before you, this President, the
20 President's budget -- include double-digit-percentage
21 increases in the budget that are driven by an analysis of
22 the threat, the strategy to meet that threat, the concepts
23 of operations, and the programs to support it. So, I think
24 what you're seeing in the difference between what you
25 described with the Navy is that the Navy has been operating

1 in a contested domain for hundreds of years. The Air Force,
2 in space, has been operating in a contested domain for a
3 much shorter period of time. We have set up and -- the
4 National Space Defense Center. We have schoolhouses and
5 specific focus on space, most of which have been set up in
6 the last decade. So, you're seeing, in the Air Force, that
7 focus.

8 And I would also say that, for the missions and the
9 requirements of the combatant commander, the United States
10 Air Force has provided what the combatant commanders needed
11 in an uncontested environment. So, you know, the Air Force
12 built a glass house before the invention of stones. We now
13 have the invention of stones, and, as "Jay" Raymond said
14 just yesterday to a very large audience, he said, a year
15 ago, that the Air Force was in a 9G turn toward space
16 superiority, and he was wrong. It's a 12G turn. And so,
17 I'm proud of the force that we're presenting.

18 Senator Duckworth: So, how will the U.S. Space Command
19 help prioritize across departments? And will it? And how
20 does that differ from intent or duplication, in terms of the
21 proposed Space Force? I mean, that is a very complex
22 system. You're saying you're standing up a new training
23 and-- do you think you're capable -- just as -- will be just
24 as capable, in the Air Force, to doing multiple things at
25 once, the way the Navy can do it. So, how does this differ

1 between, you know, Space Command and Space Force?

2 Dr. Wilson: Senator, I was trying to explain why I
3 thought the Navy structures were different from the --

4 Senator Duckworth: Yeah.

5 Dr. Wilson: -- way the Air Force evolved with respect
6 to space. But, in the proposal that's before you, one of
7 the elements that's before you, in addition to -- there's
8 the additive personnel that's in the proposal. Some of it
9 is to support the four-star who will be a member of the
10 Joint Chiefs. The other large number of people is to set up
11 a Training and Doctrine Center specifically focused on the
12 challenges of space as a contested domain.

13 Senator Duckworth: So, then the Air Force will send
14 your people to their training programs? Is that what you're
15 saying? Or how does that work?

16 Dr. Wilson: That Training and Doctrine Center would be
17 primarily for members of the Space Force and other officers
18 to get joint experience, and, honestly, also our allied
19 officers. The Air Force has already opened up its Space
20 100, 200, and 300 programs to our allied officers, and we
21 have opened up and created a Combined Space Operations
22 Center, this last year, that includes our allies, in
23 California.

24 Senator Duckworth: Okay. Thank you.

25 I also serve in the Committee on Commerce, Science, and

1 Transportation, so I want to talk a bit about the
2 intersection of military and commercial space assets. As
3 you're all aware, this is an area where we don't yet widely
4 have accepted norms. And we've had that discussion here
5 today already. The multipart proposal we have here would
6 likely increase complications even further. In the realm of
7 great-power competition, we see countries like China, who
8 are rapidly expanding their space presence, but they don't
9 have issues of deconfliction, because their military and
10 commercial assets are intermingled, and they operate almost
11 as a single unit. So, how does DOD and the proposed Space
12 Force plan to work with other Federal agencies and our
13 commercial sector to deconflict with these issues before and
14 while they're arising?

15 Mr. Shanahan: Senator, let me take that one on.

16 The Space Development Agency, in its design, is
17 intended to do, really, four -- undertake four different
18 activities. The first is consolidation, so that we can take
19 all the requirements of the Department, and then to do
20 fundamental systems engineering, so that we can take
21 advantage of a space ecosystem, so everything from, you
22 know, launch to sustainment, and then, by design, tap into
23 the commercial space industry, where significant innovation
24 has occurred. But, for us to actually be able to
25 incorporate that technology, we have to accommodate or make

1 corrections to our acquisition system. Our rules and
2 regulations won't allow us to leverage that new innovation.
3 And the Space Development Agency, which is modeled after the
4 Missile Defense Agency, allows us to be able to take
5 advantage of all those things. And I think that's what'll
6 allow us to be able to develop capability more quickly, and
7 at a lower cost.

8 Senator Duckworth: But, I'm also concerned about
9 security, and how do you force the civilians to work closely
10 with you in security and share information? You've people
11 selling tickets for tourism into space --

12 Mr. Shanahan: Yeah.

13 Senator Duckworth: -- for crying out loud.

14 Mr. Shanahan: Yeah.

15 Senator Duckworth: How do you deconflict that?

16 Whereas, the Chinese don't have these problems, because they
17 have total control over their commercial sector.

18 Mr. Shanahan: I mean -- you know, we have procedures,
19 protocols. We have worked with commercial segments. You
20 know, we have a long, long history of doing that. That's
21 really the intent of standing up an organization like this,
22 so we can really leverage that commercial space.

23 Senator Duckworth: I'd love to explore this further,
24 but I'm out of time.

25 Thank you, Mr. Chairman.

1 Chairman Inhofe: Thank you, Senator

2 Senator Tillis.

3 Senator Tillis: Thank you, Mr. Chairman.

4 Thank you all for being here.

5 I want to talk more about organizational transition. I
6 think the President was right to make this a target that we
7 need to achieve. So, to me, it's not a matter of whether we
8 should do it, it's how we should do it and when we should do
9 it.

10 Secretary Shanahan or Secretary Wilson, a part of what
11 I'm trying to do is -- when you stand up the force, a part
12 of what you're doing is realigning current operations into a
13 more cohesive unit. And so, if you're looking at the end
14 state of a Space Force, have you done the analysis to
15 determine how much of that is just realigning existing
16 commands, Training and Doctrine Center? In other words, if
17 I'm building a new enterprise, how much of the current
18 enterprise is simply being realigned, and then what is the
19 net new? And what I'm specifically talking about is the
20 underlying cost associated with that. Because, in reality,
21 you're not going to get a whole lot more money. And so,
22 you're going to have to build -- you're going to have to
23 create this force within current spending run rates, for the
24 most part. And so, I'm trying to figure out, when General
25 Hyten, rightly, suggests that there's a capability he needs

1 by the mid-'20s, what potentially shifts to the right after
2 we've already quantified that net incremental cost, just for
3 the overall structure of a separate force?

4 Mr. Shanahan: Sir, the way we've been looking at this
5 is, How quickly can we respond to the threat? And then, you
6 know, behind all this, how do we do it more effectively?
7 Standing up the Space Command is not a incrementally large
8 change in cost, so I would argue it's not really moving
9 lines of boxes, it's eliminating overhead and competing
10 priorities so, you know, 100 percent of the time, the Space
11 Commander can focus on the new mission. It's not about just
12 getting separation from STRATCOM, it's 100-percent focused
13 on the new mission, which is contested space, and the
14 authorities, the rules of engagement, and the TTPs, and the
15 technology to support that.

16 The other piece of this was -- and this is where the
17 real value is created -- in the Space Development Agency,
18 for incremental capability that we're going to deploy, given
19 that -- and I'll use Secretary Wilson's metaphor -- given
20 that we've been designing glass houses, how do we quickly
21 transition so they're -- we're no longer building glass
22 houses? That's the race. It's really not about
23 reorganizing for people and professional development. We
24 can pace that, based on how much change and cost we want to
25 absorb. But, the race to get out of building glass houses

1 is where we've looked at consolidation. How do we go from
2 ten people attempting to get out of that operation to one,
3 and then leveraging the infrastructure? Because we
4 duplicate. And so --

5 Senator Tillis: Right. I think this could represent
6 an opportunity for driving out efficiencies --

7 Mr. Shanahan: Yeah.

8 Senator Tillis: -- and coming to find out that maybe
9 there's a way to do this without any net incremental cost.
10 But, if you don't get that right, then you say, "The good
11 news is, we have a very clear vision for a Space Force. The
12 bad news is, we need net incremental money that we don't
13 have today." And then the bad news we're likely to give you
14 is, "We don't have anymore money, so what are you not going
15 to do?" So, that's really my focus.

16 Mr. Shanahan: Yeah.

17 Senator Tillis: Secretary Wilson?

18 Dr. Wilson: If I can -- just to add on, here. Ninety
19 percent of the forces that we're talking about are currently
20 in the Air Force, in the design phase that we're in, with
21 the task force that we have stood up that includes all of
22 the services, but is led by the Air Force, by a two-star
23 general. We are in the design phase now. And one of the
24 tasks in that design phase is to recommend the preliminary
25 macro-organizational design of U.S. Space Force field units

1 as well as subordinate headquarters. So, that planning work
2 is underway.

3 Senator Tillis: General Hyten, do you have anything to
4 add to that?

5 General Hyten: I think it's just important to
6 emphasize that the Space Force that is in our proposed
7 legislation is under the Air Force.

8 Senator Tillis: Right.

9 General Hyten: So, if the Space Force existed today, I
10 would be sitting next to the service Secretary responsible
11 for space. That decision by the President and the Vice
12 President to put the Space Force under the Air Force was the
13 big driver for me, because that will allow us to drive
14 efficiencies and fix problems, and not focus on what is the
15 song, what is the recruiting structure, what is the
16 personnel structure, what is the basing structure? That --

17 Senator Tillis: When I saw that proposal, I felt a lot
18 more comfortable with the organizational concept. So, you
19 know, that's why I said I don't think it's a matter -- to
20 the points that General Dunford made in his opening
21 comments, I don't think it's a matter of whether or not we
22 need this focus, it's just the organizational construct.
23 And I think that what's been laid out, to this point, is a
24 good one.

25 The last thing I'll leave you with, because I want to

1 end on time, in deference to my colleagues, is that I still-
2 - while we're taking a look at this organization evolution,
3 I still think that we need a lot of work done on the overall
4 organizational evolution of these operations that are now
5 embedded within the service lines that we should really take
6 a look at to drive efficiencies. Has nothing to do with the
7 Space Command, but there's one best practice for
8 acquisition, there's one best practice for a lot of these
9 operations that are now siloed. And my guess is, if you did
10 that, you'd free up a lot of resources within the current
11 spending levels that could actually be made to accelerate a
12 lot of the things that I know are your top priorities. So,
13 that's something I'll look forward to speaking with y'all
14 with we can do it in a more meaningful basis, back over at
15 the Pentagon.

16 So, thank you all for being here. Thank you for your
17 service.

18 Chairman Inhofe: Thank you, Senator Tillis.

19 Senator Manchin's recognized.

20 Senator Reed, presiding.

21 Senator Manchin: Thank you, Mr. Chairman.

22 Thank you all again for being here. And I'm sorry,
23 I've been running back and forth to committee meetings.

24 I do have a few. In the proposal -- this could be to
25 anybody that would want to answer -- in the proposal

1 delivered to Congress, there was little reference to the
2 Reserve component, other than to say that it will be part of
3 other 15,000 people in Space Force. What staff was told
4 last week at a briefing was that the Department was not
5 really sure what the Reserve component's role would be until
6 we stood up the Active component, and that it would take
7 additional legislation to make clear what the role of Space
8 Force Guard and Reserve look like. If we vote on this Space
9 Force later this year -- or in spring or early summer,
10 whenever -- I'm being asked by the Department to vote on a
11 proposal that does not have a real plan for our National
12 Guard or Reserve, which is a big constituency base of mine.
13 So, my question would be, if total force is going to be as
14 important to the Space Force as it is to other branches,
15 isn't it important that we think critically about the
16 Reserve components?

17 Dr. Wilson: Senator, it's impossible for me to imagine
18 a Space Force without a Reserve component. We have --

19 Senator Manchin: Because there's no plans I'm seeing.
20 You're moving without that in part of your plan right now,
21 as we see it.

22 Dr. Wilson: Well, I -- very happy to work with you to
23 make that more specific.

24 Senator Manchin: You all do have it? You can --

25 Dr. Wilson: I --

1 Senator Manchin: -- get more specific --

2 Dr. Wilson: I think --

3 Senator Manchin: -- with that?

4 Dr. Wilson: -- we're happy to work with you on that.

5 There are, within the Air Force, some, particularly, Guard
6 units that have --

7 Senator Manchin: Very much so. I know that. And --
8 but, I'm saying, if you have something, we haven't seen it
9 yet. I'm sorry. But, if you could share that with us, it
10 would be very helpful. I can relieve a lot of tension.

11 Yes, sir, General.

12 General Dunford: Senator, if I could just talk about
13 where I think we are. So, there's a number of issues -- and
14 I've looked through this and had some of the same concerns
15 you have -- there's a number of issues unresolved. And the
16 real question before the committee is, Do we stand up the
17 organization and get that four-star leader singularly
18 focused on what the right organizational construct is, or do
19 we wait for the perfect organizational construct to stand it
20 up? And where I fell was to move out and refine as we go.
21 And the committee will have plenty of time to provide
22 oversight. So, the initial, you know, first step to take in
23 this next fiscal year would be, stand up the organization,
24 get the leadership in place, and then begin to address these
25 very important issues, one of which you raised.

1 Senator Manchin: Okay.

2 Let me go a little bit further. You talk about the
3 culture. This whole new Space Force is a culture, right?
4 And you want to diversify it. Well, I can tell you, the
5 Army has a certain culture. The Marines definitely have a
6 certain -- they're in first, they're going with their guns
7 in blazing. The Air Force, basically, the culture has
8 always been the same. This is where the space professionals
9 have come from. This has basically been your bailiwick.
10 How are you going to change that culture, when everyone's
11 still going to come from the Air Force?

12 Dr. Wilson: Senator --

13 Senator Manchin: Or what culture do you think to
14 diversify?

15 Dr. Wilson: Senator, our focus on changing culture is
16 to shift from providing a service to the other combatant --
17 to the combatant commanders, with almost like a utility, to
18 a warfighting ethos. And we're doing that within the space
19 cadre of the Air Force today in the way in which we train
20 our people, the way in which we assign them. Just as one
21 example, we have people who operate satellite systems at
22 Schriever Air Force Base, in Colorado Springs. They spend 4
23 months on the floor, operating their satellite --

24 Senator Manchin: Sure.

25 Dr. Wilson: -- systems in a peacetime environment, and

1 then 4 months in training for a contested environment and
2 how they would operate --

3 Senator Manchin: Secretary, I'm just having a real --

4 Dr. Wilson: I --

5 Senator Manchin: -- you know -- and I think Secretary
6 Shanahan and I have talked about -- I'm having a real hard
7 time understanding why we need this other agency. You've
8 got everything at your disposal right now. And it just
9 doesn't make any -- I mean, I'm just having a hard time with
10 it. I'm trying to understand it, from -- and Secretary was
11 very -- he was very patient with me, trying to explain it.
12 But, you've got -- if I had everything you all have at your
13 disposal right now, and the Air Force has that expertise,
14 and there's some flaws in it, and you want more attention to
15 it, we'll give you what you need. Just doesn't make any
16 sense to me at all. I'm sorry.

17 Secretary, I know you -- you want to take another shot
18 at me?

19 Mr. Shanahan: No, I'm happy to take another shot at
20 it. I --

21 [Laughter.]

22 Mr. Shanahan: That's why we're -- that's why I'm here.

23 Senator Manchin: I know.

24 Mr. Shanahan: I think --

25 Senator Manchin: Go ahead and give me your spiel

1 again, because they might want to hear why you think we need
2 this other agency.

3 Mr. Shanahan: Yeah. The very short story is the
4 amount of change that's taking place in this environment,
5 we're not prepared to address.

6 Senator Manchin: The way you're set up now.

7 Mr. Shanahan: The way we're set up now.

8 Senator Manchin: But, can't you redirect what you have
9 within the Air Force right now, which is where most of the
10 culture is going to stay? It's not going to go over to the
11 Marines. It's not going to the Army.

12 Mr. Shanahan: Yeah.

13 Senator Manchin: It's staying right over there.

14 Mr. Shanahan: Yeah. Yeah. So, most of this is really
15 within the Air Force, and, as Senator Tillis was talking
16 about, restructuring. This is a fundamental shift that now
17 treats space as a domain. So, the culture is changed
18 because the mission has changed.

19 Senator Manchin: Okay.

20 Mr. Shanahan: The leadership will change. The
21 prioritization of the resources will change. And then our
22 approach to developing capability will change.

23 Senator Manchin: I gotcha.

24 Mr. Shanahan: That --

25 Senator Manchin: Let me just -- if I can lead into

1 this --

2 Mr. Shanahan: Sure.

3 Senator Manchin: -- back to Secretary Wilson

4 Secretary, you've also publicly stated that you didn't
5 think the Space Development Agency is a good use of
6 resources, citing the Air Force's own Space Rapid
7 Capabilities Office as an effective acquisition body. Can
8 you elaborate on why you think our money and effort is
9 better invested in processes and organizations that already
10 exist, which is the point I'm trying to make?

11 Dr. Wilson: Senator, the Space Development Agency is
12 not part of the President's proposal or the legislation in
13 front of you. And the first project that this agency is
14 apparently going to take on is actually funded by the Air
15 Force and is in our budget. It's, How do we use low-Earth
16 orbit commercially-based satellite constellations? It's in
17 our budget at \$140 million over 5 years, and is intended to-

18 Senator Manchin: It's in your purview also. I mean,
19 that's part of your bailiwick.

20 Dr. Wilson: That is. And it's -- we propose to do it
21 with DARPA. Question is how best to buy them and whether we
22 need a new agency to do so. Publicly --

23 Senator Manchin: Do we need a new agency just to get
24 into lower orbit?

25 Dr. Wilson: -- not think so.

1 Senator Manchin: Are we justifying a new agency just
2 to get into lower orbit?

3 Dr. Wilson: Senator, it's -- you know, what I'm saying
4 here is not new. My memorandum to the Secretary on this --

5 Senator Manchin: Yeah.

6 Dr. Wilson: -- subject has been reported on publicly.

7 Senator Manchin: Okay.

8 Dr. Wilson: And I did not support it.

9 Senator Manchin: Thank you, Madam Chair.

10 Senator Reed [presiding]: On behalf of --

11 Senator Manchin: Thank you.

12 Senator Reed: -- Senator Inhofe, Senator Cramer.

13 Senator Cramer: Thank you, Mr. Chairman.

14 Thanks, to all of you, for being here. And I've only
15 been in the Senate for, well, less than 4 months, but this
16 is the most fascinating 2 hours so far. So, thank you all
17 for being as prepared as you are.

18 I'm going to summarize a few things I've heard this
19 morning before I run out of time to do that, and then ask
20 some questions.

21 General Dunford, you said space is no longer a
22 sanctuary. I think, Secretary Wilson, you both said it's
23 now contested. Great points. Important points.

24 General Hyten, you said there will be a Space Force one
25 day. And I'm going to hone in on that, because we hear a

1 lot of reluctance and a lot of questions about efficiencies,
2 business model. And you've answered them all brilliantly --
3 not necessarily convincingly, maybe, to some, but I think
4 you've answered those questions very well.

5 Secretary Shanahan, you said something interesting. I
6 want to go through, maybe, a little history. You said the
7 existing forces are based on that place, on geography. I
8 think it's an important point that sometimes we're missing
9 when we draw parallels between this and other efforts and
10 missions. As you said that, I started thinking about the
11 Air Force itself, that the Air Force wasn't always the Air
12 Force -- it was once the Army Air Force; and prior to that,
13 it was the Army Air Corps; and prior to that, there weren't
14 airplanes -- that, as new domains became contested, we had
15 to lead.

16 I was also thinking about some other proverbs,
17 including proverbs where it says that, without vision, the
18 people perish. I'm pretty sure it was a Minnesota Viking
19 fan that said, "The logical conclusion of defense is
20 defeat." Being second is not a great place to be. And I
21 know we're first, but I just feel so strongly that, if we're
22 going to have a Space Force one day, why wouldn't we start
23 sooner rather than later? Why would we let somebody else
24 get there?

25 And so, from a strategic standpoint -- and I guess I'd

1 ask the Generals first about this -- how important it is to
2 have this public kitchen-table-level discussion? I
3 appreciate your terminology, Secretary Wilson, when you
4 said, "The President has elevated this topic to a kitchen-
5 table level." I think that's exactly right. But, our
6 adversaries are watching. They're probably watching this
7 hearing right now. How did China and Russia roll out their
8 space forces or their space activity? Did they do it in a
9 real outward way, or did they try to do it under the radar?

10 Maybe the Generals could answer that for me. And is it
11 important, by the way, that we send a message?

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

17 General Hyten: And, Senator, the Chinese and the
18 Russians both look at space as a critical element of their
19 defensive capabilities, as their military. They've also
20 organized differently about space. The Chinese are
21 integrating a lot of their capabilities into a single
22 command -- space, counterspace -- those into a single
23 command. They have a -- an officer responsible for space,
24 an officer responsible for counterspace. I'm -- I'll be
25 glad to talk to you, in a different setting, about what I

1 think they're doing, and what the strengths of what they're
2 doing, and the weaknesses, are. But, I really don't want to
3 talk about that in a public forum.

4 Senator Cramer: I appreciate both answers very much.

5 We've had a lot of discussion about cost and benefit.
6 And I -- you know, I understand the concerns of a couple of
7 years -- or several years of cutbacks that now have us in
8 catchup mode on readiness and lethality and all those
9 things that are important. And I appreciate the answer,
10 Chairman Dunford, about -- this is part of readiness, this
11 is probably essential to readiness. But, maybe, Secretary
12 Shanahan, is a cost-benefit analysis, a literal cost-benefit
13 analysis, even -- is that a possibility, here?

14 Mr. Shanahan: No, it is. And implicit in the Space
15 Development Agency is a cost-benefit analysis. It's a
16 twofer. More capability, sooner, at a lower cost. And
17 that's -- you know, this is about moving more quickly. I
18 mean, this is a -- you know, a threat-driven response, and
19 it's really not even a response as -- I think what the
20 Chairman's been highlighting here is, How do we get ahead of
21 things?

22 The -- you know, the other piece, here, and we've
23 touched on it briefly, is, we're about to usher in a new age
24 of technology. I mean, this is -- you know, we're on the
25 dawn of a -- you know, some major changes. And if we adapt

1 properly, we'll be able to take advantage of it and, again,
2 increase our dominance in space.

3 Senator Cramer: And maybe just the last question, for
4 Secretary Wilson. And, with that in mind, I mean, are the
5 increments important? I appreciate what my colleagues are
6 saying about -- but what about -- why isn't this in the
7 plan, or why isn't that part of the proposal, and -- you
8 know, whether it's, you know, the Guard or the Reserves or
9 others -- things. And yet, aren't the increments sort of an
10 important part of the rollout? In other words, we're not
11 going from here to here, we're -- we see here, but we're
12 going incrementally. Is that not an important part of the
13 strategy?

14 Dr. Wilson: I'm not sure it's incremental. I do think
15 that what we have now is a set of programs that support a
16 strategy to dominate in space. And, you know, we all prefer
17 that space remains peaceful, because everyone loses if war
18 extends into space. But, we are developing the capabilities
19 to deter, and, if necessary, to fight and win in the space
20 domain, as we do in all other domains, so that our
21 adversaries will choose wisely to deal with our diplomats
22 and not with our warfighters. And that's what this is
23 about.

24 Senator Cramer: Beautifully said.

25 Thanks, to all of you. And I might just wrap up my

1 comments by saying, I just don't want to be sitting here 4
2 years from now and have four people look at me and go, "I
3 wish we would have started this 4 years ago."

4 With that, I yield.

5 Senator Reed: On behalf of Chairman Inhofe, Senator
6 Shaheen.

7 Senator Shaheen: Thank you, Mr. Chairman.

8 And thank you all very much for being here, and for
9 your responses.

10 I totally agree with everything that you all have said
11 in your opening statements about the importance of space,
12 the competition for space that we have entered into. Space
13 is the next potential battleground. I may even be
14 convinced, in the future, that we need a new Space Command.
15 And I do appreciate President Trump's focusing on space. I
16 just have questions, based on what I've heard and what I
17 understand -- and maybe I need to know more -- that we have
18 not gotten there, in terms of the planning and the
19 commitment, and that, rather than spending a lot of time
20 debating and questioning which direction we're going to go,
21 we'd be better to continue to work on that and focus on what
22 we need to immediately to address the challenges that we're
23 facing.

24 So, let me begin with that and ask -- I share Senator
25 Manchin's concern about the failure to address Guard and

1 Reserve as part of any planning for a new Space Command.
2 It's a question, as you all alluded to -- I guess it was
3 you, General Dunford -- that -- or, Secretary Wilson -- that
4 many of our National Guard folks are already doing work in
5 space. And so, I think they have a question about what
6 their future role might be in any new Space Command. So, I
7 think answering those questions is going to be very
8 important in order to ensure that there's support from
9 States who control the Guard.

10 But, I want to go on to the whole civilian side of this
11 question, because, as I understand, as space activity
12 increases, as our ability to detect debris improves -- and
13 right now, my understanding is that DOD tracks more than
14 20,000 objects in space, and that number continues to grow,
15 and that we are making investments in situational awareness
16 in space -- I had the opportunity to see some of that
17 recently -- to try and track some of that space debris, and
18 that the space policy directive of this administration
19 contemplates a larger role for the Department of Commerce in
20 space situational awareness and space traffic management.
21 We just had a hearing with the Commerce Committee last week,
22 where they were talking about reorganizing all of the space
23 elements in the Department of Commerce into the Office of
24 the Secretary. So, I'm trying to figure out which functions
25 would actually go to Commerce, and which would stay in DOD,

1 and how that responsibility gets sorted out.

2 Dr. Wilson: Senator, I think I can take that one.

3 The Air Force has, really, since the late 1950s, taken
4 on the responsibility of warning people when a piece of
5 debris might hit their satellite. We do that out of
6 Vandenberg Air Force Base, in California. You're right that
7 we currently track about 24,000 pieces of debris that are
8 larger than 10 centimeters, and we provide that information
9 to every country in the world.

10 We are also expanding our ability to know what is going
11 on in space. This year, we will go operational with
12 something called the Space Fence, out of Kwajalein, which is
13 a space-facing radar, and we will increase the number of
14 pieces of debris that we're tracking to probably over
15 100,000 with that Space Fence, and it'll go out to
16 geosynchronous orbit.

17 This shift to the Commerce Department is that they will
18 take over the responsibility of telling commercial companies
19 and deconfliction and those things. And we're working very
20 closely with them. We're happy to transition that
21 responsibility of working on the commercial space, on space
22 traffic management, to the Commerce Department. They have
23 had people out, working alongside our folks at Vandenberg on
24 how that would probably work. As the military service,
25 obviously, we would continue to have to have space

1 situational awareness and collect the data. We would feed
2 that over, likely, to the Commerce Department, who would
3 combine it with other sources of data and work with
4 industry.

5 Senator Shaheen: And is -- would that be the plan in
6 any new Space Command that's operational?

7 Dr. Wilson: The concept is that Vandenberg would be
8 part of the Space Force, and the Combined Space Operations
9 Center there is where we have all of the services, as well
10 as our allies and partners, that track space debris.

11 Senator Shaheen: But, we would continue to shift the
12 collection of that information to the Department of
13 Commerce?

14 Dr. Wilson: Yes, ma'am.

15 Senator Shaheen: General Hyten?

16 General Hyten: So, that mission today is accomplished
17 by airmen in the United States Air Force, but it's under my
18 command, U.S. Strategic Command. And we provide that data,
19 and we have, today, 98 space situational awareness sharing
20 agreements with others. We have to do that, because we want
21 to be able to operate --

22 Senator Shaheen: Sure.

23 General Hyten: -- safely in space. But, it's not a
24 military mission. That's a civil mission. And the
25 Department of Commerce is just taking over that civil

1 responsibility so we can focus on the warfighting part.

2 But, I met with Secretary Ross this week. He is not
3 going to try to build all of the data and the sensors that
4 we have in order to do that. He'll take our sensors and our
5 data, and he will just become the face to the commercial
6 sector and the face to the world so the military doesn't
7 have to do that. But, that function that's in STRATCOM will
8 transition to the SPACECOM.

9 Senator Shaheen: And so, will the personnel who are
10 currently working at STRATCOM transition to the Department
11 of Commerce? Is that the plan?

12 General Hyten: No, ma'am, the Department of Commerce
13 will have that front-facing piece. The airmen of the United
14 States Air Force today that would be in the Space Force in
15 the future, working for the Space Command, they still have
16 to do that mission so we can do our defense of mission and
17 our space control missions in the future. That's why we
18 started doing that at -- we just fell into the space traffic
19 management business. We do it for defense.

20 Senator Shaheen: No, I'm just concerned about the
21 expertise that might be required in the Department of
22 Commerce. And are they going to have to hire that new? Are
23 they going to --

24 General Hyten: We're --

25 Senator Shaheen: -- take it from --

1 General Hyten: -- working very --

2 Senator Shaheen: -- the Air Force?

3 General Hyten: -- close with them to understand what
4 kind of personnel requirements they would have to have, how
5 they would do that. In the conversations I had with
6 Secretary Ross this week, what I pointed out is that, if we
7 do it right, most of the capabilities they need can actually
8 be automated and acquired through commercial agreements.
9 They wouldn't have to have this army of people doing that.
10 They could do it a whole lot better if we do it right from
11 the beginning, and we're working closely with them to make
12 sure we do it as efficiently as possible.

13 Senator Shaheen: Thank you.

14 Thank you, Mr. Chairman.

15 Senator Reed: On behalf of Chairman Inhofe, Senator
16 Blackburn, please.

17 Senator Blackburn: And thank you, Mr. Chairman.

18 And I want to thank each of you for being here today.

19 And I want to thank you for the time that you've spent
20 individually with us.

21 I may be the outlier on this panel, but I totally
22 appreciate why you need to have a Space Force. I get it.
23 You know, when you look at technological advancement, when
24 you look at 5G that is coming on, you look at the cyber
25 pressures, you look at that lower-orbit component, when you

1 look at the integration that is taking place in the new
2 space economy, I fully understand why you need to make this
3 a priority, and why you need to focus on this, why we, as a
4 Nation, need to focus on this, because 21st-century warfare
5 is most likely, from what I understand, going to be a good
6 bit different than what we have seen in times past. So, I
7 appreciate that we are putting an emphasis on this so that
8 we're not left and caught flatfooted at some point when we
9 need to respond.

10 Secretary Wilson, I want to say all good wishes as you
11 leave. It's -- it truly is an honor to have you here, and
12 we appreciate the work you've done, whether you were wearing
13 the uniform or in the House or here. And, of course, I
14 thoroughly enjoyed serving in the House and on Energy and
15 Commerce with the Secretary. And I know, because of that
16 expertise, you do have an understanding of the commercial
17 side and also of the military side. It is a unique
18 perspective.

19 One of the things I do want to come to -- and Secretary
20 Shanahan and I discussed this a little bit -- as you look at
21 this new space economy that is growing -- and Senator
22 Duckworth talked a little bit about the Chinese, and, of
23 course, we've discussed this. You don't know where their
24 commercial sector and their military sector end and begin,
25 because they're one in the same. And that is a great-power

1 competition. And we want to make certain that we are
2 focused on what that means. So, are we doing enough to
3 encourage and leverage the dynamism of the commercial space
4 industry so that we are going to be able, as we conduct this
5 transition, to meet our national security needs? And,
6 Secretary Shanahan, I want to hear from you briefly on that.

7 And then, since we are near the end of this hearing, I
8 would like to just go down the dais, anything that you all
9 want to add that you haven't had the opportunity to add.

10 Secretary, to you first.

11 Mr. Shanahan: Sure. Thank you.

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

20 And there are two big opportunities. One is, we
21 systems-engineer the ecosystem to draw in launch, to draw in
22 the ground segment, to draw in 5G. It's not about, How do
23 we procure a microsatellite or a CubeSat? It's, How do we
24 design the system so we can ingest large volumes of data
25 that we're going to --

1 Senator Blackburn: With a focus on interoperability --

2 Mr. Shanahan: Correct.

3 Senator Blackburn: -- and cross-platform --

4 Mr. Shanahan: Yes.

5 Senator Blackburn: -- and integration of all the
6 different -- the different agencies that come under DOD.

7 Mr. Shanahan: No, absolutely. And we'll benefit --

8 Senator Blackburn: I think that is a very important
9 point.

10 Mr. Shanahan: Thank you.

11 Senator Blackburn: Yes.

12 Secretary Wilson, anything to add?

13 Dr. Wilson: Senator, with respect to architectural
14 design, the Air Force has just finished a 90-day study
15 looking at different -- looking at the threat, looking at
16 the phases of conflict, looking at all of our missions, and
17 calculating and doing about -- several thousand iterations
18 of wargames to figure out, What are the best architectures,
19 and how do we get there fastest to defensible space? There
20 are a few conclusions from that. One is that different
21 missions require different solutions, that in increase in
22 number of satellites, particularly large number of
23 commercial satellites, helps, but numbers alone are not
24 enough to prevail. It -- we also found that the
25 congressional direction to consolidate all of space

1 communications under the Air Force is actually a tremendous
2 step forward, and I can explain, in classified session, why
3 that would be. And then, the space missions that are not
4 well aligned with commercial low-Earth orbit satellite
5 systems should probably stay where they are, possibly with
6 changes in protection, but that using only commercial space,
7 so putting hundreds of small, cheap satellites into orbit,
8 mean -- does not work --

9 Senator Blackburn: Got it.

10 Dr. Wilson: -- as a strategy. And it would mean that,
11 in combat, that low-Earth orbit system would be quite
12 vulnerable and would fail.

13 So, this is a complex problem. We've done some pretty
14 good wargaming, and we will be happy to come up and brief
15 the committee, at their convenience.

16 Senator Blackburn: Appreciate it.

17 General Hyten, anything to add?

18 General Hyten: Senator, I'll just say it's all about
19 the threat. How do we stay ahead of the threat? The threat
20 right now, especially in China, is going much faster than we
21 are. We have a significant advantage over them, but that's
22 the advantage of history and what we've built over the last
23 few years. We have to stay ahead of them. And I just thank
24 this committee, thank the Congress, for taking on the
25 threat. When it comes right down --

1 Senator Blackburn: Okay.

2 General --

3 General Hyten: -- to it, that's what it's all about.

4 Senator Blackburn: -- Dunford?

5 General Dunford: Senator, the only thing I'd say, in
6 the interest of time, would be that, you know, we really
7 have two choices, either have a bias for action now and move
8 out and establish an organization, knowing that there's many
9 questions to be answered, or wait until we have all the
10 questions answered before we stand up the organization. And
11 my best military advice, given the importance of space and
12 the consequences of not doing all we can to optimize the
13 Department to move forward in space, would be move out now,
14 with might -- what might be the 80-percent solution, refine
15 as we go, and the committee will have an opportunity to
16 provide oversight to address some of the issues that have
17 been raised this morning.

18 Senator Blackburn: Thank you for the service.

19 Senator Reed: Thank you.

20 On behalf of Chairman Inhofe, Senator Heinrich, please.

21 Senator Heinrich: Thank you, Ranking Member Reed.

22 I guess, first, I just want to say, as somebody who's
23 Ranking Member right now on Strategic Forces and sits on
24 Intel and obviously sits on this committee, and as somebody
25 who has oftentimes fought the Pentagon, over the last

1 decade, about the value of disaggregated space architecture
2 and rapid capabilities, I really appreciate the focus we
3 have on space right now. I think it is welcome. There are
4 disagreements on -- or at least some skepticism about this
5 construct at this point, but I think all of us can agree
6 that this is a conversation that's been coming for a long
7 time, and we need to have it.

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

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

24 We do need to, when we look across all of the labs,
25 start to make decisions on what are the standards we want to

1 employ -- not necessarily direct technology development,
2 but, how do we develop standards so integration becomes more
3 seamless and less costly?

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

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

10 General Dunford: The only thing I'd say, Senator, is -
11 - I mean, this makes sense to me as an initial step, and I
12 think the broader question you're asking about is, How do we
13 make sure that all the processes in the Department are
14 aligned?

15 Senator Heinrich: Right.

16 General Dunford: And that's going to be, you know, the
17 responsibility of all of us, to ruthlessly drive alignment
18 over time, ruthlessly drive efficiencies over time, and get
19 this thing moving, and make the refinements that I know are
20 going to come. There's probably only one thing I'm 100-
21 percent confident of as I sit here this morning, and that
22 is, 5 years from now, it's going to look slightly different
23 than it does today -- or what we propose today.

24 Senator Heinrich: Great.

25 Secretary, I want to talk a little bit about NRO.

1 Obviously, a lot of it -- exposure to that on one of my
2 other committee assignments. And they have a pretty unique
3 role right now, both under Title 50 and under Title 10. And
4 I think they're working well. Can you give some certainty
5 around -- is NRO in or out of the White House legislative
6 proposal right now? And what's the logic?

7 Mr. Shanahan: It's out.

8 Senator Heinrich: Good.

9 Mr. Shanahan: And it's not out because there aren't --
10 it's an -- enormous synergies. It's really out because of
11 organization and, you know, agreement on timing and
12 alignment. There are a lot of details. This is General
13 Dunford's point about, you know, How quickly can you move?
14 We can move out on the things we can control. It doesn't
15 mean that we couldn't move out in the integration with NRO.

16 To your earlier point around architectures and
17 technology, as we build out the future, we need to be
18 provisioning with the NRO, because that integration is going
19 to take place in the future. And if we do that, it makes
20 the integration that much easier in the future.

21 Senator Heinrich: I think that's probably the right
22 answer. I know there are some questions on this committee
23 about where that belongs, but I think that's the right
24 approach.

25 Secretary Wilson, General Hyten, I wanted to ask you.

1 I know we talked, before, about the importance of leveraging
2 small space in commercial assets. And last week, you spoke
3 about Blackjack. But, I'm more interested in the issue
4 around giving small launch providers an opportunity to put
5 some of these small sats in place. Does this space proposal
6 do anything more to leverage the -- that emerging industry
7 to meet our national security objectives? And is there a
8 place where -- is that one place where SDA might also play a
9 role?

10 Dr. Wilson: Senator, the Air Force is responsible for
11 launch, but, as you know, we don't build rockets, we buy
12 launches.

13 Senator Heinrich: Right.

14 Dr. Wilson: The biggest challenge is on the heavy end.
15 But, on the light end, we have an -- a variety of things
16 that we're doing. And General Hyten may be able to add to
17 this some. But, we have contracted, for example, with
18 Virgin Galactic to launch off of the -- under the wing of a
19 747. We are working with a number of very small, very
20 innovative companies on different ways to launch. And
21 launch flexibility and reconstitution from unexpected places
22 is one of the ways in which we keep our adversaries
23 guessing.

24 Senator Heinrich: General.

25 General Hyten: And, Senator, we've made a lot of

1 progress, in the last few years, of taking advantage of
2 that. I think one of the strengths of the proposal that's
3 before you, though, is, the structure we're proposing will
4 allow us to better leverage all of industry that this
5 country has to offer. And we've struggled a little bit with
6 the commercial sector, in particular. We've struggled with
7 the smaller companies, figuring out how to do that.

8 Senator Heinrich: Right.

9 General Hyten: The Air Force recently has made huge
10 progress in walking down that path. I think Space
11 Development Agency can walk down to real commercial
12 leverage. So, I think the total of this proposal really
13 gets after a lot of the things you're talking about.

14 Senator Heinrich: Thank you.

15 Senator Reed: Thank you.

16 On behalf of Chairman Inhofe, Senator Hawley, please.

17 Senator Hawley: Thank you, Mr. Chairman.

18 Thank you for -- to the witnesses, for being here.
19 Thank you for your work -- your diligent work on this
20 important proposal and this important topic. And you've
21 nearly made it to the end, here. So -- just 6 minutes to
22 go.

23 I want to ask you about a few specific challenges.
24 We've talked a lot this morning about the space domain, the
25 importance of the space domain, in general. Let me ask you

1 about some of the challenges, as I understand them, that
2 make the space domain important. And you can tell me if my
3 understanding needs revision.

4 One of the major issues, as I understand it, that makes
5 space so important is our global C4ISR architecture that
6 runs through space, sort of the central nervous system of
7 the Joint Force. We were able to build that central nervous
8 system in and through space in years past because it was
9 largely uncontested space. But, now, as you've said over
10 and over today, it's contested, it's congested, it's
11 competitive. And so, our C4ISR and precision, navigation,
12 timing networks are at risk.

13 So, what I want to ask you is, What are we doing to
14 make our global C4ISR networks and our PNT networks more
15 resilient and survivable? And how does a Space Force -- how
16 will a Space Force contribute to that?

17 Absolutely, go ahead, General.

18 General Hyten: So, Senator, the -- I think you
19 described the space challenge quite well. I think we have a
20 significant element of everything that we do that goes
21 through space. There's not a single military operation that
22 exists on this planet that doesn't involve space some way.
23 And the C4 network that we operate leverages space,
24 especially because we operate away from our homeland. We
25 operate overseas. And when you do that, you need to bring

1 your communications, bring your ISR, bring all those
2 capabilities with you. And a significant amount of those
3 capabilities today come from space.

4 And so, as we look to the future, we have to make sure
5 we protect that and we defend that, and we can still provide
6 those capabilities. And our adversaries are seeing that,
7 too. And, as they've seen that, they are developing
8 capabilities to counter those. So, we have to adjust. We
9 have to be able to build different architectures that we can
10 fight with more effectively, that can guarantee that
11 capability is always there. We have to build the ability to
12 defend ourselves and an ability to deny an adversary the use
13 of space, at a time and place of our choosing, if we have
14 to.

15 As the Secretary discussed earlier, we don't want
16 conflict to go into space, but, if it does, we have to --

17 Senator Hawley: And, in this setting, General, can you
18 give us some idea about what are some of the steps that we
19 are taking now, or that need to be taken, to make that
20 infrastructure, that CV4 infrastructure, architecture, and
21 our PNT architecture, more resilient? I mean, what are the--
22 - what I'm driving at, as I think you can see, is, What are
23 the specific things we need to be doing to meet this very
24 pressing challenge? And then, how does that tie into this
25 large structure -- structural change that you've been

1 proposing here today?

2 General Hyten: So, the Secretary described, one of the
3 big challenges is the integration of satellite
4 communications in one place. As we move to a Space Command
5 and a Space Force, the benefits that we'll get from that
6 unity of effort will be, we'll have one command focused on
7 operating satellite communications, and we'll have one force
8 looking at acquiring the capabilities we need to. And the
9 integration of those two capabilities will allow us to
10 better defend ourselves and operate in the future. You can
11 apply that to positioning, navigation, and timing. You can
12 apply that to overhead weather, missile warning. All the
13 capabilities we have, you apply that same concept. And we
14 can talk, in a classified session, about the specifics of
15 what we're doing, but, in broad terms, that's the structure.

16 Senator Hawley: Madam Secretary, you wanted to add to
17 this.

18 Dr. Wilson: Senator, before the fiscal year '19 budget
19 that we brought up before your election, we did some work
20 on, What should our strategies be, and how do we shift our
21 programs to implement those strategies? And we did a
22 tabletop exercise with many of the members of the committee
23 to show what the strategies were in the program shifts.

24 Those strategies really kind of revolve around five
25 things, in general:

1 The first is to protect and defend. So, defend our
2 satellites, think chaff and flares, but other kinds of
3 things. And it's different, mission by mission.

4 Second, be able to stop an attack. It's not good
5 enough to stand in the ring and dodge and weave and take
6 punches. You need to be able to swing back.

7 Third, proliferate. Now, proliferation, alone, does
8 not solve the problem, but it does complicate the problem
9 for an adversary.

10 Fourth, undermine the confidence of the adversary that
11 they really understand what's going on around them.

12 And fifth, all of this rests on a foundation of
13 excellence in our people.

14 So, those are the five lines of effort, and they're all
15 supported by programs and programmatic change that was
16 supported by the committee in the FY19 budget.

17 Senator Hawley: Thank you. That's very helpful.

18 I think that -- you know, my set of questions around
19 your proposal for this major structural change, for the
20 standing up of a Space Force, relates to this line of
21 questioning. I mean, is it -- what are the specific
22 pressing challenges we face in that domain? And will this
23 new structure help us meet those specific challenges? Or is
24 there a danger that we are too focused on the domain as a
25 domain, and we're not focusing enough on the specific

1 challenges?

2 Let -- Mr. Secretary, before my time expires, let me
3 just ask you a somewhat related question: the relevance of
4 AI and new technologies. You touched on this briefly, I
5 think, with Senator Cramer, but tell us something about how
6 Space Force may help us -- help the whole -- the Joint Force
7 continue to develop the new technologies, whether it's AI or
8 otherwise, that we need to be leaders, here, in the 21st
9 century.

10 Mr. Shanahan: Right. So, the Space Development
11 Agency, in our modernization for the National Defense
12 Strategy, addresses building an integrated transport layer
13 for the Department of Defense so that we can ingest and move
14 significant volumes of data that facilitate artificial
15 intelligence. It's this buildout of the broader
16 infrastructure. It also includes the ground network that'll
17 connect sensor and shooter, and then all other
18 decisionmakers. It's not just about the -- closing the
19 fire-control loop, but we're trying to scale and address
20 latency. And this is the need -- this is why we need
21 fundamental systems engineering as we approach this problem
22 set.

23 Senator Hawley: Thank you very much.

24 Thank you, Mr. Chairman.

25 Senator Reed: Thank you.

1 On behalf of Chairman Inhofe, Senator Blumenthal,
2 please.

3 Senator Blumenthal: Thank you, Senator Reed.

4 Thank you all for being here today, and thank you for
5 your service.

6 You know, I've been in and out as I've attended other
7 committee hearings, and I sort of feel like the most
8 important facts for us and the American people to understand
9 are the facts that haven't been said today. And the reason
10 why they haven't been said is that they are largely
11 classified. And the reason that's important is that the
12 American people have no idea -- really no idea -- about the
13 immensity of the threat in space. And I've made this
14 comment in a classified setting, that I wish the American
15 people could be present in this room -- not this room, but
16 the SCIF -- because our adversaries know what they are
17 doing, we know what they are doing, they know we know what
18 they are doing, but the American people have no idea. And
19 so, this discussion and debate will have very little
20 interest in the American public. It's carried on in a level
21 of, forgive me, bureaucratic language that most Americans
22 would have trouble seeing an immediacy in their daily lives.
23 But, if they were privy to what we hear -- and you know it
24 much better than we do, because you live it -- I think
25 they'd be pretty alarmed. And this is not by way of

1 criticism of you, because you're living with the strictures
2 of what is classified, and not. But, I think we have a real
3 obligation to explain to the American people why space is a
4 domain that matters, why the threats there are real and
5 urgent, why they are growing in importance.

6 So, I think we all agree here that space is an
7 important domain. Undersea warfare is an important domain,
8 but we don't have a separate command for it. Cyber is an
9 important domain, as my colleague and friend, the late John
10 McCain, used to say.

11 And so, I found very persuasive, Secretary Wilson, what
12 you said in July of 2017 -- I know it's been quoted to you
13 before this morning -- and others of you, the reasons for
14 your opposition to that separate domain, or the separate
15 Command for the space domain. But, I would like to ask, in
16 terms of the personnel issues that I think are of immediate
17 concern to a lot of folks. This proposal would exempt Space
18 Force civilian personnel from Title 5 rules and protections.
19 It would create a new, excepted service that is separate
20 from the Federal Government competitive service or senior
21 executive service. It would create an alarming precedent, I
22 think, that potentially could erode the merit-based civil
23 service within the Pentagon and eliminate the rights of
24 Space Force employees to participate in collective
25 bargaining, for example. There's currently no civilian

1 workforce that is statutorily exempt from collective
2 bargaining rights. Can you tell me, Secretary Shanahan, why
3 that is a part of your proposal?

4 Mr. Shanahan: The Title 5 that you were referencing
5 was based on the discussion we were having earlier around
6 integration with the NRO. That's the model that they employ
7 there. And, as we think about the talent management
8 practices that we'll need in the future, we wanted a
9 provision for that. Much like in your, you know, reference
10 to the undersea domain, our approach to systems engineering
11 is the same as the, you know, Navy's undertaken. So, there
12 are a lot of examples that we're trying to draw from that
13 have been successful. That was the nature of that
14 insertion.

15 Senator Blumenthal: Would there be protection for
16 whistleblowers in the same way there is throughout the rest
17 of the government?

18 Mr. Shanahan: The baseline that we're coming off of is
19 the existing personnel system. This was to incorporate, you
20 know, the ability to integrate with the NRO. So, I would --
21 you know, I'd have to go back -- sir, I'd have to go back
22 and confirm that for you, but I --

23 Senator Blumenthal: If you would, that would --

24 Mr. Shanahan: Yeah.

25 Senator Blumenthal: -- be appreciated --

1 Mr. Shanahan: You bet.

2 [The information referred to follows:]

3 Senator Blumenthal: -- because, based on this
4 proposal, the Secretary of Defense could terminate any Space
5 Force employee, quote, "in the interests of the United
6 States," end quote, and, as drafted, it says,
7 "notwithstanding any other law," which leads me to think
8 that they would be exempted from a lot of other protections
9 of law, and could simply be dismissed --

10 Mr. Shanahan: Yeah.

11 Senator Blumenthal: -- whenever you determine it's in
12 the interest --

13 Mr. Shanahan: Right.

14 Senator Blumenthal: -- of the United States.

15 Mr. Shanahan: Yeah. Let me go back and confirm that
16 that's not our interpretation.

17 Senator Blumenthal: My time is expired.

18 Thank you, Mr. Chairman.

19 But, I think there are, essentially -- and I have a lot
20 more, and I'm going to submit them for the record -- a lot
21 more questions than answers, here. And, as others have
22 remarked, each of you has raised objections or reservations
23 or questions in the past -- the very recent past -- about
24 this idea, which I'm not sure have been fully addressed
25 here.

1 Thank you.

2 Senator Reed: Thank you.

3 On behalf of Chairman Inhofe, Senator Warren, please.

4 Senator Warren: Thank you, Mr. Chairman.

5 So, we're here today to examine a proposal to set up a
6 Space Force within the Air Force. And, before we haul off
7 and authorize spending billions of dollars on this, I just
8 want to ask a couple of questions about what problem this
9 Space Force is supposed to solve.

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

16 General Dunford: That is a fair statement, Senator.
17 And just a quick caveat, based on your opening comment. In
18 the organization that we have today is an organization that
19 we built when space was --

20 Senator Warren: No, I understand that. I understand
21 that.

22 So, I want to think about, though, what the basis of
23 the problem is, then. A 2016 GAO report that examined our
24 existing space acquisition programs noted, quote, "We and
25 others have reported, for over two decades, that

1 fragmentation and overlap have contributed to program delays
2 and cancellations, cost increases, and inefficient
3 operations," end quote.

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

7 Mr. Shanahan: Senator, unifying and aligning certain
8 programs under the Space Development Agency will address
9 that problem that you spoke to.

10 Senator Warren: So, you say the problems of delays and
11 cancellations, cost increases, and inefficient operations
12 will be solved if there is a separate branch of the
13 military, but still under the command of the Air Force. You
14 know, this is particularly surprising to me, since the
15 proposal to leave the Space Force headquartered under the
16 Air Force would still leave exactly one person responsible
17 for acquiring hardware for both the Space Force and the Air
18 Force. So, it's not clear to me how this solves anything.
19 In fact, it's hard to see how that person would be able to
20 balance the competing needs of both services without a
21 massive increase in overall spending.

22 So, Secretary Shanahan, let me ask. Obviously, DOD has
23 not been able to solve the problems identified by the GAO
24 over the last 20 years. Why do you think another layer of
25 bureaucracy will suddenly solve this problem?

1 Mr. Shanahan: Well, I think the Department solved a
2 lot of problems. I think we can point to a lot of programs,
3 where inefficiencies, delays in decisions, redundancies,
4 overlaps have been corrected. I think there's a --

5 Senator Warren: Well, I'm sorry, the report is from
6 2016, from the GAO, saying you have not solved these
7 problems.

8 Mr. Shanahan: And all I'm arguing is, we've made lots
9 of improvements, and we can point to --

10 Senator Warren: And how is having one person, as you
11 have now, in charge of the acquisitions for these two
12 programs -- space program and the Air Force -- how's that
13 going to solve the problems that were identified by the GAO?

14 Mr. Shanahan: Well, specifically, there are a set of
15 fragmented programs today that will be consolidated, and
16 they'll allow us to get at many of the issues identified in
17 the GAO report.

18 Senator Warren: There's just one person in charge
19 right now --

20 Mr. Shanahan: The --

21 Senator Warren: -- and you still haven't fixed --

22 Mr. Shanahan: Yeah. It --

23 Senator Warren: -- this problem.

24 Mr. Shanahan: No, this isn't about one person. This
25 is about an organization, an organization that has certain

1 capabilities and decision rights.

2 Senator Warren: Well, look, I understand that DOD says
3 that unifying space acquisitions is going to help improve
4 outcomes. But, I'm concerned that it won't, because program
5 delays and cancellations, cost increases, and inefficient
6 operations are the rule, not the exception. And the entire
7 defense acquisition system already has this problem, and
8 nothing in this proposal makes it any better.

9 You know, none of the ideas I've heard today clearly
10 spell out how a Space Force leads to improved security in
11 space. Instead, all I see is how a new Space Force will
12 create one more organization to ask Congress for money. And
13 there's no reason to believe that adding an entirely new
14 Space Force bureaucracy, and pouring buckets more money into
15 it, is going to reduce our overall vulnerability in space.
16 I just think the taxpayers deserve better than this.

17 I yield back my time, Mr. Chairman.

18 Senator Reed: Thank you, Senator Warner.

19 On behalf of Chairman Inhofe, let me thank the
20 witnesses for their testimony and declare that the hearing
21 is adjourned.

22 [Whereupon, at 12:08 p.m., the hearing was adjourned.]

23

24

25

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