

Stenographic Transcript
Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
UNITED STATES STRATEGIC COMMAND AND UNITED
STATES SPACE COMMAND IN REVIEW OF THE DEFENSE
AUTHORIZATION REQUEST FOR FISCAL YEAR 2024 AND THE
FUTURE YEARS DEFENSE PROGRAM

Thursday, February 29, 2024

Washington, D.C.

ALDERSON COURT REPORTING
1029 VERMONT AVE, NW
10TH FLOOR
WASHINGTON, DC 20005
(202) 289-2260
www.aldersonreporting.com

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8 U.S. Senate

9 Committee on Armed Services

10 Washington, D.C.
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12 The committee met, pursuant to notice, at 9:30 a.m. in
13 Room SH-216, Hart Senate Office Building, Hon. Jack Reed,
14 chairman of the committee, presiding.

15 Committee Members Present: Senators Reed [presiding],
16 Shaheen, Gillibrand, Blumenthal, Hirono, Kaine, King,
17 Warren, Peters, Rosen, Kelly, Wicker, Fischer, Cotton,
18 Rounds, Ernst, Sullivan, Cramer, Scott, Tuberville, Mullin,
19 Budd, and Schmitt.
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1 OPENING STATEMENT OF HON. JACK REED, U.S. SENATOR FROM
2 RHODE ISLAND

3 Chairman Reed: Good morning. The committee meets
4 today to receive testimony from General Anthony Cotton,
5 Commander of U.S. Strategic Command, or STRATCOM, and
6 General Stephen Whiting, Commander of U.S. Space Command, or
7 SPACECOM. Gentleman, thank you for your service to the
8 nation, and please extend our thanks to the men and women
9 who serve with you.

10 As in the past we have asked the commanders of STRATCOM
11 and SPACECOM to testify together. Until 2019, SPACECOM was
12 a part of Strategic Command. As SPACECOM continues its
13 standup as an independent command it is important to
14 identify any gaps or seams that have emerged during the
15 transition.

16 On the global stage, Russia continues to behave
17 recklessly with regard to its nuclear weapons strategy.
18 Recent press reports say that Russia is considering
19 violating international space treaties and endangering the
20 global use of space for vital communications and sensing.
21 Further, Putin has sabotaged the strategic stability and
22 arms control policies that both our nations have respected
23 for decades. Over the past year, Russia has suspended its
24 participation in the New START treaty and withdrawn its
25 ratification of the Comprehensive Test Ban Treaty. Russia

1 continues to develop new third-strike nuclear weapons,
2 ranging from multi-megaton underwater torpedoes to nuclear-
3 powered cruise missiles.

4 At the same time, China is also advancing its missile
5 capabilities. China is quickly expanding its land-based
6 missile silos, building new air and sea nuclear delivery
7 platforms, and completing its nuclear command, control, and
8 communications, or NC3. These developments may have
9 significant impacts on stability in the Indo-Pacific and
10 America's extended deterrence commitment to our allies in
11 the region.

12 Simply put, we are now in a trilateral nuclear
13 competitive era.

14 General Cotton, I would ask for your thoughts on how
15 your command is handling this challenge and how you plan to
16 address your force structure to deter both Russia and China
17 while minimizing the potential for escalation.

18 The United States is also well underway in its nuclear
19 modernization cycle, a once-in-a-generation effort to renew
20 the aging legs of our nuclear triad. As part of that
21 effort, I understand the Department is encountering such
22 large costs increases in the Sentinel ICBM replacement
23 program that there has been a [unclear 0:02:28] breach,
24 which means the program must undergo statutory reviews and
25 an analysis of reasons for cost overruns. The fiscal year

1 2024 NDAA required an assessment of the operational impacts
2 of these acquisition delays, and we would ask for an update
3 on the situation.

4 General Whiting, the threats to the United States and
5 allied space systems continue to increase. As we are seeing
6 in Ukraine, dominance in the electromagnetic spectrum plays
7 a vital role in modern warfare. We have seen large swaths
8 of the battlefield in the Ukraine rendered inoperable due to
9 GPS denial for precision weapons, as well as the disabling
10 of commercial satellite systems at both military [unclear
11 0:03:11].

12 China, for its part, has invested heavily in jamming
13 the electronic and kinetic technologies that could be used
14 to disable our military and civilian satellites. We are in
15 a race to dominate this field because any future conflict
16 will involve a constant battle to control the spectrum and
17 cripple the adversaries' communications and command and
18 control. General Whiting, I would ask for your perspective
19 on the roles and vulnerabilities of these space systems as
20 well as lessons learned from the conflict in Ukraine.

21 Space Command recently announced that it has reached
22 full operational capability. However, in my view full
23 operational capability does not necessarily mean full
24 mission readiness. As a warfighting domain, space requires
25 new battle management capabilities, especially the ability

1 to detect a threat in space and to relay that information to
2 a weapons system. This battle management directly affects
3 our ability to protect troops on the ground, and SPACECOM
4 must continue to integrate fully with the other combatant
5 commanders. General, I hope you will update us on this
6 concept and what the Committee can do to help bring it to
7 fruition.

8 Finally, I would note that the missile defense mission
9 was recently transferred from STRATCOM to SPACECOM. This
10 mission set has never been more important for our troops
11 around the world, as we have seen threats increasing in the
12 Red Sea, Middle East, and Ukraine. I would like to know how
13 you are integration missile defense into your command and
14 what capabilities you need to protect our warfighters.

15 Thank you again to our witnesses for appearing today.
16 I look forward to your testimonies.

17 I would note for my colleagues that there will be a
18 classified briefing immediately following this session in
19 SVC-217, to continue our discussion.

20 Let me now recognize the Ranking Member, Senator
21 Wicker.

22 STATEMENT OF HON. ROGER WICKER, U.S. SENATOR FROM
23 MISSOURI

24 Senator Wicker: Thank you, Mr. Chairman, and thank you
25 to the witnesses for their service.

1 Last year's Congressional Strategic Posture Commission
2 issued a report that was disquieting. Its conclusion was
3 that the United States must fundamentally update our nuclear
4 and space programs if we have any hope of countering growing
5 threats from Russia and China. Unfortunately, the current
6 Administration has naively maintained the status quo.

7 I am choosing my words carefully in making this
8 statement.

9 While the United States has stayed complacent, Russia
10 and China have advanced by leaps and bounds in their nuclear
11 and space programs.

12 As we enter the third year of Putin's war against
13 Ukraine, Russia remains a major strategic threat to the
14 United States. Moscow owns the world's largest, most modern
15 nuclear arsenal, giving it a 10-to-11 advantage over the
16 United States in tactical nuclear weapons.

17 Russia has also developed new weapons unlike anything
18 in the U.S. inventory. It stocks nuclear-powered, trans-
19 oceanic, autonomous torpedoes and intercontinental cruise
20 missiles. Against such weapons, we are currently
21 defenseless.

22 As bad as this sounds, China is rapidly becoming an
23 even greater threat. Beijing is modernizing and expanding
24 its nuclear forces at breakneck speed. It will likely
25 outpace the United States in the early 2030s. Already it

1 successfully deployed an operational strategic triad of
2 nuclear missiles, bombers, and submarines.

3 Over the past 3 years, China has tripled the size of
4 its nuclear arsenal and built an ICBM network larger than
5 our own. The Chinese have flown a missile that can drop
6 nuclear warheads from orbit anywhere on earth, with
7 virtually no warning.

8 Both Russia and China are also openly developing and
9 testing counter-space capabilities. Each country has used
10 kinetic weapons to obliterate orbiting satellites. When
11 this is done, the blasts scatter thousands of debris
12 fragments, endanger hundreds of other satellites, and
13 preview a frightening future. Unfortunately, these
14 aggressive actions only scratch the surface of their real
15 capabilities.

16 One would expect these threats to generate a sense of
17 urgency in Washington. Today's nuclear and space dangers
18 should prompt us to reassess our assumptions about the
19 threat environment and realign our resources accordingly.
20 This is the unanimous recommendation of the Bipartisan
21 Strategic Posture Commission, the unanimous recommendation
22 of this bipartisan commission.

23 Instead, we see more of the same. The current
24 Administration consistently delays nuclear and space
25 modernization programs. It chooses to dawdle instead of

1 actively confront a pair of dire truths: the United States'
2 nuclear capabilities are falling behind, and the future of
3 war will extend to space.

4 Collaboration with Congress and the White House could
5 replace that inaction with progress. We can start
6 reclaiming lost ground by following the recommendations of
7 the Strategic Posture Commission, the unanimous
8 recommendations of this bipartisan commission.

9 We must accelerate the National Nuclear Security
10 Administration's restoration of our basic industrial
11 capabilities. The current, slow pace is out of touch with
12 the reality.

13 Likewise, we must make progress on the Sentinel ICBM
14 and Columbia submarine programs. These programs require
15 sustained investment and innovation. But the benefit is
16 worth the price tag and elbow grease that it will require.
17 The advances made by our adversaries demand both defensive
18 and offensive military solutions.

19 I would like to hear from our witnesses about how this
20 Committee can help create a sense of urgency when it comes
21 to accelerating the modernization of our strategic arsenal
22 and adapting our forces to the new threat environment.

23 Thank you, Mr. Chairman.

24 Chairman Reed: Thank you, Senator Wicker.

25 General Cotton, your comments, please.

1 STATEMENT OF GENERAL ANTHONY J. COTTON, USAF,
2 COMMANDER OF UNITED STATES STRATEGIC COMMAND

3 General Cotton: Good morning, Chairman Reed, Ranking
4 Member Wicker, and distinguished members of this Committee.
5 It is an honor to be here today alongside General Whiting
6 and a privilege to represent the servicemembers and
7 civilians of the United States Strategic Command.

8 This is my second year appearing before you as the
9 STRATCOM Commander. I would like to thank this Committee
10 and Congress for their support not only to national defense
11 but to my portfolio. I have submitted my posture statement
12 for the record.

13 The most important message I want to deliver today is
14 that the forces under my command are ready to deter our
15 adversaries and respond decisively should deterrence fail.
16 No adversary should ever doubt our capability today. As a
17 global warfighting command, STRATCOM sets conditions across
18 the globe as the ultimate guarantor of national allied
19 security. Our forces and capabilities underpin and enable
20 all other Joint Forces operations.

21 We do this in the face of challenges unlike anything
22 America has ever encountered. We are confronting not one but
23 two nuclear peers, the Russian Federation and People's
24 Republic of China. This reality, combined by missile
25 developments in North Korea, Iran's nuclear ambitions, and

1 the growing relationships amongst those nations add news
2 layers of complexity to our strategic calculus. It also
3 raises the possibility of simultaneous conflicts with
4 multiple nuclear-armed adversaries.

5 The PRC is surpassing the United States in its number
6 of fixed intercontinental ballistic missile launchers, and
7 projections indicate its nuclear arsenal would encompass
8 approximately 1,000 warheads by 2030. As Russia's
9 unprovoked invasion of Ukraine enters its third year, its
10 reliance on nuclear forces increases as its conventional
11 forces attrit.

12 Beyond Russia's traditional strategic triad it is
13 expanding and modernizing nuclear options that are not
14 covered by international arms treaties. Last Friday,
15 President Putin stated that 95 percent of Russia's strategic
16 nuclear forces have been modernized. In short, our
17 competitors are improving their position against the United
18 States and its allies in multiple domains at rates that are
19 far exceeding the pace we have seen just a few years ago.

20 While our legacy systems continue to hold potential
21 adversaries at risk, it is absolutely critical we continue
22 at speed with the modernization of our nuclear triad,
23 including land-based ICBMs, the B-21, the B-52, the
24 Columbia-class submarine, the nuclear sea-launched cruise
25 missile, and LRSO, as well as numerous related systems,

1 while also focusing on the NC3 enterprise with its upgrades
2 and cybersecurity.

3 I urge Congress to continue supporting these critical
4 national security capabilities, their associated
5 infrastructure, and the sustainment of legacy systems during
6 the modernization period.

7 Let me be clear. While modernization will continue to
8 be the priority, STRATCOM forces are ready to fight tonight,
9 and my components will always be ready to fight tonight.

10 So I thank you, and I look forward to your questions.
11 Thank you, Chairman.

12 [The prepared statement of General Cotton follows:]
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1 Chairman Reed: Thank you, General Cotton.
2 General Whiting, please.

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1 STATEMENT OF GENERAL STEPHEN N. WHITING, USSF,
2 COMMANDER OF UNITED STATES SPACE COMMAND

3 General Whiting: Chairman Reed, Ranking Member Wicker,
4 and members of the Committee, thank you for this opportunity
5 to testify, and I am pleased to be joined beside my longtime
6 friend, General Tony Cotton. I am honored to represent the
7 18,000 joint military and civilian professionals of United
8 States Space Command and our five service components.
9 Indeed, our people are the most valuable asset of national
10 space power.

11 U.S. Space Command, working with allies and partners,
12 has a moral responsibility to the Joint Force, the nation,
13 and our allies to provide space capabilities through all
14 levels of conflict. Since Desert Storm, the Joint Force has
15 become reliant on these systems, and force sized according
16 to the assumption of always having access to space
17 capabilities. This is why U.S. Space Command must protect
18 and defend our space systems to ensure they are available in
19 the face of the growing threats arrayed against us.

20 Inherent in this responsibility is our ability to
21 protect the Joint Force from space-enabled attack. Our
22 principal strategic competitors, the People's Republic of
23 China and the Russian Federation, now hold at risk United
24 States and allied space capabilities because they know our
25 Joint Force relies on space to fight the way we want

1 -- precisely, lethally, effectively, and efficiently. To
2 put it plainly, the PRC's and Russia's actions have
3 transformed space into a contested, warfighting domain.

4 Additionally, PRC military operations, in particular,
5 have become increasingly enabled by space at all levels of
6 warfare, and the People's Liberation Army is improving their
7 terrestrial forces' lethality and effectiveness by
8 leveraging space capabilities. As of January 2024, the
9 PRC's intelligence satellite fleet contained more than 359
10 systems, more than tripling its on-orbit collection presence
11 since 2018. With their space and counterspace systems they
12 have dramatically increased their ability to monitor, track,
13 and target U.S. and allied forces, both terrestrially and on
14 orbit.

15 Russia also continues to develop, test, and demonstrate
16 their counterspace capabilities, despite not having achieved
17 their war aims from their invasion of Ukraine. This ongoing
18 ground war has revealed military reliance on space and
19 space-enabled capabilities. To be sure, Russia's war in
20 Ukraine has established space as an indelible enabler of
21 terrestrial warfare.

22 Today U.S. Space Command seeks to expand competitive
23 advantage over PRC and Russia by leveraging every available
24 asset of the interagency, the rest of the Joint Force, our
25 allies, and our partners in U.S. commercial industry and

1 academia. The United States remains the best military space
2 power in the world, yet our current architecture is
3 optimized for operations in a benign space environment. To
4 ensure success in the contested space environment we now
5 find ourselves in, it is vital that U.S. Space Command is
6 delivered improved capabilities and capacities, fully
7 tested, and with trained personnel by 2027. While a
8 conflict in space is not inevitable, it would certainly be
9 devastating and disrupt our use of space for decades, so we
10 must be ready if deterrence fails.

11 Simply put, the PRC is moving breathtakingly fast in
12 space. America must rapidly increase the timeliness,
13 quality, and quantity of our critical national space and
14 missile defense systems to match China's speed and maintain
15 our advantage. With the U.S. Space Force as well as the
16 Army, Air Force, Navy, and Marines, and other combatant
17 commands and other agencies, U.S. Space Command has
18 determined priority military capabilities required by 2027
19 to dominate in space.

20 Specifically, U.S. Space Command's top five priority
21 requirements that are key to delivering on our unified
22 command plan responsibilities are (1) resilient and timely
23 operational command and control; (2) integrated space fires
24 and protection; (3) modernized, agile electronic warfare
25 architectures; (4) enhanced battle space awareness for space

1 warfare; and (5) cyber defense of space systems. Absent
2 commitment to long-term investment in these integrated
3 requirements, we risk ceding advantage to our principal
4 strategic competitors in the space domain.

5 With delivery of increased capability and capacity
6 assured, U.S. Space Command will attain the required
7 enduring advantage over any adversary determined to conduct
8 war in outer space, thus ensuring defense of our homeland,
9 the protection of the Joint Force, and our allies.

10 I am grateful for Congress' support to U.S. Space
11 Command and investments to advance America's leadership in
12 space. With your continued backing, United States Space
13 Command will ensure space remains sustainable, safe, stable,
14 and secure for all.

15 Chairman, I have submitted my posture statement for the
16 record, and I look forward to your questions.

17 [The prepared statement of General Whiting follows:]

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1 Chairman Reed: Thank you very much, General Whiting.

2 General Cotton, what force structure changes do you
3 anticipate in order to maintain our deterrence now that we
4 have a trilateral nuclear competition with Russia and China?
5 Can you comment on that, please?

6 General Cotton: Chairman, that is the dilemma that I
7 walked into when I took command of STRATCOM. And as I said
8 in the last posture hearing and even at my confirmation,
9 that was one that I was going to jump on as soon as I took
10 command and took the flag.

11 What we have done is, along with the comments of the
12 Ranking Member and what we are seeing in the Strategic
13 Posture Commission results, we have done work internal to
14 STRATCOM to see what is going to be the requirements in
15 regard to what we need as a fighting force.

16 The NPR actually gives me the opportunity to do just
17 that. So I am staying within the confines of the
18 Administration. When the NPR says what we want to have is a
19 triad, I absolutely agree with that notion that we must
20 maintain a triad. I absolutely agree that there is now time
21 for us to look to see what do we do with the program of
22 record that we currently have to ensure that I can cover not
23 only one nuclear adversary but two.

24 So within all legs of the triad we are having that
25 conversation right now, and there are actually studies that

1 are going on in which my teammates are part of at STRATCOM
2 within the Department of Defense that goes after looking at
3 the recommendations that the Strategic Posture Commission,
4 that validates many of the notions that STRATCOM came up
5 with even before the release of the Posture Commission.

6 Chairman Reed: Thank you. General Whiting, you
7 reached full operational capability in December, which is
8 welcome news. Congratulations. However, the question is
9 adequate readiness posture to support your operational
10 capabilities. They are two different topics. Are there
11 particular areas that the Committee should be aware of where
12 readiness must be enhanced?

13 General Whiting: Senator, thank you for the question.
14 Yes, my predecessor, General Jim Dickinson declared full
15 operational capability, as you noted, and that was really to
16 say that our headquarters now can function as the other
17 combatant commands and execute our primary responsibilities
18 as laid out in Title 10 and in the Unified Command Plan.

19 But as I noted in the opening statement, our forces
20 today are optimized for a benign space environment. The
21 systems were either built, or the requirements were largely
22 laid down during a time when we didn't face the threats we
23 now see. So now we really have to focus on making sure we
24 have the systems to protect and defend our existing
25 architectures, even as we make our current architectures

1 more resilient, and that we have the systems the protect the
2 Joint Force from the space-enabling capabilities we now see
3 the PRC developing, for example. And then we have to have
4 the testing capabilities to assure us those new systems will
5 work, and the training capabilities so our personnel have
6 the reps and sets, if you will, to be ready to go.

7 So that is really where we need to focus is on
8 continuing to deliver capability to allow us to operate in
9 the contested domain we now find ourselves in.

10 Chairman Reed: Thank you. General Cotton, the
11 Sentinel program is encountering difficulties. The Columbia
12 program is slowing down rather than speeding up. We have, I
13 think, some good news with the B-21. But the basic mission
14 is to maintain a triad, not something less.

15 Can you comment, particularly with respect to the
16 Sentinel program, in terms of what we have to do at this
17 juncture? I know they are still evaluating it.

18 General Cotton: Chairman, thank you for the question.
19 In regard to Sentinel and where it stands with Nunn-McCurdy,
20 I think I will answer it this way. There is no change in
21 the requirements that I currently on the modernization of
22 all three legs of the triad. That absolutely has to be
23 done. And I think what is really important for folks to
24 understand is I think I am probably the only combatant
25 command that can't have a gap in my capabilities, because a

1 gap in my capabilities, credibility as well as safe, secure,
2 and effective weapons systems, is key and foundational to
3 deterrence.

4 So as you talk about all three legs going into
5 potential delays we must ensure that we never have a gap in
6 the capabilities amongst those three legs of the triad, and
7 that is what I look and study every single day to ensure
8 that we don't create a gap in that mission set, whether it
9 is land, sea, or the air leg.

10 Chairman Reed: Thank you, General Cotton. Senator
11 Wicker, please.

12 Senator Wicker: Well, let's just follow up on that
13 with regard to the triad, General Cotton, and I appreciate
14 you meeting with us earlier to discuss this.

15 So we have got the land-based and the air-based. Let's
16 talk about sea-based. And your testimony points out that it
17 involves the Ohio-class SSBN fleet, right, and the Trident
18 II D5 strategic weapon system, SWS. Are we where we need to
19 be on that?

20 General Cotton: So all three legs of the triad are
21 past system lives. The good news is the men and women that
22 are maintaining those systems are doing an incredible job to
23 do that. The problem we face, and the problem that I have
24 to encounter every single day with legacy systems is to
25 ensure that I have the required numbers of SSBNs that are

1 available as well as the required number of weapons that are
2 available for the SSBN fleet.

3 As we make the transition to the Columbia class, as I
4 mentioned to the Chairman, what is going to be incredibly
5 important, Senator, is that we ensure that there is no gap
6 between the transition of the Ohio-class weapon system to
7 the Columbia-class weapon system.

8 Senator Wicker: Well, yes, and so at least with regard
9 to this there is no feeling in your mind that we can divest
10 so we can later invest. That is nonsense when it comes to
11 what you are talking about.

12 General Cotton: That is correct. That is why I make
13 that statement on ensuring that I don't create a gap as we
14 do the transition from legacy to a modernized system. I
15 will always have to be able to cover down a requirement with
16 the legacy systems --

17 Senator Wicker: On page 11 of your testimony, "Despite
18 the fleet's accomplishments and its ability to achieve the
19 mission today it faces continuous sustainment challenges
20 that could impact its availability until fully replaced by
21 the Columbia-class in 2042." Are we asking for enough
22 resources for you to get where you need to get on time?

23 General Cotton: I don't know that resources is
24 necessarily the issue here. I think what I really see is
25 the ability for the industrial base to be able to produce

1 and not drive the gaps. So as we look to modernize systems
2 --

3 Senator Wicker: To the extent that we are proposing to
4 appropriate some \$3.4 billion extra for submarine industrial
5 base, that will be helpful, will it not?

6 General Cotton: It will be helpful, absolutely, sir,
7 on the modernization.

8 Now, to your point, we also need to ensure that the
9 legacy systems have the sustainability that is available to
10 them so I can maintain the legacy systems as well until the
11 new systems arrive.

12 Senator Wicker: Okay. Thank you very much. Serious
13 challenges in your bailiwick, I would say.

14 General Whiting, you talk about a vulnerability window
15 on page 3 of your testimony. "There is a vulnerability
16 window communicated by our competitors and highlighted as we
17 watch conflict unfold in Ukraine and Israel." What are we
18 learning there, and state for our audience what the
19 vulnerability window is.

20 General Whiting: Ranking Member, the vulnerability
21 window is the fact that our competitors, PRC and Russia,
22 have invested in counterspace capabilities, having studied
23 us for decades, to hold at risk our ability to fight the way
24 we would like. And so now we have to make our current space
25 capabilities, that provide satellite communications,

1 positioning navigation and timing, missile warning, those
2 kinds of functions, we have to make them more resilient
3 against those threats and provide protect-and-defend
4 capability to help protect them.

5 Those investments have been made, but we need to make
6 sure those programs deliver and that we continue to invest
7 to assure that we can support the Joint Force with those
8 kind of capabilities in the face of these threats.

9 Senator Wicker: And until they are delivered there is
10 a window of vulnerability.

11 General Whiting: That is correct, Ranking Member.

12 Senator Wicker: Okay. Are the requestors asking for
13 enough resources to address this vulnerability window?

14 General Whiting: Senator, I think we have laid out all
15 of the requirements that we need, and we know the programs
16 that we need, and now we need to make sure those are
17 delivering on time and pulling them as much to the left as
18 we can.

19 Senator Wicker: They need to be pulled to the left.

20 General Whiting: Yes, sir. I would like to have all
21 the capability I could --

22 Senator Wicker: And explain to people who aren't
23 accustomed to Washington-ese what "pulling it to the left"
24 means?

25 General Whiting: Senator, that means to deliver it

1 even earlier than we expect.

2 Senator Wicker: And that is a very important need, is
3 it not?

4 General Whiting: Sir, I would like to have as much
5 capability as I could right now. Yes, sir.

6 Senator Wicker: Thank you.

7 Chairman Reed: Thank you, Senator Wicker. Senator
8 Kaine, please.

9 Senator Kaine: Thank you, Mr. Chair, and thank you to
10 our witnesses.

11 General Cotton, in your posture statement you mention
12 that continued congressional support is critical to
13 overhauling the sub industrial base to advance the Navy's
14 shipbuilding efforts, and you also noted that the execution
15 of 1+2 submarine build plan is a national imperative,
16 following up on Senator Wicker's questions. I completely
17 agree with this, especially given the additional commitments
18 we have now taken on with AUKUS Pillar 1. How critical are
19 the submarine industrial base investments like those that we
20 included in the supplemental to ensuring that the Columbia-
21 class submarines are delivered on time?

22 General Cotton: Thank you for the question, Senator.
23 Kaine, and I would like to say thank you to -- I know there
24 was a SASC hearing even yesterday in regards, and many of
25 the members that are before us today were part of that. So

1 thank you for the support in addressing the industrial base
2 problem. And using the Northeast, it is a wicket problem.

3 I do not have capacity to lose one leg of the triad,
4 and the SSBN and the SLBN weapon system is critical to the
5 triad and my operational plans and the forces that I must
6 present to the commander in chief, if warranted. Critical.

7 So as I would state for the land-based leg as well as
8 the air leg, absolutely critical that we continue to press
9 and ensure, just like my colleague said, you know, if we can
10 get things earlier that would be incredibly advantageous to
11 us as a fighting force.

12 Senator Kaine: We did have a hearing yesterday on
13 manpower issues generally, and when you were asked the
14 question by Senator Wicker about whether you needed more
15 resources and you said it is not a resource problem my
16 colleague here said, "It is a welder problem." I mean,
17 there is a manpower problem, and we are experiencing it,
18 Australia is experiencing it, the U.K. is experiencing it.
19 So we are going to have to be very, very creative in
20 addressing this manpower issue if we are going to maintain
21 the pace that you need to keep the triad intact and
22 effective.

23 You talked, General Cotton, in your testimony here
24 about the four allies, principally Russia and the PRC, but
25 also in the nuclear space, Iran and North Korea, and then

1 you said, "and the growing relationships between these four
2 nations." Do you see those relationships growing in ways
3 that really impact the STRATCOM domain, or are there growing
4 activities in concert more in other military demands?

5 General Cotton: Senator, no. I see it in my domain as
6 well because remember, part of my portfolio is strategic
7 deterrence. That includes nuclear deterrence. But even in
8 the nuclear deterrence space, let's just have a conversation
9 in regard to the relationship that we see. That
10 transactional relationship between Russia and the DPRK has
11 manifested itself in different ways here over the past 8
12 months.

13 So we are looking at that differently on what that
14 relationship is actually -- you know, what does DPRK gain
15 with that new relationship that they have with Russia, as an
16 example.

17 Senator Kaine: Thank you. General Whiting, in your
18 written testimony you highlighted collaboration with allies,
19 interagency partners, and commercial stakeholders as a key
20 asymmetric advantage that we have in space. I was at
21 Wallops Island recently and I had a great visit with NASA,
22 the NRO, and the Navy, and a private commercial provider,
23 Rocket Lab, to discuss government capabilities in this area.

24 How are you thinking about the importance of
25 collaboration with the commercial space industry?

1 General Whiting: Senator, thank you for the question.
2 I think U.S. commercial space industry is not just an
3 advantage in space. It is an advantage for this nation,
4 period, and it is an advantage that is widening over our
5 competitors. So we absolutely need to continue to partner
6 with U.S. commercial space industry to leverage the cost
7 curves that they are on, to leverage the speed at which they
8 are operating, to take advantage of as much of that
9 capability as we can.

10 The Space Command is partnered with the Space Force as
11 they look at new ways of contracting with commercial
12 industry such as the Commercial Augmentation Space Reserve
13 that they are looking to start next year, and we are very
14 excited about those opportunities.

15 Senator Kaine: I will just offer this question for the
16 record, but if in the course of us working on the NDAA this
17 year there are any policies that you think we should embrace
18 in the NDAA that would enhance our ability to collaborate in
19 the ways you described we would love to hear that from you.

20 And with that I will hand it back, Mr. Chair.

21 Chairman Reed: Thank you very much, Senator Kaine.
22 Senator Fisher, please.

23 Senator Fischer: Thank you, Mr. Chairman. Last
24 October the bipartisan, bicameral Congressional Commission
25 on the Strategic Posture of the United States released their

1 final report on America's strategic posture. Its findings
2 were sobering. We face two major nuclear adversaries for
3 the first time in history, and we are woefully underprepared
4 to address this future threat environment.

5 In their report, the commissioners also unanimously
6 endorsed 81 recommendations. If we can act upon most of
7 these the United States should retain the capability and the
8 capacity to maintain a safe, reliable, effective, and
9 credible nuclear deterrent throughout the next several
10 decades. Over the coming months I am going to be working
11 with my colleagues on this Committee to include many of
12 these recommendations in fiscal year 2025 NDAA.

13 General Cotton, I appreciate our earlier conversations
14 about the Strategic Posture Commission's report, and your
15 very careful review and consideration of their findings and
16 recommendations. Do you agree with the commissioners'
17 statement that, quote, "The nuclear force modernization
18 programs of record is absolutely essential, although not
19 sufficient to meet the new threats posed by Russia and
20 China, and that the elements of the programs of record
21 should be completed on time, expedited wherever possible,
22 and expanded, as needed"?

23 General Cotton: I do, Senator.

24 Senator Fischer: And can you please provide the
25 Committee with your views on which of those commissioners'

1 recommendations you think are the most important or that we
2 should be prioritizing?

3 General Cotton: Thank you for the question, Senator
4 Fischer. You know, I was probably one of the first to
5 receive the outbrief from Honorable Creedon and Senator Kyl
6 when it came to the results of the Commission, and it
7 validated many of the things that we were looking inhouse
8 and Strategic Command in regard to what do we do with the
9 current arsenal and the stockpile.

10 I have memorized what I would consider pages 48 and 49
11 of the Commission, which has the 81 recommendations. Of
12 those, I have prioritized what I think should be the things
13 that we get after first. I do believe that we need to take
14 serious consideration in seeing what uploading and re-MIRV-
15 ing the ICBM looks like and what does it take to potentially
16 do that. I do believe that we need to have a conversation
17 in regard to how do we have -- because part of that report
18 also says the importance of having a credible and effective
19 conventional force.

20 Part of that is looking at and ensuring that we have
21 the right long-range standoff conventional weapons as well,
22 that can be placed on a bomber, as an example. And then the
23 look at what does all legs of the triad look like in regard
24 to capacity, and how can you expand capacity, and how do you
25 build the modernized force that has modularity in where we

1 can always keep pace, as opposed to the current system that
2 we have, that it is really hard to do that.

3 Senator Fischer: You know, Senator King and I often
4 refer to NC3 as the fourth leg of our nuclear triad, and the
5 President's ability to command, control, and communicate
6 with our nuclear forces, that is essential in maintaining
7 that credible nuclear deterrent that we must have. If NC3
8 fails then the deterrent fails.

9 We have previously discussed, General, the importance
10 of moving forward quickly with NC3 modernization and
11 building out that roadmap with a clear and achievable, near-
12 and long-term goals, and I appreciate you briefing our
13 subcommittee on that earlier this week about your plan. But
14 in this setting, can you please share with the Committee how
15 STRATCOM is working with the services, with the Under
16 Secretaries of Acquisition and Sustainment and Research and
17 Engineering to integrate new technologies and new systems
18 into that NC3 architecture?

19 General Cotton: Senator, I would love to. One of the
20 things that was first on the agenda for us was to ensure
21 that as we articulate the modernization of the NC3 force
22 that we look at it in different bins. The first thing we
23 must do, to your point, is ensure that the NC3 system that
24 is currently available to the President of the United States
25 and to decision-makers of the United States has the ability

1 to fight through. So we want to make sure that we look at
2 systems today and ensure that we are taking care of systems
3 today.

4 The other piece that we wanted to make sure that we did
5 is look at the midterm, and to your point we have
6 collaborated -- and thank you for hosting us to present
7 that, you and Senator King, for allowing us present that to
8 the subcommittee -- and show the relationship that I have
9 with ANS, with our acquisition and sustainment, Dr.
10 LaPlante. The increased relationship that I have with R&E,
11 Dr. Heidi Shyu, that was actually missing prior, and then
12 the relationship that I have with our CIO, Mr. John Sherman.
13 Because of that we are able to coalesce and be able to come
14 up with a plan that is executable. We were able to brief
15 that to the Deputy Secretary of Defense last summer, in
16 which the service components were also in the room. And now
17 they have measured milestones to grade themselves against,
18 where that was missing in the past.

19 We still have a lot of work to go, Senator, but I am
20 pleased with the work that we have done so far.

21 Senator Fischer: Thank you.

22 Chairman Reed: Thank you, Senator Fisher. Senator
23 King, please.

24 Senator King: Thank you, Mr. Chairman. When we think
25 about what is going on here in this room, this hearing is

1 undoubtedly being watched in real time in Moscow and
2 Beijing. And General Cotton, the focus of this hearing will
3 naturally be on gaps and work that is under progress and
4 what the problems are, but I want you to restate what you
5 stated in your opening testimony for the benefit of our
6 audience far away. You are ready to fight tonight with an
7 awesome response to anyone who attacks this country. Is
8 that correct?

9 General Cotton: The men and women that represent
10 United States Strategic Command are ready to defend if a
11 strategic deterrence failure happens, tonight. We are ready
12 today.

13 Senator King: And the capacity of the triad right now
14 is at an actionable level. I don't want anybody to get the
15 impression that we are somehow crippled in terms of our
16 nuclear deterrent. You have the forces you need to defend
17 the country and also to impose unthinkable costs on a
18 potential adversary. Isn't that correct?

19 General Cotton: I do.

20 Senator King: Thank you. One of the problems on the
21 budget that we have here, that has always surprised me, we
22 don't have a capital budget. Our budget of the United
23 States government is a cash flow budget, and really the
24 recapitalization of the nuclear triad is a capital
25 investment. We are talking 40- and 50-year assets. And so

1 one of the problems we are facing in our budget is it all
2 comes out -- it looks like it is in the defense budget, but
3 I call it the "pig in the python." There is this bulge of
4 nuclear modernization that really should be considered
5 capital investment.

6 So I think that is important for people to realize when
7 you look at the defense budget there is a piece of it that
8 is really something that probably should have been done over
9 the past 30 years that we are trying to do in a hurry. Is
10 that your reading, General?

11 General Cotton: It is, sir. You know, the way I like
12 to describe it is I am responsible for maintaining, and the
13 components under me are responsible for maintaining national
14 systems on behalf of the President of the United States.

15 Senator King: Thank you. General Whiting, we have the
16 best space capability, and have for many, many years. That
17 is the good news. The bad news is the dependency that we
18 have on space, which makes us asymmetrically vulnerable in
19 terms of the relationship with these potential adversaries.

20 What are we doing to think about alternatives to space?
21 For example, I understand recently they are now teaching
22 celestial navigation at Annapolis again. We need to be
23 thinking about how do we reduce our reliance on space
24 assets, given the development of anti-space capabilities of
25 our adversaries. Talk to me about how we mitigate this

1 risk.

2 General Whiting: Senator, thank you for the question.
3 We have gone to space because of the advantages it brings
4 us. It allows us to operate globally, untethered to
5 terrestrial network.

6 Senator King: We were unopposed for years.

7 General Whiting: Yes, sir, and that gives us a unique
8 advantage. But to your point -- and I know all the services
9 are thinking about this -- what do we do when our primary
10 capability may not be available? Now in Space Command it is
11 our job to make sure that that doesn't happen, but no doubt
12 the services have to train what their secondary plans are,
13 and all of them have those plans in place, and to our point
14 are training those to their people.

15 Several of services, such as the Army, the Navy, and
16 the Marines, also have relatively small but dedicated cadres
17 of space personnel to help their commanders understand the
18 benefits and the vulnerabilities of space so they can
19 understand when those times might be that they would have to
20 go to those secondary or tertiary plans.

21 Senator King: Well, now I am going to talk about those
22 gaps that I mentioned at the beginning, that I don't want to
23 overemphasize. But you have partial responsibility for
24 missile defense. It bothers me that we have been very slow
25 on the issue of directed energy. We are using \$5 million

1 missiles to knock down \$200,000 or \$300,000 drones. This
2 should be a task for directed energy. I hope that is part
3 of missile defense, missile awareness, and all branches, not
4 just you necessarily, but all the branches should be working
5 on two things: missile defense and hypersonic defense.
6 Those are strategic game-changers that I think we have been
7 slow to develop.

8 Is directed energy going to be part of the future of
9 missile defense?

10 General Whiting: Sir, just 2 weeks ago I was in
11 Huntsville, meeting with the Missile Defense Agency, and we
12 talked about directed energy, and I know that is something
13 they are looking at. And I agree with you, Senator. I
14 think it needs to be part of our future.

15 Senator King: I want more than looking at. I want
16 development, and soon. I think we should be having a
17 capability in the Red Sea right now. This is an opportunity
18 to use that capacity.

19 And finally I just want to associate myself with my co-
20 chair, Senator Fischer, on NC3. That is part of the triad.
21 I congratulate you on the work that you are doing, but urge
22 you to accelerate and continue. Because the whole idea
23 there, the cornerstone of the defense of this country is
24 deterrence, and should the adversary detect a weakness in
25 our deterrence -- and NC3 is the glue that holds it all

1 together -- we are vulnerable. So as I say, I congratulate
2 you, but want to prod you to keep going earnestly, and
3 accelerate the progress on that issue.

4 Thank you, Mr. Chairman.

5 Chairman Reed: Thank you, Senator King. Senator
6 Cotton, please.

7 Senator Cotton: General Cotton and General Whiting,
8 welcome. Thank you for your testimony this morning, and I
9 extend my thanks to all the men and women who serve under
10 your commands.

11 General Cotton, Since Xi Jinping took power a little
12 over a decade ago China's nuclear arsenal has increased by
13 more than 100 percent. By 2035, the Department anticipates
14 that China's nuclear arsenal will have increased by 500
15 percent. How would you characterize the threat posed to the
16 United States by China's rapidly growing nuclear arsenal?

17 General Cotton: As my predecessor said -- and I love
18 using his terminology because it is -- the breakout that we
19 saw and the advancements and how quickly the advancement
20 that we are seeing in China to rapidly create a viable triad
21 is breathtaking.

22 Senator Cotton: Unprecedented, the pace at which they
23 are expanding?

24 General Cotton: It is.

25 Senator Cotton: Okay. And your statement says that

1 they have a triad today. Is that correct?

2 General Cotton: That is correct, Senator.

3 Senator Cotton: It may not be the most cutting edge
4 versions of it, the bombers may require standoff weapons,
5 but they are working on stealth bombers. Is that correct?

6 General Cotton: That is correct.

7 Senator Cotton: Do you think that a nation that
8 multiplies its nuclear arsenal as rapidly as China does,
9 especially when governed by communists, is doing so with
10 peaceful intent?

11 General Cotton: I think the minimum deterrent strategy
12 that we used to hear that China links themselves with as far
13 as their strategic policy, I find hard to believe that that
14 can still be a policy with the way that they are building
15 out their arsenal.

16 Senator Cotton: For years China had pursued so-called
17 minimum deterrence, but they also are well-known for a
18 policy called "hide and bide" -- hide your strength and bide
19 your time. Do you think it is fair to say that China is
20 heeding the "hide and bide" strategy now?

21 General Cotton: Senator, they are showing us their
22 capability and shown us how fast they can grow.

23 Senator Cotton: They also have had a long declared, at
24 least formal, policy of "no first use." Does it make sense
25 to expand your nuclear program by 500 percent and retain a

1 "no first use" policy?

2 General Cotton: I will go back to using that as the
3 opening for a minimum deterrent strategy. That probably is
4 in alignment. But what we are seeing, probably not so much.

5 Senator Cotton: Pretty big investment of national
6 resources to expand your nuclear weapons by so much if you
7 are planning to keep a "no first use" policy, wouldn't you
8 say?

9 General Cotton: Even though we haven't heard them say
10 that, you are absolutely correct.

11 Senator Cotton: No shock everyone to hear that Chinese
12 communists have a history of lying, not just about their
13 nuclear weapons. The Tibetans would probably have something
14 to say about that.

15 Let's look at what we are doing to counteract this
16 threat. Well first, actually, let's stay on the threat.

17 How does China's nuclear arsenal compare to ours today?

18 General Cotton: Today we are still superior in there,
19 but like I said, I think the reality is we are going to have
20 to continue to modernize our current systems. We are
21 superior to them today.

22 Senator Cotton: Today, yes. If China continues on the
23 pace in which the Department projects, by 2035 will they
24 have achieved parity with the United States?

25 General Cotton: In the realm of their land-based

1 systems, yes.

2 Senator Cotton: Okay. And what if you combined the
3 total forces of China and Russia by 2035. Would those two
4 countries combined have nuclear overmatch against the United
5 States on the current pace?

6 General Cotton: Well, the weapons count would be
7 larger than our weapons count.

8 Senator Cotton: Okay. What we are doing. Is the B-21
9 moving quickly enough to meet your future deterrence
10 requirements?

11 General Cotton: The limited production rate of the B-
12 21 is the only thing that I wish we could do a little
13 quicker. The fact that that is an incredible sixth-
14 generation platform, all indications are that that weapon
15 system is moving along at a great pace as far as delivery.
16 The ability for production and the number of products, as a
17 warfighter obviously I would love to have more --

18 Senator Cotton: It would be nice to have more than
19 100.

20 General Cotton: Yes, sir.

21 Senator Cotton: Okay. Final topic. Let's look at a,
22 I guess you would call it a first-generation aircraft, the
23 B-52. I think it is 79 years old now.

24 General Cotton: Seventy.

25 Senator Cotton: Seventy. All right. Almost as old as

1 some Senators. But, you know, we often hear criticism and
2 like, "Well, we are flying aircraft that are older than
3 General Cotton. We are flying aircraft that started when
4 these pilots' grandparents were flying it." I kind of
5 subscribe to if it ain't broke, don't fix it philosophy. It
6 can't go into denied environment, but once air defenses have
7 been reduced, and with extended-range standoff weapons it is
8 highly effective.

9 Why is it critical that the Air Force also re-engine
10 the B-52 for your deterrence needs?

11 General Cotton: Senator Cotton, thank you for that
12 question. Surface is absolutely an imperative as part of
13 the nuclear modernization. As you mentioned, yes, it gets
14 picked on quite a bit on its age, but as we look at what the
15 capacity and what the capability is of that weapon system,
16 that platform, it is amazing. And what that will be able to
17 do for us -- and I said earlier -- we need to think about
18 the ability for it carry LRSO. It is the platform that will
19 LRSO. It is the platform that has a lot of mass as far as
20 capability. And I want it to be able to have a long-range
21 strike standoff capability even greater than it has today.

22 Senator Cotton: Thank you. It is old, but if it is
23 well maintained and modernized, it seems to me that it is
24 still a vital part of our triad.

25 General Cotton: You are absolutely correct, Senator.

1 Senator Cotton: A lot of your troopers would probably
2 love to drive a Chevy Belair or a Ford Thunderbird from the
3 1950s, as well.

4 General Cotton: Well, I call it a restomod, Senator.

5 Senator Cotton: Thank you.

6 Chairman Reed: Thank you, Senator Cotton. Senator
7 Warren, please.

8 Senator Warren: Thank you, Mr. Chairman. So Strategic
9 Command is responsible for strategic deterrence including
10 our nuclear weapons. We were already planning to spend \$2
11 trillion to modernize and maintain those weapons over the
12 next 30 years. Now we are learning that the cost for those
13 programs is going to be even higher than we anticipated.

14 General Cotton, I know that you are not responsible for
15 managing these programs, but we turn to your command for
16 your best military advice on what these programs will mean
17 for our national security. General Cotton, do you agree
18 that decisions about how to build our nuclear posture should
19 be based on the most accurate information we have at the
20 time?

21 General Cotton: Senator, can you rephrase -- I don't
22 quite understand what you are saying.

23 Senator Warren: I know. It sounds so easy. The point
24 is should we base our decisions based on the most accurate
25 information we have got when we are making the decision.

1 General Cotton: Absolutely.

2 Senator Warren: Okay, good, because DoD did not do
3 that for the Sentinel program, which will replace all land-
4 based intercontinental ballistic missiles. The Air Force
5 has already concluded that the basic assumptions for the
6 program's cost estimates, quote, "weren't particularly
7 valid."

8 When I requested that DoD contract with a respected
9 group of outside experts in 2021, to determine the technical
10 feasibility of extending the Minuteman III missile program
11 instead of buying expensive new weapons, I was told that
12 they didn't have contract authority to do so. That was not
13 true. They just didn't want an honest assessment of the
14 real risks of Sentinel.

15 And since then the cost of the program has soared. We
16 initially thought the price for Sentinel would be about \$95
17 billion. Now the Air Force reports that it will be \$132
18 billion, nearly 40 percent more. By law, that kind of
19 increase triggers a mandatory review of the program's
20 viability.

21 Now I am glad that this review is happening, but we
22 need independent experts, people who will ask hard
23 questions. We need to ask about the Sentinel program,
24 taking a look as well. General Cotton, would you oppose an
25 outside review of the Sentinel program if it helps enhance

1 our national security?

2 General Cotton: Senator Warren, I agree with the
3 previous assessments that were done with the last three
4 administrations in regard to where we are on the replacement
5 of the Minuteman program. As I said earlier, in my opening
6 comments, what I cannot endure as a combatant commander that
7 has to provide COAs to the commander in chief is I cannot
8 endure having a gap or a drop in the reliability of a
9 current platform that we currently have that is part of the
10 triad.

11 Senator Warren: And I appreciate that. What I am
12 talking about here is I want to make sure that what we are
13 going to be replacing it with has been fully vetted and is
14 the right direction for us to go.

15 You know, even before this latest cost breach there
16 were bright, blinking warnings that this program was not on
17 track. The Air Force's aggressive schedule meant they were
18 relying on immature technology, which the GAO warned at the
19 time created additional risks of cost increases and schedule
20 delays.

21 Now best practices for budgeting these types of complex
22 programs is to develop what is called an integrated master
23 schedule, an analysis that is going to break down the
24 project into steps, resources, and budget needed to complete
25 it, sort of Budgeting 101. Sentinel did not have that.

1 General Cotton, you have warned that the complexity of
2 the Sentinel program -- I am quoting you here -- "will
3 challenge Air Force and industry partners in ways not seen
4 for a generation." So let me ask, do you think it is
5 important to have basic program management guardrails in
6 place to help us prevent delays and cost overruns?"

7 General Cotton: Senator, the rest of the statement was
8 -- you are absolutely right because I have said it numerous
9 times, that that is going to be a mega project that we
10 haven't seen since actually the onset of the Minuteman III
11 in placement in the early '60s.

12 You know, I am a taxpayer as well, and I want to ensure
13 that, one, I have a weapons system that can deliver the
14 capabilities that I need to deliver. I also need to make
15 sure that we don't create a larger gap in having assessments
16 that would drive us to now question one leg of the triad in
17 regard of how it can produce or have forces go to it.

18 Senator Warren: And I appreciate that, General, but we
19 have got to have a plan here that is actually going to work.
20 We can't just keep burning money and saying at some point we
21 hope we are going to be able to deliver this thing. I am
22 very concerned that Pentagon officials are already saying
23 -- they are already saying -- quote, they "will make the
24 trades it takes to keep the Sentinel program funded,
25 analysis be damned."

1 I will be watching closely to see if the DoD takes this
2 review that is required now by law because of the cost
3 overruns, I will be looking to see if they take this review
4 seriously or if it is just another paperwork exercise to
5 justify throwing more money at more expensive nuclear
6 programs.

7 Thank you, General.

8 Chairman Reed: Thank you, Senator Warren. Senator
9 Rounds, please.

10 Senator Rounds: Thank you, Mr. Chairman. First of
11 all, let me just say to both of you thank you for your
12 service to our country and to your teams as well. Today we
13 are talking about some of the most strategic weapons systems
14 that our country has, and while our conventional forces are
15 absolutely critical, our conventional forces are only
16 effective because we have the nuclear deterrence in our
17 strategic weapons systems to support them.

18 General Whiting, China and Russia both understand how
19 vital our space capabilities are to the Joint Force, and
20 they have been developing capabilities to counter our space
21 assets for years. Are we currently postured to win a
22 conflict that begins in or extends into space? I mean, when
23 we take a look at this right now -- and I really appreciated
24 Senator King's comments with regard to the fact that we are
25 ready to fight tonight -- but can we win that battle, and

1 what about 5 and 10 years from now on the current
2 trajectories?

3 General Whiting: Senator, thank you for the question.
4 Today I am completely clear in saying we do have the world's
5 best military space capabilities. I will use the same word
6 that General Cotton used when we look at what China and
7 Russia are doing, particularly building with their
8 counterspace weapons. They are moving breathtakingly fast.

9 And so we must ensure that the investments that have
10 been made -- and we thank the Congress for those investments
11 -- those programs continue to execute and that we continue
12 to invest to make sure that we keep pace with that
13 breathtaking pace.

14 Senator Rounds: Part of that, I suspect, you had
15 provided, and you will provide, an unfunded priorities list
16 that will likely be sent to Congress over the next month or
17 so. If we were to fully fund that UPL, that unfunded
18 priorities list, how would that impact your readiness in the
19 near term?

20 General Whiting: Yes, sir. The priorities that I
21 expect will be on our unfunded priorities list are about
22 improving our posture for the contested domain and to move
23 at the pace, and ahead of the pace that Russia and China are
24 moving. So that will give us the capacity and the
25 capabilities that we believe we need in 3, 5, and 10 years.

1 Senator Rounds: Thank you. General Cotton, I
2 understand that by law the Department of Defense services
3 cannot invest funds into a program that is going to be
4 retired within 5 years. This is known as a sunset
5 provision. Do you have any concerns about your legacy
6 systems potentially being divested too early? And the
7 service secretaries can offer a waiver but are not required
8 to, and your replacement programs will not start to come
9 online until the 2030s, if they are on time. If this policy
10 is not changed, how will it impact strategic deterrence?

11 General Cotton: Senator Rounds, thank you for that
12 question, and you are referring to Title 10 U.S. Code 2244A
13 --

14 Senator Rounds: I imagine that you were waiting for
15 that one, or something.

16 General Cotton: -- that talks about equipment
17 scheduled for retirement and dispersal. You are absolutely
18 right because we have been talking about it all morning.
19 You know, you always have plans that show overlap between
20 legacy systems and new, modernized systems, and as I stated
21 earlier, when it comes to strategic deterrence, credibility
22 is foundational to that. And credibility is ensuring that
23 the transition from legacy system, that there is no gap
24 between a transition between a legacy system and a
25 modernized system.

1 Senator Rounds: We are talking about modernizing
2 significant parts of the triad right now, and there is going
3 to be a time period in which we are going to have to have
4 both systems, the legacy system and the new system,
5 operating, and it may be for more than 5 years. Correct?

6 General Cotton: That is correct, sir. So right now
7 that law would stipulate that you wouldn't modernize
8 components of the legacy system if you are within 5 years of
9 what you initially saw as a transition to the new system,
10 and that could be troublesome.

11 Senator Rounds: The Sentinel program is critical to
12 our deterrent capability. Correct?

13 General Cotton: A modernized replacement to the
14 Minuteman III system is actually foundational to the triad.

15 Senator Rounds: Can we afford to delay the
16 implementation of the Sentinel program?

17 General Cotton: We are late to need on all three legs
18 of the triad.

19 Senator Rounds: What do you mean by being late to
20 need?

21 General Cotton: I would much rather -- and I think all
22 my colleagues would agree -- I would much rather not have to
23 have a transition of legacy systems to modernized systems
24 that already passed their service dates.

25 Senator Rounds: So I want to just get back in, and I

1 know my time is running out, but I am going to ask this. I
2 don't think that you necessarily had the opportunity to
3 completely respond to the last comments with regard to the
4 Sentinel program and the reason why it needs to move
5 forward. Even if the cost goes up and the review is
6 completed, this not something that we can simply sit back
7 and take our time on.

8 Could you respond, please, if the Chairman would allow
9 that?

10 Chairman Reed: Please.

11 Senator Rounds: Thank you.

12 General Cotton: We cannot, Senator Rounds. The
13 analysis and assessments have been done. We need to make
14 the decision in regard to what we want to do as far as the
15 modernization of a very important leg of the triad, and that
16 is the land leg and the ICBM leg of the system.

17 Senator Rounds: Thank you. Thank you, Mr. Chairman.

18 Chairman Reed: Thank you, Senator Rounds. Senator
19 Hirono, please.

20 Senator Hirono: Thank you, Mr. Chairman. This is for,
21 well, both of you, both of the witnesses. The 2024 NDAA
22 directs the DoD to develop a plan for the missile defense of
23 Hawaii and military construction projects that will enable
24 the timely deployment of missile defense capabilities across
25 all locations in the INDOPACOM. I believe the President

1 signed the NDAA in December, so you have some 90 days or so
2 to complete and provide this plan. How is that plan coming
3 along? For either one of you.

4 General Whiting: Senator, I will take that question.
5 Since last year we took on unified command plan
6 responsibility for transregional missile defense, operation
7 support, and planning. Ma'am, at this time I am not
8 familiar with where that plan is, and if I could take that
9 question for the record I could get back to you with
10 specifics on where that is.

11 Senator Hirono: I have been very concerned, over time,
12 about the missile defense of Hawaii, so I would also like
13 you to contemplate whether we need to mitigate any potential
14 risks from our near-peer competitors, as you both have
15 discussed, before we have this missile defense plan in
16 place. Because as you know, we had a major mishap in
17 Hawaii, which led to my ongoing concerns about missile
18 defense of Hawaii.

19 For General Whiting, the 2024 NDAA required a study on
20 the consolidation or transfer of the space functions of the
21 National Guard, which must include a cost-benefit analysis
22 for each of the potential futures of these units. The
23 options are the creation of a Space National Guard, keeping
24 the status quo, or transferring the space functions into the
25 Space Force.

1 General Whiting, what is the current role of the
2 National Guard in space, and how would you transfer the
3 space functions into the Space Force, and what would you
4 need if that is the finding of the study?

5 And the reason for the study was that there was some
6 decision made as to what would happen to National Guard
7 space, well, you could call it space units. There were some
8 decisions made without this kind of plan or study, a cost-
9 benefit analysis, that would lead to the three options that
10 I mentioned. So what is being contemplated for the National
11 Guard Space Force?

12 General Whiting: Senator, thank you for the question.
13 From a Space Command perspective, we very much appreciate
14 the great support we get from a number of states that their
15 Guard units have space missions, and it is vital to us that
16 however those options are resolved that we don't have an
17 interruption to those missions.

18 I would have to defer to the United States Space Force
19 for the specifics of what options are being analyzed and
20 where they are headed, but it is vital to us that we not
21 have any interruption to those missions.

22 Senator Hirono: As you are probably aware, we do have
23 a space function in the National Guard in Hawaii. These are
24 very skilled people. So I think we need to make sure that
25 whatever decisions are made based on an assessment that

1 takes all of these issues into consideration.

2 For General Whiting, previously, space was only used by
3 the government, but it has become the domain for new waves
4 of commercial satellites for broadband communications and
5 remote sensing. General Whiting, are DoD and U.S. Space
6 Command specifically and appropriately leveraging commercial
7 space capabilities?

8 General Whiting: Senator, thank you for the question.
9 I think U.S. commercial space industry is one of our
10 absolute national advantages, and we have leveraged that in
11 the past. I think we can find even better and more
12 innovative ways to leverage it going forward. U.S.
13 commercial space industry is moving incredibly fast. They
14 are widening their lead in commercial space services over
15 other countries. And so we want to make sure that we are
16 partnered with them as tightly as possible.

17 Senator Hirono: What protections exist for the
18 commercial satellites against physical or cyber attacks?

19 General Whiting: Yes, ma'am. As part of my unified
20 command plan responsibilities I do have responsibility to
21 protect and defend commercial assets, as directed. So as we
22 work with these commercial companies we already have
23 information-sharing agreements with the companies that we
24 are already contracted with for capability. They actually
25 sit with us at one of our operation centers in California,

1 at the highest levels of intelligence, to know what those
2 threats are, and we share that information. And then we
3 want to work with them as well to help them harden their
4 cyber infrastructure so that they are not denied through the
5 cyber domain, because that would impact our ability to
6 leverage their services.

7 Senator Hirono: I think that aspect of protections and
8 the cyber domain, I have talked with private entities where
9 they need to be sure that they are up on what kind of
10 protections they need to put in place as they work with you,
11 to make sure that we are all on the same page in terms of
12 cybersecurity issues. Thank you.

13 Chairman Reed: Thank you very much, Senator Hirono.
14 Senator Cramer, please.

15 Senator Cramer: Thank you, Mr. Chairman, and thank
16 you, Generals, for your service. Thank you for being here,
17 and thank you to all of the troops under your command.

18 I want to get right to it because I need a little more
19 context on a couple of previous points. I am going to start
20 with you, General Cotton. In response to sort of a general
21 question from Senator Fischer you said something to the
22 effect of adequate standoff capability. Could you drill
23 down on that a little bit? In other words, are we short in
24 that capacity, particularly in the conventional weapons, and
25 if so, do you have a solution in mind?

1 General Cotton: Senator Cramer, thank you for the
2 question. So I can get a little more detailed in what I
3 meant by that. I think, as we look at who our adversaries
4 are, I think we would all agree that having standoff fires
5 and long-range strike capability will be beneficial for us
6 against the adversary.

7 And then what I mean by that, more specifically -- and
8 this is not a parochial statement; it is just a matter of
9 fact -- is that I think the utilization of bombers, and
10 being able to have a bomber carry a long-range strike
11 weapon, because range is dependent on size because it is
12 fuel capacity of the weapon, would be very beneficial for
13 us, as a nation, to be able to have that type of capability
14 for our bomber force, not just weapons that could be used
15 for a myriad of weapon systems but one that could be
16 specifically used in a conventional sense for the bomber
17 that gives it incredible standoff and incredible range.

18 And what that does for us, that actually makes it so it
19 doesn't have to hit a tanker as often, as well, and actually
20 keep the air crew and the platform out of harm's way.

21 Senator Cramer: Well said. Thank you for that.

22 And then in response to something that Senator King
23 used, in his usual great illustrations, of a pig in a
24 python, I believe it what it was, referencing the lack of
25 capital budgeting in our system, the transparency of budgets

1 is something that has always frustrated me on this
2 Committee, particularly as it relates to my favorite
3 service, the Air Force. Thank you very much.

4 You referenced the role of your command as a national
5 role. Understandably, you are a united command. Can you
6 flesh that out a little bit for me as well, because I have
7 long been concerned that we are not adequately, I don't want
8 to say appropriating, but appropriating credit where credit
9 is due and then cost where cost is due?

10 General Cotton: Thank you, Senator Cramer. I think,
11 you know, there are a lot of times where there can be
12 confusion, even within a component, service component, that
13 they are advocating for a weapons system or a platform that
14 is utilized in their operational domain. It absolutely is.
15 But when it comes to strategic deterrence weapons and
16 strategic deterrence platforms I think that those are
17 national systems.

18 And what I mean by that is that we are doing the care
19 and feeding on behalf of the systems that ultimately belong
20 -- and I have got it, all weapons systems belong to the
21 President of the United States. But in particular, when we
22 talk about strategic deterrent weapons that it is much more
23 than the Columbia being part of the United States Navy or
24 the bomber, ICBM, becoming a part of the United States Air
25 Force. I think there is probably room for conversation on

1 how do we make that so we can now have these conversations
2 on funding.

3 Senator Cramer: That was therapeutic for me because if
4 silos within the same services are confused I feel better
5 about my confusion now. But thank you for that
6 clarification.

7 You know, I can't look at both of you without noticing,
8 General Cotton, that there is a lack of space folk in your
9 sort of leadership chart. Can you speak to that a little
10 bit, as I looked at the two of you side by side, and
11 realizing the history of both commands.

12 General Cotton: Well, I will start off real quickly.
13 As the UCP changed we lost our space billets, if you will,
14 and the majority of our airmen who were space-specific. I
15 will tell you that my colleague here, General Whiting, does
16 have a joint force team that assists us.

17 What I am missing, though, is a space component
18 officer, you know, like a one-star general that is a
19 component linkage to the space component. My components are
20 I have a direct linkage with the air component, and Air
21 Force Global Strike Command, and I have a direct linkage
22 with the navy component, with the Joint Force Maritime
23 Command. I do not have a direct linkage.

24 We are in works, though. I am in works with General
25 Saltzman, for example, to fill that billet, because you are

1 also part of the NC3 meeting that we had here recently, and
2 what we really want to do is, you saw a lot of that was the
3 space layer, and I want to be able to have an expert and one
4 that is at a general officer level to be able to articulate
5 the requirements, especially when it comes to NC3, if you
6 will, on the space layer.

7 Senator Cramer: Well, and General Whiting, I talked
8 about the vulnerability of SATCOM, for example, to space
9 warfare. Generally, I am over time, but if you could
10 elaborate a little bit to General Cotton's point, if you
11 would.

12 General Whiting: Senator, yes, it is important that we
13 ensure that Strategic Command has all the insights they need
14 as they rely on the space layer for early warning and for
15 protected communications. And as General Cotton noted,
16 today U.S. Space Command provides a joint integrated space
17 team in his headquarters. They sit in Omaha to assist with
18 that planning and make sure that he has insight into what we
19 are doing so that we can best coordinate our plans together.

20 Senator Cramer: Thank you. Thank you, Mr. Chairman.

21 Chairman Reed: Thank you, Senator Cramer. While I
22 recognize Senator Kelly I want to apologize because I did
23 not realize you were in the room prior to recognizing
24 Senator Hirono. Senator Kelly.

25 Senator Kelly: Okay, Mr. Chairman. I was actually

1 about 10 feet away, so I wasn't actually at my seat.

2 I want to follow up on what Senator Cramer was asking
3 about, standoff capability, General Cotton. So 2 years
4 since Russia invaded Ukraine we have been forced to rethink
5 our nuclear posture and how our own deterrence works with
6 growing nuclear capability of our adversaries. And Russia
7 has recently rejected a proposal to reopen bilateral nuclear
8 arms control talks. Their behavior, their rhetoric, along
9 with Chinese aggression, North Korea's regular testing of
10 ballistic missiles and those kinds of capabilities, Iran
11 increasing its supply of enriched uranium, I mean this
12 underscores the importance of having a strong deterrence
13 ourselves.

14 The LRSO, the long-range standoff missile system that
15 is developed in Tucson, Arizona, at Raytheon, this is going
16 to be a critical feature of our future deterrence. The
17 ability to forward deploy this missile on U.S. bombers is a
18 powerful message to our allies.

19 So General, beyond what Senator Cramer was asking just
20 about standoff more broadly, can you expand on the
21 importance of the LRSO to our overall deterrence, and give
22 any updates you have on its fielding.

23 General Cotton: Senator Kelly, thank you for the
24 question. You know, when we talk about the air leg of the
25 triad, the air leg of the triad is composed of two mission-

1 essential tasks that the bombers are supposed to do in
2 regard to what my mission set is. That is gravity bomb
3 deployment and release and the ability to have a long-range
4 standoff strike weapon. LRSO is absolutely critical for my
5 mission set as a long-range standoff nuclear weapon. It
6 will replace the ALCM that we currently carry.

7 From the reports that I am receiving from the component
8 is that Raytheon is doing a great job in manufacturing that
9 weapon for us. Once again, just like everything else, you
10 know, if I get it sooner than later, Senator, that is good
11 for us.

12 Senator Kelly: Is the IOC of this weapon, is it public
13 or is it something we would have to talk about downstairs?

14 General Cotton: I would rather have that conversation
15 with you downstairs, and then we can talk about that, if it
16 is okay with you, sir.

17 Senator Kelly: Beyond LRSO, what else do you think we
18 could be doing to deter our adversaries that we are
19 currently not doing?

20 General Cotton: Well, there was an earlier
21 conversation on what do we look at as far as posture and
22 sizing of the current triad, and what does that look like.
23 It is in alignment with the study results of the Posture
24 Commission. It is also in alignment that the work, that to
25 be frank, that the Pentagon is doing in response to the

1 Posture Commission, and it is work that we are doing in
2 STRATCOM. I can elaborate in incredible detail in the
3 secure session, to let you know the work that we are doing
4 in that regard.

5 Senator Kelly: Thank you. Thank you, General.

6 General Whiting, a different subject here. The Space
7 Priorities Framework aims to secure our space industrial
8 base, including improving supply chains for crucial
9 satellite components like traveling-wave tubes and
10 traveling-wave tube amplifiers. In the United States here
11 we have faced some challenges in this area with limited
12 domestic capabilities and also competition from China that
13 is often heavily subsidized. And this situation leads to
14 supply chain risks for essential national security and
15 commercial satellites.

16 I have got an amendment to the Defense Bill to support
17 the development of a competitive U.S. source for these
18 components, and I am going to keep working on that this
19 year.

20 General, do you believe it is important for the
21 Department of Defense to have reliable U.S. source for these
22 critical satellite components to ensure quality, timely
23 delivery, and fair pricing, and what other risks do you see
24 from having inadequate domestic supply chains for key
25 satellite components?

1 General Whiting: Senator, thank you for the question.
2 Yes, I do think it is important that we have robust supply
3 chains from trusted sources in the United States. If we
4 don't have that I think the risk is that this widening lead
5 that our commercial space industry has created for us, that
6 might be stymied, and then that would give our competitors a
7 chance to catch up. So we want to ensure that doesn't
8 happen.

9 Senator Kelly: Yeah. Traveling-wave tubes and wave
10 tube amplifiers are kind of obscure components. Most folks
11 have not actually heard of them. But they are important to
12 us maintaining our edge in space technology. So thank you.

13 Chairman Reed: Thank you, Senator Kelly. Senator
14 Scott, please.

15 Senator Scott: Thank you, Mr. Chairman. First, thanks
16 to both of you for being here. Thank you for what you do.

17 General Whiting, can you talk about how much dependence
18 our defense capabilities or our offensive capabilities are
19 on our satellite systems?

20 General Whiting: Yes, Senator. Thank you for the
21 question. The Army, Navy, Air Force, and Marines are
22 terrestrial forces, if you will, are sized with the implicit
23 assumption they will have access to space capabilities. And
24 because of that we have been able to reduce the number of
25 forces that we have, and we can now prosecute targets with

1 much fewer assets than we would have decades ago.

2 If we don't have access to those space capabilities, if
3 those forces do not have access to those space capabilities
4 we don't have the force structure that we would need to
5 fight without them. So that is why we have to protect and
6 defend these space capabilities against the threats we now
7 see arrayed against us.

8 Senator Scott: How many different satellite systems
9 are we dependent on?

10 General Whiting: Senator, I don't have a number but I
11 can talk to you just quickly about the capabilities. It is
12 our satellite communications, it is our global positioning
13 system, it is our intelligence systems, it is our weather
14 systems, it is our missile warning systems. There are a
15 host of different capabilities we provide from space.

16 Senator Scott: So if our adversary was able to
17 demolish 10 of them, would it create much debris?

18 General Whiting: Almost certainly, yes, Senator.

19 Senator Scott: And if that debris was floating out
20 there, how much of our satellites would be at risk because
21 of just the debris hitting them?

22 General Whiting: Senator, that is a concern, and it is
23 why we monitor the 45,000 trackable objects on orbit, to
24 watch for potential conjunctions. But we don't want to
25 proliferate debris on orbit, which would increase the risk

1 to our systems.

2 Senator Scott: So if you were an adversary, wouldn't
3 that be the cheapest thing to do? If you wanted to cripple
4 our ability, would the cheapest thing to do is go blow up 10
5 or 12 of these large satellites that are out there?

6 General Whiting: Sir, I don't know the cost of that,
7 but it would certainly be incredibly reckless because it
8 would pollute the very domain they are probably trying to
9 operate in themselves, because it is indiscriminate. It
10 impacts potentially our satellites, their satellites, other
11 countries' satellites, and it would be incredibly reckless
12 behavior.

13 Senator Scott: Let's take Russia's forces. So if you
14 look at our forces as compared to Russia's forces, how
15 dependent are they on the satellite systems as compared to
16 us?

17 General Whiting: Senator, they are less dependent for
18 the reason that they are a continental power and they expect
19 to be able to run fiber and to do microwave shots and those
20 kinds of thing, and they don't have the same global type of
21 military that we do, so they are less dependent.

22 Senator Scott: How about China?

23 General Whiting: Sir, they have replicated, in many
24 ways, what we have done in space, because as they tried to
25 push us out from the first island chain and the second

1 island chain in the Pacific they have gone to space for the
2 advantages it brings. So in many ways they are working to
3 replicate the dependency that we have.

4 Senator Scott: So if they were able to, you know,
5 hamper our abilities or our satellite system -- let's take
6 China -- and they were only focused on Taiwan or Japan or,
7 well, for sure Korea, right? They need their satellite
8 system to do anything with regard to Korea, right?

9 General Whiting: Senator, I think China, they are
10 getting to the point where all of their forces are becoming
11 space enabled. And so I think in any conflict they would be
12 reliant on space capabilities.

13 Senator Scott: Okay. But if only the power they
14 wanted to project was Korea, Taiwan, Japan, and that is all
15 they cared about, then they probably wouldn't need their
16 space capabilities as much, would they?

17 General Whiting: Senator, I think they would need
18 those space capabilities because they are looking beyond
19 those countries and looking at the U.S., and looking at
20 where the U.S. would be flowing forces from, and that has
21 required them to go to space.

22 Senator Scott: Okay. How about Iran. They don't need
23 it, right?

24 General Whiting: Iran is not a space-enabled military.

25 Senator Scott: And do they even have the ability to

1 have any impact on us in space today?

2 General Whiting: They have not demonstrated that
3 capability, but certainly we are watching their space
4 program and their ballistic missile program very carefully,
5 and can only think about what they might be thinking about
6 in the future.

7 Senator Scott: And what about North Korea?

8 General Whiting: North Korea has demonstrated an
9 electromagnetic warfare capability that could have impact
10 against our space systems, and then we are also very
11 carefully watching their space systems. Of course, they
12 should not be launching into space because of the U.N.
13 resolutions that say they can't use ballistic missile
14 technology for that. And so, again, we are having to keep
15 an eye on what they might be thinking of in the future.

16 Senator Scott: Our troops in Korea, they need access
17 to space capabilities. In North Korea they probably don't.

18 General Whiting: North Korea is not a space-enabled
19 military today.

20 Senator Scott: But our troops in South Korea would
21 need it.

22 General Whiting: Absolutely, Senator.

23 Senator Scott: Thank you.

24 Chairman Reed: Thank you, Senator Scott. Senator
25 Rosen, please.

1 Senator Rosen: Well, thank you, Chairman Reed, and of
2 course Ranking Member Wicker, for holding this hearing, and
3 I would like to thank General Cotton and General Whiting for
4 testifying today and for your great service to our country.

5 I am going to continue on this electromagnetic
6 spectrum, on the operations we have, because General Cotton,
7 in your nomination hearing, you indicated that
8 electromagnetic spectrum operations are a top priority. So
9 your forces have done amazing work at the Joint Center for
10 Electromagnetic Readiness at Nellis Air Force Base in my
11 home state of Nevada. We are very proud of Nellis.

12 But even with the efforts made so far I am sure that
13 there is probably more work to be done. So what actions do
14 you need to take to ensure that the United States can deter,
15 if needed, and defeat threats across the electromagnetic
16 spectrum, and how can we help with that?

17 General Cotton: Senator Rosen, thank you for the
18 question, and thanks for acknowledging the incredible that
19 team is doing. I would like to highlight some of that work
20 that that team is doing, and that includes specifically the
21 support to the Yukon commander and what we are seeing in the
22 Ukrainian efforts, as well as the support to Israel in the
23 fight that we are seeing there. So that team is coming out
24 of the blocks, doing incredible work, so thank you for
25 acknowledging them.

1 As you know, on the 26th of July last year is when we
2 stood up the JEC, and that is when I was given the
3 responsibility on EMSO. And as you have heard throughout
4 the testimony today, electromagnetic spectrum is incredibly
5 important for us. It is a domain that was uncontested for
6 us over the past 30 years. Now that we have a fight, a
7 potential fight with adversaries that, one, understand that
8 that is a domain that we rely on, and two, have the
9 capability to do something to counter having dominance in
10 that domain and spectrum, it is incredibly important.

11 And as the lead combatant command to ensure that we
12 have the proper training, the proper live, virtual, and
13 collaborative training techniques because as you know, some
14 of what we want to be able to test and train to can't be
15 done in the live environment. So we continue to work on how
16 do we -- I call them reps and sets to our men and women in
17 the armed forces -- how do we give them the reps and sets in
18 a virtual environment that shows all range of how they can
19 contest that environment.

20 Senator Rosen: My team is going to follow up with you
21 on that as we work on next year's NDAA, thinking about what
22 we need to do here. Incredibly important what we do at
23 Nellis.

24 And I am going to move on to reps and sets, and of
25 course that is modeling and simulation. We have that for

1 space too, right? So General Whiting, I am going to keep on
2 Nellis here for a bit. As you know, Space Delta 1 trains
3 weapons officers, again Nellis Air Force Base in Nevada.
4 These weapons officers graduate from the pinnacle of
5 training offered by the Space Force to prepare Guardians for
6 what they may need, and more.

7 So building on what you may need, what you have now,
8 the ability to model and simulate, how does this prepare
9 your forces and what can we continue to do to give you that
10 simulation you need, because you may not be able to go up
11 there.

12 General Whiting: Yeah. Thank you, Senator, for the
13 question. I know exactly the great work that happens at
14 Nellis as I was stationed there a decade ago as the Vice
15 Commander of the Air Force Warfare Center, a vital
16 capability.

17 Modeling and simulation are absolutely foundational for
18 us in space because, as you allude to, it is expensive for
19 us to get there and so we can't just launch all sorts of
20 things just to do training, although there is an aspect of
21 that we need to do. But modeling and simulation allow us to
22 do multiple iterations of various activities and to simulate
23 the threats that we now see arrayed against us so that these
24 weapons officers have the skills that when they go back to
25 their operational squadrons they can share that among the

1 crew force.

2 So that modeling and simulation is absolutely critical
3 to us, and we want to continue to grow that capability for
4 all space forces, because that will support Space Command as
5 we move forward.

6 Senator Rosen: Perfect. Look, we will work with you
7 on that, moving forward. But speaking of space I am going
8 to continue with you General Whiting. Considering the
9 reported collaboration between Iran and Russia is space
10 activities that could potentially challenge our U.S.
11 interests and security, can you elaborate a little bit on
12 what is happening in Iran, given Iran's progress on their
13 ballistic missiles and space programs. How might additional
14 sharing between the United States and our partners in the
15 Middle East -- we know there are increasing challenges going
16 on there, the emerging threats, and particularly the Iranian
17 threat. Can you speak to that?

18 General Whiting: Yes, Senator. Our relationships
19 across the globe with our allies and partners is truly one
20 of our asymmetric advantages. We have signed a number of
21 space situational awareness sharing agreements, as you
22 allude to, with over 30 countries. Three of those are in
23 the Middle East, and we have ongoing discussions to expand
24 that.

25 But as we partner more closely with those countries in

1 the Middle East it helps us to have a better understanding
2 of what is going on in space, so that when we see potential
3 bad actors acting we can call out that behavior. And it
4 also builds a set of partnerships to deny those partnerships
5 to countries like Russia and Iran. So those are very
6 important for us, that we continue to grow them, Senator.

7 Senator Rosen: Thank you. I appreciate it.

8 Chairman Reed: Thank you, Senator Rosen. Senator
9 Schmitt, please.

10 Senator Schmitt: Thank you, Mr. Chairman. So I
11 believe this is if not certainly one of the most important
12 committees in the Senate, for a variety of reasons.
13 Certainly our role in advocating for the national defense is
14 important. But I also think, you know, going back home and
15 talking to constituents and having those conversations about
16 what are the threats, hearing from them, but also explaining
17 the things that we learn up here. And so my two questions
18 are related to that, that would be more sort of
19 conversational about maybe a question I would get from
20 somebody home that I would like both of you to address.

21 First, and we heard earlier, you know, as far as
22 nuclear modernization, the price tag of \$2 trillion
23 potentially over 30 years, a number something like that.
24 Could both of you sort of address -- you know, I think the
25 perception is that the United States has, right now, all the

1 nuclear weapons we need to blow up the world into oblivion a
2 thousand times over, right? So if you were trying to
3 explain the importance of this modernization effort how
4 would each one of you describe that to folks back home, why
5 it is important, and specifically why it is important.

6 General Cotton: Senator Schmitt, I will start off, and
7 first of all I want to say thank you because the men and
8 women of Tinker Air Force Base and the work that they are
9 doing in regard to just the bomber campus that is being
10 built out there for one leg of the triad is incredibly
11 important.

12 Going back to your comment, I think the way we should
13 be able to frame it is, one, it is not a one-for-one. So it
14 is not one of these conversations where we are talking about
15 how you have to have a one-for-one or overmatch or those
16 type of things. As we already know, the Russians have more
17 weapons than we have today, but we absolutely hold them at
18 risk.

19 So the way I would describe it to people is you need to
20 understand, you know, it is a proposition in regard to a
21 cost analysis. I want to be able to deter because my
22 adversary understands that the risk of the taking action
23 would fail upon arrival for them to be able to meet their
24 ultimate needs. So it is a cost-benefit analysis model, if
25 you will, and that is what strategic deterrence truly is.

1 And the way we use that cost-benefit analysis is three legs
2 of the triad.

3 Senator Schmitt: But as far as the modernization
4 itself, how would you describe why that is important, if the
5 perception is that we have everything we need to deter,
6 because we can wipe out a country off the face of the earth?

7 General Cotton: Because we must have the ability to
8 have weapons systems and platforms, a training environment,
9 et cetera, that the adversary -- because for deterrence the
10 adversary always gets a vote -- for the adversary to
11 understand that the cost-benefit of them taking action won't
12 outweigh and that the modernized systems can hold them at
13 risk.

14 General Whiting: Senator, thank you for the question.
15 For space the challenge is that the American people can't
16 look up and see the space systems, so they don't even
17 realize the way it is enabling the modern way of life. And
18 so I think it is important that we remind the American
19 people of all the great advantages space gives us, that we
20 are never lost anymore because of GPS, that we can
21 synchronize global stock markets and point of sale and
22 precision farming. And if we lost all of that really our
23 modern way of life would be at risk, and that is why we have
24 to protect and defend those capabilities and make those
25 investments.

1 So I think it is incumbent on all of us to help the
2 American people understand how space truly is a part of
3 their life, even if they can't see it.

4 Senator Schmitt: And for each one of you then, in your
5 domains here, if you could identify one thing in an
6 unclassified setting, of course, here, one thing that really
7 keeps you up at night about China's capabilities, if you
8 wanted to explain that threat to folks back home who maybe
9 don't understand the specifics, what would that be?

10 General Cotton: For is their capacity, capability to
11 build out their weapons systems and their arsenal. It is
12 that simple, sir.

13 Senator Schmitt: So the pace at which they are --

14 General Cotton: The pace at which they can, or the
15 levers that they drive or do not drive on whether they go
16 idle or they accelerate. They control that throttle.

17 General Whiting: And, Senator, my answer is very
18 similar. What is most concerning is the way China has
19 clinically studied us and our dependency on space and
20 figured out exactly what they think our architecture looks
21 like and now are rapidly building systems to hold that
22 architecture at risk.

23 Senator Schmitt: Thank you. Thank you, Mr. Chairman.

24 Chairman Reed: Thank you, Senator Schmitt.

25 Senator King: Mr. Chairman, I would suggest the

1 simplest answer is we want our adversaries to be scared so
2 they don't try anything.

3 Senator Schmitt: No, I agree with that. I just want
4 to make sure that, because we talk about the modernization,
5 right, like how does that fit into that discussion.

6 Senator King: We want them to stay scared.

7 Chairman Reed: Senator Shaheen, please.

8 Senator Shaheen: Thank you, Mr. Chairman, and thank
9 you General Cotton, General Whiting, to both of you for
10 being here this morning and for your service.

11 Senator Kelly asked what we could be doing to deter our
12 adversaries, what else we could be doing to deter our
13 adversaries. General Cotton, I appreciated the time we
14 spent yesterday. And one of the things we talked about was
15 just how critical passing the supplemental bill and getting
16 a budget process that is regular, that can be depended on,
17 is to ensuring that you can accomplish your mission. Is
18 that correct?

19 General Cotton: Senator Shaheen, yes, it was great
20 speaking with you yesterday, and you are right. And I think
21 I would even capture, you know, CRs, continuing resolutions
22 for us, especially in my platform where everything that I
23 own is being modernized. I think folks are quick to not
24 realize that there are New START programs that are embedded
25 in these large programs that folks will think are already

1 underway.

2 And, you know, I had just mentioned it to Senator
3 Schmitt, for example. You know, they are building a new
4 bomber campus for sustainment not only of the B-52 but the
5 B-21, moving forward. A continuing resolution could
6 actually perturb that. If you perturb anything within a
7 larger program it actually subsequently can affect the
8 program overall, and then we have the conversations of a
9 program slipping.

10 So yes, a stable budget, on-time budgets are incredibly
11 critical for us as we are baking this modernization, not
12 only across my portfolio but across the entire Department of
13 Defense portfolios.

14 Senator Shaheen: And can you speak to what is in the
15 National Security Supplemental Bill that we passed out of
16 the Senate that is critical to our defense industrial base
17 and why that matters as you are looking at rebuilding,
18 ensuring that the nuclear triad remains credible?

19 General Cotton: Yes, Senator. As we had the
20 conversation, embedded in that, even though the majority of
21 that is not necessarily part of my portfolio, but it does
22 touch on the industrial base, the defense industrial base,
23 which touches all of our portfolios, if you will, in regard
24 of how do we strengthen that. Because I think that is
25 foundational for our nation. It is more than even a

1 Department of Defense issue.

2 Senator Shaheen: And one of the things that I think
3 you alluded to was the sort of end game that we are at with
4 Russia in terms of bilateral negotiations on any sort of a
5 New START treaty or an effort to reduce nuclear weapons.
6 But can you talk about Putin's recent rhetoric around using
7 nuclear weapons and how concerned you are about that?

8 General Cotton: Yes. Thank you, Senator. You know,
9 the conversation we had is I absolutely am a proponent of
10 treaties, but everyone has to play, and you have to follow
11 the rules. So yes, what I would love to see is China step
12 up and want to have a negotiation with us. Would I love to
13 see Russia come back? Absolutely. But I am also a realist,
14 to understand that that may or may not happen, so as a
15 combatant commander my job is to understand how do I build a
16 force that I can present to the President if that doesn't
17 happen.

18 But to your point on what we are seeing in the
19 rhetoric, I think what we are seeing is the President of the
20 Russian Federation sees that he can use that as a coercion
21 tool to threaten in regard to what he has as far as a
22 nuclear force.

23 Senator Shaheen: General Whiting, Starlink and other
24 commercial satellite ventures have been a complement to our
25 operations in space, but of course there have been some

1 issues around how those are being used, and we have to
2 ensure that we have the appropriate mechanisms in place to
3 guarantee access.

4 So how should we be thinking about that, and what are
5 you doing to mitigate the risk that we might have by relying
6 on a commercial source for some of those services?

7 General Whiting: Senator, thank you for the question.
8 I would point to two aspects, I think, which help mitigate
9 that risk. Number one is in all of my experience I have
10 only known that every company we have contracted with for
11 satellite communications and other space services, they have
12 always fulfilled their contractual obligations to us. And I
13 would expect that going forward, and so we want to make sure
14 we are writing those contracts smartly on what we need and
15 ensure that we are getting that.

16 And the secondly, Senator, I would point to the fact,
17 for example, in satellite communications we want a hybrid
18 architecture where there are some constellations we need
19 purpose-built for the government, exclusive use of the
20 government. For example, in our work in support of General
21 Cotton, as we provide nuclear command and control, protected
22 communications to assure the President, the Secretary of
23 Defense, and General Cotton always can communicate to their
24 forces, we want that to be a government-owned constellation.
25 But then there are other communication requirements that we

1 absolutely can go to commercial for.

2 So I think it is understanding what those highest
3 priority, unique military requirements are and then
4 satisfying those through our own systems, and then using
5 commercial to the max extent we can, that is how we can help
6 mitigate risk.

7 Senator Shaheen: Well, thank you. I have some other
8 questions, but I will save those for the closed session.

9 Chairman Reed: Thank you very much. Senator Budd,
10 please.

11 Senator Budd: Thank you, Chairman. Again, thank you
12 both for being here today.

13 General Whiting, your predecessor, General Dickinson,
14 told this Committee last March that SPACECOM is creating
15 concepts to further integrate space, cyber, special
16 operations to generate asymmetrical advantages around the
17 globe. In a press release from your recent visit to U.S.
18 Army Space and Missile Defense Command it mentions that Army
19 space professionals are operating across multiple domains,
20 including cyber and space, to support warfighters,
21 especially forward deployed special operations forces. Can
22 you briefly talk about the nexus between space, cyber, and
23 SOF?

24 General Whiting: Yes, Senator. Thank you for the
25 question. We do see it as a unique opportunity to bring

1 together these three capabilities to help us all three
2 achieve our missions. For example, there are times that
3 using space we can create accesses for cyber forces who then
4 can support special operations forces, or special operations
5 forces, through their unique ability to gain access to
6 certain geographic locations, can help us in our space
7 mission by executing functions that support us.

8 So I have spoken to the Commander of Special Operations
9 Command about that. As you noted, I have spoken to our Army
10 component about that. And we also leverage the fact that
11 our Navy and Marine Corps components are also cyber
12 components, so that gives us a unique pairing there as well.

13 Senator Budd: Thank you for that. So it sounds like
14 it is a two-way street, right? I mean, just as much as
15 space enables SOF and the entire Joint Force, the physical
16 access that SOF provides also enables critical space
17 operations. Is that correct?

18 General Whiting: Senator, that is absolutely correct.

19 Senator Budd: Given proposed cuts to Army SOF there
20 will be reduced capacity to fill combatant commander
21 requirements. So I know that the demand for SOF is up, and
22 that likely will increase across geographical combatant
23 commands. So do you anticipate any impacts on your
24 command's operation should those cuts to SOF move forward
25 over the next few years?

1 General Whiting: No, Senator, I don't.

2 Senator Budd: So it is a two-way street, but you don't
3 see that it will impact you if there are SOF cuts.

4 General Whiting: Sir, I have not been briefed on any
5 of the work we have been doing with Special Operations
6 Command that will specifically impact us.

7 Senator Budd: Switching gears a bit, General Whiting,
8 last year I asked your predecessor how he would characterize
9 the current resiliency of our satellite constellations,
10 particularly given that constellations are also being
11 deployed with a minimum number of satellites available, or
12 necessary. How would you answer that same question today,
13 particularly given recent revealed advance threats?

14 General Whiting: Senator, thank you for the question.
15 I would today our constellations are optimized for a benign
16 environment, and as we see these threats now growing we have
17 to now protect and defend those constellations until we
18 develop the next generation of resilient constellations.
19 That work is ongoing to deploy those next generation of
20 resilient capabilities, but we are still going to have to
21 protect and defend our current ones for years to come. And
22 so that is why we have to also focus on this protect-and-
23 defend capabilities.

24 Senator Budd: Thank you. General Cotton, I think we
25 can all agree that Sentinel's delay has greatly emphasized

1 the need to ensure Minuteman's continued operational
2 readiness. As such, how important is it to conduct regular
3 test launches of Minuteman to demonstrate that the United
4 States nuclear deterrent is safe, secure, reliable, and
5 effective?

6 General Cotton: Senator, thank you for the question.
7 I think the answer is I want to be able to have an ability
8 to surveil all three legs, to include the Minuteman, as well
9 as my bomber forces and my SLBM force as well.

10 Senator Budd: Thank you. General Whiting again, you
11 have spoken publicly about the need to maximize partnerships
12 with allies, partners, our interagency teammates, commercial
13 industry, and even academia. So why is this partnering so
14 crucial to our national security space capabilities?

15 General Whiting: Senator, all the things we have to do
16 in space is so much that no one department, service,
17 command, even country can do all the things we need to do.
18 And it is an asymmetric advantage of ours to leverage all of
19 these stakeholders to get unit of effort to achieve our
20 goals. So that is why we want to partner as widely as we
21 can with like-minded countries and organizations because it
22 maximizes our ability to execute our mission.

23 Senator Budd: Thank you very much.

24 Chairman Reed: Thank you very much, Senator Budd.

25 Senator Peters, please.

1 Senator Peters: Thank you, Mr. Chairman. General
2 Cotton, in your written testimony you acknowledge the
3 importance of the Air Force's refueling tanking fleet,
4 accomplishing STRATCOM's global strike missions so we don't
5 have to rely on intermediate basing installations. You also
6 highlight the Air Force's upcoming refueler tanker
7 acquisitions being critical to enable simultaneous global
8 operations, including those involving multiple combatant
9 commands.

10 So my question for you, sir, is how does a robust
11 refueling tanker fleet sustain STRATCOM missions, if you
12 could elaborate on that, and also elaborate on how the Air
13 Force's acquisition of the new KC-46 tankers will expand
14 your global reach and expand your current capabilities.

15 General Cotton: Senator Peters, thank you for the
16 question. You know, something that makes us incredibly
17 unique as a fighting force is we have the ability to fly the
18 entire globe. Even at its onset, the tanker and the bomber
19 were both complementary acquisitions. It gives us
20 incredible reach. That being said, that is why it is such a
21 unique relationship between the tanker force and our bomber
22 force on my air leg, and absolutely critical to my mission
23 set with regard to ensuring that we have sustainable and
24 enough tankers to be able to make that a requirement that
25 can be enduring.

1 So I pay attention to what the availability is of the
2 tanker force. We have a great relationship with USTRANSCOM,
3 and General Jackie Van Ovost is a dear friend as well, to
4 ensure that there is no disconnect in the requirements.

5 But you are right, that can be stretched with the
6 requirements that the tanker force has on non-weapons system
7 movement, munitions, missions that don't include bombers but
8 includes providing forces forward, et cetera, et cetera. So
9 we always have to make sure that we pay attention and see
10 that those acquisitions, not only the nuclear triad but
11 those acquisition programs are on time and are in healthy,
12 as well.

13 Senator Peters: And I suspect the new KC-46 will
14 probably be around a long time. That mission is not going
15 to go anywhere soon, and I have told folks this could be a
16 50-year mission for this aircraft. And then I was reminded
17 the B-52s are likely to be well in excess of 50 years. Is
18 that an accurate statement in regard to the KC-46?

19 General Cotton: Well, I don't know how long the tanker
20 community plans on having the KC-46, but if we use legacy as
21 a measure, the KC-135 has been around a long time, as well.

22 Senator Peters: It is. Yeah, absolutely. Absolutely.
23 General Cotton, as you likely know, Northern Strike in
24 Michigan is the DoD's largest annual joint reserve component
25 readiness exercise that takes place in the country. Over

1 7,000 servicemembers from over 25 states and several
2 international partners converge at the National All-Domain
3 Warfighting Center, which is also known as NADWC, for
4 critical training focused on future multi-domain conflict.

5 It is one of my top priorities to ensure that Northern
6 Strike continues to receive robust funding to support
7 realistic Joint Force training with our global allies and
8 partners. And part of this realistic preparation for a
9 future conflict requires training for our armed forces to
10 fight and win in the electromagnetic spectrum.

11 What role do you see state-of-the-art training centers
12 like NADWC will play in preparing for this very unique
13 electromagnetic challenge that will likely get only more
14 significant?

15 General Cotton: Thank you for the question, Senator.
16 I think what is going to be key is ensuring that the
17 participants of those exercises are given the true
18 challenges that they could potentially face, and then they
19 can drive the techniques, tactics, and procedures, because
20 some of it is as simple as that, to be able to counter that
21 threat.

22 I think having live, virtual, and constructive
23 opportunities on training venues are going to be incredibly
24 important, as well, understanding that probably having a
25 live training venue might not be feasible but having a

1 virtual one is. So continued support in having push for
2 that type of training venue would be incredibly important.

3 Senator Peters: Thank you, General. Thank you, Mr.
4 Chairman.

5 Chairman Reed: Thank you, Senator Peters. Before
6 recognizing Senator Mullin let me remind everyone that we
7 will convene immediately after this open session in a closed
8 session in SVC-217, and I will, at this time, pass the gavel
9 to Senator Shaheen, who will preside here and there.

10 Senator Mullin, please.

11 Senator Mullin: Thank you, Mr. Chairman, and thank you
12 both for being here today.

13 First off I want to thank Senator Cotton for
14 emphasizing the importance of modernization of the B-52
15 fleet and keeping it in the air, especially since all that
16 work is being done in Oklahoma, right at Tinker Air Force
17 Base. Tinker will also be the maintenance center for the
18 new B-21s, and they are rapidly building up the capacities
19 and capabilities today to take on that new mission. We are
20 very proud of that.

21 General Cotton, a question for you. Oklahoma is very
22 proud to invest in the investments we have made to support
23 the bomber modernization and the maintenance at Tinker Air
24 Force Base. Can you speak to the benefit this brings to the
25 leg of the triad?

1 General Cotton: Absolutely, Senator. It is absolutely
2 foundational. Tinker and the teammates that are there,
3 Tinker Air Force Base to support that mission leg on behalf
4 of men and women of Air Force Global Strike Command, that
5 provides that leg to me, is absolutely critical. The fact
6 that we are expanding and building a bomber campus, if you
7 will, in preparation of B-21 is going to be extremely
8 important, but even more so the production of the B-52J, as
9 we go through the commercial engine replacement program for
10 that jet.

11 Senator Mullin: Thank you. In addition to the nuclear
12 deterrent, STRATCOM is also tasked with electronic warfare.
13 What is the next technological frontier for protecting our
14 electronic communications and weapons systems?

15 General Cotton: Well, sir, obviously it is protection
16 systems, and my colleague to the left also plays an
17 important role in that. But more so one of the things that
18 we are finding, and it was noted through both Northern Edge
19 21 and Northern Edge 23 exercises that it really having
20 adequate training so the men and women that are put in those
21 situations understand that there are techniques, tactics,
22 and procedures that can avoid being susceptible to the
23 interference that you might see in that spectrum domain.

24 I had mentioned earlier, but the realities of us
25 recognizing that that domain is going to be contestant with

1 the peers that we have, the near peer adversaries that we
2 have now and being able to identify and find ways to ensure
3 that we can fight in that domain at our choosing is going to
4 be incredibly important.

5 Senator Mullin: General Whiting, do you want to speak
6 about that too?

7 General Whiting: Yes. Thank you, Senator. The
8 electromagnetic spectrum is vital to us. It is the only way
9 to get information back from space. That is our satellite
10 communications, our missile warning, our positioning
11 navigation and timing, so we absolutely have to ensure that
12 we can operate there free of hindrance, or at least be able
13 to operate through any hindrance that we see.

14 And we definitely want to look to technologies that can
15 help us reduce that susceptibility to jamming, for example.
16 I think things like laser communications can help with that,
17 and I would like to see those investments continue, moving
18 forward.

19 Senator Mullin: Currently we have a company in our
20 state who is working on quantum- and physics-based
21 communications techniques. Is that a help, a big role for
22 you guys?

23 General Whiting: Senator, I think it could be. I
24 think that is one of those new technologies that would give
25 us a way, perhaps, to defeat traditional jamming techniques.

1 And so I certainly would encourage the research lab and the
2 science and technology community to continue to work on that
3 and for companies to bring mature capabilities forward in
4 that area.

5 Senator Mullin: Is our defense industry capable to
6 make those changes? When we are working on a system that
7 they say is 3 years, 4 years out, in some cases most of time
8 it is 7, are they able to pivot when new technology comes
9 on? Because obviously this is a growing space and a growing
10 concern. So there are new finds, new technology that is
11 coming on constantly. Are we able to pivot -- and I will
12 hold that for both of you all -- in defense to say yes, we
13 want to start moving this direction?

14 General Cotton: For us, as we are looking at
15 modernization programs across the portfolio what we are
16 seeing that is different in the way we want to do business,
17 Senator, is through modularity. So having the opportunity
18 for modularity is going to be critical for us and crucial
19 for us, because then we can outpace and stay ahead of the
20 adversary.

21 General Whiting: And, Senator, I would just add that
22 we want to work with the companies that have existed for a
23 long time and help them to see the requirements and make the
24 pivot. But also we want to make sure we have a relationship
25 with new startup companies that may not be burdened by the

1 way things have happened in the past and can now move right
2 to the future. And we want to make sure they have an
3 opportunity to compete for our requirements, and we can help
4 move them through that "valley of death," they call it to
5 bring successful programs forward.

6 Senator Mullin: Thank you guys. I will see you here
7 in just a minute in the SCIF. I yield back.

8 Senator Shaheen: [Presiding.] Thank you. Senator
9 King, did you have a second round that you wanted to do?

10 Okay. We are going to adjourn for 15 minutes so that
11 Senators can vote, and go into closed session in the SVC.
12 So at this point we will close the open session.

13 [Whereupon, at 11:31 a.m., the hearing was recessed, to
14 be continued in closed session.]

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