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Before the

Subcommittee on
Readiness and Management Support

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON
UNITED STATES AIR FORCE READINESS

Wednesday, October 10, 2018

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SUITE 700
WASHINGTON, D.C. 20006
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UNITED STATES AIR FORCE READINESS

Wednesday, October 10, 2018

U.S. Senate
Subcommittee on Readiness
and Management Support
Committee on Armed Services
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:32 a.m.
in Room SR-222, Russell Senate Office Building, Hon. Dan
Sullivan, chairman of the subcommittee, presiding.

Committee Members Present: Senators Sullivan
[presiding], Inhofe, Rounds, Ernst, Perdue, Kaine, and
Shaheen.

1 OPENING STATEMENT OF HON. DAN SULLIVAN, U.S. SENATOR
2 FROM ALASKA

3 Senator Sullivan: Good morning. This hearing on the
4 Subcommittee on Readiness and Management of our U.S.
5 military will come to order.

6 The subcommittee meets today for the first time since
7 the passage of the John S. McCain National Defense
8 Authorization Act for the fiscal year of 2019 to receive the
9 testimony on the current readiness of the United States Air
10 Force.

11 I do want to begin by noting an obvious significant
12 loss to the country, to the Senate. I am the new chairman
13 of this subcommittee. I was not a chairman before we lost
14 Senator McCain. I would much rather not be a chairman and
15 have him still be here. But we all know that that was a
16 huge loss for everybody around the table, everybody in the
17 Senate. As a matter of fact, Senator McCain once sat in
18 this seat from 1995 to 1997, as well as Senator Inhofe, who
19 is now the chairman of the committee. So I think that is
20 just something we should all recognize and be cognizant of.

21 I am particularly pleased that we have my ranking
22 member, who is a good friend of mine, Senator Kaine, and a
23 great panel this morning in terms of the Secretary of the
24 Air Force, Secretary Heather Wilson; the Chief of Staff of
25 the Air Force, Chief of Staff Goldfein; and Mr. John

1 Pendleton, the Director of Defense Capabilities and
2 Management for the Government Accountability Office. I want
3 to welcome our witnesses.

4 It has been almost 6 months since this committee
5 received testimony from the Air Force on its current posture
6 in support of the fiscal year 2019 budget. As I mentioned,
7 prior to that in those 6 months, a lot has happened. The
8 NDAA was passed with \$716 billion in authorized funding, and
9 it did not get a lot of press, but 87 U.S. Senators voted
10 for that bill. A very, very bipartisan effort to rebuild
11 our military. The same amount has also been appropriated.

12 The Air Force has now released its "The Air Force We
13 Need" plan. And I want to thank the Secretary -- I have
14 read that -- for laying that out with the need to ramp up
15 from your perspective, Madam Secretary, to 386 squadrons, as
16 well as conduct internal operational safety and review.

17 And the GAO has released a number of new reports citing
18 the need for instances of needed change inside the U.S. Air
19 Force.

20 So there is plenty to talk about today, and I want to
21 thank all of my colleagues for being here.

22 With the announcement earlier this year of a document
23 that I think most of us find very persuasive, Secretary
24 Mattis' National Defense Strategy, which laid out a new
25 strategic approach to addressing military challenges, this

1 committee has a new lens through which to ensure that the
2 lines of effort in this NDS are focused and supported by the
3 Congress.

4 I certainly support Secretary Mattis' efforts in this
5 document, the National Defense Strategy, and appreciate that
6 the topics we discuss here are framed in how they support
7 the NDS, especially in how we address potential peer and
8 near-peer conflicts with China and Russia.

9 With Congress passing its first on-time authorization
10 for the first time in over 20 years and an appropriations
11 bill for the military for the first time since 2008, it
12 sends a timely message to both our adversaries and allies
13 that a bipartisan group of Senators and Members of the House
14 are focused on rebuilding our military in a way that does
15 not do damage but actually helps them. It also sends an
16 important message to the men and women in uniform that we
17 are here to deliver bipartisan support for them.

18 The Air Force of today looks in some respects very much
19 like the Air Force of yesterday, and that is not a
20 compliment. For instance, the average Air Force aircraft is
21 28 years old, and since Desert Storm, we have 58 percent
22 fewer combat-coded fighter squadrons. While this is not a
23 modernization hearing, it is a readiness hearing, and unless
24 we modernize our Air Force for the future, we will put lives
25 at risk both on the ground and in the air in terms of

1 readiness.

2 With modernization also comes a significant burden on
3 sustainment. So the Air Force must find balance between
4 keeping our existing aircraft battle-worthy and ramping up
5 to new squadron requirements that the Secretary laid out in
6 her recent speech.

7 In a recent GAO study, it was found that the B-22,
8 C-17, E-8C, F-16, and the F-22 all face unexpected
9 replacement of parts and repairs, delays in depot
10 maintenance, and diminished manufacturing sources.

11 Additionally, in October 2017, GAO found F-35 aircraft
12 availability is well below service expectations. GAO has
13 recommended that the Department of Defense revise F-35
14 sustainment plans to ensure that they include the key
15 requirements and decision points needed to fully implement
16 the F-35 sustainment strategy.

17 The GAO also released another report on the need for
18 the Air Force to improve its F-22 organization, which could
19 lead to improved aircraft availability and pilot training.
20 The GAO found in July 2018 that the Air Force's organization
21 of its small F-22 fleet has not maximized aircraft
22 availability and their utilization of F-22's reduces
23 opportunities for pilots to train for their key missions in
24 high threat environments. Mr. Pendleton, I appreciate you
25 walking us through these findings and recommendations, as

1 Alaska is home to two very critical F-22 squadrons.

2 As my colleagues know, I do like to talk about my
3 State. That will not diminish as the chair of this
4 committee. I like to mention that Alaska constitutes three
5 pillars of America's military might. We are the cornerstone
6 of missile defense, the radars and the missiles that protect
7 the whole country. We are a key platform for expeditionary
8 forces because of our strategic airlift and strategic
9 location that can fight tonight pretty much anywhere in the
10 northern hemisphere, and we are the hub of air combat power
11 in the Arctic and the Asia-Pacific. With F-35's coming to
12 Alaska in the next couple years, we will have over 100 fifth
13 generation combat-coded fighters, which I am pretty sure no
14 place on earth will have that kind of fire power and punch.

15 Secretary Wilson, I know you have been a proponent of
16 our small 60,000 square mile JPARC facility. That is
17 airspace that is larger than Florida. So I look forward to
18 getting your thoughts on the JPARC 2025 plan and, more
19 broadly, how we are going to make sure we have range spaces
20 all over the country and the world for fifth gen fighter
21 aircraft.

22 Again, I want to thank everybody for being here. I am
23 very much looking forward to being the chairman of this
24 committee.

25 I would like to now turn it over to Senator Kaine for

1 any opening remarks. And I am also honored to have the
2 chairman of the full Armed Services Committee here as well.
3 Senator Kaine?

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1 STATEMENT OF HON. TIM KAINE, U.S. SENATOR FROM
2 VIRGINIA

3 Senator Kaine: Thank you, Mr. Chair, and thanks to our
4 witnesses. I am looking forward to this hearing today.

5 I will echo what Senator Sullivan said about just the
6 first big committee meeting since the passage of Senator
7 McCain. I luckily inherited the office that Senator McCain
8 had for about 20 years. When he decided to move around the
9 corner into the office that had been occupied by Senator
10 Kerry when Senator Kerry became Secretary of State, my
11 seniority was so low that I should not have been able to get
12 John McCain's office. However, he did not believe in
13 painting an office, and he also was a pack rat. So his
14 office did not have a lot of curb appeal.

15 [Laughter.]

16 Senator Kaine: So I was able to get it despite low
17 seniority and paint it. And I love being able to be in this
18 office that he had for so long. I sometimes feel like I am
19 hearing the ghost of cursing me out, which he did on
20 occasion.

21 [Laughter.]

22 Senator Sullivan: We all know what that is like.

23 Senator Kaine: Yes, we can all remember those words.

24 But I am glad, Dan, that you opened up with that. I
25 look forward to working with you. I had a great

1 relationship with our current chair when he was chair of the
2 Readiness Subcommittee. Senator Inhofe, I think you will
3 attest that I was generally reliable, and I look forward to
4 working with you, Senator Sullivan, as well. And you get
5 congratulations not just for being chair, but I think you
6 joined the committee and became chair in one jump in the
7 subcommittee. So that is pretty cool.

8 Senator Sullivan: Very cool.

9 [Laughter.]

10 Senator Kaine: I do not know that that has ever
11 happened that you join the subcommittee and become chair in
12 one jump. So congratulations for that.

13 A couple of issues that I would hope to hear about. I
14 just want to alert I am introducing a Virginia nominee for a
15 district court judgeship position at 10:00 in the Judiciary
16 Committee. So I will leave a couple minutes before 10:00
17 and then come back and have questions for you.

18 But the two issues that I am most interested in are,
19 first, just readiness recovery. We have had testimony in
20 the past about shortage in pilots and maintainers. And I
21 think that what we are going to hear is that you made some
22 real headway in addressing those shortages, and I am
23 interested in that.

24 I think in particular in Virginia, as I am at Langley
25 and talking to our Air Force, I hear a lot more about the

1 maintainer side shortage in a way than the pilot side
2 shortage, and I think sometimes that does not get the same
3 attention that pilot shortages do. So I am interested in
4 hearing how we are trending there.

5 We have a low unemployment rate. We have a lot of
6 civilian aviation competitors who really want great
7 maintainers and great pilots. And so I know that as you are
8 trying to fill gaps, we are helping on the budget side. We
9 are helping, giving you some more certainty, but it is a
10 competitive environment. I am interested in that.

11 And then second, the state of our installations, our
12 infrastructure is an important part of readiness. The Air
13 Force is facing about \$300 million in military cost
14 construction overruns or other shortfalls. How does that
15 affect what we need to do on the installation side? I have
16 found that steel tariffs have increased military
17 construction prices significantly in some instances by about
18 30 percent in terms of the use of steel on MILCON projects.

19 And look, we will continue to have robust debates about
20 climate change, but climate change is having an affect on
21 installations. The Air Force recently had to cancel an
22 fiscal year 2018 MILCON project related to the F-35 at
23 Eielson Air Force Base due to the thawing of permafrost. We
24 see significant effects at the Langley Base in Hampton
25 dealing with sea level rise that is affecting that base. It

1 is also affecting other bases in Virginia. And so how are
2 we going to deal with that challenge, as we are trying to
3 make investments in MILCON, is something that I am
4 interested in as well.

5 But I look forward, Mr. Chairman, to working with you
6 on the committee. We got great witnesses here and we will
7 have a good hearing.

8 Senator Sullivan: Great. Thank you very much.

9 Senator Inhofe, as the chairman, I would like to give
10 the floor to you.

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

3 Senator Inhofe: Mr. Chairman, I only want to make a
4 comment.

5 First of all, Senator Kaine, you were always attentive
6 during the times that we had that relationship, and I
7 appreciate all of your activity.

8 I was reminded just a few minutes ago -- and that is
9 why I was a little bit late coming in here -- by the
10 Heritage Foundation talking about some of the
11 recommendations that they are making. And we are all very
12 aware that what we went through during the 8 years, the
13 Obama years -- he did not have a high priority in our
14 military. A lot of things that we thought were being done
15 or the public thought were being done were not being done.
16 And so we are in a catch-up mode. We are going to continue
17 to do it. I have had numerous conversations with our
18 witnesses about this, and I look forward to that.

19 However, I also will be chairing the 10 o'clock meeting
20 next door. So, Mr. Chairman, go after it.

21 Senator Sullivan: Well, Mr. Chairman, thank you.

22 And lastly, I do want to make just one note, and it is
23 something Senator Inhofe and I have discussed a lot. And of
24 course, our members are allowed to ask questions. But I
25 just want to make a comment on the Space Force.

1 I commend President Trump for thinking about space in a
2 more assertive and organized way, but I think the witnesses
3 will not be surprised. What I have been saying about this
4 idea is that, first -- and it is appropriate for this
5 committee -- we must focus on the readiness of the existing
6 military services, which I think everybody recognizes has
7 plummeted over the last several years, so that they are
8 fully ready to do what the President and the American people
9 expect of them. And while I understand that the desire to
10 talk about the Space Force today might be pressing, I
11 believe that the chairman of the full committee intends to
12 address this topic as kind of a full committee issue as well
13 at some point.

14 So, again, I want to thank the witnesses. Your
15 prepared statements will be entered into the record. And we
16 respectfully request that you keep your opening remarks in
17 the vicinity of 5 minutes. Secretary Wilson, we will begin
18 with you.

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

3 Ms. Wilson: Thank you, Mr. Chairman, and I will just
4 summarize my opening remarks from my written statement.

5 America is building a more lethal and ready Air Force,
6 and the predictable and increased funding levels that came
7 from the United States Congress have helped tremendously in
8 helping move us in that direction. And I wanted to
9 personally thank you for your leadership and your support of
10 restoring the funding for national security and giving us
11 some certainty.

12 The National Defense Strategy recognizes that we are in
13 a more competitive and dangerous international security
14 environment than we have experienced in decades. So the
15 restoration of the force, the restoration of the readiness
16 of the force to win any fight any time has to be job one for
17 all of us.

18 So what does that mean and what has the Air Force been
19 doing?

20 Last spring, we gathered together 50 airmen from around
21 the world and seconded them away in a basement room in the
22 Pentagon for almost 6 weeks to drill into the readiness
23 challenges that we face, how do we measure readiness, how do
24 we resource readiness, how can we recover readiness more
25 quickly, and give us a plan to be able to implement.

1 The elements of readiness recovery are really fourfold.

2 The first is people. Our end strength is now up to
3 685,000 because of the resources that you have given us. In
4 2016, the Air Force was 4,000 maintainers short. Today we
5 are 400 maintainers short, and by December in the active
6 duty service, we will be back to having closed the gap and
7 we will no longer have a 4,000 maintainer shortage on active
8 duty. Now, that means we have to season our young airmen
9 and get them to be craftsmen at their work, but at least now
10 we have enough people there to do the maintenance that needs
11 to be done.

12 Second, with respect to aircrew, we have a national
13 shortage of aircrew, and it affects the United States Air
14 Force because we are so good at training people how to fly
15 and the airlines know it. We are focused on retention and
16 improving the quality of service and quality of life, but we
17 are also focused on increasing pilot production.

18 In fiscal year 2017, the United States Air Force
19 trained 1,160 pilots. In fiscal year 2019, we will train a
20 little over 1,300, moving by fiscal year 2022 to about 1,500
21 pilots, and we will stay at steady state at 1,500
22 thereafter. If we are able to do that and achieve our
23 objectives on retention, we will recover the pilot shortage
24 by 2023 where we will be 95 percent manned. We are also
25 trying to scrub all of our requirements for aircrew so that

1 we are not overproducing aircrew, and we have what we really
2 think we need.

3 Third is training. If we are preparing for the high-
4 end fight, we need to be able to provide time and places for
5 our airmen to train in realistic situations. That means
6 ranges, but it also means what we call virtual and
7 constructive training. Sometimes now you can do more in
8 simulation than you can do actually up in the air. That
9 training has to be relevant and realistic. And, Mr.
10 Chairman, you are right. JPARC, as well as our Nellis test
11 and training range, are two of the premier ranges in the
12 world for being able to train for the high-end fight.

13 The fourth thing we need to do is cost effective
14 maintenance and logistics. We have an old fleet with high
15 operating tempo for the service, and I think this is going
16 to take the most intense focus on recovery of readiness is
17 how are we going to make sure that our aircraft are ready to
18 go and ready to fight tonight.

19 The final thing I would mention on things that we are
20 doing and things that you funded that helped was the
21 restoration of munitions stockpiles where we were depleting
22 our munitions stockpiles in the fight against ISIS faster
23 than we were replacing them. And the funds that you
24 provided have allowed us to significantly recover from that
25 situation.

1 So we are doing things to recover readiness. We are
2 simultaneously trying to field tomorrow's Air Force faster
3 and smarter. We set a goal for ourselves 6 months ago. We
4 have a very good leadership team in acquisition. And they
5 got together and said, you know, in the first 12 months
6 together as a team, they wanted to strip 100 years out of
7 our acquisition programs. 100 years. So far they have
8 stripped out 56 years out of our acquisition programs. We
9 are using prototyping. We are changing the way we are doing
10 software development, to do that faster and better. And we
11 are committed to transparency and accountability.

12 We have seen just over the last few weeks that
13 competition works. We have saved about \$13 billion just on
14 three major acquisition programs that we have announced over
15 the last few weeks. The T-X, the replacement for the UH-1
16 helicopter, and the GPS satellite program have all, because
17 of competition, come in at lower than our cost projections.

18 The Air Force is more ready for major combat operations
19 today than we were 2 years ago. More than 75 percent of our
20 pacing force is combat ready today in their lead force
21 packages. That said, we all know we have a long way to go
22 and we are after it.

23 Chief?

24 [The prepared statement of Ms. Wilson follows:]

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1 Senator Sullivan: Thank you, Secretary Wilson.

2 General Goldfein?

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1 STATEMENT OF GENERAL DAVID L. GOLDFEIN, USAF, CHIEF OF
2 STAFF OF THE AIR FORCE

3 General Goldfein: Thanks, Madam Secretary, and
4 Chairman, thank you for holding a real timely hearing.

5 What I would like to do very quickly is just share a
6 story that perhaps will offer us perspective on what we are
7 here to talk about today.

8 Of all the work and the obligations that we have -- and
9 I would say this is a shared obligation between this
10 committee and the Secretary and I -- the one that I believe
11 is nothing short of a moral obligation is to ensure that
12 every airman, soldier, sailor, and marine that we send into
13 harm's way to do the nation's business is properly
14 organized, trained, equipped, and led. And when they get
15 back, they can come back to their families that we have
16 taken care of while they are gone. Everything else -- we do
17 the best we can.

18 So let me just share with you one quick story about
19 what I call confidence under fire, which is what we are here
20 to talk about. How do we produce the readiness of the force
21 to accomplish that moral obligation we have to those that we
22 send into harm's way?

23 I was a young captain when we went into Desert Storm.
24 And I know that there are many here that have also --
25 Senator Sullivan yourself, Senator Ernst have had combat

1 time. And that warrior's prayer has not changed over the
2 years. Please, God, do not let me let my buddies down and
3 let me get the job done.

4 And so when we went into Desert Storm, I was in a
5 squadron that had -- all but one, none of us had had combat
6 time. The squadron commander had had combat time in
7 Vietnam. The rest of us had never seen it. And so we went
8 in uttering that prayer. And we crossed into enemy
9 territory for the very first time, and I remember his voice
10 on the radio when he said, look, there is triple A, right 2
11 o'clock, anti-aircraft artillery fire. And we all stared at
12 it. And then he said there is a surface-to-air missile,
13 left 10 o'clock, and we all stared at this big surface-to-
14 air missile like a telephone pole coming up through the
15 formation and we watched it explode. And then we heard on
16 the radio, splash, MiG 29, and one of our F-15's sees it,
17 shot down a MiG 29 and we watched it hit the desert floor
18 and explode.

19 I remember that moment in the cockpit as a young
20 captain because it came to me that nothing I was seeing or
21 hearing was new. I had been in an environment just like
22 this before at Nellis and at JPARC range and had been put in
23 this situation. Every radio call, every formation,
24 everything I was seeing is something that I had been trained
25 for. And in fact, I would share with you that I remember

1 thinking this is actually easier than Red Flag because they
2 threw everything at me, plus the kitchen sink, when I was
3 there. And that moment in the cockpit produced this level
4 of confidence that I knew that I could succeed in combat.

5 I think that is what we are here to talk about. How do
6 we ensure that the young captains, the young airmen, the
7 NCOs of today and tomorrow have that same confidence under
8 fire that I had when I went into combat in Desert Storm?

9 And so I look forward to the questions and the dialogue
10 today because this is a shared obligation to ensure that we
11 all remain committed to ensuring that these soldiers,
12 sailors, airmen, and marines go into harm's way with what
13 they need to get the job done and we take care of their
14 families while they are gone.

15 Thank you.

16 [The prepared statement of General Goldfein follows:]

17 [SUBCOMMITTEE INSERT]

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1 Senator Sullivan: Thank you, General Goldfein.

2 Mr. Pendleton?

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1 STATEMENT OF JOHN H. PENDLETON, DIRECTOR, DEFENSE
2 CAPABILITIES AND MANAGEMENT, UNITED STATES GOVERNMENT
3 ACCOUNTABILITY OFFICE

4 Mr. Pendleton: Chairman Sullivan, members of the
5 subcommittee, thank you for inviting me to talk about our
6 work on Air Force readiness.

7 I think you are going to find that we are largely in
8 agreement with the Air Force on the challenges going
9 forward. Over the past quarter century, we have been
10 tracking readiness, and we have seen it gradually but
11 steadily decline primarily because the Air Force has gotten
12 smaller, but the demand has stayed high.

13 Back in 2016, we urged the Department of Defense,
14 including the Air Force, to develop a plan for readiness
15 rebuilding. At that point, the Air Force felt that
16 rebuilding the readiness of its force would take a decade or
17 more and only if they got increased budgets and a decreased
18 pace of operations. Budgets have increased but the pace has
19 stayed high.

20 Today the Secretary testified -- or in her statement
21 actually -- that the Air Force is aiming to have 80 percent
22 of its over 300 operational squadrons ready within about 5
23 years. This is an aggressive goal. And to meet it, the Air
24 Force is going to need to focus on the building blocks of
25 readiness, as they are saying they intend to do: people,

1 training, equipment.

2 Let us talk about personnel briefly. The Air Force has
3 shortfalls of both maintainers and pilots. The gap for
4 maintainers I think is about to be closed, but it will take
5 time for them to grow experience. The pilot shortfall may
6 take a bit longer. The retention incentives to date have
7 not worked to meet goals, and I think it may take a little
8 bit longer for the Air Force to close.

9 Regarding equipment, we have found, not surprisingly,
10 that older equipment breaks down more. But it is not
11 limited to the older aircraft -- the mission capability
12 challenges. The F-22 mission capability rates are well
13 below desired levels, as you know. And it is partly because
14 its aircraft are so maintenance intensive. They have this
15 low-observable coating on them that makes them difficult to
16 work on. The F-35 is proving to be so costly to operate and
17 sustain that it actually jeopardizes the program, as many of
18 you know. DOD and the Air Force are working to try to get
19 those costs down, and I think that will be critical.

20 Training, as the Secretary mentioned, is another
21 challenge area. The pace of Air Force operations have left
22 little time for aircrews to train. As the Air Force seeks
23 to rebuild readiness, I agree that training may be one of
24 the more difficult things to achieve, especially if demand
25 is not dampened.

1 The full-spectrum mission of the F-22, for example, is
2 so complex that it takes most of the year to fully train for
3 it. But we found questions about the way the F-22 is
4 utilized. It is called away to participate in exercises
5 that do not give it much training value. It sits alert,
6 gassed and ready, but not training. And they have to fly
7 adversary air for each other because they often do not have
8 dedicated adversary air in the vicinity, and that does not
9 provide much training value for the red air.

10 We made several recommendations around organizing and
11 utilizing the F-22 better, which the Air Force agreed with
12 and I believe are beginning to take action.

13 These are just a few highlights. In all, we have made
14 14 readiness-related recommendations that I summarize in the
15 back of my statement, and I am happy to talk to you about
16 any of those as the hearing goes on.

17 Looking to the future, I understand the Air Force's
18 desire to get larger. Like the Navy, Air Force readiness
19 has suffered as demands have stayed high while the force has
20 shrunk. Like the Navy, the Air Force believes it needs to
21 grow by about a quarter to meet future demands and the
22 strategy. But regardless of future growth, the Air Force
23 will have to keep much of its existing force structure for
24 decades to come. Therefore, I agree the priority needs to
25 be rebuilding the readiness of the existing fleet certainly

1 in the near term.

2 Mr. Chairman, I am encouraged by what I have heard from
3 the Air Force today. They have taken several steps in the
4 right direction. Now it is a matter of achieving results.
5 Recovery will not be easy or fast. It took a quarter
6 century for the Air Force to get here, so it may take a
7 while to recover.

8 We at GAO stand ready to assist you in your oversight.

9 That concludes my remarks. I look forward to your
10 questions, sir.

11 [The prepared statement of Mr. Pendleton follows:]

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1 Senator Sullivan: Great. Thank you and thanks again
2 for all the good work that GAO has been doing in this area.

3 Let me begin by -- Madam Secretary, this is a question
4 for you -- the issue as it relates to the readiness of
5 aircraft that are available that come into the Air Force
6 fleet, and in particular, I am thinking about the F-35.

7 So I saw just a couple days ago that Secretary Mattis
8 ordered the Air Force and Navy to get mission capable rates
9 up to 80 percent. I did a little sniffing around. I think
10 Delta Airlines -- their aircraft readiness in their fleet is
11 about 86 percent. I believe it is something along those
12 lines. And yet, for the F-35 -- it is a new airplane,
13 coming on line, coming out to the fleet -- I think it is in
14 the -- you can correct me if I am wrong -- but mid-60s.

15 So why is there, A, such a disparity between military
16 aircraft that are brand new and commercial aircraft? And
17 can we get to, within a year -- I know that is what the
18 Secretary put in his memo. Can we get to a rate of 80
19 percent, and how can we do that?

20 Ms. Wilson: Thank you, Mr. Chairman.

21 The readiness recovery plan that we put together in the
22 spring accelerates our readiness recovery by about 6 years
23 and says that by the end of fiscal year 2020, our pacing
24 units, our most important units for a peer competition, of
25 which we have 204 operational squadrons -- that 80 percent

1 of those will be at C1 or C2 readiness by the end of 2020.

2 The Secretary of Defense has asked us to accelerate
3 further our F-16's, F-22's, and F-35's to the end of fiscal
4 year 2019 and come up with a plan to do that.

5 Now, what we are focused on here is not the entire
6 fleet. It is not the test and evaluation airplanes and
7 those kind of things. And so we have a situation where we
8 actually are now standing up. We are not even at full
9 operating capability for some of our squadrons, but we are
10 focused on the operational squadrons and making sure that
11 they are at high levels of mission capable readiness both
12 for their pilots, their equipment, and their training.

13 So you had asked what are the challenges with the F-35
14 fleet with respect to sustainment.

15 Senator Sullivan: And is that number like in the mid-
16 60s? That is correct. Is it not?

17 Ms. Wilson: It varies by squadron, significant
18 variation by squadron. And I may ask the Chief to jump in
19 here on this.

20 But I would say that there are a couple of issues.
21 Obviously, one of them is that the spare parts lines did not
22 start up fast enough, and that is something that predates
23 all of us. But they were so focused on initial production,
24 they did not start up and really work the logistics system
25 fast enough.

1 The second and most obvious difference between an F-35
2 and an airliner is the low observable coating and the
3 complexity of maintaining that.

4 We are putting together a plan with, of course, the
5 Joint Program Office because this is a joint program -- it
6 is not an Air Force program -- to get the supply line right
7 so that our operational squadrons can meet the goals that
8 the Secretary of Defense has set out for us.

9 Chief?

10 General Goldfein: Chairman, I would just share with
11 you a couple weeks ago I had a conversation with Israeli Air
12 Chief Amikan Norkin. And he shared with me. He said, Dave-
13 - he said I am not integrating the F-35 into the Israeli Air
14 Force. I am integrating the Israeli Air Force into the F-
15 35. And it was a telling statement on how this aircraft,
16 this weapon system, is looked at operationally as the
17 quarterback of the joint and the allied team because it is
18 really an information fusion engine. And so operationally
19 we are seeing incredible capabilities coming out of this
20 platform.

21 Where we are focused -- and I think Mr. Pendleton said
22 as well -- is on that sustainment piece. And as an
23 international air chief, speaking on behalf of my fellow
24 F-35 international air chiefs, we are working to drive the
25 sustainment costs down so that they are on par with a fourth

1 generation F-16, F-18 because that is what all of the air
2 chiefs have put into their budgets. And so this is one that
3 we are working with the Department, with the Joint Program
4 Office, and with Lockheed Martin to ensure that we drive
5 these sustainment costs down, and we are not going to stop
6 until we see them on par.

7 Senator Sullivan: Mr. Pendleton, do you have any views
8 on just the fleet readiness and why -- I know it is a
9 complex aircraft. It only took almost 2 decades to procure
10 and develop, which that is a whole other topic for a whole
11 other hearing. But it does seem to me kind of ludicrous
12 that we get new aircraft off the production line and within
13 a month, they are at 65 percent readiness. I mean, what do
14 you think is going on there?

15 Mr. Pendleton: I think the Air Force is focused on
16 production and not enough on sustaining the aircraft, just
17 to be blunt about it. And it is causing problems. The
18 depots are already several years behind. Parts are a
19 problem. And it is going to be difficult to achieve those
20 kind of mission capability rates.

21 Now, I will say on mission capability rates that
22 whenever I hear a percentage -- you know, I am auditor.
23 That is a numerator and a denominator. What exactly is in
24 both of those I think will become very important and we will
25 be watching that, of course.

1 Senator Sullivan: Thank you.

2 Senator Rounds: Thank you, Mr. Chairman.

3 General Goldfein, with regard to the discussion about
4 the immediate capabilities or at least between the F-22 and
5 the F-35, we know as low observable aircraft both of them
6 have some challenges because it is a technology that is
7 difficult to maintain. And yet, we changed the styling on
8 the technology, the way that we handle low observability
9 between the F-22 and the F-35. There is a reason for it.
10 Part of it was is because we learned by the F-22.

11 Would you like to share just briefly what we expect to
12 get out of the F-35 that we could not get out of the F-22 in
13 terms of low observability and making it easier to maintain
14 the capabilities of the F-35?

15 General Goldfein: Thanks, sir.

16 You know, we took all the learning from -- and I flew
17 the F-117. So we could say first generation and was a wing
18 commander and responsible for low observable maintenance on
19 the F-117. We learned from that. And we actually send
20 F-117 maintainers and pilots to the B-2 to learn. And so
21 throughout the evolution of low observable technology and
22 maintenance, we have learned from every one of the
23 generations, if you will, going forward. So we took
24 everything we learned from the F-22 and we applied that to
25 the F-35 not only in production, but now in terms of

1 maintenance. How we do the coatings, how we achieve the low
2 observability we need is a generation beyond what we are
3 doing in both the F-22 and the B-2.

4 The big story, though, on the F-35 is the information
5 fusion. And I would just share you this way. When I was
6 flying the F-16, I would go out for a mission, and then when
7 I came back, my debrief was primarily to determine what I
8 had missed, what did I not see, what information was out
9 there that I did not collect, and how could I improve my
10 ability to manage my systems to do that.

11 The F-35 pilots are having a completely different
12 debrief because it is all there. The question is how did
13 they fuse it and how did they act.

14 Just to give an example, when an F-35 pilot is taxiing
15 out, he or she is already getting information fed into the
16 cockpit on what is going on in the cyber world, in the space
17 world. And they are already calling audibles. So going
18 back to what the Israeli air chief said, I am integrating my
19 entire air force into the F-35, and why we think about it as
20 the quarterback, because it is able to call audibles real
21 time in a really complex environment in ways that we have
22 just not been able to do before.

23 So it is this combination of low observability,
24 allowing you to penetrate and persist, and the information
25 fusion, what you can do once you are inside an enemy

1 environment, that allows the F-35 to do what it does.

2 Senator Rounds: If I could, what you are saying and
3 what I am hearing is that we are basically on the cutting
4 edge technology that is going to get a lot better, but we
5 are learning as we go along and this is a part of that
6 learning curve that we are in right now.

7 General Goldfein: Yes, sir. And you cannot
8 overestimate the importance of the international aspect of
9 the F-35 because I have never been in a single fight where I
10 have done it alone. Every time I have gone into combat over
11 the last 28 years, we have been there side to side with our
12 allies and partners. And the fact that they are in this
13 weapon system with us is probably one of the most important
14 outcomes of coalition warfare going forward.

15 Senator Rounds: I think sometimes we forget about
16 that, and I appreciate your bringing that up because those
17 partnerships are critical to us. It is something that our
18 near-peer adversaries do not have.

19 General Goldfein: Yes, sir.

20 Senator Rounds: Thank you.

21 Secretary Wilson, I am just curious. There is going to
22 be a discussion about whether we should be working on
23 maintaining our existing force and bringing it up to speed
24 versus adding new squadrons, more manpower, and so forth.
25 But I think the two are integratable and I think that they

1 cannot be separated.

2 Would you care to share your thoughts about the need to
3 not only increase so that we have actually got aircraft to
4 do the mission that is necessary and then the reason why we
5 are having problems right now in terms of the amount of
6 hours we are expecting from the airframes that we have got
7 and the pilots that we have got on hand right now?

8 Ms. Wilson: Senator, job one is to restore the
9 readiness of the force that we have. This committee asked
10 the Chief and I last March what is the Air Force you need to
11 execute the National Defense Strategy. And we have a formal
12 report that is due to the Congress in March.

13 So we have a group within the Air Force. There is also
14 Mitre Corporation and the CSBA who are also doing
15 independent looks at what is required in order to execute
16 the National Defense Strategy. Certainly modernization and
17 new concepts of operations, integration with the joint
18 force, dependence on allies. But we have done quite a few
19 war games and modeling and simulation that do show that we
20 are too small for what the nation is asking of us under the
21 National Defense Strategy when we project forward to the
22 2025-2030 time frame in particular. And that is because we
23 have returned to great power competition. We have a rapidly
24 innovating adversary that is putting a lot of effort into
25 the development of their military. And I think we have an

1 obligation to you to be able to answer that question, what
2 is the Air Force we need when we look at the rapidly
3 innovating threat. And so that was the basis of our work in
4 saying we think it is about 386 squadrons in the 2025-2030
5 time frame.

6 That will engender a debate on how we get there, can we
7 get there, what are the resources required. And we
8 understand that. But at a minimum, we should be able to
9 tell you what is needed.

10 Senator Rounds: Mr. Chairman, I think one of the most
11 critical pieces in what the Secretary has said is that the
12 public is expecting that we will have the best Air Force and
13 that we can handle our near-peer competitors. And actually
14 what she is saying is that without the increases that we
15 need in manpower and in new squadrons, we are not able to
16 meet that near-peer competition.

17 Ms. Wilson: We are ready to fight tonight. There is
18 no question. But when we project forward into 2025-2030,
19 with the best intelligence estimates we have, that is where
20 the greatest issue is. And so we can see what the adversary
21 is doing and project forward as to what they plan to do, and
22 we have an obligation to maintain dominance and air
23 superiority to carry out the National Defense Strategy and
24 provide options for the commander in chief.

25 Senator Rounds: Thank you.

1 Thank you, Mr. Chairman.

2 Senator Sullivan: Senator Shaheen?

3 Senator Shaheen: Thank you, Mr. Chairman. I am sorry
4 I had to step out.

5 I am going to say this even though it is not directly
6 related, but I went out because there is an exhibit in the
7 Rotunda of young people who have overdosed, and these are
8 portraits that are very dramatic. This is an issue I think
9 for all of us across our society. And so I would urge
10 everybody to walk through the Rotunda on your way out. The
11 portraits were painted by a woman from New Hampshire, and
12 that is how I am connected to it.

13 I also wanted to just -- I am sorry that Senator Inhofe
14 has left because I wanted to respond to his comment about
15 the last 8 years of President Obama. And I think leadership
16 and politics aside, one of the biggest challenges of the
17 last 8 years has been sequestration. And I raise it because
18 if we do not make a change, we are looking at that coming
19 again. And so I think we cannot just suggest that it has
20 been about leadership. It has been about our failure to
21 provide the funding that our armed services has needed, and
22 we better face up to that now because we are looking at it
23 coming down the pike again. So I would urge us all to think
24 about how we are going to address that because these
25 readiness challenges really got critical during the years

1 when sequestration was in effect.

2 So with that preface, I want to begin, Secretary
3 Wilson, by again thanking you and the Air Force for your
4 very positive response to the contamination from PFAS that
5 has been at the former Pease Air Force Base. You sent up
6 John Henderson, who is the Assistant Secretary of the Air
7 Force for Installations, Environment, and Energy. He was
8 very effective in meeting with residents of the community
9 who had been affected and reassuring about the effort to
10 address this issue, which I know everyone very much
11 appreciated.

12 I want to ask you, though, because one of the questions
13 that came up was about the fire fighting foams that
14 contributed to the problem that we have at Pease and what is
15 being done. There has been some concern about whether there
16 is going to be a new fire fighting foam that is developed
17 that can meet the same requirements to fight fires. So can
18 one of you talk about what you are seeing and what the
19 prospects are to develop something that is just as
20 effective?

21 Ms. Wilson: Yes, Senator, I think I can.

22 First of all, the Air Force, I think to its credit --
23 it was my predecessor who got us on this path -- but went
24 out proactively and assessed all of our bases. This
25 particular foam was used in all kinds of fire fighting, but

1 the Air Force was only one of the entities that has used it.
2 And so we did an assessment.

3 We pretty much completed that assessment at all of the
4 Air Force locations, identified where we have problems, and
5 we are committed to fixing it and providing clean water
6 immediately when people are affected.

7 We have also replaced this foam already at Air Force
8 locations with another kind of fire retardant that does not
9 contain that chemical.

10 Senator Shaheen: Well, that is really good to hear
11 because there was a hearing in a subcommittee of the
12 Environment and Public Works Committee that raised questions
13 about whether the Air Force has in fact replaced that fire
14 fighting foam. So I hope that that message will get sent
15 loud and clear to everybody so that everybody understands
16 that that has been done.

17 Ms. Wilson: Senator, I will take that back and we will
18 confirm that for you in writing.

19 Senator Shaheen: That would be great. Thank you very
20 much.

21 Also following up on that a little bit more, earlier
22 this year Senator Rounds and I introduced the PFAS Registry
23 Act, which would have set up a national registry for
24 everyone affected. There were pieces of that that are
25 included in the McCain authorization bill. And I just

1 wondered if you could talk about whether efforts have begun,
2 if you are aware of efforts that have already begun within
3 DOD to begin to set up this registry and what we might need
4 to do to support that.

5 Ms. Wilson: Senator, if I could take that one and go
6 back and also get that answer for you in writing.

7 Senator Shaheen: Sure. That would be great. Thank
8 you.

9 I am almost out of time so I will save my question for
10 the next round.

11 Senator Sullivan: Okay.

12 Senator Ernst?

13 Senator Ernst: Thank you, Mr. Chair.

14 And, of course, to our witnesses, thank you very much
15 for being here today. We certainly appreciate your service
16 and your commitment to our great United States of America.

17 General Goldfein, I would like to start with you
18 please, sir. And thank you very much for acknowledging the
19 fact that we need to man, train, and equip our service
20 members. And the training is very important. Whether it is
21 simulation or whether it is actual exercises in the air,
22 that muscle memory and those rehearsals are very, very
23 important -- and you are right -- when it comes down to it,
24 to be able respond immediately in a time of crisis. Very
25 important. So thanks for acknowledging that.

1 I know that many of us here on the committee have been
2 following the physiological episodes that have been
3 occurring in our flying communities, and I am confident in
4 saying that all of us are committed to ensuring the safety
5 of our pilots. And so I am happy to hear that the Air Force
6 has joined with the Navy now and we have a Joint
7 Physiological Episodes Action Team, or JPEAT, to share
8 information and really get after this problem. So
9 congratulations on that.

10 I am aware that there has been some progress made with
11 regard to resolving these PE issues in the Air Force trainer
12 fleet. Can you share with the committee this progress and
13 then how it impacts resolving PE issues in other platforms
14 as well?

15 General Goldfein: Yes, ma'am, thanks.

16 In the T-6, which is the aircraft that we have been
17 most recently having the physiological episodes.

18 As you mentioned, we put together a team with the Navy
19 and went and looked at it, and we were able to drive down to
20 the point with high confidence. What we have found is that
21 it is the concentration of oxygen levels at various
22 parameters of flight that was falling behind what was
23 required. So in different maneuvers and different flying in
24 certain of the aircraft, the concentration levels were off.

25 And so the way we are attacking this is for the near

1 term and long term. In the very near term, now that we have
2 identified what the root cause is, we have looked at all of
3 the maintenance practices because the Navy has T-6's. We
4 have T-6's. We compared the best practices of both
5 services, and we have changed significantly the way we are
6 maintaining every part of the system to ensure that we can
7 mitigate and minimize any implications of having the
8 concentration values not be optimum.

9 And the second thing what we are doing is we are out
10 there and we are talking to the force. We learned with the
11 F-22 when we went through that, that when we were doing all
12 of our analysis, we stopped a dialogue with the operators
13 and their families. So they started wondering and
14 questioning what we were doing. So this has been an
15 inclusive, transparent dialogue throughout. So now we have
16 sent a team out with a one-star general that has briefed
17 every one of our T-6 pilots and we have talked to families
18 in town halls to make sure they know exactly what is going
19 on.

20 The long-term solution to this is going to be a
21 redesign of the system to ensure that we have the
22 concentration levels right. And we have a team right now
23 that is doing the redesign, and then as soon as they come to
24 us with the solution, that is going to be a priority for the
25 section guy to move forward.

1 Senator Ernst: Very good.

2 So you mentioned that was the T-6 as well and the F-22,
3 and you are applying that to other platforms as well then.

4 General Goldfein: Yes, ma'am.

5 Senator Ernst: Well, I do appreciate that. It has
6 been very concerning, and we are glad to see the attention
7 really being paid by both the Air Force and the Navy to the
8 PE. So I appreciate that.

9 And thank you for mentioning the families because that
10 is a great lead-in to the question I have for Secretary
11 Wilson. And thank you, Secretary, for being here as well.

12 I chair the Emerging Threats and Capabilities
13 Subcommittee, and I have had the opportunity to learn about
14 SOCOM's success with Preservation of the Force and Family
15 program. And we ask a lot of our airmen and their families,
16 and we all want to provide them with the absolute best
17 possible support we can. And I understand it may not be
18 possible to apply POTFF all across the Department.

19 Is there a way that we could incorporate parts of that
20 program with folks in the Air Force? We know that it has
21 been very helpful to those that are in those special
22 operations community in AFSOC, and we would like to see
23 pieces or parts of that shared with the greater Air Force as
24 well. Are there ideas or things that could be applied?

25 Ms. Wilson: Senator, we are trying that out at four

1 different bases. We call it Operation True North. The
2 concept is to embed the caregivers in the squadrons where
3 people are for both mental health, spiritual wellbeing, but
4 also physical health. And one of the outcomes from SOCOM is
5 if someone is in the same unit and they are responsible for
6 mental health, there are conversations that go on that are
7 easier to have than if you have to make an appointment over
8 at the clinic and walk through that door.

9 The second part on physical health. We have actually
10 found that by embedding -- we are taking care of high
11 performance athletes. And by embedding physical trainers
12 with the units, it is not about what you cannot do. It is
13 about how you can do. And the number of injuries and the
14 reluctance to go see a doc, because if you go see the doc,
15 they are going to take you offline status and it is hard to
16 get back on. And so there is a reluctance to get help as
17 opposed to -- I was with a special operator down at Hurlbert
18 who said to me it has been the best thing. I was out there
19 working out and the physical trainer just said -- and then
20 he said, yes, my back has been bothering me. And he said,
21 well, let me watch you lift. And he said this was here.
22 Let me show you how to do this. Let me show you how to
23 strengthen those muscles. He said I feel like a young man.
24 I have never felt this good because I am training properly
25 now, and I did not have to go to the doc.

1 So it is a different approach to maintaining the human
2 weapon system and resilience by incorporating that into how
3 we operate the squadrons.

4 Senator Ernst: I appreciate that. And it is a very
5 important program, and if there are things that we can do to
6 assist in that effort, please let us know. I am a huge fan
7 of the POTFF programs.

8 So thank you all very much for being here today. I
9 appreciate it. Thank you.

10 Senator Sullivan: Senator Perdue?

11 Senator Perdue: Mr. Chairman, welcome to your new
12 role. I look forward to working with you.

13 I want to make one comment for the record for our
14 guests here today. You know, I think this is one of the
15 most important meetings we could have. The timing is
16 perfect, as the Chief said privately before we started.

17 I am chagrined, though, again that with an important
18 meeting, we are all double, triple booked. And so the
19 attendance here is disrespectful to these witnesses. I want
20 that for the record. And with your leadership, I know we
21 can change that.

22 Senator Sullivan: Well, thank you. You raise a good
23 point. There are several other hearings happening literally
24 right now. This is really important.

25 Senator Perdue: We are all double booked. We are all

1 missing something else to be here, but I think this is
2 absolutely critical.

3 Chief, I am worried. As an old manufacturing guy, I am
4 worry about our supply chain. I am worried about our
5 industrial base. I look at the F-35, though, and the
6 decisions that were made that you guys have inherited where
7 we have got that supply chain spread all over the world for
8 whatever reason, social, economic. I do not know, but it
9 certainly was not with national defense in mind.

10 So I want to know what can we do. Eric Schmidt said
11 that bringing technology into the force, both in current
12 readiness and in developing the recap that you guys are
13 going to have to face over the next 10 years -- by the way,
14 Secretary, I could not agree more. I am not worried about
15 where we are today. I have full faith in you guys today. I
16 am worried about what China has said publicly about Made in
17 China 2025. 2025 and beyond I am really concerned about.

18 So that leads to this question. Eric Schmidt, Obama's
19 appointee of the Defense Innovation Advisory Board -- and he
20 said this. He said that bringing new technology in the
21 force is the biggest concern. If there was one variable to
22 solve for, it would be speed. In competing with these guys,
23 they do not have the same constraints that we do.

24 He also said -- and I am going to paraphrase this, but
25 the requirement process we have in DOD is now the single

1 greatest barrier to rapid technological advancement. And by
2 advancement, he means not development but deployment.

3 So, sir, when we look at both recapping and improving
4 our readiness today, where are we in terms of working with
5 the industrial base and the supply chain that you guys have
6 inherited to sort of get at this? And I would like maybe
7 both of you. I see your head nodding, Secretary. Both of
8 you may have a comment on this. But I think this is the
9 number one threat that we have right now.

10 Ms. Wilson: Senator, I am glad you bring this up
11 because it is something that we are both really focused on,
12 and taking advantage of the new authorities that you have
13 given us to move at speed. And let me give you a couple of
14 examples.

15 One is with the F-35. The Defense Department and the
16 Air Force is terrible at buying software. So we changed the
17 way we are buying software. We set up a software factory
18 called Kessel Run outside of Boston to be able to do
19 development operations, so rapid insertion of technology in
20 an iterative way. We just this last week went out to
21 Nellis. There is a logistics system that supports the F-35
22 called ALIS, A-L-I-S. It cannot scale. It has got huge
23 problems. It drives the maintainers nuts. And so we put
24 together a team of Lockheed Martin, Air Force programmers,
25 and maintainers on the flight line and said let us to DEVOPS

1 and figure out where the problems are and try to rapidly get
2 tools to the warfighter to fix ALIS. They named themselves.
3 The new program is called Mad Hatter, rather than ALIS. It
4 is always the young techies that come up with something.

5 But it is not only that. Let me give you a couple
6 examples of where we are moving very quickly. And Eric
7 Schmidt is right. We are actually partnering with DIUx in
8 some of our space enterprise kinds of things. We started in
9 January a space enterprise consortium. We have got over 200
10 companies now involved. 150 of them are nontraditional
11 companies. We have done 32 prototypes with greater than
12 \$100 million in total value of those 32 prototypes. The
13 average time between solicitation to award is 90 days. We
14 have given four awards just since January for rapid launch
15 of small satellites, partnering with DIUx, at \$15 million to
16 get small satellites up in the air and do it fast. We just
17 broke into four program executive offices in our Space and
18 Missile Systems Center rather than one all the way at the
19 top of the \$6 billion enterprise. And by doing that, we cut
20 out three layers of bureaucracy in getting capability to the
21 warfighter. And we set out nine pacesetter projects to show
22 how to go fast to acquire space systems, and those nine
23 pacesetters cut 19 years out of their acquisition timelines,
24 and they have a number of other pacesetters in line saying,
25 hey, we want to do it this way too.

1 So we are using the authorities for prototyping the
2 experimentation that you have given us. We are stripping
3 out layers of bureaucracy. We have pushed down authority to
4 program managers and given them the power to move quickly,
5 to use competition.

6 And the final thing I would say is we are partnering
7 with our allies. We partnered with Norway on a satellite
8 communications, polar satellite communications, where we had
9 a 2-year gap. We closed the 2-year gap, saved \$900 million
10 by partnering with Norway. We are doing the same on another
11 project with Japan.

12 So the Air Force is trying to take the authorities you
13 have given us and move forward to go faster and smarter on
14 acquisition.

15 General Goldfein: And, sir, just to add quickly.

16 Senator Perdue: It sounds like she might have prepared
17 for that question, Chief.

18 [Laughter.]

19 General Goldfein: It is a big deal for us.

20 Senator Perdue: It is a big deal. I agree.

21 General Goldfein: So Secretary Wilson and I hosted our
22 four-star conference last week, and the guest speaker was
23 Eric Schmidt. And we asked him to talk to us about how we
24 bring the future faster.

25 And I am often asked the question, hey, Chief, 9 years

1 of continuing resolutions -- what does that do to you? And
2 I tell them it really wreaks havoc on our ability to plan
3 for the future.

4 But to your question, then I always follow up and say,
5 but let me tell you what it does to our industry partners.
6 So I have to go to a CEO and tell them, listen, I do not
7 know what I am going to buy next year. And I have not
8 gotten my money yet, but I am hoping I will get it in the
9 last half of this year. And then I am going to buy as many
10 weapons as I can.

11 Senator Perdue: But if I do not, we are going to
12 interrupt the current plan.

13 General Goldfein: That is right.

14 And I cannot give you any projections of what the
15 future looks like. So you need to keep this very
16 sophisticated workforce occupied with this level of
17 uncertainty. And so it goes directly.

18 So what I would offer to you, in addition to the
19 Secretary's great points, is that the John McCain National
20 Defense Act that you passed sent such a powerful signal to
21 airmen, soldiers, sailors, and marines that you are behind
22 them. And it sent an equally powerful signal to industry
23 that says you can now plan your future and manage your
24 workforce to get us what we need.

25 Senator Perdue: I will give you one more to send to

1 them. This year, we did something we have not done in 22
2 years, and we did not get 100 percent, but we got to 90
3 percent funding by the end of August because we stayed here
4 in August. You can tell your service people that we are on
5 the wall that month. This is not something that is never
6 going to be done again. We funded the military this year
7 without a CR, and we know now what it is doing.

8 And speaking of that, I asked an F-22 -- I am sorry. I
9 am past time.

10 Senator Sullivan: No. Go ahead.

11 Senator Perdue: No. I will come back to that in the
12 second round.

13 Senator Sullivan: It is a good question.

14 Senator Perdue: No. I want to come back and brag on
15 the State of Alaska.

16 Senator Sullivan: If you promise to stay for the
17 second round.

18 Senator Perdue: Yes, I will. Thank you. I am sorry.

19 Senator Sullivan: Well, I do want to mention that
20 Senator Perdue and Senator Ernst have been leaders on this
21 issue that he was just talking about. They are both on the
22 special committee that is going to hopefully fix our budget
23 problems. And we have made progress this year, and nobody
24 benefits more than the military.

25 We will start here with round two, which I think is

1 great.

2 I do want to just do a small correction for the record.
3 General, I appreciated your opening statement. I will
4 mention, though, even if one deploys, gets combat fit, gets
5 imminent danger pay, there are combat vets -- and I do not
6 consider myself one particularly in the category of somebody
7 like you. So I am just saying that for the record. I think
8 it is important actually because we know who the real folks
9 are, and I always want to keep that record straight.

10 Madam Secretary, I know you have been focused on the
11 acquisition issues. Can you a little bit more unpack what
12 you were talking about in your opening statement on this
13 issue, 100 years to 56 years? I did not fully follow that.
14 I know it is important. I know you have been really focused
15 on it. Senator Perdue just asked a question. But what were
16 you getting at there?

17 Ms. Wilson: Senator, we have a great team that we put
18 together. Some of them are military, some civil servants,
19 and of course, Will Roper who is our Assistant Secretary for
20 Acquisition. They all got together 6 months ago now and
21 they said, all right, what should be our goals. What should
22 be some of the things we are trying to achieve to get things
23 faster? And one of them was to say let us look at all of
24 our programs and try to strip 100 years out of our schedules
25 by using the new authorities that you have given us, by

1 trying to tailor our acquisition authorities so that we get
2 things faster. And usually when you get them faster, they
3 also cost less. Time is money. And so they are at 56 years
4 so far and they have got another 6 months to go to keep
5 stripping time out of schedules.

6 Senator Sullivan: And when you went through that
7 exercise, did you see any additional authorities that you
8 think you need from us? Again, there is a lot of John
9 McCain here in this hearing, but as you know, he was very
10 focused on this issue. And in the last few NDAA's, we did
11 give significant authorities back to the service secretaries
12 and the chiefs to make things work. What else do you need?

13 Ms. Wilson: Senator, we are now in the point of
14 execution, and I think we are trying to execute in a way
15 that is fast and smart. And also, the other part that we
16 said was we want to be even more transparent than we are
17 with traditional acquisition so that we are fully open about
18 what we are doing and what results we are getting.

19 I do think that there is tremendous promise in several
20 of these, particularly prototyping. And the reason why is
21 that in traditional acquisition, you would come up with an
22 analysis of alternatives, and you would be 3 or 4 years into
23 this and all you really got are stacks of paper and studies.
24 You really do not know what is technically possible yet.

25 If you prototype, you develop a real engineering

1 technical understanding of what really is within the realm
2 of the possible. We are using it for next generation
3 engines. We got a competitive prototyping with two of the
4 big engine manufacturers to develop an adaptive engine that
5 gets 10 percent more thrust, 25 percent more fuel
6 efficiency. They may not get quite there, but we have said
7 build us something. See what you can get, and then it will
8 inform our requirements for a whole next generation of Air
9 Force engines. We are the biggest buyer of fuel in the
10 Defense Department. A 25 percent increase in fuel
11 efficiency and a 10 percent increase in thrust -- that is a
12 game changer. And so we are just trying it.

13 Senator Sullivan: I want to go to the GAO study.

14 General Goldfein: Sir, I just wanted to reemphasize
15 the point, Senator Shaheen, you made. The other thing to
16 your question is sequestration is still the law of the land.
17 Just to make your point again, ma'am, we grounded the United
18 States Air Force in 2013. We created no fly zones across
19 the United States of America where we stopped flying. We
20 still have not recovered. If that comes back, it will
21 undermine and devastate all the good work that you did in
22 the recent bill.

23 Senator Sullivan: I agree with Senator Shaheen on that
24 certainly.

25 Let me go to the GAO study as it relates to the F-22's.

1 Mr. Pendleton, there is a bunch of important aspects to
2 that. That still is an incredible aircraft. The President
3 talks about it a lot. It is a remarkable aircraft. Again,
4 you cannot look back and kind of wring your hands, but that
5 was probably a pretty significant mistake to curtail the
6 production and deployment of that aircraft.

7 But can you summarize quickly your recommendation? It
8 is my understanding that the Secretary and the Chief agree
9 with those or that you have concurred in those. How are you
10 looking to implement these recommendations that relate to
11 the small fleet that is not maximized, the organization with
12 regard to the Air Force, the mission, as you said? What can
13 we do? This is still a tremendous fifth gen aircraft. You
14 know, your work is important in this. Can you talk about
15 that quickly? And if there are any comments from the
16 service Secretary or the Chief, I would welcome that too.

17 Mr. Pendleton: Yes, sir. Thank you.

18 We have two major findings. We found that the
19 organization of the small fleet could be suboptimal.

20 Senator Sullivan: Did you find that it is suboptimal?

21 Mr. Pendleton: Yes.

22 Senator Sullivan: Not that it could be but it
23 currently is?

24 Mr. Pendleton: We think is suboptimal, yes.

25 Senator Sullivan: That is important.

1 Mr. Pendleton: Locations with fewer squadrons, people,
2 aircraft had lower mission capability rates than those with
3 more. Again, this was an unclassified version of a
4 classified report. So I am having to be a bit general about
5 that.

6 We recommended that the Air Force take a look at the
7 way they had the F-22 force organized. You can go a couple
8 of ways. You can collocate more aircraft if you want to and
9 get some efficiencies we think from that. You can also look
10 at the way that you deploy packages from within the
11 squadron. I mean, what was happening is the Air Force was
12 breaking out a portion of the squadron and sending that
13 forward, and it is basically leaving what is left broken as
14 well. So you could augment that. And we tried not to be
15 too specific in the recommendation so the Air Force would
16 have some room to maneuver on that.

17 The second had to do with the way the Air Force is
18 utilizing the F-22. It is being used for a lot of missions
19 that we do not think contribute to its training for a high-
20 end fight, things like alert and appearing in exercises, as
21 I mentioned in my opening statement, that really do not give
22 them much value. We think that needs to be relooked as well
23 and made recommendations. The Air Force did concur with us,
24 and I know from speaking to Secretary Wilson, they are
25 thinking about this.

1 Senator Sullivan: So are you looking to implement
2 these, General Goldfein or Secretary Wilson?

3 General Goldfein: Yes, sir, we are. We are looking.
4 It is interesting that when you go back to 2010, we retired
5 10 squadrons, 252 aircraft in 2010 based on a demand signal
6 that shifted those resources into other areas, space, cyber,
7 ISR, nuclear enterprise. And those were strategic trades
8 that we had to make at the time if you remember what we were
9 in in that time frame. But we did not take down any flags
10 or we did not take down any squadrons. We just made all the
11 squadrons smaller. And we got to a point where we were and
12 are less efficient than we can be with larger squadrons when
13 it comes to achieving and meeting the demands of the
14 National Defense Strategy.

15 So we are absolutely looking at not only the F-22 but
16 all of our weapon systems to determine how can we get back
17 up into that optimum solution. But we also understand that
18 that is a discussion that we have to have with this
19 committee and with the Congress before we do anything.

20 Senator Sullivan: Does that not help the maintainer
21 issue as well if you consolidate some of the F-22's in terms
22 of where they are located?

23 General Goldfein: It does, and it is across the board.
24 It is maintenance. It is the back shop maintenance. It is
25 all those parts that you need to be able to project air

1 power not only for the F-22, but for all the weapon systems.

2 But for us, i.e., in the active duty and in the Air
3 National Guard and Reserves, what we found is that 24
4 assigned aircraft is the optimum solution to be able to do
5 the National Defense Strategy business. Many of ours are
6 now at the 18 number, and so we need to build those up to
7 24. And then we need to hit an optimum solution in the
8 Guard and Reserve as well. So that is all part of our
9 planning.

10 Senator Sullivan: Senator Shaheen?

11 Senator Shaheen: Thank you, Mr. Chairman.

12 DOD's final report in 2018 on organization management
13 structure for the national security space components of the
14 Department of Defense -- I had to read it because it is such
15 a long title. But it stated basically that space operations
16 force will include space personnel from all military
17 services, including Guard, Reserve, and civilians.

18 I wanted to ask you, Secretary Wilson, about the
19 current role of the Air National Guard in the space domain.
20 And if you could elaborate on how you expect that role to
21 evolve in the future.

22 Ms. Wilson: Senator, we have about 1,000 guardsmen and
23 about 1,000 plus or minus reservists who are some part of a
24 space mission. And I think we are at a point where the
25 Defense Department is looking at how do we organize this

1 going forward. The President has initiated the process to
2 establish a U.S. space force and put out there a bold vision
3 with respect to it. And we all know that we can no longer
4 use space as a function. It is a warfighting mission. So
5 those discussions are ongoing.

6 I believe that it is important for the Guard --
7 sometimes I think when we look at some of these issues, we
8 forget the Guard and Reserve, and they are an important
9 component of the total force and a particularly component of
10 the United States Air Force. And we want to make sure that
11 that is in the conversation.

12 Senator Shaheen: I appreciate that. And certainly
13 there has been some interest from our Air Guard in New
14 Hampshire about what is going to happen in this arena. I
15 know that in your September memo on the proposal to
16 transition to a space force, you discussed the potential to
17 transition National Guard units to a Reserve component. I
18 assume there is more discussion going on on this.

19 Ms. Wilson: Senator, there is a lot of discussion
20 going on. Our team may have misused the Reserve component
21 to being both the Guard and the Reserve. So the intention,
22 though, is to make sure that as we address the space force
23 that we do not ignore the fact, while it is small, we do
24 have components in the Guard and Reserve who are engaged in
25 space.

1 Senator Shaheen: That is great. I appreciate that.

2 And as I said, there has been a great deal of interest
3 in New Hampshire on what is going to happen there. I am
4 sure that is true of other States as well.

5 In terms of the number of squadrons, you have called
6 for growing the Air Force from its current size to 386
7 squadrons by 2030. And under that plan, tanker squadrons
8 would see significant growth. They would increase from 40
9 to 54 squadrons.

10 Can you talk about why you see this as being important?

11 Ms. Wilson: Senator, the analysis that we did was
12 based on the National Defense Strategy, which sets out for
13 us what do we need to do, what are the missions we need to
14 accomplish, and then what are the most important operational
15 problems.

16 But when you look at those missions, there are really
17 five things we have to do at the same time. We have to
18 defend the homeland. We have to maintain a safe, secure,
19 and effective nuclear deterrent. We have to be able to
20 defeat a peer while also deterring a rogue state and then
21 maintain pressure on violent extremist organizations at the
22 same time. So it is all five of those things.

23 Currently, when we look at a peer threat, Russia is
24 very strong. China is modernizing very rapidly. And when
25 we project into the 2025-2030 time frame, our pacing threat

1 we believe is China. So the challenge in the Pacific is the
2 tyranny of distance, and that means tanker squadrons are
3 very important. So that I believe is what in the numerous
4 iterations of modeling and simulation, the war games we did
5 really drive the need for tankers.

6 Senator Shaheen: Well, I appreciate that especially
7 with Pease being one of the bases that is going to get some
8 of the new tankers.

9 Can you also talk about the interests that we have in
10 making investments to protect that tanker force during a
11 conflict? Because I know there has been some concern about
12 what we need to do prospectively to make sure that we are
13 doing that, should we have an adversary that we need to
14 protect those tankers against.

15 Ms. Wilson: Senator, I would not want to go into too
16 much detail in an open session. But the intention is for
17 new tankers to be more defensible than their predecessors.
18 I do not know if the Chief can go any further than that.

19 General Goldfein: I would just say in the Joint
20 Chiefs, you know, I give Chairman Dunford a lot of credit
21 for leading the Joint Chiefs as we have been looking at
22 global campaign plans. And it has allowed us to move off a
23 platform discussion into more of multi-domain operations
24 that looks at a platform as part of a family of systems that
25 all connect together. So the discussion then about how we

1 would defend a tanker or any other part of the family is an
2 integrated joint and allied solution going forward as
3 opposed to the platform discussion which is I think more
4 20th century than where we are headed.

5 Senator Shaheen: So, Mr. Chairman, is there any plan
6 to have a classified follow-up hearing or briefing to this
7 hearing so that we can learn more about some of the issues
8 that have been raised?

9 Senator Sullivan: Absolutely. I think that is a great
10 idea. We will do it.

11 Senator Shaheen: Good. That is great. Thank you.

12 Thank you very much.

13 Senator Shaheen: Senator Ernst?

14 Senator Ernst: Thank you, Mr. Chairman.

15 We have spent a lot of time talking about maintenance
16 this morning, and I appreciate that very much. We all value
17 our maintainers very much, and I know it is very different
18 having maintainers in a transportation ground unit than
19 having maintainers in your squadrons. But just really
20 understanding how very important it is.

21 And, Secretary, in your written statement, you did
22 reference some of the challenges that you are facing in
23 regard to sustainment of weapon systems, of equipment,
24 particularly with regard to the maintenance and the
25 logistics. And I was pleased to see that the Air Force does

1 continue to look for ways to improve efficiency and cost
2 effectiveness.

3 So again going back to the Emerging Threats and
4 Capabilities, one of the things that we spend some time
5 talking about is artificial intelligence. And we do
6 continue to hear about the potential benefits of AI and
7 machine learning on issues such as predictive maintenance.
8 And is the Air Force currently utilizing these types of
9 technologies, or do you think these emerging technologies
10 present maybe a cost effective means of improving
11 maintenance and logistics within the Air Force?

12 Ms. Wilson: Senator, a very good question. We are
13 actually testing out what we call conditions-based
14 maintenance plus, which involves both predictive analytics
15 and also sensing on aircraft. We are trying them initially
16 on the B-1 and the C-5, and we are seeing a significant
17 reduction in cost but also about a 30 percent reduction in
18 unscheduled maintenance. So this is you are predicting when
19 a part is likely to fail and you change that part when it is
20 in for its inspection rather than waiting for it to fail out
21 on the flight line. We are now trying to develop the apps
22 to move that and propagate it throughout the rest of the
23 fleet.

24 We are also doing some other things with respect to
25 driving down the costs. We set up an office -- and we will

1 give it a 2-year run and then take a look as to how much it
2 saved us -- called the Rapid Sustainment Office to try to
3 use advanced manufacturing technologies, 3-D printing of
4 metals, but also things like cold spray technology to repair
5 parts rather than replace them.

6 And just as one example, there was a recent article
7 about some of our airmen out in California who -- we have a
8 part that heats water on the back of the KC-10. The handle
9 keeps breaking. They do not manufacture anymore because
10 they only buy maybe five of them a year. They are pretty
11 expensive to go back and have somebody tool it the old way.
12 In fact, Defense Logistics Agency was quoting some
13 completely unreasonable cost. And so we 3-D print them for
14 50 cents. So those kinds of things can drive down the cost.

15 Senator Ernst: Since you brought that up, I was out at
16 Twentynine Palms earlier this year, and we had that
17 discussion about 3-D printing of parts to make it readily
18 available for our men and women that are out in the field.
19 They are forward-deployed. The supply chain is not as easy
20 in those types of environments.

21 Any thoughts then on patents? There is a lot of
22 concern from industry that we will be able to replicate
23 various parts, replacement parts, and not give full credit
24 to the industries that have originally manufactured and
25 designed those parts. Any thoughts on where we should be

1 going in that space?

2 Ms. Wilson: Senator, we are trying to go to a place
3 where we get the intellectual property or negotiate for a
4 license to build things. Just in the first quarter of last
5 year, we had 10,000 requests for parts where there was not a
6 single bidder. You look at something like the C-5. It is
7 not being produced anymore. The parts are not being
8 produced anymore. So the door handle breaks on the back of
9 a C-5 and you do not have a parts supplier. So we are 3-D
10 printing those in metal.

11 We are also using technologies now -- the Army, Navy,
12 and Air Force are working together on advanced
13 manufacturing. But the chafing on rivet holes on aircraft
14 or on the hydraulics lines to be able to repair those by low
15 temperature but high speed spraying of nanoparticles of
16 metal to basically repair the metal rather than replace the
17 part. It is much less expensive and keeps our mission
18 capable rates higher.

19 So the Rapid Sustainment Office is intended to use
20 these technologies, rapidly get them into the field onto our
21 aircraft, and reduce the costs and increase our mission
22 capable rates.

23 Senator Ernst: I love that. Incredible cost savings
24 and innovation and to be able to do it right on the spot
25 too, very good. Thank you very much.

1 Senator Sullivan: Senator Perdue?

2 Senator Perdue: Following up on that, I want to
3 applaud what you guys are doing in shared services. Back in
4 the 1980s, manufacturers in the commercial space did this
5 where they can have multiple divisions. You have a
6 technical specialty. You develop that specialty. Before,
7 every one of the divisions would have that. They would
8 protect it. They were jealous of it. We took it away,
9 created shared services. When you are doing C-130J
10 maintenance at an Air Force base for the Navy, I applaud
11 that. I think that is a way for the future.

12 I want to move on. With 3-D printing, the marines
13 right now are doing a great job, and their depots are doing
14 the same sort of thing. The supply chain is gone. Nobody
15 is making the part. 3-D printing -- they are really gearing
16 that up. And I would encourage the Air Force to partner
17 with your sister services to make sure that we are at the
18 cutting edge of that.

19 Chief, I have a question.

20 I would second Senator Shaheen's comment about a
21 classified briefing on the same topic.

22 And, Chief, you may want to take this off, but
23 hypersonics and directed energy. I know you guys are
24 working on that. General Hyten gave us an update earlier
25 this year about what the Air Force is now seeing that our

1 near-peer competitors are doing. Can you give us an update
2 on that development on those two areas?

3 General Goldfein: Yes, sir. And probably the most
4 important development has been a discussion that the three
5 service secretaries have had about how we partner together
6 on areas like hypersonics and directed energy. And so what
7 I want to do is maybe, ma'am, turn it over to you and then I
8 will follow up at the end if you like.

9 Ms. Wilson: Senator, the three service secretaries --
10 we get together. We actually like each other and get
11 together for breakfast every 2 weeks. It terrifies the
12 staff.

13 One of our early meetings looked at where do we have
14 science and technology investments that are similar and can
15 we work together better. And one of the first ones we
16 identified was hypersonics. We got our teams together. We
17 rapidly developed a memorandum of understanding where we
18 will take best technology, go fast, share results, and work
19 together. And as a result, on hypersonics, the additional
20 funding you allowed us to put in in 2017 and 2018 is about
21 \$107 million in additional funding, but by using a Navy-
22 developed warhead for the Army and putting it on an Air
23 Force system, we are actually going to prototype a system 5
24 years faster and get it out there in 2021.

25 Senator Perdue: Is that a defensive --

1 Ms. Wilson: It is called Hacksaw. It is an offensive
2 weapon.

3 Senator Perdue: With regard to the F-22 that we talked
4 about earlier, I had a privilege to visit an advance
5 squadron up in Alaska. And the colonel gave us an update
6 about how CRs directly impact them. They had training going
7 on. They had to interrupt it, bring them back, and they had
8 it documented down to the cents how much it cost them.

9 But we talked about the use of the F-22, and you
10 mentioned it in your opening comment that we are using
11 F-22's, our fifth gen, to chase Tu-95's around up there on
12 the line of demarcation. And I know, Secretary, you guys
13 are talking about a light attack aircraft I believe that you
14 are developing now to take on some of these more mundane
15 tasks and use the fifth gen for mainly training to do what
16 you mentioned in your opening remark. Can you update us on
17 the light attack program?

18 General Goldfein: So we completed two experiments in
19 the light attack. The second line of effort in the National
20 Defense Strategy talks about strengthening our allies and
21 partnerships because when it comes to global competition and
22 war, we have allies and our adversaries generally do not,
23 and it is a strategic advantage. So we as a service, when
24 we looked at from the air component standpoint how can we
25 leverage our ability because what I hear very often from my

1 international air chiefs, especially those that are not into
2 the fourth or fifth generation -- either they cannot afford
3 it or not getting into it. But yet, they have violence
4 within their borders. And the strategy is to drive violence
5 down the point where it can be handled within the sovereign
6 territory.

7 So the light attack experiment was primarily about line
8 of effort two and allies and partners and how can we produce
9 a commercial off-the-shelf that is a low-end system that is
10 very affordable, that has low costs when it comes to
11 sustainment, and that can help our allies and partners. And
12 what we have learned in the past is that if we do not buy
13 some, they will not. And so as we look at it internal to
14 our Air Force -- the Marines are looking at this as well.
15 This a joint effort going forward. This is an opportunity
16 for us to actually spread our coalition, if you will, to be
17 able to get at the strategy and line of effort number two.

18 And within the Air Force, we are also looking at it to
19 the point -- exactly what you described, which is can I now
20 go after those lower-end missions with a tailored commercial
21 off-the-shelf kind of product that will then free the high-
22 end assets to focus on the training and execution of the
23 high-end work we need to do.

24 Senator Perdue: Thank you.

25 Senator Sullivan: We have Senator Kaine here, and I am

1 glad he made it back on time. It is an important hearing
2 and I appreciate you being here.

3 I am scheduled to go preside right at 11:00. So I am
4 going to have either one of my colleagues on the Republican
5 side or Senator Kaine take over the hearing.

6 But I do want to thank the witnesses again for this
7 very important hearing. There will be QFRs for the record.
8 If we can get those back in a timely manner. And I think
9 Senator Shaheen's idea, which we all support, on a
10 classified version of this hearing, respecting your time,
11 Madam Secretary and General Goldfein, I think that would be
12 a good follow-up.

13 So I am going to pass the gavel to one of my colleagues
14 here. I will let them fight over it. But again, I want to
15 thank all of you. I would normally be here, but the
16 presiding officer duty is something I am not supposed to be
17 late for and I think I am already late. So thank you very
18 much.

19 Senator Kaine [presiding]: And I will just be very
20 brief. And I apologize for missing. I was introducing a
21 noncontroversial nominee at a Judiciary Committee hearing.
22 But just because my nominee was not controversial, that did
23 not mean that there were not other controversies that I was
24 unaware of when I walked into the room. So that is why I am
25 a little bit late. And I do not want to belabor points that

1 have been asked.

2 Let me just ask this. I indicated in my opening
3 comment that I am worried about how we are planning on the
4 readiness side with respect to infrastructure. I cited the
5 Air Force example. I could have cited other examples, the
6 Navy base in Richmond whose main road in and out to the
7 center of naval power in the world is increasingly under
8 water just based on normal tidal action, not even to extreme
9 weather events.

10 Perhaps if you could each kind of talk about in the Air
11 Force portfolio -- I used the example of permafrost melting
12 at the one base and how that changes MILCON -- how you are
13 dealing with some of these weather-related effects, extreme
14 weather events, whatever the cause, as you are thinking
15 about MILCON projects going forward. If you would each
16 address that, that will be my only question.

17 Ms. Wilson: Well, Senator, with a hurricane headed for
18 Eglin and Tyndall today, we are dealing with those things.

19 Let me take the broader issue about infrastructure
20 because we did what I thought was a good piece of work,
21 stewarded by our Assistant Secretary for Installations and
22 Environment, John Henderson, but done by a group of captains
23 initially that said we now have data on all of the
24 infrastructure in the Air Force, every installation, every
25 building on it down to when the roof needs to be replaced.

1 And they did some modeling and simulation on it, on how we
2 can change the way we maintain our infrastructure. And they
3 made some recommendations.

4 One is we have been funding the worst infrastructure
5 first. So we wait until it gets really expensive to fix,
6 and then we fix it. That is the wrong strategy. So we need
7 to fix it like most commercial industry does, before it gets
8 to be really expensive.

9 The second is they recommended taking the 5 percent of
10 our worst infrastructure off the books. So the stuff that
11 is hanging around from the Korean War that we should not be
12 maintaining anymore. And so we actually are going to be
13 putting some money for destruction and disablement into our
14 budget.

15 The third is we are going to have to tick up our
16 replacement value, our funding of our infrastructure a bit
17 over the long term. But if we do those things over the long
18 term, our infrastructure gets much better over time and we
19 are able to keep the infrastructure in much better shape.

20 So they have given us a strategy. We have the modeling
21 and simulation of our facilities which tells us.

22 The final thing that we also are doing is every
23 facility will have a master plan. Our commanders change too
24 quickly to have just what the commander wants now because
25 those projects are always in the future. So we have a

1 master plan for every facility, and we will continue to
2 execute projects on that master plan.

3 So there are a number of things that we are doing to
4 improve the management of our infrastructure and planning
5 associated with it.

6 Senator Kaine: Do other witnesses have comments to add
7 on this question? General?

8 General Goldfein: Sir, just one comment to add to the
9 Secretary's. We also, as a land-based force, project power,
10 of course, from our bases. So we need to be the best in the
11 world at defending those bases. And so the Secretary and I
12 have a really concerted effort over the course of this year
13 looking at integrated base defense in addition to the
14 investment we are making in MILCON projects because not only
15 do we have to invest in it and build it, we also have to
16 defend it. And that is central to who we are.

17 Senator Kaine: Thank you.

18 Mr. Pendleton, I have one last question for you. You
19 testified before the SASC last year on the tragic Navy
20 collisions and analyzing what was at fault there and what we
21 could do better.

22 Are there parallels in the work that you did on those
23 after-action analyses and things that we should be focused
24 on with respect to the Air Force, you know, aviation
25 mishaps, gaps in training? Are there things that you

1 learned in that capacity that we should apply to the Air
2 Force as well?

3 Mr. Pendleton: There are parallels, but I think that
4 what happened with the Navy is the situation in Japan just
5 got away from them. And we had warned a couple years
6 before, as you recall probably from my testimony, that they
7 needed to take a look at the risk they were taking out
8 there, and they did not listen to us. And so I am not
9 seeing it with the Air Force.

10 But now having said that, there are parallels,
11 shortfalls of people, shortfalls of maintainers, running
12 equipment hard, having it take longer to fix when you bring
13 it in, and too little time to train. I mean, that was one
14 of the big problems with the Navy, as I am sure you recall.
15 They were working so hard, they did not have time to train
16 on things as basic as seamanship.

17 Like the Navy, also the Air Force has a demand problem,
18 sir. I mean, the demands on it have continued to remain
19 high, and like I said during the Navy hearing, I think it is
20 going to be difficult for them to rebuild unless some of the
21 demands are moderated.

22 Senator Kaine: Thank you.

23 Do my other colleagues have any additional questions?

24 Well, with that, we really appreciate your testimony.

25 We will keep the record open until 5 o'clock tomorrow,

1 Thursday, in case any colleagues have additional questions
2 for you that they can direct your way. We would appreciate
3 your prompt response.

4 But with that, the hearing is adjourned.

5 [Whereupon, at 11:03 a.m., the hearing was adjourned.]

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