

**HEARING TO RECEIVE TESTIMONY ON THE  
CURRENT AND FUTURE ROLES, MISSIONS,  
AND CAPABILITIES OF U.S. MILITARY AIR  
POWER**

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**THURSDAY, APRIL 30, 2009**

U.S. SENATE,  
SUBCOMMITTEE ON AIRLAND,  
COMMITTEE ON ARMED SERVICES,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 2:02 p.m. in room SR-222, Russell Senate Office Building, Senator Joseph I. Lieberman (chairman of the subcommittee) presiding.

Committee members present: Senators Lieberman, Hagan, Begich, Burris, Inhofe, Chambliss, and Thune.

Also present: Senator Bill Nelson.

Committee staff members present: Leah C. Brewer, nominations and hearings clerk; and Paul J. Hubbard, receptionist.

Majority staff members present: Madelyn R. Creedon, counsel; Creighton Greene, professional staff member; and William K. Sutey, professional staff member.

Minority staff member present: Pablo E. Carrillo, minority investigative counsel.

Staff assistants present: Mary Holloway and Brian F. Sebold.

Committee members' assistants present: Christopher Griffin, assistant to Senator Lieberman; Christopher Caple, assistant to Senator Bill Nelson; Jon Davey, assistant to Senator Bayh; Michael Harney, assistant to Senator Hagan; David Ramseur, assistant to Senator Begich; Brady King, assistant to Senator Burris; Anthony J. Lazarski, assistant to Senator Inhofe; Sandra Luff, assistant to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; and Jason Van Beek, assistant to Senator Thune.

**OPENING STATEMENT OF SENATOR JOSEPH I. LIEBERMAN,  
CHAIRMAN**

Senator LIEBERMAN. Good afternoon. The subcommittee will come to order.

In this meeting of the subcommittee on Airland, we're going to follow on a hearing we held on March 26, in which we talked about our ground forces. There are two hearings intended to broadly explore our country's current and future roles, missions, and requirements for the land- and air-power forces of our military. Today, we turn our discussion to America's military air power.

We are now contemplating a number of major decisions that would affect the organization and capabilities of American military air power for some time to come. Earlier this month, April 6, Secretary of Defense Gates announced a series of recommendations that he would make to President Obama for the fiscal year 2010 defense budget, which we'll get in a while. Those included proposals to end production of the F-22 Raptor and the C-17 Globemaster, to add funds to procure unmanned intelligence, surveillance, and reconnaissance systems, and to delay the production of a follow-on bomber.

Today, we're privileged to have three informed and experienced witnesses who I look forward to asking to assess the recommendations that Secretary Gates made, and, in particular, to discuss the implications of these recommendations for the operational capabilities of the air- power units of our military.

Many of our colleagues here in the Senate, including myself, have expressed concern about some of the specific proposals, particularly regarding the F-22, the F/A-18 E/F, and the next-generation bomber. And I believe it's essential that Congress assess these recommendations against the obvious reality, which is the immediate budgetary constraints, but also the less obvious reality, because it's slightly longer distance, which is the operational requirements for air power in the years ahead.

I also look forward to hearing from the witnesses an assessment of the long-term requirements for air power, in this sense, about how we can better anticipate emerging capabilities that will affect us in the future. I'm particularly interested in our witnesses' thoughts about how we should respond to and anticipate follow-on technologies to the unmanned aerial systems that are now providing full- motion video surveillance over the battlefield, something that could not have been contemplated even a few years ago.

If we look out 10 or 20 years, the composition of our air forces could be dramatically different than it is today. Looking to future threats, I'm concerned about the growing density of anti-access capabilities that are intended to limit the freedom of maneuver that American air power has enjoyed in recent times, and I'm concerned about the apparent vulnerability of U.S. military operations to such threats as the cyberwarriors who attack our computer networks.

In short, I hope this afternoon's discussion will inform the subcommittee as we go forward, after the President submits the budget for the Department of Defense, to make our own authorization recommendations to the full committee and the Senate as to how best to invest in capabilities, near term and longer term, that will protect the security of the American people.

I thank the witnesses for being here. I look forward to your testimony.

And now, Senator Thune. Thank you.

#### **STATEMENT OF SENATOR JOHN THUNE**

Senator THUNE. Thank you, Mr. Chairman. And thank you for calling this hearing to examine the current and future roles, missions, and capabilities of U.S. military air power. And I want to thank our esteemed witnesses, as well, for appearing today. The topic of our hearing today is of the utmost importance to me.

We're here on the occasion of Secretary of Defense Gates' April 6, 2009, press conference on recommendations he's making to the President on the fiscal year 2010 defense budget. I'm a strong supporter of Secretary Gates and admire his courage to restructure a number of major defense programs. It's long been necessary to shift spending away from weapon systems that are plagued by scheduling and cost overruns to ones that strike the correct balance between the needs of our deployed forces and the requirements for meeting the emerging threats of tomorrow. I also greatly appreciate that Secretary Gates continues to place the highest priority on supporting the men and women of the U.S. Armed Forces.

Having said that, I do have some fundamental concerns. A question, first question, in terms of military aviation, and from the standpoint of military necessity, is Secretary Gates' plan on air power modernization too unbalanced in favor of short-range fighters versus long-range strike aircraft?

On October the 7th, 2001, when Operation Enduring Freedom in Afghanistan started, early combat operations included a mix of air strikes from land-based B-1 Lancer, B-2 Spirit, and B-52 Straddle Fortress bombers, carrier-based F-14 Tomcat, and F/A-18 Hornet fighters and Tomahawk cruise missiles launched from both U.S. and British ships and submarines. During that war, U.S. aircraft had to operate at far greater distances than they had in past conflicts. U.S. air power may have to do the same in future wars.

Furthermore, during the major combat phase of Operation Iraqi Freedom, B-1s carrying 24 JDAMs provided round-the-clock on-call precision-fire support for coalition ground forces. The integration of JDAM and laser-guided bombs and long-range bombers has dramatically increased their effectiveness in conventional operations.

U.S. air forces operating in Asia and the Pacific might well have to travel several times farther than U.S. forces typically had to during the cold war. The need for aircraft that can loiter over the battlefield for long durations to find emerging, fleeting, or otherwise time-sensitive targets in support of ground forces, for example, appears to be growing. The possibility that, with his proposal, Secretary Gates may have struck an inappropriate balance in favor of short-range systems versus long-range strike aircraft is perhaps no better reflected than in what he wants to do with the next-generation bomber program.

As part of Secretary Gates' plan to modernize our strategic and nuclear-force capability, he proposes to discontinue the development of a follow-on Air Force bomber until we have a better understanding of the need, the requirement, and the technology, and examine all of our strategic requirements during the QDR, the Nuclear Posture Review, and in light of post-START arms-control negotiations.

Aside from the position I laid out just a moment ago, I have a couple of other questions here. The first is, How is Secretary Gates' position on the next-generation bomber reconcile with prior statements he recently made on the military need to continue that program? Just a few months ago, he wrote, in the Foreign Affairs journal, that the U.S. ability to strike from over the horizon will be at a premium in future conflicts and will, and I quote, "require shifts

from short-range to long-range systems, such as the next-generation bomber,” end quote. He made virtually the same statement during a speech at the National Defense University, and also in the first-quarter edition of the Joint Force Quarterly.

Also, while Secretary Gates urged, on April 6th, there must be a “better understanding of the need, the requirement, and the technology,” the original decision to pursue a next-generation bomber was already fully vetted in the 2006 QDR. Recognizing the importance of the evolving strategic requirement for global strike aircraft based outside the theater, the QDR directed the U.S. Air Force field a follow-on to the B-2 by 2018. Until the 2009 QDR is completed, sometime this summer, and released next year, the 2006 document is the only framework we have for judging how well the military’s air-power capabilities meet national requirements.

Moreover, Secretary Gates’ current position on the next-generation bomber appears undermined by recent statements from several currently-serving combatant commanders, provided in response to questions from me, to the effect that it is important to continue developing that program.

Finally, Secretary Gates’ proposal to subject decisions on our current strategic and nuclear-force structure, including the next-generation bomber, to post-START arms-control talks appears problematic. While seemingly reasonable on its face, waiting until a new START treaty is negotiated and ratified by the Senate could literally take years. Appearing before the Carnegie Endowment for International Peace last fall, Secretary Gates himself expressed concern about how long the original START negotiations took and what that meant for the follow-on START treaty about to be negotiated. The lead START negotiator, likewise, indicated recently that the follow-on treaty could already be slipping to the right.

Related to my concern on whether Secretary Gates’ plan on air-power modernization may be unbalanced in favor of short-term fighters versus long-range strike aircraft are questions I have on his proposal on the F-35 Lightning II Joint Strike Fighter. Under his plans, Secretary Gates is recommending going from the 14-aircraft bought in fiscal year-2009 to 30 in fiscal year '10, with corresponding funding increases from 6.8 billion to 11.2 billion. The Secretary’s proposed commitment to JSF also requires us to confront serious questions about that aircraft’s high cost and affordability. The F-35 variance for the Navy, Marine Corps, and Air Force will cost more to procure than the older tactical aircraft each service is to replace, and the costs of the F-35 program have increased 47 percent since 2001, from \$65 million to \$105 million per aircraft.

To sum up, in terms of military aviation, I, as I’m sure other members of this subcommittee and the public, have serious questions about whether we are effectively institutionalizing and enhancing our capabilities to fight the wars we are in today and to address the scenarios we are most likely to face in the future, while hedging against other risks and contingencies.

So, Mr. Chairman, I look forward to hearing from our witnesses today and look forward to the opportunity to ask some questions.

Thank you.

[The prepared statement of Senator Thune follows:]

[SUBCOMMITTEE INSERT]

Senator LIEBERMAN. Thank you, Senator Thune, for that very thoughtful opening statement. I think you framed the questions very well.

Again, thanks to the witnesses. As is the custom of the committee, we're going to start with the more-or-less inside witness, Mr. Bolkcom, a specialist in military aviation at the Congressional Research Service, where he conducts nonpartisan, objective research and analysis for Congress. Thanks for the work you've done, and we look forward to your testimony now.

**STATEMENT OF CHRISTOPHER BOLKCOM, SPECIALIST IN  
MILITARY AVIATION, CONGRESSIONAL RESEARCH SERVICE**

Mr. BOLKCOM. Thank you, sir.

Chairman Lieberman, Senator Thune, and distinguished members of the subcommittee, thanks for inviting me to speak with you today about military aviation. As requested, I'll address DOD's current and projected aviation capabilities and if they'll ensure that U.S. needs are met.

The only effective way to judge military aviation is in the context of strategy. What do we want our aviation forces to do? As you mentioned, sir, on April 6th Secretary Gates stated that he believes that DOD needs to rebalance its spending to make military forces more effective of what—against what he calls “hybrid warfare,” a simultaneous spectrum of conventional and irregular conflict. Fighting terrorists, insurgents, and other nonstate actors is challenging, and increasing our competence against threats suggests new tactics and, potentially, new weapon systems. These weapon systems, in many cases, would have different capabilities than today's weapons, and their distinguishing characteristic may be an emphasis on simplicity and low cost.

Some fear that rebalancing the force toward irregular warfare will mean reducing DOD's most capable weapon systems, making us vulnerable to our most proficient adversaries. These same observers fear that DOD is too focused on the current war and not sufficiently mindful of the need to sustain capabilities such as achieving air dominance against modern air forces. Others embrace Secretary Gates's proposal. They note that our air forces have dominated every conventional foe that they've faced over the past 25 years, but have struggled with irregular warfare. Some argue that the country can't afford weapon systems we don't need and that our warfighters deserve weapon systems optimized to the threat that they face.

As a rough blueprint, Secretary Gates suggested that 10 percent of overall defense spending would focus on irregular warfare, 50 percent on state-on-state conflict, and 40 percent on what he called “dual-purpose forces.” If one were to rebalance aviation forces, it appears that a different spending ratio may be in order.

Few aviation assets appear to be unique to irregular warfare. Very small or nonlethal weapons are perhaps more germane to irregular than state-on-state conflict. Another example might be an off-the-shelf lightly-armed turboprop aircraft. Also, investing in Special Operations forces that train and advise allied nations on

how to better use their air forces against insurgents is another option.

Boosting irregular capabilities might require 10 percent of aviation spending. Similarly, there appear to be few aviation assets unique to state-on-state conflict, and our air power might be rebalanced by spending 10 percent of the aviation budget on these assets. Delivering nuclear weapons, prevailing in aerial combat, defeating advanced air defenses are clearly relevant to state-on-state conflict, but have little, if any, application to irregular warfare.

It would appear feasible to reduce aviation forces unique to these missions if they were found to be in excess of force levels dictated by the QDR and other strategy guidance. Savings from these reductions could be invested in dual-purpose or counterinsurgency aviation.

Most aviation assets are dual-purpose, and these assets might consume up to 80 percent of aviation spending. Precision strike, close air support, ISR, and airlift are examples of missions germane to both conventional and irregular warfare.

A review of recent experience in Iraq and Afghanistan shows that commanders in the field have successfully adapted aircraft designed for state-on-state conflict to the counterinsurgency mission.

In conclusion, it appears that the upcoming QDR and attendant congressional oversight offer an opportunity to ground our battlefield commanders' adaptations in a coherent strategy. By considering the projected threat environment and matching air-power capabilities to national goals, a strategy-driven process should yield aviation forces that are both effective and cost effective.

Mr. Chairman, this concludes my remarks. It's been a pleasure to speak with you today. Thank you.

[The prepared statement of Mr. Bolkcom follows:]

Senator LIEBERMAN. Thanks, Mr. Bolkcom. That's a good beginning.

Now we'll go to General Richard Hawley, retired from the U.S. Air Force after serving as commander of the Air Combat Command. Since retirement, General Hawley has served in a variety of advisory capacities, including his work in support of the 2006 Quadrennial Defense Review.

General, thanks for being here. Look forward to your testimony now.

STATEMENT GENERAL RICHARD E. HAWLEY, USAF (RET.), FORMER COMMANDER, AIR FORCE AIR COMBAT COMMAND

General Hawley: Mr. Chairman, members of the committee, it's my pleasure to be here, and I look forward to this discussion of the future roles, missions, and capabilities of U.S. military air power.

By way of introduction, I am a graduate of the United States Air Force Academy and Georgetown University. I served on Active Duty for 35 years, retiring in 1999, as you mentioned, as commander of Air Combat Command in Hampton, Virginia. My combat experience is as a forward air controller for the 4th Infantry Division in Vietnam, where I learned something about the application of air power in irregular warfare. I've accumulated about 1,000 hours in a multi-role, multi-service F-4 Phantom II, and a like number of hours in the single-service, single-mission F-15 air superiority fighter, where I learned something of those competing con-

cepts of fighter design and acquisition. I've also flown the A-10, C-130, C-141, the C-17, B-52, B-1, and B-2 as a pilot, and I've been at—flown as an observer in most other Air Force airplanes.

I served for 2 years as the Principal Deputy to the Under Secretary of the Air Force for Acquisition, and, as you mentioned, in 2005 as a member of the Defense Acquisition Performance Assessment Project and the DOD Red Team that supported the QDR.

Since 1999, my perspective has been broadened through work as an independent consultant, mostly in support of the aerospace industry and U.S. Joint Forces Command as what they call a senior concept developer. So, I hope that my testimony can be helpful to the committee as you consider the President's proposed budget for 2010.

In my mind, it—that budget seems to be more noteworthy for what it probably will not contain than for what it will. It will not propose funding, as you mentioned, for additional F-22 air superiority fighters or C-17 strategic airlift aircraft, and it will not propose funding for development of new combat search-and-rescue or long-range strike capabilities. These omissions have major ramifications for the future of U.S. air power, and the first two will be irreversible. Therefore, I would like to focus these few comments on the proposal to end production of the F-22 and the C-17, and hope that your questions will allow me to address the other major issues.

The Air Force is responsible for development of capabilities to gain and maintain air superiority over the battlefield and to provide strategic airlift capabilities that allow our Armed Forces to respond rapidly to global crises. To fulfill those responsibilities, the Air Force conducts rigorous analyses to determine the attributes of these aircraft. They will need to successfully accomplish their missions over their expected 30- to 40-year service lives.

In the case of the F-22 and C-17, these analyses were presented to the Congress, and, after long and thoughtful debate, the Congress approved funding to develop and subsequently field these aircraft. Both are without peer in their respective mission areas, and are the envy of every air force in the world today.

Having developed these capabilities, the Air Force is then charged with advising the Secretary of Defense and the Congress on the number required to successfully support our National security, national defense, and national military strategies.

The Air Force conducts an equally rigorous analysis to support its conclusions with regard to this important question. In doing so, it is guided by direction from the Secretary of Defense concerning the number and nature of the contingencies for which it must prepare forces for employment by the combatant commands. Although that guidance evolves as the threats to our Nation evolve, it has consistently required forces able to support more than one major regional contingency while still defending the homeland and deterring other would-be aggressors.

As a participant in those analyses regarding the F-22, I can assure you that the number required to conduct operations in two major regional contingencies against adversaries who are capable of contesting our control of the air is 381. That number is sufficient to equip 10 operational squadrons with 24 aircraft each, along with

the supporting training base, test aircraft, and some attrition Reserves.

Others in the Air Force and the Joint Staff have conducted mobility studies that set the number of C-17s required to support our defense strategy at 205. But, those studies did not consider the planned growth in the size of the United States Army and Marine Corps.

To my knowledge, there is no analysis that would call into question these requirements for F-22 and C-17 aircraft, but the recommendation to the President and the Congress is to close both production lines after building just 187 F-22s and 205 C-17s.

The recommendation on the C-17 seems to be based on a dated analysis of the requirement, and that, for the F-22, on no analysis whatsoever. The F-22 recommendation rests on an assertion that we cannot afford to equip our airmen, on whom we rely to gain and maintain air superiority, with the best weapons that our defense industrial base has developed. Rather, we and they are asked to accept the risk of sending them into the fight with weapons designed for an entirely different mission. I find that logic suspect.

Federal outlays in 2010 will be about 3 and a half trillion, while keeping the F-22 and C-17 lines open, so that a closure decision could be informed by the QDR, and a review of our National security strategy would cost less than 4 billion. In my view, these recommendations, if implemented, will preempt the full and open debate that should precede any major change to the force size and construct. A force of 187 F-22s may be sufficient for one major regional contingency where our control of the air is contested by a competent adversary, but there will be no Reserve left to help deter an opportunistic aggressor elsewhere in the world. Should the President and Congress conclude that our forces should be sized to deal with only one contingency where our control of the air is contested, that will be an appropriate time to terminate production of the F-22. Until then, in my view, the actual requirement is for 381 aircraft, not 187 or even 243.

As to the C-17, I find it difficult to believe that the requirement can remain stagnant, even as the forces that must be deployed and sustained grow substantially in number.

Thank you for this opportunity to share my views on these important issues, and I look forward to your questions.

[The prepared statement of General Hawley follows:]

Senator LIEBERMAN. Thank you, General. That's what, in our world, we tend to call "straight talk." I appreciate it, and we'll have some good questions for you.

Senator Nelson has stopped by, which I appreciate—a member of the full committee, not a member of the subcommittee—but, asked if he could make a statement and then leave some questions. And I'm happy to recognize you now.

Senator BILL NELSON. Yes, and I've just got two questions, Mr. Chairman. I'll leave 'em with you. And I appreciate you doing this hearing.

**STATEMENT OF HON. BILL NELSON, U.S. SENATOR FROM  
FLORIDA**

Senator Nelson: In our subcommittee that I have the privilege of chairing, the Strategic Subcommittee, the bombers long-range strike aircraft fall within the jurisdiction of the Strategic Subcommittee, and we're going to look at this issue of the next-generation bomber and Secretary Gates' decision to postpone or cancel the goal, a next-generation bomber by 2018. And we're going to look at it in detail during the course of our Strategic Subcommittee hearings.

So, thank you for letting me come, and thank you for letting me submit a couple of questions to you.

[The information referred to follows:]

[SUBCOMMITTEE INSERT]

Senator LIEBERMAN. Thanks, Senator Nelson. I think you're technically right about the jurisdiction. Obviously, we're—we may get into the bomber question here, because of the expertise of the people who are before us.

Let's go now to Barry Watts, who's a senior fellow at the Center for Strategic and Budgetary Assessments, served in the United States Air Force and as director of program analysis and evaluation—that is, of that office, in the Office of the Secretary of Defense.

Mr. Watts, thanks for bringing all your experience to the committee today.

**STATEMENT OF BARRY WATTS, SENIOR FELLOW, CENTER FOR  
STRATEGIC AND BUDGETARY ASSESSMENTS**

Mr. WATTS. Thank you very much, Mr. Chairman and members of the committee.

I'm going to focus my remarks on the subject that was just mentioned, the bomber issue. And perhaps it would be useful to begin with just a historical observation that speaks to context.

When the first President Bush, in 1992, shortly after the end of the cold war and the dissolution of the Soviet Union, made a decision to end B-2 production at 20 airplanes, as best I can understand the underlying rationale, it was looking at the platform strictly as a nuclear delivery system; and that's, indeed, what it and the B-1 and the B-52 had been designed primarily to do.

The conventional utility of the platform, I don't believe, was really taken into account, and the jurisdictional division between the other subcommittee and this one emphasizes the degree to which bombers tend to fall, conceptually, in the cracks for us.

The B-1, B-52, and the B-2 have never dropped a nuclear weapon in anger, but they have been used in every war since Vietnam to deliver conventional munitions. And as Senator Thune pointed out, starting in 1999, when we brought the joint direct attack munition onboard the B-2 and integrated it for the campaign against Serbia, we then—adding conventional precision to those platforms, which, of course, increase their utility, in the long term, significantly.

To come back to the decision that Secretary Gates made—

Senator LIEBERMAN. So, let me just clarify what you're saying. You're saying that the bombers are not—don't have just strategic value to us, but conventional, as well.

Mr. WATTS. We've used them primarily in a conventional role—  
Senator LIEBERMAN. Right.

Mr. WATTS.—even though the three that we still have in inventory were designed exclusively for nuclear roles.

Senator LIEBERMAN. Right.

Mr. WATTS. So, it's a very flexible platform. It has, if you will, dual utility. And we seem to have trouble making decisions based on both ends of the spectrum, rather than just one or the other.

Senator LIEBERMAN. So, you're making a case that this subcommittee actually does have jurisdiction here.

Mr. WATTS. I think so, sir, yes.

[Laughter.]

Mr. WATTS. You should.

Senator LIEBERMAN. Go right ahead.

Senator THUNE. I really like this witness, Mr. Chairman.

[Laughter.]

Senator LIEBERMAN. Well, but, just based on what you said, maybe both subcommittees have jurisdiction. But, you don't have—don't spend your time on that. Go right ahead with your statement.

Mr. WATTS. All right. I was just going to go back to the decision to defer a next-generation bomber, and not just production, but even development of the platform.

I don't necessarily—well, let me put it this way. When I was running PA&E, back in 2001 and 2002, I tried to get some traction in the Pentagon for making trades across the service boundaries that balanced capabilities, in the very sense that Secretary Gates is advocating. And I must say that, in a general sense, I can only applaud what he's trying to do, and perhaps add the comment that I think it's about time somebody tried to make that—those kinds of balanced decisions across a lot of different programs.

With respect to the next-generation bomber, my divergence of opinion with the Secretary has to do with the rationale that was stated on the 6th of April, which was that the need, the requirement, and the technology need to be better understood. My position, simply put, is, we've studied that issue to death for the last decade—the Air Force, OSD, everybody else under the sun—and I think, if you look to a rather stealthy platform that operates at high altitude, high subsonic mach, and perhaps is armed, in addition, to give it the survivability that it might need against advanced air defenses to get in and out, that the need, the requirement, and the technology are all pretty much in hand and reasonably well understood. And I certainly can elaborate on all three of those.

With respect to the need, my basic feeling is that this country, because of its global responsibilities, does need a credible capability to hold targets at risk anywhere on the globe. If you give me a platform that's got 2500 to 3,000 nautical-mile combat radius from the last air refueling, you indeed can reach any point on the globe.

If future targets happen to be in defended airspace against advanced air defenses, the only platforms that we have today that have a serious capability of being able to execute those missions

would be the 20 remaining B-2s. They are getting a little long in the tooth. They were originally designed back in the early '80s. Steps have been taken to enhance their capabilities. But, I think the time is due to look to a new platform and move ahead.

And I just remind you, we actually built 21 B-2s, and we lost one on takeoff at Guam last year. And that's a reminder of something that I think we've lost track of in our thinking about operational requirements. Attrition occurs even in peacetime, much less in wartime. And that suggests that residual 20-airplane fleet is very thin.

With respect to requirements, I've looked at a number of conventional scenarios. Most of them emphasize the need for long reach. For example, you just don't get forward air bases or you encounter the kind of anti-access-area denial capabilities that the People's Liberation Army 2nd Artillery Corps is developing, and those kinds of challenges mean you're probably going to need much longer range than we have with the short-range fighters, even with air refueling.

The other requirement that I want to touch on is the need to deal with time-sensitive targets, targets that are emergent, that are fleeting, that are only there for a short period of time. Our adversaries now understand pretty clearly that if the U.S. forces know where a particular target or aim point is, we can put a precision weapon on it very quickly and efficiently.

So, the name of the hide-finder game in this context becomes, over time—the natural thing for our adversaries to do is to try to deny the precision targeting information to us. So, a classic example would be a mobile missile launcher that's in a hide, you really can't find it until it comes out into the daylight or nighttime, tries to go to a predetermined launch site, launches its missile, and then runs back to a hide to rearm. That suggests a need to be able to persist inside defended airspace and wait for those targets to reveal themselves. That's kind of the core design requirement that I have gotten to in trying to think about this weapon system.

Lastly, as far as the technology is concerned, I believe most of it really is in hand. An awful lot of the avionics, the low observability technology, and things like, can be found in the Joint Strike Fighter today, in the F-22, and other fifth-generation platforms that we've been building.

Let me end by just saying I strongly agree with and support Secretary Gates's repeated pronouncements, up until the 6th of April, that we need to begin moving more in the direction of long-range systems and away from short-range systems. But, the obvious point that I think has to be made is, if we are only going to be buying Joint Strike Fighters for the foreseeable future, it's hard for me to understand how we're going to start to make that shift towards longer-range systems. I think the time is really here to go ahead with a new long-range strike system of some sort.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Watts follows:]

Senator LIEBERMAN. Thank you, Mr. Watts. It was very interesting testimony.

Let's do 7-minute rounds of questioning. A vote may go off around 2:45, but if we do it right, we—I'll ask my questions and run over and vote, and we'll keep this going.

Mr. Watts, let me ask you to develop—this is not to develop the argument for the subcommittee, but to develop the argument for not agreeing with Secretary Gates to really push off investments in a long-range strike-plane bomber. Develop, a little bit more, if you will, as you have somewhat in your testimony—incidentally, the testify all three of you have done is excellent, and it will be printed in full in the record—the argument for the—in a time of what Secretary Gates calls “hybrid warfare”—for the use; and give us a little history, recent history if you want, for the extent to which the bombers have been used in hybrid/conventional or as compared to strategic conflicts.

Mr. WATTS. Well, in general, certainly starting with Desert Storm—

Senator LIEBERMAN. Right.

Mr. WATTS.—you had very small numbers of bombers delivering large—proportionately larger amounts of the ordnance that was delivered. As we've moved into precision conventional munitions, you know, the weight of the number of tons of ordnance delivered has become less important than the number of aim points you could cover. But, I think the fundamental point I'd like to make, relative to this as you look to the future, is, I've had no success—I can't speak for anyone else in the room—really predicting the contingencies that we end up facing as we go into the future. We've spent a lot of time and energy projecting future scenarios and future contingencies, but, in general, bombers are an—or, long-range platforms, particularly ones with a fair degree of survivability, are just very flexible things. You can use them to support ground forces.

And this occurred very dramatically in 2003 during Operation Iraqi Freedom. If you go back and review the 3rd Infantry Division's after-action report, I think it would not be an exaggeration to say that the people on the ground loved the joint direct attack munition. It was there, on call, when they needed it, and it provided the kind of precision fire support that the Army, in fact, did not possess at that point in time.

Now, guided MRLS and other precision munitions are—have finally started to enter the Army's inventory, as well, so they have their own precision organic indirect-fire support, in addition to the airplanes. But, the ability of those B-1s, with 24 JDAMs, to just hang out overhead and drop on GPS aim points on call was really important and impressive. And that was not—I mean, that was high-tempo combat operations, but that capability can be used day in and day out, even in hybrid conflicts.

Senator LIEBERMAN. Let me ask you—I appreciate that answer—let me ask you—come at this in a slightly different way. In your testimony—and you mentioned it today—you specifically say, and I quote, “missions requiring the survivability to persist in defended airspace in order to prosecute emergent and time-sensitive targets.” What new technologies would have to be developed to make this possible? Are they in reach?

Mr. WATTS. I think the sensing technology and the computational capabilities you would need onboard the platform are being put

into the Joint Strike Fighter as we speak. So, I don't think there's a great stretch, in terms of the technology that would be required.

If you go back early in the history of the Joint Strike Fighter, there was a discussion early on about simply relying on offboard sensing for finding targets.

Senator LIEBERMAN. Right.

Mr. WATTS. And we ended up going in almost the opposite direction in providing a very sophisticated or all- the-way-around-the-airplane sensing capability and advanced electronically scanned radar, which—with the underlying computational capability on-board that airplane and the ability to be able to upgrade that capability incrementally over time. I think the technology's here, sir.

Senator LIEBERMAN. Okay. If you were writing the defense budget for next year, understanding that you disagree with the recommendations of Secretary Gates, what would you put in for the long-range strike systems for the bombers?

Mr. WATTS. An amount of money, sir?

Senator LIEBERMAN. Pardon?

Mr. WATTS. An amount of money?

Senator LIEBERMAN. No, I mean, what—well, if you want to say that, but that's an unfair question. The—really, I'm thinking about—what would be your goal, here?

By when would you like us to do what, be able to do what?

Mr. WATTS. The 2018 goal was very ambitious.

Senator LIEBERMAN. Right.

Mr. WATTS. If you stick with the kind of high- subsonic, high-altitude platform that I've describe, and—

Senator LIEBERMAN. Yeah.

Mr. WATTS.—and you run a very disciplined development program, I think in another 10 to 12 years you ought to be able to reach initial operational capability. The problems of mission and requirements creep in the programs, that's certainly an issue.

One of the alternatives to what I've described, that the Air Force and DARPA have talked about, would be a hypersonic cruise vehicle, mach 6 to 8. And there, you are stretching all kinds of technologies—material technologies, engine/propulsion technologies—and, I mean, at best, people have discussed being able to get there in the 2030s or maybe even as late as 2040. But, if you don't do that kind of development, if you focus on the kinds of mission requirements I've described—

Senator LIEBERMAN. Right.

Mr. WATTS.—I think, by the early- to mid-2020s, you could field something. I also think—I have talked to some of the companies about, "Tell me how much the development costs for a very disciplined system might be." And most of the voting seems to be under 10 billion.

Senator LIEBERMAN. Under 10 billion.

Mr. WATTS. Under 10 billion.

Senator LIEBERMAN. Over what period of time?

Mr. WATTS. Well, the development period of the airplane, I mean, it would be 8, 10 years.

Senator LIEBERMAN. Yeah, okay. That's very interesting. I invite you to give us more detailed information afterward.

General Hawley, do you have a quick response to this Gates-Watts debate?

General Hawley: Yes, sir.

Senator LIEBERMAN.—on the bombers.

General Hawley: Yes, sir. I would share an anecdote that occurred late in my Active Duty career. I was having a discussion about bombers with the commander at TRADOC, my Army colleague across the river, and he was wondering about their capability to drop these precision-guided munitions we were then calling JDAMs. And I said, “Bill, one of these days, bombers are going to be providing close air support to your troops on the ground.” It was not long afterward, in Afghanistan, when bombers were providing close air support to our Army forces on the ground and to that outfit we called the Northern Alliance.

Senator LIEBERMAN. Right.

General Hawley: So, this idea that they’re only useful in strategic contests is very dated. In my view, you—we’ve come full circle. At the beginnings of modern air power in World War II, bombers were the platforms we used to destroy targets on the ground—

Senator LIEBERMAN. Right.

General Hawley:—and fighters were the things that got them to the target and back. In between, we went through a period where bombers couldn’t survive against terminal defenses; and so, we used fighters to get into the target, destroy the target, and then get out. We’ve now come full circle. We’re at a point where the primary role for our fighter force should be to get the bombers to the target, because of the payload advantages that have already been mentioned, their ability to loiter over the target. As a fact in Vietnam, the most valuable thing I could get was time on station from somebody with a bomb—

Senator LIEBERMAN. Right.

General Hawley:—because that’s what my forces on the ground needed. They needed the bomb to come down at the right time and the right place. And today’s bombers can do exactly that. So, they are certainly high-utility systems across the full spectrum of modern warfare.

Senator LIEBERMAN. Excellent. Thank you very much.

Senator Thune?

Senator THUNE. Thank you, Mr. Chairman.

And if I might come at that question a slightly different way, the—talking about the need for the next-generation bomber—and I guess my question has to do—and this would be Mr. Watts or to General Hawley—in your view, is the present bomber fleet sufficient to hold targets deep in defended airspace at risk over the next 25 to 30 years? Because absent a commitment to any kind of a next-generation long-range strike capability, that’s what we’re talking about doing.

General Hawley: Senator, I think your question gets to the heart of the issue that the Congress is going to have to wrestle with as they consider these proposals, which is, What kind of a future should we prepare our forces for? You cite the timeframe of 25 or 35 years. That’s a long time. And as my colleagues have said, we’ve never been very successful at predicting what kinds of engagements we will find ourselves in, 20 or 30 years hence.

So, in my view, those 20 remaining B-2s are the only part of the bomber force that is likely to be able to penetrate and do the job that we expect of this class of weapon systems against any serious adversary, 20 or 30 years hence.

The challenge for the Congress, I think, and for DOD, is to balance this vision of the future and what kind of adversaries we may face against the cost to mitigate that risk. That's a difficult issue. In my view, we are out of balance in the current proposal, and we are underestimating the seriousness of the threats that we might face in that timeframe.

Senator THUNE. So, assuming that we—what you've just said is that the B-2 is probably the only—my assumption is that if, in fact, this decision with regard to next-generation bomber were to stand, we would have to do significant upgrades, probably, to both the B-2 and perhaps, for that matter, the B-1. The sniper pod that was added to the B-1 has even improved the targeting and the capability of that aircraft to provide the close-air support that you talked about earlier to our troops in places like Afghanistan. But, what kind of investments would you expect to see in all of our current platforms in light of this announced decision on next-generation bomber? In other words, I guess I'm asking you, What is our alternative plan to upgrade the existing capabilities that we have? Is there any—I know that the B-2 is the only—I think what you were probably getting at is the stealth capability of the B-2. But, are there things that can be done to the B-2 and the B-1 that make them capable of survivability into that 25-year timeframe I mentioned?

General Hawley: Certainly, there are continuing improvements to the B-2, and my understanding is that the Congress and the Air Force have been together on developing programs to continue to modernize the B-2 and the B-1. The challenge—and it's not that these airplanes aren't going to be useful, it's just, Will they be what we need against a very competent adversary? I mean, the assumption that I think is underlying many of these decisions is that there isn't going to be a really serious adversary out there; and therefore, what we have—the B-52, the B-1—will be useful in the vast majority of contingencies that we're likely to face. And therefore, continued upgrades to those systems to take advantage of modern precision, some of the communications capabilities—the Air Force has, in the past, talked about adding standoff jamming capability to the B-52, a much-needed capability in modern warfare. So, there are many things that can be done to make all of those platforms more capable and more survivable in some set of circumstances.

But, if we, as a nation, believe that we need to be prepared for the more difficult challenge of a serious adversary with well-funded and well-planned forces, then we need something beyond the current bomber force, and that's the next-generation bomber that has just been put on hold.

Senator THUNE. Do you think the assumption, then, is that the threat, sort of, matrix that we face in the future is going to consist more of low-end asymmetric type? I mean, the assumption underlying this recommendation, if we are going to have a high-end conflict/threats out there in the future, would seem to make a pretty compelling argument for the—at least the development of this next

capability. So, is your view that the assumption that the—that is being made is that we aren't going to need that type of capability because the threat's not going to require it? Is that—

General Hawley: Yes, sir. In my view, the—these decisions reflect an assumption that anticipates an outcome of a QDR and a national review of our strategies that forecasts a future in which we will have few, if any, adversaries who are near peer or can field near-peer forces.

Senator THUNE. How does that square, though, with the—I think, the well-documented belief that countries like China are developing more sophisticated air defense systems and—it just seems to me that if you look out there in the future, and even if the—I think most of our combatant commanders would tell you the same thing, that we're going to need this long-range strike, because some countries are developing air defenses that are much more sophisticated than anything that we've encountered in the past, and the ability to penetrate those and to have the kind of range and persistence to loiter over targets seems to be a—almost a given. And I—so, I guess I'm trying to figure out where are the recommendation's coming from, based on what I think most people see over the horizon.

General Hawley: Well, you probably have access to even better intelligence than I do on where some of these nations are going with the forces they're developing. So, let me share a little experience with you from my past, which was—Vietnam was the theater in which I was a participant, and I would just remind the committee that in Vietnam we faced a third-rate adversary fielding an air force of about 200 airplanes at any given time, and we lost over 2,200 fixed-wing airplanes in that contest.

It is—if you go into one of these fights unprepared, you are going to suffer horrendous losses. We suffered horrendous losses in Vietnam, and we did so because we went into that fight ill-prepared and ill-equipped and ill-trained. And, as a result, we wound up with a lot of good people who were held as POWs for a long period of time. And my fear is that we are so confident of a future absent a serious adversary who is willing to either field those kinds of forces, or sell them to someone else who we wind up being engaged with, that we'll pay that kind of price again.

Senator THUNE. Before I just—Mr. Watts, anything to add in that discussion?

Mr. WATTS. To go back to your earlier question, which was, “Do you think the existing bomber force can be confidently counted on, relied upon, to carry us through the next 20 or 30 years?” my answer would be no, I don't think so.

Senator THUNE. Okay. Well, my time is up, and so, I assume—Madam Chair, are you the—

Senator Hagan [presiding]: Well, I know we all need to scoot and vote in a minute, but I did want to ask a question along the same line, and that is that I agree with Secretary Gates' insight to leverage the capabilities that are conducive to our ever-changing operational environment; specifically, that counterinsurgency operations, the high- and low-intensity asymmetric warfare, and the other types of the irregular warfare—we need to continue to augment ground operations with effective air support, unmanned aer-

ial and ground vehicles, and reconnaissance capabilities, that are flexible to conduct across the full spectrum of operations.

And, General Hawley, what you were saying having experienced in Vietnam, the question really is, going forward, what air platforms do you think are best suited for the operational requirements that we're talking about, now and in the future?

General Hawley: Well, you need a range of platforms, in my view. We have always fielded a mix in forces with capabilities to allow us to accomplish our missions in a variety of scenarios. We've never had the luxury of saying, "Well, we're only going to fight one kind of war." So, we've fielded a mix of systems, and I think we should field a mix of systems, going forward. We need some that are optimized for that ground fight, Air Force support of the ground fight, which is the role I played as a forward air controller in Vietnam. That's the role of the A-10 today. That's what we buy Predator airplanes for, in order to provide the forces on the ground with that staring view of the target that has proven so valuable in the current fights. And then, you need another set of capabilities to guard against the war that you hopefully want to deter.

I would put a high premium on conventional deterrents. I think we're in a pretty good place today. We've been through the years when we were threatened with nuclear annihilation. We are now at a point where no serious country is willing to take on our military, because of our dominant conventional capabilities. And so, the only people who can threaten us are terrorists on the ground with roadside bombs. In my view, that's a pretty good place to be. And I'd like to not reverse our course and get back to the point where people are willing to take us on in a conventional fight, because that's the most expensive kind of fight we can get into.

Senator HAGAN. Mr. Watts and Mr. Bolkom, any thoughts?

Mr. BOLKCOM. Well, I agree with the General. We clearly want to field a range of forces. And I want to point out, relative to the conversation we just had about bombers, I think the important thing is replacing the capability, augmenting the capability, sustain the capability, and not necessarily a particular platform. And we do tend to forget about the Navy in these sort of discussions. I don't understand why we aren't seriously looking at a long-range naval-based airplane. Bombers fly from this great sanctuary called the United States. Fighters are vulnerable, as we heard this morning in the full committee, to this anti-access threat. Certainly, carriers may be vulnerable, as well, but they have the freedom of movement and standoff.

As we think about long-range airplanes, one advantage of a long-range naval aircraft is a higher sortie generation rate than flying all the way from CONUS to combat.

So, I'm not advocating that, but just sort of trying to plant the seed in your mind as we think about these long-range standoff anti-access capabilities, it's not necessarily just fighters versus bombers, but maybe fighters and bombers and carrier-based aviation.

Mr. WATTS. Now, if I could just add to that, I and Steve Kosiak, one of my CSBA colleagues, we did look at the Joint Strike Fighter, in particular, a few years ago, and with respect to the carrier version or the carrier variant, it really wasn't going to extend the

legs off the deck of the strike capability by adding an F-35. Something like that in UCAS program, which was unmanned, looked very attractive to me on the ground, so that if you could get 1500 nautical miles out and back, as opposed to 500, but that would preserve the value of those large aircraft carriers and all of the supporting ships that go with it, a lot more than just fielding another short-range fighter that's more low-observable, certainly, than the F-18 E and Fs.

So, there are clearly option, as was just pointed out, on the Navy side, that could be very usefully explored.

Senator HAGAN. Thank you.

Senator Lieberman [presiding]: Thanks, Senator Hagan.

Well, that worked well. I'll proceed until someone else comes back. Have you voted?

Senator THUNE. Not yet.

Senator LIEBERMAN. You're going to go, okay.

General, let me—General Hawley, let me ask you—perhaps I've missed it in the time I've been away, but—I think you made a—when I joked about the “straight talk,” you made a very strong case against the recommendations to basically terminate production of the F-22s and the C-17s. And it seemed to me that you were saying two things. One—making two big points—one is that those recommendations are not supported by the analysis presented. And, second, that, in any case, it's more—there used to be a word, back a presidency or two ago that was in favor, called “prudent”—it would be more prudent to—more advisable to wait until the QDR, for one, was completed before making those judgments. Go back, if you would, and just spend a little more time making the case that there's not really analysis that supports the—that Secretary Gates presented, at least, on April 6th—that supports the termination of the production of the F-22 and C-17.

General Hawley: Yes, sir. I—as I told you, I participated in the original analysis that arrived at the 381 figure; 381 is the number that would equip 10 squadrons with 24 airplanes each, and it would provide a sufficient force to deploy for two nearly simultaneous major contingencies where we faced an adversary with a significant air-to-air and surface-to-air capability. That was the threat that we were supposed to plan for at the time.

Since that time, there have been a lot of studies that looked at how many F-22s we needed. I know the committee is aware of many of them. I think the most recent one was the one done by—what is it?—W.W. Brown or—I think that's the one—I believe that number came out at 260. Clearly, that's less than my 381 number, but they had different assumptions. As the Chairman knows, the outcome of any study is dependent upon the assumptions upon which it was undertaken. But, that's the lowest number, that I'm aware of, that anyone has arrived at through serious analysis, threat-based analysis, is 260, well in excess of the 187 that we're being asked to accept.

That's why I say there is no analytical underpinning to the number. And, as you say, I think it preempts any subsequent analysis that will be done in support of the QDR, which is just beginning, for delivery to the Congress about this time next year. So, we're making an irrevocable decision in advance of the analysis that the

Congress requires the Department to undertake each 4 years in order to support our ongoing strategy for the new administration, and it occurs in advance of what I'm sure will occur over the next number of months as the new administration's review of our National security strategy and the supporting national defense and national military strategies. And that—to make an irrevocable decision which does not rest on any known analysis appears to me to be imprudent. It would be prudent to continue production and give ourselves the option to make that decision a year hence, when it will be much better informed by both analysis and by a new strategic formulation.

Senator LIEBERMAN. Do you assume, in light of what you've just said, that the decision on the F-22 and C-17 were really made for budgetary reasons—that is, something had to go, here?

General Hawley: I do think that that's a major part of it, that there was a budget ceiling that people had to live within. Of course, we've all been part of that drill.

Senator LIEBERMAN. Right.

General Hawley: I certainly have. But, I do think there's a little more to it. I think there's also an issue involved in these escalating prices for all the things we buy, our acquisition problems, where we have encountered a total failure to be able to develop and deliver weapon systems on time, within budget. And I think the Department has concluded that, in order to make the F-35 affordable to three services, it must be produced in large quantities, and that every F-22 that we buy is an F-35 or so that we won't buy, and that that will increase the unit cost. And so, I think we're sacrificing operational capability for acquisition efficiency.

Senator LIEBERMAN. Thank you. I have more questions, but I welcome Senator Chambliss back, and I call on him, at this time.

Senator CHAMBLISS. I kind of like that line of questioning you were on, Mr. Chairman.

Senator LIEBERMAN. I just was setting it up for you.

[Laughter.]

Senator CHAMBLISS. General Hawley, what priority would you give to the ability of the United States Air Force to maintain air superiority and air dominance for our ground troops?

General HAWLEY. I—given my background, I'm probably biased, but, in my view, it is the number-one requirement for the Air Force. It is the first thing that the Air Force is asked to do for the Joint Force Commander. In any contest that we were involved in, in my Active Duty career or hence—or since, the first things that are required to go forward are air superiority platforms. The last time we faced an adversary where we thought we might encounter a serious air-to-air threat, I was commander—I was in the Pentagon as the deputy director for operations. The first platforms we sent forward were F-15s, which were only capable of air superiority. Why? Because that's what the Joint Force commander asked for. CENTCOM wanted to make sure that he could defend his airspace.

So, it is the highest-priority mission that the Air Force can do for Joint Force Command.

Senator CHAMBLISS. And has the F-22 been pointed to, over the last decade, as the next-generation fighter that was going to allow us to maintain air dominance and air superiority?

General HAWLEY. The F-22 was—the program—people call it a “cold-war relic”—the program began in 1991, coincident with the first Gulf war and after the collapse of the Soviet Union. So, the Department of Defense and the Congress supported development fielding of this program throughout the post-cold-war period. It is the platform that was designed to assure this country’s ability to provide air superiority over any battlefield, and it is the envy of every air force in the world, at this point in time.

Senator CHAMBLISS. And was it not intended to complement—or, was not the Joint Strike Fighter intended to complement the F-22, rather than replace the F-22?

General HAWLEY. I was also involved in the decisions to design the F-35 and establish its requirements, and that’s exactly right, sir. The F-35 was conceived as a complementary system to the F-22, with the F-22 providing the capabilities to ensure that the F-35 could penetrate, survive, accomplish its mission, and return to base.

Senator CHAMBLISS. Mr. Watts, you’re a former fighter pilot. You were PA&E in 19—what—’99, I guess, 2000, when you left there?

Mr. WATTS. 2002, sir.

Senator CHAMBLISS. 2002, excuse me. That was the point in time when the F-22 buy was set at 183. Do you know of any analytical reason that that 183 number was arrived at then, or was it purely budget-driven?

Mr. WATTS. My understanding was that it was purely budget-driven. The Air Force was essentially told, “Given the cap on the program, the total acquisition program, you can produce as many as you can under that cap.” Early on, they thought they were going to get a lot more than—you know, up in the 220 range, but it’s turned out to be 187. So, yes, sir, it was purely—it had nothing to do with requirements.

Senator CHAMBLISS. Okay.

General Hawley, do you know of anything, based upon your contact with the Department of Defense during your years on Active Duty, which I understand ended about 1999, but you’ve remained in close contact with the Pentagon since that time—has there been any discussion or confirmation, from an analytical standpoint, with reference to arriving at the military requirement of 183 aircraft, now 187, for the F-22?

General HAWLEY. No, sir.

Senator CHAMBLISS. Now there appears to be another budget-driven question about the termination of the line. Is it not normal to have some analysis for terminating a line, versus deciding to terminate the line and then do your analysis after the fact, which kind of appears to be what the Secretary is doing here?

General HAWLEY. In my experience, when we have terminated a production line, it has always been the result of some kind of analysis. And seldom has it been purely a budget-driven decision.

Senator CHAMBLISS. Are you familiar with the Secretary of the Air Force’s continual statement over the last several weeks and months that the new military requirement for the F-22 is 243?

General HAWLEY. Yes, I am.

Senator CHAMBLISS. Do you know of any analysis that went into the arriving of that number?

General HAWLEY. I know that the Air Force arrived at that number because they thought that they could support the current strategy with 243 airplanes at a moderate risk level, as the current chief of staff has described, but it provides no attrition Reserve capability. So, over time, that capability would erode to a high-risk force.

Senator CHAMBLISS. Dr. John Hamre, whom all of you know, testified this morning in another hearing, that, with a contingent of 187 F-22s, we would probably have, by the time you take out planes for testing, by the time you consider planes that are in depot maintenance, you're going to wind up with combat-coded airplanes roughly in the range of 125 to 135. Is that a fair assessment, General Hawley and Mr. Watts?

General HAWLEY. The formula for sizing the force is, it takes about 100 airplanes to field a wing of 72 operational airplanes, so that's a pretty close number.

Senator CHAMBLISS. Okay. And he also said that, over the course of the next 30 years for which this plane is going to be called on to give us air superiority and air dominance, we're going to lose, you know, about a plane a year. That's kind of the norm, again, that you can expect. So, we're looking at, long term, having somewhere around 100 F-22s that are going to be combat coded, that are going to be expected to fill the role within the air expeditionary units. What kind of risk is that going to place us in?

General HAWLEY. In my view, it's a high risk. And you should—given that that's likely the number, about 100, we must understand that you never are able to deploy all of those airplanes. In my experience, you shouldn't expect to be able to have more than about 75 percent of that force available in a surge basis to support a combatant commander who faces a serious threat. So, it's even less than 100.

Senator CHAMBLISS. Okay.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thank you very much, Senator Chambliss. Good line of questioning.

Senator Burris, welcome back. Do you want to proceed now?

Senator BURRIS. Give me a couple of minutes, Mr. Chairman.

Senator LIEBERMAN. Oh, okay. I'm going to—I had a few minutes left over, so I'm going to tide over.

Let me approach this F-22 with this—decision—from this point of view. I think, in—we've been talking the terms that insiders, people who live with this, talk about whether this is a wise decision, to terminate the line, or not. But, I think, in terms of the large canvas and the broad paintbrush, the explanation given, or at least heard from Secretary Gates' decision, was put in the larger context of—we've got to support the fight we're in. The fight we're in is irregular, it's a hybrid, we can't do everything, so—and we've got some pretty good tactical air fighters, so—and we've got the F-35 coming on—so—well, the F-22 isn't really related to the hybrid fight. Give me your reaction to that. Maybe we'll start—that argu-

ment, Mr. Watts. I know, in a sense, we've touched on it, but I wanted to just clarify and ask you to respond.

Mr. WATTS. Well, a comment that has circulated around Washington about the F-22 is, "Well, we haven't deployed it in any of the current fights."

Senator LIEBERMAN. Right.

Mr. WATTS. And the implication is, that shows that it just is irrelevant to the current fight. But, I don't think we're building it to deal with nonexistent air forces in Afghanistan, for example. I think we're looking further downstream into the future, at emerging threats. And if you look at an—there was an Air Force exercise called Cope India, a few years back, where we took some of our better F-15s out there to do some training against the Indians and discovered that they had taken some older Soviet airplanes, made some local improvements to them that were very effective, and they had really trained their pilots up to a very high level of proficiency. And my impression—I'm sure General Hawley could add to this—was that we were kind of surprised at how good they turned out to be in that particular exercise. So, it's those higher-end problems that I think we ought to be thinking about and focusing on when we discuss both the F-22 and the F-35.

Senator LIEBERMAN. So, is it an investment we are making now primarily against the rise of a high-end or major power competitor—China or a resurgent Russia?

Mr. WATTS. The Russians have done an awful lot to incrementally improve the Flanker over the years, and it's a fairly formidable adversary, right now, today—

Senator LIEBERMAN. Right.

Mr. WATTS.—if you had to face it.

Senator LIEBERMAN. General Hawley, how about this, fit the F-22 decision into what seems to be the overview that Secretary Gates presented us about the budget recommendations he made.

General HAWLEY. Well, it's clear that the F-22 isn't going to be very useful in an irregular-warfare fight.

Senator LIEBERMAN. Right.

General HAWLEY. But, while we're in the irregular-warfare fight, we also need to maintain our deterrent posture to make sure that somebody doesn't take advantage of our preoccupation with that fight to threaten our interests elsewhere. That's where the F-22 comes into play, because when we've got systems like the F-22—and by the way, the F-22 isn't the only thing we buy that isn't suitable or tailored to an irregular fight; there are lots of other things, as well—but, we need those things to make sure that we continue to maintain a credible deterrent posture to keep people from taking advantage of us when we're preoccupied with situations like Iraq and Afghanistan.

We are a global power, and we have global interests, and that means we have global vulnerabilities. And these investments in systems like the F-22, in my view, are investments in deterrents, just like we invested in our nuclear capabilities throughout the cold war that successfully deterred adversaries from ever attacking us with nuclear weapons or engaging our interests with nuclear weapons around the globe. It is the same equation.

Senator LIEBERMAN. Mr.—thank you—Mr. Bolocom, do you want to get into this?

Mr. BOLCOM. Yes, sir, I'd love to, thank you. I think that, in terms of the risk question and trying to keep it at a big-picture level, General Hawley outlined what he sees as an operational risk of not buying more airplanes. And others share that view. I think there are a couple other risks. And actually, Senator Chambliss touched upon one. Another risk is creating another high-demand, low-density asset. If we've only got, you know, 100-odd of these airplanes, do they become another very expensive aircraft to operate and maintain? The Air Force is trying to avoid that problem, small fleets of expensive airplanes.

And this morning we heard in—at the full committee, another risk, as Dr. Krepinevich sees it, of wasting assets. On the other side of the equation, do you potentially risk buying more airplanes that are overdesigned for the threats you face? And he saw that as a—potentially, a strategic risk.

Senator LIEBERMAN. Thank you.

Senator BURRIS?

Senator BURRIS. Thank you, Mr. Chairman.

General Hawley, are you also saying that we should not fund the—I mean, not complete the C-17?

General HAWLEY. To the contrary, I think that the C-17 requirement, as stated, which is 205 aircraft, may be based on an outdated analysis. The analysis that came to the 205 number predates the currently planned expansion of both the Army and the Marine Corps. I find it hard to believe that, with a far bigger Army and Marine Corps to deploy and sustain, that that wouldn't affect the outcome of a mobility requirements study; and hence, the 205 number is probably very conservative.

Senator BURRIS. I was down at Scott Air Force Base—are you familiar with that?

General HAWLEY. Very familiar with Scott Air Force Base.

Senator BURRIS.—Air Force Base, which was a little, small country town, a suburb of my hometown of Centralia and Belleville, Illinois, just by way of fun. It was just a little Air Force landing field. I went down to Scott Air Force Base the other day, and it is a major development down there. So, were you ever at Central Command down at Scott?

General HAWLEY. I have visited Scott. I've spent time with the commanders at Scott. I've also flown the C-17. I took delivery of a C-17 at Long Beach and flew it to Charleston, some years ago. Marvelous airplane.

Senator BURRIS. It's a major expansion, Mr. Chairman. We're so pleased to see what they're doing. Senator—General McNabb is down there at Central Command for TRANSCOM, and, I tell you, I had a great experience in visiting that base and looking at the expansion that's going on there, and I hope there's something in the budget to keep Scott up and running. I haven't seen all of the budget, but we've got to make sure that that Air Force operation stays there and—because that's—you know, that's where all the sorties have flown from all the command—for TRANSCOM is coming out of there.

General HAWLEY. Right.

Senator BURRIS. I was—want to ask a question to Mr. Bolkcom, in terms of—should we be using some of our other—you know, in your opinion, should we be using some of our other threats as baseline for the design or for our defense posture? Which—what—in terms of observers of—concern that military aviation is focused too much on the demand of our fighting conventional forces—is that a problem?

Mr. BOLKCOM. Sir, I think that what Secretary Gates is trying to do is position our current and future military, as he sees it, against the threat environment, as he sees it. And he makes it clear he sees it as a spectrum of simultaneous threats that require rebalancing, potentially away from conventional state-on-state conflict towards more irregular conflicts. So, I think that is a clear direction by the Secretary.

Senator BURRIS. Well, now, would any of that include this high-tech-type warfare that we're moving to, such as drones and robotic type of—what do you call 'em?—instruments or war machine or—you know, the drone airplane—

Mr. BOLKCOM. Yes, sir.

Senator BURRIS.—or the robotics that goes after our—you know, those IEDs and detection of bombs. Is that where we're headed now, to a technological warfare arrangement?

Mr. BOLKCOM. Sir, I think that's not a bad way of phrasing it. The proliferation of off-the-shelf commercial technology, like global positioning system and cell phones and the like, make UAVs, unmanned aerial vehicles, accessible, not only to state actors, but also paramilitary groups like Hamas. And as General Hawley pointed out, we've driven some of our—even our state actors away from fighting us force-on-force, and they're resorting to anti-access sort of threats, trying to keep us out, which oftentimes might include systems like you're describing.

Senator BURRIS. So, are we to start budgeting? Are any of those requests in this 2010 budget that we're looking at?

Mr. BOLKCOM. Well, I think all of us are trying to extrapolate with very little information, but I think the tea leaves suggest, again, what Secretary Gates called a rebalancing towards some of these irregular capabilities.

Senator BURRIS. Thank you.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thanks, Senator Burriss.

We're a little out of order, but, Senator Begich, you've not had a chance yet, and then we'll go back to Senator Thune.

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

And if these questions have been asked—answered, I apologize. But, I'll first start with one with regards to the refuelers.

There is some discussion of having the air refuelers as kind of multi-role aircraft; you know, some call it “floors and doors and everything else included.” Can you give me just some comments on that? And are we overbuilding for those refuelers? And then—hold that question—and in conjunction with that, under Secretary Gates's proposal we will not continue adding to the C-17s, so is it—under that scenario, is it wise, then, to have these kind of multifacet facilities, or should we be doing the C-17s and have a

more streamlined refueler? That's kind of the multiple questions around those issues. I'll look to the General and Mr. Bolkcom and Mr. Watts, kind of in that order, if you don't mind.

General HAWLEY. Sure. You know, our refuelers have always had multiple capabilities. They've been able to evacuate medical patients, they've been able to carry pilots. And, to my knowledge, the Air Force has never paid a lot for those capabilities; they're relatively modest add-ons to an airplane that is configured and designed to be a refueler. So, they're valuable capabilities, they're very useful in some circumstances, and they can augment the airlift capabilities that our primary designed airlifters, like the C-17 and the C-5, give to us.

If we constrain our airlift force to 205 C-17s, augmented by the surviving C-5s that are going to be modified, then these multi-role capabilities of the new tanker, if we ever get a new tanker, will probably prove to be very valuable.

The challenge for our airlift operators has always been to figure out the operational concept to use the tankers' multi-role capabilities for those medical evacuation or airlift purposes. But, the current commander at Scott says that they're working on that, they know how to do it, and they want these tankers to have those multi-role capabilities so that they'll be there to augment their airlift capability.

Senator BEGICH. But, it shouldn't—if I can, just before the other two—but, it shouldn't be a substitute for C-17s.

General HAWLEY. It is not envisioned to be a substitute; it is strictly a complement, a Reserve capability, almost, if you will, when you're operating in extremis, and your C-17 and C-5 capabilities are completely committed elsewhere.

Senator BEGICH. Okay.

Either one.

Mr. BOLKCOM. I'd echo almost everything I just heard. They are different platforms. The C-17 and C-5 provide an outsize/oversize carrying capability—oddly shaped, large things we need, like helicopters or small artillery pieces, or even a tank. There's no way anything else is going to carry that but the C-17 or the C-5. So, our aerial refueling capabilities provide a great augment, as the General just mentioned. I think it's on the order of about 3 percent of our organic million-ton-mile-per-day capability, so it's sort of a twofer, and it makes sense.

One thing I just want to point out, and I think the General made this point, about expanding the Army and the Marine Corps, and how that could put increasing stress on our C-17 force—I think that makes a lot of intuitive sense, except I would like to point out that I don't think the purpose of increasing our ground forces is because we want to deploy more of them faster, but to relieve the personnel tempo by creating a larger pool of these foot soldiers who need to deploy. And so, I don't think the operations plans have changed. I don't think that we are planning now, because of the growth of Marines and Army, to get them there faster. But, that might be something worth looking into.

Senator BEGICH. Thank you.

Mr. Watts, do you have anything to add to this?

Mr. WATTS. The only comment I'll make—Jim Roche, who was Secretary of the Air Force from 2001 to into early 2005, is a former colleague and a long-time friend, and, while he was Secretary of the Air Force, one of his recurring nightmares was, “What if I have to ground the C- 135 fleet—or, the KC-135 fleet?” All the services depend on that air-refueling capability. So, I guess I'm less concerned with the additional capabilities you might get with those platforms than the fact that, over the last decade, we have not started recapitalizing the tanker fleet. I really just think that's an important issue.

Senator BEGICH. Okay. Let me ask—and, again, whoever can answer this question, or if you all want to take a shot at it—and, again, if this has been answered, I apologize for reasking it—but, on the issue of the refuelers and the whole idea of split purchasing, any feedback that you want to give on that?

I'll start with Mr. Bolkcom, because he looked anxious, so—it was like a test; he pulled out his pen, he's already writing the answer. So, you're it first.

Mr. BOLKCOM. Thank you, Senator.

You know, the administration has been pretty consistent that they're against a split buy. The argument against a split buy is that it costs more money up front. You may get savings, down the road, through competition. But, you definitely will incur more operations and support costs by fielding a heterogeneous fleet, two different kinds of airplanes.

I have heard some interesting arguments for a split buy. You know, one, of course, is potentially an industrial-base issue. But, maybe—

Senator BEGICH. You mean in preserving the industrial base? Is that—

Mr. BOLKCOM. Yes, sir.

Senator BEGICH. Yeah.

Mr. BOLKCOM. Or—well, I'll leave it at that.

Senator BEGICH. Okay.

Mr. BOLKCOM. I think maybe a little more traction is this argument I've heard that, “Well, if you're in a hurry, you can have two lines running and procure them faster that way.” So, CRS doesn't take a position, of course, but those are some of the arguments.

Senator BEGICH. The arguments.

Mr. BOLKCOM. Yes, sir.

Senator BEGICH. Either one. General?

General HAWLEY. Well, number one, we've operated a multiple number of tankers for a long time in the strategic role. We've got the KC-10 and the KC-135. The Air Force's tanker plan is to eventually repeat that. They envision this current round of competition to fill the kind of medium-sized tanker with a subsequent buy, later on, of another kind of tanker, which would do the KC-10 end of that mission. So, there are multiples already. Most of these things are maintained under contract or logistics support, so I don't think this, the argument that they're going to cost more to support, holds a lot of water, because mostly we just use the existing support capabilities that these things are capable of in their commercial variants. And both of 'em have commercial variants.

To me, the argument for a split buy is merely, "Hey, we need to get on with this." There seems to be a political obstacle to getting a tanker in the field, and if this would allow us to get past that political obstruction and begin to build anything, the warfighter needs these things, and they need 'em now. Our tankers are 50 years old. They'll be 75 or 80 years old before we get to retire them, even if we start building a tanker today.

The downside of a split buy is that it kind of requires you to fund two lines of production over a long period of time, and that's a lot of money each year, because there's a minimum production quantity. And that would require a commitment from the Department of Defense and the Congress to maintain that kind of funding support to buy, what, 25, up to maybe 30, tankers a year in order to maintain the two production lines. I think that would be the biggest challenge.

Senator BEGICH. Thank you very much.

And I only—I've run out of time, but if you have a very quick comment—

Mr. WATTS. No, sir.

Senator BEGICH. Thank you very much. Thanks for your answers.

Mr. Chairman?

Senator LIEBERMAN. Thank you, Senator Begich.

Senator Thune, back to you.

Senator THUNE. Thank you, Mr. Chairman.

Let me ask about—a little bit about fighters. And in a limited defense budget, would buying more quantities of legacy aircraft, such as your F/A-18s, F-15s, F-16s, help mitigate a strike-fighter shortfall in our tactical aviation wings? I don't know if you've discussed that in my absence already. Maybe the fighter gap. But—

General HAWLEY. It's probably my question. And, as you might expect, during my time on Active Duty, particularly as ACC commander, we examined that a lot. I think, at—if we had addressed this question 10 or 15 years ago, the answer might be yes. Today, I think it's no. We're too far down the road. The F-35 is going to be a great airplane for all three services. I think it would be a serious mistake to undercut that program by trying to fill holes in the forest today with legacy airplanes.

Senator THUNE. How do we do—I mean, they're retiring F-16s already, though, and they're going to be retiring 'em at an accelerated rate, here in the next few years. And F-35s are probably not going to be rolling out soon enough to replace those, and we've got lots of installations out there that are going to be probably missing, for a while, a mission, until the F-35s are there to replace the F-16s. I guess that was the—sort of the context of my question, is, they're—or, does that, in your view, not make sense, to have that kind of bridge between the current technology and the legacy aircraft in the next generation with the F-35?

General HAWLEY. In my view—and, again, it's based on my experience—the problem is that when you buy one of these airplanes, you're going to have it for 30 years, maybe 40. So, it's a very long-term commitment. And if we buy three or four or five or six squadrons of these things, that means they're going to be in the force in

2050. I don't think they're the right airplanes to have in the force in 2050.

Senator THUNE. Mr. Bolkcom, any other—

Mr. BOLKCOM. Sir, I understand the—the Air Force and the Navy's calculations for their projected fighter gap. I'll point out it's, you know, based on some assumptions. One assumption is that we continue the current utilization rate of the fighter force. That may or may not come to pass. Another assumption is that the UAVs that we're buying in large numbers now aren't included in that mix, when they've mixed those numbers. So, if one does believe that Reapers and Predators do provide some air-to-ground capability that would otherwise be provided by fighters, perhaps the gap would be a little less.

That said, I'll point out—I agree with what the General said about the length of time in the fleet. I'll just point out that the fighters we fly today tend not to have ESA radars, joint helmet-mounted queuing systems, and some of the latest-generation countermeasures. And certainly, adding those to some already very good platforms would increase capabilities.

Senator THUNE. Let me just—coming back—digressing, for a moment, to next-generation bomber—I had an extensive discussion with General Hawley about that—but, I just wanted—Mr. Watts, you've written extensively on that subject, about the need to develop a long-range strike capability. And if I could get you just to sort of give your take on the direction that the President wants to take on that next-generation-bomber capability, and your views about—you mentioned that you didn't think that the current generation of bombers could fill that 25-year timeframe we talked about earlier. But, maybe just your view of why they are coming to the conclusions and making the assumptions they are about, sort of, delaying this—the development of this new aircraft.

Mr. WATTS. My impression is that there is still considerable disagreement about whether to go forward, particularly within portions of OSD. And if I think back about a lot of the studies that have been done over the last decade, there seem to be, on the part of some involved in thinking through what you might really wish to develop and procure, a tendency to get mesmerized by, sort of, technology promises further out on the horizon.

My focus, to go back to the beginning, is that those 20 platforms you've got left—the B-2 force—and, remember, on a given day, you might only have 16 available at Whiteman, or less; you may have some additional attrition over time—it's just hard for me to believe that those are going to satisfy, in the long term, our requirements to be able to hold targets at risk, even in defended airspace, over the next two to three decades.

You did touch on the issue of things that could be done to improve the existing platforms. And I would just add, in the case of the B-2, the computational capability onboard the airplane is something that's been debated back and forth, and that would really provide a significant increase in the capability, going forward, of that airplane, if we could basically—let me put it to you this way. The processors that were originally put into the airplane were basically 286 IBM processors. If you had a 286 laptop and took it to your local lending library, and asked them if they wanted it, they

wouldn't, because it won't even run Windows. So, that kind of a capability, which you do see in the Joint Strike Fighter, is one of the paths in which you could really improve the utility of that platform, going forward, if you wished.

Senator THUNE. Thank you, Mr. Chairman.

Again, I want to thank the panel for their great testimony.

Senator LIEBERMAN. Thanks, Senator Thune.

I've got a couple more questions, and if my colleagues Senator Begich or Senator Burriss want to, we can go til about 4:00.

As I indicated briefly in my opening statement, one of the more important developments in recent years has been the demand for and capability to provide persistent full-motion video surveillance to ground commanders from the air. It's quite remarkable. Some of those systems have not even completed the normal R&D cycles, although that's happened before, remembering the contribution that fielding the JSTARS made in the first Persian Gulf war, even though that technology had not yet fully completed development at the time it was pressed into service.

I wanted to ask you, are there broader implications from these technological developments for the contribution of aviation to irregular warfare? And, related to that, are there systems that you think we should be developing and fielding that would take greater advantage of the persistent—the ability to persistently see the battlefield?

General Hawley, you want to start?

General HAWLEY. Okay. Well, you mentioned JSTARS. In addition to full-motion video being of great value in the theater, we're also finding, more and more, that the forces on the ground really appreciate the ground-moving-target indicator capability and the synthetic-aperture SAR capability, the high-resolution SAR—

Senator LIEBERMAN. Right.

General HAWLEY.—that some of these airborne radars, like the JSTARS, can provide. They're of great value, both in the realtime application and in the forensic analysis of the product as they try to track down some of these bomb layers back to their lairs so that they can get the bombmaker rather than just the bombplanter. And that—those capabilities are extraordinarily valuable to the forces on the ground.

So, one thing we could do is continue to modernize these wide-area surveillance platforms, the JSTARS being the primary one in our inventory today, although the Navy has some very capable platforms, as well, with upgraded radars and sensors, communications, and that onboard computational power that Barry mentioned for the B-2, because these modern radars, the AESA radars that are now available, they form the heart of the F-22 and the F-35, and those same technologies hold great promise to provide enhanced capability for our forces on the ground in these areas of high-resolution SAR, through-the-weather, all-weather, wide-area surveillance, not only for the take that that provides, both the ground-moving target indicator and the radar pictures that they provide, but also the ability to increase and gain leverage from these smaller things, like the Predator, other systems that look at a much smaller area, because you can provide that broader situational awareness so that they can be better targeted.

So, that is an area where I think we could focus.

Senator LIEBERMAN. Good.

Mr. Bolkcom, do you want get into that one?

Mr. BOLKCOM. Thank you, sir.

The one thing I'd like to add is, over time, in conventional state-on-state conflict, we have seen some friction between the Army and the Air Force over some aviation capabilities. Close-air support is one area where there has been some friction. What I see is, when we need to engage these nonstate actors, irregular forces, oftentimes the OODA loop, if you will—observe, orient, decide, and act—is very tight and compressed. And I see the Army moving pretty aggressively towards fielding their own UAVs that are organic to their small units, that they can control, they can use all the time; they don't have to wait for an air tasking order. I don't know yet how much encroachment or friction we'll see with the Air Force, who likes to control some of the larger UAVs, but I see that a potential area where Congress might want to keep an eye on that.

Senator LIEBERMAN. Okay, thank you.

Mr. Watts?

Mr. WATTS. I certainly support what General Hawley said on the growing utility of these systems. And it really does hinge increasingly on, for example, AESA radars and things of that sort, and the ability to pull the information into central command-and-control facilities so you can really integrate it.

We have come a long way over the last decades. Indeed, the use of unmanned air vehicles for surveillance and persistent reconnaissance is really one of the areas in which you could argue that Dr. Krepinevich's revolution in military affairs, the services really have gone forward fairly smartly and done what needed to be done.

Senator LIEBERMAN. I agree. You know, we were talking earlier about how you can't predict—and if you try, you usually end up being wrong—what the next generation of conflict is going to be, where the enemy's going to be, the nature of conflict. But, obviously it was not so long ago, in the '90s, when some people were saying that all we needed was air power to win wars, right? And I know that none of you, at this table, would say that. But, it was overstatement. Now, of course, there's a danger that people will say, "Oh, just—this is all boots on the ground." But, the truth is that it really is joint warfighting.

And I can tell you, just having heard your answer to this last question, General, a couple of us went down to visit General Petraeus in Tampa, Central Command, and—just for a whole review of his area of responsibility. But, he went back and showed us a fascinating—I guess I'd call it a diagram, which he described—of the battle for Sadr City and the different elements that were involved—U.S. ground forces, Iraqi ground forces. But, it was quite fascinating to see. Overhead, there was the JSTARS aircraft, which played a—and there were some drones there, too, that played a very critical role in a remarkably diverse series of assets that achieved a great victory for us.

So, I don't know if you want to comment on that, but—

General HAWLEY. Well, it is. And it wasn't just Fallujah, but it's increasing since Fallujah—

Senator LIEBERMAN. Yeah.

General HAWLEY.—the ground forces' reliance on these systems, because it gives them the thing that—as a fighter pilot, the thing I craved most was situational awareness.

Senator LIEBERMAN. Right.

General HAWLEY. You just have to—you—it's hard to appreciate how valuable it is to know what's going on around you.

Senator LIEBERMAN. Right.

General HAWLEY. And these systems give those troops on the ground the ability to have situational awareness about what's going around, who's moving where—and in the forensic sense, who moved where—so that they can then go do their job better on the ground and eliminate some of these threats to the civilian populations that we're trying to protect, and to our own forces.

Senator LIEBERMAN. Yeah.

Well, I agree. I mean, I think, too, the interesting—probably more prominent conclusions today—and I think you made the case well—is the role of the long-range strike forces in irregular warfare, larger than most people would intuitively think. And, of course, then this tremendous role of ISR on aircraft in the irregular wars that we're fighting now.

Senator BEGICH, that's all that I have.

Senator BEGICH. Thank you very much, Mr. Chairman. I have one other area. And let me make sure I do this right.

I'm going to have to flip back and forth between the report, Mr. Bolkcom, that you had prepared and determined that it's the Joint Striker engine, the F-136 alternative engine. And it's just—again, I'm a new member, so I'm kind of—I don't know if I'm enjoying the reading or finding it interesting, but in this one I'm trying to figure out—and I'm hoping you will elaborate, first, on the F-135, which is the replacement that's been selected by DOD—engine is—from your review, is that engine capable of doing everything we need, as the replacement? And then it's going to lead to a couple more questions, so I want to kind of prepare you. So, keep that answer simple so I can go to the next.

Mr. BOLKCOM. The answer is yes.

Senator BEGICH. Okay. Thank you.

Now, let me—I'm going to lay out what I think I understand of the facts, and correct me—if I'm not, then again it leads to questions. The F-136, in—back in '96 or '97, Congress said, you know, "We want to have an alternative, we want to have some competition." They funded some development, \$2-and-a-half-plus billion. DOD's never been a big fan of that, but it's been in there to create another alternative. Now DOD has made the decision that we're going with the 135, but we've now invested in this alternative. Is it fair to say—and, again, I come from the private sector, a big portion of my life—that when you add alternatives or you have competition like this, of two engines that have the capacity to do the job, isn't it going to drive down the price? I mean, what was Congress's original purpose in '96? Wasn't it—

Mr. BOLKCOM. That's right.

Senator BEGICH.—wasn't that part of it?

Mr. BOLKCOM. Yes, sir. There's a number of arguments for the engine. One is the idea that if the fleet is grounded because of a problem with one engine, you have another. That may or may not

be a strong argument, in your mind—in one's mind. But, the economic argument has to be the dominating one. And, again, sort of as I described with split-tanker buy, yes, you hope, over time, you will recoup the savings of your up-front investment. And so, there's been a number of analyses done about how many engines we're going to buy and—

Senator BEGICH. Right.

Mr. BOLKCOM.—how much the up-front investment is going to be, how much we're going to save through this competition, exactly—and all these things depend on exactly how we couch the competition. Is it just for procurement only, or, as in the great engine war, as they call it, do you also compete the operations and support contracts, which is where they did—

Senator BEGICH. Where the real long-term money—

Mr. BOLKCOM. Yes, sir, they did. So, a lot of it has to do with how you orchestrate this competition.

Senator BEGICH. Is our—what's the predominant—and, again, I am as—fairly new to all this—so, what's the predominant future utilization of which engine type by the Europeans and our allies?

Mr. BOLKCOM. You know, sir, I'd have to take that for the record.

Mr. BOLKCOM. I think—I don't know as I can answer that authoritatively. I believe, as the only engine that's part of the program of record, they plan on acquiring the F-135. Or the—

Senator BEGICH. 135.

Mr. BOLKCOM. Yeah, the F-135. But, I—let me—

Senator BEGICH. Can you get back to me on that? I'd be curious—

Mr. BOLKCOM. I just want to be safe. But, yeah, that's my answer for now, but let me get back to you, sir.

[The information referred to follows:]

[SUBCOMMITTEE INSERT]

Senator BEGICH. I'm interested in what they're planning now, but what they're really planning into the future.

And—these are my words, so you can acknowledge 'em or just ignore 'em, but I—the I read this is, Congress set a course of competition; DOD didn't do it. They did all the money for planning. They basically said to Congress, "We're doing that. We're doing that research." But, at the end of the day, they stuck with the 135 without even competing the development of it—or the building of it. Is that how I read your report, or am I missing something?

Mr. BOLKCOM. No, sir. I think that's exactly the rub. I think it's the law that they fund this airplane with funds that are appropriated, and they have not requested those monies over the last couple of fiscal years.

Senator BEGICH. Okay.

I'll leave it at that, only to say thank you. It's very interesting read, and I guess, Mr. Chairman, that's one before my time. You were here in that—those years, and I'm just thinking that it seems that, at some point—and probably I'll use this through Armed Services, some questioning to DOD of—you know, to me, the competition would make so much sense, especially on a simple engine design. And I say "simple," and it's not simple. But, I mean in the sense that it's an engine, especially when Congress gave direction, not just 1 year, because they authorized money in—throughout the

process—that it's not just a 1-year quirk; it's a multiple-year desire by Congress. It just seems odd that they would just ignore that and do what they want to do.

So, I'll just leave that. But, I appreciate the information. This is very good information for me. Thank you very much.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thank you, Senator Begich.

Thank you, gentlemen. I want to mention, Senator Bill Nelson came in, and he left two questions. One, we really covered, which is a comment on the—on your current state of technology maturity, need, and requirement for long-range bombers. Second, he talks about the fact that bomber aircraft are the only recallable nuclear capability. ICBMs/SLBMs, when launched, cannot be recalled—and wanted a comment on that issue, and, generally, your views on maintaining a nuclear-capable bomber.

If it's okay with you, I think we'll submit that formally to you and ask for a short statement, in writing, in answer, which we'll add to the record.

[The information referred to follows:]

[SUBCOMMITTEE INSERT]

Senator LIEBERMAN. I thank you very much. It's been a very helpful hearing, from the subcommittee's point of view. And I said, at the outset, I think it will inform our work here on the authorization bill.

We'll leave the record of the hearing open for 10 days for additional statements that you may want to submit to the record and any questions that any other members of the committee have.

Senator LIEBERMAN. But, you've done us a real service today, and I thank you for that.

The hearing is adjourned.

[Whereupon, at 3:53 p.m., the hearing was adjourned.]