

HEARING TO RECEIVE TESTIMONY ON DEPARTMENT OF THE AIR FORCE AND DEPARTMENT OF THE NAVY TACTICAL AIRCRAFT PROGRAMS IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2011 AND THE FUTURE YEARS DEFENSE PLAN

TUESDAY, APRIL 13, 2010

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

The subcommittee met, pursuant to notice, at 9:35 a.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, Kaufman, Chambliss, Thune, and Brown.

Majority staff member present: Creighton Greene, professional staff member.

Minority staff members present: Joseph W. Bowab, Republican staff director; Pablo E. Carrillo, minority investigative counsel; Daniel A. Lerner, professional staff member; David M. Morriss, minority counsel; and Christopher J. Paul, professional staff member.

Staff assistants present: Jennifer R. Knowles and Brian F. Sebold.

Committee members' assistants present: Christopher Griffin, assistant to Senator Lieberman; Patrick Hayes, assistant to Senator Bayh; Gordon I. Peterson, assistant to Senator Webb; Perrin Cooke, assistant to Senator Hagan; Roosevelt Barfield, assistant to Senator Burris; Sandra Luff, assistant to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; Jason Van Beek, assistant to Senator Thune; and Scott M. Clendaniel, assistant to Senator Brown.

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

Senator LIEBERMAN. Hearing will come to order.

I want to extend a welcome to the witnesses. Thank you very much for appearing before the subcommittee today.

Also, welcome to our colleague Senator Scott Brown from Massachusetts. I believe this is the first time you've been at one of the subcommittee—

Senator BROWN. That's correct.

Senator LIEBERMAN. It's the first subcommittee hearing we've had this session. So, I don't mean to suggest you've been guilty of absenteeism. [Laughter.]

Anyway, it's a pleasure to welcome you.

Senator BROWN. Thank you, Mr. Chairman.

Senator LIEBERMAN. And I look forward to your contribution to our work.

At each of these hearings, I always believe it's important to pause for a moment to acknowledge the service, heroism, and professionalism of the American military—the people who fight our Nation's wars, and do so with such extraordinary valor and effectiveness.

For decades, they have fought with the knowledge that American airmen and aviators control the skies wherever our country sends them. That confidence is, of course, based on the quality of our fighter aircraft, as well, most importantly, as the skill of the men and women who fly those aircraft. So, it's in that context that we convene this session of the Airland Subcommittee to discuss our Nation's military tactical aviation programs.

Every year, we have a responsibility to balance competing demands for resources to support our military. The decisions we make in the face of these demands will help to determine whether future generations of soldiers, sailors, airmen, and marines will also know that their brothers and sisters in arms control the skies.

To help inform our committee's decisions, we have an extraordinary group of witnesses today: Lieutenant General Mark Shackelford, military deputy to assistant Secretary of the Air Force for Acquisition; Major General Johnny Weida, assistant Deputy Chief of Staff of the Air Force for Operations, Plans, and Requirements; Vice Admiral David Architzel, Principal Deputy to the assistant Secretary of the Navy for Research, Development, and Acquisition; Lieutenant General George Trautman, Deputy Commandant of the Marine Corps for Aviation; Rear Admiral David Philman, Director for Air Warfare in the Office of the Chief of Navy Operations—Naval Operations.

I'm happy to see General Shackelford, General Trautman, and Admiral Architzel again. They are recidivists before this committee, but we always like to see them.

And welcome General Weida and Admiral Philman, for their first appearance before the committee.

The most important issue before us is the recently announced cost, growth, and schedule delays for the Joint Strike Fighter Program, which, as you know, has breached a critical Nunn-McCurdy baseline, which is to say that program acquisition unit cost and average procurement unit cost have both increased more than 50 percent above the original estimate.

I know that our witnesses know well what this means, because the JSF is the cornerstone of technical aviation modernization for each of our services. Excessive cost growth in this program is bound to hurt American air power in the years ahead.

We know that the Department of Navy, for instance, faces large gaps between the forces that the Chief of Naval Operations has said he needs and the forces that will be available to his succes-

sors. Two years ago, the Department of the Navy estimated that we would face a TACAIR shortfall in 2017 that could be as high as 125 of the fighters needed to outfit our 10 aircraft carrier airwings, and 3 Marine Corps airwings.

Last year, the Navy estimated that the maximum shortfall could be nearly twice that large; almost 250 aircraft. This year, the estimate is that, absent certain actions by the Department, the shortfalls could reach 267 aircraft. Those are big numbers.

However, the Navy believes that by taking certain actions that we'll discuss this morning, such as reducing squadron size, conducting service-life extensions on some aircraft, and reducing amount of time that aircrafts spend in the depots, they could reduce the gap to roughly 150 aircraft.

I'm grateful that the Department is trying to manage its shortfall, and I look forward to hearing more about these efforts this morning, but frankly, I'm not satisfied that the steps taken are sufficient.

The Air Force faces similar challenges. In 2008, the Air Force projected a potential shortfall of Air Force tactical fighters in excess of 800 aircraft on around 2025. Last year, the Air Force proposed to retire roughly 250 aircraft earlier than planned, to achieve operating savings that would be invested in other areas. And all of this amounts to what our witnesses will describe this morning as, and I quote, "increased short- to mid-term warfighting risk," end quote.

Congress recently received a report to help quantify the nature of that risk, and I hope that our witnesses will discuss that with us today in greater detail. Of course, I also hope that the witnesses will describe the steps the Air Force is taking to make sure that cost growth in the JSF program does not prevent the service from addressing this shortfall and achieving its modernization goals.

These questions are all subject to pending decisions regarding force structure requirements for the Navy and Marine Corps and Air Force tactical aviation programs. I must say that, though the Quadrennial Defense Review was supposed to evaluate fighter requirements and capabilities, it didn't reach any firm conclusions on tactical aviation force structure requirements. So, we're left to speculate about whether the Department will be recommending changes in requirements at some time in the months and years ahead. If the Department does propose significant changes, particularly those that redefine requirements so as to explain away force structure gaps, our subcommittee, naturally, will expect to receive the analysis behind those changes, and will exercise our own responsibility to review them carefully.

So, this is an unhappy story that repeats itself about our really extraordinary aircraft program, the Joint Strike Fighter, which is that it's coming in a lot more expensive and later than any of us hoped. And I look forward to discussing, with this very excellent group of witnesses, how we're going to react to those realities.

Thank you very much.
Senator Thune.

STATEMENT OF SENATOR JOHN THUNE

Senator THUNE. Thank you, Mr. Chairman.

I want to thank you for holding this important hearing, and also thank our witnesses for their attendance today, as well as, of course, for their selfless service to our Nation.

On the occasion of today's discussion on combat tactical aviation, let me first take a moment to convey my condolences to the family of the three servicemen and one civilian who were killed and all those who were injured during the crash of the Air Force CV-22 Osprey tiltrotor aircraft last Thursday in southern Afghanistan. And I would appreciate any update that our Air Force witnesses can provide on its investigation of that casualty.

There can be no doubt that, among the entire defense enterprise, combat tactical aviation presents some of the most significant challenges for all of the services. Perhaps chief among those challenges are gaps in fighter capability and strike fighter capability that the Air Force and the Department of the Navy, respectively, are seeing in the intermediate term.

Important elements of those services' ability to fill those capability gaps are their efforts to hedge against further slips in schedule and growth and cost in the Joint Strike Fighter Program by, among other things, extending the service life of their legacy tactical fleets. So, I'd like an update on those efforts, as well.

And, in that context, the need for the Department of Defense and the prime contractor to execute the Department's plan to restructure the JSF Program cannot be overstated. The next few months will be very telling for the program. That's because, within that period of time, key milestones must be met, including achieving first flight of the Navy's carrier variant no later than May, delivering Block 1 software to the flight test aircraft, beginning flight training at Eglin Air Force Base, and completing 400 test flights by the end of the year.

By midsummer, the Department's independent cost estimator will have provided a new cost estimate for the program. From our witnesses today, I would like to hear about any concerns that they may have about the program's ability to execute the restructured plan on time and at cost.

While we're here to discuss combat tactical aviation, I would also like to engage the witnesses briefly on the long-range bomber. From the Department of Defense's examination of the requirements supporting the long-range bomber, the Department appears interested in fielding a, quote, "family of systems," end quote, each designed to conduct a specific type of mission originally envisioned for a new deep-penetrating bomber.

With the recently completed Nuclear Posture Review and the recently signed Strategic Arms Reduction Treaty, I would like today's witnesses to describe what role a next-generation bomber will play in the Air Force's overall strategy for developing long-range strike capability.

Thank you, Mr. Chairman.

And again, look forward to hearing from our witnesses.

[The prepared statement of Senator Thune follows:]

[SUBCOMMITTEE INSERT]

Senator LIEBERMAN. Thank you very much, Senator Thune. I look forward to working with you again this year, as we have in the past, in a real partnership, which obviously goes beyond party.

Admiral Architzel, I think seniority, which, of course, I'm a great believer in, suggests that we call on you first.

STATEMENT OF VADM DAVID ARCHITZEL, USN, PRINCIPAL DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE NAVY (RESEARCH, DEVELOPMENT, AND ACQUISITION); ACCOMPANIED BY LT GEN GEORGE J. TRAUTMAN III, USMC, DEPUTY COMMANDANT FOR AVIATION, U.S. MARINE CORPS, AND RADM DAVID L. PHILMAN, USN, DIRECTOR, AIR WARFARE, OFFICE OF THE CHIEF OF NAVAL OPERATIONS

Admiral ARCHITZEL. Thank you, Mr. Chairman.

Chairman Lieberman and Senator Thune, distinguished members of the subcommittee, it's an honor to appear before you today to discuss the Department of the Navy's aviation procurement programs. Joining me today are Lieutenant General George Trautman, Deputy Commandant for Marine Corps Aviation, and Rear Admiral David Philman, Navy's director for Air Warfare.

With permission of the committee, I propose to keep my opening remarks brief and submit a combined statement for the record.

Senator LIEBERMAN. Without objection.

Admiral ARCHITZEL. Thank you, sir.

The Department of the Navy's fiscal year 2011 budget requests funding to procure 206 aircraft: 103 fixed-wing, 100 rotary, and 3 unmanned air vehicles. Aviation programs represent the Department's greatest warfare investment. And this year's programs continue recent trends, which has steadily increased our aviation procurement.

In formulating our investment strategy, we are mindful to balance cost, schedule, and performance and risk, to ensure our ability to meet the warfighters' needs, both today and in the future.

Specifically, we are leveraging stable procurement in rotary wing programs with continued procurement of the H-60 Sierras and Romeos, H-1 helicopters, and MV-22 Ospreys. We're establishing a strong technical foundation and putting in place the tools to control costs for the P-8A Maritime Patrol Aircraft, E2D advanced Hawkeye, and the CH-53K Heavy Lift replacement programs. We're investing in next-generation technologies and opportunities that come from unmanned aircraft systems.

Our commitment to the JSF Program is unequivocal. Now, within the framework of the restructured program, it's essential that we delivery the cost and schedule performance that matches our commitment to the program. And while we are procuring the F/A-18 E, F, and G series production to include pursuing a multiyear procurement for 124 aircraft in fiscal year 2010 through 2013, we do so with an absolute commitment to the continuing development and ramping-up procurement of the F-35 Joint Strike Fighter.

The Department has long recognized that to affordably meet our requirements also relies upon our ability to manage the service life of our aviation fleet. As an example, the P-3's sustainment—with Congress's help, we were able to ensure that those aging aircraft are able to meet our operational requirements while we await the arrival of the more capable aircraft.

And similarly, the Department is aggressively managing service life on the legacy F/A-18s through—A-through-D aircraft and AV-

8 Harrier, until their replacement by Joint Strike Fighter. And to this end, we are initiating further steps to mitigate the impacts of delays associated with the restructured JSF Program.

Again, we thank the subcommittee for this opportunity to discuss Navy and Marine Corps aviation programs, and we look forward to your questions.

[The prepared statement of Admiral Architzel follows:]

Senator LIEBERMAN. Thanks very much, Admiral.

And now we'll ask General Mark Shackelford if he would make an opening statement.

STATEMENT OF LT. GEN. MARK D. SHACKELFORD, USAF, MILITARY DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE AIR FORCE FOR ACQUISITION; ACCOMPANIED BY MAJ GEN JOHNNY A. WEIDA, USAF, ASSISTANT DEPUTY OF STAFF FOR OPERATIONS, PLANS, AND REQUIREMENTS, DEPARTMENT OF THE AIR FORCE

General SHACKELFORD. Thank you, sir.

Chairman Lieberman, Ranking Member Thune, and distinguished members of the subcommittee, thank you for calling this hearing and for the opportunity to provide you with an update on Air Force modernization efforts.

I'm joined this morning by Major General Johnny Weida, assistant Deputy Chief of Staff for Airspace and Cyberspace Operations.

Your Air Force is fully engaged in operations across the globe, engaged in overseas contingency operations and providing support to the combatant commanders to enable them to successfully execute their missions.

In the coming year, we will assess how the fiscal year 2011 budget aligns with our standing operational requirements, along with the upcoming needs of the entire Air Force. The 2010 Quadrennial Defense Review set forth four objectives to guide our current actions and future planning: prevail in today's wars; prevent and deter conflict; prepare to defeat adversaries and succeed in a wide range of contingencies; and preserve and enhance the All-Volunteer Force.

Your Air Force is vectoring to meet these objectives, and we are committed to working together to determine the right procurement, sustainment, and retirement strategies to ensure we are prepared for the current fight, as well as posturing for future demands. Dominance of airspace and cyberspace continues to be requisite to the defense of the United States.

Major General Weida and I thank the subcommittee for allowing us to appear before you today, and for your continued support of the Air Force.

I request our combined written statement be submitted for the record.

We look forward to your questions.

[The prepared statement of General Shackelford follows:]

Senator LIEBERMAN. Thanks very much.

Without objection, it will be submitted for the record.

General Trautman, or any of the others, would you like to make an opening statement?

General TRAUTMAN. No, Senator. I'll combine my verbal and written statement with Admiral Architzel's.

Senator LIEBERMAN. Okay, thanks. Same for the—okay.

Let's proceed to questioning.

Let me begin with a sort of an open-ended question and ask, beginning with Admiral Architzel and General Shackelford and anybody else wants to get into this, If somebody was walking in here, maybe sitting in the back of the room, not particularly experienced in the—all the details of military acquisition and development, construction, et cetera, and asked, "What's happening here?"—in other words, "Why is this Joint Strike Fighter, which all of us acknowledge, is an extraordinary program—great plane—why is it now behind schedule and costing so much more than we thought it would cost?" In my days as attorney general of Connecticut, we used to call this "the law in plain language." General Burriss. So, in other words, in the plain language, if you can, explain to us—and through us, to the American people—What's the problem here?

Admiral ARCHITZEL. Senator Lieberman, if I could start.

I would say that the Joint Strike Fighter Program, unlike any we've ever had before, is a tremendously challenging program technically. It is also one that takes on not one aircraft, but three aircraft types. And our ability to—

Senator LIEBERMAN. For each—for the different services.

Admiral ARCHITZEL. Yes, sir.

Senator LIEBERMAN. Right.

Admiral ARCHITZEL. From the F-35A for the Air Force, the F-35B for the Marine Corps STOVL variant, and F-35C, which is the carrier variant for the program.

And in the process of developing these aircraft and the technology that goes with them, there was—the advancement of the program and the technical risks that were encountered and the things were—did not meet the schedule and costs. And that was clearly pointed out with a Joint Assessment Team, which was done in 2008, to show that the program needed additional time and investment to meet goals. And that action was taken in—at the end of 2000—actually, 2009—to fund that estimate. And the continued pressure of slides in the program or not meeting expectation of delivery, additional efforts were taken to understand the reasons. That was associated with the Joint Estimating Team II, an independent management review team, which went into the manufacturing and the ability to ramp up on those production areas, as well as an assessment of the engine—135 engine, which were all conducted in 2009.

At the conclusion of those reviews, Dr. Carter pulled together a group of senior officials, including General Shackelford and myself, to look and analyze, What did we learn from, or what did we gain from those analyses and where we're headed with the program? And clear indication was that we needed—while concurrency in these programs has been there from the beginning, the issue is, Do you have too much concurrency? And when you have too much, Do you need to take and slow that down somewhat to allow you to have the right amount of concurrency?

Senator LIEBERMAN. So, define "concurrency" for this mythical person in the back of the room, who—

Admiral ARCHITZEL. All right, sir. So, we are at a point where we are building aircraft, we are testing aircraft, and we're beginning to field aircraft. There starts to be a concurrency not just in that overlap, but also concurrency between the various models I mentioned, the A, the B—

Senator LIEBERMAN. Right.

Admiral ARCHITZEL.—and the C, as they come through. So, the program is built on a certain level of concurrency, which is healthy.

If you look at that—what concurrency can bring you, it can bring you added learning, it can bring you manufacturing stability, it can bring you a lot of things that go forward. But, with too much concurrency, you need to then take a look and say, “Do we have this right?” And the estimate of the Department was that we needed to take an additional 13 months in the development phase of the program. We needed to put additional funding in that program, which is about \$2.8 billion to finish that effort. We also took measures that we wanted to come through that period, and we needed additional test assets that weren't in the plans, so we added an additional carrier variant. We took three additional airplanes from the limited LRIP production series, to bring that so we could have additional test assets. We also added, as I mentioned—revised the ramp to have the ramp which was in line with the independent management review team's recommendation, which is the ramp that we have today in our proposal.

Senator LIEBERMAN. Excuse me, a second.

Let me go back to concurrency, because part of the appeal of the program, obviously, was that this was a Joint Strike Fighter, that this was going to be a—essentially a single plane model. Obviously, there'd be some variants there, but that part of the appeal of it was that there'd be a lot of overlap, and in that—“overlap” is not the right word; maybe it is “concurrency”—between the planes for the different services, and so we'd be saving money in a host of different ways, and hopefully achieving a speedier production. But that—I think—am I hearing you saying that that—that's—part of the problem is that that didn't work out and that there were unique needs of the various services that are part of the reason why this program is now behind?

Admiral ARCHITZEL. I think that concurrency, from the beginning—in order for this program to work effectively, some concurrency had to be built into the program.

Senator LIEBERMAN. Right.

Admiral ARCHITZEL. It's based on that. There's an absolute need. In order for the manufacturer to produce the fifth-gen aircraft we need, we have to have some concurrency just to get the learning and the ramp we would need to produce this in an economical fashion. And I can let General Shackelford also—I don't want to take the whole thing. But, a certain amount of that, again, is healthy and will get us where we want to go. It's when you end up in a situation with too much, that you need to—basically that's the restructuring will be done—the program, I believe, is done with an eye towards slowing 16 months in the development phase, and we will then have the ability, with the added test assets I mentioned, and with the funding, to get the program back on track with the right level of challenge to it and with the confidence that the—both

the contractor and we can train and be able to support needs as we go forward.

General Shackelford?

Senator LIEBERMAN. General, let me ask this question. As you look back, did we underestimate at the beginning? At worst, were we misled or were we misleading ourselves to think that we could turn this plane out more quickly and more—and less expensively than we're getting it now?

General SHACKELFORD. Mr. Chairman, thank you for asking that. DOD acquisition is much about setting expectations. In 2001, when we established the cost baseline for the development program, we had a different set of circumstances than we do now. But, consider that cost estimating, in spite of it being a fairly mature process that we use within the Department, leaves a great deal of potential to make errors in the estimate. And the process that we follow in DOD acquisition sets an expectation with that initial independent cost estimate, if you will, that we're measured against, that results now in the Nunn-McCurdy breach, as you have observed.

I don't think this is a matter of misleading.

Senator LIEBERMAN. Right.

General SHACKELFORD. I think our cost estimating community does the best job that they can do, with the tools that they have and the people they have, to assess what might be the future of a program, when, in reality, they're looking at, in this case, more than a decade out into the future, and judging what reality might be at that time.

A year ago, when I was here testifying before this subcommittee, what I told you was that over the next year we would find out a great deal more about the assumptions that go into, for instance, the cost estimate.

Senator LIEBERMAN. Yup.

General SHACKELFORD. At that time, we were looking forward to having virtually all of the flight-test aircraft delivered during calendar year 2009. That didn't happen. Why might that not have happened? These flight-test aircraft, unlike those that are often built into legacy aircraft programs, were being built on the production line, the same production line that is turning out the low-rate initial production aircraft today. That transition, for a contractor, is a significant event, in terms of changing focus from development into production, and facilitizing that production line. And it come down to things like efficiency on the production line, the provision of the parts to go into the aircraft as you go from fabrication into assembly and then final assembly. And to the extent that you have changes in the design—and that these would be small changes—this is some component that doesn't fit, for instance, as they expected it to fit—that results in a certain amount of churn that now reflects back on incomplete work that now needs to be fixed later in the production line. The result of all of that—and there was a great deal of change traffic a year ago—is, that production line is very unstable at that point, and its predictability is not as sound as we would like it to be. And the result of that is late delivery of aircraft, which, in this particular year—which would have been the year to start the flight test program, have the flight test aircraft as productive test assets—to verify such assumptions that go

into a cost estimate as numbers of effective sorties per month, number of effective test points per sortie, how much progress we could make in the developmental test program—that pretty much got stiff-armed by a year.

Senator LIEBERMAN. Right.

General SHACKELFORD. So, we're in the same situation now, where we expect to get all of those flight-test aircraft delivered this year. But, we have found, through the production of the flight-test aircraft, and then to the initial—low-rate initial production aircraft, stabilization and change traffic, a higher rate of available parts, less out-of-station work—in other words, that line is starting to mature. It will take a couple of lots of LRIP to catch up.

But, at this point, we've pretty much turned the corner on that. Now, we just need to get those aircraft active flyers, and that will then help us understand whether the assumptions that we have put in to the flight-test schedule, which is largely what amounts to the cost estimate for engineering and manufacturing and development, to see how valid that's going to be.

Senator LIEBERMAN. Okay, thank you. We'll continue the discussion. My time is up.

Senator Thune.

Senator THUNE. Thank you, Mr. Chairman.

Admiral Architzel and General Shackelford, in its most recent selected acquisition report on the JFS Program, the Department of Defense warned Congress that the overall costs for buying the JSF aircraft could increase, yet again, after a new independent cost estimate comes out in the summer. The magnitude of that revised cost estimate could raise basic questions about the Department's plans for, and the commitment of the program's international partners to, the program, at least as it's currently envisioned.

Does either the Department of the Navy or the Air Force have a fallback plan if schedule slips and cost growth continues in the Joint Striker—Joint Strike Fighter Program? And if so, what are they?

Admiral ARCHITZEL. Senator Thune, to the——

Senator LIEBERMAN. Admiral, could you pull the mic a little close to you? Same for you, General.

Admiral ARCHITZEL. That better?

Senator LIEBERMAN. Yes.

Admiral ARCHITZEL. Okay.

The question of—the Department has taken extraordinary measures now to look in detail at the Joint Strike Fighter Program, and with the restructuring of that program, believe—we firmly believe that we can deliver on the program, avoiding future cost and schedule impacts. That is not taken lightly—was not taken lightly, moving forward, mentioning all the things General Shackelford has also mentioned, but the idea of revising the ramp and then holding to the testing that we need to get done, and also resourcing the tests that has to happen to go forward. I believe with the maturing of the product line, as mentioned, and the moving forward, we will see ourselves begin to recapture the progress we need to see on the JSF Program.

In terms of alternatives, what we have to look for and be mindful of is as—we do have to maintain a strike fighter base. And so, that

gets into our maintaining of our legacy fleet of aircraft, as you well—as well as where we go from there. So, that may be something we want to come back and—come back to and I’ll—and address how we manage it. Because, essentially this is a twofold effort, if you will; it’s managing of the fleet aircraft we have today, and it’s about also ensuring we do everything we can to bring the Joint Strike Fighter on in the numbers we need, which is to recapitalize our fleet.

We—at the end of the day, sir, we absolutely need requirements brought by the fifth generation and the JSF. And so, we are committed to that, as we go forward.

General Shackelford?

General SHACKELFORD. Senator, likewise, the Air Force is committed to the F-35 as the fifth-generation solution for recapitalizing our fighter force structure.

Senator BURRIS. Could you speak up a little bit, General? It’s hard to hear you.

VOICE. Yes, just move the mic.

General SHACKELFORD. Yes, sir.

VOICE. There we go.

General SHACKELFORD. Better?

Senator BURRIS. That’s better. Thank you.

General SHACKELFORD. The Air Force, likewise, is committed to the Joint Strike Fighter as being our solution for recapitalization of our fighter force structure. As such, we are putting the proper pressure, in terms of bringing that program along in as successful a manner as we can, such that we can build a confidence to get the production ramp rate up to something that will flow those aircraft into the inventory as quickly as we’re able to.

Regarding our legacy systems, we’re primarily modernizing those aircraft—these would be A-10s, F-15s, F-15Es, and F-16s—modernizing those with avionics. We are putting new wings on a large number of the A-10—that’s a structural replacement; likewise, structural repairs on the F-16 fleet, to ensure it can meet its 8,000-hour service life. But, in general, providing state-of-the-art avionics capability with weapons capability to match is how we are approaching the legacy fleet. But, we’re focused on that fifth-generation fleet.

Senator THUNE. Well, you touched on it, I guess, maybe a little bit, but I wanted to follow up on something that the Air Force Chief of Staff, General Schwartz, recently confirmed, and that is that the Air Force has begun stress tests on the fleets of—the fleet of F-16 Falcons to help determine how to keep several hundred of the jets airworthy through the end of the decade, hedge against delays in the delivery of the JSFs. Can you shed some light on that, and perhaps—maybe give us some additional information on that initiative?

General SHACKELFORD. Yes, sir. We are doing a structural analysis on the F-16, primarily looking at the Block 40 through 52—the newer F-16s—to extend those as far as we can. Those are also the aircraft that have received what’s called the “Common Configuration Implementation Program” that upgrades displays, puts in Link 16 Helmet-Mounted Cueing System, and whatnot, and basi-

cally communalizes—if I can create a word—the avionics architecture across those blocks of aircraft.

The F-16, in particular, is susceptible to bulkhead crack issues, typically back landing gear and aft into the engine mounts. That's been an issue with F-16s throughout the life of the fleet. We have a small number of aircraft right now that are in repair to fix what we know to be problems there, as well as into additional inspections to make sure that they're airworthy. But, not anticipating, at this point, an additional major structural upgrade.

Admiral ARCHITZEL. Senator, if could address, from the Strike Fighter's issue there, for the Navy, and the same areas, F-16, for the Air Force, would be—it's essential that we manage the fleet of aircraft we have today, that we get the most utilization we can out of them, as we begin to ramp up and bring forward the JSF. And that program takes on the call of not just managing the fleet of aircraft, but also extending the life of the legacy aircraft we have today. In managing the fleet of aircraft, we go about looking at things we can do to operationally—how we can affect that force. And that would be things like the Navy's—the Navy and Marine Corps—both services are committed to TACAIR integration, to share that burden across both services, as—where we can, to things like productive ratios of aircraft, to the beddown plans for the Marine Corps or, in the case of the Navy, in terms of fleet response plan. About accelerating E/F squadron changeovers from legacy Hornets to E/Fs—there's—approximately be five squadrons total; it's—varies between accelerating existing plans to transition to E/F, and also taking attrition birds, which were aircraft bought when the E/Fs were bought for attrition, which we would transition squadrons earlier to make that—build that capability in those areas.

It's also about actively managing, by bureau number, the fatigue life of every aircraft we have—legacy Hornet. And we have the ability to do that, and we're doing that now, as well as managing the flight hours for each one of those aircraft.

We also have significant work underway to increase our depot efficiencies to get things through, like planned maintenance availabilities or high flight-hour inspections, so that we can return those aircraft that we do have in the pipeline, if you will—which is maintenance or upkeep—back to the fleet and taskable assets.

So, that is the managing-the-fleet-of-aircraft side. And then, the extending-the-service-life, we have legacy Hornets, a 6,000-hour jet, which, when we brought it on, we realized—from the design of the 6,000, we actually knew about how we flew it, we could actually, with inspections and with knowing how we flew the aircraft, get that out to 8,000 hours. From 8,000 hours, we're looking now at a series of aircraft to see if we can do what's called “high flight-hour inspection,” which would give us a—essentially the, if you will, 600 additional hours on the airplane. And that allowed us to take what was a Strike Fighter shortfall, as mentioned—the numbers mentioned before—we—on our view, with the levers I just mentioned, and with some of those things I just talked about, in terms of high flight-hour inspections, we believe we could get to around 177 shortfall in the 2017–2018 timeframe.

We could then apply additional resources to look how we would further mitigate that shortfall. One of those big mitigators would be to actually do a service-life extension, or a SLEP, of some of—some limited number of legacy Hornets. That range would be somewhere between 150 and 280; it would depend on what we have. And that would allow us to continue to draw down that shortfall, should we need to do it.

These steps are taken across the board by the Navy and the Marine Corps. The commitment is real. We're going to manage this inventory as we go forward, keeping in mind we want absolutely, again, to have the ramp sustainment on the JSF so that we can bring those planes on and then not have to have further reliance on legacy assets as we go forward.

One final piece I'll mention on the E/F is, we are working diligently under our Service Life Assessment Program to see about taking the E/F to 9,000 hours. That's a funded program for the assessment of that. And we believe that's a very doable objective, as well.

Senator THUNE. Thank you.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thank you, Senator Thune.

Let me just say, briefly, that Senator Thune's question is an important one. And your answers are important, too. There has been broad support for the Joint Strike Fighter Program here in Congress, but the tactical air shortfalls that the services are projecting are very unsettling. And so, as you've acknowledged, yourself, in the moves that you're making—and I think you'll hear this much more from Congress, as you already have—there will be, certainly, a pressure to sustain the fourth generation, and improve it—of aircraft—because the fifth generation is coming on more slowly and more expensively than we hoped for. I understand you're both committed, and the services are committed, to the fifth generation, but based on the reality that we're facing now, of time delays and increased cost and the—therefore, the very unsettling TACAIR shortfall, which is—does represent warfighting risk, then I think we—you—we've got to work with you to do a combination of fourth and fifth generation to keep us where we want to be.

I'm going to just leave it at that for now, and I'll come back to it.

Senator Burriss, you're next.

Thank you.

Senator BURRIS. Thank you, Mr. Chairman.

And I'm—I'd like to welcome our distinguished panel. Pleased with the leadership that you've shown over the past years, and want to continue to support you in your continued leadership for our great country.

Gentlemen, I'm a strong supporter of the Federal contract competition; and, as such, I support continued funding of the F-136 engine last year. And this is a fixed-price contract with long-term savings for the Department of Defense and the American taxpayers, not to mention its positive effect in tactical aircraft readiness. What I want to see are savings for the American taxpayers, and competition is the only way to effectively garner such savings.

When competitions—when contractors compete, the taxpayers win. So, we want to make sure that that's a factor.

So, to the panel, How are you phasing in the support of infrastructure as a new JSF Program without the detriment to the legacy aircraft that it will replace?

Admiral, you want to take a shot first, and then the General?

Admiral ARCHITZEL. Senator, with the reference to the alternate engine, the Secretary has been unequivocal on the position with respect to the alternate engine. Department of Navy stands behind—in full support of that position on not having the—not having the requirement for the alternate engine. Spending more dollars today on procurement on a second engine for JSF is—could—is unnecessary and would divert precious funds, as we've already talked about, from pressing Department of Defense needs.

Since 2007, the Department of Defense has recommended termination of the alternate engine program, and if we were to continue that program, estimates are, it would require approximately 2.9 billion to—up to 2017—2.5 billion in the next 5 years. That also would require us to get to the issue—while, in general, the Navy—the Department of the Navy favors competition, where appropriate, the question would be whether we would—the offset of the procurement investment required to reach that point where we could compete that—and the estimate would be around 2017, best case, before we could—would there be a payback to the procurement offset, which is significant, at a time when we really need these, as I mentioned, precious procurement dollars?

We also want to emphasize that we need to improve the performance on the 135 engine, and that has been undertaken with the Joint Assessment Team, which got the assurances and came back and reported of—feeling there will be assurances to that effect. So, to your point, understanding the desire for competition, we accept and realize there are points when we want to have competition, as well. But, in this case, we believe that the position is not favorable for us to pursue with a second engine.

General Shackelford?

Senator BURRIS. Yes, General?

General SHACKELFORD. Senator Burris, the Air Force supports the Department's position on the alternate engine for F-35. Based on the CAPE's analysis, the program itself has rated its breakeven point, in terms of tipping the scale to go past what's remaining as what we've invested, at about 2.9 billion on either side. The assumptions that go into cost reductions based on competition have changed over time; the change from 2014 to 2017, in terms of when that engine might become competitive, assumptions on the engine entering the production with basically the same cost as the F-135, and the same learning curve, are both questionable assumptions.

We believe, as we look out into the future, that the market for two engines will exist, really, just in the Air Force. We would be the only recipient of F-35s that would actually have both engines. Smaller fleets would drive single-engine configurations for both our foreign partners, as well as, we believe, the Navy and Marine Corps. The Air Force, buying the bulk of the airplanes, would wind up with, potentially, both, which drive additional support costs, training costs, spares costs, and whatnot. So we're—so, our assess-

ment is that, given the priorities for dollars in today's budget, that we're better off spending the money, from an F-35-engine perspective, to continue to refine the F-135 engine, and press on with that as the single engine for the F-35 fleet.

Senator BURRIS. Now, gentlemen, the alternative plans to compensate for delays in the JSF Program has been—has been added—has had—been an added cost. And what is the projected added cost of alternative plans to compensate for the delays in the—the 24-month delay that we're talking about now? There's an added cost to it.

General SHACKELFORD. Senator, are you referring to the added cost in the F-35 program itself?

Senator BURRIS. That's correct.

General SHACKELFORD. Yes, sir. By flattening the ramp, which we did as part of the restructure of the program, we have taken dollars—\$2.8 billion—out of the production funding inside the program's funding line and placed that onto the development program. So, the dollars themselves are neutral, in terms of affecting other programs. They only come out of the F-35 program, and they are a trade, if you will, between production dollars and development dollars.

Senator BURRIS. So, there are no added dollars. You're just switching dollars.

General SHACKELFORD. This is switching dollars in the projected funding line of the F-35 program, yes, sir.

Senator BURRIS. Will there be a second round, Mr. Chairman?

Senator LIEBERMAN. I expect there will, Senator Burriss.

Senator BURRIS. Thank you very much.

Senator LIEBERMAN. Thank you.

Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

I appreciate—as I mentioned, I had to step out for a quick meeting, but I appreciate the opportunity to stay in order and continue on with the questioning.

Would the F-135—I know it's over budget about 3 billion, and I believe, obviously, it's behind schedule. In looking at the F-136 program, it's on budget and it's on time and it's—there's a potential to offer a fixed-price—I know I'm new here, but even before I got here, I was concerned—being in the military, I'm concerned about pricing and costs. How do I justify, to the people back home in Massachusetts, the fact that we're supporting a program that's over budget and not on time, versus a plan that's a local plan, obviously, a local engine that's, in fact—needs a billion dollars to be finished, is on budget, and offers a fixed price? How do I justify supporting one program over the other? What do I tell them?

Admiral ARCHITZEL. Senator Thune, the—

Senator BROWN. Senator Brown.

Admiral ARCHITZEL. I'm sorry, sir. Senator Brown. Excuse me.

The—to your first point about the 135 engine, the—part of the restructuring of the program done was to look at the 135 with a Joint Assessment Team that went in and—made up of senior experts, to go and look at the progress on that manufacturer to produce that engine and could they, in fact, achieve stated cost-re-

duction goals? The report back from that Joint Assessment Team was that they could achieve that. First point.

Senator BROWN. When do they think that'll happen?

Admiral ARCHITZEL. Over the course of—we progress forward on the 135 engine development and procurement service. So, the—there's set goals for that aircraft to—the engine to achieve, in terms of learning curve and coming down on cost per engine, and they're—those goals were assessed as achievable, by the Joint Assessment Team that went up and evaluated that.

In terms of a second engine procurement, again it is approximately 3 to 4 years behind where the 135 is today. The additional \$2.9 billion over the span from now until 2017 is a—again, a significant amount of money—2.5 billion in the next 5 years, which could be invested in other investment procurement or other areas needed to be funded.

Senator BROWN. But, you're using the original baseline numbers, correct?

Admiral ARCHITZEL. Yes, sir, those are the numbers that were reported through—from the CAPE to us on the numbers, and also from the estimates from the engine.

Senator BROWN. I've always been a strong believer that competition is good. And when you're dealing with such a program with so many dollars, you know, my concern, with the overruns, the delays, that it's always good to have competition to keep people focused and moving in the proper direction.

And so, I just—for the record, Mr. Chairman—I want to state that, you know, I do have those concerns, and I'm doing everything and anything I can to, you know, find out more and more information as to why there's delays and why competition isn't good. I have to be honest with you, I haven't found a good reason yet.

I'd like to shift gears, if I may, regarding the C-53 Echos and—the CH-53 Echos and Deltas. As you know, they've flown beyond their programming date since 2001, due to their continued deployments. And, that said, the Heavy Lift Replacement Program ran into scheduling delays in 2009. If you could just give us an update as to whether you're confident that the Kilo—53 Kilo—is back on track and will it be capable of replacing the legacy aircraft, starting in 2018.

General TRAUTMAN. Well, thank you, Senator Brown.

You're exactly accurate with regard to the aged CH-53 Delta, which is now into its fourth decade and still going head-to-tail into Afghanistan, and previously into Iraq. We've been getting marvelous service out of that particular airplane. CH-53 Echo is newer airplane, as you know. That has service life that will enable us to bridge to the CH-53 Kilo. We need the Kilo. The Kilo is going to be a lifter that will carry 27,000 pounds at 110 nautical miles, which really fits into our concepts of operations today, but even more so in the future, as our equipment gets heavier and our need for standoff and deep operations increases in the next decade.

The 53 Kilo program is technically sound. We've worked through some challenges over the past 2 years, with regard to some center-of-gravity issues that we had initially, some staff management issues that we had initially, and I'm pleased to say that, in this budget submit, the program is adequately funded to move forward

at a pace that makes us confident that we can bridge to that airplane towards the end of the next decade.

Senator BROWN. Thank you.

Mr. Chairman, do I have time for one more question?

Senator LIEBERMAN. Yes, Senator Brown. The timekeeper will inform you—

Senator BROWN. Oh, okay.

Senator LIEBERMAN.—when your time is up.

Senator BROWN. Thank you.

Senator LIEBERMAN. It's not quite the hook—

Senator BROWN. Okay.

Senator LIEBERMAN.—but, it's—

Senator BROWN. Appreciate it.

As you know, the Hueys are currently being replaced by the Yankees, and the Whiskey Cobras will soon give way to the Zulu—AH-1 Zulu. How is production and fielding of the Yankee coming along, and where do we stand with the Zulu program? General?

General TRAUTMAN. Well, Senator, the H-1 upgrade program is a poster-child for troubled early years, just like many of our programs are, to include the Joint Strike Fighter. But, I'm pleased to say that we've given birth to an extremely capable airplane in the UH-1 Yankee. We declared initial operational capability of the Yankee in August of 2008. We immediately sent it out in a Marine Expeditionary Unit deployment for 7 months to western Pacific and that detachment did superbly; did so well, in fact, that even before we declared material support date with the Yankee, we deployed a full squadron into Afghanistan in November of 2009. That airplane has made a huge difference in Afghanistan.

As you probably know, the Yankee is far, far more capable than UH-1 November that it replaces. We've used it in a variety of mission sets in Afghanistan. It's the first time we've had the Yankee serving side by side with the MV-22 and, I'll tell you, we're incredibly pleased with the span of capability sets that the Yankee and the MV-22 give to the aviation combat element commander there in Afghanistan.

The good news about Bell is that they've delivered an average of 57 days ahead of schedule for the last 18 airplanes. Their manufacturing and production process has righted itself in sort of a remarkable way over the past 2 years. The quality coming off the line is near perfect. We entered into operational tests in the AH-1 Zulu, which will be the Yankee's partner, 2 weeks ago, and we anticipate—high confidence that they'll finish operational tests and reach a full-rate production decision in the Zulu by the end of this calendar year.

Senator BROWN. Thank you, Mr. Chairman. My time is now up. And if there is a second round, I just had one more final question.

Senator LIEBERMAN. Good.

Senator BROWN. Thank you.

Senator LIEBERMAN. Thank you, Senator Brown.

We'll now go to Senator Begich.

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

I just want to—I have a few questions. I hate to have to keep banging on the 35. But, let me go back, first, to make sure I understand something.

When you said “2.8 billion out of the production will move, then, to the development,” you’re doing two things. Make sure I’m clear on this. One is, you’re reducing down the future production, unless you get additional dollars. Am I right about that?

Admiral ARCHITZEL. I’m sorry—

Senator BEGICH. The question that you answered to Senator Burris—you had talked about how you’re moving production dollars—2.8 billion—and you’re shifting it to development dollars in the same program.

Admiral ARCHITZEL. No, the 2.8 is what it would take to finish the research and development. To develop the engine would be another \$2.9 billion—

Senator BEGICH. Right.

Admiral ARCHITZEL.—over to—now to 2017—

Senator BEGICH. But, you’ve shifted that from—

Admiral ARCHITZEL. No, we—if that—if we were to have to fund those, that money would go there, that would not be able to be put for other Department of Defense—

Senator BEGICH. Right. Admiral Architzel:—you know, needs or, if you will, procurement areas. So, it’s dollars spent on a program that we don’t believe we need.

General SHACKELFORD. Senator, I think you’re after the production dollars moving over to develop—not for the engine, but for, How are we paying for the additional development cost of engineering and manufacturing development.

Senator BEGICH. Right.

General SHACKELFORD. By flattening out the production ramp rate—

Senator BEGICH. Let me make sure, because that’s—you know, I like to keep things very simple. “Flattening the production rate” means—

General SHACKELFORD. The progression of numbers of aircraft that are purchased each year—

Senator BEGICH. Right. Less per year.

General SHACKELFORD. A flatter increase—fewer aircraft, in addition to the previous year. For instance, in—

Senator BEGICH. Let me—

General SHACKELFORD.—last year’s budget was 30—

Senator BEGICH. Right.

General SHACKELFORD.—F-35s. This year is 42. That number would continue to increase on an approximately 1.5-to-1 ratio each year.

Senator BEGICH. But—

Admiral ARCHITZEL. I’m sorry, sir, if I could—Senator, if I could, the—I think we started on—the numbers are about the same, so I think we’re talking—one was about development of the alternate engine and the second was about flattening of the production—

Senator BEGICH. Right.

Admiral ARCHITZEL.—of the Strike Fighter so that we could then use that for additional development costs—SDD phase development costs we have to incur. So, the number happened to be about the same. I was talking—I was addressing the—what it would take to—research and development to continue and finish the development of the 136 engine—

Senator BEGICH. Right.

Admiral ARCHITZEL.—the alternate engine. And this is on the ramp.

Senator BEGICH. I'm on the 35.

Admiral ARCHITZEL. Okay. Thanks.

Senator BEGICH. No problem.

Let me—you know, I remember last meeting—I think it was maybe 6 months ago—when I was in this room and we had a conversation about the F-35, and the presentation—not necessarily all of you folks—but, you know, it was indicated that there was trouble on it—on the costing of it at that point, but not clear. But, let me—one thing I had there which was a very helpful tool—I don't see it here. Maybe it was submitted. I don't see it in your testimony. But, I want to make sure I understand. The main goal is—and correct me if I'm wrong here—the F-35s replace legacy craft over time, but make sure we have capabilities, in essence. Is that a fair statement? I'm trying to keep it simple.

General SHACKELFORD. Yes.

Senator BEGICH. I don't want all the long discussion about it, but that's basically what we're trying to do. But, I have yet to see, in very simple terms now, where you are in schedule—because you're behind—costs more money, which means somewhere, something has given, because, based on what I keep seeing about the deficit, the money ain't there, over the long haul.

The third thing is, I don't see—and I like to see things as very simple, where the facts are in what we have today, what we're going to have tomorrow, what we're going to have next year, the year after that, in capabilities. Do you have such a document you can share with us? I don't want a 40-page report. I want a very simple—it was a very interesting chart. It showed exactly what production was going to be, how much was it going to be tested, when—when things might come online, and then, at the same time, what you're retiring, because that's a big piece of this equation, because you have, built into your budget, savings on retirements of some of the aircraft. You have modernization that's going on. So, how does that fit? And do you have such a chart that shows it over the 5 and 10 years?

Admiral ARCHITZEL. We can certainly show you the production of the 135 as it goes forward.

Senator BEGICH. I want it all together, because it—

Admiral ARCHITZEL. Okay. We could take that and produce that for you, sir. And Senator—

[The information referred to follows:]

Senator BEGICH. Because the 35 is, over time, trying to replace certain types of aircraft, so we have, again, great capabilities, but not diminishing our capabilities. Correct?

Admiral ARCHITZEL. That's correct, sir.

Senator BEGICH. Okay. So, what I've learned in the Armed Services Committee, everything's in silos. What I want to see is the whole show—

Admiral ARCHITZEL. I believe—

Senator BEGICH.—in a very simple document. Because the last document I saw showed, you had already slipped. And I think, Senator Brown pointed out, months, as well as very costly. And so,

what I'm trying to figure out, as we move down the line, How do we keep on the track a very expensive program that's now—and I know there's variations in estimates, but I'm going to use mine—it's doubled in the cost of the—cost per unit. Could go up more. I'd—to be very frank with you, my confidence level—I'm, like, not as new as Senator Brown, but I'm new, and my confidence level on the ability to perform on this aircraft is low, in the cost end. Maybe it will be a great aircraft, when all completed, but it is very expensive in a time we have very little money. So, help me produce, if you can—for me, at least—I don't know if other members want it—but, I just want to see a flowchart—shows, over the next 10 years, or 20, whatever your span is—not the next year, not the next 2—over a long haul. At the end of each year, what are we going to have as capabilities? What's in test? What's being retired? And what does it look like, in costing for that program, which includes the modernization of certain ones, the production of certain ones? Can that be done?

Admiral ARCHITZEL. We can certainly produce that for you, sir—Senator.

Senator BEGICH. Do you not do that now?

Admiral ARCHITZEL. No, we have that. I just would—

Senator BEGICH. Okay.

Admiral ARCHITZEL.—put it all in one document for you, as you mentioned—the flowchart. I'm saying we can produce that—

Senator BEGICH. Okay.

[The information referred to follows:]

Admiral ARCHITZEL.—for you. Will be—

But, the progress on the program, again, to go where we want to be with the Joint Strike Fighter—there is—the restructuring of the program also came with emphasis to the program we want to see or achieve those very goals you're laying out. How do we incentivize the contractor to actually make those goals? There's two things that are also embedded in a restructuring program, which is to take the award fee—we do in the program—a fee that we can—hopefully, we can take, and then incentivize that to goals and attainable things. What do we need to achieve in '10? What do we need to achieve in '11? And if you attain those things, then you will be rewarded for that, and if you're not attaining those, then we would look to what would happen. And I—and that—tying that to also, as I mentioned, as we—every time you have something affecting the 135, we have to be closely coupled, as you said, to what we're doing on the legacy side, to make sure we don't end up aggravating that—our Strike Fighter inventory.

Senator BEGICH. Let me—my time is up. Luckily, she dropped it just in time to give me another question. Let me—

[Laughter.]

Senator BEGICH. I took advantage of that moment.

The—if you could do that on the chart, that would be appropriate.

And then, I guess—the struggle I have, always, with Defense Department is, again, the silo movements. You know, as the F-35 gets developed, what I want to make sure is, when you make that decision that production is delayed, who then makes the decision on the rest of the aircraft to make sure you're, maybe, not retiring

it as quickly, or you're doing something with it? I want to just understand that, because if I don't have that basis, to be very frank with you—the presentations are great—we're going to bang on your head here for another hour, probably; we'll ask lots of tough questions, then we'll all go away. What I like to see is the whole picture, then how those decisions are made, because what I find is, I will spend half of my time in the Senate, because I sit on Armed Services Committee, in these kind of meetings, and then individual meetings with generals about their programs, but they all seem to be not fully linked up, in my opinion. That's my view. Now, maybe in the Pentagon, it's all linked up in some magic box. But, I'll tell you, I don't get that picture, so I'm trying to get that picture, and I need you to help me.

Admiral ARCHITZEL. Senator, we can do that.

And I will just—to have Admiral Philman comment, I think would be helpful at this point. When we're talking about acquisition and delivering on new aircraft, and we're talking about, also, the legacy and the Strike Fighter inventory—the Chief of Naval Operations in his, basically, role to provide and equip the services we have, takes his existing O&M money, if you will, also is budgeting to the fact that we want to maintain those legacies, so that is married directly with—as things happen on the procurement side, they are going to have a direct impact over there. And I'd—and as—I'd like the N88 to comment on that for you, sir.

Admiral PHILMAN. Yes, sir, glad to.

And, Senator, we take a holistic view of the whole Strike Fighter—or, the whole inventory of our aircraft, along with our Marine Corps brethren who serve with us on the aircraft carriers. So, if the F-35, which we are looking forward to, with the—all the capability it brings—will bring to the battle space—you know, advanced sensors, advanced communications and connectivity and the true stealth, to go very deep, early into the fight. We need that. But, to get to—until we get there, we will continue to work with our Es and Fs, and then modernize and sustain our legacy F-18 Hornets. So, we looked at that every day, about what aircraft are being retired, which aircraft can be extended, and how we manage, almost by tail number, exactly—each number aircraft, down to the squadron level—how we can extend the life of those things.

The squadron commanders—it's called the Service Life Management Program, in which the young commanders understand the remaining life on those airplanes, what kind of missions they can fly, and which ones are better suited for other—separate missions.

Give you an example. As a young fighter pilot, you know, I would go out and do high-performance maneuvering as soon as I got into the area. And then we would do some low G or more moderate maneuvering later on. So, as it turns out, we can get the same training if we reverse those things. You know, we do moderate maneuvering when the aircraft's heavy with fuel, and then, as we get later in the flight, we do the more high—more dynamic maneuvering.

So, those kinds of things are looked at across the board, not only inside the Pentagon—the numbers of airplanes that exist, the numbers of airplanes we need to modify through high flight-hour inspections, or potentially SLEP those airplanes, but as well as the

airplanes that we're going to potentially purchase in the future, and what that mix is on the aircraft carrier and on the other places we deploy around the world.

Senator BEGICH. Very good. Thank you.

Thank you, Mr. Chairman, for letting me expand there.

Senator LIEBERMAN. Thanks, Senator Begich.

Senator Chambliss.

Senator CHAMBLISS. Thanks very much, Mr. Chairman.

And, gentlemen, thanks for your service. Thanks for your leadership.

Admiral Architzel, we've heard reports about the F-35, in testing, breaking cables on the carrier. Anything to that? Or what kind of report can you give us on that?

Admiral ARCHITZEL. I'm sorry, sir. The F-35 breaking—

Senator CHAMBLISS. Cables on the carriers.

Admiral ARCHITZEL. Sir, I have no knowledge of that report or anything. We have not begun to do any real testing on the—we're at—where we're at today on the sea variant is confirming the static conditions, if you will, the static design of that airplane, which has gone very well in areas where we've actually uncovered some things. We've—places to restore static margin and fatigue margin have been put in place. That's the recent keel web correction. That has actually been implemented on the CV—CF—sorry—5, and will be actually backfitted into 3. And 3 is actually in, as well, and so, you can actually go and see that modification in place, and it will be, now, production-modified as we go forward. So—

Senator CHAMBLISS. All right. Well, if what I've asked you about is a rumor, and I hope it is, but I'd like to put it to bed. Could you just follow up in writing on that and just do—

Admiral ARCHITZEL. Yes, sir, I will tell you—

Senator CHAMBLISS.—whatever needs to be done—

Admiral ARCHITZEL.—that's definitely a rumor—

Senator CHAMBLISS.—and give me a response on that?

Admiral ARCHITZEL.—but I will follow up, sir.

[The information referred to follows:]

Admiral PHILMAN. If I could, sir?

Senator CHAMBLISS. Thank you.

Admiral PHILMAN. If I could—Senator, if I could?

Senator CHAMBLISS. Yes, sir.

Admiral PHILMAN. I believe you're referring to the stresses on the keel beam of the aircraft, and not just—not the arrested landing, but the catapult. And so, that was determined to—through modeling, that the transfer of stresses from the catapult stroke on the aircraft carrier would potentially cause some cracking in the main beam of the aircraft. That was determined and learned very early. And just one aircraft is delivered, and that's actually a test model. So, that fix has been already implemented. So, any further aircraft that will be delivered will have that repair already installed, sir.

Senator CHAMBLISS. Okay. Thank you.

Admiral ARCHITZEL. Those are the kinds of things, Senator, if I could, that we are finding when you have keel web structure we're talking about. There are other examples that we found in our static testing, which has gone forward very well, on all three variants, by

the way, and—but, it's the kind of thing you'd expect to find now, and then be able to make adjustments to it.

Senator CHAMBLISS. Okay.

Admiral, I want to go back to your numbers on this gap. And let's talk about how we're going to fill that. I'm concerned about two issues there. Number one, obviously, is the gap itself. And my understanding is, 2008 you—the Navy projected an optimistic shortfall of 125 Strike Fighters by 2017. But, now, subsequent reports project that that may grow to 243 by 2018—129 for the Navy, 114 for the Marine Corps. That, coupled with the fact that today the Navy, particularly from the very important carrier-based operations, have no first-day capability in any theater where the enemy has sophisticated SAMs. And we know that if we send those airplanes in there, we're going to have significant loss. So, if you will, address that shortfall for me; tell me how you're going to fill that shortfall.

Admiral ARCHITZEL. Senator Chambliss, the Navy had looked at their shortfall numbers, and had reached the numbers you had—you articulated. As we came into the most recent, which was the restructured ramp of the JSF, that put the number back up on the order of what you had there for 243, or that number—thereabouts, that number.

I mentioned all the levers, if you will, that we're looking at doing across the Navy and Marine Corps to bring that number—to manage that inventory. And we're committed to managing that inventory. Again, things like bringing on additional E/F squadrons, productive ratios, changing primary mission authorization on some squadrons that are expeditionary, or for EDP, and also looking how we manage, as Admiral Philman said, bureau number by bureau number, both in terms of fatigue life, as well as flying hours, to know we can manage that inventory. And we're also looking to do things like high flight-hour inspections, which will give us additional hours on the legacy Hornets we have.

But, ultimately, when it comes down to it, we can inspect our way so far—and also, by the way, depot-level efficiencies—we can go so far, to a point where we believe we can get to about 177. Then we're going to need to do some service-life extension programs, which is a POM-12 issue fund we'll come forward with, to know how many of those aircraft we would have to SLEP to get them to 10,000 hours. To bring our number—manageable number down in the peak years you mentioned, of '17 to '18, of about 100 or less of an inventory management. Even with that number, we believe we can reduce that number some more by further efficiencies, whether it be in the depot or other areas we can comment to.

And I would ask General Trautman or Admiral Philman to comment.

General TRAUTMAN. Senator—

Senator CHAMBLISS. Let me—

General TRAUTMAN. Yes, sir.

Senator CHAMBLISS.—before you comment, General—you haven't mentioned filling it with additional F/A-18s. Is there any proposal to do that?

And, General, please.

General TRAUTMAN. Senator, I think the current plan is to buy another 124 F-18 E/Fs, which will buy out the POR of 515. It's important to understand how many airplanes we're talking about here: 635 legacy Hornets, 515 E/Fs, 680 JSFs, 150 Aviates. The Nation has spent a lot of money on TACAIR for the Department of the Navy. I think it's incumbent upon us to manage these assets to the best of our ability, and that's what you're hearing when you're hearing us talk about managing these assets. We're trying to do it in a way that gets us to the vitally-needed fifth-generation Strike Fighter, the Joint Strike Fighter, while also taking care of the key issues that face us in the warfighting venues that we may encounter over the next decade.

The reason that these numbers fluctuate so much, sir, is because they're—the model is very susceptible to the kinds of assumptions that you put in the front end. You can manipulate the front end almost any way that you want to manipulate it in order to have the number come out to any specific number that you want. It's almost impossible, frankly, to predict, 8 years from now, specifically, how many shortfall airplanes we're going to have, even if the ramp on JSFs stay precisely as we think it's going to occur today, and that's doubtful. The—Lockheed's been incentivized, frankly, to beat the ramp that's laid out now, and they think that they can give us more tails between now and '18.

I'll just give you one more example and then I'll close. In fiscal year09, the model predicted we would attrite 15 legacy Hornets. We attrited three legacy Hornets. So, right there we made a plus-12 on the kinds of numbers that had come in to you in previous sessions and with the numbers that you talked about. The best that we can do—and believe me, we've spent a lot of time on this over the past several months—the best that we can do is what Admiral Architzel said, which is, in about 2018, we'll have a shortfall of about 100 jets, given the management levers that we intend to apply, and we can take that even lower by finding some depot efficiencies. I'm incredibly confident that if we can keep Joint Strike Fighter on track, the Department of the Navy can manage their TACAIR inventory successfully.

Admiral ARCHITZEL. Senator Chambliss, if I could, one point. The 124 aircraft that General Trautman mentioned, he's—he indicated ENF. Actually, that's a combination of ENF and Growler. And so, that's the G—the electronic attack variant. So, when we had—at the time, we had approximately 89 aircraft in 2009 that we were going to look to continue to finish out with. And we ended up with nine additional E/F, 26 additional E—F/A—18Gs, which is electronic variant. That put our number up to 124, as mentioned, to finish the procurement in 2013, sir.

General TRAUTMAN. But, if I could add, Admiral Architzel is exactly right. I did make an error on the 124, but the POR is 515 Super Hornets, and that's where we're headed.

Admiral ARCHITZEL. That's true.

Senator CHAMBLISS. Yeah. Well, I hope that your optimistic view about the F-35 comes to fruition; but with the problems we've seen to date, and the date keeps slipping—the IOC date keeps slipping—and, General Trautman, I think you've tested your variant on the F-35, and I don't know what kind of confidence you have

in that variant right now, but that—that's probably going to continue to be an issue.

But, what does concern me is that we're talking about spending tax dollars on, really, a fighter that is second or third generation. And I'm not sure that's the best expenditure of our money. So, as we move forward with this, I hope, General, you're—Admiral, you're correct that that optimistic view of the F-35 ramp production is going to be there for us.

Senator LIEBERMAN. Thank you, Senator Chambliss.

Senator HAGAN.

Senator HAGAN. Thank you, Mr. Chairman.

I too, want to reiterate my thanks for your service and your leadership. Thank you very much.

Recently, the Air Force announced plans to transfer 12 C-130 aircraft from various International Guard units to an Air Force Reserve unit in Arkansas. And this allocation, I understand, is intended to avoid the cost of purchasing new aircraft, while replacing the older aircraft in an aging fleet. However, the plan was not developed in conjunction with the adjutant Generals, and its effect is, I think, to commandeer the aircraft from the Air National Guard without consulting, also, the effected State Governors.

General Shackelford, has the Air Force taken the Air National Guard's homeland security roles and responsibilities into account as part of this decision to reallocate the Air Guard assets? And does the Air Force have a modernization plan that does not sacrifice readiness in one component of the total force in order to achieve readiness in another unit?

General SHACKELFORD. Senator, if I may, I'd like to defer that to my colleague here.

Senator HAGAN. Sure. Thank you.

General SHACKELFORD. It's right down his lane.

General WEIDA. Senator, thank you for asking that question.

First of all, let me—big to small, the mobility capabilities review study that came out certainly tells us that we have some overmatch in the C-130 fleet.

As to the specific issue that you raise, within a week or so we'll have an Air Force position on where to go forward with that. And so, we're taking that issue very seriously. We have it on board, and, if you will, I'll take that for record and give that to you.

[The information referred to follows:]

Senator HAGAN. North Carolina is obviously one of the States that is affected. I'm not sure I understand what you mean by "overmatch."

General WEIDA. Capability areas that we have today in excess of the requirement for our warfighting needs.

And, if I could follow on, virtually everything we do in the Department, we try and take a total-force perspective—Active, Guard, and Reserve, and, for that matter, our civilian. And in the Air Force, we have a process called our Total Force Initiative—

Senator HAGAN. Right.

General WEIDA.—process, of which we have 142, currently, that our Chief of Staff tracks. And so, we'll give you a specific answer on this issue. And we're—matter of fact, the last couple of days, have talked about that in the Department.

Senator HAGAN. I think several of us have sent letters, but it's certainly something that's of concern, I'm sure, to the States that are affected by this.

General WEIDA. I understand, ma'am.

Senator HAGAN. And the Department of Defense has devoted significant resources, I know, to the development of the fifth-generation strike aircraft that are intended to operate in environments with significant and advanced air defense systems. However, most of the flight hours of—during Operation Iraqi Freedom and Enduring Freedom have been in environments without those kinds of anti-aircraft capabilities, where the performance characteristics of the fifth-generation fighter aircraft aren't necessarily required. Are any of the Department's unmanned aviation programs, such as the R-24, the MQ-8, the MQ-9, or the unmanned combat air systems, being developed with the goal of providing a lethal, precise, persistent, and responsive platform that has the ability to perform armed reconnaissance strike in close air support in a manner that could reduce the reliance on the fifth-generation aircraft in these semipermissive environments?

Admiral ARCHITZEL. Senator Hagan, I think it's an excellent question, and it is one that the Navy—the Department of Navy is pursuing actively. I think the—appropriately, on the requirement side, what we're doing there would be answer to—turn this, if I could, to Admiral Philman to address this.

Senator HAGAN. Thanks.

Admiral PHILMAN. Yes, ma'am. We take very seriously on, How can we get the most capability to the warfighter with the least amount of usage? No high-end aircraft doing something that we could be doing with something smaller or less—or less expensive, certainly.

We are looking at all those aircraft, both vertical aircraft, as well as long-dwell broad area-time—maritime sensor bands, which is a variant of Global Hawk, for long-dwell sensing over the ocean and—as well as being a low-hanging satellite, if you will, to maintain connectivity with the carrier strike groups and other strategic systems. That's—and related to our P-8—our maritime patrol aircraft. So, we've purchased fewer—or the program has fewer of those aircraft, with the expectation that the long-staring—the boring, if you will—surveillance will be done by an uninhabited aircraft, then, when the real work needs to be done by humans, can be brought in with the P-8. That's one example.

The N-UCAS, you mentioned, is a demonstration to prove that we can do unmanned aircraft off the aircraft carrier. That demonstration will prove itself by 2013, with launches and recoveries aboard the aircraft carrier, as well as airborne refueling. But, that is a shape; it's not a real program yet. But, what we learn from that will be transferred into other systems that we could use from the aircraft carrier or ashore that will do just those things.

And we're not—everything is to be a multiuse system. Is it a striking airplane with some ISR or surveillance, or is it mainly a surveillance system that could also have some striking capability? So, we'll look very closely at that. So, we do procure with some forethought.

Senator HAGAN. Well, thank you.

Also, on April the 2nd of this year, a press release from the U.S. Fleet Forces Command announced that various delays have pushed to outlying landing field's timeline to the point that it will now coincide with the commencement of the EIS process for home basing of the F-35C Navy Joint Strike Fighter.

Admiral Architzel, when do you anticipate collecting the sufficient testing data from the F-35C in order to conduct the environmental impact statement process?

Admiral ARCHITZEL. Senator Hagan, the—let me begin, then I'll turn it back over to Admiral Philman, as well. But, the data—and you're—the sound—the data—the environmental data, we've already begun collecting that through our testing, both and Fort Worth, and as—now we have the aircraft—the STOVL aircraft at Pax River—begun to tax a lot more data as we go forward. That will feed into the models that will ultimately populate the plan.

But, I'd like Admiral Philman to talk more about EIS and—

Senator HAGAN. Admiral, let me ask one other question while you're answering this one, too.

Is consideration being given to home-basing the F-35C squadrons in a manner that differs from the current concentration of the F/A-18s in order to address the training capacity limitations at Fentress and obviate the need to establish an—additional landing fields to support the squadrons based at Oceana and the Chambers field?

Admiral PHILMAN. Ma'am, as was mentioned, we're still gathering the data so we can make a determination on what the impact to the environment will be, both—in every combination of bases—existing bases, as well as some others that aren't traditionally fighter—master jet bases.

So, those—that study is still going on within the Department of the Navy, so that we can bed down our aircraft in the most efficient way, capturing the training ranges, the existing infrastructure, and the logistics that can be most efficiently used.

Regarding the outlying field, we're—with that is—in the same sentence, if you bring more airplanes or we have to do the carrier landings, we will have to give that some consideration. The Fentress airfield does not meet our complete need, both in the type of landings that it requires us to do—it's not completely representative of the aircraft carrier landing environment. So, either at Oceana or at another place, there will probably be—will be needed an additional field. So, that has not yet been determined, but the requirement does exist, ma'am.

Senator HAGAN. Thank you.

Thanks, Mr. Chairman.

Senator LIEBERMAN. Thanks very much, Senator Hagan.

Senator Kaufman, good morning. Thanks for being—we have really outstanding turnout this morning, which, I think, testifies to the interest in, and concern about our, TACAIR programs.

Senator KAUFMAN.

Senator KAUFMAN. As a brandnew member, being here for 2 weeks, I just want to follow up on Senator Hagan's comment to General Weida. I think this shift to the C-130s—I know you're studying it right now. I know you understand better than anyone how important that is to our homeland security and how—what a

big portion of our total lift is involved in the Air National Guard. So, I just wanted to encourage you to take a hard look at that, talk it over with the Air National Guard folks, which I know you'll do. And I look forward to that.

General WEIDA. Absolutely, sir.

Senator KAUFMAN. And I want to thank you all for your service. It's hard to come up with new words to express how much—how impressed I am with our armed services today, and what a great job they're doing. I just got back from Afghanistan, Pakistan, and Iraq, and I want to tell you what—I wish every American could go over there and just spend a day with anything from the lowest ranking officer to the top and just watch what they do—the quality of their work, the courage, and the way they follow through, the high morale, the ability to do their job, just in so many ways. So, I—as a new member of this committee, I just want to tell you, I'm proud to be on this committee and I'm very, very proud of our armed services.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thanks, Senator Kaufman. Thanks for what you said. I know every member of the committee agrees with that. Appreciate your saying it.

We'll do a second round. Let's try to keep it within 5 minutes, if we can, this time.

I just want to make a statement. There have been a few references to the F-136 alternate engine being a fixed-price contract. My own understanding of this is that the F-135 and -136 are both developmental cost-plus programs now. Although, I gather GE has offered to make it fixed-price contract, and I gather that Pratt Whitney has essentially done the same, as we go on—after the developmental stage. Am I right?

General SHACKELFORD..

General SHACKELFORD. Senator, the—those type of development programs invariably, in the past, have started out as cost-plus contracts.

Senator LIEBERMAN. Right.

General SHACKELFORD. And as soon as we have confidence in the design baseline and the producability of the engines, we move as quickly as we can to fixed-price.

Senator LIEBERMAN. Got it. And that's what we can—

General SHACKELFORD. And that's where we're at.

Senator LIEBERMAN.—expect to happen here.

Let me focus in on the time-delay aspect—one aspect of time delay for the Joint Strike Fighter, and that is the potential delays in the estimated dates for initial operating capability. And I'd thought I'd ask General Trautman and General Weida and Admiral Philman on this one. If each of you would define what IOC, Initial Operating Capability, means for your service. And when, under the new plan, do you think your services will achieve IOC?

General Trautman?

General TRAUTMAN. Senator, I'll go first, since our IOC is projected to occur first, in—

Senator LIEBERMAN. Right.

General TRAUTMAN.—December of 2012, 2 years and 9 months from now. Now, we realize we have a lot of work to do between now

and December of 2012. We're not naive about what it will take to stand up an initial operational capability of our first squadron.

First and foremost is that the—our industry partner is going to have to deliver, going to have to come to the fore and deliver the airplanes on time and create the sorties that generate the test points that are demanded of us.

But, as we perceive December 2012 now, we think we'll have a squadron of 10 aircraft in the Block 2B configuration, as described in the Joint Strike Fighter operational requirements document. That will give us a STOVL-capable airplane, very low observable capability, which will enable us to go places that none of our airplanes can go today, longer range than the Super Hornet, and with fused computing power and sensors on board that will enable us to operate across the range of military operations, either from sea or from an expeditionary environment.

Now, that's not the final configuration of—

Senator LIEBERMAN. Right.

General TRAUTMAN.—the Marine Corps F-35B. We intend to do the block upgrades and software right alongside our Navy and Air Force partners as they move into Block 3A, Block 3B, and Block 3C. So, by the time we get to 2014, which is our first planned deployment of F-35B, we'll have a Block 3C airplane, if the program stays on track as currently laid out.

Now, people wonder, Why did the Marine Corps' IOC not change when we had the restructuring of the program?

Senator LIEBERMAN. Right.

General TRAUTMAN. The answer to that is that everything that we need for our initial operational squadron was procured in 2008, 2009 and 2010. That includes five test airplanes, 15 airplanes for our fleet-readiness squadron, which just stood up last week, and our 10 planes for our initial squadron. What the restructure did do, it slowed down the ramp of our subsequent squadrons beyond that first squadron. For example, our second squadron will now stand up 6 months later than it originally projected. So, that's where the impact of the restructure hits the Marine Corps.

If we reach December of 2012 and we have not accommodated all of the things that we need with regard to training, aircraft capability, logistics support, shipboard compatibility, we will not declare Initial Operational—

Senator LIEBERMAN. Right.

General TRAUTMAN.—Capability. We will wait til we attain those objectives.

Senator LIEBERMAN. Okay. I think I'll focus in on my followup question, too, because I'm concerned—and I know you know others are—about risks of the—I mean, in a way, you've answered it—but, risks of declaring that you've got Initial Operating Capability before the aircraft—the Joint Strike Fighter—has received all of the capabilities intended. And so, I want you to come back and respond to that concern, that by accepting the Joint Strike Fighter in the Block 2B configuration, as compared to the Navy and the Air Force, which we're going to wait for the Block 3 configuration, are you accepting a risk—assuming that they hit the Block 2B capabilities by December 2012, are you accepting a risk that really is

forced on you by this process that hasn't worked well and by the fact you want these planes?

General TRAUTMAN. Well, we do want these planes. But, sir, it's the opposite of accepting risk. We're replacing an AV-8 squadron with a far, far more capable platform. The F-35B, at the Block 2B configuration, will be able to carry two AIM 120 and either two 1,000-pound JDAM or two 500-pound laser-guided bombs initially. And then it will grow from there, with external stores becoming capable in the subsequent months. This airplane will be so far more capable than the AV-8 squadron that it replaces that it's an easy decision for the Commandant to make, with regard to standing up this squadron.

Now, we have to have all the testing done. We're—you know, if the testing isn't done, if we haven't validated that all risk is mitigated—we're not going to do something foolhardy, obviously.

Senator LIEBERMAN. Gotcha. Okay. You've answered my question. I mean, really, I was going to the question, which you might say is in the extreme, which is whether you're confident that combatant commanders would essentially accept the Joint Strike Fighter in the Block 2B configuration. I take it what you're saying is, it's not up to Block 3, but it's—there's no question that they would be happy to have those plane flying.

General TRAUTMAN. It will be the only very low observable airplane that can come off any ship for several subsequent years.

Senator LIEBERMAN. Right.

General TRAUTMAN. The reason we want to do it is precisely the kinds of combatant commander need that may prevail—

Senator LIEBERMAN. Yeah.

General TRAUTMAN.—subsequent to that standup.

Senator LIEBERMAN. My time is actually up, but—so I'm going to ask Admiral Philman, General Weida, if you could give a real quick answer to the question of IOC.

Admiral PHILMAN. Yes, sir. For the U.S. Navy is—with the F-35C, which is a tailhook variant—in December of 2016—

Senator LIEBERMAN. Right.

Admiral PHILMAN.—with the requisite number of aircraft—10 for the squadron, the Block 3 capability delivered and that capability then tested and vetted and ready for deployment.

Senator LIEBERMAN. General?

General WEIDA. Sir, for the Air Force, IOC criteria is spelled out very specifically in Operational Requirements Document, Change 3, dated 19 August 2008. And it's the MAGCOM commander of Air Combat Command that sets that, and there's a very specific criteria. The large pieces are Block 3 IOT&E complete, 12 to 24 jets capable of conducting antiaccess, offensive counter-air seed-and-deed mission, pilots' maintenance support, logistics, equipment, trained and ready, and mission ready.

As far as a date, our best estimate right now, based on all that we know, first quarter of 2016 for IOC. But, again, it is the commander of Air Combat Command taking all into account.

Senator LIEBERMAN. Right.

General WEIDA. It's his call.

Senator LIEBERMAN. Okay. Thank you.

Admiral ARCHITZEL. Senator Lieberman—

Senator LIEBERMAN. Yes, sir, Admiral.

Admiral ARCHITZEL.—if I could, sir. One additional comment, only from the aspect of, What are we—How are we going to assume that—for General Trautman, for example, the confidence that he has? And one area we had concern, across all variants, was our development of the software—

Senator LIEBERMAN. Yeah.

Admiral ARCHITZEL.—and coming on board with that. And part of the restructured program, sir, was to—was actually to add an additional software integration line which reduced some of the risk on our software upgrade as we go forward. In addition, we added that goal for the—in support of looking at this for software Block 2.0, as mentioned, to measure the company against that performance in fiscal year 2011, which would also add to supporting the IOC for the Marine Corps to have that Block 2 capability.

Today, we're flying, if you will, Block 0.5, and we're going to test—we are testing Block 1. We are coding Block 2, and we're developing Block 3. That's where we're across the board on these software developments. And addressing that very issue is what's been done, sir.

Senator LIEBERMAN. Okay. That's helpful, because it is, obviously, the software, the—less than the goal in the software, that was my concern.

Senator Thune?

Senator THUNE. Thank you, Mr. Chairman. Mr. Chairman, I think the great turnout among Senators at the subcommittee this morning is the inspiring leadership of the Chairman.

[Laughter.]

Senator LIEBERMAN. Yeah. Thank you.

Senator THUNE. General Shackelford, as you know, the recently released 2010 Nuclear Posture Review calls for keeping in place the Nation's so-called "nuclear triad," which is comprised of bomber aircraft, intercontinental ballistic missiles, and nuclear-armed submarines. Against that backdrop, what is the Air Force's strategy for developing long-range strike capability? And what role in that strategy will a next-generation bomber play, in your view?

General SHACKELFORD. Senator, if I may, I'll defer to General Weida.

Senator THUNE. General?

General WEIDA. Sir, first and foremost, I will tell you that your Air Force has been part of the team looking at both the Nuclear Posture Review and its development and also been integral to the team that has been part of the negotiating of the new START Treaty; and so, all along, looking at the Air Force equities to ensure that at—for two out of the three legs of the triad, that we felt that we were in a good position to go forward.

To start with a new START Treaty as it pertains to the next-generation long-range strike platform—first of all, the treaty is only a 10-year treaty, with a 5-year extension. And so, the timeframe of this—the new bomber will be outside that treaty, so will probably be covered by a different set of circumstances. But, in either case, we'll take a whole family-of-systems look at that long-range—new long-range strike platform, with our other legacy assets, when we make force-structure decisions.

Senator THUNE. What does that “family of systems” mean, with regard to the follow-on bomber?

General WEIDA. Great question, sir, and thank you for asking it. And, as you know, QDR-10—the Secretary of Defense asked us to go back and look at this so-called “family of systems,” and most people think and focus on just the long-range strike platform itself. But, this capability is in a threat scenario, that anti-access, very difficult threat scenario. And so, as we looked at it very carefully during the QDR, in order to be successful in that environment requires a whole set of capabilities, long-range strike being one, some kind of EW platform, some kind of ISR platform, some kind of standoff missile, and then add into that—and conventional prompt global-strike capability rolled into that concept. And so, although we have done a lot of previous studies on just the long-range strike platform, this study is a little broader look at how we attack this anti-access problem holistically.

The other thing that I would add, since I have my Navy colleagues here at the table, is, we were also tasked, out of QDR-10, to come up with what we call the “air-sea battle concept,” and—to work with our Navy compatriots in that very difficult scenario, and come up with a way we would operate more efficiently to get together as a joint team.

Thank you, sir.

Senator THUNE. Let me ask you, with regard to the START Treaty—because my understanding is, right now we have 44 nuclear-capable B-52 bombers, 16 nuclear-capable B-2 bombers, 450 ICBMs based on land, 336 based on submarines. That gives the United States a total of 846 launchers, and the Treaty permits 800 launchers, but says that only 700 may be deployed. And so, if you add up the ICBM and submarine-based missiles, you’ve got 786, right there. Tell me how this whole agreement would impact, in your view—if the number deployed launchers is 700, how that might—you know, might there be a tendency to rely more on the most responsive and survivable-type launchers, and less on B-2s and B-52s? How does this impact the triad? And explain to me, if you could, the distinction between deployed- and nondeployed-type launchers.

General WEIDA. Yes, sir. I’d start out by—answering that question by saying that, all along, during negotiation of the new START Treaty, that the services worked very closely with the negotiating team so that we looked at all options, as it would pertain to force structure and the required capability that the combatant commander—the commander of Strategic Command—would ask from the Air Force. And so, as different numbers were proposed and eventually agreed upon, we were part of that team, and we felt comfortable that, going forward, that we could maintain our deterrent—strategic deterrent posture with our nuclear forces and focusing, for the Air Force, on two out of three of those legs.

Now that we finally have an agreement, now we’ll further refine that to look at the exact force-structure implications that we need to fit in within the 700 deployed strategic vehicles, and then the larger number—800—of nondeployed strategic vehicles. And it just—the difference between the two just is how they’re postured

and ready to go, whether they are mated with weapons or not, and their location and condition.

And there are a range of possible courses of actions to get to that final force structure between the three legs of the triad. And we're not at that point yet. And so, in the next weeks and months, we'll work very closely with combatant commander, General Chilton, the commander of Strategic Command, because he has the overall responsibility to set the requirement and do the warfighting analysis to see exactly what we need.

Senator THUNE. You don't see the triad being in any jeopardy.

General WEIDA. From the Air Force perspective, no, sir.

Senator THUNE. Well, that's comforting, from the Air Force perspective, but I'm not sure—

I think that's all. I'm out of time, Mr. Chairman, so—

Senator LIEBERMAN. Thanks, Senator Thune. Thanks for raising that important question.

Senator Burris.

Senator BURRIS. Thank you, Mr. Chairman.

And, gentlemen, I've been sitting, listening to all this great testimony, and I just want to be a little pessimistic here. Because, as I hear all of the excellent testimony, I'm just a little bit concerned about the delays that are involved in the, you know, production of the F-35. I hear the testimony on the IOC, that it's going to be put in place on this timetable and on this schedule. I just wondered if we don't have something here that we're asking software or the technology to be so sophisticated that we get to the end of the line and all of this cannot be integrated to replace those other three legacy aircraft that we're talking about this F-35 will replace. I'm just wondering, What is the backup plan in case we get to the point where the software won't really do what the engineers or all of the planners have anticipated and we run into a problem, then, of trying to scale back or adjust and make adjustments? So, any backup plans been taken into consideration during all of this planning and the delays that we're running into and what I'm—venture to say is going to be some cost overruns involved here—any thought given to that? Admiral, you probably want to take a shot at it; and, General Shackelford, you may want to take a shot at this. But, this is just a—listening to the testimony, this is just a gut reaction that I'm getting, and want to make sure that we have something in our backup plan, if this replacement vehicle—the F-35—run into all these other technical difficulties—well, this is not going to integrate with that and this software piece won't meet in with that, because we're trying to ask this plane to do quite a few things, whether it's (a), (b), or (c). They're going to have to do all of these various functions, and I'm just hoping that our engineering—I don't want to wish anybody bad luck, but I just wonder. Have you got any backup on that?

Admiral, would you like to take a shot at this?

Admiral ARCHITZEL. Senator Burris, I thank you for that question, and I understand the concern you're raising as—and appreciate it. And we have taken the strides to restructure the program to address a lot of areas within it that have been not performing to expectations. However, there are many, many assets of the program that we have not discussed that are going along extremely

well. In the area of seeing how we're matching to our model expectations, in terms of growth, and where we—in terms of developing the systems that will go forward in the future to get us that fifth-generation fighter across the board, as well as the progress on this aircraft, in terms of getting the flight vehicle itself to the point where we're confident in it being able to sustain and go forward. By that, I mean the greatest risk would be—in my mind, would be to the flight vehicle. And we have seen significant progress and very good, excellent progress, in terms of static-load testing on all three variants. And I believe we will continue to see the progress on the mission side, as we go forward.

We do need to get the aircraft into test, no question about it. We need to get into the tests so we can expand the envelope so we can then get into bring on the software development I mentioned, which was to get additional line that could take on—an expanded software integration line that would allow us to get to this Block incremental release of software, so we can show that capability to you. That's—all has to happen. We're going to proceed on the restructured plan to do that.

To your point about a fallback plan, sir, I would just say, that is the—Admiral Philman addressed it, General Trautman, General Shackelford—we need to maintain our legacy capabilities, through modernization and obsolescence, to make sure that we have that capability to fall back on. And I would turn it to General Shackelford.

Senator BURRIS. So, you're going to keep our legacy planes operative and—

Admiral ARCHITZEL. We absolutely will ensure we have a combat-ready force—

Senator BURRIS. Sure.

Admiral ARCHITZEL.—as we go forward, with full expectation—we need that fifth-generation capability, but we are going to ensure we have—maintain those—the forces that we need today to—as needed, for the Department of the Navy, sir.

Senator BURRIS. General?

General SHACKELFORD. Senator, within the F-35 program, you could generally think of two areas that we need to come to a good understanding. One is the structural capability of the airframe. The other one is the avionics, or the software, as you refer to. We're well along the path of confirming that the structures for all three variants are sound. So, we have high confidence at this point that we don't have a fundamental flaw in the structure of the airplane itself. And we would expect to get that early—that confidence early in the program.

The software comes over time. In order to mitigate the complexity of this software, the program is built around an unprecedented level of software integration laboratories, including a flying test bed that integrates all of those systems together on a flying platform. Granted, it's not in the aircraft, but it's wired true to form for distance, cable lengths, positions of antennas, and whatnot, to what will be in the actual aircraft. So, as we progress through the software coding, software maturation, through the laboratory infrastructure, through the flying test bed, and finally on

to the aircraft itself, it's a matter of verifying the capability by the time we actually get it on the aircraft.

Senator BURRIS. Pardon me, General. My time is expired. But, is there a test—you said it's going to have to be tested. Is the test period factored into our schedule?

General SHACKELFORD. Yes, sir, by all means. And in addition, we've got a strong focus on what's called "mission systems flight testing," which is the testing of that software.

General TRAUTMAN. Senator, do I have time to add one point to your question?

Senator BURRIS. Sure.

General TRAUTMAN. May I have a point, sir?

What's lost in the discussion about the cost growth of the program over the past couple of years is the fact that, after rigorous analysis, everyone who has looked at this program has found no technical, manufacturing, or performance issues associated with these jets. That's a level of confidence that in every other program that I've ever been involved in, we did not have. The STOVL variant of the Joint Strike Fighter has been flying since June of last year. Since November of last year, we've had three STOVL variants at Patuxent River. They've been generating sorties since the 1st of January. They've generated test points ahead of the plan. We hovered the airplane, we did a short-takeoff roll of 700 feet last month. We just rolled off the flightline the first mission systems STOVL airplane that's built from the ground up with all mission systems incorporated.

So, there's a lot of optimism on the technical side of this airplane, as we have to press the manufacturer to control costs and meet the production delivery schedules.

Senator BURRIS. And you hope they don't cut corners, General—

General SHACKELFORD. Well, absolutely, General. You're right.

Senator BURRIS.—in controlling cost—

General SHACKELFORD. And there are good quality-assurance measures in place to ensure that doesn't occur.

Senator BURRIS. Thank you.

Thank you, Mr. Chairman.

Senator LIEBERMAN. Thanks, Burris. Appreciate it.

Senator Begich.

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

And again, thank you for your willingness to put together something very visual for me, a chart on—kind of showing the whole schedule, but let me ask you, now the—probably one or two quick questions.

You talked about incentives for the contractor, to make sure they meet the schedule and the quality that you're looking for. Can you describe what those might be?

Admiral ARCHITZEL. Senator Begich, yeah, I'd be happy to, sir. For example, in fiscal year 2010 we said we wanted to see the STOVL vertical landing. By the way, that's been accomplished at Pax River, the first. Next was to see the first CV flight, as mentioned, by May, or, at the latest, no later than June. That's on track to go forward with that CV-1 variant. Eleven test aircraft delivered to Pax River in Edwards, on track to produce that, as well,

sir. But, this is in [inaudible] measure against this—deliver the 1.0 software, which we need to be able to train and fly at Eglin as we go forward; to have 400 test flights accomplished during the course of 10. And we're on a glide slope today of somewhere around 180 already this year, which puts us on that glide slope to meet that requirement—that measurable, if you will. Additional LRIP deliveries—limited rate production aircraft delivered to Eglin—at least three for fiscal year 2010. The actual—when we go to Eglin, to be able to bring on the Automic Logistic Information System, or ALIS, as it's called, at that time, as well.

And there are similar metrics within '11—fiscal year 2011. Some of those involve initial STOVN developmental testing on the L-class ships; land-based catapult and arresting-gear launches at Lakehurst, which is our land-based facility for aircraft launch and recovery equipment; Block 2 software, as I mentioned before, release complete of the static testing, which I mentioned, is ongoing on all three variants.

Senator BEGICH. If I can interrupt you, Admiral.

So, each stage that you've identified, it—there's—is it that there's an incentive built in for them to meet that, or that's their requirements, in the scope of the contract, that they must meet this, and if they don't, there's a penalty?

General SHACKELFORD. Senator, we, as part of the restructure, withheld what would become \$614 million of available award fee under the previous contracts for—

Senator BEGICH. 614?

General SHACKELFORD. Million dollars. Yes, sir. Six-one-four. Those dollars are being realigned into performance incentives, of which these specific items—there are 23 items, that take place over the remainder of the development contract, that are tied to receipt of those dollars.

Senator BEGICH. If they—let me make sure I understand that. So, within the contract, you have about a \$614-million incentive bonus built in for certain—

Admiral ARCHITZEL. Achieving goals.

Senator BEGICH.—points—achievements metrics that they meet.

When they bid on this, or when they came in for the contract, was that part of the equation at the front end?

General SHACKELFORD. No.

Senator BEGICH. Okay.

General SHACKELFORD. No, sir.

Senator BEGICH. So, let me—that leads me to the next question, if I could just hold you there, for a second, and then you can kind of elaborate from here.

Assuming they said, "Here's what we're going to do. Here's the scope of services we're going to provide. Here's the timetable we'll provide them," assuming the contractor laid out some of that in early stages, maybe they'd be broad—they probably had some timeliness—if they didn't meet those timelines—put the bonus aside for a second—was there penalties that would reduce the contract? In other words—

General SHACKELFORD. The previous—

Senator BEGICH.—if I'm bidding on—to provide you this glass of water today, and you say, "provide it," and I say, "I'm going to pro-

vide that for \$1 dollar, a year from now,” and, later in the contract, there’s a bonus if I provide it in 9 months, I get a little bonus for it, but if I don’t provide it in a year, you still pay me. Is there deduct?

General SHACKELFORD. Yes, sir.

Senator BEGICH. Okay.

General SHACKELFORD. The previous contract was structured as an award-fee contract, which is, by nature, a subjective—“fee” is another word for “profit”——

Senator BEGICH. Right.

General SHACKELFORD.—subjective fee that’s based on a scale of performance that is more subjective in nature, as opposed to the specific performance incentives that we’re talking about now.

Senator BEGICH. So, it’s—go ahead.

General SHACKELFORD. So, as you came to the end of each award-fee period, which would typically be 6 months or a year long, there would be a potential for some maximum fee, and they would receive a percentage of that, based on the subjective assessment of their performance.

Senator BEGICH. Gotcha.

General SHACKELFORD. Now there’ll be specific events, that are under negotiation right now with Lockheed as part of the restructure, that if they don’t achieve those events within a timeline that they negotiate as part of the restructure, they don’t get any funding.

Senator BEGICH. So, is it fair to say—I want to make sure I understand it—that it’s not a—I know the word I used was “incentive.” It was really, “Here’s the scope. If you don’t make it, we’re not paying you this money.”

Admiral ARCHITZEL. That’s right. It’s——

Senator BEGICH. Is that a better way to say it? It’s not necessarily—it is an incentive, but it really is part of the overall——

Admiral ARCHITZEL. It is——

Senator BEGICH.—contract.

Admiral ARCHITZEL. Yes, sir. It is, sir. And it’s tied to achievable milestones, if you will, that are—I just enumerated some of them, but those——

Senator BEGICH. Sure.

Admiral ARCHITZEL.—there could be many more that could be outlined within there. And then the contractor performs to that. If he does, he’s eligible to earn fee. If he doesn’t, he’s not eligible to earn that fee.

Senator BEGICH. So, in this restructuring—again, my time is up—but, the restructuring created a different kind of scheduling of the resources you had available to provide to the contractor. Is that a—and you just kind of scoped it out over a period of time, but with these milestones they have to meet, and if they don’t meet them, that chunk of money isn’t paid to them.

General SHACKELFORD. That’s correct.

Senator BEGICH. Or you end up in, probably, some negotiations with them if they—but, the idea is that this is a way to kind of hold their feet to the fire in production of the levels you need to get to.

Admiral ARCHITZEL. Right.

Senator BEGICH. For example, the 2012, which is the earliest date. Is that a fair statement?

Admiral ARCHITZEL. And another way to also look, which we—would be to, as we mentioned, a cost-plus environment, we are looking, when we can, to transition to fixed-rate contracts.

Senator BEGICH. Right.

Admiral ARCHITZEL. Fixed-price incentive contracts.

Senator BEGICH. Which we love.

Admiral ARCHITZEL. So, we—but, we have to look for the proper time and when to—

Senator BEGICH. Sure.

Admiral ARCHITZEL.—execute that. But, that's part of this, as well, moving to that, from a cost-plus to a fixed-price environment.

Senator BEGICH. Very good. Thank you very much for that explanation.

Thanks.

Senator LIEBERMAN. Thanks, Senator Begich.

I've just got a—I have a few more questions, actually both for General Shackelford.

General, last year, you testified to this subcommittee that paying for the F-136 alternate engine program from within the JSF Program could force you to buy fewer JSF aircraft over the fiscal yearDP—over the Future Years Defense Program. At that time, you said, “Over the 5-year period- it would be 53,” end of quote. In other words, continuing the F-136 Program could actually exacerbate the Strike Fighter shortfall in the Navy in the near term and could, of course, have adverse affects on the Air Force inventory posture, as well. I wanted to ask you whether those projections are the same or whether you've in any way updated your estimate about how many JSF aircraft would fall out of the production plan over the fiscal yearDP if we continue the F-136 alternate engine program?

General SHACKELFORD. Senator, a year ago, as we were looking forward to the potential to fund the remainder of the development program on the F-136—

Senator LIEBERMAN. Right.

General SHACKELFORD.—our fear was having those dollars taken out of the F-35 program funding line, to fund that engine, would come at the expense of production assets. And given the dollar figure a year ago, which escapes me at the moment, that equated to 53 aircraft—

Senator LIEBERMAN. Right.

General SHACKELFORD.—to go pay for that across the different variants.

We have not looked specifically at a production offset number to compare to that 53. We can take that for the record and estimate that, if you would like.

[The information referred to follows:]

Senator LIEBERMAN. I'd appreciate it, if you would. Thank you.

Second brief question about JSTARS. As you know, I've been a big supporter of JSTARS, and I'm—it's really a workhorse program of the Air Force which the other services, particularly the Army, depend on a lot. I know that the Air Force is planning to conduct an analysis of alternatives on the best ways of achieving moving

target indicator capability. And I wanted to ask you this morning, General, if you can, When will the service be able to provide this committee with the results of that AOA regarding MTI capability?

General SHACKELFORD. Sir, that AOA is just getting underway now and runs out until approximately the middle of next year. I would estimate we might have something preliminary to say about it next spring when we come back here.

Senator LIEBERMAN. Good.

And then, finally, in that regard, will the Air Force continue the JSTARS reengining programs and the MP-RTIP development in the meantime, while you're completing the AOA?

General SHACKELFORD. Yes, sir, we are completing—planning and executing the completion of the development program of JSTARS reengineering, as well as buying a total of four ship sets under the present budgets. As we look at MP-RTIP, we're continuing with MP-RTIP development for the Global Hawk platform. The drawback to both of those sensors—the size of the Global Hawk platform, as well as the frequency and capability for geolocation of the APY-7 that's in the Joint STARS—are what are at question under this analysis of alternatives—

Senator LIEBERMAN. Right.

General SHACKELFORD.—to meet today's need for dismount detection and tracking.

Senator LIEBERMAN. Good enough. Thank you. I'll, obviously, follow those developments with some interest and look forward to working with you on them.

Thank you.

Senator THUNE.

Senator THUNE. Just a couple of quick questions, Mr. Chairman.

This is to Admiral Architzel. The—you talk about milestones to make sure the JSF Program is on track. I guess the question I have is, What specific milestones should we, as Members of Congress, expect in this next year, in 2010, in order for us to know that the program is on track and that it's going to be successful? What should be our expectation, as Members of Congress, this year?

Admiral ARCHITZEL. Senator Thune, I appreciate the question. And I would—as mentioned, I would look for some very key things that are in fiscal year 2010, which is, we should see the CV variant first flight no later than June. We also need to be able to—I mentioned before, we have put additional test assets, or we will, into the SDD program. We need to start seeing progress—continued movement in the actual flight test to gather the data we need to gather, in terms of flight tests. We really are at the very beginning of that. So, we need to see that those assets show up at both Patuxent River, which they are, in the STOVL category today, and also at Edwards. So, I would look to that, and when those aircraft arrive. I'd look at the measures that says we do the software development that's going to allow us to be moving towards Eglin for training—advanced training—in an envelope that allow the pilots to be able to train when they get to Eglin in the future. And those are the—some very key things. Also, with the ramp for the LRIP, that we want to see in the aircraft, going forward. So, there's some very discernible things this year that we can see that we should be looking for, and if I were—in that aspect, I would say that we're on

path for the development of the aircraft, that we have the test program moving along in the profile we need it to be on, that you see the maintenance training for the maintainers that's going forward, that will have to be there to support both—especially at Eglin Air Force Base.

Senator THUNE. Yeah.

General Shackelford, could you give me—or General Weida—either one—an example—coming back to START for a minute—of a nondeployed launch vehicle? I asked General Cartwright, last summer, what was the bare minimum number of launch vehicles that we needed in order to not get below a level that would be harmful. And, at that time, I think the answer was 800. Now, there's a distinction made in the START Treaty, that was signed by us and the Russians, that—700 deployed, 800 nondeployed. Give me an example of a nondeployed launcher and how that sort of distinction was made and the two different numbers arrived at.

General SHACKELFORD. I think the best thing, sir, that I could offer you is, the treaty guides for the Air Force work for me. And I think it will be best if we just come and give you a briefing or take, for the record, a specific question and lay that out for you, because there's a specific example for each type of asset. And if you'll allow, I'll do that.

[The information referred to follows:]

Senator THUNE. All right.

And then, one final question, and that is, How does the potential nuclear JSF fit within the new launcher limits in the START Treaty?

General WEIDA. Sir, that does not apply, as far as I know. It is a dual-capable airplane—aircraft, but does not—it's not a strategic nuclear weapon. And I—but, I'll take that for the record, and come back to you.

[The information referred to follows:]

Senator THUNE. Okay. Thank you.

I think that's all I have Mr. Chairman.

Thank you all very much for your leadership, for your great service to our country. Thank you for being here today.

Senator LIEBERMAN. Thanks very much, Senator Thune.

Creighton just reminds me that next Thursday—it hasn't actually been noticed yet—we have a full Armed Services Committee hearing on the Nuclear Posture Review, and I'm sure some of these questions will come up at that time.

I want to thank the witnesses, obviously for your service, but for your testimony this morning. This has been a very informative, productive hearing. I appreciate your direct responses to the questions. As I said earlier, there's obviously a lot of support for the JSF program in the Senate, and particularly on this committee, and there's a lot of concern about the delays and the cost increases, and we appreciate all you're trying to do to close the gap, and particularly in the light of the TACAIR shortfall that we're projecting for the services.

So, I thank you very much.

We look forward to legislating in a way that's constructive this year.

And if you have no further statements, the hearing is adjourned.

[Whereupon, at 11:35 a.m., the subcommittee adjourned.]