

**THE COST EFFECTIVENESS OF PROCURING
WEAPON SYSTEMS IN EXCESS OF
REQUIREMENTS: CAN WE AFFORD MORE C-17S?**

HEARING

BEFORE THE

FEDERAL FINANCIAL MANAGEMENT, GOVERNMENT
INFORMATION, FEDERAL SERVICES, AND
INTERNATIONAL SECURITY SUBCOMMITTEE

OF THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
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TUESDAY, JULY 13, 2010

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U.S. SENATE,
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GOVERNMENT INFORMATION, FEDERAL SERVICES,
AND INTERNATIONAL SECURITY,
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:31 p.m., in room SD-342, Dirksen Senate Office Building, Hon. Thomas R. Carper, Chairman of the Subcommittee, presiding.

Present: Senators Carper and McCain.

OPENING STATEMENT OF SENATOR CARPER

Senator CARPER. The hearing will come to order.

Good afternoon, one and all. We are delighted that you are here. Thank you for joining us for our first panel and in about 3 or 4 hours from now the second panel. No, it will not be that long.

Three years ago, this Subcommittee held a hearing on strategic airlift that analyzed the cost effectiveness of the C-5 Modernization Program. Two years ago, we investigated the growing cost overruns of the Department of Defense's major weapon systems. Last year, Secretary Gates recommended eliminating a handful of expensive weapon systems in order to save taxpayer dollars, and Congress largely agreed and cut nearly every one of them recommended by the Secretary.

Last month, Secretary Gates announced that the Pentagon will attempt to cut its budget by more than \$100 billion over the next 5 years. This will not be an easy task, but this Subcommittee will continue to identify ways to help Secretary Gates and his team to achieve this level of savings. We do so because we face a troubling budget outlook. As this chart shows,¹ our yearly budget deficits are currently a little bit over \$1 trillion, and they are projected to be hundreds of billions of dollars over the next few years. Even out to 2014, the deficit, which last year was about \$1.4 trillion, will have been reduced by two-thirds, down to about \$462 billion. But that is still a lot of money.

Can we look at the next chart?

¹The chart referred to appears in the Appendix on page 37.

We do not just print money. Some people think we just print money. When we run out of money and we want to spend money in excess of the monies raised through the Treasury, what we do is we borrow it. And if you look at some of our biggest creditors, China, almost \$1 trillion; Japan, about three-quarters of a trillion dollars; United Kingdom, over quarter of a trillion; and if you add all those countries that export oil to us, close to a quarter of a trillion dollars as well.¹ That is where the money comes from when we spend money that we do not have. And we have been spending a lot of it.

To go back, it is hard to believe, but in the year 2000 and I think the fiscal year 2001, we actually balanced our Nation's budget, only 9 years ago. And there was actually—I remember hearing—I do not know if it was Chairman Alan Greenspan or someone else from the Federal Reserve, but someone came in and testified before us in 2001. There was concern that we were paying down the deficit too quickly and could destabilize the economy. Hard to believe. That was 9 years ago. And when you look at all of this chart, it did not turn out that way, did it?

One of the reasons why we are having this hearing today is to figure out how we can have a little bit less red there in that China column and a little less green in that Japan column and so forth.

But our spending levels are at record highs to try as we come out of the worst recession since the Great Depression; two wars, terrible recession, and it has almost been like having two feet on the accelerator to try to get us moving, get the economy moving. Now in the months and years to come, it is sort of like seeing one foot coming off the accelerator and starting to tap on the brakes. But it is a delicate balance as we figure out—too much braking could stall the economic recovery; not enough braking, I think, represents a concern to a lot of us who have a sense of fiscal responsibility.

If we do not control spending, if we do not do something to increase revenues, and if we do not begin to close our deficits, who are we going to pass the legacy onto? It is my kids, it is your kids, it is our grandchildren, and yours.

This hearing will analyze potentially unnecessary spending by once again looking at strategic airlift. This hearing will ask what happens when we buy more weapon systems than the Pentagon says we need. It is one thing to buy weapon systems the Pentagon says we need, we really need them; it is another thing to continue to spend money for weapon systems that the Secretary of Defense says, "We do not need that. We have got enough of that already."

We had an interesting battle on the Senate floor about a year ago. Senator McCain, who will be here in a little bit, and Senator Levin, the leaders of the Armed Services Committee, basically at the urging of the Administration and also because they thought it was the right thing, looked at whether or not we need to continue to buy F-22 fighter aircraft. And some of the information that was presented to us, as you may recall, was here is an aircraft that I think, if memory serves me well, costs about \$191 million a copy. I think we had bought about 187, and the proposal was to continue buying them. Cost per flight hour, about \$45,000.

¹The chart referred to appears in the Appendix on page 38.

On any given day, roughly 55 out of 100 of the aircraft are mission-capable. And if you add up all the sorties they have flown in Iraq, in the Iraq War, and all the sorties they have flown in Afghanistan, they added up to zero. So did it make sense for us to continue buying that aircraft? It did not make sense. Senator McCain did not think it made sense. I certainly did not. Neither did Senator Levin, neither did the President, neither did Secretary Gates, and we said, "That's enough. That's enough."

Today's hearing is going to focus a little bit differently. It is not going to focus on an aircraft that has not been delivered. To the contrary. The C-17 is a superb aircraft. We have a whole squadron of them in Dover, Delaware at our Dover Air Force Base. We bought over 200 of them and about that many have been deployed. They perform admirably with high mission-capable rates. And so the question is not: Is the C-17 a dog? It is not. It is a very good airplane. When do we have enough of them?

And so we are going to ask our panelists today what happens if we buy more C-17s, even though recent airlift studies have stated that our strategic airlift capability exceeds our demand. I want to set the scene, if I can, for this topic. Our strategic airlift fleet consists of about 111 C-5s, big airplanes—we have some of those at Dover as well—and about 223 C-17s. As good as the C-17 has been, though, it cannot do everything. As good as the C-5 is, it cannot do everything as well. That is why we have a blend of C-5s and C-17s, and C-130s as well.

As you know, the C-5 carries more cargo, sometimes almost twice as much as the C-17. It can fly further without refueling, almost twice as far as a C-17. It cannot land on austere runways, but a study of the record shows that in, I guess, the last decade or so, about 95 percent of flights that the C-17 landed and delivered goods, provided airlift for, the C-5 could have done that as well.

But the problem with the C-5 has been reliability. The mission-capable rate hovers around the mid-60s, for the most part in recent years as compared to 85 percent for the C-17.

To correct those deficiencies in terms of mission-capable rate for the C-5, the last Administration, the last President, the last Secretary of Defense, said to us: Why don't we take those C-5s, those C-5s that were built in some cases in the 1970s and in some cases in the early 1980s, that have another 30, maybe 40 years of useful life on their fuselage, on their wings, why don't we do something about the engines? And at least one of our witnesses here has flown C-5s. We have them at Dover. I have heard for years how the engines just do not work. About every thousand hours, they have to change them out. The new C-5Ms will get about 10,000 hours. They will get about 10,000 hours between engine changes, and about 50 or 60 of the weapon systems or components, avionics systems, have been changed out as well. The idea is to get us from about a mid-50 to 60 percent mission-capable rate up to 75 percent or higher, north of there, and so far the three C-5s that have been produced, that are being flown literally out of Dover, are doing that.

I think Harlan Geer, sitting right here over my left shoulder, was telling me not long ago, that a couple of months ago, one of those

C-5Ms broke 41 records for airlifts in one flight from Dover to Turkey. That is the kind of thing we want to hear.

I will never forget talking to one of the aircraft commanders when they brought—I guess it was the first C-5, into Dover Air Force Base for its annual inspection, and I asked the aircraft commander, “How does this C-5M fly?” And he said—I thought I would never hear anybody say this about a C-5—“It flies like a rocket.” I said, “You are kidding.” He said, “No. It really does. It flies like a rocket.”

We have had some blips along the way in terms of the work that is being done in the C-5, but for the most part, we are encouraged to this point.

I anticipate that the C-17 will continue to play a leading role in airlift for years to come, and I also expect that fully modernized C-5s will be a worthy complement to our C-17 fleet. I do not know if we have anybody here from Lockheed, but here is the deal, as I understand it. We expect the C-5Ms to deliver at least a 75-percent mission-capable rate and the work that Lockheed is doing in the modernization to come in under budget, at or under budget. So that is the deal. If Lockheed will deliver along those lines, I think this is a pretty good deal for the taxpayers. If they cannot, it is not a good deal for the taxpayers.

However, while an even more robust fleet of C-5Ms and C-17s would ensure that we would never have to worry about strategic airlift, our current budget problems force us to confront some tough decisions about how many more aircraft we ought to buy, and this starts by looking at how many more C-17s we can afford and whether it is cost-effective to keep buying them. The last time the Air Force requested C-17s was in fiscal year 2007.¹ That was 4 fiscal years ago. However, since then, the Congress has purchased, I think, 43 additional unrequested C-17s. Keep in mind the second chart we had up here, which shows where the money comes from when we are spending money we do not have. It comes from China, it comes from Japan, it comes from the United Kingdom, it comes from all those countries that have the oil and that have our money.

In 2007, the Air Force asked for 12. They got 22. In 2008, they asked for zero. They got 15. In 2009, they asked for zero. They got eight. In 2010, they asked for zero. They got 10. And the question is, they have asked for zero again in 2011, what are they going to get? And my hope is that the second column under congressional purchase, instead of having three question marks, will have a zero. And, again, it is no reflection on the aircraft. As I said, it is an exceptional aircraft. We have just got enough of them.

We have another chart.¹ The chart is entitled “DOD Mobility Capabilities and Requirements Study-2016.” I think this was done a couple months ago. Some of you are familiar with it. Every so often we ask the Department of Defense to look at what our requirements are going to be for airlift, and they measure this in million ton-miles per day. Worst-case scenario, which I think includes a couple of wars going on and a bunch of problems back here at home that we need airlift for. And in the worst-case scenario, the Depart-

¹ The chart referred to appears in the Appendix on page 39.

¹ The chart referred to appears in the Appendix on page 40.

ment of Defense, 5 months ago, said we needed capability to give us 32.7, almost 33 million ton-miles per day. Our current capability with our current fleet of C-5s and our current fleet of C-17s is almost 36 million ton-miles per day.

Instead of borrowing \$800 or \$900 billion from the Chinese, if they were borrowing money from us, if we had such a robust Treasury, that would be one thing. We do not. And to the extent that we have about three million ton-miles more per day capability than we have need going forward. And even worst-case scenario, does it make sense for us to continue to go further and further into debt? I do not think it does. Neither does the Secretary of Defense. Neither does the President. In fact, the Secretary of Defense has recommended that the President veto any spending bill that includes funding for more C-17s.

In this hearing, we are going to explore how to manage a cost-effective strategic airlift fleet, and it is not this Subcommittee or any Committee trying to dictate to the Department of Defense what they ought to be doing or what they actually need for the strategic airlift for our country. They have told us. This study up here, this most recent one, this tells us in a worst-case scenario, and it says we have a lot more capability than we have need. As it turns out, we have a lot more appetite than we have money to buy things with.

So we are going to look at whether it is cost effective to increase our fleet by buying more C-17s. Finally, we will try to determine if there is a business case for increasing airlift capabilities beyond our airlift demand. I look forward to this hearing. I look forward to a productive hearing. We are grateful for everybody who has come over to spend some time with Senator McCain and myself, and our colleagues, and I again want to thank Senator McCain for the excellent work that he and his colleagues did and certainly Carl Levin last year on the F-22, and for always reminding us that these weapon systems just do not materialize out of thin air. We have to buy them. We have to pay for them. And we do not have the money.

What did they use to say about the theory of holes? The theory of holes when you are in a hole on the budget, on a deficit, if you are in a hole stop digging. Stop digging. That is what we want to do. Senator McCain.

OPENING STATEMENT OF SENATOR MCCAIN

Senator MCCAIN. Well, thank you, Mr. Chairman, and I will make my remarks brief. I want to thank the witnesses and look forward to hearing from them, and I do not think we should have this hearing without the backdrop of the Secretary of Defense's recent announcement that he intends to save \$102 billion over the next 5 years, which means obviously some very tough decisions are going to have to be made. And, obviously, the Secretary of Defense and the President have long ago announced their opposition to further acquisition of the C-17.

Now, whether the Appropriations Committee will—how they will act remains to be seen, and, Mr. Chairman, I think that is one reason why it is important that we have this hearing. And I quote from the authorization bill. The Secretary of Defense said, “The ad-

ministration appreciates that the Committee supports the President's budget request regarding the C-17 program and that it did not authorize procurement of additional C-17s."

According to the OMB's report on terminations, reductions, and savings for fiscal year 2011, the number of C-17s in operations and on order together with the C-5 aircraft exceeds what is necessary to meet the Department of Defense future airlift needs even under the most stressing scenarios.

According to OMB, the substantial operational costs associated with buying additional unneeded C-17s would have to be offset by retiring C-5s early. Those aircraft still have on an average 30 years of useful service life, and it does not seem to me that is a reasonable use of taxpayers' money.

Perhaps most persuasively, as Secretary Gates noted in a letter to me on this program, "Continuing to purchase C-17s in numbers beyond what is required simply diverts limited resources from other pressing needs, including critical warfighting capabilities."

Mr. Chairman, I ask that the letter be included in the record.¹

Senator CARPER. Without objection, it will be.

Senator MCCAIN. And Secretary Gates has also made it clear that he will strongly recommend the President veto any legislation that sustains the unnecessary continuation of this program.

In remarks delivered over the past few months, Secretary Gates noted that it was time to return to the model in which real choices were made, priorities were set, and limits were enforced, and he specifically cited the C-17 program as an example where Congress was failing to make choices when it comes to defense spending. And he concluded that we all must be willing to ask and answer questions regarding real-world requirements in order to have a balanced military portfolio and a defense budget that is fiscally and politically sustainable over time.

Let us be clear. The only thing sustaining the C-17 program in the face of a military requirement that is and will likely remain satisfied is the predominance of the military-industrial complex. Such machinations should end. When decisions are made to start or continue new major weapons programs, the needs of the warfighter must preside, not the profit-maximizing tendencies of industry or the strictly parochial interests of Congress. After billions of dollars wasted over the last few years, the C-17 presents the clearest case why in this regard we must do better.

I thank the witnesses, and I thank you, Mr. Chairman, for holding this hearing.

Senator CARPER. Senator McCain, it is great to be sitting here next to you and have a chance to hear from these witnesses today. Let me just briefly introduce them, if I may.

Our first witness today is Deputy Under Secretary Mike McCord from the Department of Defense's Comptroller's office. Under Secretary McCord serves as one of the Pentagon's chief budget and finance officers. He joins Under Secretary Robert Hale in the Comptroller's office in helping Secretary Gates take a scalpel to the Pentagon's budget and holding the service branches' feet to the fire when it comes to wasteful spending. He joined the Department of

¹The letter referenced appears in the Appendix on page 44.

Defense with 24 years of experience in dealing with national security issues in the Legislative Branch, including, I am told, 21 years as a professional staff member of the Senate Armed Services Committee.

Under Secretary McCord, we thank you for your participation in the hearing. We hope you will be working closely with us over the next couple of years to find additional savings in the defense budget. Just one quick question. Where did you go to college?

Mr. MCCORD. Ohio State.

Senator CARPER. The Ohio State University in Columbus, Ohio.

Mr. MCCORD. Yes, I attended the university in Columbus.

Senator CARPER. Good for you. All right. You are an Ohio State Buckeye. It is great to have you here. Thanks. Thank you for your service.

Our second witness on the panel is Major General Susan Desjardins. Is that French, Desjardins?

General DESJARDINS. Yes.

Senator CARPER. What is it, garden, some gardens?

General DESJARDINS. Gardens.

Senator CARPER. General Desjardins is here today to testify on behalf of the U.S. Air Force's Air Mobility Command, the major command in charge of managing the Air Force's airlift fleet. In the Air Mobility Command, General Desjardins serves as the Director of Strategic Plans, Requirements, and Programs, and in this position she is responsible for force structures, planning doctrine, and requirements of the Nation's airlift and refueling force. She has some 30 years of service in the Air Force, I think, this year, and over 3,800 flying hours as a command pilot in a number of different aircraft, including C-5s, C-17s, and C-135s. Anything else?

General DESJARDINS. KC-10s, sir.

Senator CARPER. KC-10s, all right. General, we are grateful for your testimony today. We look forward to a productive discussion on our Nation's strategic airlift fleet.

And our third and final witness is Alan Estevez. Mr. Estevez is Principal Deputy Assistant Secretary of Defense for Logistics and Materiel Readiness, representing the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. Mr. Estevez is one of the top advisers to the Pentagon leadership on logistics and readiness. He is here today because one of his office's many duties is to prescribe policies and procedures for the conduct of strategic mobility, to manage strategic mobility programs within the Department of Defense. Prior to assuming his current position, I am told Mr. Estevez held key positions in the Office of the Secretary of Defense. Is that true?

Mr. ESTEVEZ. That is correct.

Senator CARPER. Where he played a critical role in re-engineering defense transportation processes. Mr. Estevez, we thank you for being here today. We understand you flew in from theater last night. Is that true?

Mr. ESTEVEZ. That is correct.

Senator CARPER. Not the movie theater, but another theater, and we want to invite you to discuss, if you want to, a little bit your experiences there, what you saw and heard as it relates particularly to the hearing today. And I understand that you and Under

Secretary McCord will be delivering joint testimony today, and Under Secretary McCord will be giving the oral statement. We are told if we observe you carefully as he speaks, we will see your lips move. And we want to see how this works out, and we hope you will just chime in as is appropriate.

Under Secretary McCord, I will ask you to start off the testimony that has been prepared for you and Mr. Estevez, and then we will go right to our general. Thank you.

Mr. McCord, please proceed, and your full statement will be made part of the record, and I think you are prepared to summarize.

TESTIMONY OF HON. MIKE MCCORD,¹ PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE (COMPTROLLER), U.S. DEPARTMENT OF DEFENSE; AND ALAN ESTEVEZ, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR LOGISTICS AND MATERIEL READINESS, ACQUISITION, TECHNOLOGY, AND LOGISTICS, U.S. DEPARTMENT OF DEFENSE

Mr. MCCORD. Yes, thank you, Chairman Carper, and Senator McCain. I am Mike McCord, Department of Defense's (DOD) Deputy Comptroller, and as you said, joining me is Alan Estevez, the Principal Deputy Assistant Secretary of Logistics and Materiel Readiness, and Major General Sue Desjardins of the Air Mobility Command, and we are here to speak about the Department's decision to end the C-17 program. Thank you for putting the longer prepared statement on behalf of Alan and myself in the record.

I want to begin my oral remarks by thanking you on behalf of all three of us, and the Department, for your support of the men and women who wear America's uniform. Your concern for their well-being is greatly appreciated.

DOD depends on two aircraft, the C-17 and the C-5, to provide the airlift needed to deliver and sustain our combat power, including most importantly in support of our operations in Afghanistan. Over the past 5 years, the Department has conducted three studies concluding that our C-17 and C-5 airlift capability is more than sufficient for our needs today and in the foreseeable future. Most recently, the study to which you referred was known as the MCRS-16, the Mobility Capabilities and Requirements Study, concluded last February. It looked at requirements through 2016 to ensure that our plans and investments for mobility capability will support future operations.

The results of that study indicated that the Department's plans for strategic mobility capabilities are sufficient to support our projected requirements. The study concluded that the number of C-5s and C-17s in the Department's program of record is sufficient, even in the most demanding environments. These findings were consistent with all the studies we have undertaken over the past 5 years, all of which have shown that the size and mix of our strategic airlift fleet is adequate to meet requirements and that we have enough C-17s.

¹The joint prepared statement of Mr. McCord and Mr. Estevez appears in the Appendix on page 45.

Our analyses have also concluded that keeping the C-17 line open is simply not cost effective. It is not cost effective to buy more C-17s and then retire more C-5s to meet the requirements we foresee, and even if our requirements studies turned out to be wrong and we wanted to buy more later, keeping the C-17 line open was not judged to be a cost-effective way to hedge against that risk compared to upgrading the existing C-5 fleet or even restarting the C-17 production line later.

In addition to these studies, the Air Force Fleet Viability Board concluded in 2004 that the C-5A, which is the oldest variant, will remain viable until at least 2025. And according to the Air Force, the C-5 fleet as a whole will remain viable until 2040. Moreover, ongoing modernization and refurbishment of that fleet will increase the fleet's reliability, availability, and maintainability.

So as a result of these studies, Secretary Gates concluded that it is not in the national interest to keep adding C-17s. Last September, he wrote to Congress that the Department does not need additional C-17s to meet strategic needs. Accordingly, our budget request for 2011 includes no funds for additional C-17 aircraft. The President has directly expressed his support for the Department's position on this. In comments concerning the fiscal year 2011 budget request, he said, "We save money by eliminating unnecessary defense programs that do nothing to keep us safe. One example is the \$2.5 billion that we are spending to build C-17 transport aircraft the Pentagon does not want or need."

Secretary Gates, as he usually does, made clear where he stands by stating in his testimony this year that he would "strongly recommend" a presidential veto of legislation that sustains the unnecessary continuation of the C-17.

The reason the Secretary feels strongly about this is because he believes, as he told the House Armed Services Committee a year ago, that "a dollar spent for capabilities in excess to our real needs is a dollar taken from a capability we do need."

Mr. Chairman, this remains our position on the C-17 today, and I want to thank the Congress for supporting that position in all the defense bills that have been reported or passed by the House or Senate this year, and I welcome your questions.

Senator CARPER. Mr. Estevez, how did he do?

Mr. ESTEVEZ. He did exactly what we expected.

Senator CARPER. That is good. All right.

General Desjardins, please proceed. Thank you.

TESTIMONY OF MAJOR GENERAL SUSAN Y. DESJARDINS,¹ DIRECTOR, STRATEGIC PLANS, REQUIREMENTS AND PROGRAMS, HEADQUARTERS AIR MOBILITY COMMAND, U.S. AIR FORCE

General DESJARDINS. Mr. Chairman, Senator McCain, and distinguished Subcommittee Members, thank you for the opportunity to testify about our Nation's strategic airlift requirements.

As the Director of Strategic Plans, Requirements, and Programs for Air Mobility Command, I and my staff translate air mobility mission requirements of the armed forces and the U.S. Transpor-

¹The prepared statement of General Desjardins appears in the Appendix on page 49.

tation Command into fielded capabilities. We do this by long-range planning, requirements assessment, and funding allocations that support our ability to organize, train, and equip our mobility forces.

We are faced daily with difficult choices as there are many more requirements than resources, more combat needs than dollars or manpower available. The Mobility Capabilities and Requirements Study-16, or MCRS-16, is an important tool that assists us in making some tough, near-term choices that chart AMC's path towards the future. By clearly quantifying valid operational needs, we can more accurately streamline and shift our limited resources to meet other pressing mission requirements. MCRS-16 determined that our program's strategic airlift fleet of 223 C-17s and 111 C-5s provides excess capacity that permits the retirement of our oldest, least reliable aircraft. These C-5 retirements will free up the manning and dollars needed to assign 16 C-17s to the Air Reserve component. The retirements will save approximately \$325 million over the future years' defense program in depot level maintenance, flying hours, and modernization costs.

Conversely, if aircraft retirement restrictions direct us to maintain a fleet in excess of the wartime lift requirements, then additional manpower, infrastructure, and resources would be needed to operate a larger fleet.

To ensure the long-term viability of our strategic airlift fleet, AMC continues to invest in the necessary upgrades of our C-5 and our C-17. The C-5 provides a combination of outsize capability, high-capacity, and long-range airlift that is unequaled by any other airlift platform.

The almost complete C-5 Avionics Modernization Program will provide continued access to worldwide airspace. The Reliability, Enhancement, and Re-engining Program (RERP) is a vital modernization program. The 52 C-5s currently programmed for the RERP modification will provide more reliable, efficient, and enhanced strategic airlift at a reduced cost. We are confident the modernized C-5M, or Super Galaxy, will achieve our operational and sustainment goals and will meet the worldwide air traffic performance standards.

The C-17 continues to be the backbone of our Nation's strategic air mobility fleet. It exceeds expectations every day under very challenging operational tempo as we support the drawdown in Iraq, the plus-up in Afghanistan, and all other ongoing mobility operations worldwide. It adds great breadth and depth to the mobility playbook because of its mission versatility, responsiveness, and enhanced capabilities.

The program fleet of C-17s and the modernized C-5 fleet provide the Nation with sufficient, flexible, and responsive inter-theater airlift to meet our wartime and peacetime needs. I am confident that our Nation's strategic airlift fleet will remain the keystone of the Department of Defense's ability to rapidly deliver cargo and personnel anywhere in the world.

Air Mobility Command will continue to support our joint and coalition partners while balancing the requirements to be responsible stewards of the taxpayers' hard-earned dollars.

We greatly appreciate Congress' support of America's air mobility fleet. Thank you again for the opportunity to appear before you today.

Senator CARPER. Thank you very much, General.

We will do 7 minutes for our first round, and if we need a second one, we will use that as well.

General Desjardins, I just want to come back to your testimony. Thanks very much for your testimony. But I just want to try to be clear on one point. Is it the policy of the Air Mobility Command that we do not need any additional C-17s?

General DESJARDINS. Yes, sir. We do not need any more C-17s.

Senator CARPER. All right. And what does the Air Mobility Command believe to be the appropriate mix, if you will, of C-17s and C-5s?

General DESJARDINS. Sir, the program fleet of 223 C-17s and 111 C-5s currently, according to MCRS, provides, as you indicated in your chart, 35.9 million ton-miles a day. That is excess capacity. The 32.7 million ton-miles a day is what the Mobility Capabilities Study determined was what we needed to meet the future 2016 challenges that we have ahead.

So with that excess capacity, then we would look to retire our least capable C-5s, and that is what we had asked for, 22 C-5s; 17 in 2011, and 5 in 2012.

Senator CARPER. And by retiring the C-5s, I think you said we would realize a savings if we retired with 2 years the 22 C-5As, realize a savings of about \$300, \$320 million. Is that right?

General DESJARDINS. Yes, sir.

Senator CARPER. It was not that long ago that I think we had some folks in to see us, very senior people in airlift, I think maybe even the Joint Chief at this time from the Air Force came in and said basically we want to buy another 30 C-17s, and we are going to pay for it by retiring 30 C-5s. And I said, I do not think the math works on that. I do not think the math works on that.

Mr. McCord, Mr. Estevez, would you just comment on the math of that tradeoff, retiring 30 C-5s and using the monies therefrom to buy 30 C-17s? Does that work?

Mr. MCCORD. No, Senator. We agree that would not work, and just to follow up on the General's point, if we already have excess capacity, then making tradeoffs between two types of airplanes when we already have enough of both is not really going to be a way that is going to be cost effective to have more of one and less than the other if we still end up with more than we need.

Senator CARPER. A couple of months ago, Secretary Gates came before our caucus, Democratic caucus at lunch, and our Republican colleagues have similar caucus meetings every week, and I am sure they invited folks from time to time to share their thoughts. One of the questions that I asked Secretary Gates and I am going to ask you all here today: If we buy additional C-17s, what does it mean we do without? That was the question I asked, and let me just ask you all to comment on that as well. If we buy more C-17s that apparently we do not need, what does it mean we do without? Please.

Mr. MCCORD. Senator, I guess at the end of the day you, in Congress, would decide that because you would cut something from our

budget to pay for them. About \$300 million for every C-17 that is added is the going price. Already we have had \$10 billion added over the last 4 or 5 years beyond what we have asked for, and should Congress add any more, then, again, you would be making that choice really here of what you would cut out of our budget to pay for it.

Senator CARPER. I will tell you what Secretary Gates said. He said, "There are things that we need to better ensure the safety and the effectiveness of our warfighters, and to the extent that you take away money for those needs and simply use it to buy aircraft that we do not need, you put in danger our warfighters. Rather than making them more effective and safer, you make them less effective and less safe."

I thought that was a very compelling argument. I think we will find out maybe later this year how compelling our colleagues find that argument to be.

I will ask one more question, and then I will yield to Senator McCain, but this is another one for Mr. McCord. General Desjardins has said in her testimony that in order to manage our excess strategic airlift capability, we will need to retire older C-5As, and we talked about maybe 22 of them over the next couple of years. If Congress appropriates funding for more C-17s this year, then we could have to retire even more C-5As if that argument is credible. This balancing act could keep on going and going and going. And if we retire all the C-5As, maybe we can retire—actually, if you do the numbers, 22 C-5As, we save what, \$320 million? If you retire all the C-5As, that would enable us to buy maybe three or four new C-17s. I think that is an intellectually honest argument. But in your eyes, would that be a cost-effective process? And does a cycle like this make it more difficult for you and Secretary Gates to achieve your goal of about \$100 billion in budget savings over the next 5 years.

Mr. MCCORD. Yes, it would, Senator, because first of all adding force structure is kind of the ultimate cost driver in the Department. So many things flow from having extra force structure: Training, manning, operating, having construction projects to base those things. And we are under a floor from the Congress right now, so we cannot have less than X number of both strategic airlift planes and C-5s specifically. So it is not clear that we could retire anything even if we wanted to, so any more planes that are added are basically increasing in an area where we already have excess, and adding force structure always adds costs.

Senator CARPER. All right. Thank you.

Does anybody else want to make a comment?

Mr. ESTEVEZ. If I could.

Senator CARPER. Mr. Estevez.

Mr. ESTEVEZ. First, as you noted, I did come in from theater last night, and I just want to say that I had the opportunity on the ground for 6 days in Afghanistan to observe our magnificent strategic—

Senator CARPER. What did you see?

Mr. ESTEVEZ. We were in Kabul—

Senator CARPER. Give us a flavor, if you will.

Mr. ESTEVEZ. Sure. We were in Kabul, Bastion where the Marines are in Helmand Province, Kandahar, and Bagram. We got to see C-17s delivering force. They were in every one of those places. Counter-IED enablers such as Aerostats that we were putting up above outposts so they could see the enemy at a distance, and MRAP capability, which we were delivering direct to the warfighter in those locations. Watched the handoff between the aerial porters and the Army at Bagram to put force out into the field. Just a magnificent flow going in. A true testament to our logistics capability in one of the hardest places in the world to get force into.

Senator CARPER. How was the morale? How was the morale that you witnessed?

Mr. ESTEVEZ. I thought the morale was pretty good, and good assessments, frankly, on the ground. It is a tough fight, but people think that we can do this.

Senator CARPER. Good.

Mr. ESTEVEZ. I am very proud to have been out there to observe our force engaged.

Senator CARPER. Good. Glad you were there.

Mr. ESTEVEZ. With regard to the mix here, when we were looking at the C-5 RERP 2 or 3 years ago, it is most cost effective to maintain the C-5 fleet than it is to replace the C-5 with a C-17. As you said in your opening statement, and as Senator McCain alluded to as well, it is important to have that balanced mix. Aircraft are different things for different purposes, all related to the strategic mobility. We have a good mix right now, so replacing C-5s with 15 C-17s is definitely not the most cost effective way to sustain the airlift system and the airlift capacity we have. As we noted, we are in an overcapacity situation, so retiring some because we do not need it is OK, but buying more so that we retire more is certainly not the way the Department needs to balancing its business in this airlift system.

Senator CARPER. Thanks. And before I yield to Senator McCain, let me just—I like to use this example of—I call it the pens and pencil example, and I have two C-5s here, A's or B's that need to be modernized. They have one C-17. For the cost of fully modernizing two C-5As or C-5Bs, we can buy one new C-17. We were told by the Air Force that the useful life on these C-5s is maybe another 30, even 40 years. And as good an airplane as this is, these C-5s, fully modernized, can carry roughly twice as much and, as we have seen, fly in some cases like twice as far.

Now, that does not take anything from the C-17, which can do some things especially with small fields and austere field that the C-5s can do. That is a pretty compelling argument. You buy one of these, you get two of these modernized, fly them for another 30 years or so. They carry roughly twice as much, and you can fly them twice as far.

That is a pretty compelling argument. I think it is one of the things that has led Secretary Gates, this Administration, and the last Administration to recommend to us that we go forward with the C-5 modernization, holding Lockheed Martin's feet to the fire to make sure they deliver. But to the extent that they can, it seems like to me a pretty decent bargain for taxpayers.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Mr. Estevez, I was also there over the Fourth of July, and I bring back the same impressions that you do. I also have a very strong impression that the C-130 is doing an incredible job since that was our primary means of transportation around the area. It is not the most pleasant way to ride, but it certainly does the job, as I am sure you are very aware.

Mr. ESTEVEZ. I agree with you on all fronts there, Senator. [Laughter.]

Senator MCCAIN. I do not know why they place those aluminum poles always in the center of your back, but someday—there are some things that I will never understand.

I think we need to put a little more perspective on the costs here we are talking about. Isn't it true, Mr. McCord, it has been about \$8.25 billion we have spent just on the additional C-17s that Congress has appropriated? Isn't that true, roughly?

Mr. MCCORD. Roughly. I think it might be a little higher, but roughly correct, yes.

Senator MCCAIN. So let us call it \$8 or \$9 billion that we have spent on aircraft that the military says they neither want nor need. But I am not sure that the average taxpayer understands the costs involved with training, maintaining the crews, all of the aspects of these aircraft that add additional billions of dollars to the cost. Could you elaborate a little bit on that? And also you, Mr. Estevez, if you want to.

Mr. MCCORD. Yes, Senator. As I said earlier, every force structure increase necessarily carries with it cost increase because you have to man that force structure, train people on that equipment. You have bases. You might need a new hangar for a plane. It would sort of depend. If you only added one, that would be one thing. If you add 43, as it indicates here, then you are definitely going to need new bases, new equipment, new tooling at these bases, all these sort of things that add costs to operate and maintain and train people for that equipment.

Senator MCCAIN. So we are talking about billions more. I do not know if we have any real estimate of those additional costs. I would be interested.

Mr. ESTEVEZ. Well, I always say that giving us something that we do not need is a gift that keeps on giving, because we are going to sustain it if it is in the force structure. So a C-17 costs around \$23,000, a little more than that, per flying hour that it is used. If we have it, it is going to be used because it cannot sit there; otherwise, it is going to rot. That includes some training involving that crew structure. But that is a gift that keeps on giving, so we have 10 and that is \$23 million per year to sustain that, and over time, a 30-, 40-year life cycle, we are talking a substantial amount of money.

Senator MCCAIN. And we are not including in that estimate the costs of, say, additional hangars or additional equipment and necessary items to keep those aircraft flying. I do not know if anybody has a handle on it. I have never seen an estimate of those additional costs. I am sure they are very hard to get at because at one base they may just be able to use existing facilities; at others they may have to build additional ones.

Mr. MCCORD. That is correct, sir. Our staff this morning got me a figure of approximately \$1 billion a year for the 43 that have been added, for the operating and support costs for the 43 that have been added, not all of which are in the fleet yet, but steady State, about a billion a year.

Senator MCCAIN. Mr. Chairman, I would argue that is another point that we need to make to our colleagues. It is not just a one-time expenditure of some billions of dollars, but it is also additional billion dollars at least per year of additional costs.

But that also, as I understand it, will then require the retirement of C-5s. Is that an accurate statement?

Mr. ESTEVEZ. That would be what we would like to do. Frankly, we need some legislative relief in order to get down to the numbers that we want to for—

Senator MCCAIN. And why do you want to do that? Because we have overcapacity?

Mr. ESTEVEZ. Because we have overcapacity, exactly, Senator.

Senator MCCAIN. And yet the reason why you are saying that you have to do this because of overcapacity, these are perfectly—C-5s are perfectly good aircraft that have 10, 15, 20, 25 years additional life on them that they could have. Is that correct?

Mr. ESTEVEZ. That is correct.

Senator MCCAIN. So we are talking about the \$8 to \$9 billion, a billion dollars a year, and then the costs of retiring and not keeping perfectly good assets. So the ripple effect of this action by Congress is rather significant.

Mr. ESTEVEZ. Yes, sir.

Senator MCCAIN. General, do you have sufficient—suppose that we just went ahead and bought these additional C-17s and even more to come if the appropriators have their way. What does that do to your requirements?

General DESJARDINS. Well, Senator, it is as we spoke about. We are already at excess capacity. We have a shortfall then someplace else. And so we would have to look at, consider retiring the excess capacity that we have got in the strategic airlift fleet.

I think that as retiring—your point earlier about retiring and how much does that cost, certainly we owe two reports on strategic airlift requirements, and then C-5 re-engining, we owe a couple of reports, as well as getting relief from 316 strategic aircraft.

But even storage costs to the tune of—if it was 2000 storage, if you will, where we would have access to spare parts for the retired C-5s, that costs money, too, about \$50,000 per aircraft. So there are costs associated, but we would look at it and consider our least capable aircraft in the fleet and have to stop flying them.

Senator MCCAIN. Well, if we could have from Secretary McCord and Mr. Estevez, if we could have a possible—just a paper, a couple of pages, as to not only the costs of each of the additional C-17s, but the ripple effects of it I think are rather important in case the Chairman and I have to engage in debate and discussion on the floor of the Senate. This could lead to that kind of a situation if the appropriators continue to add C-17s in the defense appropriations bill.

Again, this is an important hearing because I think we all know that with the present economic situation in the country, there is

going to be every part of the Federal budget squeezed, and the defense budget will not be immune from that. The Secretary of Defense has already announced that he intends to reduce costs by over \$100 billion in the next 5 years, and he may be required to do much more than that, depending on what happens in Afghanistan and other parts of the world.

So this is a fight worth having. We have been having it now for several years, and I think maybe the environment is now at a point where we will be able to prevail over the appropriators, and it is very helpful that we have a Secretary of Defense who is a man of enormous credibility on both sides of the aisle.

I thank the witnesses. I thank you, Mr. Chairman.

Senator CARPER. Thank you, Senator.

I want to come back to—I just want to clarify a point. I raised this earlier. I just want to come back to it again as a follow-on to one of the questions that Senator McCain was asking. If we retire 22 C-5As over the next 2 years, did I understand that the savings would be about \$320 million. Is that the number that I heard?

General DESJARDINS. Over the fiscal year DP, that is correct, Mr. Chairman.

Senator CARPER. And that works out to, I think, about \$15 million a copy. And in doing that, that may be the right decision. Far be it from me to prejudge, but if later on the modernization program for the C-5Bs goes well and we have retired these C-5As, do we have the ability to go back and say, no, Lockheed Martin did a great job, they are getting 80-percent mission-capable rate on those C-5s that they have modernized, maybe we should do something with those 22 and bring them out of mothballs. Can we do that sort of thing? Is that realistic? Or is it too late at that point in time?

General DESJARDINS. Mr. Chairman, it would depend on the kind of storage or retirement status we would put them in. But I would add that the Air Force is very committed to the modernization programs for C-5, and I did also want to add that we are using—we have three C-5s that have been re-engined and—

Senator CARPER. I have seen them all.

General DESJARDINS. Yes, sir, and we are using two of them right now in the surge, and they are performing very well.

Senator CARPER. Good.

General DESJARDINS. So I just wanted to add that.

Senator CARPER. Good. Thank you.

Now, General Desjardins, let me just ask a follow-up question. The 22 C-5As that are maybe focused on for early retirement or for retirement, do they have significant service life left? Or are they on, if you will, their deathbed? What do you think?

General DESJARDINS. Mr. Chairman, we have looked at these 22. Not all of them have we identified by specific tail numbers, but we have looked at the bad performers, if you will. Do they have service life yet left? Yes, they do. But compared with the rest of the fleet, these are the least—we would retire the least capable ones.

Senator CARPER. When you were flying C-5s, any idea how many flight hours you have in C-5s?

General DESJARDINS. I do not have very many, sir. Just over 100 in the C-5.

Senator CARPER. What I have heard over the years is the big problem with C-5s is the engines, and when you have had a broken C-5 somewhere around the world, in many cases it was the engines. And in the modernization, they have traded out the old engines for, I think, the same GE engines that they use on Air Force One, as I recall, and we have sort of increased tenfold the reliability of those engines.

General DESJARDINS. Yes, sir. And as you know, the enhancement program also includes 70-plus subsystems that were also not performing where they needed to be. Each added up to achieving a certain mission-capable rate in addition to the engines to get us where we need to be at initial operating capability plus 2 years.

Senator CARPER. OK. Thanks.

If I could turn to you, Mr. Estevez, I think part of the responsibility of the ATL office—and what does ATL stand for?

Mr. ESTEVEZ. Acquisition, Technology, and Logistics.

Senator CARPER. Yes, it does. The office in DOD is to be wary of industrial-based concerns as well. We have been told that we ought to buy more C-17s in order to keep the C-17 production line alive in case our airlift demand drastically increases, even beyond the most demanding scenario that we looked at on one of our charts over here in the recent study. We have talked with aircraft producers in the past. They have told us that when you shut down a production line, you do it in a way that is not permanent. Or to put it another way, they store the production equipment away so that the line could be re-established in the future. Is that a possibility with the C-17 line? And if Congress, for example, did not buy any more C-17s in the fiscal year 2011 year, would the production line be permanently shut down? And part of this, I know the folks that make the C-17, as I said earlier, an exceptionally good plane. It is not just the United States that uses them, wants to use them in providing airlift. My understanding is other countries have purchased or are endeavoring to purchase the C-17s. Where does that fit into all this in terms of production line, keeping the line going?

Mr. ESTEVEZ. There are a couple of facets to your question, so I will take them—

Senator CARPER. Take your pick.

Mr. ESTEVEZ. With regard to shutting down a line, what we would do is we would take the special tooling related to that line. We would put that in storage should we for some reason need to restart that capability. So it would be there. There would be expense related to doing that. That would not be the best way to go about it. Frankly, there is an industrial base that we are fortunate to have in this country that can build wide-bodied cargo aircraft, and we would more likely draw on that base for our next generation of airlift rather than restart that line. But it is a possibility to restart that line.

Let me just address—there is another industrial base that we need to consider in this process, and that is our carriers, aircraft liner companies that we use under our Civil Reserve Air Fleet program to haul cargo for us that provides us additional capacity in our go-to-war capability, and they are doing also a magnificent job in sustaining both our forces in Iraq and Afghanistan today.

Should we have more capacity than we need, at some point we dry up the dollars that are available to sustain that industrial base. So, again, it is important to balance the whole mix of capacity that we have out there, and sustaining those craft carriers is one of our key capabilities that we need to retain.

Senator CARPER. Good. One of the questions that I wove into that mix of questions was whether or not there is an appetite from other countries, including some of our NATO allies, to acquire C-17s. I think some have, and my understanding is that others are interested in the aircraft. Can anybody comment on that?

Mr. ESTEVEZ. There are other countries, and I would turn to the General to fill that out. The British have some. The Australians have some. It is not a cheap plane, so some of our allies do not have the resources that we are blessed to have.

Senator CARPER. But it turns out we do not. We borrow. If we do not have the resources, we just go out and borrow the money to buy them.

Mr. ESTEVEZ. So there are some allies that do have that capability, and there are some that are buying, continuing to buy from the Boeing line.

Senator CARPER. Good. One of the things that the President has been pushing in recent months is to, I think, double over the next 5 years our exports from this country, and this could be one of the very good things that we make well that we might want to export more of.

I have maybe one last question, and this would be for Mr. Estevez and for General Desjardins. Three years ago, we faced a situation where strategic airlift was in short supply, and we were supposedly leasing, I think, a Russian aircraft—I think it is called An-124. Were they called Condors? Did they call them Condors? I think they did—from the Russians in order to deliver cargo to the battlefield. And I assume that we have since stopped this practice given the Air Force wants to retire 22 C-5As. Could you all confirm that we have stopped leasing the Russian aircraft?

Mr. ESTEVEZ. We still use the Russian aircraft in situations, and I am going to turn to the General to fill this out. But we select the right aircraft for the right mission for the right time. An-124 can carry eight MRAPs; a C-5 can carry five MRAPs. An-124, because it is a commercial plane, being sustained for commercial business, has a reliability that it lands at Bagram and takes off without repair and, frankly, it is more cost-effective than flying a C-5 in for that mission.

So when the opportunity arises to use the right aircraft, then we are able to lease it and re-lease it through a U.S.-flagged carrier. We use that aircraft. I think it is less than 1 percent of the total craft costs that we have expended.

Senator CARPER. All right. General Desjardins.

General DESJARDINS. Sir, this does not mean that we are not using the C-5 and the C-17 for these outside—when we need to use the C-17 and C-5, depending on what kind of field they need to go into, potentially a threat environment, then we definitely want that organic capacity and that capability to be able to do that. But this is contracted through TRANSCOM. It is not a lease. It is

a contracted service that we do take advantage of, but in small amounts, less than 1 percent, as Mr. Estevez indicated.

Senator CARPER. Is it 1 percent of missions? Is it 1 percent of cargo delivery?

General DESJARDINS. Flying hours. Of the flying hours, total flying hours for the craft.

Senator CARPER. All right. Thanks.

All right. I do not always do this, but I want to do this today. We have had a chance to hear from each of you. You have had a chance to hear from Senator McCain and myself on these issues. I just want to give you maybe a minute apiece, if you would like, just to give us some closing thoughts, giving us interchange and ideas that have been exchanged. Feel free to re-emphasize some of the points that you have already made or to refocus on others.

I think in our business repetition is good. We call it staying on message. But feel free, if you want to repeat some of the points you have made or just to re-emphasize, to underline those, or if you want to maybe make another point in closing.

Secretary McCord, why don't you go first?

Mr. MCCORD. Thank you, Senator. I guess the only other point I would want to make is that while the possibility is always out there that the requirements will turn out to be greater than we have said, we have studied this many times now, and we do not believe that is the case. But even if we were wrong by a little bit, we already have, as the General has alluded to, and you have on your chart, a pretty healthy buffer in the excess capacity we already have today, and that even if we were wrong, the first place we would go is to what we already have on board today to deal with any such mis-estimate. You would have to go all the way past that to even think about needing to buy more C-17s. But as Mr. Estevez has said, RERP'ing or modifying the C-5s we have now would still be more cost effective even if we got to that point of going past all the excess capacity we already have on board today. So we just do not see a case for needing any more.

Senator CARPER. All right. Thank you, sir. General Desjardins.

General DESJARDINS. Sir, I would just say a couple things. This MCRS-16 study was probably the most extensive study that has been 2 years in the making—

Senator CARPER. Really?

General DESJARDINS [continuing]. And some very stressing cases, looking forward to 2016, and so I think that it is something that has been studied—mobility coverage airlift has been studied a fair amount, but I would say that this is, like I said, 2 years in the making, and very relevant to where we are and came up with a million ton-miles per day that shows that we do have excess capacity.

I would ask that we—again, we owe the Congress a couple of reports that we are working to get to you so that we can get retirement relief of the C-5As so that we can continue to operate the fleet the way that we need to so that we, again, are not corporately, the Department, we are shortfelled somewhere else. So we would like to do that.

We do not need any more C-17s, and the fleet that we have right now, the programmed fleet, is a strong fleet and it is right-sized.

Senator CARPER. All right. Thanks.

Before I turn to Mr. Estevez, I think a couple of years ago we actually asked the Air Force when they were talking about the 30-30 deal, retire 30 C-5As, the dogs, the worst of the C-5As in order to pay for buying 30 new C-17s, which does not work, as we talked earlier. Just the math does not work. Maybe with the savings of retiring 22 or in that case 30, you could maybe—I do not know—buy five or six, maybe five C-17s. But we asked the Air Force, I think—Mr. Geer, correct me if I am wrong. Didn't we ask the Air Force to identify by tail number the worst-performing C-5As? Did we ever get that list? We never got answers. We never got any tail numbers from them. You might just anticipated we would be wanting to see that list.

General DESJARDINS. Yes, sir.

INFORMATION SUBMITTED FOR THE RECORD BY GENERAL DESJARDINS

The following are the 22 C-5A's at the top of the retirement list. Please note that tail numbers may change if schedule inspections reveal costly repair actions:

70000453	70000459
70000457	68000217
70000447	69000017
69000003	70000446
70000466	68000225
69000027	69000001
69000008	68000211
70000464	69000015
70000454	70000465
70000455	69000019
70000462	70000467

Senator CARPER. OK. Mr. Estevez, the last word, please.

Mr. ESTEVEZ. First I will say that we will have those 22 identified if we get the congressional relief that we are asking for in order to retire unneeded capacity.

I am going to take you up, Senator, on repeating the message. We do not need more C-17s. We have studied this repeatedly. No studies have come back and said we need more capacity. In fact, we are over capacity to the point that we had in dialogue with Senator McCain. It is not just the procurement cost of a new airplane. It is a gift that keeps on giving. You have to sustain that plane, once you have it, over time, and that is a cost that also could be doing other things inside the defense budget that are more important than having more capacity than we need.

So we appreciate you having this hearing to let us make the case that we have the airlift capability that we need and to hear us out in that regard.

Senator CARPER. All right. Thanks.

Well, thank you very much for taking the time to appear before our Subcommittee today. I thank each of you for your service to our country, and some of the folks on our Subcommittee will probably have some additional follow-up questions. How long do we have to submit those, do you know? Two weeks. Two weeks. And I would just ask, if you get any additional questions from Senator McCain or myself or our other colleagues, that you respond to those soon.

Again, thank you. We look forward to working with you, not just with respect to providing cost-effective airlift but other ways to save money and to do so in a way that does not undermine our se-

curity of this country and our ability to defend itself. Thank you so much.

Mr. MCCORD. Thank you.

General DESJARDINS. Thank you, sir.

Senator CARPER. We would invite our second panel of witnesses forward, both witnesses. Mr. Gertler, welcome. Mr. Greer, welcome.

Whenever I meet somebody whose name is Jeremiah, I am always reminded of a song, and the one you have probably heard more times than you care to recount.

Mr. GERTLER. Sir, sixth and seventh grade were a particularly unfortunate time.

Senator CARPER. I suspect they were. [Laughter.]

Senator CARPER. Great song. Having to be Jeremiah, it could probably have been a little trying at times. I understand you go by J.J. What is the second J?

Mr. GERTLER. Joseph, sir.

Senator CARPER. All right. Well, we are honored that you are with us. We understand you joined us today from the Congressional Research Service, and I am told by Mr. Geer back here that you are their top military aviation specialist. That is quite a billing.

Mr. GERTLER. Yes, sir. I would temper that observation by noting I am the only military aviation specialist of CRS, so I am also the bottom one.

Senator CARPER. All right. Well, I understand you came to CRS with extensive experience in providing defense analysis to the Congress in your 10-year career on the Hill, served in positions on the House Armed Services Committee and the Senate Armed Services Committee, where you conducted oversight on the entire defense procurement budget and issues related to missile defense.

The House Armed Services Committee, when you were working over there, who chaired?

Mr. GERTLER. Actually, three chairmen during my tenure, sir: Floyd Spence, Bob Stump, and Duncan Hunter.

Senator CARPER. All right. And on the Senate Armed Services Committee?

Mr. GERTLER. I was not on the committee staff. I was on the staff of a member of the committee handling committee issues for Senator Charles Robb from Virginia.

Senator CARPER. OK. And in addition to your time on the Hill, I am told, Mr. Gertler, that you have also served as analyst at the Department of Defense during part of the Clinton Administration and as a senior fellow at the Center for Strategic and International Studies. We thank you for your testimony today and look forward to hearing from you as we delve into this issue.

Mr. GERTLER. It is an honor to be here.

Senator CARPER. Our second and final witness is Dr. William Greer from the Institute for Defense Analyses. The Institute for Defense Analyses is a federally funded research center that conducts research and analysis on issues of national security for policymakers. Dr. Greer is the Assistant Director of the System Evaluation Division at the Institute for Defense Analyses. Dr. Greer's service at the Institute of Defense Analyses has included conducting studies on air mobility and a range of other aviation issues.

Dr. Greer was a task leader of the congressionally mandated study on the Size and Mix of Airlift Force, which was published in February 2009.

Dr. Greer, I understand that your testimony will focus today on the conclusions you came to in the course of that study. We are eager to discuss whether these conclusions can be applied to our current airlift discussions. We thank you for your testimony. I think it is going to be quite insightful and I think useful as we move forward on these issues and these deliberations. Thank you.

Your entire testimony will be made part of the record. I would ask each of you to use maybe roughly 5 minutes. If you go a little bit beyond that, that is all right. If you go 25 minutes, that is not all right. I will have to rein you in before we get that far along. But, again, thank you both. Please proceed.

TESTIMONY OF JEREMIAH GERTLER,¹ SPECIALIST IN MILITARY AVIATION, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS

Mr. GERTLER. Thank you, Chairman Carper, and thank you for inviting me to testify and participate in this hearing on behalf of the Congressional Research Service (CRS).

Senator CARPER. Do you two know each other?

Mr. GERTLER. For about an hour now, sir, yes.

Senator CARPER. All right. Fair enough. Please proceed.

Mr. GERTLER. As this is my first testimony since joining the Congressional Research Service, I wish to acknowledge for the record the significant contributions made to CRS' work and to that of the entire Congress by my predecessor, the late Christopher Bolkom. As a former staffer and client of CRS, I well know and share the regard in which his counsel was held by Members of the Congress, and I hope only that my work will do credit to his memory.

That work today concerns strategic airlift. I will not repeat the many facets of the current request or current situation regarding C-17s and C-5s that have already been gone over by the previous witnesses.

Senator CARPER. Let me just interrupt for a moment. As I said earlier to the first panel, sometimes repetition is helpful. Sometimes it is not. So do not be reluctant to emphasize or re-emphasize—

Mr. GERTLER. Well, I was being mindful of your 25-minute dictum, sir.

Senator CARPER. Fair enough.

Mr. GERTLER. In that case, as you know, the 2011 budget submission does not include any further procurement of the C-17 transport and proposes to retire 17 C-5As.

In previous years, Congress has added C-17s beyond the number requested. So far this year, both authorizing committees and the full House have acted on the bill. None has added any new C-17s. None has added any additional C-5 modernizations.

As Members of the Subcommittee know, Mr. Chairman, Congress traditionally adds programs to defense budgets for quite a number of reasons. Each of these is discussed more fully in my written tes-

¹The prepared statement of Mr. Gertler appears in the Appendix on page 53.

timony, but, briefly, they include such factors as policy differences with the Executive Branch, as seen in the case of the alternate engine for the F-35 Joint Strike Fighter and the V-22 Osprey and in the Congress' annual solicitation of the services' unfunded request lists.

Another factor is to maintain options for future policy changes, as in the sustainment of the B-1 bomber prior to the 1980 Presidential election, which allowed the voters to choose between the two candidates' competing visions for that program.

Constituent benefit. As members' statements and press releases make clear, economic and employment benefits for a particular geographical area underlie a number of congressional procurement decisions.

To maintain a viable industrial base: Separate from the constituent interest aspect of keeping production facilities open, maintaining national capabilities to design, develop, and manufacture certain defense items has been seen as a goal worthy of national investment. Indeed, this interest is not unique to Congress. The Department of Defense itself has on occasion requested systems, absent formal requirement or in excess of them, in order to preserve industrial capabilities.

To reduce risk. Now, "risk" is one of the less consistently defined terms used in defense discussions, but it usually attempts to measure the probability that a particular military goal will not be met by a certain schedule. If a particular force posture is deemed high risk, Congress has added assets in order to bring that risk down.

And to hedge against changes in requirements from current projections. One common observation regarding the post-Cold War world is that uncertainty is the norm in defense planning.

Budget requests are based on estimates of future challenges and threats, projections of U.S. national interests, and the likely capability requirements extending from them. But even highly educated projections have at times not foreseen substantial challenges. Other times, Congress may have differences over the assumptions or analytical process of an important study. Adding unrequested systems can be seen as giving commanders flexibility in case future events differ from DOD's projections.

That brings us to today's hearing. DOD's most recent study of airlift demand, the Mobility Capabilities and Requirements Study-2016, is classified. But its unclassified executive summary stated, "With few exceptions, MCRS found the Department's planned mobility capabilities sufficient to support the most demanding projected requirements." It went on to say that the capacity of the Department's strategic airlift fleet exceeds the peak demand in each of the three MCRS cases that they studied.

Critics, some of whom are advocates of further C-17 production or additional C-5 modernizations, can have legitimate questions about that conclusion. It is a challenge, Mr. Chairman, to address the contents of a classified study in an open session, but I have included in my written testimony some questions that readers of MCRS-16 can ask to gain insight into the relevance of the study's data and the validity of its conclusions.

Finally, as to cost effectiveness, it can be a very tricky metric. Costs from mature systems are comparatively easy to determine,

but the effectiveness side of the equation is more difficult to quantify because, as I have noted, the purposes for which DOD requests certain systems and Congress' goals in approving and/or expanding on those requests may not be the same. And, of course, another effect of spending on unrequested items is to divert money from known needs.

Instead of chasing any one element of this farther, I will stop here, Mr. Chairman, so that we may focus on the points of most interest to the Subcommittee.

Thank you for the opportunity to appear before you today on behalf of the Congressional Research Service.

Senator CARPER. Mr. Gertler, thank you so much. Dr. Greer, please proceed.

TESTIMONY OF WILLIAM L. GREER, PH.D.,¹ ASSISTANT DIRECTOR, SYSTEM EVALUATION DIVISION, INSTITUTE FOR DEFENSE ANALYSES

Mr. GREER. Thank you very much, Mr. Chairman. I am pleased to be here to talk about a recent study we have done also. Our study is not the MCRS study but one done a year before that, as you mentioned, and it is called the Size and Mix of the Airlift Force.

The Department of Defense selected us to do a study, which was actually requested by the National Defense Authorization Act in 2008. And so I am going to confine my testimony today, not to all the parts of the study we were asked to do, but I will confine it to the C-5/C-17 part of it, which is what is relevant here.

I will also ask that the lengthier version of my oral remarks be entered into the testimony.

Senator CARPER. Without objection, your entire testimony, including those remarks, will be included.

Mr. GREER. Now, the National Defense Authorization Act had a wide range of operational scenarios they asked us to look at: Peacetime operations, humanitarian aid, disaster relief, homeland security, irregular warfare, all the way up to major combat operations, so the whole gamut.

Within these, the study considered numerous alternatives that included upgrading existing C-5s and procuring additional C-17s. So we looked at a large number of alternatives, all of which had different mixes of these aircraft.

We also examined fleets that were both larger and smaller than planned for acquisition. We looked at operational effectiveness and life-cycle costs. So unlike the MCRS, ours was a cost-effectiveness study. So I will summarize the approach we took, the alternatives we looked at, and the main findings.

The program of record when we did our study 2 years ago was the base case that we used, and then we did excursions from that. For strategic airlift, the program of record actually only had 205 C-17s at that time, not 223. So that is what we used as our base case. It did have 111 C-5s for a total of 316 aircraft. The C-5s can be further divided into 59 C-5As and 52 C-5Ms. So that is the program of record.

¹The prepared statement of Mr. Greer appears in the Appendix on page 61.

Senator CARPER. When you say C-5Ms, do you mean C-5Bs or—

Mr. GREER. Well, I mean B's and C's that have been upgraded to the C-5M through the RERP process. One name for it is either C-5 RERP or C-5M.

Senator CARPER. Thank you.

Mr. GREER. So the RERP modification, by the way, just so you know, involves not just new engines and pylons but a number of other auxiliary power units—

Senator CARPER. What are some of the most important ones?

Mr. GREER. Well, the most important one would be the engines, no question about that.

Senator CARPER. But beyond the engines?

Mr. GREER. I have listed the auxiliary power units, and I do not remember the other multiple—I can provide that later.

Senator CARPER. OK. Thanks very much, if you could.

Mr. GREER. I just do not remember off the top of my head.

Senator CARPER. Just for the record. Thank you.

Mr. GREER. The most important one is the engines, though.

So I will just remind us again that we looked at 205 C-17s rather than 223. So the requirements—we had sort of two questions to answer here. What were the requirements? And did this program of record meet the requirements? And how did the alternatives match up in cost-effectiveness?

The requirements we used were different from the MCRS. The MCRS had not been done, so we did not have the same major combat operations details that they had. So instead we used the only other existing Department of Defense requirements, which was the MCS, the Mobility Capabilities Study from 2005, for the major operations.

For the non-major operations, we were able to take advantage of the latest—the SSSP or the Steady State Security Posture scenarios, which were the same as used in MCRS. So our requirements were a mixture of the non-combat ones from MCRS plus the major combat operations from the MCS.

When we take those scenarios, we looked at how the program of record matched itself against delivery, and we found that the program of record meets the acceptable risk for delivery in those scenarios, in all those scenarios combined. So the alternatives we looked at, just to mention them briefly, were not just the base case, which had 316 aircraft, but it looked at smaller and larger excursions that held the C-5 RERP fleet constant at 52 C-5Ms, while adding C-17s and/or reducing C-5As. We also looked at excursions in which all of the C-5s were RERP's to C-5Ms, all 111 of them, and then other ones in which we actually did not RERP all the C-5Bs that are currently planned, so something less than 52 would be RERP's and then either adding or subtracting other aircraft.

What we found, obviously, is that larger fleets do better than smaller ones. They cost more so there is a tradeoff in cost and effectiveness, but I will remind you that the program of record met the requirements that were postulated.

We addressed two other issues—several other issues, one of which was starting and stopping the C-17 line, which was one of the major questions asked of us. Our assessment of the C-17 line

shut down and restart is that continued production, even at very low rates of, let us say, five aircraft a year is expensive relative to the restart costs. So we think that the scenarios in our study do not call for any larger numbers, but if there were a requirement that emerged some time in the future, our feeling from our calculations is that restarting would be better than paying the cost as a hedge for continuing production, because the likelihood of that future requirement we think is fairly low.

The requirements that we used from the MCS study seemed to be very similar to that from the MCRS study after 5 years. So we do not see a reason for extrapolating to higher requirements.

We also looked at lifetimes, and we found the C-5s and C-17s all have lifetimes beyond the year 2040.

So, Mr. Chairman and other Members of the Committee, I will conclude there with my prepared remarks and be glad to discuss any of the other findings. Thank you.

Senator CARPER. Good. Thanks so much for those comments.

I would like to start off my first question just by asking you to look back just a little bit to earlier in the afternoon when we had three other people sitting at this witness table, and they gave us their testimony and responded to our questions. I just want to take a minute or two, each of you, and just reflect on what you heard that maybe you agreed with, anything that you did not agree with, or maybe just some thoughts that sort of grow out of what you heard them say. Please. Dr. Greer, do you want to go first, please?

Mr. GREER. I would be glad to. I did take a couple of notes.

Senator CARPER. I thought you might.

Mr. GREER. Some of the comments, the questions had to do with cost, and since the MCRS study really did not deal with cost, that was not in that study, but there were opinions expressed anyway. We looked fairly extensively at the cost of everything, and one interesting observation was the tradeoff of one for one if you buy a C-17 and get rid of a C-5A, what is involved there. And vaguely it was said this would not be a good idea.

Actually in our study we show that quite explicitly. There is about a factor of 2 in the difference between the money you pay to buy a C-17 and operate it for 25 years and the cost to operate a C-5A for the same period. It turns out to be around \$400 to \$600 million, depending on whether it is reserve or active. So that is about \$400 to \$600 million to buy—\$250 million of which is to buy it, the rest of it is to operate it, as Senator McCain was commenting about. And if you then compare that with getting rid of a C-5A, how much do you save? Over that same period of time, you save about \$250 million. So there is a factor of 2 difference. You pay more to buy a C-17 than you save in getting rid of a C-5. You would save—you would have to get rid of two C-5s to pay for the one C-17 that you bought. You would lose an airplane, one total airplane.

Let me just let you make some comments, and if you do not mind, I will look at my notes and see if there are any others I want to comment on.

Senator CARPER. OK. Thanks.

Mr. GERTLER. Senator, I think the most striking piece of testimony that I heard this morning had to do with the tail costs, the

idea that, yes, you buy the aircraft and that is one price, but it is so rare that we look at the costs to operate and support that over its lifetime.

Now, frankly, that goes both ways. If one is resuscitating a C-5, particularly one that has been retired and is going back through a modernization program, that, too, will have an operational tail cost, although the C-5Ms should have a lower operating cost than the current C-5A, B, C fleet, in large part due to the improved engines that get much better fuel efficiency. But consideration of a life-cycle cost rather than the year-by-year acquisition cost, which is what Congress seems so often to focus on, may lead to a different conclusion than if one just looks at the annual outlay.

Senator CARPER. Thank you. Thank you for those observations.

Mr. Gertler, I believe in your testimony you said to us that Congress sometimes adds on unrequested items to defense bills because they differ with the policy and not necessarily because of parochial concerns. You gave us a very good example in the F-35 alternate engine program. I know some members without parochial interests in the F-35 alternate engine believe that the competition of the alternate engine will drive down costs and produce a better quality engine. When it comes to adding more C-17s, are there any policy disagreements akin to the one that you cited with the F-35 alternative engine? And do any of these policy arguments have any merit in your opinion?

Mr. GERTLER. There are several policy arguments. I think the two main ones that come to mind as being on point with regard to the C-17 decision are the industrial base discussion, which we have had at some length. There has currently been or rather recently been a very public debate on this subject. Secretary Gates, in testimony a few weeks ago, stated that he believed that the commercial wide-body airline or aircraft industrial base would be sufficient to pick up the slack if we needed to go back and do another tranche of military cargo aircraft. And some members publicly took him to task for that statement and differed with him on that.

Senator CARPER. Say that again? What did the Secretary testify to? Just say that again.

Mr. GERTLER. That military—and I am paraphrasing here. That military cargo aircraft are just wide-bodied cargo aircraft, and we already know how to make civilian wide-bodied cargo aircraft, so the military—there may not be a military uniqueness to the C-17 production line or technology base. And, again, that is something over which people can reasonably differ, and have.

But I think the other significant one has to do with hedging, the notion of do we have margin if our projections about the future are wrong. In terms of the million ton-miles per day figures we saw, the Department currently has an excess of about 10 percent. Now, when an insurance salesman comes to your home and says, "I would like to sell you some insurance; something bad might happen to you," you make a decision about what it is worth to you to have that eventuality covered.

We have right now 10 percent worth of insurance already built into the program. Some members may believe that we need to have a greater insurance, that we need to have more excess in case our projections about future demand for airlift prove to be wrong.

Senator CARPER. Thanks.

Dr. Greer, if I could, a question for you. In your testimony, you discuss, among other things, the cost of restarting the C-17 production line if it were to be shut down in the next year or two. I believe that if Congress decided not to buy additional C-17s in fiscal year 2011, as I said earlier, foreign sales would prevent line closure, at least for the next couple of years. Could you further discuss the cost of restarting a terminated C-17 production line? Did your calculations include the possibility that foreign sales could at least keep part of the C-17 production line open for the next several years?

Mr. GREER. I would be glad to answer. First of all—

Senator CARPER. One more time. There you go.

Mr. GREER. Yes, sorry. Thank you very much. We did not take into account foreign sales. We were simply looking at U.S. acquisition, and it really would not change anything in our analyses other than the start date at which the line would shut down.

We looked at this from a point of view of an investment, very much like an insurance policy that was referred to before, is that if we have several hedging options against a future which might change dramatically from that which we have today. One would be to go ahead and build 15 a year. Another one would be to build five a year, keeping the line operating at a sort of sustainment level. And then a third one would be keeping a warm line active, which I think Mr. Estevez referred to as just keeping the tooling at very minimal cost, but not building anything. And then shutting it down. Those were the four different things we looked at.

It would take about a billion dollars, we think, to restart the entire facility from cutting it down, razing it to the ground, and building a new facility. This was a rough guess. There are numbers twice that much, actually from the Boeing company that it might be as much as twice that, but \$1 or \$2 billion seems to be the range that the Air Force and contractors believe is right. And this seems to be in accord with, comparison with other large facilities that have been proposed to be built to build large-bodied aircraft.

The hedging calculation then is to say how likely is it that you would expect to see a large requirement increase, and we do not see that very likely from any of the patterns we have seen in past studies.

Another angle we took on that was to say how many years would it be before—let us say we went 10 years and then discovered, my gosh, we really need to build—we have suddenly emerging very high requirements. We need more C-17s. We probably would build a different airplane at that time, but let us say we would still build C-17s. Would it have been smarter to have maintained the C-17 line or to have stopped it, 10 years from now restarting it? In that particular case, it actually would have been better to have stopped and restarted. You do not get—in the sense that you would have saved money overall because of the discounting value of dollars in the future spent versus dollars spent tomorrow. And the one advantage in continuing the production is that you would get the aircraft faster. You have already been building them, so there they are. But you have had to maintain them during a period of time when you did not need them, and then there is still time to build—

and whether you would build a C-17 10 years from now is still arguable. Probably new technology would come in, and a new airplane would be chosen.

Senator CARPER. Thanks. Let me just follow up on that. Do you recall—actually, either of you can respond to this one, if you will, but do you all recall—and you may have said this but I missed it, but has there been an aircraft production line that has been successfully restarted in recent memory upon having been shut down?

Mr. GERTLER. Actually two come to mind.

Mr. GREER. OK. I only know one, so you—

Mr. GERTLER. OK. That again is referencing, as I mentioned in my testimony, the B-1, which the Carter Administration canceled in 1997, I believe, production of that stopped. And it was restarted several years later under the succeeding Administration.

That was a fairly unusual case because in that case the contractor, Rockwell International, put an enormous amount of their own money, something in the vicinity of a quarter billion dollars, to keep the facility there, to store the tooling and to keep most of the workers employed so that they would be available. They were essentially betting on the outcome of the presidential election and that the subsequent Administration would restart the B-1.

But it should be noted, even with a large investment and their maintenance of large amounts of raw materials as well to start the B-1, it still took 3 years from when they got the go-ahead until the next plane came off the production line. So they were shut down for a long period, but the restart still took a good while.

That differs in a very significant way, I think, from the C-17 case, and it is this: At that time there was a thriving aerospace industry in Southern California. People who stopped working because a program went away at one plant went across the street to the plant that had just won a contract. And so there were a lot of workers to draw from when you restarted, when you got your contract.

That is not the case now. The C-17 line is the last airframe production line in California. And so there is a big question as to whether if you close the plant the workers would disperse to other industries and not be available when you decided to restart.

The other one that comes to mind—and I knew fewer details about this—is the C-5. The C-5A was built from 1969 to 1973. Congress decided to start the C-5B, and that ran from 1985 to 1989. There was a 12-year break in production of C-5s. But, frankly, I do not know much of the detail of how Lockheed facilitated to restart that production.

Mr. GREER. I do not know much more about that. We actually talked to Lockheed about the C-5's stop and restart, trying to get data for analyzing the case for the C-17, trying to find analogs. I know that they did stop and put their tools aside, kept them in mothballs, so to speak, so that they could use them again 12 years later. Most of the records from that period of time seem to have gone away, so it is hard to reconstruct the actual cost, which was our issue. So I cannot comment any more than that because there is no more information than that.

Mr. GERTLER. It should be said, I believe, though, that that was at Marietta, Georgia, which was a plant that was doing other pro-

duction of other aircraft during that period. It was not dedicated to a single aircraft in the way that the C-17 facility—

Senator CARPER. What else were they building? C-130s?

Mr. GERTLER. C-130s were made there. They were doing fighter work at the time?

Mr. GREER. They were doing fighter work. Which one would that have been? I do not know for sure. I do not remember.

Mr. GERTLER. Not coming off the top.

Mr. GREER. But you are right that there were—

Mr. GERTLER. And one other factor with regard to the C-17 facility. It is an enormous amount of property in Southern California. It is immensely valuable land, which is to say—

Senator CARPER. Roughly how many acres? Any idea?

Mr. GERTLER. I do not know. It is next to an airport, and I do not know how much of the entire airport facility Boeing actually owns.

Senator CARPER. Which airport?

Mr. GERTLER. It is part of the Long Beach airport.

Senator CARPER. OK.

Mr. GERTLER. But presumably, if the production line were shut down for a significant period of time, Boeing would want to operate on good business principles and monetize their asset.

Senator CARPER. OK. Thank you.

This might be my next to the last question for either of you, but, Dr. Greer, your written testimony indicates that there might be future ways to increase airlift outside of C-5s and C-17s. I think you discussed an interesting possibility of employing refueling tankers that are not being utilized to conduct airlift missions. To your knowledge, has the Department of Defense and the Air Force ever put this suggestion into practice?

Mr. GREER. Well, yes, sir. The tankers carry cargo all the time. The KC-10 self-deploys, carrying its own internal cargo that it needs wherever it goes. I am told from the Air Force that aircraft, KC-10s or C-135s, returning to the United States refueling, let us say, in Germany, if there is cargo at the base that needs to come back, rather than calling in an airlifter, they simply put it on the tanker. The tanker then brings it back.

The tanker has a fixed space for cargo, so the fact that it is carrying fuel does not displace the cargo. The cargo and the fuel go into totally different areas of the airplane. It does add weight, so you get more fuel burned, of course, if you are carrying cargo. So this is done frequently.

What I do not know would be done—this is a fair question to ask—is that in our analysis we assumed that the tankers that went to the theater, while waiting for tanking missions as we built up forces in theater, could they be used during their spare time, so to speak, carrying cargo around in the theater? They are not leaving the theater. They are still operating there. They are on call to come back and be a tanker when needed, but they can operate during this open time as airlifters. I do not know if we have experience with that sort of thing happening. But there is no question that tankers can carry cargo, they do carry cargo, and this kind of utility certainly is possible. It may be just a policy change, that is all.

Senator CARPER. OK. The next question I want to ask is one that neither of you may be prepared to respond to. I am going to ask you, if you cannot respond to it today, if you could for the record. We talked about the potential for foreign sales, additional foreign sales of the C-17, and my question either for here or for the record is: Could you recommend some things that our government, Executive and Legislative Branches working together, might do to incentivize and encourage those foreign sales so that the line may be extended beyond the next year or two? That would be a question. If you all want to respond to that now, or a bit later, I would ask that you do that. What would be your preference?

Mr. GREER. Later for me.

Mr. GERTLER. Certainly to find someone who would know an answer to the question would be my preference.

With regard to foreign sales, though, the C-17 is currently operated by the United Kingdom, Australia, Canada, Qatar, and NATO is buying a small pool to share among NATO nations.

Senator CARPER. When you say small pool, what? Three or four?

Mr. GERTLER. I believe it is three aircraft to be a NATO-wide capability. They have an order from the United Kingdom for one additional aircraft. They have orders from the United Arab Emirates for six. And they have an agreement for another 10 for India, but as of last month, that contract had not been signed. I do not know whether it has actually been signed yet. So far that is what they have got in train for the production line.

Senator CARPER. Good. Well, with an Administration, a President—as I said earlier, the President has been quite vocal about doubling our exports over the next 5 years, and this might be one for the Administration to focus a bit on.

Did either of you want to add anything in response to my question?

Mr. GREER. No. I have nothing to add to that.

Mr. GERTLER. No, sir.

Senator CARPER. What I would like to do as we come to the end here is just say, any closing thoughts? Do you want to take a minute or two to add any closing thoughts before I give a wrap-up statement and we call it a day?

Mr. GREER. OK. Shall I start?

Senator CARPER. Please.

Mr. GREER. OK. I had just one thought that I would like to add to the comments so far. As you know, from the time we did our study until the time MCRS did its study, there was about a 10-percent rise in capability. In our study, we see one could also extract at least another 10 percent, if not 20 percent, higher capability without buying a single additional airlifter. And this would be partially through using tankers—that was part of it—partially through having CRAF, aircraft, the Civil Reserve Airlift Fleet, carry heavier cargo than they traditionally carry. They carry bulk now. If they can carry small larger vehicles called “oversized” by the military, that would help a lot. We found that was actually the single biggest help. And C-5s carrying a larger load temporarily during wartime, which they are permitted to do, and also relying more on allies who have airlifters to assist would also greatly benefit this.

Now all of these can be counted on, you understand, but if we can extract even some of those, you are going to increase the capability even more before we have to buy a single additional airplane of any kind.

Senator CARPER. Good. That is an interesting thought. Thank you. Mr. Gertler.

Mr. GERTLER. Sir, one other factor with regard to maintaining the production line has not really been gone into today. Over the last few years, there have been a number of looks, both by the Department and by private industry, at a civil variant of the C-17. There is some interest from the package delivery industry, from the freight haulers, in that. There are also some obstacles, technical ones and having to do with export-controlled items. It may also not wind up being an economical proposition, but I believe that if you are looking for a way to extend that production line, the possibility of commercial sales, which are then aircraft that could be in the Civil Reserve Fleet and available to the Department as that insurance policy, should we need more than we think, is one way to address both issues.

Senator CARPER. All right. Well, good. Thank you so much for all the thought that you have put into your work that enabled you to come here to testify before us today and to respond to our questions.

I have a closing statement for the record that I want to enter into the record.¹

I would like to add to that the following: I said early on, a decade ago—it is hard to believe a decade ago we had balanced budgets in this country. We had two of them in a row, I think, the first since 1968. And there were concerns about our paying down the debt, the Nation's debt too quickly, that it would somehow destabilize our economy. And it did not work out quite that way, as we know, and we found between 2001 and 2008 we basically ran up as much new debt in our country as we did in the first 210 years of our Nation's history. And last year the deficit was even greater, and we are looking toward—if we do not do something, we will end up doubling our Nation's debt again over the coming decade. That is not sustainable.

What do we do about it? One of the things that the Administration, the President has called for, and what I would describe as a multi-pronged attack on the deficit: One, a freeze on overall non-security discretionary spending; second, convene a Deficit Reduction Commission, with a lot of good people, Democrats and Republicans, some very bright people on that Commission whose job is to come back to all of us later this year, all of us in the Congress, and say these are some things we think we might want to consider with respect to entitlement programs, Medicare, Medicaid, Social Security, and some of the other entitlement programs, too, to be able to save some money, and to look at revenues—we have a lot of—we call them the Bush tax cuts which expire, I think, later this year. The question is what do we do about those? So everything would be on the table, the entitlements and the expiring tax cuts.

¹The prepared statement of Senator Carper appears in the Appendix on page 35.

The third thing that the Administration has started focusing on—and this Subcommittee has certainly focused on it for several years, both when Senator Coburn was our Chairman and the last several years that I have been privileged to Chair this Subcommittee. But one of the things we tried to focus on is some people call it waste, fraud, and abuse. It is more than just that. It is just inefficient spending, in fact, an inefficient spending of taxpayers' dollars, and in some cases not taxpayers' dollars but monies that we borrow from all over the world.

Among the things that we have begun to focus on are something called improper payments. As it turns out, we spent last year, Federal agencies—this is not including the Department of Defense or all of Homeland Security, but improper payments in the Federal Government, about almost \$100 billion in 1 year, a lot of the overpayments. We are focused on trying to recover monies that have been overpaid, misappropriated, and going out and recovering those monies. I think we recovered in Medicare just in the last maybe 2 years, and just part of the Medicare program, Parts A and B, not C and D, but we have recovered about \$600 million by just going after—we call it post-audit recovery for inappropriate spending. So the idea is not just to stop making improper payments but to go back, and after we have overpaid the monies, go out and recover it. And we provide to the—it is contractors, private contractors, who do the recovery. They get to keep maybe 10 cents on the dollar. That is their incentive for doing the work. We are going to extend that to not just Medicare Part A but Medicare Part A, Part B, Part C, and D, and also to work the same approach with respect to Medicaid, and now to extend that to—with the House voting, I think tomorrow, to pass our improper payments legislation which some of us have worked on for a long time, with the Administration and with the past Administration, we can increase our ability to go there and recover money and bring it back to the Treasury, bring it back to the Medicare trust fund.

The major weapon systems, cost overruns a big factor here. If my memory serves me correctly, in 2001 the Department of Defense, as I said, major weapon system cost overrun in 2001 was about \$45 billion. That is a lot of money. I think in 2008 it was \$295 billion, which is a whole lot more money. And so part of that is F-22 and part of it is, frankly, weapon systems that we may not need any more of, and that could go to really good systems, like the C-17s.

One of the ideas that is being discussed is whether or not to give this President enhanced rescission powers. Some describe it as almost statutory line-item veto powers, not to give them forever but maybe a 4-year test drive, see if it works, see if it is actually helpful, see if the President abuses that power and unbalances this balance between the Executive Branch and Legislative Branch.

We have got a bunch of IT projects that actually deliver better service for less money to the people of this country. Unfortunately, we have a bunch of IT projects that do not, and they are way over budget, they are not meeting their advertised benefits for us.

And another area that we have explored in the Subcommittee is the tax gap. The last time we heard, the IRS was saying, I think 2 years ago, that they felt the tax gap was about \$300 billion in any given year. That is monies that are owed to the Treasury that

are not being collected, a fair amount of which they actually know who owes the money. And if we can only collect a third of that, that is \$100 billion. That is a lot of money.

And so if you add all that stuff together—the 3-year freeze on non-security discretionary spending, the Deficit Reduction Commission that we have got up and running to look at entitlement programs and the revenue side, consider improper payments, including the ability to go out and recover money that has been misappropriated or misspent, major weapon systems, enhancing the President's rescission power, try it out for maybe 4 years, and these failed IT projects that the Administration is focusing on, and the tax gap, just collecting more of the money that is owed. And one other that has always intrigued me is surplus properties. The Federal Government owns huge amounts of property, not just land, not just defense installations but all kinds of property that we do not use anymore, that are empty, we have to pay utilities, provide security, do some maintenance to maintain them. It does not make a whole lot of sense. And the idea that we can maybe encourage agencies to sell that stuff and reduce our costs, those are just some of the things that we are trying to do.

When you put it all together, it is actually a pretty good program. Does that mean we are going to wipe out all that red ink that we are looking at down the line? No. But we would sure have a lot less than we would otherwise, and we need to do that. So your testimony is helpful in that effort, and we are grateful to you and to our first panel of witnesses for it.

Again, over the next couple of weeks, you might hear some questions from our colleagues, who either were here or not here, and to the extent you can respond to those questions and take a look at the one question I asked about when you are promoting foreign sales, particularly our friends from CRS, if you could help us with that, we would be most grateful.

I have asked our Republican colleagues here over my right shoulder if they have any questions and they wanted to use me as their mouthpiece to ask any other questions. I could not get them to do it. But they said they thought Senator McCain did a pretty good job, and I think he did as well.

We look forward to having an ongoing dialogue with you, and thank you again for joining us today. With that, this hearing is adjourned. Thanks.

[Whereupon, at 4:21 p.m., the Subcommittee was adjourned.]

APPENDIX

FOR IMMEDIATE RELEASE



TOM CARPER

UNITED STATES SENATOR • DELAWARE



FOR RELEASE: July 13, 2010
CONTACT: Emily Spain (202) 224-2441

**SUBCOMMITTEE ON FEDERAL FINANCIAL MANAGEMENT, GOVERNMENT
INFORMATION, FEDERAL SERVICES, AND INTERNATIONAL SECURITY**

COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS

**HEARING: "The Cost Effectiveness of Procuring Weapon Systems in Excess of
Requirements: Can We Afford More C-17s?"**

Opening Statement of Senator Thomas R. Carper, Chairman

"Three years ago, this subcommittee held a hearing on strategic airlift that analyzed the cost effectiveness of the C-5 modernization program. Two years ago, we investigated the growing cost overruns of the Department of Defense's (DOD) major weapon systems.

"Last year, Secretary Gates recommended eliminating a handful of expensive weapon systems in order to save taxpayer dollars. Congress largely agreed and cut nearly every one of them.

"Last month, Secretary Gates announced that the Pentagon will attempt to cut its budget by more than \$100 billion over the next five years.

"This will be no easy task, but this subcommittee will continue to identify ways to help Secretary Gates and his team achieve this savings. We must do so because we face a troubling budget outlook. Our yearly budget deficits are currently over \$1 trillion and are projected to be hundreds of billions of dollars over the next few years.

"Our spending levels are at record highs and our revenue levels are near historic lows as a percentage of GDP. To compound matters, we owe our top competitors abroad hundreds of billions of dollars. If we do not control spending, increase revenue and begin to close our deficits, we will pass on a legacy of crippling debt to our children.

"This hearing will analyze potentially unnecessary spending by once again looking at strategic airlift. This hearing will ask, what happens when we buy more weapons systems than the Pentagon says we need? Specifically, this subcommittee will ask our panelists what happens if we buy more C-17s, even though recent airlift studies have stated that our strategic airlift capability exceeds our demand.

"Let me quickly set the scene for this topic. Our strategic airlift fleet consists of 111 C-5s and 223 C-17s.

“At Dover Air Force Base in Delaware, you’ll find both C-5s and C-17s. The C-17 is an exceptional aircraft that can transport cargo from our shores to austere runways across the world. It is the backbone of our strategic airlift fleet.

“As good as the C-17 has been, though, it cannot do everything, which is why we have 111 C-5s and a host of C-130’s. A C-5 carries more and flies farther than a C-17, but it cannot land on austere runways and also has suffered from lower reliability rates over the years.

“To correct these reliability problems, the Air Force and Congress implemented a modernization program several years ago to raise the mission capable rates of the C-5 from the 50-60 percent range to above 75 percent.

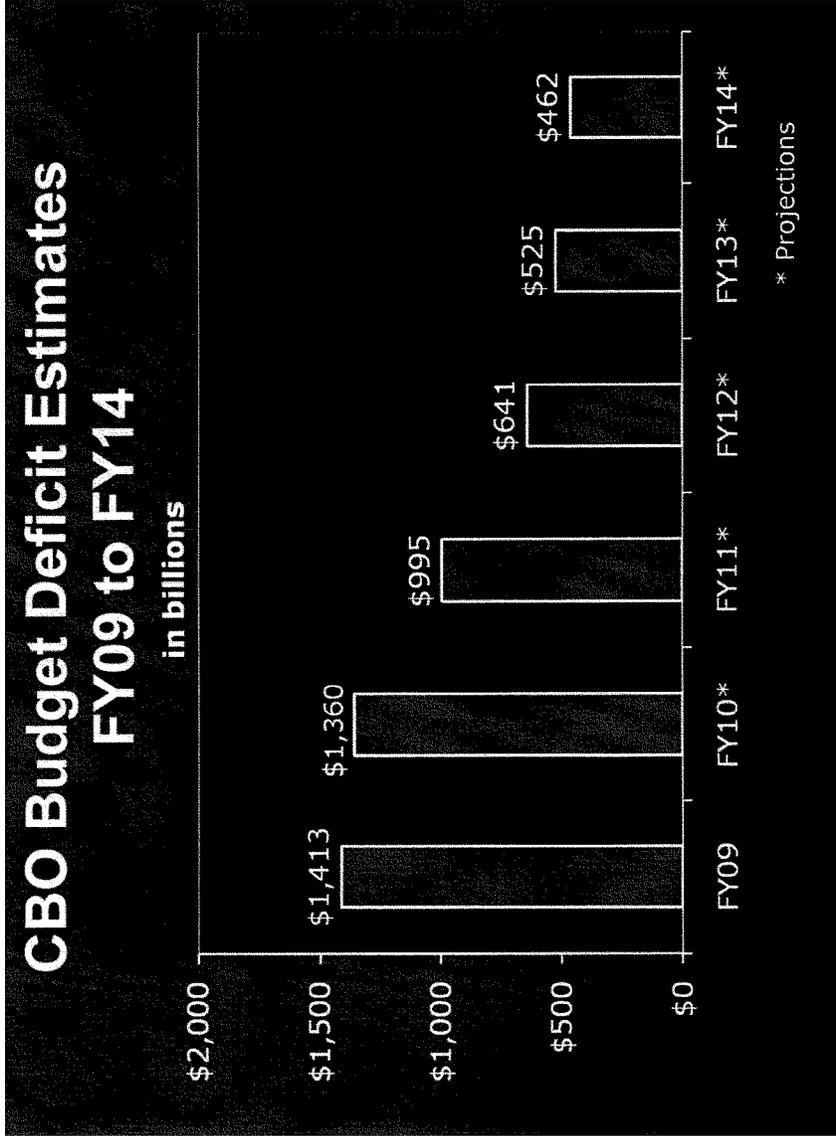
“All three of the fully modernized C-5s – two C-5B’s and one C-5A -- are currently assigned to the Dover Air Force base and, so far, they are performing up to expectations, and in some cases exceeding them. In fact, one of the C-5M’s broke 41 airlift world records last September. Moreover, during flights in support of the Afghanistan surge, two of the modernized C-5s at Dover boasted mission capable rates of over 85 percent. I anticipate that the C-17 will continue to play a leading role in airlift for years to come, and I also expect that fully modernized C-5s will be a worthy compliment to our C-17 fleet.

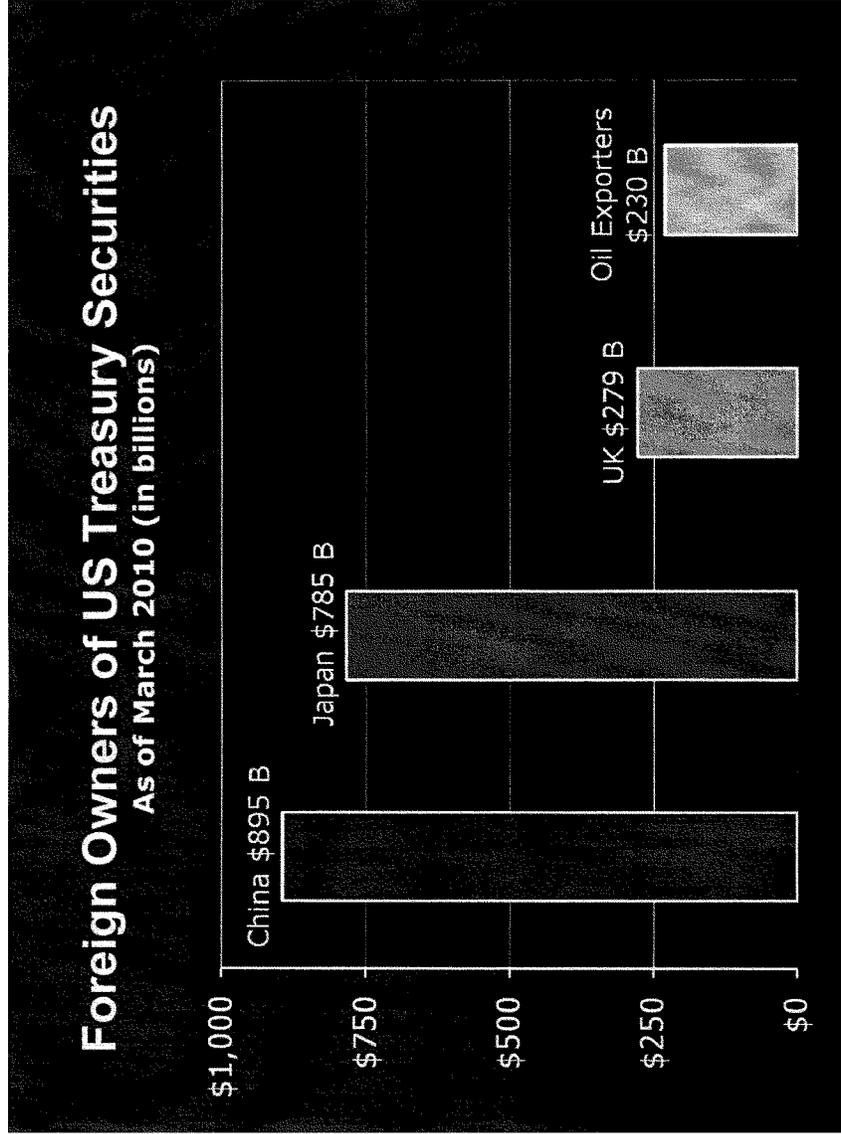
“However, while an even more robust fleet of C-5Ms and C-17s would ensure that we would never have to worry about strategic airlift, our current budget problems force us to confront tough decisions about how many more aircraft we should to buy. This starts by looking at how many more C-17s we can afford and whether it is cost effective to keep buying them.

“The last time the Air Force requested C-17s was in Fiscal Year 2007. However, since then Congress has purchased 43 additional unrequested C-17s. If this trend continues, then we should expect that Congress will soon be confronted with the choice of whether to buy more C-17s or to end production.

“Much has changed over the past year that will help to inform our decision. Earlier this year, for example, the Pentagon released its Mobility Capabilities and Requirements Study 2016, which determines our airlift demand and assesses the adequacy of our current fleet. As a result of this study’s conclusions, Secretary Gates has recommended that the President veto any spending bill that includes funding for more C-17s.

“In this hearing, we will explore how to manage a cost effective strategic airlift fleet. We will look at whether it is cost effective to increase our fleet by buying more C-17s. Finally, we will determine if there is a business case for increasing airlift capabilities further beyond our airlift demand.”





C-17 Purchases Over Past 4 Years

Fiscal Year	Air Force Request	Congressional Purchase	Total # of C-17s	Cost
2007	12	22	190	\$2.5 B over request
2008	0	15	205	\$3.7 B
2009	0	8	213	\$2 B
2010	0	10	223	\$2.5 B
2011	0	???	???	???

DOD's Mobility Capabilities and Requirements Study 2016

In A Worst Case Scenario

Our Peak Demand
Would Be: **32.7** Million ton-
miles per day

Current Capabilities

Fleet of 111 C-5s &
223 C-17s: **35.9** Million ton-
miles per day

We have more than enough strategic airlift aircraft to meet the demands of our worst case scenarios.

STATEMENT OF SENATOR JOHN MCCAIN, RANKING MEMBER
SUBCOMMITTEE ON FEDERAL FINANCIAL MANAGEMENT,
GOVERNMENT INFORMATION, FEDERAL SERVICES AND
INTERNATIONAL SECURITY
COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL
AFFAIRS

“The Cost Effectiveness of Procuring Weapon Systems in Excess of Requirements:
Can we Afford More C-17s?”

July 13, 2010

Since 2007, both the Bush and Obama Administrations have sought to end procurement of the C-17 aircraft because the Department of Defense has procured enough C-17s to meet future operational needs. Despite the President’s budget eliminating procurement funding, Congress has earmarked billions of dollars to continue this program.

Neither the House nor Senate fiscal year 2011 Defense Authorization bills contain funding for the C-17. Whether the Appropriations Committees will continue this policy remains to be seen. I remind my colleagues that last year the House and Senate did not authorize the program, yet it still received approximately \$2.5 billion through the Defense Appropriations Act.

The Administration continues to oppose new money for the C-17. The White House’s Statement of Administration Policy (SAP) on the fiscal year 2011 House Defense Authorization bill reads, “The Administration appreciates that the Committee supports the President’s budget request regarding the C-17 program and

that it did not authorize procurement of additional C-17 aircraft.” Mr. Chairman, I ask that this Statement be included in the record.

According to the Office of Management and Budget’s report on “Terminations, Reductions and Savings” for fiscal year 2011, the number of C-17s in operation and on order, together with the existing fleet of C-5 aircraft, exceeds what is necessary to meet the Department of Defense’s future airlift needs – even under the most stressing scenarios. And, according to OMB, the substantial operational costs associated with buying additional, unneeded C-17s would have to be offset by retiring C-5s early. Those aircraft still have, on average, 30 years of useful service life. That’s not a reasonable use of taxpayers’ money.

Perhaps most persuasively, as Secretary Gates noted in letters to me on this program, “continuing to purchase C-17s in numbers beyond what is required simply diverts limited resources from other more pressing needs” including “critical warfighting capabilities”. Mr. Chairman, I ask that those letters be included in the record. Secretary Gates has also made it clear that he will “strongly recommend” the President veto any legislation that sustains the unnecessary continuation of this program.

In remarks delivered over the past few months, Secretary Gates noted that it was time to return to the model in which real choices were made, priorities were set and limits were enforced. Secretary Gates specifically cited the C-17 program as an example where Congress was failing to make choices when it came to defense spending. He concluded that we all – civilian, military, in government and out – must be willing to ask and answer questions regarding real world requirements in

order to have a balanced military portfolio and a defense budget that is fiscally and politically sustainable over time.

Let me elaborate on Secretary Gates' remarks: at this point, the only thing sustaining the C-17 program—in the face of a military requirement that is (and will likely remain) satisfied—is the predominance of the military-industrial-complex. Such machinations must end. When decisions are made to start or continue new major weapons programs, the needs of the warfighter must preside—not the profit-maximizing tendencies of Industry or the strictly parochial interests of Congress. After billions of dollars wasted over the last few years, the C-17 program presents the clearest case why, in this regard, we must do better.

Mr. Chairman, I look forward to receiving the testimony from our witnesses today and thank you for holding this hearing.



THE SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

The Honorable John McCain
United States Senate
Washington, D.C. 20510

Dear Senator McCain:

The President's defense budget request has requested no additional C-17s. This position is based on the Department's firm judgment that we have acquired sufficient number of C-17s to meet the nation's military needs. The C-17 airlifter remains a valuable military asset that will serve as the backbone of the nation's strategic airlift fleet for decades to come. However, continuing to purchase C-17s in numbers beyond what is required simply diverts limited resources from other more pressing military needs. More specifically, the \$2.5 billion it will cost to purchase 10 additional C-17s plus the \$100 million per year it will cost to operate them will invariably result in a reduction in critical warfighting capability somewhere else in the defense program.

Sincerely,
A handwritten signature in black ink, appearing to read "Pentagon".



45

Statement

Of

The Honorable Mike McCord
Principal Deputy Under Secretary Of Defense (Comptroller)

and

Alan F. Estevez
Principal Deputy Assistant Secretary of Defense
For Logistics and Materiel Readiness

Before the

Senate Committee on Homeland Security and Governmental Affairs

Subcommittee on Federal Financial Management,
Government Information, Federal Services,
and International Security

July 13, 2010

Embargoed Until Released
by the Senate Committee on
Homeland Security and Governmental Affairs

Chairman Carper ... Senator McCain ... Members of the Committee. My name is Mike McCord. I am Principal Deputy Under Secretary of Defense (Comptroller). Joining me this morning is Alan Estevez, Principal Deputy Assistant Secretary of Defense for Logistics and Materiel Readiness. We are here to speak about the considerations that went into the decision to conclude the C-17 program.

On behalf of Alan and myself, I would like to begin by thanking you for your support of the dedicated men and women who wear America's uniform. Your concern for them and their well-being is greatly appreciated, as is your commitment to the nation's security.

Today we are focused on airlift capacity and, in particular, the Department's decision to bring the C-17 Globemaster III program to an end.

That decision must be understood within the larger context. To meet DoD's strategic airlift needs, we use a combination of DoD organic and contracted airlift. The contracted airlift comes from our commercial business partners under the United States Transportation Command (USTRANSCOM) Civil Reserve Air Fleet (CRAF) program. Together with our organic capabilities that will be described below, this combination of organic and military airlift provides the necessary capacity to meet the Department's needs. For example, in 2009 alone the Department and its commercial partners airlifted more than 2 million passengers and 750,000 tons of cargo and delivered 230 million gallons of fuel to U.S. and coalition aircraft.

The Department's organic strategic airlift aircraft are the C-17 and C-5. Both are excellent aircraft and provide the strategic airlift needed to deliver and sustain combat power to meet the National Military Strategy, including on-going support to operations in Afghanistan.

Over the past five years, the Department of Defense has conducted three studies concluding that our C-17 and C-5 airlift capacity is more than sufficient for needs today and those of the foreseeable future:

1. The most recent of these studies is MCRS-16, the Mobility Capabilities and Requirements Study-2016 that concluded last February. It provided a look at requirements through 2016 to ensure that our plans and investments provide the mobility capability needed to support future wars.

This study informed our decisions on the right mix and size of transportation assets needed, including strategic airlift. The MCRS-16 developed three cases to evaluate a broad spectrum of military operations. Each case contained two surge events – (a) defense support to civil authorities, otherwise referred to as homeland defense, and (b) a 2016 representation of steady state activity that must be supported and sustained around the globe for crisis response and to

support overseas contingency operations. Transportation requirements to support each case were calculated, and programmed capabilities were applied to identify gaps in planned capabilities.

The results of the study indicated that the Department's planned strategic mobility capabilities are sufficient to support the most demanding projected requirements. In other words, the study concluded that the number of C-5s and C-17s in the Department's program of record is sufficient even in the most demanding environments.

2. Prior to the MCRS-16, the Institute for Defense Analyses (IDA) performed a study in early 2009 as required by Section 1046 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110-181). This is a requirements-based study on alternatives for the proper size and mix of fixed-wing intra-theater and inter-theater airlift assets to meet the National Military Strategy. The IDA study considered 36 alternative mixes and sizes. The study concluded that the size and mix of the program-of-record fleet is adequate to meet requirements.

The report also identified several ways to generate higher capability from the program-of-record fleet. It concluded that a small amount of additional capability could be achieved if all C-5 aircraft were converted to the C-5M model through the Reliability Enhancement and Re-engineering Program (RERP). The study noted that continued production of the C-17, even at low rates, is expensive when compared to shutting down and restarting the production line. Also, the option of retiring the C-5A model to pay for additional C-17 aircraft is not cost-effective.

3. In 2005, the Department completed the Mobility Capabilities Study (MCS) which determined that a strategic airlift fleet of 292 aircraft supported the National Military Strategy with acceptable risk. This requirement was based on a detailed assessment of major combat operations associated with two overlapping large-scale campaigns, homeland defense, lesser contingency operations, and high priority national missions.

In addition to these three studies, the Air Force Fleet Viability Board concluded in 2004 that the C-5A – the oldest variant in the C-5 fleet – will remain viable until at least 2025. According to the Air Force, the C-5 fleet as a whole will remain viable until 2040. Moreover, ongoing modernization and refurbishment efforts will increase the reliability, availability, and maintainability of the C-5 fleet.

Strategic airlift mission success requires a viable fleet of C-17s and C-5s, in addition to our commercial CRAF partners. Our ability to expand airlift capacity to support the increase in airlift requirements, especially in light of major force rotations, is a direct result of our commercial partner relationships. The use of contracted commercial aircraft to transport passengers and cargo expands the Department's global capacity by freeing up organic aircraft to satisfy other requirements.

In terms of organic capacity, a strategic airlift fleet of 223 C-17s and 111 C-5s – the level now projected – provides a capacity of 35.9 million ton-miles per day, which more than covers the highest projected airlift demand of 32.7 million ton-miles per day. Additionally, these two types of aircraft are largely interchangeable in the strategic airlift role. The MCRS-16 and previous studies show that the Department clearly has more strategic airlift fleet capacity than we need.

As a result, Secretary Gates concluded that it is not in the national interest to continue adding more C-17s. Last September, he sent a letter to Congress in which he explained his view that “the Department does not need additional C-17s to meet strategic needs.” In February, DoD rolled out a budget request for FY 2011 reflecting that position and including no funds for additional C-17 aircraft. In our view, the production line should begin shutting down, a process that will continue through FY 2014.

In his comments releasing the Administration's FY 2011 budget request, President Obama said the following: “We save money by eliminating unnecessary defense programs that do nothing to keep us safe. One example is the \$2.5 billion that we're spending to build C-17 transport aircraft. Four years ago, the Defense Department decided to cease production because it had acquired the number requested – 180. Yet every year since, Congress had provided unrequested money for more C-17s that the Pentagon doesn't want or need. It's waste, pure and simple.”

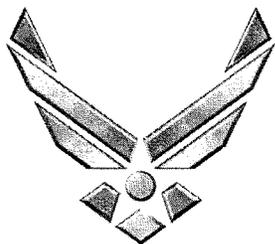
In testimony before the Senate Armed Services Committee, the Secretary echoed the President, saying that he would not support the addition of more C-17s and that he would “strongly recommend” a Presidential veto of legislation that sustains the aircraft's unnecessary continuation.

The Secretary's position is unchanged from a year ago, when he told the House Armed Services Committee – and I quote – “each program decision is zero sum: a dollar spent for capabilities excess to our real needs is a dollar taken from a capability we do need – often to sustain our men and women in combat and bring them home safely.”

Mr. Chairman, this remains our position today, and I want to thank the Congress for supporting that position in all the defense bills that have been reported or passed by the House and Senate this year. I welcome your questions.

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HOMELAND SECURITY AND GOVERNMENT AFFAIRS COMMITTEE
SUBCOMMITTEE ON FEDERAL FINANCIAL INFORMATION, FEDERAL
SERVICES, AND INTERNATIONAL SECURITY
UNITED STATES SENATE

United States Air Force



Presentation

Before the Homeland Security and
Government Affairs Committee,
Subcommittee on Federal Financial
Management, Government Information,
Federal Services, and International
Security

The Cost Effectiveness of Procuring Weapon Systems in Excess of Requirements

Witness Statement of
Major General Susan Y. Desjardins
Director, Strategic Plans, Requirements
and Programs
Headquarters Air Mobility Command

July 13, 2010

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HOMELAND SECURITY AND GOVERNMENT AFFAIRS COMMITTEE
SUBCOMMITTEE ON FEDERAL FINANCIAL INFORMATION, FEDERAL
SERVICES, AND INTERNATIONAL SECURITY
UNITED STATES SENATE

Strategic Airlift Requirements

July 13, 2010

Introduction

Chairman Carper, Senator McCain, and distinguished committee members, thank you for the invitation to testify today on our nation's strategic airlift requirements. My testimony today will focus on our strategic airlift requirements as established by the Mobility Capabilities and Requirements Study 2016 (MCRS-16).

Requirements

I am the director of Strategic Plans, Requirements and Programs for Air Mobility Command. My team works to translate the mission requirements of the joint community and United States Transportation Command into fielded capabilities by programming the funds that underpin our ability to organize, train and equip our superb air mobility forces.

We are faced daily with difficult funding choices, as there are always more requirements than resources, more combat needs than dollars or manpower available.

The release of the MCRS-16 study is a critical tool in navigating into the future by assisting us in making some tough near-term choices. By clearly quantifying valid operational needs, we can more accurately streamline and shift our limited resources to meet other pressing mission requirements.

MCRS-16 determined that our programmed strategic airlift fleet of 223 C-17s and 111 C-5s will provide a capacity of 35.9 million ton-miles per day (MTM/D), which more than covers the highest MCRS-16 airlift demand of 32.7 MTM/D. The excess capacity will allow for retirement of the oldest, least reliable aircraft in the fleet and free up personnel and facilities for newer replacement aircraft and aircraft modifications that will make our fleet more mission effective and economical to operate.

Strategic Airlift Requirements

July 13, 2010

In the FY11 President's Budget, the Air Force makes its first move to eliminate excess strategic airlift fleet capacity by retiring 22 C-5As.

These retirements will provide the necessary manning and resources to permanently bed down 16 C-17s in the Air Reserve Component (ARC) and will save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs.

Conversely, if aircraft retirement restrictions direct us to maintain a C-5 fleet in excess of the wartime lift requirement, then additional manpower, infrastructure and resources would be required to bed down and operate the larger fleet of inter-theater aircraft.

Maintaining Mobility Readiness

To ensure the long-term viability of our strategic airlift fleet, we will continue to invest in the necessary upgrades to our C-5 and C-17 airlift aircraft. The C-5 provides a combination of outsize capability, high capacity, and long-range airlift that is unequalled in any other airlift platform.

However, the C-5 aircraft is a complex legacy platform requiring modernization to meet the necessary performance for our modern air traffic environment, abate rising operational and sustainment costs and achieve acceptable levels of reliability and availability.

The C-5 Avionics Modernization Program will provide continued access to worldwide airspace. Furthermore, the C-5 Reliability Enhancement and Re-engining Program (RERP) is a vital aircraft modernization program. The 52 C-5s currently

Strategic Airlift Requirements

July 13, 2010

programmed for the RERP modification will provide reliable, enhanced strategic airlift at reduced cost.

We are confident the modernized C-5M will achieve our operational and sustainment goals with a required wartime mission capable rate of 75% and will meet the world-wide air traffic performance standards.

The C-17 continues to be the backbone of the Nation's strategic air mobility fleet. It is exceeding expectations every day, under very challenging operations tempo as we support the plus-up in Afghanistan.

As the Nation's core military airlifter, it is truly an aircraft for the times – designed and built for both expeditionary and major contingency operations.

The C-17 provides great depth and breadth to the mobility “playbook” every day because of its mission versatility, responsiveness and enhanced capabilities.

The planned fleet of C-17s, combined with the modernized C-5 fleet provides the nation with sufficient inter-theater airlift to meet our wartime and peacetime needs.

Conclusion

Of utmost importance, the mobility capability of our Nation must remain versatile, flexible, and responsive to protect our national interests and meet the imperatives of the warfighter.

The air mobility fleet faces challenges in the days and years ahead. We continue to provide support to our Joint and coalition partners, while balancing the requirement of being responsible stewards of our taxpayer hard earned dollars.

I am confident Air Mobility Command will remain the keystone of the Department of Defense's ability to rapidly deliver cargo and personnel anywhere in the world.

We greatly appreciate Congress' support of America's air mobility fleet.

Prepared Testimony of

Jeremiah Gertler

Specialist In Military Aviation, Congressional Research Service

Before the Senate Committee On Homeland Security and Governmental Affairs
Subcommittee on Federal Financial Management, Government Information,
Federal Services, and International Security

13 July 2010

Chairman Carper, Senator McCain, members of the subcommittee:

Thank you for inviting me to testify before this subcommittee on behalf of the Congressional Research Service.

The subcommittee is interested in the cost-effectiveness of procuring a greater number of airlift aircraft than requested in the President's budget. As you know, the fiscal 2011 budget submission proposes to end procurement of the C-17 transport and retire 17 C-5As. In previous years, Congress has added C-17s beyond the number requested. So far, both authorizing committees and the full House have acted on the fiscal 2011 budget. Although neither C-17s nor additional C-5 modernizations have yet been added in the FY2011 defense authorization process, advocates have cited possible reasons for doing so, which will be described below.

MCRS-16

The Air Force is using The Department of Defense (DOD)'s most recent study of airlift demand, Mobility Capability and Requirements Study 2016 (MCRS-16), to justify both ending C-17 procurement and further reductions in C-5 inventories. The Air Force intends to retire 17 C-5As in Fiscal 2011 and five in FY2012, provided Congress lifts the current statutory ban on reducing the C-5 inventory.¹

MCRS-16 is classified, but its unclassified executive summary stated, "With few exceptions, MCRS found the Department's planned mobility capabilities sufficient to support the most demanding projected requirements." It went on to say that "The capacity of the Department's strategic airlift fleet exceeds the peak demand in each of the three MCRS cases."

In reading the details of the study, members may wish to examine how MCRS-16 arrived at that conclusion. Some relevant questions regarding MCRS-16 may include (but are not limited to):

- From what period were the demand figures for ground forces in irregular conflicts drawn? How well do those historical demand figures for ground forces represent current demand, or the demand likely to exist in 2016?
- How many of the airfields used in MCRS-16 scenarios are available to C-17s but not C-5s? In testimony, Defense Secretary Robert Gates stated, "I would just say, for the record, out of two hundred and some -- 204,000 landings for strategic lift in -- since 1997, 4 percent have been at airfields that a C-5 could not access, and half of those were in Iraq."² Is that ratio reflected in MCRS-16?

¹ Testimony of Brigadier General Richard Johnston, Director, Strategic Planning, U.S. Air Force, at "Hearing on Air Mobility Programs," Air and Land Forces Subcommittee, House Armed Services Committee, April 8, 2010. See also Michael C. Sirak, "USAF Eyes Cutting 22 C-5As," *Airforce-Magazine.com*, April 9, 2010.

² U.S. Congress, Senate Committee on Armed Services, *Fiscal 2011 Budget Request for the Defense Department*, 111th Cong., 2nd sess., February 2, 2010.

- MCRS-16 explicitly assumed that combat and support force personnel will not exceed those in the DOD FY2010 program of record through 2016. Given Congress's demonstrated interest in increasing end strengths, is this a reasonable assumption? What is the sensitivity of the analysis to increases in personnel end strength?
- Aircraft acquired today will be in service not just through the 2016 period studied, but likely into the 2050s. Even the upgraded C-5s are anticipated to be in service through at least 2040. Projecting a 2050 conflict in 2010 would be no easier than envisioning today's operations in Iraq and Afghanistan in 1970. Looking so far into the future, is it possible to accurately project how airlift demand and the whole nature of America's conflicts could differ from today or the period studied?
- Although MCRS-16 notes that the current airlift fleet is adequate to transport the required weight of cargo in each scenario, volume – what airlifters call “cube” – may be a greater constraint in some cases than weight. The MCRS-16 executive summary states that “the movement of O&O (over- and outsized) equipment early in the warfight drives the demand for strategic airlift.”³ As C-5s can carry larger items than C-17s, how much of that O&O can be carried on C-5s but not C-17s? How would the Air Force reconcile prospective C-5 retirements with this demand for O&O?

American Strategic Airlifters

When considering the methodology of MCRS-16, it may be helpful to recall the differences between the C-17 and C-5:

Characteristic	C-17	C-5
Cargo	170,900 pounds	270,000 pounds
Troops	102	81
Unrefueled range	2,700 miles	6,320 miles
Minimum runway length	3,500 feet	6,000 feet
Speed	572 mph	518
Crew	3	7
Mission capable rate (2008)	86%	52%
Cost per flying hour (2008)	\$12,014	\$20,947

Source: Information taken from Figure 2 (page 27) of Government Accountability Office, *Defense Acquisitions: Strategic Airlift Gap Has Been Addressed, but Tactical Airlift Plans Are Evolving as Key Issues Have Not Been Resolved*, GAO-10-67, November 2009. GAO states that Figure 2 is based on GAO analysis of DOD data.

³ “Oversized” cargo is too big to fit in a standard cargo container, but can be carried by most military and civilian cargo aircraft. “Outsized” cargo can only be transported on C-5 and C-17 aircraft.

In sum, the C-5 carries more cargo and flies farther, but with more limited access to airfields. Although it carries a higher cost per flight hour, the C-5A/B's greater capacity yields a comparable cost per ton-mile moved. The C-17 can perform both strategic and intratheater lift, which may minimize the need for moving cargo from one aircraft to another between takeoff and delivery to the field. Its smaller footprint results in some greater operational flexibility, and it is faster in the air.

The procurement of C-17s is programmed to end in FY2010, with actual production of USAF aircraft to continue into FY2013.⁴ Two C-5 upgrade programs are underway, with 92 C-5Bs and Cs receiving avionics upgrades and 52 of those C-5Bs also receiving new engines and other upgrades to the C-5M specification to increase reliability, range, and payload.⁵ Three initial C-5Ms are flying now; formal introduction into service is scheduled for FY2013.

Cost-Effectiveness

Cost-effectiveness can be a difficult metric to calculate. Part of cost-effectiveness is easy to define: costs for mature systems are comparatively easy to determine, as the Department of Defense (DOD) sends Congress detailed budget data in many forms throughout the year. According to the most recent Selected Acquisition Reports, a new C-17 costs \$244.5 million; the upgrades to make a C-5 into a modernized C-5M total \$118.6 million.⁶

The effectiveness side of the equation is more difficult to quantify, because the purposes for which DOD requests certain systems and Congress's goals in approving and/or expanding on those requests may not be the same. To properly evaluate cost-effectiveness, one must first determine the range of goal(s) the unrequested systems are to be effective in meeting.

DOD Goals

The highest level of strategic airlift demand modeled in MCRS-16 required the movement of 32.7 million ton/miles per day (MTM/D). This is the planning factor against which DOD is evaluating its need for further airlift capacity.

Flown at full payload capacity, the currently-programmed strategic airlift fleet of 223 C-17s and 111 C-5s provides a capacity of 35.9 MTM/D, or approximately 10% more than the highest level modeled. In actual operations, though, airlift aircraft are rarely loaded to their maximum capacity. I would defer to our Air Force witnesses to supply operational details should the Subcommittee be interested in them.

⁴ E-mail, Boeing to CRS, July 1, 2010.

⁵ Lockheed Martin briefing to CRS, June 30, 2010.

⁶ Avionics modernization (all C-5s) = \$8.6 million each; reliability and re-engining (52 C-5Bs) = \$110.0 million each. Average procurement unit costs from Office of the Secretary of Defense, *Selected Acquisition Report(s): C-17A, C-5 AMP, and C-5 RERP*, all dated December 31, 2009.

The Department also has a fiscal interest in the cost of delivering cargo. Given the flying hour costs and capacities of the C-17 and C-5, the more cost-efficient platform for delivering a given load depends on what is to be carried. If the demand is for one C-17 equivalent load of cargo delivered within the C-17's unrefueled range, flying a full C-17 is more cost-efficient than flying a partially-loaded C-5. If more than one C-17 load is required, flying a full C-5 is more cost-effective than flying two C-17s. The calculation becomes even more complicated at greater ranges, where the C-5 may be able to operate nonstop and unrefueled while the C-17 requires refueling and/or an enroute stop. The C-5Ms, when introduced, are expected to lower the C-5 cost per ton-mile even further, but as only 3 C-5M conversions have been completed, there is not sufficient operational data to provide a reliable metric.

And again, operational considerations other than pure cost per ton-mile – a desire to minimize transshipment, the size (as opposed to weight) of items to be shipped, the requirement to move some equipment as a set in a single shipment, and others – may factor into the selection of one aircraft over another.

System availability further complicates the calculation. Current C-5 mission-capable rates are significantly lower than C-17 rates, in part due to lower programmed readiness levels for the Reserve Component entities that operate most C-5s as opposed to the mostly-Active Component C-17s. (Again, C-5 mission-capable rates may be anticipated to be higher for the C-5Ms.)

Congressional Goals

DOD, however, is not the only entity that creates goals against which system effectiveness can be measured. Article I, Section 8 of the Constitution vests in Congress the responsibility to raise and equip the military. It is therefore relevant to evaluate whether it is cost-effective to acquire systems that are not included in the administration's budget submission to meet Congressional goals as well as DOD's.

Congress uses its Constitutional authority to add programs and/or unrequested funding for existing programs for many reasons. Some major ones follow, but this list is by no means exhaustive.

- One reason commonly believed to motivate additions to DOD's requests – even when it isn't the actual impetus – is **constituent benefit**. As members of the subcommittee know, constituent benefit can take many forms. Some members may represent districts or states where a particular system is made, or which is home to major suppliers. Others may vote to support a procurement in the hope or belief that the resulting systems will be based or maintained in their state or district. But members' own statements and press releases make clear that economic and employment benefits for a particular geographical area affect a number of Congressional procurement decisions.

That said, it would be simplistic and inaccurate to tar all votes for unrequested systems with the constituent-interest brush, as Congress has historically revised administration budget submissions for other reasons, such as the following.

- **Policy differences with the executive branch** are cited as motivating additions to the budget. The recent vote on the floor of the House on the alternate engine for the F-35 Joint Strike Fighter provides an interesting example. 231 members voted to keep unrequested engine funding in the bill, most of whom represented districts with little or no significant economic interest in the outcome.^{7 8}

Policy considerations are also evident in the cognizant committees' annual solicitation of unfunded request lists from the military services. As members are aware, the committees recognize that DOD program decisions are made in an environment constrained by annual budgets. Statements by committee chairs and other members often display an interest in planning for a longer time horizon than that. Learning what items the services requested that did not make one year's budget cut, and re-prioritizing some of the resource decisions, is seen as a legitimate part of civilian control of the Defense Department, as "[T]he Constitution locates civilian control of the military in Congress as well as in the executive branch."⁹

Along these lines with regard to airlift, members have questioned the Administration's intention to reduce airlifter numbers below the 316-aircraft floor enacted into law as part of the FY2010 defense authorization bill.¹⁰

- **To maintain options for future policy changes.** For example, after the Carter Administration canceled the B-1 bomber in 1977, rival candidate Ronald Reagan declared that he would reinstate the program if elected in 1980. Numerous members of Congress argued that funding should be added to the budget above the President's request to maintain the B-1 production equipment and tooling, and even to retain part of the workforce, to preserve the option for the next President and thus leave the decision in voters' hands. Ultimately, Congress resurrected the program despite the cancellation.¹¹
- **To maintain a viable industrial base.** Separate from the constituent-interest aspect of keeping production facilities open, maintaining national capabilities to design, develop, and manufacture certain defense items has been seen as a goal worthy of investment. For example, CRS has previously noted that "[S]ome programs, such as the Seawolf submarine, [were] pursued not to meet military requirements, but explicitly to preserve production capabilities."¹² The most efficient way to acquire a system might be to produce the required quantity rapidly, then close the production facility. Keeping design and production capabilities warm by acquiring at lower, less-efficient production rates can keep the industrial

⁷ H.R. 5136, National Defense Authorization Act for Fiscal Year 2011, roll call vote number 316.

⁸ Similarly, the existence of the V-22 Osprey is attributed to the efforts of members of Congress who differed with DOD's assessment that the aircraft's additional capability was not worth its cost. See, for example, Richard Whittle, *The Dream Machine: The Untold History of the Notorious V-22 Osprey* (New York: Simon & Schuster, 2010).

⁹ H.R. McMaster, *Dereliction of Duty* (New York: Harper-Collins, 1997).

¹⁰ For example, see the Chairman's opening statement and members' subsequent questions in "Hearing on Air Mobility Programs," Air and Land Forces Subcommittee, House Armed Services Committee, April 8, 2010.

¹¹ Nick Kotz, *Wild Blue Yonder: Money, Politics, and the B-1 Bomber* (New York: Pantheon Books, 1988).

¹² CRS Report 96-729F, *Defense Policy: Threats, Force Structure, and Budget Issues*, by Robert L. Goldich and Stephen Daggett

capabilities available for possible upgrades while reducing the cost of subsequent production should it be required.

- **To reduce risk.** Most requirements studies assign particular force structures or postures a corresponding level of risk. "Risk" is one of the less consistently-defined terms used in defense discussions, but it usually attempts to measure the probability that a particular military goal will not be met by a specified time. If a particular force posture is deemed "high risk" in a given scenario, Congress may add assets to reduce that risk.¹³

MCRS-16's predecessor, the 2005 Mobility Capabilities Study, identified a strategic airlift force structure of 292 to 383 aircraft as providing a "moderate risk" capability to support the National Military Strategy.¹⁴ This conclusion could be used by advocates to justify additional C-17 procurements or modernizing additional C-5s to increase the currently-programmed strategic airlift fleet beyond 334 aircraft in the interest of reducing risk.

- **To hedge against changes in requirements from current projections.** Budget requests are based on estimates of future challenges and threats, projections of U.S. national interests, and the likely capability requirements emerging from them. But these are projections, and even highly educated estimates may be – and have, at times, been – wrong. Sometimes, unforeseen challenges emerge. Sometimes, there are legitimate differences in the assumptions in or analytical process of an important study. One common observation regarding the post-Cold War world is that uncertainty is now the norm in defense planning. Adding unrequested systems can be seen as giving commanders flexibility in case the world declines to cooperate with DOD's projections.

Also, as noted, the MCRS-16 peak demand projections are approximately 10% below current maximum airlift fleet capacity. Policymakers may believe that maintaining or increasing that margin is worth the price incurred by additional airlifter procurements or modernizations, or further curtailing retirements.

In determining the cost-effectiveness of a system, analysts may wish to account for its effectiveness in meeting one or more of these Congressional goals as well as those assigned to it by DOD.

It should also be noted that DOD itself sometimes requests the procurement of systems for reasons other than a formal requirement. For example, the E-2C Hawkeye Multi-Year Procurement II contract, which ran from FY2004-FY2007, was justified to Congress as an attempt to reduce industrial base costs by keeping a production line warm. In accordance with the approved budget program, the contractor was converting production from the E-2C to the advanced E-2D, which DOD intended to procure. Shutting down the line for the period needed to

¹³ Similarly, Congress adds money to programs to reduce the risk of failing to meet technological goals. See, for example, the discussion of the Ground-Based Interceptor program in H.Rept. 111-288, *National Defense Authorization Act For Fiscal Year 2010*: "The conferees believe such additional funding will help keep active vendors producing needed parts, and will reduce risk to the future production of GBIs for the test program."

¹⁴ CRS Report RL32887, *Strategic Mobility Innovation: Options and Oversight Issues*, by Jon Klaus.

perform the conversion would have entailed significant restart costs, with some question as to whether the idled workforce would remain in the area to await restart. Congress agreed that keeping the workforce occupied by funding continued production of the older model, even at a rate well below economic order quantities, would be a more sound solution and provide a smoother transition than allowing several years' gap in procurement.

Advocates of further C-17 procurement or modernizing additional C-5s do not always offer their own alternative planning scenarios that might lead to a different conclusion than MCRS-16 reaches. But they may argue that acquiring additional modern or modernized airlifters is a hedge – insurance, if you will – against the possibility that any or all of their reservations about MCRS-16 prove correct.

Mr. Chairman, members of the Committee, thank you again for the opportunity to appear before you today on behalf of the Congressional Research Service.

**Statement by Dr. William L. Greer
Assistant Director, System Evaluation Division
Institute for Defense Analyses, Alexandria, VA
for the
Senate Homeland Security and Governmental Affairs
Subcommittee on
Federal Financial Management, Government Information,
Federal Services, and International Security

Hearing on the Cost-Effectiveness of Procuring Weapon
Systems
in Excess of Requirements**

July 13, 2010

Mr. Chairman and Members of the Subcommittee, I am pleased to come before you today to discuss a recent study of airlift aircraft conducted by the Institute for Defense Analyses (IDA). The Department of Defense (DoD) selected IDA to examine the tactical and strategic airlift issues posed by the Congress in the National Defense Authorization Act (NDAA) for fiscal year 2008.¹ I will confine my testimony today to the parts of the IDA study that deal with strategic airlift aircraft, namely the C-5s and C-17s.

A. Background

As called for in the NDAA, we considered a wide range of operational scenarios, including peacetime operations, humanitarian aid and disaster relief, homeland security, irregular warfare, the war on terrorism, and major combat operations. Within these, the study considered numerous alternatives that included upgrading existing C-5s and procuring additional C-17s. We also examined strategic airlift fleets that were both larger and smaller than those planned for acquisition. In addition, we assessed both operational effectiveness and life-cycle costs. I will summarize for you today the basic approach taken, the alternatives considered, and our findings.²

DoD's airlift Program of Record (POR)³ in fiscal year 2009 was the study's base case against which alternatives were compared. For strategic airlift, the POR included 205 C-17s and 111 C-5s for a total of 316 aircraft. The C-5s consisted of 59 C-5As and 52 C-5Ms, the latter being C-5B/C aircraft that are scheduled to be upgraded through the Reliability Enhancement and Re-engining Program (RERP). The RERP modifications include new engines, pylons, auxiliary power units, and other upgrades. Alternative airlift forces, both larger and smaller than the POR, were examined. Note that the program of record in our study included 205 C-17s. With additional C-17s procured subsequently, today's POR includes 18 more aircraft, for a total of 223 C-17s.

B. Findings

The main questions in the NDAA and the findings of the IDA study are summarized here.

What are the airlift requirements?

As noted above, the study examined Major Combat Operations (MCOs) as well as a variety of other scenarios in which airlift aircraft would be needed. Our analyses of

¹ National Defense Authorization Act for Fiscal Year 2008, Section 1046, *Study on Size and Mix of Airlift Force*, enacted 28 January 2008.

² *Study on Size and Mix of Airlift Force: Unclassified Synopsis*, IDA Paper P-4428, Institute for Defense Analyses, February 2009.

³ The Program of Record included 205 C-17s, 52 C-5As, 59 C-5Ms, 269 C-130Hs, and 120 C-130Js, plus tankers and Civil Reserve Air Fleet (CRAF) commercial airlifters available in various call-up stages.

MCOs were based on the 2005 *Mobility Capabilities Study (MCS)*,⁴ which, at the time the IDA study began, represented DoD's latest official set of transportation requirements for airlift forces in two concurrent MCOs. For other operational scenarios – hereinafter referred to as “non-MCO” scenarios or cases, IDA's analyses were based on early versions of DoD's Steady State Security Posture (SSSP) scenarios. The SSSP scenarios were more demanding than the non-MCO cases used in earlier airlift studies conducted by DoD and others. Together, these MCO and non-MCO scenarios provided the transportation requirements examined in the study.

Does the currently programmed fleet meet the requirements?

Yes, it does. We found that the POR fleet met DoD's benchmark airlift needs identified in the MCS for moderate acceptable risk, while concurrently meeting other critical non-MCO demands.

What programmatic alternatives were considered and how well do they meet these requirements? What are the life-cycle costs of these alternatives?

The study considered 40 alternative fleet mixes and sizes and compared them in cost and effectiveness with the POR. Alternatives were selected to span the decision space indicated by the NDAA questions.

The numbers of C-17s in the alternative fleets ranged from 205 to 305. Alternatives included:

- Base Case POR: 205 C-17s, 59 C-5As, 52 C-5Ms
- Excursions from the POR that hold the C-5 RERP fleet constant; and:
 - Buy more C-17s; or
 - Retire some or all C-5As, and buy more C-17s; or
 - Retire some or all C-5As, and buy no additional C-17s.
- Excursions from the POR that increase the C-5 RERP fleet by:
 - Converting all C-5A/B/Cs to C-5Ms; or
 - Converting all C-5A/B/Cs to C-5Ms, and buying more C-17s.
- Excursions from the POR that decrease the C-5 RERP fleet by upgrading only 19 C-5Bs to C-5Ms; and:
 - Retaining all remaining C-5A/B/Cs; or
 - Retaining all remaining C-5A/B/Cs, and buying more C-17s; or
 - Retaining all remaining C-5B/Cs, and retiring remaining C-5As; or
 - Retiring remaining C-5A/B/Cs, and buying more C-17s.

⁴ *Mobility Capabilities Study*, Office of the Secretary of Defense, December 2005.

Figure 1 illustrates the relative capabilities of selected alternative fleets that differ only in numbers or types of strategic lift aircraft (i.e., numbers and types of C-5s and C-17s). Results are shown relative to the capabilities needed to meet the MCS moderate - risk delivery demands for cargo. The focus in this figure is on meeting MCO delivery demands, but in all cases, some airlifters are being used in critical, concurrent, non-MCO activities and are therefore not available for the MCO deliveries.

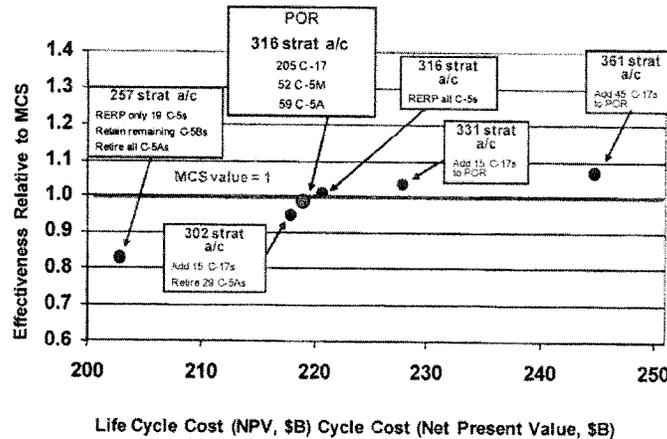


Figure 1. Comparison of Cost-Effectiveness for Selected Airlift Force Alternatives in Two Concurrent MCOs

A small amount of additional capability (2-3 percent) could be achieved if all C-5s were converted via RERP to C-5Ms. This would require not only upgrading the 52 C-5s already programmed to become C-5Ms but also the 59 C-5As that currently are not planned to be upgraded. As Figure 1 shows, this alternative is comparable in life-cycle costs to the POR. In this alternative, near-term C-5A RERP acquisition costs are essentially repaid over time by improved reliability and the resulting reduced operating and support (O&S) costs in the subsequent years.

The study identified several relatively inexpensive ways of generating higher capability from existing forces, without procuring additional strategic airlifters, and at essentially no additional costs. These are not traditionally accounted for in analyses, but their practice during actual operations could provide a greater airlift capability than shown in Figure 1. These include the following:

- Use C-5s at Emergency Wartime Planning levels during MCOs (adds 2-4 percent to the POR delivery rate, depending on whether the extra weight carried is fuel or cargo). This allows C-5s to carry heavier loads during a short wartime surge than are normally carried in peacetime – an action that may lead over time to more frequent repairs because of the greater stress on wings, airframes, and landing gears;
- Transport via CRAF (Civil Reserve Air Fleet consisting of commercial airlifters that supplement military aircraft during peacetime and wartime) whatever oversize cargo such as small vehicles that CRAF can carry, in addition to bulk cargo on pallets, in order to free up organic military airlifters for the larger and heavier cargo (adds 10 percent). This would probably require periodic peacetime exercise to ensure that appropriate CRAF aircraft maintained proficiency in carrying the larger cargo;
- Use host-nation airlifters to the maximum extent possible (up to 4 or 5 percent, depending on the nations involved); and
- Use tankers not involved in tanking missions to carry cargo within their assigned theater (adds about 4 percent). This requires being able to know confidently that selected tankers would not be needed as tankers for a day or more during which they would be employed as temporary in-theater airlifters.

Use of these capabilities could also allow for a smaller strategic fleet that still meets MCS benchmark delivery requirements. Thus, our analyses using the MCR moderate-risk benchmark suggest that an upper bound on the number of required strategic airlifters is 316, indicated by the two yellow boxes in Figure 1.

Traditionally, airlift aircraft and most other DoD force elements are sized to meet the demands of major combat operations, not steady-state, non-MCO scenarios. In looking at high-tempo non-MCO operations such as in Iraq and Afghanistan today, we note that some C-5As could be retired to save O&S costs with no loss in capability for those missions. Although strategic airlift aircraft are used in many SSSP scenarios, most of the missions involve small loads in many concurrent situations with locations that are geographically separated and are more cost-effectively supported by tactical airlift. This is illustrated in Figure 2 where the fraction of all non-MCO concurrent demands met by each alternative is plotted against the life-cycle cost for each. A number of alternatives can be seen that provide comparable or better coverage of the non-MCO scenarios at lower cost than the POR. One involves retiring all C-5As and working with a smaller strategic airlift fleet. However this alternative fell far below the requirement set in Figure 1 for MCO support, and so, despite its attractiveness for non-MCO scenarios, it would not be a prudent choice if DoD wants flexibility to respond to MCOs at current levels of risk.

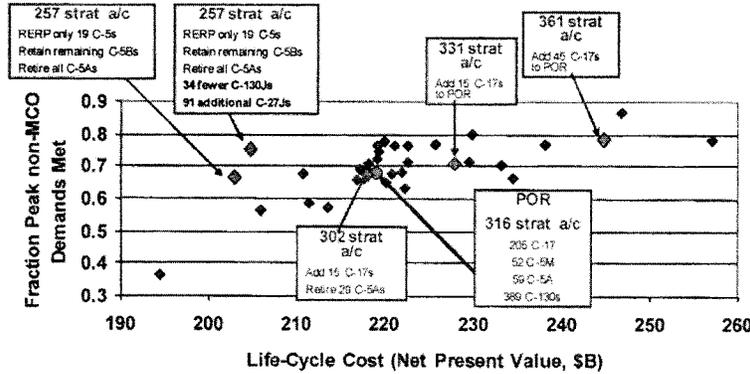


Figure 2. Comparison of Cost-Effectiveness for Selected Airlift Force Alternatives in Airlift-Stressing non-MCO Operations

What are the cost and other implications for stopping production of the C-17 line and restarting it later, if needed?

Our assessment of the C-17 line shutdown and restart is that continued production, even at low rates, is expensive relative to restart costs. Moreover, under the scenarios and other assumptions considered in our study, additional C-17s were not needed to meet the MCS moderate-acceptable-risk delivery rates used as a benchmark in our analyses. We also found that retiring C-5As to release funds to buy and operate more C-17s is not cost-effective. Although C-17s played an important role in some of the non-MCO scenarios, additional C-17s were not found cost-effective there either.

How do the alternatives differ in service life?

We projected aircraft service lifetimes based on planned flying hours and flying severity conditions. Excursions from the planned operating conditions were also examined. Virtually all the C-5s and C-17s have lifetimes beyond 2040.

C. Closing Remarks

Mr. Chairman and Members of the Subcommittee, that concludes my prepared remarks. Thank you for the opportunity to present our study findings.

About the Institute for Defense Analyses

The Institute for Defense Analyses (IDA) is a non-profit corporation that runs three Federally Funded Research and Development Centers (FFRDCs) to provide objective analyses of national security issues, particularly those requiring scientific and technical expertise, and to conduct related research on other national challenges. FFRDCs are private-sector organizations established to meet research or development needs integral to the missions of federal agencies, and operated in the public interest, free from conflicts of interest. IDA's Studies and Analyses Center, located in Alexandria, VA, is IDA's largest and oldest FFRDC. Established in 1956 at the request of the Secretary of Defense, IDA:

- Supports the Office of the Secretary of Defense, the Joint Staff, Unified Commands, Defense Agencies, and other Government organizations;
- Provides rigorously objective evaluations of systems and capabilities, advanced technologies, forces and strategies, and resource and support challenges; and
- Is a trusted source of high-quality research and advice.

CHARRTS No.: SG-08-006
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCaskill
Question: #6

Question. The average C-5A is 40 years old and has consistently had a mission-capable rate around 50%, which is extremely low. As a result, the C-5A is usually not launched on high-priority, must-deliver missions. As you may know, in February 2010, I questioned Secretary Gates concerning the use of the C-5A during the Haiti airlift mission. He identified that no C-5As had performed any of the critical airlift requirements during our response, but that C-17s were critical to supporting the mission in Haiti. Moreover, the C-5A is the most expensive airlifter to operate in the Air Mobility Command (AMC) fleet and typically averages 34 more hours in maintenance man-hours per flight than the C-17. The C-5A costs more than twice as much as the C-17 to operate per flight (\$26.9K versus \$12.3K). Furthermore, C 5As will become increasingly more expensive to operate in the future as advancing age contributes to poor reliability, further corrosion repairs, and parts obsolescence not to mention the costs associated with maintaining unique support, training and aircrew cadres. Since a decision has been made not to include the C-5As in the Reliability Enhancement and Re-engining Program (RERP), why is the Department not pursuing their retirement and replacement with available and more reliable C-17s?

Answer. The DoD is planning to retire older C-5As because the Department has more airlift capacity than required to meet the Defense Strategy. There is no reason to replace capability that is not needed.

CHARRTS No.: SG-08-007
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCaskill
Question: #7

Question. Has a full, independent business case analysis been carried out regarding the continued operation of ailing C-5A aircraft versus replacing them with new C-17s? If so, please detail its methodology and findings. If not, please detail any other analysis that has been done regarding the question of retaining C-5A aircraft in the Air Force inventory vice replacing them with new C-17s.

Answer. The National Defense Authorization Act (NDAA) for fiscal year 2008 required that the Secretary of Defense—using a Federally Funded Research and Development Center (FFRDC)—conduct a study on the proper mix of fixed wing airlift assets. The Office of the Secretary of Defense selected the Institute for Defense Analyses (IDA) as the FFRDC to conduct the study. In its study, IDA determined that procuring additional C-17 aircraft was the most expensive alternative for generating more capability, and identified several relatively inexpensive ways of generating higher capability from existing forces (i.e., modernize more C-5s). Furthermore, the study focused on both organic and military and on commercially available airlift under circumstances that meet the needs of the National Military Strategy. Life-cycle costs for all assets were estimated. The 2009 Mobility Capabilities and Requirements Study determined that the 32.7 million ton-miles-per day (MTM/D) of organic strategic airlift was required to meet the full Defense Strategy. The current program of record provides 35.8 MTM/D. There is no need to replace retiring C-5As with C-17s, and the IDA study found it was not cost effective to do so.

CHARRTS No.: SG-08-013
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCain
Question: #13

Question. As I referenced in my opening statement, last year, the Administration's budget zeroed out C-17 procurement and it wasn't authorized in the House and Senate. However, that didn't stop the program from being earmarked funds by the Appropriators.- When a program isn't funded through the President's budget and is not authorized by Congress, but still funded by the Appropriators, does DoD have to then reallocate money from other programs? Can you provide examples of such programs?

Answer. In such cases, unless the Congress increases our overall topline when adding these aircraft, Congress decides what funds to reallocate when they cut other programs in our request to fund C-17 aircraft.

CHARRTS No.: SG-08-014
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCain
Question: #14

Question. As I referenced in my opening statement, last year, the Administration's budget zeroed out C-17 procurement and it wasn't authorized in the House and Senate. However, that didn't stop the program from being earmarked funds by the Appropriators.- Can you briefly discuss the priorities to which DoD could devote resources if it didn't need to spend billions of dollars building and maintaining more C-17s?

Answer. As previously stated by Secretary Gates, "There are things that we need to better ensure the safety and the effectiveness of our warfighters, and to the extent that you take away money for those needs and simply use it to buy aircraft that we do not need, you put in danger our warfighters. Rather than making them more effective and safer, you make them less effective and less safe."

CHARRTS No.: SG-08-015
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCain
Question: #15

Question. In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities.- How much does it cost the Air Force per year in additional expenditures to maintain the additional aircraft?

Answer. The C-17 aircraft in excess of strategic airlift needs are considered Backup Aircraft Inventory (BAI); the Air Force is not provided additional manpower and support equipment for the excess aircraft.

Sustainment costs for C-17 aircraft are driven by flying hours, engine cycles per aircraft and a continuous modification process that targets a homogenous fleet. Primary Aircraft Authorized (PAA) and BAI aircraft are treated equally for sustainment and fleet homogeneity. Each command funds flying hours based on PAA. BAI aircraft flow in and out of the PAA role as PAA aircraft are cycled through modification and depot maintenance. The C-17 fleet is sustained under a Performance Based Logistics relationship with Boeing called Globemaster III Sustainment Program (GSP).

C-17 aircraft are in a continuous modification program to ensure a homogenous fleet; the modifications vary in cost and are contingent upon the necessary work required for the aircraft. This cost could range from \$500K to \$3.5M per aircraft.

CHARRTS No.: SG-08-016
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCain
Question: #16

Question. In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities.- What is the cost of a new C-17 versus upgrading a C-5 into a modernized C-5M?

Answer. The cost of a new C-17 aircraft is ~\$300 million per aircraft. The cost of upgrading a C-5 as part of the Reliability Enhancement and Re-engining Program (RERP) is ~\$123 million per aircraft.

CHARTS No.: SG-08-017
 Senate Committee on Governmental Affairs
 Hearing Date: July 13, 2010
 Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
 Requirements: Can We Afford More C-17s?
 Witness: HON McCord
 Senator: Senator McCain
 Question: #17

Question. In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities.- The Institute for Defense Analyses Study found that "retiring C-5As to release funds to buy and operate more C-17s is not cost effective." Can you elaborate on this using the cost breakdown for each?

Answer. The marginal cost of a new C-17 aircraft is much higher than the savings achieved by retiring a C-5A. In this case, two factors make the C-17 more expensive. First, procurement costs are incurred for the C-17, whereas those for the C-5A are sunk costs. Second, although the costs per flying hour of a C-17 are lower than those of a C-5A, the higher C-17 crew ratios require that a larger number of hours be flown per year. These higher crew ratios contribute to increased effectiveness for the C-17, making the cost-effectiveness tradeoff between these two aircraft less dramatic. Note that the marginal cost of each C-17 aircraft ranges from \$462 million to \$665 million. The value depends largely on the mix of active, guard, and reserve aircraft in the fleet. In general, the larger portion of active aircraft, the higher the marginal cost. This is mainly due to higher flying hours in the active units. The C-5A aircraft are not assigned to active units in any alternative, so this effect does not produce a range of lifecycle costs for this fleet.

In its study, IDA determined that procuring additional C-17 aircraft was the most expensive alternative for generating more capability, and identified several relatively inexpensive ways of generating higher capability from existing forces (i.e., modernizing more C-5s). The IDA study also determined that continuation of C-17 production, even at low rates, is more expensive than the costs associated with closing the production line and then restarting it. Finally, IDA determined that the life cycle costs of additional C-17 aircraft are higher than the life cycle costs associated with modernizing additional C-5A aircraft and higher than the savings achieved from retiring C-5As. As previously stated, based on the IDA estimates, the marginal life cycle costs of one additional C-17 aircraft range from \$462-665 million, depending on the mix of active, guard, and reserve aircraft in the fleet. The life cycle costs of one additional C-5A aircraft modernization are \$28 million, and the marginal life cycle cost savings of retiring a C-5A are \$267 million. Given these estimates, IDA's position is that C-5 modernization remains a cost effective alternative for providing enhanced/additional capabilities when compared with C-17 aircraft procurement.

Over the course of the last 5 years, the Department has conducted three comprehensive mobility studies to assess the Department's strategic and intra-theater airlift requirements: the 2005 Mobility Capabilities Study (MCS), the congressionally mandated 2008 IDA Study on the Size and Mix of Airlift Force, and the 2009 Mobility Capabilities and Requirements Study (MCRS). These studies have all indicated that the Department has more than enough strategic airlift capacity and that additional C-17 procurement is not required. The Department continues to maintain that the current fleet is in excess of our strategic airlift needs, resulting in increased operating costs at the expense of other priorities.

CHARRTS No.: SG-08-018
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: HON McCord
Senator: Senator McCain
Question: #18

Question. In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities.- What is the Air Force doing with the C-17s in excess of strategic airlift needs? Are they currently flying? Are they being used for training?

Answer. The Air Force manages all aircraft within the strategic airlift fleet, including C-5s and C-17s, to conduct real world operations. The number and mix of aircraft is taken into account when managing flying hours, depot maintenance schedules, and training requirements. Having additional aircraft can increase our flexibility but carries with it unacceptable additional infrastructure and operating costs.

CHARRTS No.: SG-08-001
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator Carper
Question: #1

Role of Russian An-124 Airlifter in US Strategic Airlift Operations

Question. I am interested in the role of the Russian An-124 airlifter in US strategic airlift operations. Specifically, I would like to know why the Department of Defense thinks it is more cost effective to lease An-124s from Russia than it is to continue operating one of the 22 C-5As slated to be retired.

Answer. The Department of Defense (DoD) utilizes commercial AN-124s in the same manner it uses other commercial aircraft: to augment the organic fleet where threat allows and to save money. Recently, the AN-124 augmented the C-5 and C-17 to move Mine Resistant Ambush Protected-All Terrain Vehicles (M-ATV) to Afghanistan. The cost of moving an M-ATV is \$195K for the C-5A and \$146K for the AN-124. For these movements, using the AN-124 offered a 25% savings.

Use of commercial AN-124s is not tied to DoD's decision to retire C-5s. The studies used to determine our required organic airlift capability do not plan for the use of foreign owned aircraft due to the political uncertainty of access to those aircraft in time of war. The recently completed Mobility Capabilities and Requirements Study 2016 (MCRS-16) determined an organic airlift capability of 32.7 million ton-miles per day (MTM/D) is necessary to satisfy the National Military Strategy. With a planned C-17 fleet of 222 aircraft in 2016, the C-5 fleet needed to reach the required MTM/D is approximately 76 aircraft (mix of C-5Ms and C-5As), which is less than the current 111 aircraft in the C-5 fleet. This projected excess capability was one of several factors used by the Department to determine its way ahead for the C-5A fleet.

CHARRTS No.: SG-08-002
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #2

Question. As you know, the ability of the U.S. industrial base to support the production of large military aircraft is a growing concern. With all of our military commitments around the world, a strong U.S. industrial base is more important now than ever before. Our allies also look to the U.S. to play a global leadership role in providing the latest and most capable military equipment to keep their mobility and combat arsenals strong. What are you doing to maintain the U.S. industrial base in wide body military aircraft to ensure the U.S. retains its technology and capability edge in supporting and winning future wars with strategic airlift?

Answer. The Department's primary concern is the viability of any essential industrial/technological capabilities. Transport airframes, as well as many of their high-value subsystems are commercial off-the-shelf (COTS) or COTS-derivative items. These high-value subsystems include engines, avionics, auxiliary power units, environmental control systems, and ground proximity warning systems. Transport airframes and subsystems rely heavily on commercial technologies, processes, and products and will be sustained by other on-going and planned military and commercial aerospace programs. The non-COTS items in a military transport such as cargo floor reinforcement and loading systems are not considered essential military capabilities.

Continued production of global lift aircraft would do little to stem the loss of military-unique aerospace design skills that are at risk including hypersonics, canopy and cockpit design and integration, stores management and weapons separation, aerodynamics, etc. – none of which would be maintained by continued production of global lift aircraft. Global lift aircraft are based on commercial products or derivatives of commercial products. They contain very little military-unique technology and capability that give our warfighters the edge to win future wars.

CHARRTS No.: SG-08-003
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #3

Question. Will the U.S. continue to have the edge in airlift production and will we keep it if we allow the C-17 production line to shutdown? Please explain.

Answer. Requirements for commercial cargo aircraft continue to rise for outsize and heavy lift capability, including planes that can operate in remote and austere environments. Numerous industries – including construction, mining, oil and gas equipment, power generation, railroad, and satellite companies – have requirements to transport heavy, oversize equipment quickly. The technology and processes used by the wide-body civilian aircraft manufacturing base are readily available, mature, and directly applicable to those used by military airlift manufacturers. I am confident that when the time comes in the future to produce additional military airlift, America's aerospace industry will be able to respond to the need.

CHARRTS No.: SG-08-004
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #4

Question. What alternatives do you see for future airlift production if America's last remaining wide body military production program shuts down?

Answer. Ending production of the C-17 would not materially reduce the capability of the U.S. defense industrial base to supply future wide-body military aircraft. From a production standpoint, most parts of military aircraft rely on skills and facilities similar to those used in commercial aircraft manufacturing, so continued domestic production of 747, 767, 777, and 787 aircraft by Boeing and its subcontractors will maintain that capability along with continued production of components on Airbus' A-330, A-340, A-350, and A-380 by American suppliers. From a design and development standpoint, the C-17 is well past its intensive design phase, and continued production will have little effect on American technical capabilities. Moreover, wide-body lift aircraft involve very little military-unique technology. Even as the Department begins shutting down the C-17 production line, the technology and processes used by the wide-body civilian aircraft manufacturing base are readily available, mature, and directly applicable to those used by military airlift manufacturers, and American aerospace companies have access to engineering talent that can develop the few military-unique aspects. I am confident that when the time comes in the future to produce additional military airlift, America's aerospace industry will be able to respond to the need.

CHARRTS No.: SG-08-005
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #5

Question. What is your risk mitigation strategy if C-17 production shut down occurs and subsequent additional airlift capacity is required due to unforeseen circumstances or additional mission requirements to the current conflicts we are fighting?

Answer. The Mobility Capabilities and Requirements Study (MCRS) determined that 32.7 million-ton-miles per day (MTM/D) of organic strategic airlift was required to meet the National Defense Strategy. The current program of record provides 35.8 MTM/D, which is in excess of the requirement. In addition, the Civil Reserve Airlift Fleet (CRAF) program provides the Department with additional capacity from our commercial partners. If additional airlift were required due to unforeseen circumstances or mission requirements, risk could be mitigated by upgrading the remaining C-5As in the inventory to the C-5M configuration and increasing reliance on the CRAF.

CHARRTS No.: SG-08-006
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #6

Question. The average C-5A is 40 years old and has consistently had a mission-capable rate around 50%, which is extremely low. As a result, the C-5A is usually not launched on high-priority, must-deliver missions. As you may know, in February 2010, I questioned Secretary Gates concerning the use of the C-5A during the Haiti airlift mission. He identified that no C-5As had performed any of the critical airlift requirements during our response, but that C-17s were critical to supporting the mission in Haiti. Moreover, the C-5A is the most expensive airlifter to operate in the Air Mobility Command (AMC) fleet and typically averages 34 more hours in maintenance man-hours per flight than the C-17. The C-5A costs more than twice as much as the C-17 to operate per flight (\$26.9K versus \$12.3K). Furthermore, C-5As will become increasingly more expensive to operate in the future as advancing age contributes to poor reliability, further corrosion repairs, and parts obsolescence not to mention the costs associated with maintaining unique support, training and aircrew cadres. Since a decision has been made not to include the C-5As in the Reliability Enhancement and Re-engining Program (RERP), why is the Department not pursuing their retirement and replacement with available and more reliable C-17s?

Answer. The Mobility Capabilities and Requirements Study determined that the Department of Defense has more airlift capacity than it needs to meet the most demanding requirements of the defense strategy. This conclusion was made with a full understanding of C-5 capabilities and limitations. The decision to pursue retiring excess C-5As will save the Department scarce resources that can be used to meet other higher priority warfighter requirements. Given this, there is no need to replace unneeded capability with additional C-17s.

CHARRTS No.: SG-08-007
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #7

Question. Has a full, independent business case analysis been carried out regarding the continued operation of ailing C-5A aircraft versus replacing them with new C-17s? If so, please detail its methodology and findings. If not, please detail any other analysis that has been done regarding the question of retaining C-5A aircraft in the Air Force inventory vice replacing them with new C-17s.

Answer. Yes, Congress received this analysis in February 2009 in accordance with the National Defense Authorization Act (NDAA) for Fiscal Year 2008. The 2008 NDAA required the Secretary of Defense – using a Federally Funded Research and Development Center (FFRDC) – to conduct a study on the proper mix of fixed wing airlift assets to meet the National Defense Strategy. The Institute for Defense Analysis (IDA) Study on Size and Mix of Airlift Fleet, concluded that “retiring C-5As to release funds to buy and operate more C-17s is not cost effective.” Subsequent to release of the IDA study, the Department completed the Mobility Capability and Requirements Study (MCRS). The MCRS determined that the Department of Defense has more airlift capacity than it needs to meet the most demanding requirements of the defense strategy. This conclusion was made with a full understanding of C-5 capabilities and limitations. This analysis informed the Air Force’s decision to pursue retiring excess C-5As in an effort to allocate resources currently used for excess airlift capacity to higher priority requirements. Given this, there is no need to replace unneeded capability with additional C-17s.

CHARRTS No.: SG-08-008
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #8

Question. Does DoD support the current Congressionally mandated limitation on the retirement of C-5 aircraft? If not, why? If the limitation were not in place, how would DoD proceed with managing the strategic airlift fleet of aircraft?

Answer. The DoD does not support the current Congressionally mandated limitation on retirement of C-5 aircraft. The Air Force Program of Record is currently funded for 222 C-17s and 111 C-5s, a total of 333 strategic airlift tails. The Air Force has determined this inventory has excess airlift capacity based on the Mobility Capabilities and Requirements Study 2016 (MCRS-16) inter-theater airlift capability requirement of 32.7 Million Ton Miles/Day (MTM/D). Based on this requirement, the FY11PB retires 22 C-5As (10 AFRC, 12 ANG), reducing C-5 fleet to 37 C-5As/52 C-5Ms. The retirements convert two C-5A units (1 AFRC, 1 ANG) to 8 Primary Assigned Aircraft (PAA) C-17s per base. Resources from the 22 C-5A retirements will fund 16 PAA C-17 beddown and save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs. SECAF is currently submitting C-5A retirement reports to Congress proposing a strategic airlift tail reduction below 316 (FY 10 NDAA) while still meeting MCRS-16 peak demand requirements. As new C-17s are delivered to the fleet, one-for-one C-5A retirements are projected to begin in early 2011.

CHARRTS No.: SG-08-009
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #9

Question. DoD has stated in the FY11 President's Budget (PB) the Air Force makes its first move to eliminate excess strategic airlift fleet capacity by retiring 22 C-5As. Would lifting the retirement moratorium definitely lead to retirements of C-5 aircraft and, if so, how and when would they be replaced?

Answer. Relief from the 316 strategic airlift floor required by the National Defense Authorization Act (NDAA) for Fiscal Year 2010 would allow the Air Force to align strategic airlift inventory with projected requirements. The FY11 PB retires 22 C-5As (10 AFRC, 12 ANG), reducing the C-5 fleet to 37 C-5As/52 C-5Ms. The retirements convert two C-5A units (1 AFRC, 1 ANG) to 8 PAA C-17s per base. Resources from the 22 C-5A retirements will fund 16 PAA C-17 beddown and save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs. The MCRS determined that 32.7 million-ton-miles per day (MTM/D) of organic strategic airlift was required to meet the National Defense Strategy. The current program of record provides 35.8 MTM/D. Because there is already excess capacity, there is no need to replace retiring C-5As.

CHARRTS No.: SG-08-010
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #10

Question. The recent Mobility Capabilities and Requirements Study 2016 projects peak demand for strategic airlift at around 10% below current maximum airlift fleet capacity. How can DoD be sure that maintaining the status quo with the strategic airlift fleet at 223 C-17s and 111 C-5s - without any room, so to speak, to account for risk - will be enough for the coming decades? How can DoD confidently assert that demand will not go up given the uncertainty of today's threat environment and the possibility of unexpected missions for the U.S. that we cannot currently conceive of?

Answer. The results of the Mobility Capabilities and Requirements Study (MCRS) reflect the mobility capabilities required to meet the National Defense Strategy. This peak demand occurs when servicing two nearly simultaneous warfights in the 2016 timeframe, each one requiring a larger force than the 2009 post surge OIF and current OEF force levels combined; providing strategic lift for three homeland security scenarios; and continuing to support operations worldwide as part of steady-state operations. The strategic airlift required to satisfy this most stressing MCRS case is therefore a robust solution that meets the National Defense Strategy. If additional airlift were required due to unforeseen circumstances or mission requirements, risk could be mitigated by upgrading the remaining C-5As in the inventory to the C-5M configuration and increasing reliance on Civil Reserve Airlift Fleet (CRAF). Projected CRAF cargo capacity is significant and greatly exceeds the requirement for all MCRS cases.

CHARRTS No.: SG-08-011
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCaskill
Question: #11

Question. In light of current and projected missions, what level of risk does DoD believe it is taking in ending C-17 production? Also, what plans does DoD have to work towards a next generation of strategic airlift?

Answer. The Mobility Capabilities Requirements Study (MCRS-16) determined that our programmed strategic airlift fleet of 223 C-17s and 111 C-5s will provide capacity of 35.8 million ton-miles per day (MTM/D), which will cover the highest MCRS-16 airlift demand of 32.7 MTM/D. In the near term, the level of risk is minimal.

Based upon several assessments, there appears to be a requirement to replace our strategic airlift fleet in the 2040 timeframe. Current analysis suggests the next airlifter should be optimized for the long range airlift of large amounts of bulk cargo, vehicles (cargo & oversize), and passengers.

CHARRTS No.: SG-08-012
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez
Senator: Senator McCain
Question: #12

Question. What stresses does excess aircraft, such as the procurement of additional C-17s, put on the Air Force in terms of extra hanger space needed, spare parts, additional personnel to maintain, etc.?

Answer. Additional aircraft may place added stress on flight line maintenance operations, utilize spare parts at a higher than planned rate, and drive increased depot maintenance costs. In the long-term, excess aircraft may require the Air Force to source additional manpower, flying hours, spare parts and, potentially, infrastructure to bed down and operate a larger than programmed fleet. Excess aircraft are considered Backup Aerospace Vehicle Inventory (BAI) and are treated equally with Primary Assigned Aircraft for depot maintenance and common configuration management purposes, thus generating additional resource requirements.

Additionally, and specific to the C-17, there are ongoing obsolescence/mitigation issues with spares and replacement parts. If additional aircraft are introduced into the inventory placing increased demand on existing resources, these obsolescence issues could ultimately impact overall aircraft availability.

CHARRTS No.: SG-08-002
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardin
Senator: Senator McCaskill
Question: #2

Question: As you know, the ability of the U.S. industrial base to support the production of large military aircraft is a growing concern. With all of our military commitments around the world, a strong U.S. industrial base is more important now than ever before. Our allies also look to the U.S. to play a global leadership role in providing the latest and most capable military equipment to keep their mobility and combat arsenals strong. What are you doing to maintain the U.S. industrial base in wide body military aircraft to ensure the U.S. retains its technology and capability edge in supporting and winning future wars with strategic airlift?

Answer. I defer to Mr. Estevez, OSD Acquisition, Technology, and Logistics to answer.

CHARRTS No.: SG-08-003
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardin
Senator: Senator McCaskill
Question: #3

Question: Will the U.S. continue to have the edge in airlift production and will we keep it if we allow the C-17 production line to shutdown? Please explain.

Answer. I defer to Mr. Estevez, OSD Acquisition, Technology, and Logistics to answer.

CHARRTS No.: SG-08-004
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardin
Senator: Senator McCaskill
Question: #4

Question: What alternatives do you see for future airlift production if America's last remaining wide body military production program shuts down?

Answer. I defer to Mr. Estevez, OSD Acquisition, Technology, and Logistics to answer.

CHARRTS No.: SG-08-005
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #5

Question: What is your risk mitigation strategy if C-17 production shut down occurs and subsequent additional airlift capacity is required due to unforeseen circumstances or additional mission requirements to the current conflicts we are fighting?

Answer: If C-17 production shut down occurs and subsequent additional airlift capacity is required due to unforeseen circumstances or additional mission requirements to the current conflicts we are fighting, risk can be mitigated by upgrading the remaining C-5As in the inventory to C-5M configuration and increasing reliance on the Civil Reserve Airlift Fleet (CRAF). Projected CRAF cargo capacity is significant and greatly exceeds the requirement for all Mobility Capabilities and Requirements Study (MCRS) cases. The most demanding case in the MCRS required only 55% of the projected CRAF capacity.

CHARRTS No.: SG-08-006
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #6

Question: The average C-5A is 40 years old and has consistently had a mission-capable rate around 50%, which is extremely low. As a result, the C-5A is usually not launched on high-priority, must-deliver missions. As you may know, in February 2010, I questioned Secretary Gates concerning the use of the C-5A during the Haiti airlift mission. He identified that no C-5As had performed any of the critical airlift requirements during our response, but that C-17s were critical to supporting the mission in Haiti. Moreover, the C-5A is the most expensive airlifter to operate in the Air Mobility Command (AMC) fleet and typically averages 34 more hours in maintenance man-hours per flight than the C-17. The C-5A costs more than twice as much as the C-17 to operate per flight (\$26.9K versus \$12.3K). Furthermore, C 5As will become increasingly more expensive to operate in the future as advancing age contributes to poor reliability, further corrosion repairs, and parts obsolescence not to mention the costs associated with maintaining unique support, training and aircrew cadres. Since a decision has been made not to include the C-5As in the Reliability Enhancement and Re-engining Program (RERP), why is the Department not pursuing their retirement and replacement with available and more reliable C-17s?

Answer: The Institute for Defense Analyses conducted the *Study on Size and Mix of Airlift Fleet*. The study found that "retiring C-5As to release funds to buy and operate more C-17s is not cost effective." The report used a range of \$249-253M in FY09\$ as the cost to procure new C-17s (based on acquisition quantities). In their study, the cost per flying hour for the C-5A was \$22,192, while the cost per flying hour for the C-17 was \$16,345. A C-5A programmed at 348 flying hours per year would spend approximately \$7.7M annually in flying hour costs. Similarly, a C-17 programmed to fly the same 348 hours would cost about \$5.7M annually. The \$2M net annual savings in flying hour costs over the study's 25 year life cycle horizon was not enough to recover the approximately \$250M procurement cost for each additional C-17.

CHARRTS No.: SG-08-007
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #7

Question: Has a full, independent business case analysis been carried out regarding the continued operation of ailing C-5A aircraft versus replacing them with new C-17s? If so, please detail its methodology and findings. If not, please detail any other analysis that has been done regarding the question of retaining C-5A aircraft in the Air Force inventory vice replacing them with new C-17s.

Answer: The National Defense Authorization Act (NDAA) for fiscal year 2008 required that the Secretary of Defense—using a Federally Funded Research and Development Center (FFRDC)—conduct a study on the proper mix of fixed wing airlift assets. The Office of the Secretary of Defense selected the Institute for Defense Analyses (IDA) as the FFRDC to conduct the study. The study focused on both organic and military and on commercially available airlift under circumstances that meet the needs of the National Military Strategy. Life-cycle costs for all assets were estimated. The study found that a program of 316 strategic aircraft is adequate. If additional capability beyond that provided by a program of 316 strategic aircraft is needed then RERP all C-5s to C-5M since they provide slightly higher capability at comparable Life Cycle Cost. After that, additional C-17s can be added if needed.

CHARRTS No.: SG-08-008
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #8

Question: Does DoD support the current Congressionally mandated limitation on the retirement of C-5 aircraft? If not, why? If the limitation were not in place, how would DoD proceed with managing the strategic airlift fleet of aircraft?

Answer: The Air Force Program of Record is currently funded for 222 C-17s and 111 C-5s, a total of 333 strategic airlift tails. The Air Force has determined this inventory has excess airlift capacity based on the Mobility Capabilities and Requirements Study 2016 (MCRS-16) inter-theater airlift capability requirement of 32.7 Million Ton Miles/Day (MTM/D). Based on this requirement, the FY11PB retires 22 C-5As (10 AFRC, 12 ANG), reducing C-5 fleet to 37 C-5As/52 C-5Ms. The retirements convert two C-5A units (1 AFRC, 1 ANG) to 8 PAA C-17s per base. Resources from the 22 C-5A retirements will fund 16 PAA C-17 beddown and save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs. SECAF is currently submitting C-5A retirement reports to Congress proposing a strategic airlift tail reduction below 316 (FY10 NDAA) while still meeting MCRS-16 peak demand requirements. Until congressional relief below 316, as new C-17s are delivered to the fleet, one-for-one C-5A retirements are projected to begin in early 2011.

CHARRTS No.: SG-08-009
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #9

Question: DoD has stated in the FY11 President's Budget, the Air Force makes its first move to eliminate excess strategic airlift fleet capacity by retiring 22 C-5As. Would lifting the retirement moratorium definitely lead to retirements of C-5 aircraft and, if so, how and when would they be replaced?

Answer: Relief from the 316 strategic airlift floor required by the FY10 NDAA would allow the AF to reduce its inter-theater airlift fleet to match the peak demand of the MCRS-16. FY11 PB retires 22 C-5As (10 AFRC, 12 ANG), reducing C-5 fleet to 37 C-5As/52 C-5Ms. The retirements convert two C-5A units (1 AFRC, 1 ANG) to 8 PAA C-17s per base. Resources from the 22 C-5A retirements will fund 16 PAA C-17 beddown and save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs.

CHARRTS No.: SG-08-010
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #10

Question: The recent Mobility Capabilities and Requirements Study 2016 projects peak demand for strategic airlift at around 10% below current maximum airlift fleet capacity. How can DoD be sure that maintaining the status quo with the strategic airlift fleet at 223 C- 17s and 111 C-5s - without any room, so to speak, to account for risk - will be enough for the coming decades? How can DoD confidently assert that demand will not go up given the uncertainty of today's threat environment and the possibility of unexpected missions for the U.S. that we cannot currently conceive of?

Answer: The MCRS represents a significant effort by the Department to identify the mobility capabilities and requirements that will be needed to support the U.S. strategic objectives in the 2016 timeframe. MCRS provides a key reference point to shape the mobility forces. The MCRS is not an end but a milestone in the Department's ongoing process to assure mobility capabilities are sufficient to meet future needs. The MCRS team has been tasked to remain engaged to ensure that mobility capabilities remain sufficient in light of any future changes and to ensure that funding decisions reflect strategic priorities.

CHARRTS No.: SG-08-011
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Mr. Estevez and Maj Gen Desjardins
Senator: Senator McCaskill
Question: #11

Question: In light of current and projected missions, what level of risk does DoD believe it is taking in ending C-17 production? Also, what plans does DoD have to work towards a next generation of strategic airlift?

Answer: In the near term, level of risk in ending C-17 production is minimal. As I testified in July [Gen Desjardins], MCRS-16 determined that our programmed strategic airlift fleet of 223 C-17s and 111 C-5s will provide a capacity of 35.9 million ton-miles per day (MTM/D), which more than covers the highest MCRS-16 airlift demand of 32.7 MTM/D. This excess capability will allow us to retire the oldest, least reliable aircraft in the fleet, primarily C-5As.

Based upon several assessments, there appears to be a requirement to replace our strategic airlift fleet in the 2040 time frame. Due to the lengthy acquisition process (the C-17 took 14 years from program decision to putting an aircraft-on-ramp), it is incumbent that planning for the future global airlifter begin now. Much work is needed but analysis to date suggests that the C-X should be optimized for the long range airlift of large amounts of bulk cargo, vehicles (outsize & oversize), and passengers. The C-X will incorporate a number of core enabling capabilities: (1) advanced avionics to permit all weather operations independent of ground based navigation aids; (2) automated air refueling to permit unrestricted global range; (3) capability to rapidly load and unload cargo via a rear cargo door and ramp without requiring specialized materiel handling equipment; (4) ability to conduct combat offload procedures; (5) capability to air drop material and personnel; (6) capability to operate in the low-to-medium 2040 threat environment. The C-X will use onboard and off board systems to detect and counter infrared, radar, and electro-optical guided surface to air missiles and directed energy weapons; (7) fuel efficiency improvements will come from a combination of advanced engine technologies, increased use of like composites materials to decrease aircraft weight, and improved aircraft aerodynamic design.

(Ref: 2010 AMMP)

CHARRTS No.: SG-08-013
 Senate Committee on Governmental Affairs
 Hearing Date: July 13, 2010
 Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
 Requirements: Can We Afford More C-17s?
 Witness: Maj Gen Desjardins
 Senator: Senator McCain
 Question: #13

Question: As I referenced in my opening statement, last year, the Administration's budget zeroed out C-17 procurement and it wasn't authorized in the House and Senate. However, that didn't stop the program from being earmarked funds by the Appropriators. When a program isn't funded through the President's budget and is not authorized by Congress, but still funded by the Appropriators, does DoD have to then reallocate money from other programs? Can you provide examples of such programs?

Answer: The Air Force must carve money out of its current budget to sustain programs which were otherwise unplanned. Specifically, the Air Force must find ways to pay for added manpower, flying hours, maintenance, and spare parts. The following is a short history of C-17 procurement from FY07 forward:

FY07 Bridge Supplemental procured +10 BAI C-17s; program of record from 180 to 190

- Congress cited lack of confidence in MCS-05 study in directing continued C-17 production
- No trainers, support equipment, spares or quick engine change (QEC) kits were procured

FY08 GWOT Supplemental added +15 C-17s; program of record from 190 to 205

- \$3.6B appropriated for 15 C-17s and 3 trainers, plus sufficient support equipment, spares, QEC kits to stand up 2 new locations

FY09 OCO Supplemental added +8 C-17s; program of record from 205 to 213

- \$2.17B appropriated for 8 C-17s and 1 trainer, plus sufficient support equipment, spares, QEC kits to stand up 1 new location

FY10PB added \$2.5B for 10 additional C-17s; program of record from 213 to 223

- Funding sufficient only for aircraft and engines. No funding was provided for support equipment, spares, QEC kits or trainers

CHARRTS No.: SG-08-014
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Maj Gen Desjardins
Senator: Senator McCain
Question: #14

Question: As I referenced in my opening statement, last year, the Administration's budget zeroed out C-17 procurement and it wasn't authorized in the House and Senate. However, that didn't stop the program from being earmarked funds by the Appropriators.- Can you briefly discuss the priorities to which DoD could devote resources if it didn't need to spend billions of dollars building and maintaining more C-17s?

Answer: AMC does not prioritize DoD resource requirements, however, we have the opportunity to meet operational requirements in this fiscally challenging period by right-sizing the strategic airlift fleet. In the FY11 President's Budget, the Air Force makes its first move to eliminate excess strategic airlift fleet capacity by retiring 22 C-5As.

These retirements will provide the necessary manning and resources to permanently bed down 16 C-17s in the Air Reserve Component (ARC) and will save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs.

Conversely, if aircraft retirement restrictions direct us to maintain a C-5 fleet in excess of the wartime lift requirement, then additional manpower, infrastructure and resources would be required to bed down and operate the larger fleet of inter-theater aircraft.

CHARRTS No.: SG-08-015
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Maj Gen Desjardins
Senator: Senator McCain
Question: #15

Question: In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities. How much does it cost the Air Force per year in additional expenditures to maintain the additional aircraft?

Answer: These aircraft are considered Backup Aircraft Inventory (BAI); we are not provided additional manpower and support equipment for the aircraft.

Sustainment costs for C-17 aircraft are driven by flying hours, engine cycles per aircraft and a continuous modification process that targets a homogenous fleet. Primary Aircraft Authorized (PAA) and BAI aircraft are treated equally for sustainment and fleet homogeneity. Each command funds flying hours based on PAA. BAI aircraft flow in and out of the PAA role as PAA aircraft are cycled through modification and depot maintenance. The C-17 fleet is sustained under a Performance Based Logistics relationship with Boeing called Globemaster III Sustainment Program (GSP).

C-17 aircraft are in a continuous modification program to ensure a homogenous fleet; the modifications vary in cost and are contingent upon the necessary work required for the aircraft. This cost could range from \$500K to \$3.5M per aircraft.

CHARRTS No.: SG-08-016
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Maj Gen Desjardins
Senator: Senator McCain
Question: #16

Question: In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities. What is the cost of a new C-17 versus upgrading a C-5 into a modernized C-5M?

Answer: Based on FY11 production rate of 10/year, a new C-17 would cost \$272.18M. Price would include aircraft, engines, spares and Quick Engine Change (QEC) kits—no required maintenance and aircrew training devices. The C-5M Average Procurement Unit Cost (APUC) is \$110.1M (BY08\$); this includes procurement of the prime equipment, initial spares and support items.

CHARTS No.: SG-08-017
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Maj Gen Desjardins
Senator: Senator McCain
Question: #17

Question: In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities. The Institute for Defense Analyses Study found that "retiring C-5As to release funds to buy and operate more C-17s is not cost effective." Can you elaborate on this using the cost breakdown for each?

Answer: The Institute for Defense Analyses (IDA) report used a range of \$249-253M in FY09\$ as the cost to procure new C-17s (based on acquisition quantities). In their study, the cost per flying hour for the C-5A was \$22,192, while the cost per flying hour for the C-17 was \$16,345. A C-5A programmed at 348 flying hours per year would spend approximately \$7.7M annually in flying hour costs. Similarly, a C-17 programmed to fly the same 348 hours would cost about \$5.7M annually. The \$2M net annual savings in flying hour costs over the study's 25 year life cycle horizon was not enough to recover the approximately \$250M procurement cost for each additional C-17.

CHARTS No.: SG-08-018
Senate Committee on Governmental Affairs
Hearing Date: July 13, 2010
Subject: The Cost Effectiveness of Procuring Weapons Systems in Excess of Military
Requirements: Can We Afford More C-17s?
Witness: Maj Gen Desjardins
Senator: Senator McCain
Question: #18

Question: In five of the past six fiscal years, the number of C-17s procured has exceeded the number that was requested. Prior to last year's procurement of an additional 10 C-17s, Secretary Gates noted the Department's fleet of 213 C-17s plus the 111 C-5s was in excess of strategic airlift needs, driving increased operating costs at the expense of other priorities. What is the Air Force doing with the C-17s in excess of strategic airlift needs? Are they currently flying? Are they being used for training?

Answer: The Air Force has temporarily based the FY08-FY10 procured C-17s as backup aircraft inventory (BAI) at active duty locations awaiting results of Mobility Capabilities and Requirements Study 2016 (MCRS-16) and C-5 RERP DOT&E reports.

Based on MCRS-16 inter-theater airlift capability requirement of 32.7 Million Ton Miles/Day (MTM/D) the FY11PB retires 22 C-5As (10 AFRC, 12 ANG), reducing C-5 fleet to 37 C-5As/52 C-5Ms. The retirements convert two C-5A units (1 AFRC, 1 ANG) to 8 PAA C-17s per base. Resources from the 22 C-5A retirements will fund 16 PAA C-17 beddown and save approximately \$325 million across the FYDP in depot-level maintenance, flying hours, and modernization costs.

All Air Force C-17s are being used to support real-world missions and/or training.

