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THE SECRETARY OF DEFENSE'S 2010 BUDGET RECOMMENDATIONS

HEARING

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

APRIL 30, 2009

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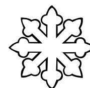

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THE SECRETARY OF DEFENSE'S 2010 BUDGET RECOMMENDATIONS

THURSDAY, APRIL 30, 2009

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

The committee met, pursuant to notice, at 9:35 a.m. in room SH–216, Hart Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Bill Nelson, McCaskill, Udall, Hagan, Begich, Burris, McCain, Chambliss, and Thune.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Jonathan D. Clark, counsel; Creighton Greene, professional staff member; Gerald J. Leeling, counsel; Peter K. Levine, general counsel; William G.P. Monahan, counsel; Roy F. Phillips, professional staff member; Arun A. Seraphin, professional staff member; Russell L. Shaffer, counsel; and William K. Sutey, professional staff member.

Minority staff members present: Joseph W. Bowab, Republican staff director; Adam J. Barker, professional staff member; Richard H. Fontaine, Jr., deputy Republican staff director; Paul C. Hutton IV, professional staff member; Michael V. Kostiw, professional staff member; Daniel A. Lerner, professional staff member; David M. Morriss, minority counsel; Lucian L. Niemeyer, professional staff member; and Dana W. White, professional staff member.

Staff assistants present: Kevin A. Cronin, Christine G. Lang, and Breon N. Wells.

Committee members' assistants present: Edward Mason, assistant to Senator Reed; Christopher Caple, assistant to Senator Bill Nelson; Jon Davey and Patrick Hayes, assistants to Senator Bayh; Gordon I. Peterson, assistant to Senator Webb; Jennifer Barrett, assistant to Senator Udall; Roger Pena, assistant to Senator Hagan; Clyde A. Taylor IV, assistant to Senator Chambliss; Jason Van Beek, assistant to Senator Thune; and Chip Kennett, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody. The committee meets this morning to receive testimony from Dr. John Hamre, President and CEO of the Center for Strategic and International Studies; and Dr. Andrew Krepinevich, President of the Center for Strategic and Budgetary Assessments. Both of these witnesses are

well known to the committee. They've provided us with valuable insights on broad policy issues in the past. Our witnesses are here to present their assessments of Secretary of Defense Robert Gates's recommended changes to the Department of Defense's (DOD) investment priorities as announced on April 6, 2009.

Most of the changes will no doubt be reflected in the detailed budget for 2010 that we now expect next Thursday. We're also planning on Secretary Gates testifying here on that detailed budget the following Thursday, which is 2 weeks from today.

Some time ago Secretary Gates began to broadly question some of DOD's investment strategies and program priorities that he believes may be less relevant to the current, and most likely, future threats that the Nation will face. He has sought to identify any institutional biases and inertia that DOD needs to overcome to ensure that we build and support the kind of military that we need both today and into the future.

Secretary Gates's concern is that, while the Pentagon is predisposed to give its greatest attention and support to the large, expensive conventional weapons programs, DOD, in his view, has failed to give appropriate support to the forces and programs needed to win the kinds of low intensity unconventional or irregular wars that we're in right now in Iraq and Afghanistan and similar conflicts that he believes are most likely to be faced in the future.

With these concerns in mind, on April 6, Secretary Gates announced his recommendations to shift DOD's investment strategy away from costly conventional weapons systems and those programs that are costing far more than planned or are struggling technologically toward those technologies and programs that focus on counterinsurgency and irregular warfare.

The Secretary's recommendations impact all aspects of DOD's investment plans, including aviation, space, ground vehicles, ships, and services. At the same time that he recommended program terminations and reductions, he also recommended resource increases for capabilities that are in high demand for operations, such as intelligence, surveillance, reconnaissance technologies, and programs that support our troops and their families.

Some of the Secretary's recommendations are limited to the fiscal year 2010 budget request and he defers final or longer range decisions pending the outcomes of the Quadrennial Defense Review (QDR) and the Nuclear Posture Review. Congress of course will scrutinize the decisions and determine which to approve and which to modify or reject.

Some of the ideas that resonate with me include: first, the view that the likelihood of conflict with a major power competitor appears low; second, the idea that we need to shift more focus onto the kinds of conflicts that we're fighting now and more likely to face in the immediate future; third, the belief that, while we remain vastly superior militarily to any foe, we need to hedge against uncertainties and discourage others from thinking that there is something to be gained by challenging world stability, rather than by cooperating with the community of nations; and finally, in a limited budget environment, the point that we cannot continue to support programs with long delays, poor performance, and large cost overruns.

There are many questions that I hope our witnesses can help us to grapple with, including: Are these strategic and policy approaches of Secretary Gates sound? Do they lead to the major program recommendations of the Secretary which he made on April 6? Is the heavy emphasis on counterinsurgency and low intensity conflict by Secretary Gates about right? Is there a way of gauging the impact of the Secretary's decisions on the defense industrial base and on the number of jobs that will be lost or impacted?

While the Gates proposals focus almost entirely on major weapons systems, much of the defense budget's growth can be attributed to significant increases in the personnel and operation and maintenance accounts. Are there any changes that should be considered in those areas?

We are very lucky to have these two witnesses with us this morning. Those of us who know them appreciate their talent, their independence, and we very much look forward to their perspective. I'll turn to Senator McCain now.

STATEMENT OF SENATOR JOHN McCAIN

Senator MCCAIN. Thank you, Mr. Chairman.

I want to thank the witnesses. Mr. Chairman, you and I have had the great pleasure and honor of working with Dr. Krepinevich and Dr. Hamre for many years. There are no two people I know in Washington who have a better understanding both of the strategic and tactical challenges the United States of America faces now and in the future, and I'm very grateful that they are here to give us their insight and their view as to not only Secretary Gates' recommendations, but the path that we have to be on with the new administration, two wars, and significant challenges such as the increasing militarizing of China and other challenges, not to mention pirates, and all of the other numerous national security challenges that we face.

I would also be interested in our witnesses' view of what may be in my mind the most controversial of Secretary Gates' recommendations, and that's concerning missile defense. I'm a strong believer in missile defense and always have been. So perhaps you can provide us some insight in your views on that particular aspect of Secretary Gates's recommendations.

As you mentioned, Senator Levin, the Pentagon's programming and planning is based on a 5-year cycle and they're currently working on that plan. Secretary Gates's recommendations are focused on next year's budget only. So we have a lot to do here and Secretary Gates's recommendations, at least in my view, reaffirm support for our military, veterans, and their families; rebalance programs; and reform the Pentagon's acquisition and contracting mechanism.

Finally, I would ask our witnesses if they have had the chance to review Senator Levin's and my legislation, which passed through this committee unanimously, concerning acquisition reform, which according to the President's remarks last night at his press conference, may be given some priority.

So, Senator Levin, thank you for inviting these witnesses. I welcome the witnesses and it's nice to see old friends and colleagues. Thank you.

[The prepared statement of Senator McCain follows:]

PREPARED STATEMENT BY SENATOR JOHN MCCAIN

Mr. Chairman, thank you. I join you in welcoming our witnesses here today to discuss Secretary Gates' 2010 budget and policy recommendations.

On April 6, Defense Secretary Gates announced a series of 2010 budget recommendations based on his assessment of the Defense Department's capabilities, requirements, risks and needs for the purpose of shifting the Pentagon in a different strategic direction.

I support a number of the Secretary's recommendations, which require among other things—making very tough choices now on specific weapon systems and defense priorities for the 2010 budget while also recognizing the need to defer, revisit, and re-evaluate other weapon systems requiring additional understanding and analysis until after the Quadrennial Defense Review (QDR).

Secretary's Gates' overall 2010 budget and policy recommendations reflect his best judgment, reflecting lessons learned from prosecuting wars in Iraq and Afghanistan for over 2 years. It's the start of a much longer-term process to ensure our defense dollars are spent prudently to address the threats we face today and will likely face in the years ahead, while also addressing the range of potential threats around the world, now and in the future.

The recommendations proposed by Secretary Gates provide a snapshot of difficult decisions still to come. The Pentagon's programming and planning is based on a 5-year cycle and they are currently working on that plan. Secretary Gates' recommendations are focused on next year's budget only.

So those recommendations and their potential impact on DOD's base budget have not been factored into their 5-year plan. Many more difficult decisions still lie ahead. We will have a better understanding of how tough those decisions will be later this year when the results of the ongoing QDR are briefed to the committee and whether the administration's fiscal year 2011 budget is resourced to support the Pentagon's QDR recommendations.

Secretary Gates' recommendations reaffirm support for our military, veterans and their families; rebalance programs; and reform the Pentagon's acquisition and contracting mechanisms.

I greatly appreciate that Secretary Gates continues to place the highest priority on supporting the men and women of the U.S. Armed Forces.

Further, I strongly support Secretary Gates' recommendations to restructure a number of major defense programs. It has long been necessary to shift spending away from weapon systems plagued by scheduling and cost overruns to ones that strike the correct balance between the needs of our deployed forces and the requirements for meeting the emerging threats of tomorrow. I believe Secretary Gates' decision is key to ensuring that the defense establishment closes the gap between the way it supports current operations and the way it prepares for future conventional threats.

Finally, I fully endorse Secretary Gates' recommendations to improve the performance of the Defense Department acquisition programs and contracting mechanisms. There is broad agreement on the need for acquisition and contracting reform in the Defense Department. Senator Levin and I have introduced S. 454, a bill to improve the way the Defense Department acquires major weapons systems.

I welcome the President and Secretary Gates' endorsement of the bill and their commitment to work with Congress to quickly enact legislation which can improve the performance of the Pentagon's defense acquisition system.

Mr. Chairman, thank you and I look forward to hearing our witnesses' thoughts on Secretary Gates' 2010 budget recommendations.

Chairman LEVIN. Thank you very much, Senator McCain. In regards to the Acquisition Reform Bill, as I mentioned to you, I think that because of our efforts, what we've done to let our respective party leaders know, there's a very good chance that we will get to our bill by the week after next. So that I think our efforts are paying off and I very much appreciate your raising that here and all you've done to make it possible.

Senator MCCAIN. Thank you, Mr. Chairman. Thank you for your leadership.

Chairman LEVIN. I guess we'll go in alphabetical order. If we go by age we'd have to let you fight that one out.

Dr. HAMRE. If we go by weight I could go first. [Laughter.]

Chairman LEVIN. I think, Dr. Hamre, you're listed first, so we're going to call on you. Dr. Hamre.

STATEMENT OF JOHN J. HAMRE, PH.D., PRESIDENT AND CEO, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Dr. HAMRE. All right, thank you. Chairman Levin, Ranking Member McCain, and all members of the committee: Thank you for inviting me. I had the privilege of working for this committee for 10 years, and there's an old saying that you don't have a second chance to make a good first impression, and so I've blown it for all of you. I'm really speaking to the new members over here, who don't know me.

Chairman LEVIN. Except we've warned them. [Laughter.]

Dr. HAMRE. Well then, I'm toast. [Laughter.]

I really am grateful to come back. I treasured the time I worked on this committee's staff. It really was the best professional experience I had, and I miss it.

I have a formal statement and I'd request that it be placed in the record if that's all right.

Chairman LEVIN. Of course.

Dr. HAMRE. I'll summarize very briefly.

I admire Secretary Gates for taking on some very hard issues here. I know the purpose of today's hearing is to look at the individual programs that he's proposing to cut and what impact that may have on the industrial base. But I think even more important is what he's trying to do to restore fiscal discipline and budgetary discipline in the Department. I was a comptroller for 4 years. I know what it's like to do budgets and, frankly, the current system is out of control. He is really taking some very important steps to bring it back in control.

We misused supplementals these last years and we let an awful lot of programming get into supplementals that then took the pressure off of making hard and disciplined choices. So I think it's an extraordinarily important thing to do. It's tough because it does mean that we're having to now bring back into tough balance and discipline choices that have long-term implications, and I think it's very important.

I also think that it's very important what he's trying to do to restore the relationship between technical support the government needs from the private sector and the responsibility that only the government can undertake. He's wanting to buy back government employees, but I don't think that alone is an adequate answer. I think we still have to look deeper into that, and I would encourage you to make a focus of that when you get done with your bill, because I think that that's just as important a question.

The government does need to buy technical support from the private sector, but we haven't really got a good structure in place any longer. We have private sector people doing jobs that I think the government ought to be doing, and, frankly, we have nonprofit guys doing work that ought to be in the profit-making sector. This is a big issue. I hope you'll look at that as well.

Senator MCCAIN. Can you give us a couple of examples?

Dr. HAMRE. Sir, if you were to go over to the policy shop at DOD, half of those people are contractors. They're not government employees. I happen to think that government employees ought to be doing policy. In another example, we have nonprofit organizations that are basically running labs, competing against profit-making entities for the work.

These are questions we need to sort out, and I don't think we have a good framework any longer. We do need technical support and sometimes it's in the profit-seeking part of the private sector and sometimes it's in the nonprofit-seeking part of the private sector. But the ground rules have broken down, and we really need to come back and look at that. I think this is a start, but it isn't an answer. More work needs to be done. I'd be delighted to talk with you at some point about it.

Chairman LEVIN. That would be great. We look forward to that.

Dr. HAMRE. So let's focus on the specific issue, and let me make just a couple of very brief points and then I'll get off the stage.

First, let me say, of all of the programs that were cut by the Secretary, or proposed for cuts, because really this is now your decision—he's made recommendations. Only Congress can decide what the country's going to do. So his are recommendations. Every one of the programs he proposed to terminate had and has a valid requirement. We still need these things. It's a question of priorities.

I think we're coming on a time when budgets are going to become more constrained. They're going to be constrained by a desire by the public to reallocate resources in the aggregate and, frankly, they're being constrained by rising pressure inside the defense budget, especially in the operational and personnel accounts. So there have to be some priorities set.

It is not the case that we've just been wasting money for years on bad programs. It's a case where we're having to realign and reassess priorities now, and you're going to have to do that.

I think I would like to bring your attention to, what I think is a very fundamental issue. Mr. Chairman, you raised this in your statement. That is the relationship between the strategic investment we make in people and the strategic investment we make in equipment. There has been a very strong preference in Congress and, frankly, lately in the Department for people, and we're going to expand and have expanded the Army and the Marine Corps by about 100,000 people.

Now, I honestly do not believe that this expanded manpower base is sustainable going forward, unless it means we're going to have dramatically constrained modernization accounts. The cost of personnel has skyrocketed in recent years, and during wars we're going to do whatever it takes to support them, and we should. But we don't take back benefits and pay after wars, and we tend to hand them out to absolutely everybody, even though maybe only 60 percent of the force ever deploys.

So there's a real question about the strategic investment in people and the strategic investment in things to support warfare. This is a budget that basically favors people, and I understand that. I think for the next 5 to 10 years that certainly is going to be the case before us.

But I think we have to plan for three types of contingencies going forward: asymmetric high-end warfare. If we have to go to war in the Taiwan Straits, that's going to be an astoundingly challenging environment. Now, I don't want a war with China. I don't think we'll have one. We certainly can avoid it. But we do have to think about it, and it's going to put a real premium on very high-end equipment. That's at the high end.

At the low end, we're involved in two very difficult asymmetric wars, and they take lots of people. That's why there is this high premium on people in this budget.

Then we still have to plan for standard conventional, traditional warfare. I think this budget tries to do all three of those things, but it certainly has made the preference in the near term on people. That is a very major question about what that does to our industrial base over time.

Chairman LEVIN. Just to be clear, when you say people, you're talking about the number?

Dr. HAMRE. Military personnel in uniform.

Chairman LEVIN. Mainly the number.

Dr. HAMRE. Mainly the number, yes, sir. We're doing a very good job of supporting those that we have, and we should. I have no quarrel with that. The real question is, can we support a larger force structure over time. My sense is that we will only be able to do that at the expense of modernization, and right now we will have a hard time sustaining competitions going forward. Our industrial base is getting that thin.

So I would ask that you look at that question as you are thinking about the choices that you're going to be making.

Let me make one final comment, and this is, I was the Comptroller for 4 years and the Department builds 5-year budgets. Five years makes a difference for the DOD. We have to make choices now looking downstream. I mean no criticism because I worked here and I love this institution, but Congress tends to look at 1 year at a time.

Please do not make a choice just for 1 year to buy the political pressure off 1 year. This has to be looked at in a long-term context. This is what the Secretary is asking you to do. I'll tell you, they're working on 5-year plans now that are more painful than the one they've just given you.

Our budgets have not been properly priced for over 4 years, and there is pressure coming that they're now having to take program cuts just to make good the program of record. Because of that, you have to take a 5-year look at this as well, not just a 1-year look at it.

Let me step back and I'd be delighted to answer any questions. Thank you.

[The prepared statement of Dr. Hamre follows:]

PREPARED STATEMENT BY DR. JOHN J. HAMRE

Chairman Levin, Ranking Member McCain, distinguished members of the Armed Services Committee, thank you for inviting me to appear before this committee again. I had the privilege of working for this committee for nearly 10 years, the best years of my professional life. I will always be grateful for that opportunity, and I thank you for giving me a chance to appear before you today.

I congratulate Secretary Gates for his leadership. I know the purpose of the hearing today is to examine the specific recommendations on individual weapon systems, but the most important contribution he is making is to restore budget discipline in the Department and to start the long road back to competency in the acquisition process. This is crucial and he is courageous to take on this problem.

I recount my time with this committee because it was as a professional staff member of this committee that I had the most comparable experience to what we are living today. Back in 1989, then Secretary of Defense Richard Cheney offered sweeping recommendations to terminate a large number of weapon systems—the F–15, the F–14, the Army Helicopter Improvement Program, the V–22 tilt rotor aircraft, the M1 tank—to name just a few. In one sense, the circumstances are very similar to today. Back then, America had come through the Cold War and President Bush and Congress promised major reductions in defense spending. The popular sentiment at the time was that we needed to harvest the so-called "peace dividend".

Defense budgets started a long-term downward trend. I sense that we may be at a comparable pivot point now. In this sense the circumstances of these two episodes are similar. They differ, however, in a very substantial way. Back then we had a considerably larger base from which to cut programs and personnel. We eliminated nearly a third of Active Duty and Reserve military personnel. We had 300,000 soldiers stationed in Europe. We reduced the Army and pulled them back from Europe. We had nearly 20 prime contractors. We could consolidate defense industry. We had a relatively large inventory of modern equipment produced during the height of the Cold War, so we could cut back production sharply and still have a very modern force. We could undertake four rounds of base closures—closing nearly a quarter of the physical infrastructure of the Department.

We undertook such sweeping changes 20 years ago, but we had a substantially larger base from which we could make reductions. The budget for the Defense Department now faces a similar pivotal change. Seven difficult years of war have removed a public consensus for increasing defense budgets. The misuse of supplemental appropriations bills has badly eroded budgetary discipline. All of this is coming together to create a new era of constrained budgets for the Defense Department. As was the case 20 years ago, we now must make major changes to the defense program. But unlike the time 20 years ago, all of the relatively easy pathways to reduced spending are gone. We cannot reconsolidate defense industry. We cannot again reduce our combat units by 25–30 percent. We cannot close major bases and installations. We now face exceptionally painful choices.

Secretary Gates has met this demanding situation with sweeping recommendations for cuts to major weapon systems. It is a courageous step. He has thought through his options and has presented Congress with a reasoned way forward. It is now the serious business of Congress to decide whether or not to accept his recommendations. After all, they are just recommendations. Only Congress can decide what is to be the will of the American people going forward.

I have enormous regard for Secretary Gates. I serve him as the Chairman of the Defense Policy Board. But today I appear as a single citizen, and my comments do not reflect the thinking of the Defense Policy Board, or of my think tank, the Center for Strategic and International Studies. These views are solely mine, and I alone am responsible for them.

I fully understand the Secretary's thinking, and believe that he has assembled a responsible set of recommendations. I strongly agree with the need to restore budget discipline in the Defense Department. The wide use of supplemental appropriations bills to fund basic activities of the Department was hugely corrosive to budget discipline. This was amplified by the very unfortunate practice during the last decade of "unfunded priority lists". The military departments would publish lists of things they couldn't get the Secretary of Defense to buy (or didn't even ask), and instead would beg Congress for more money to buy them. This broadly corrosive climate of indiscipline was created inside the Department, enabled, and in many instances encouraged, by Congress. Now this is ending, and I very much support the Secretary's commitment to restore regular order and budgetary discipline.

Where I perhaps differ with the Secretary is on the very fundamental decision of where to make strategic investments—in people or in modernizing weapon systems. I could easily be misunderstood, so let me be very clear here. I honor, as do all Americans, the sacrifice of our military personnel who have borne the burdens of these wars. Like Secretary Gates, we must provide them and their families the support they deserve. The budget should reflect this.

But I also believe that we are not going to be able to afford over time the larger force that is now planned for the future. The cost of sustaining the current force is already daunting. The cost of sustaining over time a larger force structure will

come only with sharp cuts in equipment modernization. We are seeing that today with these recommendations.

We have a very complex future to anticipate. During the Cold War we had a simple thought. If we built a force to fight the Soviet Union, we would have adequate capability to handle any lesser contingency. If we could skin a cat, we could skin a kitten.

But today we have a very different circumstance. We have to prepare for three very different contingencies. First, we must prepare for highly demanding asymmetric warfare. If we have to take actions in the Taiwan Straits, for example, we can anticipate a very challenging contingency. I don't want conflict with China, I don't predict it, and I don't think we will actually have it. But we do have to anticipate what it might entail should we face that crisis, and in this instance it will be highly demanding with an emphasis on advanced weapon systems.

At the other end of the spectrum we face asymmetric wars against low-technology opponents. We are in two wars like this now. I should point out that although our opponents utilize low-technology, we continue to depend on high technology in many ways. These wars place enormous demands on people, and I fully understand why Secretary Gates believes we need to invest in a larger Army and Marine Corps at this time. The all volunteer force has performed very well during wartime, but we have not sized our force for 7 years of continuous warfare. We need a larger force right now. But that larger force—when combined with the substantial increase in the costs of maintaining that force—is now effectively crowding out weapons system modernization.

The third contingency we must anticipate is more traditional war against a serious potential opponent. We have waged two of these types of wars in the past 20 years. As a planning construct, it is quite different from the high-end asymmetric war, and the low-end asymmetric war. We have to plan for all three.

The Secretary of Defense has given a proposal that balances these three, and in his judgment the right balance is to buy a larger force now and pay for it by cutting a series of major systems in the near term. I think he may be right. But I am also convinced that over time we will not be able to sustain even this reduced modernization with the expanded military end strength at the current cost structure for that military. Once we authorize new pay and benefits, we never take it back. So the personnel costs are now structural.

But if we cut procurement substantially now, we also make structural changes on the industrial base. In your letter of introduction, you asked me to comment on the industrial base, so let me conclude with a few comments about the industrial base. First, let me say that we made an enormously important decision 90 years ago to build aircraft in the private sector and not in government arsenals. I believe that was absolutely the right decision. Indeed, I think it was one of the three decisions that helped us win the Cold War—a decision made 30 years before the Cold War. This strategic decision continues to this day, and it makes the defense industry indispensible partners. We cannot go to war and win without our defense industry partners.

When we harvested the so-called "peace dividend" 20 years ago, we forced a consolidation of the defense industrial base to an absolute minimum. Now we are proposing further cuts. I believe we are coming to the point where we will not be able to hold competitions for new weapon systems. This may be unavoidable, but I think it is a great worry. I am absolutely convinced it will cost us enormously to try to recreate capabilities 10 years from now.

Let me illustrate this by taking only one example. The Department is recommending termination of the C–17. The current strategic airlift fleet is comprised of C–5s and C–17s. 19 percent of the fleet—the C–5A models—is today on average 37 years old. The C–5Ms—16 percent of the fleet—are on average 24 years old today. Their reliability reflects it. The mission capable rate for the C–5A is only 50 percent today, and I personally question that. The mission capable rate for the C–5M we hope will be 75 percent, but that will be its high point when we complete the modernization. It will decline from there.

Fortunately the C–17 comprises 65 percent of the strategic airlift fleet, and its reliability is 85 percent, which is logical because the average age of the fleet today is only 7 years. But we are now proposing to terminate the program. It took nearly 15 years to build a consensus, design the aircraft and manufacture and deliver the first C–17. In 15 years the C–5As will be 53 years old, the Ms will be 39 years old and the C–17s 22 years old on average. This assumes we terminate the C–17 today and start developing its successor next year. I doubt we will do that. Indeed, I doubt we will start a new strategic airlift aircraft in the next decade, given the budget pressures we face.

I use this just as an example. The C–17 is one of those systems that will be used in high-end asymmetric wars, low-end asymmetric wars and in conventional conflicts. I would suggest there is considerable risk in terminating the program at this time. I don't doubt we will have a producer of large commercial aircraft in 15 years that could build the next airlifter, but the only way to have a competition for it will be through an international competition, as we have today with the tanker modernization program.

Distinguished members of the committee, I have only made your job more difficult. The Department has made important and principled recommendations, but only you can make this a national decision. Let me conclude by making your task even more complex.

Congress makes decisions 1 year at a time. The Department makes plans over a 5 year period. Right now, the Department of Defense (DOD) is working on the next 5 year plan, and I can assure you this is even more difficult than the one they have just submitted. The program of record was not properly priced. For 4 years the Department has utilized unrealistic risk assumptions for most major weapon systems, meaning that every sophisticated weapon system is underfunded. There are major cuts still coming beyond those announced by the Secretary. Personnel costs continue to soar. As you make decisions on this year's budget, you must consider the impact this has on the next 5 years. This is possible only through a close dialogue with the Department. I know that Secretary Gates would welcome that dialogue.

Thank you for inviting me to testify before you today. I am grateful that you are willing to serve at this critical time on these important matters. I would be pleased to respond to any questions you might have.

Chairman LEVIN. Thank you, Dr. Hamre.

Dr. Krepinevich.

STATEMENT OF ANDREW F. KREPINEVICH, JR., PH.D., PRESIDENT, CENTER FOR STRATEGIC AND BUDGETARY ASSESSMENTS

Dr. KREPINEVICH. Thank you, Mr. Chairman, thank you, Senator McCain, for the opportunity to appear before you today to share my views with you and your colleagues on the issue of the defense budget and the defense program.

Upfront I'll say on balance I think Secretary Gates's recent decisions will improve our overall military posture. Having said that, I think there are a number of major outstanding issues that need to be addressed before we can really get a sense of which decisions need to be sustained and which ones might be refined.

I think it comes down to three issues. Essentially, what Secretary Gates announced was changes in the set of capabilities that our military is going to have over time. What didn't get addressed are the challenges or the problems that these capabilities are intended to address, so the what, and the how: How will these capabilities be employed in an optimal manner in order to deal with these particular security problems?

You might look at this in terms of a medical analogy. In order to have a good prescription, which is to say, what kind of equipment should we buy, how large of a force should we have, what kind of mix should we have, you need to do a good diagnosis of what the problem is, what are the existing and emerging threats. You also need to have a good prognosis: Among the treatment options, among the possible prescriptions, which one is the most attractive and the most relevant for the circumstance that we're looking at?

In looking at that first question, the diagnosis, we belatedly diagnosed that we have a challenge in modern irregular warfare. I believe Secretary Gates right now is struggling to try and institu-

tionalize what is still an unfamiliar kind of warfare in the Military Services. I think that is a major effort or a major objective of his that's animating his actions in terms of some of these changes in the programs in the budget.

But I think equally important, and this came out in his Foreign Affairs piece about a balanced defense are, what I believe to be, three emerging challenges to our security that perhaps haven't been receiving the attention they deserve. One is the growing risk we are incurring and likely going to continue to incur in terms of our ability to project military power into two areas of vital interest.

One is East Asia as a consequence of the Chinese ongoing development of what they call Assassin's Mace, military capabilities that are designed to push us progressively further and further away from their coast, uncovering key allies that we have in the region and compromising key interests.

Second, as we've seen in a number of military exercises, the increased risk that we are incurring, perhaps not consciously, in operating in the Persian Gulf area, specifically the Persian Gulf itself.

So the first part of the diagnosis is that the cost of projecting power is going up. It's going up in two areas of vital interest to the United States. Second, the cost of defending forward I think is going to go up, and I think it's going to go up substantially, even in the case of irregular warfare.

I think the canary in the mine shaft in terms of this particular challenge was the second Lebanon War. In that war Hezbollah fired over 4,000 projectiles into Israel, some up to 50 miles or further inside Israel proper. Several hundred thousand people had to be evacuated from their homes. They had to shut down the oil refinery and distribution system for fear that a lucky hit would cause untold economic damage. Several guided weapons, unmanned aerial vehicles (UAVs), and anti-ship cruise missiles were fired by either Hezbollah or the Quds Force.

The long and the short of it is, extended range systems are diffusing down to irregular forces and over time certainly it seems likely that guided weapons or precision guided weapons, as some people call them, are going to filter down into these forces as well. Then you'll face the challenge of, even in irregular warfare operations, this could be the next big thing beyond improvised explosive devices (IEDs). How will we defend Camp Victory? How will we defend key commercial facilities, key transportation nodes, key government facilities, key military bases, when these kinds of capabilities diffuse?

As I said, they have already diffused to Hezbollah, and they're not in the single digits or the dozens; they're in the thousands. What will happen when this begins to shift into precision capabilities?

Third, there's getting there, projecting power; there's defending what you were sent to protect; and there is also the ability to sustain that. That requires unfettered access to the global commons, which in traditional times were the seas, but now they've become space, cyberspace, the seas, and the undersea. The Chinese in particular are threatening our access to space and cyberspace, and I think progressively in some areas the seas. Certainly we're compromised in the littorals.

If you want to get a very interesting briefing, I suggest General Mattis and the results of the Millennium Challenge 2002 exercise, where the better part of the U.S. fleet was sunk in the Persian Gulf by the Iranians. This is going back 7, 8 years now.

But in particular, the growing risk to our assets in space, which are increasingly critical to our ability as a military to utilize the battle networks that have been created over the last 20 years, everything from communications to guiding our precision weapons to their targets.

So these are three, I think, emerging challenges that we ignore over time at our peril. Essentially, they present us with strategic choices: Are we going to accept or do we have to accept an erosion in our position, or are there things we can do to offset these challenges and preserve and enhance our position?

So that's the diagnosis. Now, what's the prognosis? Seven years ago in 2002, I testified before this committee and I made the point that you have a set of capabilities and you have a set of problems, and the connective tissue is really the operational concept or the doctrine that the military comes up with that says: This is how I'm going to apply these capabilities to solve these problems.

The problem is when you start to talk about operational concepts, you start to talk about winners and losers. What tools, what capabilities am I going to use? What tools come out of the toolbox, what tools stay in the toolbox? Despite the fact that Senator Levin at the time approached the DOD about this issue and Joint Forces Command was given the mission, we still don't have anything approximating the kind of operational concepts that would really enable the committee, the military, or the Secretary of Defense, I think, to make some really good decisions.

Let me give you just a brief example. 25 years ago we had an operational concept called air-land battle, because of the new challenges the Soviets were presenting in Europe. As a consequence of the detailed study that was done on that, the layer cake defense, it was determined that the U.S. III Corps would reinforce northern Europe, we made adjustments to the air defense belt, we established Prepositioning of Material Configured in Unit Sets, we talked about 10 divisions reinforcing in 10 days, the Navy talked about the outer air battle in terms of dealing with the threat from Soviet aircraft, and the Marines talked about protecting the northern flank up in Norway.

You look at our position in the Far East today and what the Chinese are doing in terms of the Assassin's Mace anti-access, area denial capabilities, and whatever doctrine there is or whatever operational concepts, they are fuzzy. Fuzzy concepts don't provide good debate. They don't provide good intellectual rigor. They don't create winners and losers. At the same time, they don't give you the kinds of shifts in capabilities that you need in order to be able either to deflect these challenges or at least to realize that you can't cope with them.

So again, we need to match how we're going to deal with these problems along with the problems themselves.

Finally, the issue of resources. If we do a good diagnosis and we come up with a proper prognosis, as my colleague Dr. Hamre says here, we have to be able to execute it in terms of resources that

are available. I would just simply echo the comments he has made about the likely gap between the existing program, almost certain gap, between the existing defense program and the resources that are likely to be made available to sustain it.

While Secretary Gates made some decisions, the decisions really didn't affect the overall shape of the defense budget in a dramatic way. I share Dr. Hamre's concerns that we are delaying the day of reckoning when it comes to the defense top line, given some of the other pressures that we confront right now, absent some external threat or external shock to the system.

At this point I think I would like to conclude my testimony, Mr. Chairman. I'd be happy to respond to any questions you or Senator McCain or the committee might have. Thank you.

[The prepared statement of Dr. Krepinevich follows:]

PREPARED STATEMENT BY DR. ANDREW F. KREPINEVICH

INTRODUCTION

Thank you, Mr. Chairman, for the opportunity to appear before you today, and to share my views on the Defense Department's (DOD) fiscal year 2010 Defense budget and program. On balance, I believe Secretary of Defense Gates' recent decisions regarding the Defense program will improve our overall military posture. However, there are several major outstanding issues that must be addressed before we can fully assess the secretary's decision. First, have we identified the key existing and emerging challenges to our security? Second, how do Secretary Gates and our military leaders see the capabilities in the current program enabling our Armed Forces to meet these challenges? Third, is this approach affordable, given projected resource constraints? Finally, what role can the defense industrial base play, not only in supplying the needed capabilities in a timely manner, but also as a key U.S. strategic asset?

EXISTING AND EMERGING CHALLENGES

In his recent Foreign Affairs article, Secretary of Defense Robert Gates stated that the United States needs a more "balanced" U.S. military, one that is better suited for the types of irregular conflicts now being waged in Afghanistan and Iraq. At the same time, he also cautioned that "It would be irresponsible not to think about and prepare for the future . . . ." Secretary Gates' admonition is as wise as it is obvious. Have we correctly identified the principal military challenges to our security? Failure to do so could render much of our existing and planned military capabilities "wasting assets." The term "wasting asset" was common among senior U.S. policy makers in the Cold War's early days. Even after its massive demobilization at the end of World War II, the United States possessed an incalculable strategic advantage: a monopoly of nuclear weapons. When the Soviet Union tested its atomic bomb in August 1949, it triggered a sense of urgency and a period of intense effort in the United States to devise a new strategy since its nuclear monopoly was now a wasting asset. These efforts brought together the Nation's best strategists and yielded the Truman administration's NSC–68 report and, later, the Eisenhower administration's Solarium Study and NSC 162/2. These in turn laid the foundation for a U.S. strategy to counter a nuclear-armed Soviet Union.

To help offset the loss of this monopoly, the United States sought to develop new advantages while sustaining others: some new capabilities would be needed, as well as different methods of employment. Shortly after the Soviet nuclear test of a fission weapon, President Truman approved plans to develop thermonuclear, or fusion, weapons, with far greater destructive power. During the Cold War the United States also exploited its longstanding relative advantage in technology to maintain a highly effective nuclear deterrent. Faced with a nuclear standoff, equally important were efforts to sustain the U.S. military's unsurpassed ability to project and sustain large forces around the globe. On two occasions, during the Korean and Vietnam Wars, and again during the first Gulf War, the United States transported large field armies approaching a half million troops or more overseas for a significant period of time, enabled by the U.S. military's unfettered access to the global commons, principally the seas and the air but increasingly space and cyberspace as well.

With the Soviet Union's collapse in December 1991, the United States' ability to project military power was effectively unconstrained. Large-scale deployments to Panama, Haiti, and the Balkans during the 1990s were eclipsed by the dispatch of hundreds of thousands of U.S. troops to Afghanistan and Iraq to topple hostile regimes following the September 11 attacks on New York and Washington. Throughout the post-Cold War era America's power-projection forces continued underwriting America's security commitments around the globe and assured the security of allies and partners alike.

Several events in recent years, although not as dramatic as the Soviet nuclear test, strongly suggest that traditional methods of projecting power and accessing the global commons, along with perhaps hundreds of billions of dollars of U.S. military equipment, risk becoming wasting assets. The rise of major powers such as China and hostile states such as Iran, combined with the accelerating diffusion of advanced military technologies, is making power projection increasingly difficult. As these trends play out, Washington will likely find it progressively more expensive—and perhaps prohibitively expensive—in both blood and treasure to project power into several areas of vital interest, to include East Asia and the Persian Gulf. Even forces able to deploy forward successfully are liable to find it increasingly difficult to defend what they have been sent to protect. Moreover, the U.S. military's unfettered access to portions of the global commons, especially space and cyberspace, is being challenged.

For some time now it has become apparent that our military will confront increased difficulty in projecting power in maritime chokepoints or in constricted waters like the Persian Gulf. In 1987, toward the end of the Iran-Iraq War, the Reagan administration directed the Navy to protect oil tankers in the Persian Gulf. In May of that year an Iraqi warplane fired 2 Exocet missiles at the frigate USS *Stark*, killing 37 sailors and severely damaging the ship. In April 1988, the frigate USS *Samuel B. Roberts* was badly damaged by an Iranian mine. A few years later, two more U.S. warships, USS *Tripoli* and USS *Princeton*, suffered severe damage during the first Gulf War after striking primitive Iraqi mines, discouraging American commanders from contemplating an amphibious assault against an insignificant naval power.

These events occurred in a relatively benign environment. The United States was not at war with either Iran or Iraq during its naval escort operations, and Iraq's navy at the time of the first Gulf War was miniscule compared to the U.S. fleet. As later military exercises would show, the risks are far greater when facing an active, clever adversary. Operating in confined waters close to shore significantly reduces the warning time a fleet has to deal with the threat of high-speed, sea-skimming anti-ship cruise missiles. The same can be said of the dangers from high-speed suicide boats packed with explosives that can hide among the many commercial craft plying these waters. Anti-ship mines are both proliferating and becoming far more difficult to detect than those that plagued the U.S. fleet in the first Gulf War. If nothing else, by slowing ships' movement and restricting their maneuverability, mines make them easier prey for missiles and suicide craft. Iran is also looking to master the operation of quiet diesel submarines in the Gulf's noisy waters. All this suggests that the Persian Gulf, the jugular vein of the world's oil supply, risks gradually becoming a "no-go" zone for the U.S. Navy.

The challenge emerging from China to the U.S. military's ability to reassure its allies and friends in East Asia is even more formidable. The Chinese People's Liberation Army (PLA) is aggressively developing capabilities and strategies to degrade the U.S. military's ability to project power into the region. Senior Chinese political and military leaders decided it would be foolhardy to challenge the U.S. military head-on for military dominance. Rather, China would combine western technology with eastern stratagems. To the Chinese, this means seizing the initiative in the event of a conflict by exploiting surprise. This will be accomplished by breaking up the U.S. military's communications networks and launching preemptive attacks to the point where such attacks, or even the threat of such attacks, would raise the costs of U.S. action to prohibitive levels. The Chinese have a name for the set of military capabilities that support this strategic philosophy: "Assassin's Mace" or, in Chinese, Shashoujian.

The Assassin's Mace mantra is that such forces enable the "inferior" (China) to defeat the "superior" (the United States). The Chinese effort rests on two pillars. One is developing and fielding what U.S. military analysts refer to as anti-access/area-denial (A2/AD) capabilities. Generally speaking, Chinese anti-access forces seek to deny U.S. forces the ability to operate from forward bases such as Kadena Air Base on Okinawa and Anderson Air Force Base on Guam. The Chinese are fielding large numbers of conventionally armed ballistic missiles capable of striking these air bases with a high degree of accuracy. At present, U.S. defenses against ballistic

missile attacks, especially from missiles employing penetration aids, are limited. These defenses can be overwhelmed when confronted with barrage attacks involving large numbers of missiles. The message to the United States and its East Asian allies and partners is clear: China has the means to hold at risk the forward bases from which most U.S. strike aircraft must operate.

Area-denial capabilities are generally directed at restricting the U.S. Navy's freedom of action out to the second island chain, a line that extends from China's coast as far east as Guam. The PLA Navy (PLAN) is investing in submarines to stalk American carriers and the surface warships tasked with protecting them. In 2006 a Chinese submarine emerged in the midst of a U.S. carrier strike group, much to the Americans' embarrassment. The Chinese Navy is emphasizing the production of quiet diesel submarines that can form a "picket line" near the second island chain, silently waiting to ambush an approaching U.S. fleet. It would likely require significant time for an American fleet to reduce Chinese submarine defenses to the point where it could safely advance without risking heavy losses.

The Chinese are relying on more than submarines to support area-denial operations. They are constructing over-the-horizon radars, fielding unmanned aerial vehicles (UAVs), and deploying reconnaissance satellites to detect American surface warships at progressively greater distances, while also enhancing their ability to strike U.S. warships once they are located. PLAN submarines are being equipped with advanced torpedoes and high-speed, sea-skimming anti-ship cruise missiles. The PLA is procuring aircraft that can carry high-speed anti-ship cruise missiles, and fielding ballistic missiles that are capable of striking American carriers at extended ranges. China also possesses advanced anti-ship mines which may limit even further the maneuverability of U.S. naval forces and, by so doing, render them easier to target. Consequently, East Asian waters are slowly but surely becoming a "no-man's land" for American warships, and particularly for aircraft carriers with their short-range strike aircraft.

The same is true of the large air bases in the region that host the U.S. Air Force's short-range strike aircraft. Simply stated, a failure to adapt to this emerging challenge could find large surface warships and "short-legged" aircraft becoming wasting assets. If the U.S. military fails to address this growing problem and the current East Asian military balance becomes increasingly unstable, Beijing might be encouraged to resolve outstanding security issues with Japan, Taiwan and other states through coercion, if not aggression.

Even if the U.S. military overcomes these obstacles to its power-projection forces, it will still find that many of its forward operating bases and other key infrastructures risk becoming wasting assets. Since the Korean War the U.S. military has become used to operating with secure rear areas. Even when U.S. forces have engaged in irregular warfare, large American bases at Camh Ranh Bay in South Vietnam and, more recently, Camp Victory in Iraq and Bagram Air Base in Afghanistan have been relative sanctuaries in the midst of conflict. To be sure, there was the occasional raid or act of sabotage, but the damage inflicted was generally minor. Even insurgent attacks on the Green Zone in Baghdad failed to yield significant harm. This happy state of affairs is almost surely coming to an end.

The second Lebanon War waged between Hezbollah and Israel during the summer of 2006 is the canary in the Pentagon's mineshaft. The war shows how difficult it is becoming for advanced military forces to defend key fixed targets such as military bases, critical economic infrastructure, and densely populated areas against irregular forces armed with rapidly proliferating "RAMM" (rocket, artillery, mortar and missile) capabilities. During the 34-day conflict Hezbollah fired some 4,000 rockets into Israel, most of them short-range and all of them unguided. Yet over 300,000 Israeli citizens had to be evacuated from their homes. Israel's oil refinery at Haifa had to reduce its oil inventory and dump oil out of fear that a rocket attack could spark a major explosion and fire in the city.

While Hezbollah's rockets are short-range by modern military standards, some could be fired over 50 miles, a major increase over the mortars and rockets used by Viet Cong guerrillas 40 years ago against U.S. bases in South Vietnam. In coping with the problem at that time, U.S. forces often engaged in intensive patrolling to keep the enemy beyond his 4-mile effective mortar range. Applying this approach against an enemy whose rocket range may extend out to 50 miles is simply not a practical solution.

Defending key targets will become even more difficult still as guided weapon, or "G–RAMM," capabilities diffuse from great powers like China and Russia into the hands of irregular forces. This is already occurring. During the second Lebanon War, Hezbollah fired a guided anti-ship cruise missile, launched several UAVs, and destroyed or disabled over 50 Israeli tanks with sophisticated Russian-made anti-tank guided missiles.

By historical standards, the U.S. military has enjoyed an unusually long near-monopoly in the use of guided, or "smart," munitions, which offer the enormous benefit of high accuracy independent of a weapon's range. The value of guided weapons became clear to all in the first Gulf War, even though they comprised less than 10 percent of the bombs dropped but were more effective by an order of magnitude than unguided "dumb" bombs. The American military currently has no easy answer to the challenge posed by "G–RAMM's" combination of range and accuracy, other than a massive expenditure of resources in what will likely prove a fruitless attempt to keep an enemy beyond its ever-growing capacity to strike targets at extended ranges.

A major factor enabling the U.S. military to project power abroad, and to sustain forces once they are operating in an overseas combat zone, is access to the global commons—international waters and air space, as well as space and cyberspace. Since the Soviet Union's collapse nearly two decades ago, America's military has enjoyed generally unfettered access to the global commons. This favorable situation is fading away.

As noted above, the rise of anti-access/area-denial capabilities, both to state and non-state entities, threatens to make key straits and coastal waters prohibitively risky areas in which to operate. Offshore oil and natural gas facilities and related infrastructure may be particularly vulnerable, as are undersea fiber optic cables. China alone seeks to create a maritime no-man's land extending several hundred miles out to sea.

As for cyberspace, it is no exaggeration to say that information technologies (IT) permeate every aspect of America's military operations, from training to logistics, from command and control to targeting and guidance. As the military's dependence on IT has grown, so too has its vulnerability to disruptions, especially disruptions of its battle networks. This vulnerability also exists in America's economic infrastructure, where everything from transportation to electric power generation and finance depends upon the proper functioning of cyber networks. Attacks on both military and civilian IT networks have been growing for at least a decade. Russia has been accused of conducting cyber war campaigns against Estonia in 2007, Georgia in 2008, and Kyrgyzstan in 2009, while China is reputed to be behind cyber attacks that disabled computer systems at the Pentagon, as well as attacks against Britain, France and Germany. Part of the problem with cyber attacks is the difficulty in identifying their source. In the murky world of computer hacking and related activities, it is unclear whether cyber warfare will enable other countries, or even disaffected groups, to inflict crippling damage on the United States military or its economy.

The situation is somewhat reminiscent of air power in the period between the world wars. At the time, air power advocates claimed that aerial bombardment of an enemy's territory in itself would produce prompt, decisive results, while others were far more skeptical. As it turned out, air power proved critical to the success of military operations in World War II, but failed to yield the kinds of results claimed by its zealots. Today it remains unclear how devastating an all-out cyber attack on the U.S. military or America itself would be. If such strikes are able to cause substantial damage to the U.S. economic infrastructure, much of the military systems fielded to defend the American homeland, such as missile defenses, could prove to be a modern Maginot Line.

The U.S. Armed Forces rely heavily upon military and commercial satellites, key nodes in the military's battle networks. The global positioning system (GPS) satellite constellation is essential for guiding many "smart" weapons to their targets. In recent years the PLA has neutralized or destroyed satellites in low-earth orbit (where most satellites are located), by launching an anti-satellite (ASAT) ballistic missile or by firing ground-based ASAT lasers. As China's lunar exploration program matures, the PLA will likely acquire the ability to destroy the GPS constellation, which is positioned in medium-earth orbit. Of course, the system might also be disabled by jamming it or through cyber strikes. Assuming China continues to develop and field ASAT capabilities, the U.S. satellite architecture may be a wasting asset, highly dependent upon Chinese sufferance for its effective operation; indeed, its existence.

If history is any guide, these trends cannot be reversed. Technology inevitably spreads, and no military has ever enjoyed a perpetual monopoly over any capability. To a significant extent, the U.S. military's wasting assets are the consequence of losing its near-monopoly in guided weapons. This is true in targeting objects in space and in cyberspace, as well as ships at sea and air bases on land.

As the Truman and Eisenhower administrations were faced with the need to confront some difficult strategic choices nearly 60 years ago, so too is the Obama administration today. Will the United States accept that several areas of vital interest

are becoming "no-go" zones for its military, or will it take steps to address the challenge? Will the United States accept a posture of vulnerability regarding its satellite architecture and cyber infrastructure, or are alternatives available to redress the problem? The United States can either ignore these developments, at its peril, or adapt to them. Simply put, if strategy involves identifying and creating new sources of advantage as existing ones erode, what new advantages should the U.S. military seek? Equally important, where should the U.S. military scale back its investments, and what wasting assets should it divest?

Presidents Truman and Eisenhower did not make decisions with regard to U.S. military force levels and capabilities in isolation, but within the context of an overall strategy that emphasized containing Soviet power, deterring aggression, preserving a strong American economy, and cultivating alliances with like-minded countries in general, and the great powers in particular. Similarly, the Obama administration's choices regarding the future military posture must be informed by an overarching strategy. This is no simple matter. Given the changes underway in the geopolitical environment, rapid advances in military-related technologies, and the United States' weakened economic standing, a major strategy review comparable to those during the first decade of the Cold War is in order.

Any strategic review must take into account three major challenges. The most immediate challenge is posed by radical Islamist groups, and finds the U.S. military engaged in campaigns in Afghanistan and Iraq, and in operations around the globe in an attempt to defeat or at least suppress them. There is also the prospect of nuclear proliferation. Should Iran become a nuclear-armed state, it could well spur a round of proliferation in the Arab world and further complicate the U.S. military's ability to project power into the Middle East in defense of key interests. Finally there is China, a key trading partner of the United States and potentially a strong force in support of well-established international norms of behavior. However, China's military buildup suggests that it may be susceptible to pursuing its aims through coercion, if not aggression, unless steps are taken to address its development of threatening capabilities.

Exploring options for addressing these emerging challenges will not be cheap. The United States' financial picture has eroded substantially in recent years, both in absolute and relative terms. This circumstance is not likely to be reversed anytime soon, further constraining strategic options. This suggests the United States pursue a more measured strategy, one that better balances the goals it seeks to achieve with the resources likely to be available.

In addressing instability in the developing world the United States should adopt a strategy of the indirect approach. This means using the U.S. military's advantages in highly trained (but relatively limited) manpower to leverage the developing world's large manpower base. Emphasis should be placed on training, equipping and advising indigenous forces of countries threatened by subversion, especially states confronting radical Islamist groups like al Qaeda, but also states confronting other sources of instability, such as transnational drug cartels in Latin America. Assistance should ideally be provided before states become destabilized. Where U.S. forces are deployed in large numbers, as in Afghanistan and Iraq, they should continue their efforts to field indigenous forces to enable reductions in American ground combat units. To be sure, the U.S. military will need to maintain a capacity to "surge" forces should a state of vital interest begin to fail, but such deployments should be a last resort, and not the first option. To support this approach, the Pentagon will need to determine the kinds of equipment it will use to outfit the indigenous forces of partner states, and procure the equipment in quantities sufficient to establish Reserve stocks that can be quickly deployed when needed.

How will our military cope with irregular forces armed with G–RAMM capabilities? Success will require intercepting relatively inexpensive projectiles reliably and at an acceptable cost. Several alternatives are worth exploring, either separately or in combination. One involves deploying loitering "hunter-killer" reconnaissance and strike aircraft to search for enemy G–RAMM forces and, once they are identified, engaging them quickly before the enemy can fire or disperse. Another option is to harden targets against such attacks. This is an expensive proposition and is probably feasible only for the highest priority targets. Then there are active defenses that involve intercepting G–RAMM projectiles. Cost is a major problem here as well, as kinetic-kill interceptors tend to cost far more than G–RAMM projectiles. Another possibility may be found in the rapid advances in solid-state lasers, which have a cost-per-shot that is far less than traditional interceptors. Any solution to the problem, if there is one, will most likely be found in a combination of existing and emerging capabilities, and in new ways of employing them.

When it comes to power projection, the United States should adopt an offsetting strategy making it clear to Beijing that it intends to continue reassuring allies and

friends in the region that they will not become victims of coercion or aggression. The growing PLA threat to U.S. forward air bases might be handled in several possible ways. One is to harden these bases against attack by missiles with conventional warheads. Another might involve deploying missile defenses to protect these bases. Still another might be to forego such bases in favor of developing long-range strike systems. Of course, some combination of these options might provide the best solution. To offset its growing vulnerability the Navy might reduce its emphasis on large surface ships to conduct strike operations in favor of submarines armed with conventional cruise missiles. Or carriers might reduce their reliance on short-range manned aircraft in favor of much longer-range unmanned aircraft, some of which (e.g., N–UCAS) are now in development.

In terms of preserving U.S. access to space, it may be possible to shift away from relying on relatively few large "mainframe" satellites and toward micro- and nanosatellites that can be configured in less vulnerable networks. If part of the network is destroyed, it might be replaced through the rapid re-launch of backup satellites, or by activating dormant satellites previously positioned in space. Alternatively, it may be possible to use terrestrial-based clusters of UAVs to substitute, at least on a limited basis, for damaged or destroyed satellites. If a challenge emerges to the U.S. stewardship of the world's oceans, it is likely to come in the form of enemy submarines, which are far more difficult to detect than surface warships. Priority must be given to preserving and expanding upon the Navy's advantage in antisubmarine warfare, while also developing more capable countermine capabilities. Current Pentagon plans to increase submarine production must be sustained, while design work on unmanned underwater vehicles and a new class of submarines is initiated.

Alas, as for the cyber warfare competition, it is so shrouded in secrecy that it is difficult to determine the United States' level of vulnerability, let alone options for addressing it. It may be that a defensive strategy cannot be successfully pursued, and that the U.S. military will be forced to rely on deterring the worst sorts of cyber attacks. But given the paucity of information on this area of the military competition, we are left to speculate.

Determining whether these approaches and capabilities can offset the U.S. military's wasting assets will take time and resources, both of which are in short supply. Significant resources may be liberated by reducing emphasis on capabilities whose value stands to be greatly diminished by the shift in the military competition. The Air Force, Navy and Marine Corps plan to purchase several thousand short-range F–35 strike aircraft that must operate from forward land bases or off of large surface ships, both of which are increasingly vulnerable. Indeed, the F–35 seems overdesigned for the emerging low-end threat while lacking the range it will likely need against a high-end threat. The Navy's new *Zumwalt*-class destroyers are the kind of large surface ships that are likely too expensive to address the challenges posed by irregular warfare and too vulnerable to operate in East Asia or the Persian Gulf. Plans to terminate their production should go forward. The Marines are looking to field an Expeditionary Fighting Vehicle (EFV) that swims ashore and then fights as a land combat vehicle. Yet the fleet is being forced to operate ever further from the shore, far beyond the distance for which the EFV was designed. The EFV is also highly vulnerable to the improvised explosive devices that are now proliferating throughout the developing world. The Army anticipates spending over $150 billion on its constellation of Future Combat Systems (FCS). Yet the FCS is optimized for traditional conventional warfare rather than the era of persistent irregular warfare the Army now confronts. Satellites like TSAT that are highly effective so long as space is a sanctuary must be reconsidered in recognition of the fact that this condition no longer obtains.

OPERATIONAL CONCEPTS

While it is possible to identify with reasonable clarity what military capabilities are unlikely to prove effective in addressing existing and emerging challenges to U.S. security, identifying the capabilities mix that would best preserve the Nation's interests is a more challenging proposition. Ideally, the answer would be found in the development and testing of new concepts of operation—how the Armed Forces would combine their capabilities to deter or, if necessary, defeat a threat to the national security. Some progress has been made in this regard. For example, in the wake of confronting enemies waging modern irregular warfare in Afghanistan and Iraq, the military Services have developed new ways of operating (i.e. doctrine) and adapted existing equipment while emphasizing new systems and capabilities (e.g. unmanned aerial vehicles, mine resistant ambush protected).

This is all to the good. However, most of this was accomplished after the fact. The U.S. military found itself reacting to a threat, rather than anticipating it. Such an approach is wasteful in lives and resources, and increases the risk to the Nation's security. The DOD needs to become better at anticipating emerging challenges and identifying wasting assets. For example, during the Cold War the Army and Air Force collaborated on the AirLand Battle concept for deterring Soviet aggression against the North Atlantic Treaty Organization. A healthy debate ensued over the alliance's "layer cake" defense, resulting in the U.S. Army's III Corps being shifted to the Northern Army Group. The need for forward-positioned equipment—"Prepositioning of Material Configured in Unit Sets"—was identified. The need to reinforce forward-deployed U.S. forces—"10 divisions in 10 days"—was identified and exercised (i.e. "REFORGER"). The maritime forces joined the process. The Navy explored options for conducting an "outer air battle" against Soviet strike aircraft threatening the Atlantic supply lines, while the Marine Corps assessed how it might help anchor the alliance's northern flank in Norway. These efforts proved crucial in enabling our senior civilian and military leaders to make informed choices regarding military systems and capabilities mix. Unfortunately, the U.S. military has yet to develop an "AirSea Battle" concept to offset China's actions and reassure allies and friends in East Asia.

THE BUDGET

Of course, all this presumes that funding will be made available to sustain the revised defense program, and that the capabilities needed can be produced in a timely and efficient manner by the industrial base. While the fiscal year 2010 defense budget represents a modest increase over the previous year's budget, a portion of this increase is the result of shifting programs and activities previously funded through supplemental appropriations into the base budget. In addition, the administration's future years defense program has not yet been announced. Absent this data it is difficult to state with any degree of confidence how affordable the changes announced by Secretary Gates will be. However, given the relatively weak state of the economy, the administration's projections regarding Federal budget deficits in the coming decade, and independent assessments that reveal a significant shortfall between the defense program and the previous administration's funding estimates, it seems likely that more difficult choices lie ahead.

THE INDUSTRIAL BASE

With respect to the industrial base, there is a strong case to be made for reforming the Defense acquisition system, and I applaud the efforts of Senator Levin and Senator McCain to approach this in a bi-partisan manner. However, I am also concerned by the DOD's general absence of attention to the industrial base with respect to its value as an important strategic asset of the United States. Properly incentivized and structured, there are at least two important sources of competitive advantage the defense industrial base can provide for the Nation: the ability to compete based on time, and complexity and diversity.

Time-Based Competition

Time, while always an important consideration, is especially precious during periods of great change. Assuming the Department has the resources to affect major shifts in its investment posture, it must still incur a cost in the form of the time it takes to realize the benefits of these investments. Periods characterized by uncertainty and the potential for discontinuous change in military competitions may present those militaries who do not lead the change with insufficient time to adapt.

The longer it takes to produce new capabilities, the higher the risk to be addressed, since there is a lag between the time a discontinuity is diagnosed, the Department's investment strategy altered, and new military capabilities fielded. If, for example, the DOD could realize instantaneously the results of a major shift in its investment strategy, it would incur no risk other than that associated with sunk costs—i.e., those capabilities invested in prior to the appearance of a discontinuity, whose value may not hold up well following its occurrence. The longer a military requires to field new capabilities—be they in the form of new systems, doctrine, individual skill sets, or the creation of new infrastructure (e.g., bases)—the greater the risk that it will not be able to respond quickly enough to the new threats emerging from a discontinuity. In brief, the greater the risk, the greater the need to hedge against that risk. The inability to compete based on time thus imposes a cost penalty. The cost here can be thought of in terms of an insurance policy, where the Department invests in a range of capabilities to insure that it is at least minimally competitive if and when a discontinuity occurs. In doing so, however, the Depart-

ment pays a price—by preparing for a range of futures, it is less prepared for any particular future.

This leads to the key observation that if the time required to translate resources to capabilities can be compressed, it is possible to apply resources more efficiently. This is because when hedging against a given level of risk, the ability to operate along short time lines means fewer resources need to be expended. It was not all that long ago that our defense acquisition system and industrial base were very adept at time-based competition. For example, our first Polaris Submarine, the USS *George Washington*, launched the first Polaris missile in 1960, with construction beginning only 3 years earlier in which an attack submarine was modified to incorporate a missile compartment during construction. Design on the missile itself began in 1956, only 4 years before it was first launched. Around that time, in the late 1950s, work began on what became the SR–71, whose first flight was in 1964. The Saturn V rocket that carried our astronauts to the moon began development in 1962, and entered use in 1967.

The ability to compete based on time can also be used as a weapon. If DOD's defense planners can wait longer before committing resources, it complicates adversaries' investment strategies, since they have less information regarding the ultimate investment path the Department might take. It is somewhat similar to a game of poker, in which the adversary must begin to reveal his hand, card by card, while we continue to conceal ours. We have a much better sense of the risks and opportunities we face relative to the opponent, and (assuming we can exchange unexposed cards through a request to the dealer) a much greater opportunity to shift our competitive posture. The difference, of course, is that the Department can decide what cards it will be dealt, since it can choose where to invest.

Given the importance of this aspect of investment strategy—especially during periods of anticipated discontinuity in the military competition—high priority should be accorded to improving dramatically the Department's capability in this area. This implies a commitment to reforming the acquisition system. Unless the Department can make some major improvements in its defense acquisition process, the Department's ability to exploit time-based competition will be far below its potential.

Complexity and Diversity

Investment strategists exploring opportunities to impose costs on adversaries might also achieve their aims by inducing risk and uncertainty into an adversary's calculations. This can be accomplished by pursuing an investment strategy that exploits complexity and diversity. This strategy is particularly attractive during periods of discontinuity (or anticipated discontinuity) in the military competition, where uncertainty is already high. The problem posed to the adversary here, again, is not directly linked to its investment calculations concerning perceived costs and benefits. The adversary experiences no direct impact on its cost to field a given set of military capabilities. Rather, the imposed costs are indirect.

How is an investment strategy of complexity and diversity pursued? First, it helps to have certain enduring advantages. A competitor like the United States has an enduring advantage in both the scale of its defense effort and the technological sophistication of its defense industrial base. The United States has no rival (or combinations of rivals) that can muster even half the U.S. gross domestic product (GDP). Moreover, the United States can also count most of the world's greatest economic powers (e.g., France, Germany, Great Britain, Japan) among its allies. America's defense industrial base is unsurpassed in its ability to combine technologies in complex combinations through its unparalleled expertise in systems integration and architecture integration (i.e., the building of networks).

These advantages enable the United States, should it choose, to develop (and, in select cases, field) a relatively wide range of capabilities that can be combined in complex systems. This confronts an adversary with a wide array of existing and potential military "tools" that may be used against it in a military competition.

For example, during the 1930s the U.S. Navy was developing a relatively diverse set of means for destroying an enemy battle fleet. In the years immediately prior to its entry into World War II, improvements were being made in the Navy's battleships (e.g., new ships, larger caliber guns, radar-directed fires); submarines (torpedo attack); and, perhaps most importantly, strike aviation (dive bombing and torpedo attack). Any rival contemplating competing with the U.S. fleet would have to stretch its resources to account for this diversity in striking power, and the variety of combinations in which it might be employed. For instance, developing defenses against torpedo bombers but not dive bombers or submarines would cause a U.S. rival to incur high risk. Moreover, until the early 1940s the U.S. fleet was comparatively small relative to the size it would quickly achieve during the war. Would-be adversaries could still not be certain as to how the United States would choose to scale

up the size of its fleet if war came, or the mix of capabilities it would emphasize, as it had created a substantial number of options for itself.

In short, by introducing risk and uncertainty through an investment strategy of complexity and diversity, the United States posed a problem for Japan, a greatly inferior industrial power, of whether to stretch its resources rather than concentrate them. With the considerable advantage it enjoyed in scale, the United States was able to both choose the preferred forms of competition when the war began (i.e., submarine warfare and fast carrier task force operations vice battleships operating in a battle line), and to combine these forces in the most effective manner, and on a scale that the enemy could not match.

In summary, as Congress and the DOD work to reform the defense acquisition system, it will be important not only to improve the system's overall efficiency, but to accord equal priority to ensuring the defense industrial base's potential to serve as a strategic asset is both enhanced and consciously exploited.

CONCLUSION

Secretary Gates' recent decisions regarding the fiscal year 2010 defense program mark what hopefully is the start of a much-needed debate on the state of the Nation's defense posture. Given emerging changes in the threat environment, the United States has a number of major strategic decisions to make. The nation's senior leaders need to know if there is an acceptable alternative to America's growing vulnerability in key areas of the military competition. If no practical alternative exists, then U.S. national security strategy must be adjusted accordingly, and the sooner the better. However, just as it took over half a decade of effort to address the problem of America's loss of its nuclear monopoly, a strategy that addresses the United States' current wasting assets will not be crafted overnight. A sense of urgency similar to that which animated senior national security decisionmakers at the Cold War's beginning is needed. This will require the persistent attention of the president and his senior national security advisors, as well as the secretary of defense and Congressional leaders. To be sure, the Nation confronts a severe financial crisis, which the president cannot ignore. However, President Obama may take some solace from President Franklin Roosevelt, who simultaneously tackled both the Great Depression and the need to prepare the Nation's military for what became a global conflict.

A decade ago the debate in defense circles centered on whether or not the U.S. military needed to undertake a "transformation"—to field a substantially different kind of military to address the challenges of a new era populated by new rivals and rapidly diffusing technologies. The idea faced stiff resistance from many in the military, who argued that the evidence for undertaking major changes in what was by far the world's most capable military was lacking. It calls to mind the wishful thinking of many senior officials in the Truman administration who discounted warnings regarding Soviet progress toward an atomic bomb.

Confronted with modern insurgency warfare in the wake of the invasions of Afghanistan in 2002 and Iraq in 2003, the United States has found itself engaging in "reactive" transformation, as have the Israeli Defense Forces following the second Lebanon War. Despite the growing evidence that a wide array of U.S. military capabilities may depreciate rapidly in value, some policymakers remain reluctant to accept the need to engage in the hard thinking that would characterize "anticipatory" transformation: preparing for emerging challenges by identifying new capabilities and methods of operating to offset or replace those whose value is depreciating. Ignoring the growing challenges to the United States' ability to project and sustain military capability overseas in defense of the Nation's interests does not mean these challenges do not exist. Sooner or later they, and their implications for America's security, must be confronted. A decline in the U.S. military's ability to defend key national interests may be inevitable; however, it should not be the result of indifference or lack of attention. There are important strategic choices to be made—either in offsetting efforts to undermine America's military shield, or accepting it and adapting accordingly. In a time of increasingly scarce resources and growing competing national priorities, the sooner such choices can be made, the better.

Chairman LEVIN. Thank you both for, as we always receive from you, extremely thoughtful testimony.

Why don't we just try 8 minutes for our first round of questions.

This will go to either or both of you. You've talked about it, we've talked about it, but I'd like you to be more specific in your reaction to what Secretary Gates's programmatic recommendations are,

which are a reflection of his shift of emphasis towards irregular operations, counterinsurgency operations, and stability type operations.

First, before I get to the impact of those shifts programmatically, I'm curious as to something else which he has stressed. That is, he has said that the Department needs to institutionalize and finance the support necessary for irregular warfare capabilities. What does that mean? Assuming, first of all, I think you both generally agree that that's the direction we need to go, although you, Dr. Krepinevich, raised some nuances to that. But in general, I think you both would agree that that is the right direction.

Assuming you do, what institutional challenges are there? What are the hurdles institutionally to properly support irregular warfare capabilities that the Secretary wants to put greater focus on? Let me start with you, Dr. Krepinevich.

Dr. KREPINEVICH. Mr. Chairman, I would say to the issue of institutionalization, Secretary Gates some months back talked about his concerns about next-war-itis, that we focus too much on the next war, not enough on winning the war we have. I took his Foreign Affairs article to really separate this out into three dimensions. There's next-war-itis, there's the war we have, and there's last-war-itis.

I think what he's really arguing against is the Services gravitating back towards their familiar institutional centers of gravity, preparing to fight the last war. I think, based on my conversations with him and my reading of his public statements, there is a concern that the military will view this conflict as a one-off, much as the "no more Vietnams" slogan that was heard after the Vietnam war.

I had one general tell me: "We've had our hand on the stove in Iraq and Afghanistan for the last 7 years; once we take it off, nobody's going to want us to put it back on again." But again, the enemy gets a vote and the military doesn't make those decisions. It's the Secretary and the President.

So I think his concern is how do we institutionalize that in the Services? How does the Army, for example, create an institutional force structure to deal with these kinds of problems? How does the Army develop a way of training advisers and trainers that can go in and actually execute the overall strategy, which is to build partner capacity?

Our competitive advantage here isn't in large numbers of soldiers. It's in small numbers of quality soldiers that can train and advise the indigenous forces of other countries. Where are the War Reserve Stocks? If that's our strategy, why aren't we buying equipment that we might not equip our own soldiers with, but we would be familiar and comfortable with equipping the soldiers of indigenous countries threatened with instability, insurgency, terrorism, and so on? They don't have to have U.S. quality. We can give them quality that's good enough for them in terms of their training and their culture and so on. Where is the focus on that?

Again, the idea of a good strategy is to play to your strong suits. Our strong suit is not masses of manpower. Our strong suit is high quality, high-trained manpower.

In terms of finances, I think what you're seeing is an attempt, as Dr. Hamre said, you have the base budget and you have the supplementals. They're trying to move a number of items that were associated with irregular warfare back into the base budget, in the hope that it'll have the sanctuary of being in the base, it won't die when the supplementals are reduced and done away with at some point.

So here you see the intelligence, surveillance, and reconnaissance funding, some of the funding for UAVs, I think a total of about $2 billion, being brought back into the base budget. Even then, though, I think the Secretary knows that he has to convince the Services, at some point, to keep those in the base budget and not essentially take those dollars and put them toward more comfortable, more familiar kinds of capabilities and programs.

So institutionalization, I think he knows the military has learned a lot of lessons, that we've developed a lot of proficiency in this kind of warfare. Let's not lose it, because we lost a lot of what we learned after Vietnam.

The second point is to get that worked into the budget, so you have an institutional home for the kinds of capabilities that are going to be needed to support our forces that have to conduct irregular warfare operations.

Chairman LEVIN. Dr. Hamre?

Dr. HAMRE. Sir, I agree with what Andy said. I think that institutionalizing and financing really means getting out of this business of using supplementals. I think that had a corrosive impact.

If I could just add a couple of things, however. I don't think they're going to walk away from thinking about insurgency warfare. I think the military sees this as the primary challenge going forward. It certainly has a different impact for different Services, but I know for the Army and the Marine Corps, they're in the middle of it and I think they know that insurgency warfare is the most likely future. I personally don't think they're going to walk away.

Chairman LEVIN. You don't see any institutional impediments to reflecting that shift?

Dr. HAMRE. No, sir, I don't. As a matter of fact, I think that the greater concern you would find in the Army is that the emphasis on that is taking them away from more traditional doctrinal work on things like coordinating artillery with ground maneuver and things like that. It reflects the demands. They've been conducting a very difficult war for 7 years and it's going to continue in Afghanistan. I do not see them walking away and trying to say, "we can't hardly wait to get out of that stuff so we can go back to tank warfare again."

Certainly there are those that feel that we're not paying attention to that. I honestly don't think that's the problem at the time. I think there's a bigger structural question. That is, how do we prepare for contingencies that are beyond what we're in right now.

Chairman LEVIN. Beyond what?

Dr. HAMRE. Beyond the low end. We have these three different types and we're really focusing right now on low-end asymmetric war.

Chairman LEVIN. Maybe this goes mainly to Dr. Krepinevich, and that has to do with the specifics that were announced on April

6. If you're able to connect some of those major decisions, which are going to be, as Dr. Hamre pointed out, recommendations to us, assuming they're in the budget which is coming up next week, but they are decisions in the executive branch. If you could react to some of the major ones.

Let me rattle off about half a dozen of them, just to get a flavor of this as to whether in your judgment, and Dr. Hamre, just jump in if you feel that you want to do that; we'd be happy to have your comments. Let's start with Air Force tactical fighter aircraft. There's a cut here that he's going to propose of these older tactical fighter aircraft that have many in the Air Guard and Reserve.

Second is the C–17 production end. Third would be the F–22. He would stop the DDG–1000 program, revert to the DDG–51s. The cancellation and the apparently rethinking through the manned ground vehicle portion of the Future Combat System (FCS). Limiting the interceptor missiles to 33. These are the ones in the Missile Defense Agency's (MDA) program, and shifting some of that funding to the short-range missiles, the Patriots and the missiles. It's a reduction in one and a shift to the other. The termination of the Multiple Kill Vehicle program.

I think I've probably thrown enough at you, but just if you can give us your flavor, and add, both of you, any that come to your mind. Which ones you think should be or are going to be major issues, and connect those comments to what your beliefs are about the wisdom of the shift that you've just described?

Dr. KREPINEVICH. I can address certainly a few of them with some level of competence. In terms of the FCS, the system was originally designed to deal with a combined arms mechanized force in open battle, the Republican Guard kind of force. The program has risk in four areas. One is technical risk, if you look at the Government Accountability Office (GAO) reviews, a high-level technical risk, which means likely future cost growth down the road. It has already exceeded its cost estimates. They had to cut, most recently, 4 programs out of the 18 just to maintain roughly the same level of costs.

There is a temporal risk associated with the program, which is to say the projected deployment date keeps slipping. Of course, if you slip past a certain date then what you have to do is begin to recapitalize your existing equipment that you had expected to retire, because the FCS hasn't arrived on the scene.

But I think the greatest area of risk is in operational risk. In other words, I think the system was fundamentally designed to do something else, which is that open battle against a traditional conventional adversary, and I don't think it translates very well to irregular warfare.

Yet, if I could add one word to General Casey's description, I think we are in an era of persistent irregular conflict, in addition to the other challenges.

In terms of the DDG–1000, based on what we have in terms of the character of the challenges we face, I think the ship is probably underdesigned for the kinds of problems that the Chinese are going to cause for us and are already causing for us in terms of operating large surface ships near the Chinese littoral in the Far East, and also not particularly survivable in an area like the Persian Gulf.

I think it's probably overdesigned for the low-end threat, where I agree with Secretary Gates, if we can get the costs under control, I think LCS is a much better approach to guerrilla warfare or irregular warfare in the littorals.

In terms of the F–22, I go back to my comment about, how would you use this aircraft? The problem, in a sense—that the aircraft has come to be irrelevant—is how to maintain a stable military balance in the Far East? How do you pursue an offsetting strategy to what the Chinese are doing so that the Chinese aren't tempted to get what they want through coercion, let alone aggression, and to maintain the confidence of our allies in countries like Japan?

It's not clear to me how you can base the F–22 forward in places like Kadena Air Base because we haven't solved the anti-access problem that the Chinese are developing. It's not clear we can tank them from Anderson or from other locations to get them into the fight in that area. So again, it's a very interesting capability, but I haven't been convinced about how it might be effectively employed, in order to address one of the security challenges we confront.

I think I was disappointed in the case of the Next Generation Bomber. I think what we have is an investment portfolio that, especially on the aviation side, is trending more and more toward shorter range systems, and I think what we're going to need is a Next Generation Bomber the sooner the better. I also think the Navy Unmanned Combat Air System (NU–CAS), we're going to have to find some way to get that on the decks of the carrier probably early in the fight because that gives you the extended range that you need to win that outer network, outer air battle now in the Far East and not in the Atlantic.

So those are—one final observation, and that is the guided rockets, artillery, mortors, and missiles (G–RAMM) problem, as it's being called, the G–RAMM problem that we're facing on the low end. The Israelis are struggling with this problem of how to intercept these things, both in the second Lebanon War and in the recent conflict in Gaza.

One problem you run into is that, consciously or not, Hezbollah and Hamas are pursuing a cost-imposing strategy. The Israelis can't afford to fire a $20,000 or $30,000 interceptor again and again and again to intercept $2,000 and $3,000 rockets. So what is the way to get out from underneath that rock? The only thing I've seen that may hold promise is the rapid advances that have been made recently in the form of solid state lasers, where the power has gone up dramatically in terms of what they're able to achieve. It's a lot more workable and battlefield-worthy than chemical lasers.

But again, where is the operational concept that says on the front end we're going to have hunter-killer teams suppressing the fire, we're going to maybe have boost phase interceptors on the front end, and on the back end we're going to harden key targets that we have to harden, we're going to have maybe a mix of kinetic and directed energy intercept? I don't know if that's the answer, but it seems to me that that ought to be a problem that gains the kind of attention and the kind of professional debate that we had with air-land battle back 20, 25 years ago, and that seems to be absent now. Its absence really, I think, hurts our ability to make

informed decisions about what are the capabilities we want and what mix of capabilities do we want.

Chairman LEVIN. Dr. Hamre, did you want to add?

Dr. HAMRE. I'll just address one, and that's the C–17. This is one asset we're going to need in the high end asymmetric war, the low end asymmetric war, and the traditional war. Our strategic airlift fleet today is made up of C–5s and C–17s. The C–5s are two models. The A model is, on average, 37 years old today. The B models, turning into the M model, are today on the average 22 years old.

Now, their reliability shows it. Their reliability is low. Now, if we're going to terminate the C–17, we're going to need to replace those C–5s. It took us 15 years to get the C–17. If we wait 15 years, start right away next year with the next airlifter, the C–5s are going to be 52 years old when the new system enters service. That's just untenable.

It'll cost us $10 billion to buy and develop a new replacement for the C–17. You can buy 40 C–17s for that. I really think we ought to look at this one. I've had a conversation with the Secretary about it and his problem is that Congress constrains him to operate old C–5s. So we have an issue here. But I think this is one I would suggest that Congress re-examine, and I think it's in any one of the scenarios going forward.

I'd be happy to talk about any of the others.

Chairman LEVIN. Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman, and I thank the witnesses.

Here's the conundrum in my view. It's everything that President Eisenhower warned us about. What has exacerbated and exaggerated the problem, to an alarming degree, is that we've seen this consolidation in the defense industry. 20 years ago, if there was a new airplane or a new missile or whatever it is, you had numerous corporations and parts of the defense industry competing for it. Now we have at best two. Sometimes it is sole source, cost-plus contract, which lurches out of control.

You can't make it up, the story of the presidential helicopter, the story of the LCS, and the cost overruns of the FCSs. The numbers are so staggering that nobody believes it.

So here we have a situation, and John, you just alluded to the fact that the contractors are now embedded in the Pentagon to a degree where we've lost the balance between the kind of input and expertise we need to the point where the most fundamental decisions are being made. It is now conventional wisdom—and we're going to find out whether it's correct or not—that no weapons system, once it's in production, can ever be killed or can ever be terminated. When the defense contractors, and I say this with the utmost respect, have subcontractors in 40 of the 50 States, then they can rally the support in Congress to make sure that these acquisitions go on forever.

Meanwhile, there's the tension that both of you have described between our rising personnel costs as a necessity of expanding the Army and the Marine Corps.

I think that Senator Levin's and my effort under his leadership is a stab at the problem, but I'm not sure we get at the fundamen-

tals of the problem. So does that mean to you that we need to go to fixed cost contracts?

If you disagree with my assessment of the situation, please do so, or want to modify it.

Dr. HAMRE. I don't disagree with your assessment of it, but I do want to talk with you about the origins and causes of it. There's an old saying back home that you can grow a pig so fat it can't walk. What we tend to do with systems is we let the requirements get out of control. That's what happened on the VH–71. The President needs a replacement helicopter. The current helicopters are 30 years old. But in this case, the requirements people were unconstrained by any discipline in the budget, and it got bigger and bigger and heavier and more elaborate. The President's seat on that helicopter weighs 250 pounds. It just went crazy.

So I think the root cause of most of this growth is that we do not discipline our requirements adequately. I think the Secretary is speaking to that. That would be the first thing I would say.

Sir, if I could say one other thing, you asked if your legislation was going to fix the problem. I would encourage support of your legislation, but I also think it is not getting at some root causes. This isn't any criticism of the legislation. There are two elements of the budget that are not addressed by the legislation, which are the real cause of the chaos in the procurement accounts. We do not budget real cost growth for personnel and yet we know for 100 years that personnel costs go up 1.5 percent a year.

Senator MCCAIN. More than that recently.

Dr. HAMRE. More than that recently. This isn't inflation. This is real cost growth. But since we do not budget real cost growth for personnel, by the end of a 5-year plan the DOD has a 10 percent hole in its budget. The way you make it up is you have to cut weapons systems, the only thing you can control. We have a decentralized control on part of the budget and we have centralized control on the other part.

Operations and maintenance (O&M) is decentralized. We do not know how to introduce efficiencies in O&M. We basically say: I'm going to cut your budget in 3 years by 10 percent and you figure it out. Well, the people who get that assignment will not even be in the job in 3 years. So those bills have to get paid when that 3-year-out budget year becomes the current year, and the way we pay for it is we cut back on the things we have direct control over, which is procurement and research and development.

So these programs, instead of being stable, are hugely unstable because O&M and personnel costs are not budgeted accurately.

Senator MCCAIN. You were talking about the requirements increase. Is a fixed cost contract the answer? Then your requirements have to fit in within that contract or no additional requirements.

Dr. HAMRE. The challenge with fixed cost contracts is the technical uncertainty we tend to program into weapons systems. If you can break it into smaller segments and introduce technology in subsequent flights or in retrofits, then it is more feasible.

The challenge here is we have to get control over requirements. This is what happened to the LCS. The LCS went from a $78 million ferry and turned into a $750 million war ship, and it was

largely because of requirements. Now, perfectly valid on any individual case, but when you aggregate them it gets out of control.

That's what happened on the VH–71. So somehow we have to get back. You're dealing here very rightly and asking people to do a better job of estimating costs, disciplining themselves to know it before you budget it, et cetera. But we have to get at the requirements side of this. Somehow we have to get at that piece.

Dr. KREPINEVICH. I'm nowhere near the expert John is on this issue, but I would like to make a couple of observations. One in particular is not only reform to make the industrial base more efficient and costs more predictable, but the industrial base is a strategic asset of the United States. It is an asset that we have that no other country in the world has. Really, since the end of the Cold War it's been suffering from benign neglect and in some cases maybe malign neglect.

Just let me make I guess two points. One is, and I think Secretary Gates spoke to this, you can shoot for the 100 percent solution in terms of capability: Give me the absolute best. It will take you longer to build something, and of course the longer it takes you to build the more opportunities you have to build in new best performance characteristics.

There is also the matter of speed as a different metric. Not the best in 20 years, but maybe an 80 percent solution in 8 years. I don't know what the tradeoffs are, but I do know that not only does that get you capability into the hands of our Armed Forces more quickly, but if you can produce something more quickly it does two other things. One is it reduces the amount of money, the amount of insurance money you have to pay. In other words, if it takes us 20 years to generate a new capability, we have to develop hedges. We have to have standing military capability because we can't produce something quickly enough.

The other is, if you can compete based on time, which is what the business world has learned about, you vastly complicate your enemies' calculations. They have to plan not against a narrow set of American capabilities, but a potentially broad set of American military capabilities. That can have a cost-imposing and a deterrent effect on your rivals.

So again, I think that John's the expert here, not me, but as you say, Senator McCain, how do we gain in terms of cost control when we have one bidder or two bidders, where you know that if this guy doesn't get it this time he's going to go out of business? How do you gain innovation where you have so few opportunities to bid because we bid for systems that are supposed to last for 20, 30, 40, or 50 years? Is that the right metric we ought to be using, especially when technology is turning over so fast and the conflict environment is changing rather rapidly?

So what are the basic metrics we use to gauge how we are using our defense industrial base, not only to get what we need in a cost effective way, sort of the efficiency question, but the effectiveness question, how well are we using this instrument as a strategic asset, not only to put capabilities in the hands of our soldiers, airmen, sailors, and marines, but also to complicate the calculations of our rivals.

One final point, our black programs. The fact that if you are an enemy or a rival of the United States, every so many years the American defense industry comes out with something that just blows your mind, whether it's a U–2, an SR–71, the Manhattan Project, or Stealth. That vastly complicates the rivals' planning. But it's not something that we traditionally think about. We usually think about what's the enemy doing and what have I got to do to parry what the enemy's doing.

We have an industrial base that is a tool for us to vastly complicate our enemies' planning and, quite frankly, if we can compete based on time, perhaps actually reduce the amount of insurance we have to buy in terms of standing military capability to deal with these problems.

Senator MCCAIN. Mr. Chairman, my time is up. Could I just ask very briefly on the missile defense cuts, the $1.4 billion reduction in missile defense systems. Do you think that's a good idea or a bad idea?

Dr. HAMRE. Sir, I think what they did was move dollars into the shorter range theater systems. So the standard missile-3 (SM–3) and Terminal High Altitude Area Defense (THAAD) got increased funding. I think it was their judgment that that was going to be more flexible than it would be to put in additional increments for the National Missile Defense (NMD) System. Personally, I think we need to have a NMD System. We have to tell countries like Iran and North Korea they can't intimidate us by threatening to lob a nuclear device.

Whether that can be done and has to be done with a larger increment of national missile interceptors or with a theater system, I'm not current on the details. They made a technical judgment that they went with the theater systems.

Dr. KREPINEVICH. I'd like to get answers to two questions from the Pentagon before I made a decision. One would be what is a holistic or comprehensive approach to defending ourselves from weapons of mass destruction attack, ballistic missile attack, cruise missile attack, and covert insertion? How do we balance against those three threats?

Second is how do we solve the G–RAMM problem at an acceptable level of costs? Because we might be able to deter attacks on our homeland. You go overseas and confront a group like Hezbollah 5, 8, or 10 years down the road and they have even what they have today, let alone a higher percentage of guided weapons, and we're going to have to figure out a cost effective way of solving that missile defense problem.

So I think before you make decisions about where you move money into theater or nationally or whether the overall number goes up or down, again we have to do some serious thinking here, and I don't know that that's been done. That's the shame of it.

Senator MCCAIN. Thank you.

Mr. Chairman, I thank you for your indulgence and that of my colleagues. Thank you.

Chairman LEVIN. Thank you, Senator McCain.

Senator Udall.

Senator UDALL. Thank you, Mr. Chairman.

Welcome, gentlemen. It's been very informative already. I know we're all looking forward to the continuing back and forth here over the next hour or so.

I want to start by saluting Secretary Gates. I think he's asked us all to engage in a very serious and important conversation, and it took courage, I believe, for him to lay out his vision and his strategy. If you think of a strategy as a path down which you spend money, that's what we're talking about.

Also, Senator McCain and Senator Levin, I think, are engaged in a timely effort on this procurement reform. I for one look forward to the fight, Senator McCain, that I think we'll have, because this opportunity doesn't come along very often and it's just crucial that we match up the resources. There's a limit to dollars, no limit to virtue, no limit to what we could do with our military. But this is just so important. We hear it over and over again, I know you do, at home from taxpayers when it comes to the public dollars.

Doctor, could we talk about as you mentioned the global commons. I was just out at Peterson Air Force Base, Space Command (SPACECOM), just a few weeks ago. We talked a lot about cyber attack, cyber defense, and cyber offense. You appear to agree. In your testimony you said: "Assuming China continues to develop and field anti-satellite (ASAT) capabilities, the U.S. satellite architecture may be a wasting asset, highly dependent upon Chinese sufferance for its effective operation, indeed its existence."

So what is the answer? We're highly dependent on cyber space and our satellites. We have to protect these assets. Do we need a counter-offensive capability to protect against the ASAT threat? What are some ideas that you might have? Dr. Hamre, if you are interested in following on I'd appreciate your thoughts, too.

Dr. KREPINEVICH. I've talked to some folks in the Air Force and the National Aeronautics and Space Administration and a few other places. Obviously, one answer is you accept the vulnerability. You hope that it remains a sanctuary, but you know that they can deny you those assets.

Second, as you begin to develop alternatives. For example, some people have talked about using unmanned systems to fill in gaps over certain areas. But of course, we'd have to build them and test them.

Others talk about in the event of a serious conflict, threatening to take out the Chinese ASAT capability, and you'd have to have a rapid re-launch capability to replace the satellites.

Depending upon advances in nanotechnology and propulsion technology, some folks talk about launching dormant or spare satellites, again depending upon cost. There are places in our solar system known as LaGrange points and they are locations where the gravitational pull of the sun, the moon, and the earth roughly allows you to maintain a static position with a very low expenditure of energy. It could be possible that that could, depending upon advances in nanotech, information technology, and propulsion technology, be a possible solution. So there may be some combination thereof.

In terms of the cyber threat, again, unfortunately for us people in the think-tank community, that world is very opaque. I think, though, one of the questions is, is that the next big thing? Using

an historical example, in the 1920s air power was going to be the next big thing. Everyone knew it was going to be important. There were some people, like Billy Mitchell, who thought it would win the war all by itself, others who thought it would be very important, others who thought it would be marginally important. Of course, in the war that came we discovered what its utilities were. But nobody could really predict at the time.

I think it's the same thing today with cyber warfare. Is it going to be effective at the strategic level, the operational level, or the tactical level? Is it going to favor the offense or the defense? Is the competition going to be static or dynamic, which is to say the nuclear competition has been static. It's favored the offense since 1945. Submarine-antisubmarine warfare tends to be dynamic. One side develops a way to find submarines, the other side develops a way to quiet them and to make them less trackable. I think there are many different permutations of different kinds of cyber attacks.

One of the interesting things is to look at, to the extent that we can, the cyber attacks on Estonia, Georgia, and Kyrghyzstan. Evidently the Georgians actually, if I understand correctly, started maneuvering on cyber terrain by relocating a lot of their cyber assets to the United States. Again, I'm reaching the limit of my competence when it comes to cyber warfare, but it's one of those things I think, like space, that you ignore at your peril. It's not familiar. It's not even something we've thought about a great deal in the past. But it certainly is important today.

Senator UDALL. Dr. Hamre, would you care to comment?

Dr. HAMRE. Very briefly. Sir, first, to you and to the committee, I would encourage you to take a briefing from the SPACECOM on the Schriever Series. It's an exercise series that they've undertaken on space dependency and space vulnerability. We can't talk about it here, but I would very much encourage you to take that briefing.

As Dr. Krepinevich said, you only have three options. You can harden the satellite, but that is pretty tough. You can pursue redundancy, and here we bump up against cost. It's very hard to do that. Third, you can pursue replacement. There are real challenges to do each of those three.

I suspect we're going to have to develop a more comprehensive solution, a different way of thinking about this problem. It's probably better to do this in a classified session, to have that discussion with you.

On cyber, the problem of course with cyber is we have an ubiquitous and dramatically expanding cyber space that is designed in a way to make it vulnerable, I hate to say it. It was designed with open protocols, very little discipline from a security standpoint. It's expanding every day and it's global, and it's bigger and bigger and bigger, and the problems are greater.

Now, the DOD can do things to protect itself inside cyber space, but it's just a little tiny speck inside cyber space, and the real question is just how vulnerable is the American economy to cyber disruption. The DOD does not have jurisdiction over this. The Bush administration wrestled with this problem, and the Obama administration is wrestling with this very question: Where do you put the planning, coordination, prophylactic thinking for the government when it really is about the health of the economy? Should it be in

the Department of Homeland Security? Should it be put into the National Security Council? These are open debates that are still continuing.

It is a bigger problem and it's going to be a growing problem. I really do think the committee should spend some time looking at this. I'd be happy to come on another occasion and to talk with you about it.

Senator UDALL. I'm sure my time's expired, but I hear both you gentlemen saying this is serious, we should take it seriously, it deserves a lot of attention. Thank you.

Chairman LEVIN. Thank you, Senator Udall. The issue which you raised and which Dr. Hamre responded to, apparently the briefing has been scheduled for next Wednesday. So we're on track.

Senator Thune is next.

Senator THUNE. Thank you, Mr. Chairman.

Dr. Krepinevich, Dr. Hamre, thank you for appearing here. Dr. Hamre, your fellow Augustana College alums in South Dakota continue to be proud of your work and your accomplishments.

Dr. Krepinevich, I want to ask a question. In announcing his 2010 budget decisions on April 6, Secretary Gates talked about at a media roundtable the following day that his decisions were based largely on positions that he had taken or been advocating in speeches for the last 18 months. That statement was not true as it relates to the Next Generation Bomber. There are three instances that I'm aware of where Secretary Gates publicly advocated for the Next Generation Bomber in the past 6 to 7 months, and in fact he gave a speech at the National Defense University in September stating that China's anti-access, anti-denial capabilities will put a premium on the United States' ability to strike from over the horizon and will require shifts from short-range to long-range systems, such as the Next Generation Bomber. Then he used virtually the same language in an article in the first quarter of this year in an edition of Joint Force Quarterly, as well as in a Foreign Affairs article in January of this year.

So his statements would appear to be a direct contradiction, his most recent statements, with the position that he's advocated for some time leading up to that. I guess, knowing of your organization's recommendation in its "Strategy for the Long Haul" document to develop the Next Generation Bomber by 2020 and to develop an unmanned variant quickly and buy 130 total, what are your views of that decision to delay the Next Generation Bomber?

Dr. KREPINEVICH. They're pretty much as you noted in our study, "The Strategy for the Long Haul." If you look at some recent conflicts, the Balkan conflict in 1999, certainly Afghanistan in 2001, the second Gulf War, you see bombers playing a prominent role. We have relatively few of them. A significant number of the B–52s are really quite old.

If you are going to pursue a serious offset strategy with respect to China, I think you have to have extended range. I don't think we've come up with a solution to the vulnerability of forward air bases because of anti-access, area denial capabilities.

There's also the risk of loss of base access for political reasons. We certainly saw that in Afghanistan. We were denied the use of a number of bases in the Middle East. In Turkey, we were denied

the use of bases in Turkey in the second Gulf War. Then there's just the geography issue. Our base density is very high in Europe. Of course, Europe is relatively quiet right now, but if you look at areas like East Asia, where the distances are enormous relative to, say, Central Europe, where we focused our attention during the Cold War, distances are enormous.

So I think under those circumstances, both on the high end and the low end, because in terms of going after critical time-sensitive targets—if you look at some of the data that came out of the second Gulf War, the fact that bombers have long range, even if they're flying long distances, allows them to hover. Of course, we found that out with UAVs as well, that the solution so far in going after time-sensitive targets doesn't seem to be rapid dash; it seems to be this persistent dwell.

So for a number of reasons, I think the sooner we get a Next Generation Bomber the better.

Senator THUNE. In your opinion, does the budget represent a shift in the Nation's mind set, by making decisions like postponing the Next Generation Bomber and ending F–22 production, are we essentially making a decision to no longer dominate at the higher end of conflict?

Dr. KREPINEVICH. Again, I think the Secretary's comment on the Next Generation Bomber was not a cancellation, but that there were some issues that needed to be worked out in terms of requirements, I believe. I'm only speculating here. Is it going to be manned or unmanned? What is the range going to be? To nail down those requirements, and then to get it moving on to production.

I'm mildly surprised because we've had the B–2 debate throughout the 1990s and into the early part of the Bush administration. Debates about what we would like to have, what we would need to have in terms of a long-range strike system I think are pretty well established.

In terms of the F–22, again you can look at it in two ways. One is, what practical problems that I mentioned does it help us to solve? I think potentially it could help us deal with the China anti-access, area denial problem. However, the military hasn't really developed an operational concept that allows us to think our way through.

The other aspect is to support a strategy of dissuasion, which is to say it's very important for us to have air superiority, and by building a significant number of fighter aircraft that are so far above what anyone else can build we discourage other countries from entering into that competition, and that's an important area for us to dissuade competitors.

Is 187 enough? I don't know. But I think those are the two things that I'd be looking at most closely when I think about the F–22 and how many we ought to buy and what utility they might have.

Senator THUNE. If I could direct a question to both of you: One of the issues, and I think, Dr. Hamre, you touched on it, is that we're all dealing with some very serious constraints on budget. But we have objectives, it seems to me, to dominate at the full spectrum of conflict, from low-end asymmetric warfare such as what we're facing in Iraq and Afghanistan to higher-end conventional

and asymmetric warfare, as would be the case if we entered a conflict with a near peer.

I support those objectives. But what you see across the board is that our military's equipment is old and getting older. Half of our bombers are pre-Cuban missile crisis vintage. The Army burns readiness as soon as they produce it, in both the form of soldiers and material. The Air Force's fleet averages 24 years old.

I'm concerned that the budget doesn't do enough to address these issues. It's just simply too small. If the budget attempts to fight two wars and grow the forces that are required to fight low-end conflicts while failing to adequately address the Nation's aging military equipment and prepare for an uncertain future, I have real concerns about that.

I guess the question is, in your opinion, how much would the budget need to increase in order to truly balance the force and prepare it for the full spectrum of conflict?

We always talk about what the top line needs to be and there's been some reference to it today. I say that again bearing in mind that we are facing some very serious budgetary constraints. But it seems to me, we're trying to do a lot of things and we're not allocating the resources that are necessary to do them.

Dr. KREPINEVICH. I think the short answer is we're not going to dominate across the full spectrum of conflict. The scale of the challenges that we are confronting is significantly greater than we saw in the decade of the 1990s. The form of the challenges is changing. There are a number of what I would say cost-imposing strategies that we confront, that are not going to be easy to get out from underneath. Irregular warfare is a cost-imposing strategy, if you totaled up what radical Islamist groups are spending versus what we have to spend to compete. If you look at space, it's a lot easier to take down satellites than it is to put them up and sustain them. Cyber warfare, as Dr. Hamre said, our infrastructure is very vulnerable. As I mentioned, the costs of projecting power are going up as a consequence of G–RAMM and other guided weapons systems.

So I don't think that, quite frankly, we are going to dominate across the spectrum of conflict in the future the way that we did in the 15 years at the end of the Cold War. The British faced this problem about 100 years ago. Also, the character of conflict was changing dramatically, particularly at sea, and they also faced just fundamental budget constraints, somewhat similar to what we face now. One senior British Government official I think summed it up well: "We're running out of money; we'll have to start to think."

I believe that there is real value in looking at our overall strategy. Senator McCain mentioned President Eisenhower. When the Soviets detonated their atomic bomb, first the Truman administration and then the Eisenhower administration used the term "wasting asset." We had an enormous advantage before 1949, which was our nuclear monopoly. Once the Soviets tested their weapon, that monopoly was a wasting asset. It was going away.

If you talk to people who are really serious strategists, they will say that the whole business of strategy is identifying where your wasting sources of advantage are and identifying, creating, and exploiting new sources of advantage. I think that is what we have to be about now. I think we're really in a pinch because the problems

are getting more severe and the resources are getting tighter. This is not the situation you want to be in.

But again, a strategy that does a good diagnosis, does a good prognosis of what our options are, that explicitly looks not just to improve our own capabilities, but to impose costs on our rivals, that has to be the fundamentals of this QDR. If the QDR can accomplish this, then I think we'll have a much better feel coming out as to the wisdom of the specific decisions regarding individual weapons systems and areas of investment.

We've been cutting out the middleman. We go straight from the threat to the systems. There's a big area in there for strategy and concepts of operation that really take us from point A to point B. Absent that, it really becomes difficult to make, I think, informed judgments about where we need to be going.

Senator THUNE. My time has expired, Mr. Chairman. But Dr. Hamre, anything to add to that?

Dr. HAMRE. Sir, I first started working for this committee back in 1985, it was so memorable, at the height of the Reagan defense buildup. The purchasing power of the budget back then is almost identical to the purchasing power of today's budget in real terms.

But back then we had 20 prime contractors. Today we have four and a half. We had 300,000 troops in Europe. Today we have 30,000 troops in Europe. We had 20 combat aircraft in production. Today we have about three, I think. We bought 900 combat aircraft in 1985 and this year we're going to buy about 120. We were buying 1,200 tanks and 1,800 combat vehicles a year. We're now buying 150.

Costs have just skyrocketed, people costs and hardware costs. Unless we get at this underlying problem, adding a little more top line isn't going to buy us a lot more defense. I hate to say it. The trends are wrong here and we have to find a way to live with the requirements, be more disciplined with requirements, as Dr. Krepinevich said, think our way a little more creatively than just the old brute force solutions, and figure out a composite way that we're going to try to address as many of the needs as we can.

We can't address them all. Our budget isn't possibly big enough. We're going to have to temper our appetites. I think the Secretary was trying to do that with this budget. Only you can decide how much the Federal Government ought to devote to defense. Obviously, I think it's an important investment that we ought to make for our future. But you're the individuals that have to decide that.

Senator THUNE. Thank you, Mr. Chairman.

Thank you very much for your contributions to our better understanding of these issues.

Chairman LEVIN. Thank you, Senator Thune.

Senator Hagan.

Senator HAGAN. Thank you, Mr. Chairman. I too want to applaud Secretary Gates's focus on restoring budget discipline in the DOD, and obviously the acquisition process is critical in this component to restoring budget discipline. I thank the two of you for your testimony today and I enjoyed reading your written comments. They certainly are thought-provoking and raise a lot of concerns.

Dr. Hamre, in your opening statement you were talking about the fact that we have private contractors developing policy and that, I think you stated, it's your belief that these policy decisions should be brought in house. I obviously am aware that we have private contractors doing security and a lot of other issues, but you did raise a red flag with me when you commented on policy.

Do you see this as changing? Do you see this as status quo? Can you be specific?

Dr. HAMRE. I probably was too careless on how I wrote the statement, because I do not think that the private sector is making policy for the United States. But you find a very blurry line that separates contractor personnel and policy personnel inside the Department these days. I think that does need to be clarified.

Now, let's get at the underlying causes. The underlying causes are we have had effective pay caps on civil servants for 17 years. It's hard to get talent. We have not brought in and sustained and replenished the talent that we need in the civil service that we should have. We have not updated the Office of Personnel Management rules. It's so hard to hire a civilian. It's a heck of a lot easier to hire a civilian through a contractor. Just issue an O&M contract. That takes a couple weeks. Try to get a new position created and advertised, et cetera, it takes years. So it's just a lot easier.

We have placed so many impediments in the way of rationally managing the civilian force. It just was easier to use contractors. It wasn't because people were wicked. It's because people were trying to solve a problem.

As we get at this, please look at the underlying causes for it. This is a big, serious, and difficult problem. There's a very good book that's just been written. Scott Gould and a colleague, I don't remember his name, just wrote it, and it really delineates this fairly well. I'd encourage you to look at that as a starting point.

Senator HAGAN. Thanks.

I also wanted to ask a question about safeguarding the industrial base. Dr. Krepinevich, you mentioned this a few minutes ago. I'd like to ask you about the impact that cuts could have on our industrial base. Obviously, when we cut major programs we run the risk of diminishing the industrial base, which can in turn result in a reduction in the quality of systems and platforms and an increase in the unit cost.

I also think that we need to be cognizant of the fact that when terminating programs there's obviously a significant termination cost, too. But none of this is to say that the programs shouldn't be subjected to a rigorous cost-benefit analysis and phased out if they don't make the grade. But certainly the impact on the industrial base is one of the factors that has to be considered when we talk about major program changes.

I was just wondering what your thoughts are about the impact of the Secretary's proposed cuts on the industrial base?

Dr. KREPINEVICH. Again, I'm not an expert on the industry, but certainly if you look at the stock prices, Boeing Corporation was the one firm I think that was hit particularly hard, at least in terms of the way people on Wall Street look at things. I'll just give you one example. Back in 1997, I believe there was a down-select on the Joint Strike Fighter (JSF). There were three firms com-

peting, McDonnell Douglas, Boeing, and Lockheed Martin. The down-select was Lockheed-Martin and Boeing, and McDonnell Douglas essentially sat there and said: "There's not going to be another tactical fighter bid for another 20 or 30 years, perhaps we can't stay in business," essentially, and they merged with Boeing.

So I do think that, as John has said, we've gone from so many prime contractors down to so few that now this becomes an issue when you terminate a program. It's not to say that you can't terminate the program, but if you think that firm has a lot of talent to offer, you want to preserve the option of more firms bidding, what can you do? If you say we're terminating production on the F–18E and F–18F; okay, is there a bid somewhere down the road where Boeing is going to be able to keep its aerospace design team together, its production facilities together? Maybe there is, maybe there isn't. Maybe you just have to make a hard choice.

But for example, Boeing was very much engaged with building unmanned strike aircraft for the Air Force. The Air Force cancelled the program a few years ago. Again, if you're talking about personnel costs, maintenance costs, and so on, fewer man-hours required to operate these kind of aircraft, less pilot risk, less pilot training obviously. These aircraft have longer range, typically, because you don't have to have a person in the aircraft, and so on.

If an air-sea battle concept for stabilizing the balance in the Far East we could use something like this, then you might get the best of both worlds. You might, say, cancel the relatively short-range FA–18, you might move to a longer range ground system, and you might bring on another unmanned system, the NUCAS, which is being built by another firm, and again maintain that healthy competition, maintain that firm in the base, and yet still make program decisions that were consistent with the way you see the military having to operate.

Senator HAGAN. Dr. Hamre?

Dr. HAMRE. It's pretty hard to hold a competition. Look what we're struggling with on the tanker. It's a big buy. It's going to be a huge investment. We can't get a competition with only American producers. That's going to be more the norm.

I think again it's very hard to sustain a competitive industrial base if you don't buy enough stuff. The industrial base is increasingly getting fragile. I thought the DDG–51, the DDG–1000 decision was rather clever because it really does put that competitive picture back and make people decide, what do we want to do in terms of ships. We just can't afford $3.5 billion destroyers, but we can afford a $700 million LCS.

Again, it comes back to the point that we're going to have to temper our requirements expectations. When we do have to buy the very top end, we have to buy quality, but there's probably not going to be very many, and it has to then be able to leverage a larger force. I think this is what Dr. Krepinevich was saying, is that we have to do a lot more campaign modeling.

But we are losing the capacity for competition in our industrial base. We will still have an industrial base.

Senator HAGAN. Thank you.

Chairman LEVIN. Thank you, Senator Hagan.

Senator Chambliss.

Senator CHAMBLISS. Thank you, Mr. Chairman.

Gentlemen, thank you for your very frank and concise comments here. If I hear what both of you are saying with respect to this budget, that really the problem goes way beyond the budget. This is a 1-year decision and the real problem is the acquisition process. Dr. Hamre, when you say that increasing the top line doesn't give us the ability to add much more in the way of weapons systems or assets, that's a serious problem that I think goes way beyond the budget process. It means that we have to get serious about addressing that, and certainly Senator Levin and Senator McCain are moving us in that direction.

Dr. Hamre, you were last at the Pentagon, as I recall, at the end of the 1990s, with the change in administrations. During your tenure there in the late 1990s, was there any consideration given in a 5-year program to looking out to a conflict where we might have to defend our men and women against IEDs or explosively formed penetrators, and that we'd need mine resistant ambush protected?

Dr. HAMRE. Sir, no, not that I recall. I don't recall any systematic review of that. That was something that really emerged with this war.

Senator CHAMBLISS. The reason I ask that is because we wouldn't expect it. I'm not sure even the previous administration had any conversation about that early on. It's something that developed. If we look to where we're going to be in a 5-year projected plan, Lord knows, the way the world is changing today, how can we even project who the next potential enemy may be even within a 5-year period?

Again, my point being that, Dr. Krepinevich, you alluded to the fact that we have to get away from the next war-itis and let's concentrate on winning, and that's what this budget, at least I think your comment was, seeks to do. But by the same token, we've still got to be prepared, and we have to certainly imagine that conventional warfare is not out of the realm.

What concerns me about this budget is that I think we're giving up a capability that we're going to need, not next year, not the year after, not 5 years but maybe 20 years. Who knows when it may be, but we're giving up a capability in this budget with the termination of certainly the F–22, the C–17, and maybe parts of the FCS, that we're going to need for the preparation of that.

Dr. Krepinevich, you mentioned air superiority, air dominance, so I'll ask you about it first. But John, I want your comment on this, too. We've not lost a foot soldier to enemy aircraft since the Korean War. It's imperative in my mind, and I think you said this, that we have to maintain air dominance and air superiority.

You also talked about the exercises that we've been through recently, going back to 2002, and there have been others since then, where when we put our current component of aircraft, F–15s and F–16s, into the air against current weapons systems that are available to the Chinese, and the Russians, they don't survive. They get taken out regularly. When we put those weapons systems into a scenario of a theater where they're up against S–300s, for example, and we know they're being improved, they don't survive.

The only thing that we have in our inventory that gives us the ability to maintain air superiority and air dominance is the F–22.

If we terminate the F–22 now, we're going to have a gap in there before we ever get to the next fighter, obviously the JSF.

So my question to you is, let's talk for a minute about the importance of air superiority. This decision on 187, I don't know that anybody has the answer on what the number is. But the Air Force says it's 243. They said at one time it was 787, I think it was. So how important is air superiority? Is there a current weapon system on the drawing board that's going to ensure within the next 5 years and 20 years from now that we can maintain air superiority without having a sufficient complement of the F–22?

Dr. KREPINEVICH. I think air superiority has become a more complex issue over time. For example, if you're looking at the Far East, part of the equation is addressing the question of what does air superiority mean against an enemy with a missile force? What does it mean to have a fighter squadron at Kadena Air Base when you have waves of Chinese ballistic missiles that can take out that air base?

So what does it mean to have air superiority when it's not just a matter of aircraft on aircraft, but you bring in the electronic aspect of it? I really can't get into it here, but there was a fairly famous exercise between American aircraft and Indian aircraft a few years back. As you alluded to, F–15s and F–16s didn't come out looking too well in that engagement.

But it's not just a matter of the aircraft itself. It's a matter of other factors, and in particular one aspect—it goes by the name of digital radio-frequency memory systems and capabilities that have to do with electronic warfare, that can play a significant role no matter what aircraft you're talking about.

So I guess my answer is that I don't know if the number 187 is correct. I don't know if the number 260 is correct. If I were Secretary Gates, I would say: "Here's the problem in the Far East. Do I need F–22s over Taiwan? Okay, if I do, where can I base them? If I can't base them, how can I tank them? Where are the tanker orbits going to be? Are they going to be vulnerable? Is there some other way I can deal with this problem? Are there other capabilities I can bring to bear?"

Back in the 1980s, Senator Levin had enough material to work with in terms of air-land battle that he produced a thoughtful paper called "Beyond the Bean Count," which was how do we think about, beyond numbers, beyond 187 or whatever it is, how do we think about what we need. You could have that kind of a thoughtful debate then, and I think that's what's lacking now.

So when somebody says 187 and you say why isn't it 240 or 750? Again, once you get into the business of sitting down and developing warfighting concepts and testing them out, you don't have a mathematical outcome that says winner and loser, but you begin to see what professional military people begin to take out of that toolbox, what they say they need, how they're going to use it.

Just another example. In the period between the two world wars there were literally hundreds of war games conducted at the Naval War College looking at the problem of the Far East, specifically Japan. It was called War Plan Orange. At the end of that war, Admiral Nimitz was able to say that nothing, even the attack on Pearl Harbor, surprised us in that war. The only thing that sur-

prised us, that hadn't been played out at the Naval War College, was the kamikaze.

We have war games today, these title 10 war games, they're good, but they come along only once a year. They're sort of Ben Hur productions, casts of thousands. What we need, I think, is a kind of persistent study of these problems, so that we'll never get to the exact answer. As you pointed out, we're always going to be surprised in some way. But will we get close enough so that the decisions we make, that whatever turns out to be with the F–22, is closer to the right decision.

Dr. HAMRE. Sir, we're not going to go into combat without air superiority. It's just such a foundational issue for us that we're just not going to do it.

Now, I think the Secretary's view is that the F–35 will be an adequate substitute for the F–22. The only thing I would like to put on the table is like Andy, don't really know what the right ultimate number is. But this is an airplane we're going to operate for 30 years. If we only buy 187, you're going to take off 24 for a training squadron. Then you're going to take off probably another 30 for long-term maintenance. Then we're going to lose an airplane, probably one every year or every other year. We're going to have to have this force for 30 years.

So I think the question is, is it an adequate high-end force at this number over time. I think you ought to be looking at that as you're making your decision.

Senator CHAMBLISS. Thank you.

Chairman LEVIN. Thank you, Senator Chambliss.

Senator Burris.

Senator BURRIS. Thank you, Mr. Chairman.

Our witnesses have been very informative and I'm sitting here trying to soak all this in, especially for the budget that's coming up. But my mind keeps running that 5-years-out situation and that 10-years-out situation. I just left a Boeing plant a couple of weeks ago, watching them building that F–18. They tell me that they had put in the budget for 330 something and I think in this budget they cut it down. Boeing is concerned about the continuation of the line.

When you say our industrial base is shrinking, I'm just wondering what's going to happen if there's nothing else that's going to come to use that line. I look at all this technology that they've put in in this major plant over there, they hire quite a few Illinoisans that come across the river over into St. Louis, so I'm looking at it from two perspectives. One is to keep our citizens working, but also to keep our military strong; but also to make sure that we have a reasonable budget in the DOD.

We're trying to balance all of these various interests, which leads to so many questions, I'm trying to figure out which one to put first. Are we letting the foreign competition absorb our industrial base? Are we not going to use that industrial base in the future? What happens to the Boeing line when they shut down the F–18, which I understand will be replacing two or three of the Navy's current fighters that are on those ships because of the technology that's in the F–18.

Can you enlighten me, Dr. Krepinevich or Mr. Hamre, either one? Please, help me out.

Dr. HAMRE. I think it's important to look at the health of Navy aviation. We have 11 carriers today. We're going to probably go down to 10 carriers over time. But when it comes to fighter aircraft, we only have enough F–18 aircraft to put on about seven of the carrier decks. We have not been buying enough F–18s.

The F–18 aircraft was originally designed for about 6,000 hours of service life. The average of the fleet today is almost 8,000 hours. We have really flown these aircraft hard.

So we have a combination of an aging inventory and an inadequate number because we haven't been buying enough over these last several years. The question I think is should the Navy buy a few more F–18s for a couple of years until the F–35 comes in quantity to replace it. Now, the F–35 is supposed to be the replacement airplane for the Navy over time. It's going to take a while to get them.

I personally think that there is a gap and we ought to address it because it's putting in question the force structure. Now, this budget I believe is going to buy 30 or something.

Senator BURRIS. 31.

Dr. HAMRE. So it is keeping it alive as it's being reviewed in the QDR.

Senator BURRIS. But my Boeing people are saying to me that those 31 are just not enough to keep the line going in terms of costs and overhead. Am I wrong?

Dr. HAMRE. Sir, I don't know. I don't know the answer to that.

Senator BURRIS. That's what they're saying.

Dr. HAMRE. I don't know the answer. I've spent some time with the Navy on this and again it's a question of how do we provide aviation for a maritime presence when we don't have enough airplanes to outfit the carriers. I think there's a very legitimate question of whether or not we ought to be buying some additional F–18s in the near term, until the F–35 does come on line.

My personal view is that we probably should. But again, I think that's a decision that's in the out years. I'm afraid I just don't know the answer on whether 31 is adequate or not. My experience has been that there's always a minimum that is unbreachable, and we have those successively lower numbers.

But I would look at it. It's worth looking at, sir.

Senator BURRIS. Dr. Krepinevich, we'd have the same problem with the C–17, wouldn't we, in terms of whether or not we have—what is the number there?

Dr. KREPINEVICH. I think John is probably better positioned to answer on the C–17.

Let me just add something on the F–18 in terms of how you might think about the issue. If stealth is important to you, you gravitate away from the F–18. If range is important to you, you gravitate away from the F–18. If cost is important to you, then the F–18 presents a good argument.

If you need stealth, then you're going to go with the F–35 or the NUCAS. If you need range, you're going to go with NUCAS. How do you plan to fight? Do you have to have all of one aircraft on the deck because you want to minimize the amount of logistics and spare parts variations you have? Or can you mix and match? Can you have some different kinds of aircraft on the deck of a carrier?

How do you measure what's important for these aircraft to do? Again, Senator Levin's "Beyond the Bean Count" numbers of aircraft, but when I come and get briefings from admirals, they say: "back in 1991, we could hit this many targets off the deck, this many sorties per day in carrier strikes." Then we got precision weapons and it's been going up ever since.

So if the measure is how many aim points can I hit with a carrier strike per day, you could argue a carrier strike wing could be significantly smaller than it was back in the early 1990s and you'd still have more striking power. So even though you only have enough aircraft, as John says, to put on seven decks, who says you need the same number of aircraft on a deck when you can hit more targets, many more targets, today than you could 20 years ago?

So again, it depends on what you want and how you measure it. That ought to depend upon what the problem is and how you, as the military, see yourself conducting operations to solve those problems.

Admiral Tom Fargo, who I have enormous respect for, was our commander in the Pacific, said some day the Navy and the Air Force ought to sit down and figure out how we're going to deal with this situation together. What's the mix of stealth and non-stealth, short- and long-range, air base and carrier base, manned and unmanned. When are we going to sit down and do this?

I think the frustration is because we really haven't done a rigorous job of addressing these questions, that we have a hard time coming up with good answers.

Senator BURRIS. On the industrial base question, do you have knowledge of whether or not, in terms of this budget, we are getting suppliers from the foreign markets for our military budgets?

Dr. KREPINEVICH. Just one thing on production. You could allocate money or funding for 31 aircraft, but the production line and the second tier suppliers will begin to shut down long before the last aircraft is produced, because they'll stockpile those parts that they need to produce those aircraft. Of course, it goes along an assembly line. So you'll begin to shut down parts of the line as the last aircraft are moving through it.

I'm not expert enough and I don't know enough about Boeing to say when that would happen. But everything doesn't stay in place until the 31st aircraft rolls off the line.

Dr. HAMRE. Sir, in my testimony I wrote about the C–17, and I really do think it merits the committee look at that. Again, my concern is that the strategic airlift fleet, 65 percent of it are C–17s, which is good, but 35 percent are old C–5s. The oldest C–5s, the C–5A models, are about 20 percent of the fleet, and their current average age is 37 years old.

Now, it's a remarkable airplane. The original Wright Brothers flight could have taken place inside that airplane. It's amazing.

Senator BURRIS. Yes. I was down at Scott Air Force Base, where General McNabb was saying that they're concerned about the future of those C–5s.

Dr. HAMRE. We're just not going to be able to sustain the C–5 for 50 years, which is what in essence we're going to have to do if we shut down the C–17 line.

Senator BURRIS. Are some new ones coming down the line? Are there some new cargo—the new one is the—what's the big cargo that's coming on to replace the C–5?

Dr. HAMRE. The C–17 is the only military transport that is currently in production. Now, the Air Force has a very long-range program which I think is called the Joint Theater Lift System or something like that. If you were to go back, it looks an awful lot like the old Advanced Medium STOL Transport back in the early 1970s. It would be a smaller version of a C–17.

It would be a lot longer discussion. I'd be happy to come up and talk with you about it. But again, my personal view is that we really need to ask the question, how long can we rely with a third of our strategic airlift fleet being quite old airplanes? I think that's an issue you need to seriously look at.

Senator BURRIS. Thank you, gentlemen.

My time has expired. Thank you, Mr. Chairman. I appreciate that.

Chairman LEVIN. Thank you very much.

Just very quickly, Dr. Hamre, on the requirements issue that you made reference to, I want to give you some reassurance on our bill, that there are some provisions there that do address that requirement problem, where they keep adding requirements without consideration of cost. There's a number of provisions I won't go into, but maybe the key one is section 201, which requires this early tradeoff between cost, schedule, and performance by having the cost assessment person, who hopefully will be independent, to be at the table. Then there are some other provisions which we can get into perhaps later if there's a second round, on competitive prototyping in section 203. So there's a little effort here, at least, I hope adequate, but not as much as probably you point out correctly we would need to get at the excessive requirements and the continual add-on of requirements in a number of provisions.

Now, I'm going to have to leave for a few minutes. Let me set the following order for the next 15 or 20 minutes. Senator Begich is next. If a Republican comes back, we would switch over. Then Senator Bill Nelson if he comes back, then Senator McCaskill. Then we would start a second round, and I expect I'll be back by then.

So I thank my colleague.

Senator BEGICH [presiding]. Thank you, Mr. Chairman.

Thank you very much. Thanks for being here. It's very informative for me. I'm a new member, so this is a lot of good information coming in my direction.

I want to show you something and then maybe—this is a general comment. I'll make a statement and then get a general comment, and then I have some very specific questions to some of the commentary you made.

It's going to be hard to see, so I'll just show it and you'll have to trust me here. This is the expenditure outlay for DOD in regard to gross domestic product (GDP). In World War I it shows, you see the spike; World War II, you see the spike. Here we are over here; there is no spike.

There is some discussion that the budget should be based on 4 percent of GDP and we're at about 3.4. That's one debate. Then there's the other debate based on capabilities and requirements.

Can you just give me some general thoughts? When you see a chart like this, it stands out pretty strongly that here we are in two theaters and yet the spike is a little bump, and therefore it puts a lot of strain within the internal budgets of these different forces.

So could you just give me a general comment, and then I have some very specific things I want to try to get from you, from either one of you?

Dr. KREPINEVICH. I don't think the 4 percent metric is at all useful in thinking about what our level of defense expenditures should be. In times when the threat is high, as your graphic shows, we were spending almost 50 percent of our GDP during World War II on military issues. In other periods where the threat was very low, it certainly seemed to make sense that it could go below 4 percent of GDP.

It also depends on your strategy. If you have a clever strategy, you can get by with fewer resources. So in a sense, writing blank checks is not quite an invitation to think dumb, but it certainly isn't a prod to think cleverly. In fact, people in the private sector who do strategy say that the best strategy is done when the wolf is at the door, in other words, when resources are tight and problems are growing.

In public finance there's a term called the free rider principle. Basically, if somebody else is willing to do it for you, then you're willing to let them. Again, there's this issue of the more you can get your allies to do, the less, hopefully, you have to do. So in a sense, it can in some circumstances make you less attentive to the need or the opportunities that are presented by engaging other countries as prospective allies.

Then finally, risks. You can never eliminate all risks to your security. So in theory you would spend, if you had zero risk tolerance, 100 percent of your GDP on defense, sort of an extreme example. But different people have different levels of risk. So if you are deathly afraid of something going wrong in a particular area you may be willing to invest a lot more than I would. So it's a judgment call there in terms of how much risk.

Of course, then the final issue is opportunity costs, what other priorities are being unmet. President Eisenhower, for example, when he took office and had his famous Solarium Strategy Review, said that he would not support any strategy that undermined the economic foundation of the country, because that was the key to the country's ability to compete long-term. So his risk profile, if you will, essentially said, "I'm willing to take some risks in terms of the level of defense spending in order to ensure that I minimize the risk to our economy."

So there's a number of factors, and again I don't think the 4 percent number is particularly helpful.

Senator BEGICH. Thank you very much.

Dr. Hamre, do you want to add to that?

Dr. HAMRE. Sir, I take a much simpler-minded approach. I used to be the comptroller and then the chief operating officer at DOD. For me the concern is that we have to put together 5-year plans

and they're real, and we really are making decisions today that impact our force 4 and 5 years out. If we were to establish some artificial metric that we will budget X percent of GDP, right now we'd be cutting to compensate for a recession, and I just don't think that, just from a mechanical standpoint, that would be really hard on the Department.

I've been around for 30 years and I've seen these debates. Congress is just not interested in a mechanical process that ties their hands. They want to decide every year how much they want to put to these things. So unfortunately, it's very incremental, and I don't think it's probably going to change.

Senator BEGICH. I hope you can be more positive, but I just talked to my staff on it while we were listening to some of the testimony here. I'm a former mayor and I know that the 1-year process is painful. That's why we did 5-year labor contracts. That's why we did 5 year contracts with regard to services, because it created better balance and you could focus on management of those resources rather than paperwork for those resources, and you became more efficient. The system here is not very efficient, as you pointed out in your testimony.

I found it interesting, your discussion of as we build a defense strategy, for both of you on this. Obviously I'm a little parochial here on the missile defense system in Alaska and I see it from a strategic purpose. It sounded like what you were saying was sometimes you have to have multiple systems to keep your opposition also spending some money and causing them some unknown on where you're at and where you'll go.

I see the missile defense, obviously, again as a very important strategic, especially in the Pacific Rim, as well as I think one of you mentioned the issues of Iran in developing our systems better and better, so we have greater capacity. But I also see it that it's a way to force those that are thinking of specializing in certain weapon systems, they have to look at all ours to figure out how to balance against them, which means an economic hardship on them potentially.

Do you want to expand on that, or do you see that, what I'm laying out there, as a positive, as a piece of the defense strategy? Either one of you want to comment on that?

Dr. HAMRE. Each of these different capabilities brings strengths and weaknesses. The difficulty of the national system, of course, is that it's dependent on sites that are crucial for the architecture, both the long-range radars as well as the interceptor fields, and they're vulnerable. We will try to protect against that, but they are vulnerable.

On the other hand, when you get a mobile capacity, like the Aegis with the SM–3, it doesn't have that vulnerability. It has a different vulnerability. So it's really the range and mix of these resources.

I think this administration has decided that they want to put more emphasis on the mobile assets, and I think there's a good case for that. Now, it would be a different case if we didn't already have a commitment to the deployment that already exists. Its biggest impact is obviously for the third site in Europe. But I think they believe that the Aegis with SM–3 is actually superior because

of its flexibility and it avoids a lot of complicating issues with basing. So I think that's why they're thinking about that as a substitute for it.

This is not like the debate we had in 1993, when President Clinton was elected. President Clinton had promised to cut $60 billion from the defense budget in his campaign, and 60 percent of those cuts came in missile defense. That's not the case here. In this case I think it's a repackaging of the investment. There is, I think, a sentiment that too much emphasis has been placed on the fixed base deployments as opposed to the mobile based deployment, and I think that's what they're trying to address.

Senator BEGICH. My time is up, but if you have one comment on the economic component, too?

Dr. KREPINEVICH. Just first, I think John made excellent points. I think as long as you're talking about ballistic missiles with nuclear weapons on them, it just becomes very hard to achieve the level of intercept probability that you need to talk about imposing costs on the other side.

I will say, though, that if you look at certain dimensions of ballistic missile defense, for example there are concerns that the Chinese are developing ballistic missiles with maneuverable warheads to go after carriers in particular at significant distances from their coast. To defend against a ballistic missile with a ballistic trajectory, it's a lot easier calculation and it's a lot easier intercept. They have kinetic systems, SM–3, as John was mentioning, and so on, that can go after these kinds of warheads.

Directed energy systems that are still interesting but not yet proven, would be better to go after the maneuverable vehicles because the computational problem is different, because they are maneuvering, they're not following a predictable path. Plus, maneuverable vehicles, because they do maneuver, spend more time before they get to the target, and that allows a laser with a given power level to lase more or burn more on the warhead.

I probably sound like I'm getting a little bit too technical, but really there are a lot of moving parts to determine this. You probably want to take a look at that before you came to a determination as to whether you could really impose costs by pursuing missile defenses.

Senator BEGICH. Great. Thank you very much, and thank you. I've expired my time, but thank you for your comments.

Senator MCCASKILL. I Thank you both for being here.

Senator Burris jumped my area a little bit because I wanted to talk a little bit about F–18 versus F–35. You outlined it pretty well, Dr. Krepinevich, about cost versus stealth and range. I've heard that the Secretary of Defense has said that if we can get 80 to 85 percent of what you need with a cheaper way to go, we should do it. I'm trying to get a handle on how we, and correct me if I'm wrong, that the F–18 does 80 percent of what the F–35 does, what JSF does, and it's 40 percent of the cost, about $50 million versus $130 million a pop.

I am trying to figure out, it's almost unfortunate for me in a way that St. Louis figures into this equation, because the auditor hat that I wear here in terms of cost-benefit would have me probably

pounding for F–18s just based on that analysis. Now, the added whipped cream and cherry are obviously those jobs in St. Louis.

But just based on the data as it relates to capability versus cost, can you speak to that as to why we're doing 31, to say nothing of the gap that you talked about? We're talking about a serious gap on carriers in the next 2 or 3 years. GAO is telling us that the F–35 is not on time, it's not on schedule. We have some problems in terms of the technology. We're not ready to buy it yet.

This is really serious. How many carriers are going to sit empty for 3 or 4 years if we don't come down on the side of a blend here going forward? Now, I get the countervailing argument about what do you have to fix them and the maintenance capabilities and all that. But if you would speak to that briefly. I know we've covered it. I don't want you to go over new territory. I want to home in on the 80 percent capability and the 40 percent of the cost.

Dr. KREPINEVICH. I think if you're just looking at range and payload, the range and the payload of the F–35 and the F–18 are roughly the same. I don't have the details. So if it were just those two metrics that you were using, certainly when you introduce the cost metric the F–18 would look quite good.

If you introduce stealth into the equation, then the F–35 really dominates in that area relative to the F–18. How survivable is this plane going to be? How well is it going to be able to penetrate?

Advocates of NUCAS, the unmanned system, would say that's all good, but NUCAS has payload, it has stealth, it has range, and it may have lower operational costs because we don't use a pilot, and so on. If range becomes important, and quite frankly, that's becoming a growing issue for the Navy because as the Chinese develop their capabilities the carriers are probably going to have to operate further and further from China, at least in the early stages of the conflict.

But then, there's always another question. The other question is sea-based versus land-based. How do I think about that? Or Admiral Fargo's question was, maybe if the Air Force can take down a lot of the Chinese ability to see deep into the ocean, then the carriers can move in fairly quickly and we don't need stealthy aircraft. So that leads you to how are we going to fight, how are we going to operate this air-sea battle concept?

Then there are folks who are saying if we can harden our air bases it may be cheaper to put unmanned land-based aircraft on them, that may be the cheapest solution of all. Then finally, as I mentioned before, I have admirals who tell me essentially you could have significantly fewer aircraft, in other words, you could spread those 7 carriers' worth of aircraft over 10 or 11 decks, have fewer aircraft, but still be able to strike a lot more targets than you could 15 or 20 years ago, because now all these planes carry precision weapons that can hit and you can be confident they have a very high probability of hitting what they're aiming at.

So it comes down to what metrics do you choose to evaluate these various options against and then how do you value the metrics. Depending upon how you do that, you come up with an F–18 as an answer or the F–35 or a NUCAS or maybe a different answer altogether.

Dr. HAMRE. Senator McCaskill, I personally don't look at this as a tradeoff between F–35 and F–18. There's a difference in timing between these two fleets. I personally look at the health of the current F–18 fleet and it's already beyond its design life. If we're going to be able to outfit the carriers, and we probably have several hundred billion dollars invested in the carriers, it doesn't make sense to me that we wouldn't put airplanes on that investment over a period of about 10 years until you can start getting F–35s in quantity.

So I look at it from a much narrower perspective. We have a substantial investment. We use the carriers every day. We want a naval presence every day. It's a matter of whether the air component is up to speed and should we be making an additional investment to ensure that it is up to speed for that period.

So I don't personally put it in the tradeoff calculus between F–35 and F–18. I think instead that it's a question of a serious investment in the fleet, and the need to maintain that over the period of the next decade.

Senator MCCASKILL. It's hard. But with the C–17, we're flying the wings off of them. The F–18, in terms of the utility of it, even though I support what the Secretary is trying to do as it relates to, kind of arm-wrestle this bear to the ground, the weapons systems and acquisitions and how we do this in a more thoughtful way, rather than the way we typically do it around here, which is all of us fight each other based on what's built in our States. That's probably not the best way to equip the military.

Since we've covered a lot on the JSF and the F–18, I want to take a minute to talk about contracting and the irregular warfare issue. It is not talked about, I think don't enough, as a component of modern warfare. We clearly have taken contracting to a level that the military would have never envisioned 20 or 30 years ago in terms of what contractors are doing in the contingency. You have spent a lot of time talking about the future of ground forces and what kind of ground forces we need.

I have asked repeatedly about the drawing down of contractors in Iraq and the building up of contractors in Afghanistan and whether or not we're going to change the way we embrace contracting going forward. We didn't learn lessons from Bosnia and I'm hoping that we've learned lessons. I was very proud that Secretary Gates embraces acquisition personnel to the extent that he did in his message, and I think he is serious about that.

But I'm not sure that we've figured out how to invade the culture in terms of contracting oversight within the military. You are both in a position to speak to that. I know that the folks in charge of the theater didn't think contracting oversight was part of their mission. They knew what their mission was and it wasn't controlling costs on Logistics Civil Augmentation Program, and it got completely away from us over there in so many ways.

I would like both of you to speak to that in terms of what you would urge us to do to get a handle on this, because I don't think we're going to go back to having our Army peeling potatoes.

Dr. HAMRE. This is an area that needs to be examined in depth and we need to take the anger out of it, because there's an awful lot of anger about it. We do need contractors on the battlefield. We

have depended on them for a very long time, and to get the technical support, not just peeling potatoes, but for example, maintaining night vision equipment. It's very sophisticated stuff. It's cheaper to buy that from the private sector than it is to try to bring it into the military.

So we really need to examine it carefully. We do not do well in managing service contracts in the Department. We have a very deep culture that revolves around contracting for things, acquisition of things. We don't have anything like it for the acquisition of services. We've experimented with using contractors to supervise contractors, and I'm not sure that's a very good idea.

So this is a longer-term, serious effort that needs to be undertaken. We are going to depend on contractors in Afghanistan. We will depend on them everywhere, and we do need to ensure that we're getting value for money when we do it. This needs real attention. The Army let its eye off the ball on contracting expertise and it's starting to rebuild that because of some bitter experiences that they have had in Iraq.

Now, I will say I do suspect that we're going to have to invent some new ideas here. We have too high personnel costs, we don't have a big enough military, and we want to do more supervision. This just isn't coming together. So we're probably going to have to invent some new things for this, and utilizing instruments like Federally Funded Research and Development Centers (FFRDCs) to help with technical guidance and support to the government is probably going to be a part of that.

By way of disclosure, I serve on a board of an FFRDC. It's not to advocate. The company is doing perfectly fine. We're not going to put profit-seeking people in charge of other profit-seeking people. I think we're going to have to find other ways to get at that. I would be very happy to come up and talk with you about it. It's going to take some time to work out a formula for it.

Dr. KREPINEVICH. There's a principle in the business world that you don't outsource your core capabilities. I do think John's correct that a certain amount of outsourcing, certainly in terms of support activities, if you can do it in an efficient way, makes sense. What concerns me most is the outsourcing to some of the security firms of core military capabilities, which is the providing of security, conducting security operations.

I was talking to one of the Service Chiefs who actually spent a fair amount of time in Iraq. He said the number when he was there was somewhere on the order of 30,000 or so. I suspect the reason we had so many is because of the limitations on the size of the Army and the Marine Corps at the time.

But you really run into trouble when you begin to outsource core functions. It wasn't clear whether these people were or weren't under the Uniform Code of Military Justice. They move around the battlefield. Are you obligated to share intelligence with them on where the enemy might be? If they run into trouble, should you take your rapid response force and dedicate it to their support when some of your uniformed people could be getting in trouble? They don't operate under the same standards of discipline that soldiers do. Obviously there have been a number of very unpleasant

incidents that are associated with contractors operating in poor discipline.

If the goal is to save money, it's not clear over the long term that we do save money. In a sense, it almost seemed to me that the U.S. Government was competing against itself for the services of these people, engaging in bidding wars with Blackwater, up to $150,000 to get a Special Forces noncommissioned officer (NCO) to reenlist.

Then I quite frankly have concerns about the political factor when firms like this begin to lobby Congress, contribute funds to campaigns, and so on, because it's not clear to me what their motives are. It's not like their motives are the same as the U.S. military's.

Finally, a lot of the people who seem to be recruited for these sorts of positions in some cases are people that were rejected by the military or foreigners. These are not draftees that once the job is over they go back home. Whether it's a fellow from Chile or Ukraine or somewhere else, these people in a sense are mercenaries and they're looking for the next war. Again, it's not clear to me that that's the sort of capability that we want to have after the war is over and looking for something else.

So it was done, I think, out of the stress of the moment, the necessity of the moment. But I really have grave questions about whether this is an approach you want to take when it comes to core military capabilities and functions.

Senator MCCASKILL. Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCaskill.

Senator Bill Nelson.

Senator BILL NELSON. Thank you, Mr. Chairman. I'll be brief.

Thank you, gentlemen, for your testimony. I would say good morning and I think I'm making it by about 10 minutes.

I want to get your opinion; Secretary Gates is proposing the Joint Cargo Aircraft procurement to cut the aircraft from 78 to 38. Yet, the Joint Requirements Oversight Council and the Defense Acquisition Board have both said that there is a requirement for these aircraft and they say 78. Indeed, the Quadrennial Review of Rolls and Missions supports that joint program.

So as we are looking to try to respond to the threats in the future, where we can't rely on big cargo aircraft, is this a mistake to cut that program in half?

Dr. HAMRE. Senator, I'm embarrassed to tell you I don't know very much about the program. I'd be happy to learn more about it and come back and talk to you. What I don't know is the degree to which it is taking the burden off of the C–130s or it's filling a mission that can't be addressed by C–130s, I just don't know enough about it.

Senator BILL NELSON. I understand. It's a smaller, shorter takeoff and landing cargo aircraft that can get into a dirt field, for example.

Dr. HAMRE. Yes, sir.

Dr. KREPINEVICH. Is this the C–27, Senator?

Senator BILL NELSON. Yes.

Dr. KREPINEVICH. Okay. I'm a micrometer ahead of John Hamre in terms of understanding this program. My understanding is some

of the aircraft were going to the Army and some were going to the Air Force. Now all the aircraft are going to the Air Force. I think there is an issue with respect to how we think about homeland security, disaster relief, and those kinds of issues. I'm not an expert on what the demands are or how we're going to deal with various contingencies relating to homeland security.

I would say, though, that in terms of requirements, and this gets back to a point I think I made earlier, Secretary Gates is saying, "look, when I look at the threat profile I am coming to different conclusions than those that are derived from the defense planning scenarios that we've been using in the past, so I think these scenarios need to be updated." Once you update those scenarios and say this is what we want the military to focus on, then that creates the potential for a change in requirements. Okay, Mr. Secretary, if this is what you want to focus on, our requirements shift.

Certainly we've seen that happen over time. For example, with the F–22 there was a requirement a few years ago for 381, the Air Force said; then 243; now I think it's 187.

Senator BILL NELSON. Right.

Dr. KREPINEVICH. So I think what you have to do is look at how this QDR process is going to play out in terms of adjusted requirements. Then we may have 10 pounds of requirements and, as Dr. Hamre said, a 6 pound budget, and then you have to start to say we may have requirements, we can't fill all the requirements, we have tough decisions we have to make; how do we make those tough decisions?

Senator BILL NELSON. I agree, and we have to make those tough decisions. But I must say that I was surprised, because the whole thrust is quick response, surgical strikes, get into very difficult areas. So that was the idea, bring this cargo aircraft down in size, short field takeoff and landing, rough terrain to land on, et cetera.

Now, in the same vein, what the Secretary is proposing is to retire 250 of the oldest Air Force tactical fighter aircraft. The GAO found that unless the Air Force extends the life of F–15s and 16s or speeds up the introduction of new aircraft, then it's going to lack the aircraft to perform the air sovereignty alert mission all the way up through 2015.

So any comments from you as to whether or not it's prudent to retire that kind of aircraft?

Dr. HAMRE. I assume air sovereignty alert is airplanes based in the United States to fly up and intercept a Russian Bear bomber or something.

Senator BILL NELSON. Right.

Dr. HAMRE. I didn't know we did that any more.

Senator BILL NELSON. The Air National Guard does.

Dr. HAMRE. The Air National Guard has that as a mission?

Senator BILL NELSON. Yes.

Dr. HAMRE. So this is largely going to be retirement of Air National Guard assets? Is that what this would do?

Senator BILL NELSON. That's correct.

Dr. HAMRE. I see, and they're primarily old F–15s?

Senator BILL NELSON. F–15s and 16s.

Dr. HAMRE. Forgive me. Again, I'm not very up to speed on that. There is a real problem. We keep holding on to old assets and

make them keep them in service. Boy, it's tough to keep them going. It would be far better to find a way to modernize, but we're buying new things, it's hard to do that.

But I just don't know enough to question the Secretary's judgment at this stage, but I'd be happy to learn more about it. Andy?

Dr. KREPINEVICH. I'm sure glad John's taking these questions first because, like I said, I'm barely catching up to him. But again, I'm speculating a bit here, as John is. You get to a point where it's like the old car in the driveway that's dripping oil and the transmission's going, and you say: Look, I could keep this thing going, it's probably not going to perform all that well, it's probably going to be a hangar queen, it's going to spend more hours down than up. How much capability am I really getting out of this and what's the opportunity cost? Could I be investing, for example, in advanced radars that can help detect when an incursion might be occurring, or perhaps in UAVs, unmanned systems that can fly and incorporate the latest electronics and avionics in terms of having a wide area of surveillance?

What is the problem? Is the problem drug smugglers? Is the problem illegal immigrants? Is the problem a Russian Bear bomber? What are the new requirements today, as opposed to the ones that existed when continental air defense was a big issue during the Cold War?

So I think you have to look at the range of issues there before you can judge whether this decision makes a lot of sense or not.

Senator BILL NELSON. Okay. One more question regarding contractor rapes of American contractor personnel in the war zone. We've had difficulty. We've had a number of those rapes. The evidence was swept under the rug. The DOD not requiring the contractors to preserve the evidence, not setting a set of procedures whereby a woman who was raped would be attended to immediately, and the condescension toward a woman who was raped in the war zone.

We obviously need to have better DOD oversight and responsibility and referring these cases to the Department of Justice for prosecution. Has this come onto your radar scope, either one of you?

Dr. HAMRE. Yes, sir, it has. A couple of years ago at my little think tank we looked at this problem. It was a problem in the Balkans and it was a problem that we had, to a lesser degree, in Iraq. I think it's a serious issue because right now it's treated as just a moral deviancy question and get them out of country, terminate that person from employment, et cetera.

I think it's a little more serious than that, because what we do know is our opponents do try to target us for intelligence purposes through some of this contract activity. I suspect that the vector of convenience is also potentially a vector of vulnerability in some of it. So I think it ought to be taken much more seriously than we have been taking it.

We did for a time, I remember talking to General Jones when he was Supreme Allied Commander Europe about this as an issue. He actually had a conference on the problem in Brussels. But I must confess I have not followed through to know whether there was im-

plementation on it. But I do think it's worth your looking at and following through on it.

I think there's a bigger security issue, not just a moral justice issue here.

Senator BILL NELSON. Thank you.

Chairman LEVIN. Thank you, Senator Nelson, for your continuing focus on that issue.

I just have a few more questions. One of the things that Secretary Gates's announcement suggested was that we limit the growth of combat brigades to 45 instead of 48, as originally planned. What this does, it seems consistent with the goal that the increase in end strength will be used to build force stability and depth, and not just result in a larger version of a thinly stretched and less ready Army. In other words, we would use the end strength growth to thicken the existing units and allow the Army to quit using stop-loss as a force meeting tool.

Have you given any thought to that, either of you, as to what your reaction would be?

Dr. KREPINEVICH. Yes. I had the opportunity to spend a little bit of time with Secretary Gates and his rationale was as you've described it. The Army was building toward 48 brigades. In Secretary Gates's estimation it could only really adequately fill 45. So the concern on the part of the Army was the dwell time. The more brigades we have, the longer the dwell time in between rotations into combat.

From my point of view, I think the Secretary made a wise choice. In our assessment of the Army, we actually recommended the Army stay at 42 brigades. The reason was the strategy that the DOD is pursuing, which is a strategy of indirect approach and building partner capacity. If your strategy is building partner capacity, you need essentially a higher density of officers and NCOs. You need them because they're going to be your trainers and advisers. They're the ones who are going to provide the reinforcing rods in the Iraqi security forces and help build up and advise the Afghan National Army.

To me, that strategy makes perfect sense because it plays to our strengths, and it also seems to be the direction the administration is going in with the drawdown in Iraq and I think a limited buildup in Afghanistan. So there should be less concerns about dwell time as that deployment or redeployment is executed. So I think for my money Secretary Gates actually went too far in going to 45.

The other point I would make is, if you look at the structure of the Army proposal, 19 of the 48 Active brigades were going to be heavy brigades. That's almost 40 percent of the Active Force. Zero brigades were brigades that were going to be specifically oriented on security cooperation operations. On the other hand, of the Guard brigades, only 25 percent were heavy brigades.

This struck me as very odd, given that the Active brigades can be rotated more frequently into these combat zones. It's obviously an irregular war. Infantry brigades are structured more optimally for that if you don't want to create security cooperation brigade combat teams or increase the number of advisers and trainers. So I still have a bit of a caution on whether the Army isn't really ei-

ther consciously or subconsciously trying to get back to its heavy force comfort zone.

Dr. HAMRE. I take Dr. Krepinevich's view on this.

Chairman LEVIN. Thank you.

One of the things our bill does, our Levin-McCain Acquisition bill, is that we really have a focus on the development of independent cost estimates. We do it in a number of ways, one of which is we would have the cost estimator report, that independent person, report directly to the Secretary, to increase the independence, instead of going through someone else. Do you have any thoughts on that?

Dr. HAMRE. Sir, I think the Cost Analysis Improvement Group (CAIG) and the independent cost estimates have been pretty accurate through the years. I think they've had a very good track record. I don't think that there was ever a difficulty in getting their estimate in front of the Secretary. I think it routinely came in front of the Secretary through the program review.

It's just that when you're living with constrained budgets and you have this unrealistic pressure toward optimism, you choose to ignore the CAIG. It's not that there hasn't been the knowledge. It's that people have chosen to ignore it.

Chairman LEVIN. Should we make it harder to ignore?

Dr. HAMRE. Sir, you're making people——

Chairman LEVIN. Isn't that exactly what your point was here this morning, was that we have to rein in costs?

Dr. HAMRE. Yes, sir.

Chairman LEVIN. Doesn't that mean we have to make the cost estimator a stronger position? Isn't that the whole point?

Dr. HAMRE. But I don't personally think you're going to get that by just putting a requirement on top of people like this. I have a different view on why we're in this trouble.

Chairman LEVIN. Is that a requirement?

Dr. HAMRE. Pardon me, sir?

Chairman LEVIN. Is that a requirement, or is that a capability?

Dr. HAMRE. Which?

Chairman LEVIN. You said put a requirement on these people.

Dr. HAMRE. If we were to put a statutory hurdle to get over.

Chairman LEVIN. No, we're getting rid of a hurdle. We want direct access to the Secretary.

Dr. HAMRE. I honestly don't think that's the problem. I think that we knew that the F–22 was going to cost more than the Air Force said it was going to cost, and we budgeted the lower number. I was there.

Chairman LEVIN. Why was that?

Dr. HAMRE. It was too painful politically either to force them to cut the procurement quantity or to budget a high funding number.

Chairman LEVIN. Is it too painful politically in the executive or the legislative branch, or both?

Dr. HAMRE. Both.

Chairman LEVIN. Okay. We have given extraordinary flexibility to the MDA and we've given them immunity from the normal acquisition rules on missile defense. Some senior DOD officials have indicated they think missile defense should be held to the same standards of acquisition discipline as other major defense acquisi-

tion programs. Do you have a comment on that? Do you agree with that?

Dr. KREPINEVICH. I would defer to Dr. Hamre. I'm not knowledgeable enough.

Chairman LEVIN. You guys keep deferring to each another.

Dr. HAMRE. It should be subjected to the same discipline, of course.

Chairman LEVIN. One of the things that was proposed here, and I think you may have briefly commented on this when I stepped away, is the shift of funds in the missile defense area that is being proposed. Secretary Gates says that in order to, and these are his words, "better protect our forces and those of our allies in theater from ballistic missile attack," that he's proposing to add $700 million to field more of the most capable theater missile defense systems, specifically THAAD and SM–3 program.

Now, that follows the guidance provided by Congress last year, or it's consistent with the guidance anyway, that the highest missile defense priority, based on the findings of the so-called Joint Capabilities Mix Study. That study showed that DOD was not planning for even half of the interceptors needed for our regional combatant commanders. So we put the focus in our last bill on additional THAAD and SM–3 interceptors as the highest priority. We put less less emphasis on NMD for three reasons.

Number one was it is not as near-term, it is not as immediate. Number two, not as likely. Number three, that the operational effectiveness had not been demonstrated for the NMD interceptors, and that we should demonstrate their operational effectiveness before we continue to purchase additional ones.

That was the tradeoff, and I'm wondering if either of you want to comment or have a comment. I heard part of what I believe you said, Dr. Krepinevich. I'm not sure whether you, Dr. Hamre, had a comment that I missed. But could you comment on that point?

Dr. KREPINEVICH. I think the logic is strong there. I think theater defense is more likely to be used in the near-term. It gives you an opportunity to field test, if you will, systems, find out where their strengths and weaknesses are.

I think, with respect to defense of the Homeland, it has to be more than missile defense. It has to be ballistic missile defense. It has to be cruise missile defense and a holistic strategy that looks to both of them, plus nontraditional means of inserting weapons of mass destruction. I think the dog that isn't barking here is what I called earlier the G–RAMM threat, which really isn't addressed by a Patriot Advanced Capability-3 system because of the flight times and trajectories. The Israelis, for example, have come up with systems like Iron Dome. But again, the expense of the interceptor so exceeds the cost of the projectile that I think again we're going to have to look for novel ways to come up with defending against that kind of problem.

The only promising technology I see in the near-term has to do with the solid state laser technology, the Slab lasers, or prospectively the fiber lasers that they're coming up with. But even then, it's far from being a done deal.

Chairman LEVIN. Dr. Hamre?

Dr. HAMRE. Sir, I apologize for not being aware of the direction that you gave. But I think the logic is very strong. The threat we're facing every day tends to be from intermediate range missiles. Theater systems are appropriate investments right now, and we do have this foundation in national ballistic missile defense that we've invested in. We should make sure it works.

Chairman LEVIN. Thank you both. You've been really wonderful witnesses. I know how much all the members who were able to get here appreciated it, and we appreciate your service.

We'll stand adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

JOINT FORCES COMMAND ROLE IN JOINT REQUIREMENTS

1. Senator LEVIN. Dr. Krepinevich, there has been a longstanding concern that our acquisition system is not well-designed or run to procure the technologies and systems that we need for joint operations. Senator McCain and I try to address this issue partially in our acquisition reform legislation, by clarifying and emphasizing the role that combatant commanders should play in advising the Joint Requirements Oversight Council (JROC) in reviewing and establishing requirements. Under Secretary of Defense for Acquisition, Technology, and Logistics, Ashton Carter, endorsed the idea of Joint Forces Command (JFCOM) becoming a full member of the JROC in testimony before this committee in 2000. What is your view of the role that JFCOM should be playing in the JROC and in establishing joint requirements?

Dr. KREPINEVICH. The JFCOM is the only senior military officer charged with representing the views of the "Combatant Commands (COCOMs)-After-Next." Put another way, the future generals and admirals who will command the U.S. Armed Forces 7 or 8 years from now should be JFCOM's principal customers. Obviously, these future commanders cannot yet speak for themselves. They must count on the Commander, JFCOM, to speak for them. In this role, the JFCOM Commander's voice can best be heard as a member of the JROC and the Defense Acquisition Board (DAB).

Given current trends, these COCOMs-After-Next will encounter some very different challenges from those that confront us at present. The COCOMs will require new concepts of operation, which will themselves necessitate new types of equipment and new force structures to execute properly. It is the Joint Forces Commander's job to ensure the COCOMs-After-Next will have what they need to best protect the Nation.

This will likely require significant changes in the Joint Force. Such change in large military organizations almost inevitably involves a process that spans a decade or more. However, the U.S. military's institutional practices typically find senior leaders—including the Commander, JFCOM—rotated out of their assignments every 2 to 4 years. While this rotation cycle may work well for leaders whose responsibilities are focused on the near-term (for example, the regional COCOM who is responsible for the immediate warfighting mission in his area of operation), the task of identifying the key emerging challenges to national security and adapting the military to meet them is one that can only be accomplished over an extended period of time.

It is not surprising, then, that military organizations that have successfully changed to address major shifts in the character of the threats confronting them (or exploited opportunities to create a major new advantage) have almost always had key senior military leaders serving an extended tour of duty, often double or even triple the length of a typical flag tour. During the onset of German Army's transformation to blitzkrieg in the 1920s, for example, the head of its shadow general staff, General Hans von Seeckt, served 7 years in that position. The American Navy's exploitation of naval aviation was shepherded by Vice Admiral William Moffett, who remained head of the Navy's Bureau of Aeronautics for an astounding 12 consecutive years. Admiral Hyman Rickover, widely known as the "Father" of the Navy's nuclear submarine force, remained Director of the Naval Reactors Branch for over 30 years. Yet the tour of duty for the Commander of JFCOM is the same as those of senior commanders of operational units. A strong case can be made for the JFCOM commander to have extended tenure to enable him to see his job through to completion.

It almost goes without saying that the insights and lessons derived from JFCOM's analytic efforts, wargames and simulations, as well as field exercises, must be harvested if our military is to adapt to meet emerging challenges. Properly formulated and executed, the command's efforts toward this end should yield important insights regarding what operational concepts, force structures, and equipment will be of greatest value to future COCOMs. Moreover, changes in force structure, doctrine, and equipment under consideration today will not be created or fielded in significant quantities until well into the next decade—when the COCOMs-After-Next will assume their duties. Given these considerations, a strong case can be made that the JFCOM commander's views should be accorded great weight in DOD decisions regarding Defense program priorities.

At present, however, even if one assumes a robust level of Service and Joint experimentation focused on emerging challenges, it is not clear how the insights derived from these efforts will be translated into new requirements and ultimately, new doctrines, force structures, equipment and capabilities. In recent years the Joint Chiefs' JROC have generally proven incapable of effecting significant changes in Service budget shares or program focus.

One way to help remedy this problem is to assign the Commander, JFCOM, a seat on the JROC, as well as membership on the DAB. As a member of the JROC and the DAB, the Commander, JFCOM, could give voice to the demands levied by meeting emerging challenges. He could also guard against unwarranted influence being exerted by the military Services, which are often tempted to act more out of narrow institutional interest than from a broader, joint perspective.

Assuming that the Commander, JFCOM, receives the extended tenure (i.e., consecutive 3-year terms) necessary to develop new concepts of operation, a logical follow-on assignment would be a 4-year tour of duty as Vice Chairman of the Joint Chiefs of Staff, who chairs the JROC and co-chairs the DAB. This would facilitate the Pentagon's efforts to ensure that the equipment needed to execute new concepts of operation are purchased and fielded in a timely manner.

Finally, for these recommendations to have value, the flag officer designated to serve as Commander, JFCOM, must be carefully selected. People do make a difference, even in today's world. The world would likely be a very different place were it not for General von Seekct, Admiral Moffett, and Admiral Rickover. Given the stakes involved, the Commander, JFCOM, should be both a warrior and a scholar—and perhaps a bit of a salesman, to boot. The current Commander, JFCOM, clearly fits this description.

2. Senator LEVIN. Dr. Krepinevich, would the goal of moving the Department toward joint requirements and capabilities that strike the balance you are seeking in addressing current and future threats be better served if the JFCOM commander were a member of the JROC?

Dr. KREPINEVICH. See answer to question 1.

QUESTIONS SUBMITTED BY SENATOR SAXBY CHAMBLISS

C–5

3. Senator CHAMBLISS. Dr. Hamre, in an Office of the Secretary of Defense's (OSD) Acquisition, Technology, and Logistics (AT&L) memo dated February 14, 2008, on the C–5 Reliability Enhancement and Reengining Program (RERP) Acquisition Decision Memorandum (ADM), it indicated that OSD reviewed 14 different airlift alternatives as part of the C–5 RERP Nunn-McCurdy process and concluded that a mix of 205 C–17s with 49 RERP'd production aircraft, and 59 C–5As provided the greatest military capability at the least cost. The memo also stated that retention and operation of the C–5A aircraft were required to meet JROC validated requirements and that procuring additional C–17s was rejected as not meeting requirements, as more costly to the taxpayer, and that additional C–17s were unaffordable in the Future Years Defense Program. Are you aware of this memo and its contents?

Dr. HAMRE. I would be happy to look at the memo. I don't doubt it may reflect a snapshot of today's situation, but are these conclusions valid for the next 20 years? I doubt it. The C–5A fleet reliability is low. It is well known that the Air Force avoids sending the C–5A on long missions because of the frequent break-down pattern. I would be happy to read the study and meet with the Air Force analysts who prepared it.

4. Senator CHAMBLISS. Dr. Hamre, Section 132 of the National Defense Authorization Act for Fiscal Year 2004 addresses the language regarding C–5A retirement restrictions. Section 132 clearly does not restrict the Air Force from budgeting for additional C–17s nor preclude Congress from adding additional C–17s. Do you believe that the Department should see the full results of C–5 RERP, including the modernized C–5A, to ensure it has all the information it needs to make fact-based and objective decisions for the future regarding the C–5 fleet?

Dr. HAMRE. The Department should always have as much information available as possible. The Air Force should also insist that objective analysis guide its resource commitments.

5. Senator CHAMBLISS. Dr. Hamre, the Mobility Capabilities Study (MCS) identified a need for between 292 and 383 strategic airlift aircraft. At the time, the MCS coincided with the Air Force's program of record of 292 aircraft (180 C–17s and 112 C–5s with engine and avionics upgrades). The MCS recommended a strategic airlift force structure at the bottom of the range necessary to meet National Military Strategy (NMS) requirements with acceptable risk. Subsequently, the 2006 Quadrennial Defense Review endorsed a DOD goal of maintaining 292 strategic airlifters (180 C–17s and 112 C–5s). Subsequent to that, the JROC (codified in the February 2008 C–5 Nunn-McCurdy ADM) stated that United States Transportation Command supported 205 C–17s, 49 RERP production aircraft (+3 SDD aircraft), and 59 C–5As to meet the NMS requirements. Do you believe that the Air Force's planned strategic airlift fleet is adequate to meet the NMS of the Nation and the JROC validated requirements?

Dr. HAMRE. No. I suggest that the analysis may reflect a plausible condition today, but that in 20 years we will deeply regret depending on 52-year-old aircraft for long-range strategic lift.

6. Senator CHAMBLISS. Dr. Hamre, over the years, there have been multiple studies which have affirmed the long-term structural health of the C–5 fleet as well as the operational and economic benefits of C–5 modernization. In fact, C–5 modernization consistently appears to be the most cost-effective solution. Do you know of any validated studies that suggest otherwise?

Dr. HAMRE. The original C–5 wing had to be rebuilt in the early 1980s because weight problems in the original aircraft program caused the Air Force and the contractor to cut structure out of the center wing box, causing the wing to fail prematurely. An entirely new wing box was retrofitted into the C–5A aircraft 15 years after they were originally manufactured. This heavier wing was included in the C–5Bs. Therefore, the wing life of the aircraft is likely to carry us well into the years ahead. That is not the cause of the poor reliability of the C–5A.

7. Senator CHAMBLISS. Dr. Hamre, it is my understanding that the recently released Institute for Defense Analyses (IDA) study considered 36 alternative mixes and sizes for airlift and compared them both in cost and effectiveness with the program of record. The study identified several relatively inexpensive ways of generating higher capability from the existing force without buying more planes and that purchasing additional C–17s were not needed to meet the MCS moderate-acceptable-risk delivery rates used as a benchmark by the analyses conducted here. Are you aware of the IDA study and, if so, do you agree with its conclusions?

Dr. HAMRE. I would be pleased to review the study. Having worked for 6 years as an airlift analyst, I know how to evaluate studies.

8. Senator CHAMBLISS. Dr. Hamre, it is my understanding that C–5 RERP is performing well, that Lockheed Martin is performing to cost and schedule, and that the Air Force has indicated that RERP meets or exceeds all key performance parameters specified by contract. Is this true?

Dr. HAMRE. I do not know. I have not been briefed by the Air Force on the C–5 RERP. I did not comment on it during my testimony.

9. Senator CHAMBLISS. Dr. Hamre, do you have any comments on how well the C–5 RERP is performing?

Dr. HAMRE. I would be happy to receive a briefing from the Air Force on the program.

[Whereupon, at 12:08 p.m., the committee adjourned.]