AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

[H.A.S.C. No. 111–108]

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG TERM DEFENSE BUDGET TRENDS

HEARING

BEFORE THE

FULL COMMITTEE

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

HEARING HELD
NOVEMBER 18, 2009

U.S. GOVERNMENT PRINTING OFFICE
56–863 WASHINGTON : 2010

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

HOUSE COMMITTEE ON ARMED SERVICES

ONE HUNDRED ELEVENTH CONGRESS

IKE SKELTON, Missouri, *Chairman*

JOHN SPRATT, South Carolina
SOLOMON P. ORTIZ, Texas
GENE TAYLOR, Mississippi
NEIL ABERCROMBIE, Hawaii
SILVESTRE REYES, Texas
VIC SNYDER, Arkansas
ADAM SMITH, Washington
LORETTA SANCHEZ, California
MIKE MCINTYRE, North Carolina
ROBERT A. BRADY, Pennsylvania
ROBERT ANDREWS, New Jersey
SUSAN A. DAVIS, California
JAMES R. LANGEVIN, Rhode Island
RICK LARSEN, Washington
JIM COOPER, Tennessee
JIM MARSHALL, Georgia
MADELEINE Z. BORDALLO, Guam
BRAD ELLSWORTH, Indiana
PATRICK J. MURPHY, Pennsylvania
HANK JOHNSON, Georgia
CAROL SHEA-PORTER, New Hampshire
JOE COURTNEY, Connecticut
DAVID LOEBSACK, Iowa
JOE SESTAK, Pennsylvania
GABRIELLE GIFFORDS, Arizona
NIKI TSONGAS, Massachusetts
GLENN NYE, Virginia
CHELLIE PINGREE, Maine
LARRY KISSELL, North Carolina
MARTIN HEINRICH, New Mexico
FRANK M. KRATOVIL, Jr., Maryland
ERIC J.J. MASSA, New York
BOBBY BRIGHT, Alabama
SCOTT MURPHY, New York
DAN BOREN, Oklahoma

HOWARD P. "BUCK" MCKEON, California
ROSCOE G. BARTLETT, Maryland
MAC THORNBERRY, Texas
WALTER B. JONES, North Carolina
W. TODD AKIN, Missouri
J. RANDY FORBES, Virginia
JEFF MILLER, Florida
JOE WILSON, South Carolina
FRANK A. LOBIONDO, New Jersey
ROB BISHOP, Utah
MICHAEL TURNER, Ohio
JOHN KLINE, Minnesota
MIKE ROGERS, Alabama
TRENT FRANKS, Arizona
BILL SHUSTER, Pennsylvania
CATHY MCMORRIS RODGERS, Washington
K. MICHAEL CONAWAY, Texas
DOUG LAMBORN, Colorado
ROB WITTMAN, Virginia
MARY FALLIN, Oklahoma
DUNCAN HUNTER, California
JOHN C. FLEMING, Louisiana
MIKE COFFMAN, Colorado
THOMAS J. ROONEY, Florida
TODD RUSSELL PLATTS, Pennsylvania

ERIN C. CONATON, *Staff Director*
ANDREW HUNTER, *Professional Staff Member*
JENNESS SIMLER, *Professional Staff Member*
CATERINA DUTTO, *Staff Assistant*

CONTENTS

CHRONOLOGICAL LIST OF HEARINGS

2009

Page

HEARING:

Wednesday, November 18, 2009, Resourcing the National Defense Strategy: Implications of Long Term Defense Budget Trends 1

APPENDIX:

Wednesday, November 18, 2009 37

WEDNESDAY, NOVEMBER 18, 2009

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG TERM DEFENSE BUDGET TRENDS

STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

McKeon, Hon. Howard P. "Buck," a Representative from California, Ranking Member, Committee on Armed Services 2

Skelton, Hon. Ike, a Representative from Missouri, Chairman, Committee on Armed Services 1

WITNESSES

Berteau, David J., Director, Defense Industrial Initiatives Group, Center for Strategic and International Studies 6

Daggett, Stephen, Specialist in Defense Policy and Budgets, Congressional Research Service 5

Donnelly, Thomas, Director, Center for Defense Studies, American Enterprise Institute 8

Goldberg, Dr. Matthew, Deputy Assistant Director, Congressional Budget Office 3

APPENDIX

PREPARED STATEMENTS:

Berteau, David J. 93

Daggett, Stephen 65

Donnelly, Thomas 101

Goldberg, Dr. Matthew 41

DOCUMENTS SUBMITTED FOR THE RECORD:

Dr. Matthew Goldberg's Letter to the Hon. John Spratt Regarding the Annual Incremental Costs for Deploying Troops to Afghanistan and Iraq 111

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING:

[There were no Questions submitted during the hearing.]

QUESTIONS SUBMITTED BY MEMBERS POST HEARING:

[There were no Questions submitted post hearing.]

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG TERM DEFENSE BUDGET TRENDS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
Washington, DC, Wednesday, November 18, 2009.

The committee met, pursuant to call, at 10:07 a.m., in room HVC–210, Capitol Visitor Center, Hon. Ike Skelton (chairman of the committee) presiding.

OPENING STATEMENT OF HON. IKE SKELTON, A REPRESENTATIVE FROM MISSOURI, CHAIRMAN, COMMITTEE ON ARMED SERVICES

The CHAIRMAN. The hearing will come to order. Ladies and gentlemen, welcome to today's hearing. Resourcing the National Defense Strategy: Implications of Long Term Defense Budget Trends is the subject today.

In the first week of February 2010, the Department of Defense (DOD) will deliver two critical documents to our committee. One is the Quadrennial Defense Review, known as the QDR, which will outline the National Defense Strategy and some of the major policy changes required.

The second will be the President's budget request for fiscal year 2011, the first true budget of the Obama Administration and one of the primary mechanisms for adopting the QDR's recommendations. These documents along with the two ongoing wars are likely to dominate the discussions on our committee for the next year.

The QDR is by design a process that is not supposed to be constrained by the budget. However, the fiscal year 2011 budget request is of necessity so constrained, though also deeply shaped by the QDR. So while the QDR will not and should not be limited by the budget, we in this committee will be required to confront budget limitations simultaneous to our review of the QDR. It is critical that we understand the budget constraints that are likely to shape the fiscal year 2011 budget, both in that specific fiscal year and over the Future Years Defense Program (FYDP) that will accompany it.

The picture frankly is not a pretty one. We owe a debt to our colleague John Spratt, who held a hearing on the Budget Committee on October 14th to review the questions featuring two of the witnesses we have before us: Dr. Matthew Goldberg of the Congressional Budget Office (CBO), Stephen Daggett of the Congressional Research Service (CRS). These two gentlemen shared testimony with the Budget Committee about the need for continuing steep increases in defense spending to carry out the current programs of

the Department, increases that may not materialize unless the Obama Administration is able to add funding to the defense budget projections left to them by the Bush Administration at a time of exploding deficits.

These witnesses are joined today by David Berteau of the Center for Strategic and International Studies (CSIS) and Tom Donnelly now of the American Enterprise Institute (AEI) and formerly of the House Armed Services Committee staff. After hearing from them we will have a deeper understanding of the implications which rising costs in the area of operations, war spending, health care, personnel, acquisition, and major weapon systems have for the Department of Defense's future and a better appreciation for the challenges that go into building the fiscal year 2011 budget.

I now turn to my friend, the gentleman from California, Buck McKeon, for his opening remarks.

STATEMENT OF HON. HOWARD P. "BUCK" MCKEON, A REPRESENTATIVE FROM CALIFORNIA, RANKING MEMBER, COMMITTEE ON ARMED SERVICES

Mr. MCKEON. Thank you, Mr. Chairman. Today the committee meets to receive testimony on Resourcing the National Defense Strategy: Implications of Long Term Defense Budget Trends. I would like to thank Chairman Skelton for agreeing to hold this hearing on this subject, and I would also like to thank our witnesses for being here. Your testimony this morning gives our members an opportunity to understand the impact of Secretary Gates' April 2009 decision to terminate several major defense programs, as well as to help the committee prepare for the upcoming defense budget and the 2010 Quadrennial Defense Review.

In May Secretary Gates testified before the House Armed Services Committee on his 2010 budget proposal and on his April 2009 program cuts and emphasized the need to balance the Department and focus on the conflicts in Iraq and Afghanistan. Our concern then and what remains our concern today is the tradeoff that came along with the April 6th announcement. Secretary Gates assured the Congress that his program decisions were the product of holistic assessment of capabilities, requirements, risks, and needs for the purpose of shifting the Department in a different direction.

Today's hearing will help the committee understand the true impact of these cuts and whether the April decisions have indeed taken the Department in the right direction. Many in the Congress have a different perspective of the defense budget and believe it is not headed in the right direction. In my view, the Secretary's plan for balancing the Department has come at too high a cost.

As Stephen Daggett's testimony lays out, the Department's QDR assumes that the base defense budget, not including the war-related funding, will be essentially flat for the next five years, with growth sufficient only to cover inflation. In other words, zero real growth. It is in an environment of fiscal restraint that the Department will pay for the cost of Secretary Gates' balance by moving $60 billion over the next five years from within the Department to pay for programs supporting current operations.

Equally alarming is that as the defense budget remains flat, military personnel costs and operation and maintenance costs will

consume an increasingly larger share of the budget. This does not include the cost of other big ticket items that will command more defense dollars, such as the war supplemental costs that will migrate to the base budget or the price of resetting the force as our forces return home from theater.

The pressures on the defense budget that I have just described warrant in my view, a higher top line. When one considers the current threat environment and some alarming gaps in our capability, the need for more dollars going to defense becomes critical. As we saw with the April cuts, a leaner budget resulted in changes to longstanding assumptions about the capabilities needed to hedge against the risks we face.

Thank you. I yield back.

The CHAIRMAN. I thank the gentleman. We have Dr. Matthew Goldberg, please.

STATEMENT OF DR. MATTHEW GOLDBERG, DEPUTY ASSISTANT DIRECTOR, CONGRESSIONAL BUDGET OFFICE

Dr. GOLDBERG. Thank you, Mr. Chairman, Mr. McKeon, and other distinguished members of the panel. It is my pleasure to be here today to talk about CBO's analysis of the 2010 defense budget. As you probably know, over the past seven years we have taken a look at the defense budget, and ordinarily we have access to the FYDP, the Future Years Defense Program, which goes out another five years, and we form a projection, which is to say if all the programs and all the funding and all the force structure implications in the budget in the FYDP were to be fully funded and implemented over that six-year period, what we would project out is for another roughly 12 years. Based on that momentum of those programs and plans and policies how much would it take to sustain them, sustain those decisions in the current budget and FYDP.

Of course this year we did not have the FYDP. We were working off the 2010 budget and related materials, Secretary Gates' various announcements which we studied, as I am sure you did, Mr. Chairman.

The 2010 request, putting aside for a moment the overseas contingency operations, the 2010 request was for $534 billion in total obligational authority. We have projected that to sustain the programs of record that are reflected in that request it would actually cost $567 billion on average between 2011 and 2028. In other words, there would be a ramp-up just due to the momentum of sustaining the programs that are in the 2010 budget.

There are various reasons for this. One is the continued growth in pay and benefits for both military and civilian personnel. Even the pay raises that are indexed to the employment cost index, the ECI, represent a real increase in pay relative to inflation. In other words, the real pay raises are built into the budget and we expect those to continue.

In addition, we have observed that systems as they age have higher costs of operations and maintenance, and we are also expecting that the newer systems that replace them will probably have costs at least as high for operations and maintenance.

So all these factors contribute to the increase that we foresee.

In addition, of course there is the overseas contingency operations (OCOs). The Department requested $130 billion for 2010. We have not done any analysis beyond that point of what would happen in light of the proposed increases in troop levels in Afghanistan. But what we have is sort of a steady state number. If U.S. military presence worldwide were to decline to 30,000 in 2013, the case we looked at, not specifying whether those troops would be in Iraq or Afghanistan, being agnostic about the locations, but declining to 30,000 would require $20 billion in 2010 dollars every year to sustain that level of forces overseas.

We also looked at other reasons why the costs could be higher, higher than they are in our base projections. I already indicated medical inflation has been higher in the Department of Defense than both the Department and analysts have anticipated. If that continues, if pay raises above the employment cost index continue for another five years, and if the cost of procuring weapons systems continues to grow as they have in the past, then we have a higher estimate, including what we called unbudgeted costs, costs that are not reflected in the budget, but that may be realized for all of these reasons. Costs might be as high as $624 billion on average through 2028 if all those things come to pass, or some 17 percent higher than what was in the 2010 request.

There is a shifting of funds. There is more money in the operation and maintenance and military personnel accounts. We see continued growth there because of the pay raises and because of the cost to continue supporting weapon systems. But there have been declines in the procurement and the Research, Development, Test, and Evaluation (RDT&E) accounts, mostly in the procurement accounts, in light of various changes that Secretary Gates announced in April. For example, the cancellation of the Future Combat Systems (FCS), cancellation of the second airborne laser, the cancellation of the Presidential helicopter, the Air Force combat, search and rescue helicopter, and the Multiple Kill Vehicle (MKV). And with those with other changes we are projecting that the need for procurement funds could actually—by 2020 would be about $20 billion less in our current projections than what we were projecting last year at this time based on the 2009 FYDP.

So in other words, we see long-term implications where if all of the changes that Secretary Gates proposed in April were made, were carried through, that the procurement budget required would be lowered by some $20 billion per year by 2020. That is probably an overestimate in that some programs have been removed and other programs, successive programs, have not yet been formulated which would be put in their place. So in reality 2020 is probably an upper bound, but we expect to see that if current plans will continue that the amount of funds required for procurement would probably be less and there would be migration into the operation and maintenance and military personnel accounts.

I think I am out of time, Mr. Chairman. So I would be happy to take your questions when we come around.

[The prepared statement of Dr. Goldberg can be found in the Appendix on page 41.]

The CHAIRMAN. Stephen Daggett, welcome.

STATEMENT OF STEPHEN DAGGETT, SPECIALIST IN DEFENSE POLICY AND BUDGETS, CONGRESSIONAL RESEARCH SERVICE

Mr. DAGGETT. Mr. Chairman, Mr. McKeon, members of the committee, thanks very much for inviting me to testify this morning. Mr. Skelton, it is particularly good to see you. It has been some time since we had a chance to talk in your office. I look forward to doing that sometime again.

My testimony really focuses on four issues. First of all, by most accounts the defense budget is relatively robust right now. It is about, if you include war-related funding, it is about 20 percent higher than the peak of spending in the 1980s, which in turn was the peak of spending in the post-Cold War world except for the very highest level of spending during the Korean War.

At the same time many of the leaders in the military services are warning about the need to make very difficult tradeoffs within the budget. So the question I addressed is why the discrepancy? Why on the one hand by most historical standards does the budget seem so high and yet we face these difficult choices? And I provided a number of answers to it.

The basic answer is that the cost of defense has climbed even more rapidly than the budget itself, and there are six factors I have identified that have increased the cost of defense.

First is the increase in cost in military personnel. By my account, an average service member is 45 percent more expensive in 2009 than in fiscal year 1998. That is above inflation, after adjusting for inflation.

Second is the trend in operations and maintenance cost. Operation and maintenance per active duty troop continues to grow at a rate between two and three percent per year above base inflation, which is a trend, by the way, that is starkly at odds with cost of doing business in the civilian sector of the economy and which most companies have reined in costs have lower costs of operation rather than higher.

A third factor is apparently accelerating increases in cost from one generation of new weapons to another. We always expect that the next generation of weapons will cost somewhat more than earlier generations, but at a certain point there has to be a limit to how far you can go in that direction. You can't afford to buy weapons and replace the force on a one-for-one basis with a new system. Many new weapon systems appear to be dramatically more expensive than their predecessors.

Fourth factor, and I identify it as an independent factor driving up the cost of acquisition, is we tend to systematically underestimate the cost of new programs, resulting in unplanned cost growth and scheduled delays. Forty-four percent of new weapons programs, according to Government Accountability Office, have had a 25 percent or larger increase in estimated costs above initial projections. So we are not doing very well at estimating costs of major programs.

Total cost growth in most of the major defense acquisition programs in 2007 amounted to about $300 billion across the board, which a full year and a half worth of weapons procurement.

A fifth factor is we have increased demands on ground forces. We have increased the size of the Navy and Marine Corps by 92,000

troops at a cost of $12 to $15 billion per year. In addition, we have new equipment requirements that are the result of war for transportation equipment, for communications equipment, for force protection equipment.

And finally we are preparing for a much broader range of challenges in the international security environment, ranging from traditional to disruptive to catastrophic threats to the homeland to irregular warfare, and we are trying to figure out ways to adjust to all of these.

Second major point is in April Secretary Gates announced a number of changes in major weapons programs. How will that affect this disconnect between the growing cost of programs and the budget? And my answer is it will help to a certain degree. It would help to a larger degree to the extent that these changes represent changes in policy that will last over quite a long period of time. We seem to have turned away from maximizing the capabilities of systems from multi-role missions and toward systems that will cost less because they are aimed at a narrower range of missions. We seem to have also turned in the direction in the acquisition phase, in the development phase of insisting that at milestone review processes we are sure that the technology that we are integrating into new systems will actually be available at cost and on the kind of schedule that is planned initially.

Fourth point that I addressed, and I will just skip over it very briefly but we can talk about it more in Q and A, is the deficit situation that we face now one is one in the past that has led to constraints on the defense budget over the long term. If the defense budget were not to grow over the next 10 years and we had the kind of growth we had in military personnel and Operations and Maintenance (O&M) accounts in recent years, that would squeeze out funding for acquisitions so there would not be enough money left by the end of the decade to support a very robust modernization program at all.

Finally, this QDR it seems to me is likely to come up with a number of new requirements for major systems. A number of those changes could end up being quite expensive. I gave one example of anti-access strategies, which could lead to requirements for different kinds of delivery vehicles to deliver power ashore from forces offshore. And the effort to cope with these kinds of new challenges it seems to me it is not necessarily a sidebar to the budget. It could be a significant budget driver in future years.

With that, I will be glad to leave it to questions and answers. Thanks.

[The prepared statement of Mr. Daggett can be found in the Appendix on page 65.]

The CHAIRMAN. Thank you very much, Mr. Daggett.

Mr. Berteau.

STATEMENT OF DAVID J. BERTEAU, DIRECTOR, DEFENSE INDUSTRIAL INITIATIVES GROUP, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Mr. BERTEAU. Thank you, Mr. Chairman. I had to find the button here.

It is a great privilege to appear before you today, and I appreciate the opportunity. My statement actually doesn't have the same level of precision of data as the two colleagues who preceded me here today, because I knew that theirs would, and I basically used the CBO data and the CRS data for much of our analysis at CSIS anyway. So we took advantage of that.

What my statement does is look at some of the key issues and at the process, and I would like to summarize it now and ask the full statement be submitted in the record.

The Pentagon's biggest problem today is that they are facing probably the most significant set of challenges in at least the last 20 years, perhaps a good bit longer than that, and yet they are not recognizing that that is the situation that they are in. We have had more money than we have had ever over the last 10 years, and yet our shortfalls are actually bigger than they have ever been as well, or at least in relevant memory. I think the Korean War probably is an exception, but it goes back too far to be relevant today.

And I think the saddest thing and the most difficult thing for this committee to wrestle with is they have quit keeping score. There is no longer a process, a rigorous process, inside the Pentagon that tries to capture what its requirements are and what its shortfalls are.

Mr. Goldberg mentioned the absence of a FYDP with the fiscal year 2010 budget, and that is actually true, and quite disgraceful. But the reality is there has not been a fiscally disciplined FYDP put together by the Pentagon since before September 11, 2001. The existence of supplementals has made it way too easy to fix a problem by putting it into the supplementals and funding it there. And so there hasn't been a disciplined attempt to figure out what the real defense program is what it would cost, what the shortfalls are, how do you prioritize across the shortfalls, how do you make the tradeoffs necessary, and then how you defend them to the Congress so the Congress either accepts them or makes the adjustments necessary that you all would seem to be in place.

It seems to me the Pentagon should be teeing up these issues today and laying out those options, and they are not doing that. So the challenge this committee has is how do you assess the options and determine the priorities without the data that you would get from a physically disciplined FYDP, without the information on acquisitions systems necessary from the selected acquisition reports.

Well, maybe the QDR will fix this. That is kind of the idea, that is why we do a QDR. The impact of the non-disclosure agreements of course has made it more difficult for those of us who think we like to watch what the Pentagon is doing and make intelligent commentary on it. It has been a little more difficult for us because we don't actually get much visibility than what is going on. There is nothing wrong with that as long as we had some comfort and assurance that what is going on is going to produce a QDR that will answer the kind of questions that we raise here this morning. But I am afraid that much of what we have seen indicates a lack of a willingness to wrestle with those questions at the broad level. So I think those who believe that the QDR will have all the answers may end up being sorely disappointed.

There are a lot of unspoken risks as well that we are addressing today, I suspect we will come back to them during our questions, in addition to the issues facing DOD, there are of course a number of significant issues facing the industrial base as well, and I would be happy to touch on those as we go through the questions.

I will yield back the balance of my time, Mr. Chairman, and look forward to your questions.

[The prepared statement of Mr. Berteau can be found in the Appendix on page 93.]

The CHAIRMAN. Thank you very much.

Tom Donnelly.

STATEMENT OF THOMAS DONNELLY, DIRECTOR, CENTER FOR DEFENSE STUDIES, AMERICAN ENTERPRISE INSTITUTE

Mr. DONNELLY. Thank you, Mr. Chairman, Mr. McKeon, and members of the committee. Mr. Skeleton, you mentioned that I used to work for this committee. That still remains the high point of my resume. So I am very pleased to come back and talk to my old bosses.

I have three questions that I would like to pose and offer at least the sketch of an answer to in talking about long-term budget trends. I want to talk not only about defense budget trends per se, but I also think it is essential to talk about trends in Federal budgeting and spending overall, because if there is one thing that really constrains our defense choices going forward, and I would certainly agree with David that we are at a crossroads that we haven't been at in a long time, it is not so much the growth of the debt or the deficit per se, although because that has mushroomed that is a larger factor than it has been in the past. But it is other forms of particularly mandatory spending that are depriving the Defense Department of the money it needs to fund its programs.

Finally, we have to ask the question that the QDR is supposed to answer, and that is how much is enough to meet the strategy, which is also the title of this hearing. And before I begin one more, I very much want to commend the committee for insisting upon setting up at least a partially independent panel to review the QDR's work. The Congress has an institutional responsibility. Those of us who were on the committee staff were constantly pounded by Article 1, Section 8 of the Constitution, so I applaud the committee for making that happen and hope that process turns out to be a fruitful one.

To turn to my questions, I also need to use a slightly different set of metrics in order to measure things across time. I think that using the measurement of percentages of gross domestic product are by far the best way to measure the amount of sacrifice or the opportunity costs, if you will, to the economy of defense spending over the time. And actually if you look at the numbers through those lenses, you see exactly the opposite picture from what my colleagues have portrayed.

Just very quickly to summarize and to distinguish, as we have learned to do in recent years between the baseline defense budget, the cost of raising, training and equipping the forces, and the wartime costs that we paid through supplementals; that is, the cost of actually employing the force, you get again quite a different pic-

ture. And in that regard, the costs of our defense have really gone down significantly over the post-World War II period. That would be the period where the United States has been the primary guarantor of the international security system.

In the 1950s our baseline posture cost us about nine percentage gross domestic product (GDP). That fell in the 1960s to seven and a half percent, and fell even in the 1980s, even allowing for the Reagan buildup, to about five or six percent. And in the 1990s it fell even further to an average of between three and a half and four percent. And if we look at the Administration's budget plans going forward, it is going very quickly to fall to three percent and remain there through the projected 10 years of the budget plan that the Administration put out earlier this year.

It is true also that the cost of our wars has gone down. Korea cost about an extra three percent of GDP to fight, Vietnam about two percent, and our total combined global war on terror or long war, whatever term of art you want to use to capture the Iraq and Afghanistan experience, has cost on average about one percent of GDP rising very slightly to about one point two percent in recent years in part because of slower economic growth and the surge in Iraq. And if we project that forward, we will wait and see what the Afghanistan decision is.

So overall the burden to the American economy of military—of both raising the force and deploying the force has fallen significantly over the course of the last 60 years.

What has happened inside the pie of the budget? Well, my colleagues have talked a lot about the growth in personnel costs and health care costs in particular. So I won't linger on those, but I just want to put that in—take three snapshots of how that has changed things.

In the Reagan years, at the height of the Reagan buildup, and of course we are still sort of living off the investments of those years, the Pentagon spent about one point four two dollars in procurement for every dollar it spent on personnel. During the 1990s after the post-Cold War drawdown and for reasons that were related to the desire to preserve the old volunteer force, the situation was almost entirely reversed. The Clinton Administration say in 1998 spent about one point five five dollars on personnel for every dollar that it spent on procurement. So the ratios have been essentially inverted. And even in recent years and with some of the investments that the Bush Administration made, that ratio has only been reduced to one dollar for procurement to one point two two dollars for personnel. As my colleagues suggested, I think that proportion is only likely to again rise if current trends continue.

I mentioned that I wanted to talk a bit about the rest of the picture and in particular talk about the portion of defense as an element of Federal spending. I have got a lot of statistics on that in my testimony, but let me just kind of use the projections of the Administration, take snapshots again through time to try to suggest the relative balance of these things.

According to the numbers put out by the Office of Management and Budget (OMB) earlier this year for 2016, Federal spending total will be about 22.4 percent of GDP. Of course the amount of borrowing projected over those years will increase the total debt to

about 70 percent of GDP. So even as entitlement spending grows, so will debt service, but to the point where all of those mandatory expenditures will themselves account for 22 percent of GDP. So before the Congress authorizes or appropriates a single penny, basically all the money will be gone. And domestic discretionary programs are supposed to grow to about four point two percent of GDP and defense is held to three percent of GDP.

The question I want to leave you with is whether this is adequate, as you were asking in the title of the hearing and as I am sure we will get to in the Q and A session, whether this is sufficient to meet our strategic goals. The United States remains the guarantor of international security of the remarkably peaceful and prosperous and liberal international system that now prevails, although it is under attack and under threat from many quarters. And the question that I think needs to be asked of the QDR is not whether the risks are balanced, you can always balance risk, the question is whether the level of risk is adequate or is too dangerous or is a threat to the entire system going forward.

Thank you for your time.

[The prepared statement of Mr. Donnelly can be found in the Appendix on page 101.]

The CHAIRMAN. Thank you, Mr. Donnelly.

Mr. Daggett, get your crystal ball out. Tell us in your opinion, as succinctly as possible, of what does today's National Defense Strategy consist and what should the National Defense Strategy consist of tomorrow?

Not an easy question.

Mr. DAGGETT. Not an easy question.

The CHAIRMAN. You are fully equipped to answer it.

Mr. DAGGETT. Well, there has been a bit of a shift in National Defense Strategy in recent years with more of a focus on preparing for irregular warfare. The big change in strategy has been that. The increase in size of ground forces in particular in order to provide a rotation base for deployment of a pretty substantial number of forces abroad in contingency operations like that in Iraq and Afghanistan.

Beyond that I see a little bit of a shift in defense strategy in the direction of maritime forces, and part of that is the shift in focus away from Europe, which would have been primarily a ground theater of operations, and to the Pacific, which is mainly maritime.

The two have created—the fact that we shifted in two directions, one which has led to a substantial increase in ground forces and the other which emphasizes and reemphasizes naval forces and also to a degree long range power projection forces in the Air Force, means we are really committed to adding capability in pretty much every dimension in the force.

So it hasn't been simply a matter of making tradeoffs between one set of priorities and another. We have tried to add capabilities pretty much across the board, and that is one reason why I think the budget has been driven up in the direction it has been driven, why we see shortfalls. We are trying to meet a much broader range of requirements. And I see new requirements emerging in the future, particularly to cope with what is called hybrid warfare, and that is that even enemies at the lower end of the spectrum of con-

flict will be equipped with pretty high-technology weaponry like Hezbollah and Hamas, including anti-ship cruise missiles and more precise munitions of other kinds and also a shift in the direction of what the Administration terms high-end asymmetric warfare, and that is the notion that future foes of whatever capability will try to challenge the United States in areas in which we are relatively weak, and that means to me even potentially attacks on the homeland, attacks on communication systems, as well as efforts to drive U.S. power projection forces further offshore.

So all of these to me are driving requirements up, and it becomes more difficult to make choices between various systems. You know, I also think that you are correct, that we are going to have to cope with budget constraints, we are going to have to figure out how to set priorities in a situation in which there is not enough money to do all of the above, and as evidence of that let me just make a final kind of closing point, and that is that to me the big change that is going on in the international security environment doesn't have to do with military forces. It has do with financial power, and the financial shifts are all away from the United States and toward Asia. The projection used to be that China would have a larger economy than the United States in 40 years or so. Now it is down to about 30 years or so after this last financial crisis, and that has to affect the dynamic of U.S. planning.

In the past we could assume that we could build up military capabilities to such a degree that it would dissuade potential future foes from trying to challenge us in building up military capabilities. I am not sure how long that is doable given the shift of financial resources toward the East. So it puts an emphasis to me in building cooperative relations with potential future foes to the extent that we can in areas like protecting the global economy, including maritime, but also cyberspace and things of that sort.

That is a beginning of an answer to your question.

The CHAIRMAN. Thank you very much. A quick follow-up.

In recent days I have heard the phrase used Pax Americana, and I think aptly so. When in your crystal ball will that begin to shift away from us, if it ever does?

Mr. DAGGETT. I think we are in the midst of a shift away from American military predominance towards something different. I mean we are still for several years clearly going to be technologically predominant in military capabilities. How long we will have the ability to do all of the above, to project power of every kind—of ground forces, maritime forces, air forces—I don't know, but it is eroding slowly over time, and the more we can we can rely, it seems to me, on allies to do a part of that work for us, the better off we will be in the long term, and the more we can avoid conflict the better we will be in the long term.

I don't know if that is a precise answer to your question, but I think—you know, the days of the American century were really the last 50 years of the 20th century, and the 21st century is turning slowly into something different, which is much more balance in the international security environment. The U.S. can still shape that, and it is still the main power shaping what the global environment will look like. So you can call it a Pax Americana for the foreseeable future just in that way, but our shaping in the environment

has to be in a direction that I think leads to more cooperation with allies and an effort to build kind of an agreement with rules of the road with potential future—what we have regarded in past as potentially future foes like China.

The CHAIRMAN. Thank you. Mr. McKeon.

Mr. MCKEON. Thank you, Mr. Chairman.

In meetings I have had with defense contractors recently they have had a great concern about our industrial base. Would you please, each of you, describe what you would see as the impact on the industrial base as regard to the recent cuts in the defense budget?

Dr. GOLDBERG. If you would like me to start, sir. Certainly the procurement cuts that Secretary Gates has announced and that are starting to be built into 2010 budget and presumably the 2011 budget will have an effect on defense contractors.

I should point out a few things, that some of the programs that have been cut will inevitably be followed by some other program that has not yet been formulated. For example, the Presidential helicopter, there will be some sort of platform. The Future Combat System, the Secretary in his announcement left open the possibility of reformulating the ground vehicles program, but in a way different from the program inherited from the previous Administration.

So it is not as though we are going to zero in on all the programs that we cut.

I should also point out that the contractor base, as I am sure you know, is much more than the big 5 or 10 Lockheed Martin, Northrop Grumman, Boeing, et cetera. I looked up some numbers in 2008. The Department of Defense contracted a total of $390 billion. Not only is most of the procurement budget and much of the RDT&E budget contracted, but much of what goes out of the operations and maintenance budget is contracted, six billion a year to Logistics Civil Augmentation Program (LOGCAP) to support the troops in Iraq and increasingly in Afghanistan. Many other contractors do base construction, military construction, support of the bases, provide security on bases here in the U.S., Information Technology (IT) support. Every time you walk into a base or Pentagon or visit a base you see contractors.

So I think taking a broader view, the Department is very reliant on contractors in a way that is probably more permanent and sustainable than just looking at the big, big procurement programs that have been cut in the 2010 budget.

Mr. DAGGETT. I think I would begin to address the question by looking at different elements of the industrial base. One is look at aircraft in general. There are now really only two major—in the long term there are really two major production lines for fighter aircraft, F–18s and F–35s. The defense industry is therefore understandably concerned that they will lose the capacity to develop new systems, because the kind of opportunity for design teams to develop new kinds of fighter aircraft is diminishing. I think that is true in that area. In other areas it is less true.

I see, given the growth of requirements to deal with high-end asymmetric threats and things of that sort, increasing demand for new designs of advanced systems for Command, Control, Commu-

nications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) and lots of other areas to some degree offsetting those kinds of changes.

On shipbuilding in general it has long been the case that the U.S. shipbuilding industry depends pretty much strictly on military production. The changes that Secretary Gates announced in Navy shipbuilding won't in my view lead to any substantial decline in the budget for Navy ships; it will lead to it being focused on a smaller number of ship designs and actually I think that could lead to some cooperative effort with the defense industry to improve the efficiency of shipbuilding production and maybe increase numbers by doing it that way.

In other areas the industrial base is not as robust. Helicopters, for example, most recent helicopter programs that we have had have been based on European design helicopter frames with electronics built by the United States, reflects the fact that the Europeans have been building more helicopters for a long time for commercial as well as other purposes. Electronics and things of that sort, again I see a relatively high demand, if there is a shift, it will be away from platforms and towards C4ISR in the military. So that may be a relatively robust area in the future.

To some degree it depends on the top line. If as I said the Defense budget is frozen for the next 10 years, then that leads to a decline in acquisition which I think would make it very difficult for defense industry to sustain the kind of design capabilities that we have looked to it for in the past. I don't necessarily foresee that happening. But, you know, instead we would look at, if necessary, cuts in the size of the force and certainly increases in the top line to sustain some level of defense acquisition, but that is an outside possibility that there could be simply a decline in the industrial base.

Mr. BERTEAU. Mr. McKeon, I think there are two parts to your question, one which is specifically what you asked, which is what is the impact. The second implied part is what can we do about it, because ultimately that is the real challenge. The industrial base has had a lot of money flowing into it in the last 10 years. Procurement for hardware, procurement and research and development (R&D) for hardware is up about 60 percent since 2001. Contracts for services, and there is a whole services industrial base which I think we have to keep our eyes on as well, has doubled in that period of time.

But the future doesn't look nearly as good, and I think from the point of view from the hardware side, the procurement and R&D, all of the testimony this morning is consistent with our analysis, which is that will be shrinking both potentially in real terms and certainly in relative terms to the requirement.

It is also getting harder and harder for defense to use commercial variants. In theory it would be you would save money and time by starting with a commercial platform and then militarizing that platform. The study we did as part of a defense science board task force that I was on showed that it is pretty hard to find cases where it did actually save us time and money. So our ability as a nation to use the power of the commercial industry, both here and around the world, has been diminished over time.

There is a question of what do we do about it. Congress has a clear law in place that says DOD needs to consider the industrial base impact of decisions on major weapon systems. Consider, of course, is a very soft word here, and in our study I think we have yet to find in recent years any single decision which was changed as a result of the consideration of the industrial base. In other words, the documentation basically said we have made the decision, how do we line up the industrial base impact to be consistent with that decision?

The bigger challenge is it doesn't look at the whole industrial base; it just looks at the piece necessary for that particular weapon system. And you can always define the universe in such a way, you say we will have enough, we will be able to get what we need, materials, technology, skills, et cetera. Over the long run, though, nobody has taken a look at the comprehensive impact and what it will do for the industrial base as a whole.

Mr. Daggett noted that we are down in many cases to a single provider for an awful lot of systems and subsystems. And yet we all know that only when you have good competition do you not only get better price control and schedule control but you get better technology development, because that is where the technology comes from is a competitive environment.

If we are at the point where the only place we can get competition is by going global, then that raises a whole set of new issues. And I think DOD still operates under the idea that 95 percent of all good new ideas are being developed in America. That may be true in the very narrow defense part of the universe that Defense Advanced Research Projects Agency (DARPA) looks at, for instance, but I don't think it is true in terms of where global technology is going at all. I don't think we have a lock on new technology anymore. And so that delicate balance of how do you balance competition, domestic protection, with globalization is one that hasn't been wrestled with.

I think all of those are critical questions.

Mr. DONNELLY. I agree with essentially everything that my colleagues have said, but just to gild the lily a little bit, it is worth remembering that there was a significant round of industrial consolidation in the 1990s after the end of the Cold War, but that actually didn't go as far as some people wanted to make it go, because people were reluctant to sort of take apart the arsenal of democracy on the chance that we would need to use that again. It has been about 15 years since that happened, and the fundamental imbalance between the structure of the industry and the amount of work that the industry has to do is leading us I think to the situation that we see before us and inevitably another round of industrial consolidation.

We have kept two nuclear submarine shipyards open because they are regarded as national treasures, but we have never had enough work to justify those two yards and have come up with all kinds of Rube Goldbergesque arrangements to keep both—some work going into both yards.

The further canary in the coal mine here is the question of the industrial workforce, which has a huge demographic hole in its middle. You have the people who are now relatively senior who

have spent their careers in the defense industry reaching the end of their careers and because of the financial constraints there was essentially a hiring freeze, or close to it, during those late 1990s or early 2000 years. So what you have is a very immature workforce, if you will, at the bottom and a very small, the kind of, you know, ballistic missile pocket protector generation that is reaching the end of its career at the top end and very little experienced middle management in between. And there are bound to be consequences of that going forward that will probably lead to further snafus in program management and the inability particularly to integrate large-scale efforts, even if they involve as many electronics, as they do, platforms.

Mr. MCKEON. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. McKeon.

We are under the five-minute rule, Mr. Ortiz.

Mr. ORTIZ. Thank you, Mr. Chairman. I can remember during the first Bush I war with Iraq that we were having problems with our allies because they could not really help us, because we were so advanced technology-wise that we didn't get much help from them. Sometimes I wonder whether we are spending a lot of money on weapons that we don't need to fight a war with. Maybe I am wrong, this is only my personal belief. But then we talk about how the benefits to our soldiers and pay has gone up. But what bothers me is that when you look at the big picture and you look at the two theaters, war theaters in Iraq and Afghanistan, when you have got more contractors than you have troops, that bothers me.

And I know that this has created a problem because some of the soldiers that we are trying to get out—their time ended, they spent time and they were getting out and here comes the backdoor draft and they wanted to come out because they were going to get a job with the contractors and they were going to get paid $130,000 or $140,000 a year. For the specialists they were making $45,000. I don't know. And then we have all this equipment that has been destroyed. And when you go and you visit the National Guard units and the reserve units you will find that most of the equipment that they had before the war has been left behind in Iraq or Afghanistan. And we have to realize that they fight or they answer to two masters, the Federal Government and the states.

So looking at this problem that I have mentioned, the contractors, the pay increases, the weapons that maybe we don't need, how can we grasp it and bring it in, rein it in so that we can reduce some money? I throw these questions to you, and maybe I am wrong, but I see a lot of things that need to be done, but how do we rein them in to do what is best for our troops and for the taxpayer?

And now I leave it in good hands.

Dr. GOLDBERG. Mr. Ortiz, a very interesting set of problems that you raise and I have a few comments coming from a couple of different directions. One argument that we have made at CBO in terms of contractors may actually be a cheaper solution than increasing the force structure for a couple of reasons.

One is that many of the contractors who hired in the theater are either host country nationals, Iraqis, or third country nationals who get paid a lot less than the American expatriates, the Amer-

ican veterans, who hired at some of the high salaries that you mentioned. A lot of the third country nationals are paid considerably less because they don't have the options that we have here.

And another thing about contractors is—the advantage of contractors is they are temporary. When you don't need them, terminate the contract. Whereas if we wanted to have our U.S. Army units perform a lot of those functions, we would have to build presumably permanent end strength and we have to provide dwell times for each battalion that we deploy to the theater. We have a battalion or two here in garrison recuperating. So you multiply the cost of increasing force structure of two or three when you consider dwell time.

So contractors in many cases can be an effective solution. You don't have to maintain a garrison here, you don't have to maintain a rotation base, and when the war is over you just end the contract and that is it.

As far as the equipment, that is an important concern, the equipment that is been worn out, and we have done some estimates early in the year. Equipment reconstitution costs; that is, replacing, repairing the equipment that was worn out, damaged, lost, during the war will probably take an extra two years, even after the conflict in Iraq ends. So we see costs going out as late as 2013 to get the force, including the National Guard, their equipment back to the state where they were again ready to perform all their missions.

Mr. DAGGETT. I will just make one point echoing that. We have a couple of reports that have looked at new information that DOD is providing recently on use of contractors, specifically in Iraq and in Afghanistan. As Matt said the bulk of the contractors, particularly in Afghanistan are third country nationals, neither U.S. nor Afghan, and they perform a lot of the basic functions.

So use of contractors now appears to be built into the way in which the U.S. deploys forces abroad for good or real, but a lot of it is the people who get attention are contractors for security functions and things of that sort. The bulk of the contractors are not for those purposes. They are for food services and transportation and things of that nature, which otherwise would be more expensive if they were handled by U.S. military personnel.

Mr. ORTIZ. You know, and the numbers I am giving you from what I understand are not contractors from those countries.

Mr. DAGGETT. Yes.

Mr. ORTIZ. I am talking American contractors who are paid hundreds of thousands of dollars.

Mr. DAGGETT. Well, they are contracted by American firms generally, but the people they hire for most of these activities, again food services and transportation, very undramatic kinds of things, are mainly nationals of other countries. The high-profile contractors really are Blackwater and things of that sort. They have gotten the bulk of attention. Those people to tend to be considerably higher paid, Special Forces, American Special Forces personnel have been leaving the force to join those kinds of contractors, and that has presented a problem in retention in Special Forces, yes, but that is a relatively smaller part of contractor pool.

Mr. ORTIZ. My time is up.

The CHAIRMAN. I thank the gentleman.

Mr. Bartlett.

Mr. BARTLETT. Thank you very much, I have three quick concerns. Let me express them.

Mr. Daggett, you mentioned the asymmetric warfare that we are involved in and that we will be attacked where we are weak and perhaps here in the homeland. I would suggest that one of our greatest vulnerabilities, not just in the homeland but our military, is our susceptibility to—our vulnerability to electromagnetic pulse (EMP). We may avoid that, sir, but what we may not avoid is a major solar storm of the Carrington magnitude. A high official in Federal Energy Regulatory Commission (FERC) told me that if that happened our grid would come down, cascading bring down some of the major transformers, it would be perhaps several years before the grid was back up. I asked him the consequences of that. He said probably 80 percent of our population would die. I see no activity on the part of either the military or the Homeland Security that addresses this enormous threat to life as we know it.

Secondly, Mr. Berteau, you mentioned unaddressed risks, I read just recently China developed and is now fielding an anti-ship missile. If that is a cruise missile, supersonic, we have no defense against that. We would have to stand off 1,200 miles from any land where an enemy had that kind of a weapon.

I see no indication that we are addressing that and reordering our military for the future to that reality, which is here and will increase.

And thirdly, Mr. Donnelly, you mentioned that our military expenditure today is less in terms of GDP than it has ever been. I would suggest there is no shortage of money. What there is a shortage of is our ability to convince the American people that we need more money. The American people will support any level of funding of the military which is necessary to address our national security interests.

Am I wrong in having these concerns?

Mr. DAGGETT. On EMP, I know that you have been involved in a commission that has been studying electromagnetic pulse (EMP) issues. I have to say I haven't looked at it as thoroughly as I think I probably should. I have taken a look at some—lots of different studies of potential future asymmetric threats.

I discussed one——

The CHAIRMAN. Would you get just a little closer to the microphone?

Mr. DAGGETT. Yeah. I discussed one set of those challenges in the testimony, which is access denial kinds of challenges, which I am convinced is an increasing problem for U.S. Naval forces. But the United States is beginning to address that. The decision to terminate DDG–1000 and use, instead, DDG–51 as a basis for blue-water forces reflects, I think, in part a decision that it is more difficult to maintain a ship of the size of the DDG–1000 in littoral waters given area denial strategies by the Chinese and by others than in the past. And that can include not just antiship cruise missiles, as you mentioned, but also smart mines, even precision-guided ballistic missile capabilities and things of that sort, let alone small boats with suicide bombers on board.

So there are a lot of those kinds of challenges. And EMP is one of them. But there are a number of other asymmetric challenges which we are going to have to cope with in the future. And, as I said, I think they could in the future become a pretty significant budget driver.

Mr. BERTEAU. Mr. Bartlett, let me respond to both your first two points there.

On the vulnerability on the grid, I would urge you as you are looking at defense next year also to notice that it used to be, 15 years ago, that much of the defense infrastructure in the U.S. had its own independent power sources. Today, that is no longer true. We have now privatized, and DOD is largely dependent on the commercial grid.

Mr. BARTLETT. Sir, we have gone in the wrong direction, haven't we? The military ought to be able to island itself. We have a bunch of our electric production which cannot do a black start; it has got to have electricity to start if it if goes down. We will now be incapable of that.

And wouldn't it be a good idea if the military could island itself so it could be a starter for this?

Mr. BERTEAU. And I suspect there is a third option there from a technology point of view that ought to be looked at.

From the unaddressed risk things, particularly the one you raised—and we can't talk about much about it here in an open session. But I actually think the QDR has done a better job on these sets of risks than in many other areas, and I suspect that you will be able to see some of the results of that when the QDR is released.

Mr. DONNELLY. Mr. Bartlett, apropos of your last question, I agree wholeheartedly. The willingness of the American people to fund an adequate defense is quite remarkable.

Just to pick a rather—almost unhappy, but I think illustrative example, the Congress, and even including many Members who disagreed with President Bush's war policy in Iraq, fully funded essentially every request to support the forces in the field that was made, over dozens and dozens of votes.

So if there is strong and articulate leadership on the part of our politicians, I am quite convinced that Americans will do what is necessary, particularly when they rightly and properly understand that the cost isn't nearly as great as some measures make it appear to be, and that the costs of not doing so are as dire as they obviously are.

The CHAIRMAN. I thank the gentleman.

Mr. Taylor, the gentleman from Mississippi.

Mr. TAYLOR. Thank you, Mr. Chairman.

And thank you, gentlemen, for being here. Three questions:

How much a month to run the United States effort in Iraq?

How much a month to run the United States effort in Afghanistan, DOD dollars?

And lastly, I am looking at your report, and if I have read it correctly, you say that about 20 percent of our budget, DOD budget, is procurement, 15 is R&D, 35 is O&M, and 25 percent is military personnel. I am curious how that tracks historically.

If we were to go back 10 years, 20 years, 30 years, is that about how it has always been, or is one portion of this getting out of kil-

ter? And I am particularly interested in rate of return for our R&D money. Are we getting what we are paying for there?

So I will open that up to the panel. First is the hard numbers on Iraq and Afghanistan, whoever can provide those.

Dr. GOLDBERG. Mr. Taylor, I am better prepared to talk about Iraq. We did a study recently on the President's plan to draw down from Iraq. I would refer you to that study. And we are showing that the Administration's plan, which would take out about three brigades per month, would total 156 billion to complete the operations in Iraq through——

Mr. TAYLOR. That wasn't the question, sir.

The question was how much per month DOD money for the United States effort in Iraq and same question for Afghanistan?

Dr. GOLDBERG. The monthly burn rate now, we are looking at about five billion a month.

Mr. TAYLOR. In Iraq?

Dr. GOLDBERG. Total Iraq and Afghanistan.

Mr. TAYLOR. For both?

Dr. GOLDBERG. For both.

Now, what we have not done yet—because we haven't gotten a request, Mr. Taylor—is to look specifically at whether the cost of operations in Afghanistan, how they would differ for the same troop level, or per troop, from what we see in Iraq. I suspect it would be more expensive to conduct operations in Afghanistan because of the terrain and the geography, but I don't have those numbers. That is something we have not yet looked at at CBO.

Mr. TAYLOR. Okay. How about the DOD budget pie and the percentages that I gave you? How does that track historically going back 20, 30 years?

Dr. GOLDBERG. The numbers you gave are indeed our numbers. And there has been a trend, going back, say, through 1980—I have the chart, and it is in our testimony; there was a big bulge in procurement in the early 1980s during the Reagan years, and much smaller during the 1990s during the Clinton years. And right now we are at about the percentage or close to the percentage that we had during the Reagan years when you include the procurement that was in the supplementals as well as in the base budget.

Military personnel has been growing, and operations and maintenance have been growing, particularly since about 2000. It was in 2000 when a lot of the changes were enacted, the repeal of the REDUX retirement, in other words making retiring at 50 percent rather than 40 percent of base pay, the concurrent receipt of veterans' benefits, et cetera.

A lot of those changes were passed in 2001—time frame, TRICARE for Life. So the military personnel costs have really been increasing since about 2000–2001, and that has taken a bite out of procurement, and it has taken a bite out of the RDT&E budget. That is really the main thing I see.

How the future is differing from the past is, we have a momentum in military personnel and in operations and maintenance to the extent that civilians get paid out of that account that is squeezing out the procurement accounts.

Mr. TAYLOR. Is the ratio of R&D to procurement, has that been constant, say, over the past 20 or 30 years?

Dr. GOLDBERG. It has not been. R&D has been pretty constant in sort of real dollar terms, but procurement has fluctuated a lot. So the ratio of R&D to procurement was low during the Reagan years when procurement was high. I think it is easier to say it the other way around. Procurement was the dominant factor in the 1980s, less so in the 1990s, when RDT&E was pretty flat and procurement came down. And then, more recently, since 2000, procurement has been up again and RDT&E kind of flat, so procurement has been a higher fraction.

Mr. TAYLOR. Okay.

Mr. BERTEAU. Mr. Taylor, if I could add two things to that from our CSIS work, two anomalies, I think, are worth your paying attention to here.

Everything that Mr. Goldberg says is correct. But the growth in the percentage of O&M over the last 10 years has been historically unprecedented; and absent changes in getting that under control, that is going to continue to be the most significant unfunded shortfall.

Mr. TAYLOR. Now, that is a huge thing. So is that medical, is that housing, is that equipment repair?

Mr. BERTEAU. It is a combination of increased pay for civilians, increased use of contractors, and supplemental costs from the war.

Mr. TAYLOR. Okay.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank the gentleman.

Mr. Franks.

Mr. FRANKS. Well, thank you, Mr. Chairman.

Thank all of you here today.

Mr. Donnelly, if it is all right, I am going to start with you. You know, I know the Administration continues to talk about the nominal increase in the defense budget, but you point out so effectively that that is not a reflection of the actual increases as a part of GDP.

And the service chiefs tell us all the time that they need more. And I think that their challenge is complicated by the fact that so much of the time their baseline budget is being eaten up by personnel issues.

And there is a major shift. And Mr. Taylor, I think, was trying to get at that point. And if I can just be very direct here, it seems this Administration finds massive amounts of money for bailouts and economic stimulus packages, but not enough to fund the basic money needed for the defense hardware and the equipment reset for this country. And there is, of course, a point—I won't say of no return—but where it becomes very difficult to undo all of that because we reach a tipping point and our future capability is diminished. And with all respect to Mr. Daggett, I think that we too casually consider a future where America's military capability and our influence is diminished and more balanced in the world. And I think that has pretty profound implications for the future and for freedom itself.

And so, with that, when do you think or do you think we are actually facing some critical junctures here where if we don't react, there could become some tipping points in our future that would be very difficult to recover from?

And I will ask that generally, and hope I will have time for another question.

Mr. DONNELLY. Well, I will try to be succinct then.

I really believe that the coming year is very much a point of deflection. We have not only the Quadrennial Defense Review, but the Nuclear Posture Review and the Space Review; we have a new budget, the first fully vetted or the first budget that will fully reflect this Administration's priorities. And the path that we are on, I think is pretty clear. So the conversation, particularly in the Congress this coming year, is going to be really quite critical.

I would just conclude with, I don't believe that the ebbing of the Pax Americana is anything like inevitable. And I think it would be ahistorical to suggest that there is an ironclad connection between, you know, slice of global GDP and strategic preeminence. Great Britain at the height of the Pax Britannica never accounted for more than nine percent of global GDP, yet they were still able to rule the waves and essentially establish the international order.

So I think that issue needs a lot more reflection and work than is often given.

But again I would say that this coming year and the decisions that we will see enumerated in the various reviews and the numbers that we will see in the budget and FYDP presented to Congress really mark a fork in the road for us. And if we—we should think very hard before we go down that path.

Mr. FRANKS. I suppose, if all philosophies at the table were of equal import or equal effect in the world, it wouldn't bother me so much. You know, I wouldn't mind handing over some of this responsibility to China if I had the confidence that they would take care of freedom. Given their own record, it makes even the most casual among us a little concerned.

And you know, I am also—it seems like there is an old saying that there is nothing so tragic in the world as a beautiful theory that becomes totally destroyed by an unruly set of facts. And the realities in the world, I think, that we face are pretty significant. And when two airplanes hit two buildings it cost our economy two trillion dollars, which is about four times our Defense Department budget at the time. So I am just concerned that the more pressure we put on our military and our defense capability, that the more significant those risks could grow in the future, and that we ask very noble people to do things that are really almost impossible to do. And we keep handing them that equation.

So let me ask you, what do you think the proper percentage of GDP should be for the military, and the fact that, if it is a percentage of the GDP, it increases as the economy grows? What should that percentage be?

Mr. DONNELLY. I don't think that the GDP metric tells us what is affordable or not. If it were so high that it would cripple the ability of our economy to grow, that would be—I think that is when you really begin to worry. But whether it is, you know, four percent or five percent, it is clearly consistent with historical patterns of economic growth and higher defense spending.

So I think the question is whether it is adequate to meet the strategic requirement or achieve the goals that we have set for ourselves. I think that is highly debatable at this point.

But if you are asking, can we afford a sufficient defense, I also think that is a no-brainer kind of question too. Four cents out of our dollar, five cents out of our dollar won't beggar us and won't prevent our economy from growing, but it could quite clearly close a number of these gaps that my colleagues have mentioned.

The CHAIRMAN. Thank the gentleman.

Mr. FRANKS. Thank you, Mr. Chairman.

The CHAIRMAN. Dr. Snyder.

Dr. SNYDER. Thank you, Mr. Chairman. You all have given us a lot to think about today.

I want to be brief in my question and let each of you discuss the answer in the time that I have. We are talking today about the Defense budget, but we probably would be smarter as a country if we were talking about the national security budget.

Mr. Daggett, you referred several times to you think the future is—I believe your words were—"cooperative relationships." The Secretary of Defense has been probably the leading spokesman in the last year or two of the Bush Administration about the need to increase our investment in diplomacy, and the State Department—State Department budget, State Department employees, U.S. Agency for International Development (USAID), USAID budget—and yet in the process we have here on the Hill we don't really balance a line of helicopters versus the budget for USAID. In our budget process it will be basically a top line versus a top line on the floor of the House, which I don't think gets at all to the kind of weighing that we should have.

Let me start with you, Mr. Donnelly. How should we, as Members who are trying to sort this out, look at the overall national security budget that is much broader than just Defense? And much broader, by the way, than just State Department and USAID. We have veterinarians and the Ag Department and——

Mr. DONNELLY. I am absolutely sympathetic to your basic approach. And if you start using the kind of metrics that I used about the Defense budget relative to other elements of Federal spending or our economy as a whole, certainly our ability to afford better statecraft or create other elements of "national power," to use the silly term of art, to be able to do a better job of state building in Afghanistan or Iraq, again our ability to afford those things is quite clear. Again, the limiting factor, it seems to me, is not the size of the economy or the relative size of the Defense account or the State Department's budget, but the thing that is squeezing everything out is the mandatory spending for entitlements and debt service.

So to solve the long-term problem, to build the capacity that you refer to, which I think is essential, we really need a larger dose of broader fiscal discipline. To rob the Defense Department to create a more responsive set of diplomats or USAID seems to be kind of a zero-sum approach from where I sit.

Mr. BERTEAU. Mr. Snyder, if I could add a couple things to that, you will recall that the President, in announcing his initial Afghan strategy back in March, part of the element of that was what I believe he referred to as the "civilian surge." And it is interesting to compare what civilian surge capability is with what military surge capability is. And the orders of magnitude are wildly different. You can triple the capacity or the delivery of certain USAID services in

Afghanistan and you are still talking fewer than 30 people. If you triple the military surge capacity, you are talking 100,000 people.

So I think that the orders of magnitude are so different that we have a lot of work to do in terms of not only building the resources and putting them in place, but building the capacity and the capability to use those resources. That is a very significant challenge.

It is one of the best responses to the strategy issues that Mr. Daggett laid out in response to Chairman Skelton's question, but it is going to take us a good while to get there. And I am not even sure we have really started yet.

Mr. DAGGETT. I have been thinking about exactly the issue you raised. How do you even begin to think about the role of Defense in conjunction with the other agencies of government in setting global policy in this international environment? And I think there is a starting point for talking about it, and it is actually work done by the Intelligence Community (IC).

The National Intelligence Council (NIC) every five years does a report called Global Trends. The latest is Global Trends 2025. So it looks out 15 years. And it is a really pretty thorough look at the evolving international security environment.

And they emphasize a number of things. They do take a look really at military challenges, of the changes in military technology and how that is affecting security. But they discuss changes in financial power as well. They talk about the growth of ideological extremism, Islamic—you know, extreme Islamic fundamentalism as a persistent issue.

They also discuss things like energy policy, access to other kinds of resources, limitations on water resources as a potential source of conflict in many areas of the globe, regional conflicts over various other kinds of issues, the potential impact of climate change on all of the above, which tends to overlap where there are already potential bases for conflict in other areas.

So it is a good starting point for thinking about what are the kinds of problems the country as a whole needs to address, and then what agencies of the government are most appropriate to take the lead in addressing those kinds of challenges.

Dr. SNYDER. Thank you.

The CHAIRMAN. Thank the gentleman.

Mr. Conaway.

Mr. CONAWAY. Thank you, Mr. Chairman.

I have got a couple comments unrelated to anything you guys are even remotely responsible for, but they do tie in. All of these numbers that you churn around and play with are unaudited and unauditable. DOD across the system does a great job of thinking they know what the money is and where it is going, who is doing it. But they don't, they can't audit it, and so I am going to continue to beat on the Administration to continue this effort to get the numbers correct.

Now, at 50,000 feet, which is what we are talking about right now, it would take a spectacular error to sway these numbers much. But every one of those dollars we spend gets appropriated one at a time, even though en masse, and they get spent one at a time. And the DOD, along with the Intelligence Community, neither one of them can show us that they know for sure where all

this money is going. So we will keep pounding on them, with an acknowledgment that the basis for the conversation might not be as firm as we would like to have it.

Mr. Daggett, you had mentioned that the growth in compensation, regular military compensation, is about 45 percent above rate of inflation, which I think is reflective, if you look at Mr. Daggett's chart, of underpaying our military for a long, long time.

We made a concerted effort before I got here to try to right that ship. If you take a look at this chart, it looks like we are closing the gap. We still haven't closed it entirely.

While that is a factor, I think we need to recognize that in 1998 they were underpaid. And today I think they are probably reasonably compensated for what we are asking them to do.

But, Mr. Chairman, I want to yield back my time because I don't have any comments beyond that, other than to just thank you for having this hearing this morning. Thank you.

The CHAIRMAN. I thank the gentleman.

Mr. Kissell.

Mr. KISSELL. Thank you, Mr. Chairman.

And thank you, gentlemen, for being here today. Just a couple quick questions.

Mr. Berteau, you had mentioned something about, that our thinking sometimes excludes the technical advances that are made elsewhere in the world. I just wonder if there are any glaring examples there that we have overlooked.

Mr. BERTEAU. I think one of the primary areas was already referred to by Mr. Daggett, and that is in the rotary wing industry, in the helicopter industry, where the technological capacity from an avionics perspective, from a drive train perspective, from a turbine engineering perspective has evolved more dramatically with the commercial industry on the European side than it has on the U.S. side.

And I think, there we are being put at risk of future technology developments in the rotary wing industry, not from the electronics packages, from an equipment package point of view, from a mission package point of view, but from a platform capability point of view, or we run the risk of the Europeans leaving us behind dramatically there.

Mr. KISSELL. Do you think that is because we just didn't see the need for this or just somehow missed it altogether? How did that come to be?

Mr. BERTEAU. About 20 years ago we had the idea that we could push in the defense industry what we called "dual-use technology," that we could simultaneously have companies that were satisfying our highest-level military needs, and at the same time use much of the same fundamental core business base to satisfy commercial needs. That has proven to be a much more elusive objective than we thought it would be in the early 1990s.

I have not done a thorough assessment of this. Off the top of my head, I would say it is that, in part, the gap in Europe and the gap elsewhere in the world between military use and military technology and commercial use and commercial technology, is a more narrow gap elsewhere than it is in the U.S. In the U.S. it is a bigger gap.

We are always pushing for the latest technology edge. That makes it harder for our guys to bridge that dual-use gap there. It is an issue worth further study.

Mr. KISSELL. And, Mr. Goldberg, and if anybody else has any ideas on this, we passed a pretty sweeping piece of legislation, the Weapon Systems Acquisition Reform Act (WSARA)—get rid of the waste, let's do this better. But I have heard in different comments that you all have made that, you know, we still don't have a way of accounting for this, we still don't keep score, and all the things that we were wanting to address in that legislation.

Mr. Goldberg, do you see that legislation being effective towards helping this budget process?

Dr. GOLDBERG. Mr. Kissell, I am assuming you are referring to the legislation this session, the Weapons Systems Acquisition Reform?

Mr. KISSELL. Yes.

Dr. GOLDBERG. I think it is a little too early to tell, but I think there is great potential in that legislation, particularly redesignating the Cost Analysis and Program Evaluation office, the so-called CAPE, in DOD, which has the potential at least, if implemented correctly, to get more realistic estimates of cost and schedule not only internally to the Pentagon, but to the Congress, much earlier in the procurement process so there can be much better oversight.

So I think there is a potential there, if that office and that program is implemented correctly, for a lot of reform. I don't think it will solve any—I don't think it will solve all the problems; it is not a panacea. But it would give greater visibility and greater congressional oversight, so I think it has a lot of potential.

Mr. KISSELL. Any other thoughts on that?

Mr. BERTEAU. I would add one thing, sir.

At CSIS we are actually tracking the implementation of the Weapons Systems Acquisition Reform Act. And I will be glad to send you a copy of our report card when it is done.

On that particular point that Mr. Goldberg raised, better cost analysis, the Congress has just confirmed the new director of that position, and so—she will be in position shortly. They have yet to fill the billets of the additional staff, and they right now don't have the capability in place to do the additional cost estimates required by the law.

Mr. KISSELL. I would appreciate that information.

I yield back my time, Mr. Chairman.

The CHAIRMAN. Thank the gentleman.

We have Lamborn—wrong list. Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman.

Gentlemen, thank you so much for joining us today. I have a couple of questions for Dr. Goldberg and Mr. Daggett.

The decision has apparently been made to move on our aircraft carrier construction cost centers from four years to five years. And as we know, if you look at the cost of production there, those overhead costs haven't changed; they are going to continue along the lines.

My concern is that as you look at those overhead costs and that capacity, those costs are still going to be there. Those yards then

are going to have to look to distribute those costs elsewhere. And they also build other ships; my concern is, those costs might be shifted to the construction of other platforms.

We have also recently been unable to get a commitment out of the Under Secretary of the Navy concerning the commitment of the production of two *Virginia* class submarines per year. So if we go to a one-sub-per-year build, that concerns me also about the overhead costs, also those up-and-down cycles in manpower.

As you know, the folks that construct our nuclear subs and nuclear aircraft carriers are highly skilled individuals. If we are up and down on a roller coaster ride both with cost and with availability of personnel, that gives me some concern.

So I just wanted to get your perspective, if you can speak to those issues and give us your perspective on consistency in decision-making, whether it is on cost centers or whether it is on commitments on the number of subs that are being built.

Dr. GOLDBERG. Well, I think ultimately the decision to reduce the carrier force has been made on the basis of more strategic decisions, how many we need to meet the mission, and in particular, with the Fleet Response Plan and the way the Navy can get carrier presence, the feeling that they can get by with less. It does lead to volatility and a problem in covering overhead. Undoubtedly—I don't have estimates of those numbers, but undoubtedly, some of the costs of maintaining that capability at the yards will be passed on. We do not completely avoid those costs by reducing the frequency of the carrier purchases, and similarly with the submarines.

Mr. DAGGETT. Yeah, just a very general comment.

We haven't looked directly at allocation of overhead costs in shipbuilding for some time. My colleague, Ron O'Rourke, did a pretty detailed study of the shipbuilding industrial base some time ago, but it is getting pretty old at this point. So it might be time for another look at it, given the changes in requirements in the Navy.

In general, you know, a big issue for the shipbuilding industrial base has been, the Navy has been trying to put pressure on shipbuilders to invest in improvements in efficiency. And to my way of thinking, the more you have predictability in the shipbuilding plan, the more you can insist on that. So it is important for the Navy to settle on a pretty long-term sustainable shipbuilding plan.

And I can only think that the recent decisions will help to some extent in that regard. At least it is identified, we are going to build one carrier every five years. And as long as we follow through on that commitment, we can plan on that basis. It would be helpful from the point of view of the shipbuilding industry to get up to two submarines a year if possible.

But we are also now, you know, we know at least—I think, after the QDR, we will know whether we are going to go back to some version of DDG–1000 or, instead, rely on DDG–51 hull for most of the other—most surface-combatant basic designs. And it appears likely to be DDG–51 as the basic design. So that will rationalize that as well.

And you know, the comment I made in my testimony is, to the extent that we do have relatively long production runs of fairly stable designs of major ships and other systems as well, then we can

focus on efficiency-improving measures, including encouraging the industry to make more investments in those areas. So, you know, it could be a positive step in that direction, but we will have to see where it goes.

Mr. WITTMAN. One additional question to you both. Do you see the current course that we are on with strategic planning, authorization, and budget being in the proper balance to make sure that we provide for the robustness in our fleet, in our capability, but also making sure that we are looking at sustainability as far as our industrial base to meet those needs?

Dr. GOLDBERG. Sustainability is a big issue. And I guess I don't have any recommendations for how to do it differently.

One thing we didn't get this year was the Navy's annual shipbuilding plan, which helps us. We generally do an annual forecast of the sustainability of the program and the resources it would require, which we could not produce this year.

Again, I think, to echo what Mr. Daggett said, having a predictable plan that doesn't change year to year would be a good thing in terms of sustaining the industrial base and giving the yards a basis for forecasting their workforce. So I would hope that we could reach that state.

Mr. DAGGETT. Again, very much in general, since the end of the Cold War, we have really been in flux in terms of defining what the strategy is. And I do see a long-term trend.

I think if you read—if you start with the base force in 1990 and the Bottom-Up Review in 1993 and then the Quadrennial Defense Review since then, you see a progression. And the progression has been actually in the direction of broadening the kinds of challenges that we think we face. And that has led to—in turn, to really changes in our strategic plans and setting strategic priorities, the latest big change being an increased emphasis on ground forces, when all the trend previously had been moving away from that and making ground forces more deployable.

I am not sure we have reached the end of that discussion by any means. I mean, I think this QDR appears to be addressing some pretty far-reaching decisions about future threats that might be quite unique. So, you know, on the one hand we do want stability in shipbuilding and areas like that; we want to get there. But the discussion of strategy has really been moving in a direction that I think is coming to grips with actual—you know, real changes in the international security environment that we need to continue. And they are evolving and changing over time. There are new threats that we are facing, and we are going to have to figure out how to deal with that and how to shift investments in the Defense accounts in order to do that as well.

So I don't see us at the end of it by any means.

Mr. WITTMAN. Thank you, Mr. Chairman.

The CHAIRMAN. Mr. Coffman.

Mr. COFFMAN. Thank you, Mr. Chairman. Let me start with Mr. Donnelly, and then I will work my way to the left. And that would be that a concern of mine that we are so focused right now on asymmetric warfare or counterinsurgency operations that require very light forces.

Are we losing our focus on maintaining the type of conventional deterrence that is necessary with a resurgent Russia, with Iran, with China, with North Korea?

Mr. Donnelly.

Mr. DONNELLY. Honestly, I don't think so. You know, to talk to people in the Air Force or the Navy, you get much greater concern about, say, the rise of China and the growth of the PLA military capacity or, you know, lots of discussions about what an Iran campaign might look like.

However, you know, I think that it is true that in the political world the focus has been lost on that. And particularly wrestling with the Chinese challenge is just very difficult for people to come to grips with.

So it would be better if we could have an out-loud conversation about these things. And that would, I think, advance all our understanding, and we would probably come to some sensible answer and be able to balance these things appropriately.

But I am less concerned about the dialogue inside the Pentagon than I am sort of amongst the rest of us.

Mr. COFFMAN. Mr. Berteau.

Mr. BERTEAU. Sir, I think we are okay for now. I think the bigger question is, what does the longer-term structure look like and what are we willing to invest over the long term? And we really just don't have the visibility that we need to have into the Pentagon's thinking today to be able to answer that.

I am going to be cautiously optimistic for a little while until I see numbers that make me pessimistic. If I don't see numbers that sustain cautious optimism by next February, though, I am going to start turning more pessimistic.

Mr. COFFMAN. Mr. Daggett.

Mr. DAGGETT. Yeah. The argument you referred to, it seems to me, is mostly within the Army. It is really how the Army should be organized as much as anything else.

And, you know, it faces some difficult issues. Does it focus mostly on capabilities for irregular warfare or does it try to maintain, you know, large armored forces with offensive capabilities and so on, which some argue are becoming less relevant? And it is really a very vigorous debate going on inside the Army over how to square the circle essentially.

And, you know, I think what the Army—what I see the Army is coming down to is trying to maintain across-the-board capabilities and really struggling with the best way to do that. And I am not sure that they are at the end of the debate. I am not sure the answer they have come up with is the right one.

But for the present it appears to be that the basic unit will still be a brigade combat team. We will have a balance of heavy and light forces. And brigade combat teams in cases like Iraq and Afghanistan will be augmented to be able to carry out training with foreign militaries, but they will still be the basic unit. We are not going to build separate units specifically for training of foreign militaries. We will have some of those capabilities in Special Forces, but otherwise the all-purpose forces are going to have to remain all-purpose forces.

You know, whether that is sustainable or not, I am not sure. I am not sure you can train everybody for everything all the time. So, you know, it is a big issue.

Beyond that, the Air Force and the Navy are still focused on high-end combat.

Mr. COFFMAN. Dr. Goldberg.

Dr. GOLDBERG. Mr. Coffman, I would agree it is principally an Army issue. The promise that was put forward for Future Combat System (FCS) was that we would have a force that is lighter, faster, more easily deployable, and make some trade-offs in terms of less armor versus greater informational awareness. And the Army itself, narrowly, as well as in the QDR process, is rethinking that whole strategy, what kind of manned vehicles they want. And I think that is really where the debate is.

I don't know how it is going to turn out. But in the next few years, as we see what the successor is to the FCS program, the Army ground combat program, we will get a better idea.

Those considerations of lighter, faster, more deployable, I think, are very important because we don't know where we'll be—nobody knew we would end up—15 years ago that we would end up in Iraq and Afghanistan. And the fact that we have great mobility assets and some lighter forces has turned out to be fortuitous.

Mr. BERTEAU. Mr. Coffman, could I add one thing to that?

Mr. COFFMAN. Please.

Mr. BERTEAU. Both my colleagues to the right indicated this is primarily a ground forces or an Army issue. I think it is important to keep sight of the lift problem as well.

For much of my career we have had more Army than we could move on the timetable. That was the whole driver behind the FCS. And if we do rethink that, the role of the Navy and the Air Force is going to be very, very powerfully affected here in terms of both sealift and airlift. And it is pretty easy to project scenarios in which we don't have nearly enough of either.

Mr. COFFMAN. Thank you. Mr. Chairman, I yield back.

The CHAIRMAN. Thank the gentleman.

You know, in talking with the Army leaders, they are trying to train and build for a full-spectrum Army, and I have indicated to them there are only two problems with that: One is time and one is money. And I think it might be very difficult to train a soldier to be a first-class individual in the mountains doing Special Operations-type and then a platoon sergeant backing up an armored division across a plain. And I just don't see how that can happen.

Do you have recommendations for the Army along this line, Mr. Daggett?

Mr. DAGGETT. No. If I may, I think you have put your finger on precisely the issue; and I have to say I am not in the position to be able to judge how much training you can do.

The Army does insist that in Afghanistan and Iraq the brigade combat teams are quite capable, when augmented appropriately, of carrying out the training mission. And you know, I can understand, in particular in Iraq, that they are almost forced to come to that conclusion because if you are going to have a training presence still in Iraq, you don't want to rely strictly on the Iraqis for force protection. You want to have that organic to the training unit itself. And

if you are going to have a large self-protection capability, well, you may as well have a full brigade team with all the combat capabilities that go along with it.

So assigning your regular unit to do the training is quite likely the right answer in Iraq. Now, does that apply also elsewhere in the world or is the training mission more specialized than that, requiring, you know, particular people with particular experiences? And the answer to that is maybe. That may be the case.

It may not be universally applicable elsewhere, but I don't see it as necessarily being the wrong answer under current circumstances, though.

Mr. DONNELLY. Mr. Skelton, if I could toss in two sentences. My colleague, Fred Kagan, and I did a whacking big study a couple years ago on sort of the future of American land power. So I want to recoup that investment briefly, if I could.

Actually, I think overall the Army is doing a pretty good job of adapting to an immensely wide variety of challenges. I mean, the kinds of operations that the Army has conducted in land forces more broadly over the last—since 9/11 ranges all the way from the most traditional kind of mounted armored—you know, the march to Baghdad in three weeks was, you know, arguably the best expression of blitzkrieg that there has ever been in terms of distance covered and so on and so forth.

But that same force has adapted quite remarkably to quite different irregular warfare challenges. And we have also learned that the best—that all kinds of training are not the same. Training, say, a Filipino counterterrorism unit as opposed to standing up an Iraqi Army or an Afghan Army while they are in the midst of fighting a war are quite different challenges. And when it comes to the Iraqi and Afghanistan experience, unit partnering has proved to be the most efficient and the most effective means of increasing the capacity of our partnering forces, which sort of throws you back onto the brigade combat team as, actually, a quite useful tool in this regard, although it needs enablers of all kinds to be able to do this.

So when you are talking about the full spectrum of operations, I think that is just the reality. And the Army is not buying a lot more heavy tank units as it adds forces. And even now it is shifting a number of heavy brigade combat teams (BCTs) to Stryker-equipped BCTs. So the balance of the force is slowly shifting, but the broad capabilities that it retains have all been employed at very high rates in recent years.

The CHAIRMAN. Thank the gentleman.

I have Mr. Spratt, and then as I understand it Mr. Bartlett has a second-round question.

Mr. Spratt.

Mr. SPRATT. I am sorry to be late in arriving. I heard from half the team before because we had a similar hearing on the Budget Committee and had a briefing this morning.

This may be redundant to what you have already discussed, but there is lots of talk now about how much it costs to deploy one troop, one combat trooper, to a theater like Afghanistan or Iraq. And the number being bandied about now is a million dollars incremental cost.

Do you think that is a valid estimation? And if not, what is the proper way to calculate on the back of an envelope the incremental costs for deploying troops to theaters like this on an average annual basis?

Dr. GOLDBERG. Mr. Spratt, I would have to take that for the record.

We have not at CBO done an explicit study, particularly of the conditions in Afghanistan, as opposed to the combined Global War on Terror (GWOT) Central Command (CENTCOM) operations, which were the basis for our previous estimates. So I don't really have it at this time. And I entertain a request from either this committee or the Budget Committee to do a more detailed analysis of the cost of operations in Afghanistan. I don't have that at the present time.

[The information referred to can be found in the Appendix on page 111.]

Mr. SPRATT. Okay.

Mr. Daggett.

Mr. DAGGETT. Can I say we have looked at it, just as you said, just as a really back-of-the-envelope calculation. And the calculation is pretty straightforward.

The most recent estimate of costs in Afghanistan is, it is about $68 billion in fiscal year 2010, and that is for roughly 68,000 troops. So the math is pretty simple; it is about a million dollars per troop. But that is really just taking the top-line, total amount of spending that is allocated to Afghanistan and scaling it to the number of boots on the ground in Afghanistan.

And if you make an incremental change in the number of troops, does it scale one-for-one? And the answer is, a big part of it does. Eighty percent of that is military personnel and operation and maintenance, and that likely would scale pretty closely.

There are some parts of it that don't. Afghan Security Forces Fund, the amount of equipment we provide to equip the Afghan Army wouldn't necessarily change with the size of the U.S. force. It changes with the size of the Afghan force, but not with the size of the U.S. force. And there are some overhead activities which might not have to increase quite in proportion to the increase in the size of the force.

But that said, if it is not a million dollars per troop it is not far off, I think.

Again, it would be phased in over time, so it wouldn't be a million dollars the first year. But in the end, that is probably not far off from what the sustainment costs of a troop would be, I think.

Mr. SPRATT. Mr. Berteau.

Mr. BERTEAU. Similarly, sir, we have not looked at that specific question.

But I think that I would probably agree with the front end of Mr. Daggett's calculation, but not necessarily the back end. I think that the marginal change up or down for troops is actually quite dramatically different. And my own estimate, based upon the costs we have looked at, is that drawing down would not save you anywhere near a chunk of a million dollars per person. Increasing will cost you a little bit closer to that.

That is just the estimate. I think we would have to look at that further as well.

Mr. SPRATT. Mr. Donnelly.

Mr. DONNELLY. Very briefly—and I would never want to try to outdo my colleagues on the actual arithmetic of this, but I think there is one important conceptual thing to keep in mind in making these calculations, and that is, where do the costs of mobilizing Guardsmen and Reserve people, get accounted for?

There is certainly a large part—I mean, one of the reasons that we have done this is because we have been able to slough off personnel costs of mobilization into emergency supplementals and not increase active duty on the book's end strength. We have had more than 100,000 folks mobilized pretty much every day since 9/11. So certainly in Afghanistan, since Guard brigades have, for example, been responsible for the Afghan Army training mission, one of the things that you would want to pick apart, to understand where the money is actually going, is how much of it is going to mobilize Guardsmen and Reservists who account for active duty shortfalls?

Mr. SPRATT. One final question. We have got a Defense budget at historic highs. And when you look at the components of it, they are all swelling.

There is no single component that is driving this. The O&M costs and personnel costs due to the deployment of the troops to, and expeditionary forces, and the extraordinary wear and tear and the harsher environmental conditions on equipment, that is one factor.

And then you have got the increase in size of the personnel, 92,000 troops being added to ground forces, and increased costs per troop because of the benefit increases that we have effected over the last 10 or 15 years.

And then, of course, you have got acquisition costs, which are substantial with the Army redoing its forces, the Navy rebuilding its surface ship Navy, and the Air Force buying the F–35 and other airplanes.

Where do you look for savings in a budget like this at the present time?

Dr. GOLDBERG. I would say you really have to look hard at procurement, because all the personnel compensation changes are already built into the numbers.

In other words, so many improvements have been enacted to the point where I think we have achieved pay comparability and we have improved benefits and improved housing; and there is a momentum that carries those benefits forward. And there is no way to cut the benefits that have already been enacted.

And similarly in O&M, to the degree that O&M is funding civilian salaries, which tend to get parity pay increases with military personnel, and for other reasons—O&M has, so to speak, its own momentum—I would think the area with the most latitude for cuts would be the procurement accounts.

Mr. DAGGETT. Traditionally, when the budget has been declining, the part of the budget that has disproportionately been affected has been acquisition, has been procurement and R&D. They have declined—you know, they have declined very rapidly when the budget has declined marginally; they have increased very rapidly when the

budget has increased even marginally. So that is the variable part of the budget.

That said, by no means would I give up on looking at O&M as a potential place for savings. I would be very leery of projections that O&M costs are going to level off in the future. Historically, when the Defense Department has projected that, it hasn't worked out. And in the end, year after year, DOD ended up taking money out of the procurement accounts in order to pay "must" bills in O&M.

But again, it is not a reason not for looking very hard at it. You know, we spend something like $20 billion a year just on fuel. If you could reduce that by 10 percent, that is a pretty substantial saving right there. We spend about $27 billion a year on base operation support activities. So if you can improve efficiency even in operating your facilities by 10 percent, that is another two point five to three billion dollars.

So there are certainly areas you can look at in the O&M accounts to try to achieve some savings.

And I also think, frankly, if the budget is going to be constrained over the long term, one area in which there will have to be a discussion is whether we can sustain the increases in the size of the force we have agreed on recently. I see that as very much on the agenda. It is a difficult thing to take on, but if the budget is going to be constrained by the deficit situation in the long term, at some point it is almost unavoidable that you have to take a look at that, for good or ill.

The CHAIRMAN. Thank the gentleman.

Wrap it up, Mr. Bartlett.

Mr. BARTLETT. Thank you very much.

There is a reality that is very hard to avoid, and that is that the urgent almost always sweeps the important off the table—this dynamic, along with the assumption that the EMP threat is a very esoteric threat, probably coming only from a Russia or a China, which would result in all-out war and therefore very unlikely to happen, so we are not addressing this threat.

Let me suggest that it will probably come from a nonstate actor or a state masquerading as a nonstate actor. All that they need is a tramp steamer, a Scud launcher, which they can buy on the open market, and a crude nuclear weapon, perhaps one loosed from the Soviet Union dissolution or one from Iraq or Afghanistan. And, you know, if they miss their target by 100 miles it won't make any difference.

Now, this can't reach the center of our country, 300 miles high, and therefore take down our whole country, but it could take down all of New England, which would be Katrina 10 times over. And we are not certain but what the cascading effects of the collapse of the grid there would take down the grid in the rest of the country, damaging some transformers so that we could not bring the grid back up.

I know that the military is now taking a new look at EMP, thank God, because during the Clinton years we waived EMP hardening of all of our weapons systems. I asked why. As Solomon Ortiz says, we don't need any of this high-tech stuff to fight the enemies we are now fighting. And when we will need is against a peer or near-

peer, and one of the first things they do—it is in all of their war games, all of their open literature. One of the first things they do is an EMP lay-down, which will deny us the use of all of the equipment that is not EMP-hardened, which is essentially all of our equipment.

I understand now that the Pentagon is taking a new look at EMP. But they are looking at either the 30 or 50—it is not clear to me which—kilovolts per meter. The Russian generals told the EMP Commission that the Soviets had developed and they had a weapon which would produce 200 kilovolts per meter at the center, which was 100 kilovolts per meter at the margins of our country. And we have not, as I understand it, built or tested anything at that level, which would mean that what we think is hardened is not hardened, and about all we have hardened now is our command and control. It is a little bit like me having my brain and spinal cord work and my arms and legs won't.

I don't understand what good I would be in fighting a war if that is true. Are my concerns unrealistic?

Mr. BERTEAU. I have to say, Mr. Bartlett, that I came in here today with a long list of things that I was worried about. You have added one to that list. And I am going to have to tell you that I don't have a response to the challenge you have laid out there. It certainly seems to me to be worthy of more attention than I have seen it get.

Mr. BARTLETT. By the way, sir, the tramp steamer they launch that from will be sunk. There will be no fingerprints on it. You know, this is a huge, huge vulnerability. It would, in fact, end life as we know it in this country.

And I am very concerned that the urgency of processing these two wars have swept this really important defense off the table.

The CHAIRMAN. No comment?

Mr. DONNELLY. I am no EMP expert either. But in addition to a pulse that would be generated by a nuclear weapon—and this may reflect my limited understanding of the technology, but I think it is also becoming increasingly aware that there may be other means for generating for sort of tactical purposes——

Mr. BARTLETT. You are exactly right, sir, directed energy weapons.

The thing I mentioned in the previous question was, there is an absolute certainty there will be another major solar magnetic storm, perhaps of the Carrington magnitude; and if that happened, FERC tells me it would take down our grid, and it would cost a trillion to $4 trillion, I think, to bring it back, and take perhaps several years.

I asked them the consequences of that to our country. This is the magnetic storm. By the way, the same thing you do to protect against that protects you against EMP. And I asked, what would be the consequences of that?

He said probably 80 percent of our population would die. You are totally immune to EMP. You wouldn't even know it was happening if you looked in the opposite direction. But, you know, you can't eat. If there is no electricity, there is no anything in our culture. You know, I just think that we are permitting the urgency of these

immediate problems to sweep really important things off the table, and this is one of them.

There are others, but this is a major one.

The CHAIRMAN. Certainly thank the gentleman.

And if there is no further business, we appreciate the excellent testimony of our panel, and we look forward to seeing you again.

[Whereupon, at 12:01 p.m., the committee was adjourned.]

A P P E N D I X

November 18, 2009

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

NOVEMBER 18, 2009

Congressional Budget Office

Testimony

Statement of
Matthew S. Goldberg
Acting Assistant Director

Long-Term Implications of the Department of Defense's Fiscal Year 2010 Budget Submission

before the
Committee on Armed Services
U.S. House of Representatives

November 18, 2009

This document is embargoed until it is delivered at 10:00 a.m. (EST) on Wednesday, November 18, 2009. The contents may not be published, transmitted, or otherwise communicated by any print, broadcast, or electronic media before that time.

CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

Mr. Chairman, Congressman McKeon, and Members of the Committee, I appreciate the opportunity to appear before you today to discuss the long-term implications of the fiscal year 2010 budget submission for the Department of Defense (DoD). Decisions about national defense made today—whether they involve numbers of personnel, military compensation, or weapon systems—can have long-lasting effects on the composition of the nation's armed forces and the budgetary resources needed to support them.

Over the past seven years, the Congressional Budget Office (CBO) has published a series of reports about its projections of the resources that could be required over the long term (typically two decades) to carry out the nation's defense plans.[1] Those projections differ from CBO's baseline, under which discretionary defense spending grows at the rate of inflation without reference to DoD's plans.[2]

This testimony is the latest installment in CBO's analyses of DoD's budget requests. It concerns CBO's preliminary projections for fiscal years 2011 through 2028. Those projections are based in part on the President's 2010 budget request and budget justification materials the Administration provided to the Congress with that request.[3] Among the other sources CBO consulted to supplement its analysis were DoD press releases and briefing materials and the Secretary of Defense's announcement in April 2009 of changes to the nation's defense plans.[4] For its analyses of past budget requests, CBO has drawn from information in DoD's Future Years Defense Program (FYDP), which typically is submitted to the Congress with the President's annual budget request.[5] This year, however, the Administration did not submit a FYDP, which would have covered the years 2011 through 2015.

CBO projects that carrying out the plans proposed in the President's 2010 budget request, excluding overseas contingency operations (in general, overseas military operations against hostile forces—currently consisting of the wars in Iraq and Afghanistan and military actions elsewhere to combat terrorism), would require defense resources averaging $567 billion annually (in constant 2010 dollars) from 2011 to 2028 (see Figure 1 on page 16 and Table 1 on page 21).[6] That amount is

1. The first of those Congressional Budget Office reports, *The Long-Term Implications of Current Defense Plans*, appeared in January 2003. Each year since then, CBO has published summary and detailed updates (the latter in annotated briefing format); all are available online: www.cbo.gov.

2. Congressional Budget Office, *The Budget and Economic Outlook: Fiscal Years 2009 to 2019* (January 2009).

3. Department of Defense, "DoD [2010 Budget] Request," www.defenselink.mil/comptroller/Budget2010.html.

4. Department of Defense, "Defense Budget Recommendation Statement" (as prepared for delivery by Secretary of Defense Robert M. Gates, April 6, 2009), www.defenselink.mil/speeches/speech.aspx?speechid=1341.

5. The FYDP is a database that comprises a historical record of defense forces and funding as well as DoD's plans for future programs. The historical portion shows costs, forces, and personnel levels since 1962. The plan portion presents DoD's program budgets (estimates of funding needed for the next five or six years, based on the department's current plans for all of its programs).

6. In this analysis, CBO measures inflation by the implicit price deflator for gross domestic product, which measures overall prices among final goods and services in the U.S. economy.

about 6 percent more than the $534 billion in total obligational authority (TOA) the Administration requested in its regular 2010 budget, which is the portion of the budget that excludes funding for overseas contingency operations.[7] Four main factors account for the higher resources required in the long term:

- The likelihood of continued real growth in pay and benefits for DoD's military and civilian personnel;
- The projected increases in the costs of operation and maintenance (O&M) for aging equipment as well as for newer, more complex equipment;
- DoD's plans to develop and field advanced weapon systems to replace many of today's military systems that are nearing the end of their service lives; and
- Investments in new capabilities, such as advanced intelligence, surveillance, and reconnaissance systems, to meet emerging security threats.

Supplemental and emergency appropriations to fund overseas contingency operations totaled $164 billion in 2007 ($173 billion in constant 2010 dollars), or 27 percent of total budget authority for DoD that year.[8] In 2008, those appropriations peaked at $180 billion ($185 billion in constant 2010 dollars), again 27 percent of total DoD funding. In 2009, those appropriations dropped to $146 billion ($147 billion in constant 2010 dollars), or 22 percent of DoD's appropriations.

This year, the Administration has requested a full year of anticipated appropriations for those operations along with its regular defense budget request. In June 2009, the U.S. military had deployed 172,000 service members to the Iraq theater and 59,000 to the Afghanistan theater. The Administration's request of $130 billion for 2010 would support a smaller total number: 100,000 service members in Iraq and 68,000in Afghanistan.[9] CBO does not have access to DoD's estimates of costs for overseas contingency operations in 2011 or later that would have been contained in the 2010 FYDP.[10]

The long-term demand for defense resources could be larger than CBO's base projections. CBO has developed a scenario under which, consistent with the Status of Forces Agreement signed by the governments of Iraq and the United States in

---

7. All funding in CBO's projection is calculated as TOA, most of which is for annual appropriations sought by the department. Budget authority differs from TOA in that it includes the effects of certain receipts, permanent spending in certain trust funds and other accounts, and certain payments to the military retirement fund. In recent years, the difference between TOA and budget authority in subfunction 051 of the federal budget (Department of Defense, Military), which funds DoD, been $2 billion or less.

8. These figures represent discretionary appropriations in federal budget subfunction 051.

9. Department of Defense, *Fiscal Year 2010 Budget Request: Summary Justification* (May 2009), www.defenselink.mil/comptroller/defbudget/fy2010/fy2010_SSJ.pdf.

10. The Administration submitted a "placeholder estimate," however, in the President's 2010 budget request of $50 billion per year from 2011 to 2014. See Office of Management and Budget, *Updated Summary Tables: Budget of the U.S. Government, Fiscal Year 2010* (May 2009), Table S-12, www.whitehouse.gov/omb/budget/fy2010/assets/summary.pdf.

November 2008, all U.S. troops would be withdrawn from Iraq by December 31, 2011. The total number of U.S. military personnel deployed worldwide would decline to 30,000 starting in fiscal year 2013, although those troops would be in unspecified locations and not necessarily in Iraq or Afghanistan.[11] CBO estimates that supporting that number of deployed service members would require recurring annual appropriations of about $20 billion in 2010 dollars. CBO refers to those costs as "contingency unbudgeted costs."

Other factors also could increase defense spending above CBO's base projections. CBO designates "total unbudgeted costs" as the sum of contingency unbudgeted costs as well as other costs that are excluded from the projection of the regular defense budget. There could be higher costs for developing and purchasing new weapon systems; CBO's analysis of unbudgeted costs assumes the same percentage cost growth, on average, that has been observed in the past.[12] In addition, as has been true historically, medical costs could rise more rapidly than anticipated. When it estimates unbudgeted costs, CBO assumes that DoD's medical costs per capita will increase during fiscal year 2010 at the rates outlined in the department's annual inflation guidance memorandum.[13] For fiscal years 2011 and beyond, CBO assumes that per capita medical costs will increase 30 percent faster than the rates used in the base case.[14] The inclusion of total unbudgeted costs increases the projection to an annual average of $624 billion through 2028, or 17 percent more than the regular funding requested for 2010 (see Figure 1). Some 38 percent of the total unbudgeted costs between 2013 and 2028 are associated with overseas contingency operations.

---

11. Congressional Budget Office, *The Budget and Economic Outlook: An Update* (August 2009), pp. 21–26.

12. See Mark V. Arena and others, *Historical Cost Growth of Completed Weapon System Programs*, TR-343-AF (prepared by RAND Corporation for the United States Air Force, 2006), www.rand.org/pubs/technical_reports/2006/RAND_TR343.pdf; and Obaid Younossi and others, *Is Weapon System Cost Growth Increasing? A Quantitative Assessment of Completed and Ongoing Programs*, MG-588-AF (prepared by RAND Corporation for the United States Air Force, 2007), www.rand.org/pubs/monographs/2007/RAND_MG588.pdf.

13. DoD anticipates that medical costs will escalate more rapidly than general inflation. In the most recent programming guidance, the DoD comptroller promulgated inflation rates for 2010 of 7 percent for private-sector medical care purchased by the Defense Health Program (DHP), 10.1 percent for DHP pharmacy outlays, and 6.2 percent for other outlays by the DHP (mostly for in-house care provided at military medical treatment facilities). See Department of Defense, "Inflation Guidance-Fiscal Year (FY) 2010 President's Budget" (memorandum from the Under Secretary of Defense [Comptroller], February 13, 2009), www.ncca.navy.mil/services/PB2010_Inflation_Guidance_Feb_13_2009.pdf.

14. For the justification for the 30 percent acceleration in costs, see Congressional Budget Office, *Growth in Medical Spending by the Department of Defense* (September 2003), p. 14.

Under DoD's current plans and CBO's projections, defense spending would steadily decline as a share of U.S. gross domestic product (GDP).[15] That share dropped from an annual average of 5.6 percent in the 1980s to 3.8 percent in the 1990s and rose again above 4 percent starting in 2008 with supplemental and emergency funding included.[16] If DoD's current plans were executed, defense spending would fall to 3.2 percent of GDP in 2015 and to 2.6 percent of GDP by 2028. Spending would be higher with unbudgeted costs included, but it would still decline to 3.8 percent of GDP in 2015 and to 3.1 percent of GDP by 2028 (see Figure 2 on page 17).

The remainder of this testimony describes in more detail CBO's projections of funding for operation and support (O&S) accounts and for investment accounts. O&S accounts include the appropriation titles for military personnel, O&M, and various revolving funds.[17] I highlight causes of increases in those accounts over the past decade, some of which CBO projects will continue to grow for the next decade or two. Investment accounts are for developing, testing, and purchasing weapon systems and other equipment. I discuss possible budgetary effects of recent announcements by the Secretary of Defense concerning the restructuring or termination of several major defense acquisition programs.

Projections of Funding for Operation and Support

The 2010 regular budget request (excluding overseas contingency operations) includes $188 billion, or 35 percent of the total budget, for O&M and $136 billion, or 25 percent of the total, for military personnel (see Table 1).

Between 1980 and 2001, O&M costs per active-duty service member increased steadily by about $2,200 per year (in constant 2010 dollars). O&M costs have fluctuated above that trend since 2002 because the wars in Iraq and Afghanistan have required large amounts of O&M funding but more modest increases in active end strength (the number of active military personnel as of the last day of the fiscal year).[18] Those funds supported U.S. military forces in the Iraq and Afghanistan theaters, providing food, housing, and contracted security; fuel, spare parts, and

15. CBO's estimate of future GDP growth is based on continuing the series presented in *The Budget and Economic Outlook: An Update*.

16. Defense spending here is measured by the actual disbursements (outlays) from the Treasury that arise from funding for defense programs.

17. For its analysis, CBO treats the revolving funds as part of the O&M appropriation. The revolving funds generate receipts from fees charged to the military services and defense agencies. DoD also requested direct appropriations for the following funds in 2010: the National Defense Sealift Fund, the Defense Commissary Agency, Defense Coalition Support, and the Army's and Air Force's working capital funds.

18. The Army's active-duty end strength increased by 13 percent, from 480,000 in 2001 to 544,000 in 2008. The supplemental and emergency appropriations for Army O&M in 2008 totaled twice the amount in the regular budget for that year.

maintenance for military equipment; transportation of personnel and equipment to and from the theater; and other services. CBO's projections of the regular defense budget through 2028 include O&M funding that exceeds the prewar trend line by $12,000 to $15,000 per service member per year. Additional O&M funding would be required to support overseas contingency operations; CBO estimates that contingency unbudgeted costs would converge to $9,000 per service member annually in 2014 and beyond.

Important Influences on the Costs of Operation and Support

For its projections, CBO divided O&S funding into functional categories used by DoD's program analysts:[19]

- *Operating forces*—combat and support units assigned to combatant commands;
- *Medical*—medical personnel, military medical treatment facilities (MTFs), purchased care, pharmaceuticals, and medical accrual charges;[20]
- *Bases, installations, and infrastructure*—installations for military forces, communications and information infrastructure, central benefit programs for DoD personnel, and miscellaneous activities;
- *Command and intelligence*—operational headquarters, command-and-control systems, and intelligence collection;
- *Central training*—training at central locations away from service members' duty stations;
- *Central logistics*—depot-level maintenance, supplies, and transportation of materiel; and
- *Headquarters and administration*—acquisition infrastructure, science and technology programs, central personnel administration, and departmental management.

CBO assumes that all costs other than those for military and civilian pay and the two categories labeled "operating forces" and "medical" grow at the rate of general inflation (see Figure 3 on page 18 and Table 2 on page 22). Projected funding for operating forces exhibits real growth because as weapon systems age, their O&M costs increase as well. Moreover, new generations of weapon systems are likely to be more complex and more expensive to operate and maintain than the systems they replace.[21]

---

19. The definitions that follow are adapted from Ronald E. Porten, Daniel L. Cuda, and Arthur C. Yengling, *DoD Force and Infrastructure Categories: A FYDP-Based Conceptual Model of Department of Defense Programs and Resources* (Alexandria, Va.: Institute for Defense Analyses, September 2002).

20. Accrual payments for the cost of providing health care to certain military retirees are distributed among all of the O&S functional categories in the defense budget. To provide a comprehensive estimate of DoD's medical costs, CBO consolidated all such payments in the medical category.

21. Congressional Budget Office, *The Effects of Aging on the Costs of Operating and Maintaining Military Equipment* (August 2001).

Medical costs also have grown faster than other O&M-funded activities in the past, and DoD anticipates growth in per capita medical spending for in-house and purchased care. However, DoD anticipates that pharmaceutical funding per capita will experience a one-time decrease of about 11 percent from 2009 to 2010, due largely to a recent federal regulation that applies federal ceiling prices to pharmaceuticals covered by DoD's TRICARE system and purchased through its retail pharmacy network.[22] CBO's projection incorporates that reduction for 2010. After 2010, for the base projection CBO assumed that DoD's medical costs would grow at rates similar to those experienced elsewhere in the economy. It used projections of national health expenditures produced annually by the Centers for Medicare and Medicaid Services as the basis for those assumptions.[23]

CBO projects continued real growth in military and civilian pay. In November 2003, the Congress passed a permanent law that indexed the annual increase in basic military pay to the percentage increase in the Bureau of Labor Statistics' employment cost index (ECI) for wages and salaries in private industry.[24] The ECI grew more rapidly than the GDP deflator in all years but two from 1981 to 2009; CBO projects that pattern will continue between 2010 and 2028 and that growth of the ECI will exceed growth of the GDP deflator by an average of 1.4 percentage points per year. Furthermore, in 20 of the past 28 years the annual pay raise for federal civilians has been set equal to (and, in one year, above) the percentage increase in basic military pay.[25] Assuming that pay raises for federal civilians continue to keep pace with those for military personnel, CBO projects continued real growth in pay for both groups.

---

22. Manufacturers receive payment for the sale of drugs to federal agencies or under Medicaid as long as the prices they charge four government agencies (DoD, the Department of Veterans Affairs, the Public Health Service, and the Coast Guard) for brand-name drugs are no higher than the federal ceiling prices, which are computed as a fixed percentage of the previous year's average price paid to manufacturers by wholesalers. See Congressional Budget Office, *Prices for Brand-Name Drugs Under Selected Federal Programs* (June 2005), p. 8.

23. CBO derived its estimates for the growth of funding for DoD medical care from the hospital care, physician and clinical services, and pharmaceuticals portions of "National Health Expenditure Projections," www.cms.hhs.gov/NationalHealthExpendData/downloads/proj2008.pdf, published by the Centers for Medicare and Medicaid Services. Those projections extend only to 2018, and CBO assumed that growth would slow after that date, eventually reaching a rate in 2033 that is 1 percentage point higher than the growth of per capita GDP.

24. Section 602 of the NDAA for fiscal year 2004 (P.L. 108-136, 117 Stat. 1498, amending 37 U.S.C. 1009). See Department of Labor, Bureau of Labor Statistics, "Employment Cost Trends: Data Usage," www.bls.gov/ncs/usage.htm; and Charles A. Henning, *Military Pay and Benefits: Key Questions and Answers,* CRS RL33446 (Congressional Research Service, updated October 31, 2008), www.policyarchive.org/bitstream/handle/10207/20192/RL33446_20081031.pdf?sequence=3.

25. In three other years, 2000, 2001 and 2007, the pay raise for civilian employees was set equal to the across-the-board increase in basic military pay, but the Congress enacted additional military pay raises tied to seniority. Thus, the average military pay raise exceeded the civilian pay raise in those three years.

CBO's projections reflect several developments over the past decade that provided new or enhanced military benefits:

- *Changes to the REDUX retirement system.* The immediate annuity paid to military personnel who retire after 20 years of active service increased from 40 percent to 50 percent of a service member's "high-three" basic pay, and the system now provides full (rather than partial) cost-of-living adjustments each year.[26]

- *Establishment of TRICARE for Life.* Expanded health care coverage is now available for Medicare-eligible military retirees and their families, paying most of what would have been the retiree's out-of-pocket cost shares under Medicare as well as funding space-available care for retirees at MTFs.[27]

- *Elimination of the Social Security Offset for the Survivor's Benefit Plan.* The retirement annuity for surviving spouses who participate in the plan and attain age 62 increased from 35 percent to 55 percent of the deceased service member's retirement pay.[28]

- *Changes in the Rules Regarding Concurrent Receipt.* Several classes of retired military personnel are now permitted to receive military retirement pay without any offset for compensation from the Department of Veterans Affairs for a service-connected disability.[29]

- *Provision of Early Receipt of Retirement Pay by Some Reservists.* The age at which retired members of the reserve components can receive retirement pay was lowered to less than age 60 in some cases and is based on the accumulation of periods of active duty during the member's military career.[30]

In addition to those new benefits, the Congress has enacted real increases in basic military pay that affect the pay of active service members and their future retirement

---

26. The basic pay that determines an active-duty service member's retirement annuity is computed as the average of the 36 highest months of basic pay in the service member's career. The retirement changes were enacted in the National Defense Authorization Act for Fiscal Year 2000 (NDAA, Public Law 106-65, 113 Stat. 512) and affected service members who retired beginning in 2006.

27. TRICARE for Life was enacted in the NDAA for fiscal year 2000. The program is funded on an accrual basis, with payments into the Medicare-Eligible Retiree Health Care Fund charged against the military personnel accounts.

28. That change was enacted in the NDAA for fiscal year 2005 (P.L. 108-375, section 644, 118 Stat. 1960, 10 U.S.C. 1451).

29. The rules for concurrent receipt have been relaxed successively in the Bob Stump NDAA for fiscal year 2003 (P.L. 107-314, section 636, 116 Stat. 2574, 10 U.S.C. 1413a, as amended by section 642 of the NDAA for fiscal year 2004, P.L. 108-136, 117 Stat. 1566) and in the NDAA for fiscal year 2008 (P.L. 110-181, section 641, 122 Stat. 156).

30. That change was enacted in the NDAA for fiscal year 2008 (P.L. 110-181, section 647, 122 Stat. 160, 10 U.S.C. 12731).

annuities. DoD funds military retirement on an accrual basis, with payments into the Military Retirement Fund charged against the military personnel accounts. Higher basic pay today leads to higher projections of future retirement annuities, in turn requiring larger contributions today from the military personnel accounts into the retirement fund.[31]

Military Compensation

In early 1980s, several relatively large increases in military pay were enacted that purportedly equalized the pay scales for military personnel and the civilian workforce. However, many observers assert that since 1982 a gap has developed between basic military pay and civilian wages and salaries. The Congress has passed several measures in an effort to close that gap.

Pay Comparability. Up to 2003, the annual increase in basic military pay had been loosely linked to the percentage increase in the General Schedule pay scale under the Federal Employees Pay Comparability Act of 1990.[32] In November 2003, the Congress enacted a permanent law requiring that annual increases in basic pay from 2007 forward be indexed to the ECI. That law also stipulated that the pay increases for 2004, 2005, and 2006 exceed the increase in the ECI by one-half of 1 percentage point.[33] With the 2008 and 2009 pay increases, which also exceeded the percentage increase in the ECI, the pay gap, which in 1998 and 1999 reached 13.5 percent, was reduced to 2.9 percent (the percentage by which the cumulative increase in military basic pay since 1982 fell short of the cumulative increase in the ECI for wages and salaries in private industry; see Figure 4 on page 19).

The pay gap as conventionally measured might not provide the best information on the adequacy of military compensation. First, the broad sample of civilian workers included in the survey used to produce the ECI consists of people who are, on average, older than military personnel and more likely to have college degrees. Since 1980, the pay of college-educated workers has risen faster than that of high school graduates in the civilian sector. Also, the pay of older civilian workers generally has grown faster than that of younger workers.

Basic pay for enlisted personnel closely matches the 50th percentile (median) earnings for civilian counterparts of comparable age and education. With cash allowances

---

31. Those calculations are revisited each year by DoD's Office of the Actuary, most recently in "Valuation of the Military Retirement System: September 30, 2007" (December 2008), www.defenselink.mil/actuary/valbook2007.pdf.

32. An exception was the "pay table reform" that provided additional increases in basic military pay tied to seniority during calendar years 2000 and 2001.

33. Section 602 of the NDAA for fiscal year 2004 (P.L. 108-136, 117 Stat. 1498, amending 37 U.S.C. 1009).

included, pay for the average enlisted member in 2006 matched the 75th percentile of civilian earnings, exceeding DoD's stated goal of paying at the 70th percentile.[34]

The pay gap calculation focuses on one part of military compensation—basic pay—and ignores changes in other pay components. Regular military compensation (RMC) is a broader measure that, in addition to basic pay, includes housing and food allowances, which are not subject to the federal income tax. In addition to raising basic pay in 2000, DoD requested and lawmakers authorized a restructuring of housing allowances that eliminated out-of-pocket expenses typically paid by service members (those payments had averaged about 20 percent of housing costs).[35] Other changes were made as well: Allowance rates were more closely linked to increases in local housing prices, and service members were given "rate protection" from any declines in those prices.

With RMC substituted for basic pay in the comparison, annual increases in military compensation outpaced the corresponding increases in the ECI for 8 of the 10 years between 2000 and 2009. The pay gap recomputed using RMC reveals a pay surplus after 2002, standing at 10.3 percent as of January 1, 2009 (the percentage by which the cumulative increase in RMC since 1982 exceeded the cumulative increase in the ECI for wages and salaries in private industry; see Figure 4).

Ultimately, the best barometer of the effectiveness of DoD's compensation system is how well the military attracts and retains high-quality, skilled personnel. Overall, in recent years DoD has met its goals in recruiting and retaining active-duty members (perhaps because military compensation compares favorably with civilian options), notwithstanding the prospect of deployment to Iraq or Afghanistan.[36]

Many of the same considerations apply to DoD's civilian personnel. DoD's 2010 budget calls for employing 745,000 full-time-equivalent civilians who would earn $70 billion in compensation in that year. Of that sum, $56 billion would be paid from the O&M appropriation.[37] The same pressures that real increases (above general

34. The percentile comparisons were reported in Congressional Budget Office, *Evaluating Military Compensation* (June 2007). DoD's goal of paying at the 70th percentile was first stated in Department of Defense, *Report of the Ninth Quadrennial Review of Military Compensation* (2002), http://prhome.defense.gov/qrmc/Vol1/Pref.pdf.

35. Those changes were enacted in the NDAA for fiscal year 2001 (P.L. 106-398, section 605, 114 Stat. 1654A-147, 37 U.S.C. 403).

36. Congressional Budget Office, *Recruiting, Retention, and Future Levels of Military Personnel* (October 2006).

37. See the "Green Book," namely, Department of Defense, *National Defense Budget Estimates for FY 2010* (June 2009), Tables 6-1, 6-2, and 7-5, www.defenselink.mil/comptroller/defbudget/fy2010/Green_Book_Final.pdf. (The remaining civilians would be paid from other appropriation titles: For instance, civilians in military laboratories might be paid from the appropriation for research, development, test, and evaluation; civilians in acquisition programs offices might be paid from the procurement appropriation.)

inflation) in military compensation exert on the military personnel appropriation are reinforced by real increases in civilian compensation in the O&M (and other) appropriations, both contributing to the real increases in funding required for operation and support.

Unbudgeted Pay Increases. CBO's base projection assumes that military and civilian pay raises from 2011 forward will be set equal to the percentage increase in the ECI.[38] Among other factors, CBO's analysis of unbudgeted costs attempts to quantify the impact on future defense budgets if military and civilian pay raises above the ECI continue to be enacted. In particular, CBO's analysis assumes that military personnel and federal civilians will receive pay raises in 2011 through 2015 that equal its projection of the percentage increase in the ECI plus a premium of 0.5 percentage points. Funding those five years of larger pay raises would require an additional $2.8 billion in the military personnel appropriation and $2.3 billion in the O&M appropriation (to fund higher civilian salaries) by 2015. Although pay raises are assumed to revert to the ECI after 2015, the funding necessary to sustain the larger pay raises assumed from 2011 through 2015 would continue to compound in future years, requiring $3.6 billion in the military personnel appropriation and $2.8 billion in the O&M appropriation by 2028.

Projections of Funding for Investment

The 2010 regular budget request for investment (excluding overseas contingency operations) includes $109 billion, or 20 percent of the total defense budget, for procurement; it also includes $79 billion, or 15 percent of the total, for research, development, test, and evaluation (RDT&E, see Table 1). CBO's projection of $126 billion in procurement funding for 2020 is $21 billion below CBO's earlier projection that was based on the 2009 FYDP; CBO's projection of $187 billion in total investment funding for 2020 is $25 billion below its earlier projection (see Figure 5 on page 20, particularly the gap between this year's projection and the solid black line representing last year's projection, which was made on the basis of the 2009 FYDP).[39] The new,

38. DoD's 2010 budget requested a military raise of 2.9 percent and assumed a 2.0 percent raise for civilian employees (see Department of Defense, *Fiscal Year 2010 Budget Request: Summary Justification*). The 2010 NDAA authorizes a military pay raise of 3.4 percent to take effect on January 1, 2010 (Public Law 111-84, Section 601, enacted October 28, 2009). The corresponding pay raise for federal civilian employees has not yet been enacted. The version of the Financial Services and General Government Appropriations Act for 2010 passed by the House (H.R. 3170) would provide a raise of 2.0 percent for federal civilian employees, as requested by the Administration, whereas the Senate version (S. 1432) would provide a raise of 2.9 percent. CBO's base projection assumes raises of 2.9 percent for military personnel and 2.0 percent for civilians, as in DoD's budget request; CBO's estimate of unbudgeted costs assumes larger raises of 3.4 percent in 2010 for military personnel and civilians.

39. See Congressional Budget Office, *Long-Term Implications of the Fiscal Year 2009 Future Years Defense Program* (January 2009).

smaller projections incorporate recently announced changes to DoD's investment plans.

Basis of Projections

The Secretary of Defense announced several major changes to DoD's investment plans before the formal release of the 2010 budget.[40] Although additional details were provided in the budget request and in subsequent press releases and briefing materials, the Administration did not submit a FYDP (which would have contained projected funding and other program information through 2015) with its 2010 budget request. Nor did it submit year-end (December 2008) Selected Acquisition Reports (SARs), which would have provided cost, schedule, and funding data (including the estimated out-year funding requirements) to reflect the program of record for each major defense acquisition program.

In the absence of information typically available in a FYDP, CBO relied on the President's 2010 budget request, with its accompanying budget justification materials, and other sources (including the previous year's FYDP and SARs, to the extent they are still applicable) to project investment resources through what would have been the FYDP years (2011 through 2015) and further out, to 2028 (see Table 3 on page 23).

Important Influences on Projections of the Costs of Investment

This section provides four examples of changes in DoD's investment plans that CBO was largely able to anticipate and thus build into its projection of the 2010 defense budget. Those four changes affect the number of brigade combat teams (BCTs) in the active Army, the Future Combat Systems (FCS) program, the Airborne Laser (ABL) program, and sea- and land-based missile defense in Europe.

DoD's Plans to Lower the Target Number of BCTs in the Active Army from 48 to 45. According to the 2009 FYDP, DoD planned to expand the active Army from 42 to 48 combat brigades by 2013 (as well as 28 BCTs in the Army National Guard). In its 2009 edition of *Budget Options,* CBO noted that the active Army would probably be unable to identify 23,000 additional soldiers (beyond those already identified) to fully populate 6 new brigades under the current cap on total Army personnel.[41] In April 2009, the Secretary of Defense proposed curtailing the number of BCTs at 45 (versus 48) as a means to ensure that deployed units are fully staffed and to end the routine use of "stop loss" (the practice of involuntarily retaining deployed soldiers past the end of their enlistment or reenlistment contracts, until after their units return to the United States). The Secretary also proposed maintaining the active Army's planned end strength at 547,000. CBO estimates that by holding that end strength,

40. Department of Defense, "Defense Budget Recommendation Statement."

41. Congressional Budget Office, *Budget Options, Volume 2* (August 2009), Option 050-1, p. 6.

DoD can avoid requesting as much as $16 billion over the next five years in budget authority that would be required for the permanent expansion.[42]

DoD's Plans to Cancel the Manned-Vehicles Portion of the Army's FCS Program. The FCS program had been planned to encompass eight new models of manned combat vehicles as well as new unmanned aerial and ground vehicles, sensors, and munitions. All of those components would be linked by advanced communications networks into an integrated combat system. In January 2009, CBO projected (on the basis of the 2009 FYDP) that the Army's FCS program would cost $60 billion over the next 10 years; "spinning out" technology enhancements to all of the Army's infantry BCTs would cost $10 billion; the upgrades and purchase of combat vehicles would cost $28 billion. The combined 10-year cost of those related programs would have been $98 billion.

The Secretary announced in April 2009 that DoD would cancel the manned-vehicle portion of the FCS program. The department would then reevaluate that component and restart it at some unspecified time in the future. Further details concerning the revised FCS program, including funding estimates and delivery schedules for the various components, will most likely not be available until DoD submits its 2011 budget (and associated FYDP) in February 2010. As a substitute for the FCS plan that would have procured about 300 new vehicles per year, CBO analyzed a plan under which the Army would upgrade its existing Abrams tanks, Bradley fighting vehicles, and M109 self-propelled howitzers and also purchase new Stryker wheeled vehicles. CBO estimates those upgrades and new purchases of an average of 770 vehicles per year would cost a total of $43 billion between 2010 and 2019. In addition, CBO estimated a cost of $37 billion over the same 10-year period to spin out improved communications and other systems for all 73 of the Army's active and National Guard BCTs.[43] All together, the program assumed in CBO's projections would cost about $18 billion less over the next 10 years than the plan in the 2009 FYDP. (The Secretary's announcement concerning FCS left open the possibility of restarting the Army's program to

---

42. The Secretary of Defense also announced a temporary increase in active Army end strength from 547,000 to 569,000 through fiscal year 2012 for the purpose of "[ensuring] that our deployed units are properly manned, and not to create new combat formations" (see Department of Defense, "DoD News Briefing with Secretary Gates and Chairman, Joint Chiefs of Staff Adm. Michael Mullen" [news transcript, July 20, 2009], www.defenselink.mil/transcripts/transcript.aspx?transcriptid=4447). The Secretary indicated that the increase in end strength for fiscal years 2009 and 2010 could be achieved without requesting any additional budget authority. Subsequently, the Office of Management and Budget identified a requirement for about $1 billion in 2010 to train 15,000 additional new soldiers, and recommended that those funds be reprogrammed from various accounts, including about $700 million originally slated to purchase MRAP and High Mobility Multipurpose Wheeled Vehicles (HMMWVs) (see Megan Scully, "Obama submits plan to pay for troops," *Government Executive*, August 14, 2009, http://www.govexec.com/dailyfed/0809/081409cdpm1.htm). The proposed source for funding in 2011 and 2012 remains to be determined.

43. Congressional Budget Office, *Budget Options, Volume 2* (August 2009), Option 050-4, p. 10; *An Analysis of the Army's Transformation Programs and Possible Alternatives* (June 2009); and *The Army's Future Combat Systems Program and Alternatives* (August 2006).

develop new types of manned combat vehicles; CBO's estimates did not include any development or procurement costs for that program.)

DoD's Plans to Cancel the Second ABL Aircraft and Restructure the Program as a Research and Development Effort. The ABL program, managed by the Missile Defense Agency, has been working to develop a system to destroy enemy ballistic missiles during their boost phase—the few minutes after launch before a missile's rocket motors burn out—by means of a high-energy chemical laser carried on modified Boeing 747 aircraft. Under previous plans, a successful test of the first ABL against a missile in flight would have been followed by development of a second prototype and, eventually, by the fielding of seven aircraft for operational use. Citing problems with technology and cost as well as doubts about the operational roles envisioned for the ABL, DoD announced that plans for the second aircraft would be shelved and that the program would be shifted to a research and development effort.

CBO is currently examining the operational effectiveness and potential costs of purchasing and operating of a fleet of ABL aircraft. The analysis will explore such factors as how well the ABL's lasers and optics will perform in combat, the number of aircraft needed to keep a single ABL on station around the clock, the vulnerability of the ABL to enemy action, and the potential need for additional support such as fighter protection and aerial refueling.

CBO's projection assumed that the shoot-down test for the first ABL aircraft, which was originally scheduled for 2009, would be completed in 2010 but that none of the seven subsequent ABL aircraft would be built. CBO also assumed that the Missile Defense Agency would maintain an ongoing research and development effort costing $300 million per year in 2010 dollars. CBO estimates that those changes to the ABL program would yield net savings in budget authority of $2.4 billion over the next five years (2010–2014) and $8.6 billion between 2010 and 2019 (in 2010 dollars). The Secretary's announcement left open the possibility that a second or later ABL aircraft could be procured, depending on the outcome of the shoot-down test and subsequent research and development efforts; CBO's estimate does not include any funding for those aircraft.

DoD's Plans to Change Ground-Based Missile Defense Systems. In April 2009 the Secretary of Defense announced plans to freeze the current number of ground-based interceptors in Alaska as part of the ground-based midcourse missile defense system that is intended to defend the United States against limited ballistic missile attacks from North Korea or Iran. The plan would continue funding for research and development to improve the nation's ability to defend against long-range ballistic missiles. DoD also announced plans to upgrade six Navy Aegis warships to perform the ballistic missile defense mission at a total cost of $200 million. Moreover, President Obama announced on September 17, 2009, the cancellation of the previous Administration's plans to field a high-resolution tracking radar in the Czech Republic and to deploy

10 ground-based interceptor missiles in permanent silos in Poland.[44] In its place, the President proposed a four-phase plan. Phase One would rely on Block IA of the SM-3 missile, which would be deployed on existing Aegis warships.[45] Phase One also would base an AN/TPY-2 radar in Europe to provide early detection and tracking of ballistic missiles if launched toward the United States. Phase Two would entail both sea- and land-based deployment of a more capable Block IB version of the SM-3 missile; Phases Three and Four would involve Block IIA and Block IIB missiles that are still under development. (Each block represents a major upgrade in capability from its predecessor.)

In a report published in February 2009, CBO discussed three alternatives to the previous Administration's plans for ballistic-missile defense in Europe.[46] Two of the three are similar to the current Administration's revised plans. One alternative would use SM-3 missiles deployed on Aegis warships operating at three locations around Europe, supported by two forward-based tracking radar stations; another alternative would rely on land-based SM-3 missiles operating from mobile launchers located at two U.S. bases in Europe (Ramstein Air Base in Germany and Incirlik Air Base in Turkey), supported by two transportable radar units. The Administration's new plan blends elements of these two options and encompasses both sea- and land-based deployment of SM-3 missiles.

For a sea-based concept, maintaining continuous coverage in three locations would require a total of nine ships (for each ship deployed, another would be undergoing maintenance and a third would be in use for training). At least three different variations of the sea-based concept are possible. If the Navy were to procure nine Arleigh Burke-class destroyers for the mission, the total cost would be about $19 billion. A second approach would perform the same mission with less costly ships. For example, littoral combat ships cost about $560 million each; a specially developed Aegis module consisting of a version of the AN/SPY-1 radar and vertical launch system cells would add about $90 million per ship, CBO estimates. The total cost for nine such ships would be about $6 billion. As a third alternative, rather than building new ships dedicated to the missile defense mission, and consistent with the announcement by the Secretary of Defense in April 2009, the Navy could upgrade existing warships (or proposed warships that would have been built to perform other missions) to provide missile defense. The fiscal year 2010 request for $200 million to convert six warships

44. The White House, "Fact Sheet on U.S. Missile Defense Policy: A 'Phased, Adaptive Approach' for Missile Defense in Europe" (press release prepared by the Office of the Press Secretary, September 17, 2009), www.whitehouse.gov/the_press_office/FACT-SHEET-US-Missile-Defense-Policy-A-Phased-Adaptive-Approach-for-Missile-Defense-in-Europe/.

45. On February 21, 2008, a modified SM-3 Block IA missile fired from the Aegis cruiser U.S.S. *Lake Erie* (CG-70) destroyed a military satellite that was in a deteriorating orbit and carrying the toxic chemical hydrazine. See Jim Garamone, "Lake Erie Satellite Shot" (Pearl Harbor, Hawaii: American Forces Press Service) www.lake-erie.navy.mil/Site%20Pages/Events_Satilite%20shot.aspx.

46. Congressional Budget Office, *Options for Deploying Missile Defense in Europe* (February 2009).

may be viewed as a first installment in pursuing the latter approach; the total cost for nine ships would be about $300 million. In that case, however, the Navy would forgo the possibility of deploying those ships to other locations in the world where they could perform other missions.

In January 2009 (on the basis of the 2009 FYDP), CBO projected that total investment costs for missile defense would be at least $10 billion per year, peaking at $17 billion in 2018; unbudgeted costs could add another $4 billion annually.[47] The Secretary announced in April 2009 that the ABL program would be limited to a single aircraft, that no additional ground-based interceptors would be deployed in Alaska, and that the Multiple Kill Vehicle program would be terminated. With those and other changes, the 2010 request for the Missile Defense Agency would be $1.4 billion smaller than the amount provided in 2009.[48] Incorporating those changes, CBO now projects that total investment costs for missile defense would average about $8 billion annually through 2028, peaking at about $10 billion in 2014. The total savings, averaging $2 billion per year, include the specific savings from restructuring the ABL program as described above.

---

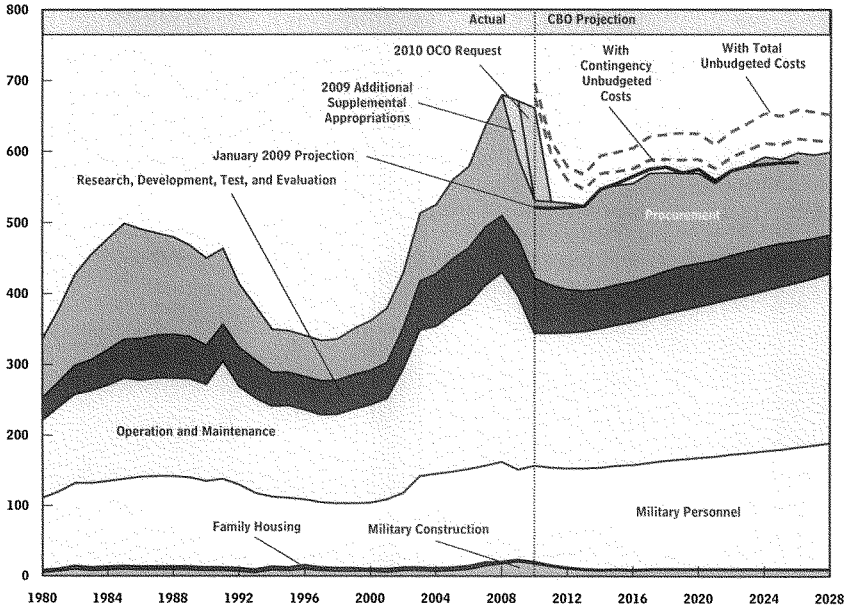
47. Congressional Budget Office, *Long-Term Implications of the Fiscal Year 2009 Future Years Defense Program.*

48. Department of Defense, "Defense Budget Recommendation Statement."

Figure 1.

Past and Projected Resources for Defense

(Billions of 2010 dollars)



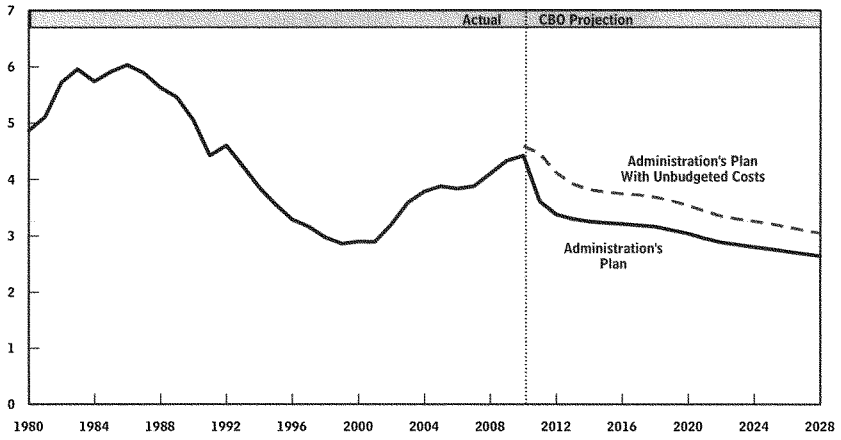
Source: Congressional Budget Office.

Note: OCO = Overseas Contingency Operations.

Figure 2.

Defense Resources as a Percentage of Gross Domestic Product

(Percent)

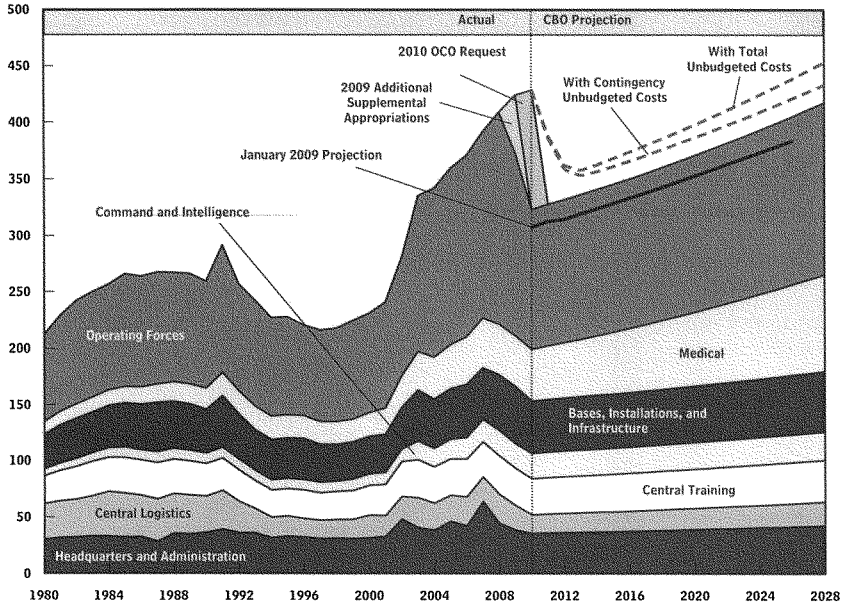


Source: Congressional Budget Office.

Figure 3.

Past and Projected Resources for Operation and Support

(Billions of 2010 dollars)



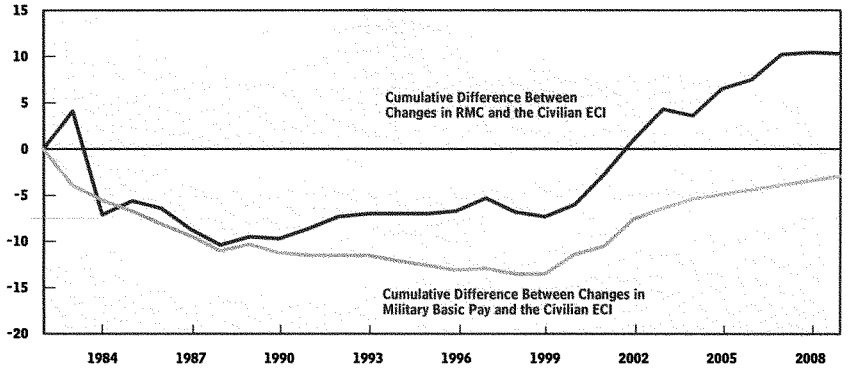
Source: Congressional Budget Office.

Note: OCO = Overseas Contingency Operations.

Figure 4.

Differences Between Military and Private-Sector Pay Raises Since 1982

(Percent)



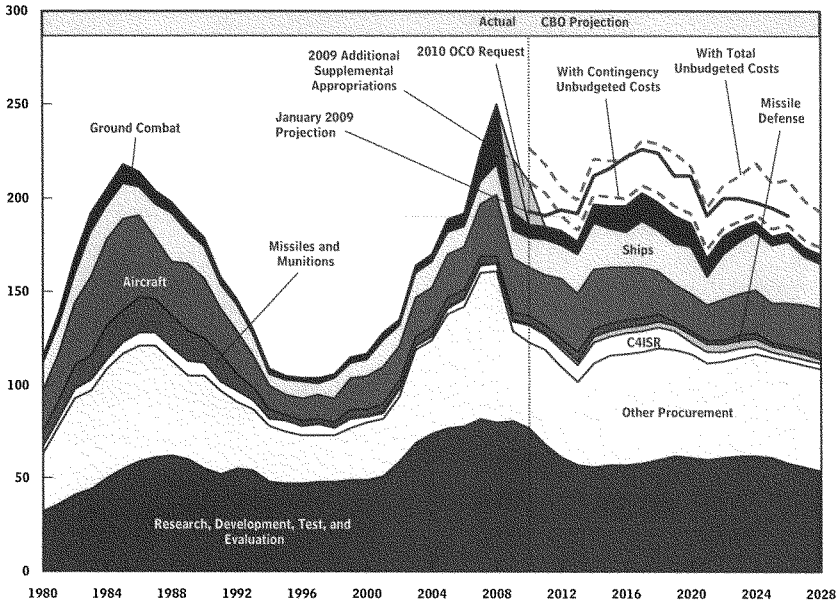
Source: Congressional Budget Office based on data from the Department of Defense and the Department of Labor.

Note: RMC = regular military compensation (basic pay, allowances for housing and subsistence, and the federal tax advantage that occurs because those allowances are not taxed); ECI = employment cost index for wages and salaries in private industry.

Figure 5.

Past and Projected Resources for Defense Investment

(Billions of 2010 dollars)



Source: Congressional Budget Office.

Note: OCO = Overseas Contingency Operation.

Table 1.

Past and Projected Resources for Defense in Selected Years

(Billions of 2010 dollars)

	Actual	Requested	Projected			Average	
	2009	2010	2013	2020	2028	2010–2013	2014–2028
Procurement	113	109	120	126	116	117	127
Research, Development, Test, and Evaluation	81	79	57	61	54	66	59
Subtotal, Investment	194	187	177	187	169	183	186
Operation and Maintenance	245	188	194	214	240	191	217
Military Personnel	127	136	142	157	178	139	160
Subtotal, Operation and Support	373	324	336	371	417	330	377
Other	28	23	11	11	13	14	12
Total, Regular Defense Budget	**595**	**534**	**525**	**568**	**598**	**528**	**574**
Additional Supplemental and Emergency Funding	74 [a]	130	n.a.	n.a.	n.a.	n.a.	n.a.
Total Including Additional Funding	**669**	**664**	**525**	**570**	**599**	**527**	**575**
Total Including Unbudgeted Costs	**n.a.**	**681 [b]**	**568**	**627**	**659**	**612**	**631**

Source: Congressional Budget Office.

Note: n.a. = not applicable.

a. This figure excludes $74 billion in other supplemental and emergency funding allocated among the appropriation titles listed above.

b. This figure includes $17 billion that the Administration has not requested but that CBO projects could be needed.

Table 2.

Past and Projected Resources for Operation and Support in Selected Years

(Billions of 2010 dollars)

	Actual	Requested	Projected			Average	
	2009	2010	2013	2020	2028	2010–2013	2014–2028
Operating Forces	161	124	128	139	152	126	140
Medical	44	46	50	65	85	48	68
Bases, Installations, and Infrastructure	52	47	48	51	54	48	51
Command and Intelligence	22	22	23	24	25	23	24
Central Training	33	32	33	35	37	32	35
Central Logistics	21	16	17	19	21	17	19
Headquarters and Administration	39	36	37	39	43	36	40
Total Operation and Support, Regular Defense Budget	**373**	**324**	**336**	**371**	**417**	**330**	**377**
Additional Supplemental and Emergency Funding	47 [a]	105	n.a.	n.a.	n.a.	n.a.	n.a.
Total, Including Additional Funding	**420**	**429**	**336**	**371**	**417**	**330**	**377**
Total Including Unbudgeted Costs	**n.a.**	**430 [b]**	**358**	**398**	**453**	**385**	**406**

Source: Congressional Budget Office.

Note: n.a. = not applicable.

a. This figure excludes $64 billion in other supplemental and emergency funding allocated among the categories listed above.

b. This figure includes $1 billion that the Administration has not requested but that CBO projects could be needed.

Table 3.

Past and Projected Resources for Defense Investment in Selected Years

(Billions of 2010 dollars)

	Actual	Requested	Projected			Average	
	2009	2010	2013	2020	2028	2010–2013	2014–2028
Ground Combat	10	7	7	13	5	7	10
Ships	15	16	21	25	24	19	25
Aircraft	29	26	31	20	24	29	24
Missiles and Munitions	4	4	5	2	3	4	3
Missile Defense	1	1	2	4	2	1	3
C4ISR	5	9	9	6	3	9	7
Other Procurement	48	46	45	56	55	48	56
Research, Development, Test, and Evaluation	81	79	57	61	54	66	59
Total Investment, Regular Defense Budget	**194**	**187**	**177**	**187**	**169**	**183**	**186**
Additional Supplemental and Emergency Funding	25 [a]	23	n.a.	n.a.	n.a.	n.a.	n.a.
Total, Including Additional Funding	**219**	**210**	**177**	**187**	**169**	**183**	**186**
Total, Including Unbudgeted Costs	**n.a.**	**227 [b]**	**199**	**217**	**193**	**213**	**214**

Source: Congressional Budget Office.

Note: n.a. = not applicable; C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance.

a. This figure excludes $6 billion in other supplemental and emergency funding allocated among the categories listed above.

b. This figure includes $17 billion that the Administration has not requested but that CBO projects could be needed.

NOT FOR DISTRIBUTION
UNTIL RELEASED
BY THE COMMITTEE

STATEMENT OF

STEPHEN DAGGETT
SPECIALIST IN DEFENSE POLICY AND BUDGETS
CONGRESSIONAL RESEARCH SERVICE

BEFORE THE

HOUSE COMMITTEE ON ARMED SERVICES

HEARING ON

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG-TERM DEFENSE BUDGET TRENDS

NOVEMBER 18, 2009

NOT FOR DISTRIBUTION
UNTIL RELEASTED
BY THE COMMITTEE

Mr. Chairman, Ranking Member McKeon, Members of the Committee, thank you very much for inviting me to testify this morning on resourcing the national defense strategy. I am Stephen Daggett, Specialist in Defense Policy and Budgets with the Congressional Research Service.

This statement addresses four broad sets of questions:

- First, although the defense budget appears by historical standards to be quite robust, senior leaders of the military services have expressed concern about shortfalls in funding for major programs and the Defense Department has felt a need to make some difficult trade-offs between programs needed to fight the wars we are in, as Secretary Gates has put it, and preparations for future conflicts. The first question in understanding budget issues, therefore, is why funding seems so tight when the budget is so high. The answer appears to be that the cost of much of what the Defense Department does has climbed in recent years at a rate that outpaces the growth in funding. This statement identifies six very broad trends that have driven up the cost of military capabilities, in some cases quite dramatically, over the past ten to twenty years.
- Second, in April, the Defense Department announced some significant changes in defense programs, including the termination of several major weapon programs. How have those program decisions affected trends in the cost of defense?
- Third, what additional trade-offs might the Defense Department face in the future in view of projections of substantial federal budget deficits through the next decade?
- Fourth, the Defense Department is now engaged in a congressionally mandated Quadrennial Defense Review (QDR) due to be reported early next year, and the review may lead to additional changes in major programs. In view of experience with earlier defense policy reviews in 1990 and 1993 and with prior QDRs in 1997, 2001, and 2006, a key question is to what extent the review may lead to long-term changes in policy that will affect defense resources. An example of issues with potentially substantial long-term budget implications is how to cope with anti-access strategies (i.e., asymmetric efforts to defeat U.S. power projection capabilities) that future foes might employ.

Current Defense Budgets In Perspective

By any of several measures, the level of defense spending in recent years appears relatively substantial. The amount appropriated for the Department of Defense in FY2009, totaled $667 billion, of which $521 billion was in the base defense budget and $146 billion was provided as war-related supplemental or bridge appropriations. For FY2010, House and Senate versions of defense and military construction/VA appropriations bills provide about $664 billion, of which $534 billion is in the base budget and $130 billion is in war-related appropriations. There has recently been some discussion of additional war-related appropriations of as much as $20 billion for FY2010. See **Table A1,** appended to this statement, for DOD funding from FY1976-FY2014.

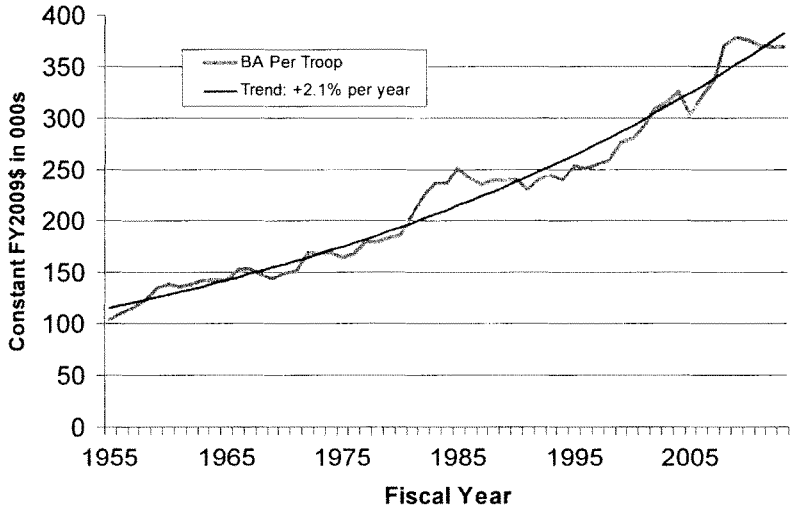
By comparison with earlier peaks in spending during the Cold War, this level of defense spending appears quite high. Prior to FY2007, the DOD budget exceeded $600 billion, measured in FY2010 prices, only in FY1952, at the height of the Korean War. The next highest peak in spending was in FY1985 when DOD funding totaled $560 billion in FY2010 prices. After adjusting for inflation, defense budgets, including war-related funding, in FY2009 and FY2010 are about 20% larger than the FY1985 peak. This is for a force that is about 1/3 smaller than in FY1985 – there were about 2.2 million active duty personnel in FY1985, and 1.5 million today. For weapons acquisition, that is for weapons procurement plus research, development, test, and evaluation (RDT&E), the total in FY1985 was about $220 billion. The comparable total in FY2009 is about $192 billion, 13% less, again, for a force about 1/3 smaller. Acquisition totaled

over $250 billion in FY2008, including funds in the base budget and relatively large amounts in war-related funding. So the budget appears quite large compared with earlier levels of spending, even though the size of the force is much smaller.

An alternative way of putting the budget into context is to compare current spending to the average trend in defense spending per service member over time. The total DOD budget per active duty troop, this time excluding war costs, has grown by a bit more than 2% per year above inflation on average since the end of the Korean War (see **Figure 1**). In some years, actual budgets were above the trend line, in other years, below it. In FY2009, the overall DOD base budget, not including war costs, is about 8%, or more than $40 billion, above this historic trend line.

Figure 1: Department of Defense Budget Authority per Active Duty Troop, FY1955-FY2013

(For FY1990-FY1992 and FY2003-FY2013, Not Including War-Related Funding)



Source: CRS based on Department of Defense budget data.

Another way of gauging current spending is simply to note the growth of the defense budget over the past few years. Again considering just the base defense budget, without including war-related funding, there has been a very large increase over the past ten years. By FY2009, the DOD base budget had grown by 48% above inflation since it reached its lowest post-Cold War level in FY1998. That buildup is somewhat larger than the increase at the end of the Carter and beginning of the Reagan Administrations – which was about 40% above inflation from FY1980-FY1985.

By all these standards -- the size of the budget compared to earlier peaks, current spending relative to the long term trend, and the recent growth in spending – the defense budget appears to

be doing quite will. Listening to the military services, to defense industry, and to many defense budget analysts, however, creates a very different impression – that even now the budget is tight, and that if spending does not continue to climb, planners will face tougher and tougher choices in the future. The Chairman of the Joint Chiefs, Admiral Mullen, for example, has argued that the defense budget should be maintained at 4% or so of GDP, an amount anywhere from $60 to $110 billion higher than the DOD projects through FY2013, assuming it applies to the base defense budget and not war-costs.

Similarly, the former Secretary and Chief of Staff of the Air Force argued for the past couple of budget cycles that the Air Force alone needed $20 billion more per year for weapons acquisition.[1] To put that into perspective, in last year's six-year defense plan, acquisition funding – that is, procurement plus R&D -- in the Air Force base budget was scheduled to grow from $63 billion in FY2009 to $70 billion in FY2013. So the senior leaders of the Air Force appeared to be saying, in effect, that their budget was 30% short of the amount they thought necessary for equipment.

The Army reportedly is now projecting ongoing budget requirements of $170 to $180 billion a year, which is $30 to $40 billion per year higher than currently projected base funding.[2] The Navy has not been so explicit, but last year increased substantially its estimates of the cost of its 30 year shipbuilding plan, and it has warned of a substantial shortfall in fighter aircraft inventories as well.

So why the discrepancy? What explains complaints about shortfalls in funding when, by any historical analysis, defense appears to be prospering? CRS's analysis is that the budget seems tight because the cost of almost everything the Defense Department does – from meeting recruitment goals, to operating new weapons, to acquiring advanced technology – has been accelerating upward at a pace that growing budgets cannot keep up with.

Six factors, in particular, have driven up the cost of defense substantially in recent years: the growing cost of personnel; continued growth in operation and maintenance accounts; accelerating growth in costs of new weapons programs; systematic and apparently worsening estimates of weapons costs with attendant delays and cost growth; new requirements for ground forces; and an expanded range of challenges in the international security environment. The following sections discuss each of these factors.

The Growing Cost of Uniformed Personnel

The first factor driving up the price of defense is, simply, the growing cost of uniformed military personnel. Taking the amount provided for active duty military personnel in annual defense appropriations bills, excluding supplemental appropriations, adjusting for inflation using the Consumer Price Index (CPI), and dividing by the number of active duty troops, again excluding war-related increments, an average military service member was about 45% more expensive, after adjusting for inflation, in FY2009 than in FY1998. This does not include the cost of medical care for service members, dependents, and recent retirees, which is financed in the operation and maintenance accounts, and which also has grown substantially. Nor does it include benefits that are not part of the national defense budget, and which are not, therefore, among the cost tradeoffs that planners directly face. These include tax advantages for service personnel and veterans benefits, including VA medical and educational benefits.

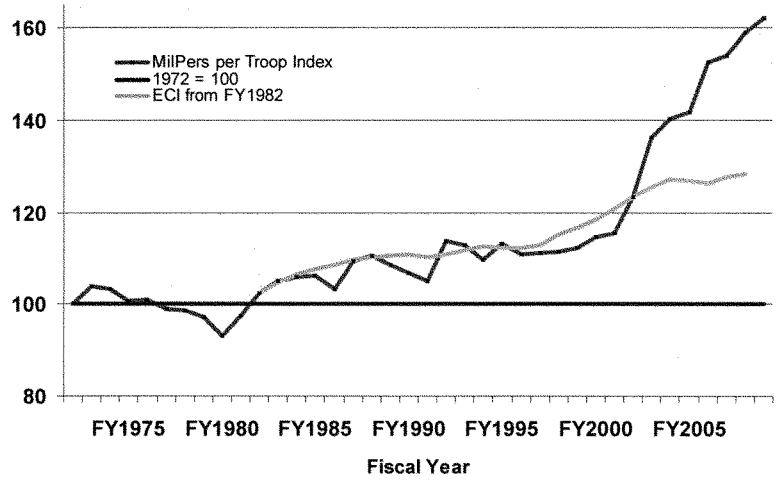
---

[1] Author's notes on a presentation by then-Secretary of the Air Force, Michael Wynne, at an Aviation Week Defense Technology and Requirements Conference, February 13, 2008.

[2] John T. Bennett, "$40B Price Tag for Larger Army: U.S. Service Predicts Cost of 1.1 Million-Soldier Force," *Defense News*, December 15, 2008, p. 1.

A long term perspective on the price of military personnel is reflected in **Figure 2**, which shows the cost of an individual active duty service member indexed to the inception of the all volunteer force in 1972. In brief, pay and benefits of military personnel declined in the 1970s because annual pay raises did not keep up with inflation; jumped up in FY1980 and FY1981 with catch up pay raises of 11.7% and then of 14.3% -- that is, more than 25% over a two-year period; climbed very modestly in the remainder of the 1980s and '90s; and then rocketed up dramatically beginning in about FY1999.

Figure 2: Military Pay and Benefits per Active Duty Troop Indexed to FY1972



Source: CRS based on Department of Defense budget data.

The main increases over the past ten years include:

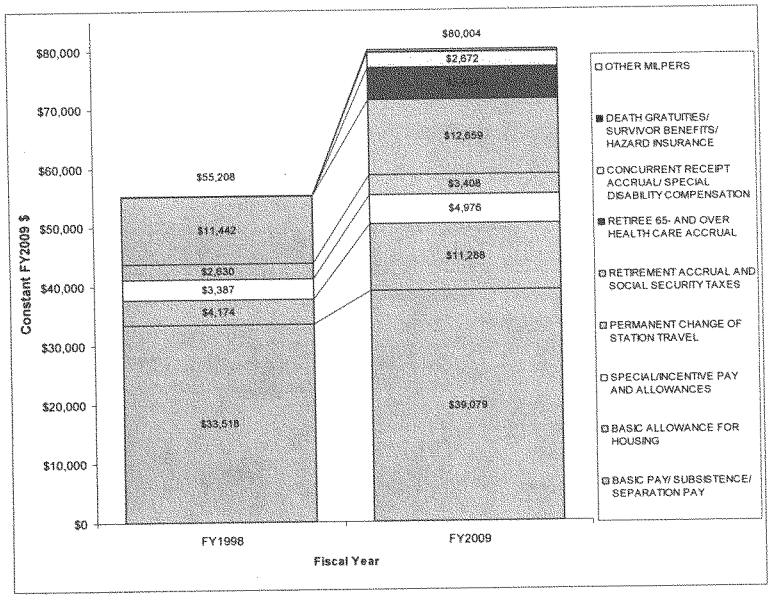
- Congressionally mandated annual pay raises equal to the Employment Cost Index (ECI) plus ½ percent in eight of the last nine years. The ECI is a measure of the average cost of pay and benefits in the civilian economy. Since FY1982, pay raises had fallen behind the growth of the ECI and the "ECI plus ½" formula was designed to catch up over a period of several years.
- Three rounds of "pay table reform," requested by the Defense Department, which provided additional pay raises, sometimes of as much as 10%, to middle grades in order to improve retention of experienced personnel.
- Substantial increases over several years, requested by the Clinton Administration, in the non-taxable Basic Allowance for Housing (BAH), intended to eliminate differences in out-of-pocket on-base and off-base housing costs.

Those increases, along with changes in subsistence pay for officers, bonuses and special pays, and some other things, are reflected in higher take home paychecks of military personnel. In addition, there have been very large increases in retirement benefits, including

- Tricare-for-Life, enacted by Congress as part of the FY2001 national defense authorization act, and implemented in FY2003, which makes the military Tricare medical insurance system into a second payer for Medicare for 65-and-older military retirees. DOD pays $10 to $11 billion a year into the military retirement fund to cover future costs of this new benefit for current uniformed personnel, which is about 10% of the entire military pay and benefits package.
- Concurrent receipt of military retired pay and veterans disability payments for those with disabilities of 50% or more. Another congressional initiative, this is paid for out of the national defense budget function as a mandatory amount of about $5 billion a year.
- Repeal of the "Redux" retirement plan, which had provided somewhat lower retirement benefits to military personnel who enlisted after 1986 than to earlier enlistees.
- The elimination of social security offsets in pensions of 62 and older survivors of military retirees who chose dependent benefits as part of their retirement.

Figure 3 shows the relative growth per troop in the major elements of both take-home pay and deferred compensation in the military personnel accounts, adjusted for inflation, between FY1998 and FY2009. As noted earlier, with everything included, these elements of compensation grew by 45% above inflation. Even leaving out the cost of Tricare-for-Life and concurrent receipt, military pay and benefits would still have grown by 30% above inflation.

Figure 3: Changes in Military Pay and Benefits per Active Duty Troop, FY1998-FY2009



Source: CRS based on Department of Defense budget data.

The purpose of this analysis is not to address whether military pay and benefits are adequate or more than adequate or less than adequate. A discussion of that question is certainly important, but it goes way beyond the point made here. The only purpose of this analysis is to address the issue of budget tradeoffs. If only a given amount of money is available for defense, the growing cost of personnel necessarily comes at the expense of something else. Others have addressed the issues of pay comparability, the value of deferred compensation, promises of medical care in retirement, and other matters thoroughly. Last year's Quadrennial Review of Military Compensation, for example, reviewed all of the key measures of compensation comparability.[3]

That said, increased take home pay appears to have eliminated what has been referred to as the military "pay gap," in which military pay lagged behind average increases in compensation in the civilian economy. Usually, the pay gap is measured by comparing cumulative raises in military basic pay with a trend line that starts with pay in FY1982, after the catch up raises of FY1980 and FY1981, and adjusts upward annually by the amount of the Employment Cost Index. Using this measure, there was a significant pay gap by the end of the 1990s, which ECI plus ½ raises have been intended to correct.

In measuring military pay, however, it is important to note that the amount service members take home every month includes both basic pay and the basic allowance for housing, and might also be considered to include amounts for subsistence, which is provided both as pay and as a direct service. When very large increases in the basic allowance for housing are included, the pay gap, measured as the FY1982 level adjusted for cumulative growth in the ECI, has been made up in recent years.

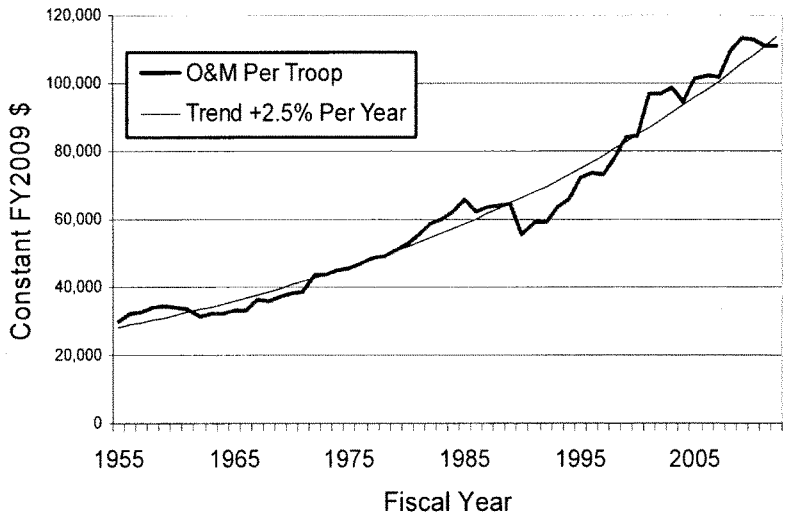
One other issue may be a matter for some further discussion. A frequently asked long-term budget question is whether it might be cheaper to rely more on reserve than on active duty forces. In the past, when Army National Guard (ARNG) combat units were, for the most part, regarded as a strategic reserve that would be called up only in the event of a major war, it was reasonable to calculate that Guard units were cheaper than active duty forces. Personnel and operating costs were typically 25-35% of those of active duty units, and investment costs were less, as well, because Guard units were often equipped with older material cascaded from active duty forces. Now, however, ARNG units are no longer regarded as a strategic reserve, but as an operational reserve available for regular deployment abroad. In that role, Guard units no longer appear much cheaper per day of availability – and might even be more expensive – than active duty forces, since they are available for deployment for only a fraction of the time of active units, and equipment levels must come closer to matching those of active forces.

Continued Growth in Operation and Maintenance (O&M) Costs

A second cost driver has been the continued, steady growth of operation and maintenance budgets. Dividing annual O&M budgets by the number of active duty troops, and adjusting for inflation results in a trend line that grows by somewhere between 2.5% and 3.0% above inflation every year since the end of the Korean conflict (see **Figure 4**).

[3] Department of Defense, *Report of the Tenth Quadrennial Review of Military Compensation, Volume 1*, February 2008, on line at http://prhome.defense.gov/docs/Tenth_QRMC_Feb2008_Vol%201.pdf.

Figure 4: Operation and Maintenance Funding per Active Duty Troop, FY1955-FY2013



Source: CRS based on Department of Defense budget data.

It is a bit difficult to analyze why O&M grows at such a steady pace, because the O&M budget covers all kinds of very different activities – advertising and recruiting; basic and advanced individual and unit training; professional military education; fuel costs; transportation; medical care for service members, their dependents, and some retirees; utility bills; facility maintenance and repair; warehouse and supply operations; purchases of spare and repair parts; day-to-day operation of weapons and equipment; overhauls, including sometimes extensive upgrades, of weapons and equipment; research undertaken by Federally Funded R&D Corporations (FFRDCs); pay and financial management; and management of much of the Defense Department.

There are, however, a few pieces of the picture that collectively explain in very large part why O&M costs keep climbing.

One is that a significant share of the O&M budget goes to pay civilian Department of Defense personnel. In the FY2009 base budget, civilian pay in the O&M accounts was projected to total $53 billion, about 30% of total O&M funding. While federal civilian pay and benefits have not grown as rapidly as those of uniformed personnel, they have outpaced the growth of inflation – as in most skilled occupations, compensation of federal civilian workers has grown in real terms over time.

Second, the O&M budget includes most of the annual funding for providing medical care to service members, their dependents, and many retirees (it does not include $5-6 billion a year in military personnel accounts for pay and benefits of unformed health care providers). DOD officials see growing medical costs, which have climbed much faster than overall inflation, as a critical long-term budget issue.

Third, the O&M budget includes costs of operating and maintaining major weapon systems. Those costs also appear to have increased faster than base inflation, though the reasons are complicated. Military service officials, particularly in the Air Force, have long argued that aging equipment becomes progressively more and more expensive to operate and maintain. CBO found some time ago that this was not a major factor in O&M. On the other hand, though it may not add up in itself to a huge amount of money, it may be one of a large number of individually minor factors that should be considered in concert to explain the larger trend.

Most observers also agree that new weapons are typically more expensive to operate and maintain than earlier generations of similar systems. Why this should be the case is very hard to explain. It is certainly at odds with trends in the civilian sector, in which reliability and maintainability of all kinds of goods have improved dramatically – consider automobiles, household appliances, and, especially, consumer electronics (leaving aside battery replacement). It appears, however, that while military developers promise lower operating costs, in the end they choose to pursue advances in performance instead.

Fourth, and finally, the O&M budget finances operation and repair of military facilities. As the quality of life in the civilian sector improves, defense facilities also, in general, are expected to keep up, which, in turn, also may drive up costs in real terms.

This list is by no means exhaustive, but may help to understand some of the principal factors behind the continued growth of O&M costs. The corollary question, then, is whether this is a problem. Some may say no – that this is the cost of doing business and as long as growth isn't excessive, it is simply a fact of life for which budgets need to be adjusted. On the other hand, continued steady growth in the day-to-day cost of doing business appears to be at odds with experience in many parts of the private sector, in which improved productivity is the norm. The trend in defense O&M prices appears to be more similar to the trend in health care costs – which is almost universally seen to be a problem -- than to the trend in other economic activities.

Most importantly, within limited budgets, higher O&M costs will crowd out other things. The effect of growing O&M costs on trade-offs within the defense budget in the 1990s illustrates the issue. Defense advocates often complain about the dramatic decline of weapons procurement funding in the 1990s. Then-Secretary of Defense William Perry, at the time, agreed, saying that the "procurement holiday" of the early '90s had gone on long enough and needed to be reversed. The Defense Department's target for many years was to get the procurement budget up from the $45 billion range to at least $60 billion. While $60 billion for procurement appears quite constrained by today's standards, achieving even that target proved elusive. The reason was the continuing growth of overall O&M costs. Successive long-term defense plans generally assumed that O&M costs would level off in future years. When they did not, within limited budgets, the Defense Department shifted funds from procurement to cover must pay O&M bills. Year after year, therefore, planned increases in procurement funding were deferred due to the growth in O&M accounts.

As a side note, the problem should not be attributed only to the Clinton Administration. Underestimation of O&M costs, rather, was something the Clinton defense team inherited from the outgoing Bush Administration's defense plan and then was unable to correct. After adjusting for lower than expected trends in inflation, over the FY1994 to FY1999 period, for which we can compare Bush and Clinton defense plans in detail, the total amount the Clinton Administration spent on defense was, in terms of real purchasing power, not much lower than the previous

Administration projected in its final six year defense program.[4] O&M spending, however, was much higher, and procurement much lower.

Steadily growing O&M costs eroded the budget for weapons modernization through most of the 1990s. The danger, of course, is that the Defense Department will face the same tradeoffs again if budgets in the next decade are as tight as in the '90s.

Intergenerational Cost Growth in Major Weapons Programs

A third cost factor, and one that is a matter of extensive discussion today, is the apparently accelerating pace of intergenerational cost growth in major weapons programs. Intergenerational cost growth is often not carefully distinguished from the separate issue of "cost overruns," which refers to the growth in costs of programs compared to initial development estimates, but the two factors are really quite distinct. Systematic underestimation of weapons acquisition costs is an independent factor, which is discussed next.

Examples of very large intergenerational leaps in weapons costs abound. The F-35 fighter, which is the new "low-end" fighter for the Air Force, is now projected to have a unit flyaway cost of $83 million each and a total unit acquisition cost of over $100 million.[5] In FY1985, the Defense Department procured 150 F-16s fighters, the previous low-end fighter, at a then-year price of $16 million apiece, which is about $30 million in FY2009 prices. In later years, F-16 prices climbed as new models incorporated more and more advanced technology. Still, the leap in costs is striking.

It is not, however, by any means atypical. Below is an illustrative table, prepared by Cecil Black of the Boeing Corporation, which compares numbers of major weapons in selected categories procured in FY1985 with numbers bought in FY2008 (with funding both in the base DOD budget and in war-related appropriations). As noted earlier, in FY1985, acquisition funding (again, procurement plus R&D) totaled about $220 billion in FY2010 prices. In FY2008, acquisition funding totaled about $250 billion.

[4] The bulk of the reduction can be traced to two things – a cut of about 150,000 in active duty troops and reductions in missile defense funding. This discussion is based on CRS Report 95-20, "A Comparison of Clinton Administration and Bush Administration Long-Term Defense Budget Plans for FY1994-99," Dec. 20, 1994, by Stephen Daggett, and on subsequent unpublished update information. Both are available to congressional offices from the author on request.

[5] Data from F-35 Selected Acquisition Report, June 2008.

Table 1: Recapitalization Rates: FY1985 versus FY2008
(quantities of weapons procured)

	1985	2008	Δ
Tactical Fighters	338	56	-282
Bombers	34	0	- 34
Other Fixed Wing	211	153	-58
Rotary Wing	354	373	+19
Missiles	87,113	13,471	-73,642
Tracked Combat Vehicles	2,414	1,258	-1,156
Tactical Vehicles	56,551	32,276	-24,275
Satellites (Unclassified)	10	1	-9
Ships	23	7	-16

Source: Cecil Black, Boeing Corporation.

The growing price of weapons does much to explain why the expense of maintaining even a smaller force structure than in the past has climbed so high. At current prices of major weapon systems, the "steady state" cost of replacing platforms as they reach the end of their planned service lives has become very difficult to afford, even with budgets that exceed previous peaks.

Why this is the case – and what to do about – is a matter that is far beyond the scope of this brief survey. In some cases, at least, cost has been driven up by an attempt to build systems to perform multiple missions with high capabilities in every dimension. The DDG-1000, cited only because it has been a focus of debate for the past year, and now has apparently been terminated, may be a informative example.

In brief the DDG-1000 (formerly DDX) destroyer is a 15,000 ton ship. This is about the size of a World War II cruiser, and it is 50 percent larger than the earlier generation DDG-51 destroyer it is intended, in part, to replace. It is so large because it is designed for multiple, diverse missions with advanced capabilities for all of them. It incorporates an advanced Aegis air defense radar and anti-air missile systems; the anti-submarine warfare capabilities of a dedicated ASW frigate; the ability to provide long-range fire support to forces ashore from two guns and from vertically launched missiles; a full flag officer communications capability; the ability to deploy two helicopters or one helicopter and two UAVs for multiple missions, such as mine-sweeping and ASW; and the ability to carry aboard and deploy ashore either a Marine unit or a special forces detachment. It also includes an advanced drive and multiple systems intended to reduce the required number of sailors. In short, it is all things to all requirements writers. The result is a ship that was ultimately projected to cost between $3.5 and $4.0 billion each, and that could not, therefore, be afforded in substantial numbers.

The rationale for developing a ship like the DDG-1000 is apparent. A large multi-mission ship has considerable advantages, including an ability to absorb future growth in capabilities. With a smaller force in prospect, it is understandable that the Navy would want some of its newer ships to be as flexible as possible. It was designed not only for blue water operations off shore, but for support of forces ashore from littoral waters. The resulting cost of the ship led the Navy to an internal debate about terminating the program and resuming DDG-51 procurement in its place. In any case, the DDG-1000 is too expensive to be produced in large numbers.

How typical is this of recent development efforts? Secretary Gates, at least, thought it had become the norm. In his article on defense policy in the January/February issue of *Foreign Affairs* he wrote:

> When it comes to procurement, for the better part of five decades, the trend has gone toward lower numbers as technology gains have made each system more capable. In recent years, these platforms have grown ever more baroque, have become ever more costly, are taking longer to build, and are being fielded in ever-dwindling quantities. Given that resources are not unlimited, the dynamic of exchanging numbers for capability is perhaps reaching a point of diminishing returns. A given ship or aircraft, no matter how capable or well equipped, can be in only one place at one time.[6]

Underestimation of Program Costs

Systematic underestimation of weapons costs has become such a significant element of defense costs that it can easily be seen as an independent factor driving up the overall price of defense. For the past six years, GAO has done annual overviews of cost trends in major defense acquisition programs based on a review of Department of Defense Selected Acquisition Reports. In the review it reported in March, 2008, GAO provided a very clear summary of what has been happening. **Table 2** is an overview of GAO's findings.

[6] Robert M. Gates, "A Balanced Strategy: Reprogramming the Pentagon for a New Age," *Foreign Affairs*, January/February 2009.

Table 2: GAO Analysis of Major Defense Acquisition Program Cost Growth
(amounts in constant FY2008 $)

	2000 portfolio	2005 portfolio	2007 portfolio
Number of programs	75	91	95
Total planned commitments	$790 Billion	$1.5 Trillion	$1.6 Trillion
Commitments outstanding	$380 Billion	$887 Billion	$858 Billion
Portfolio performance			
Change to total RDT&E costs from first estimate	27 percent	33 percent	40 percent
Change in total acquisition cost from first estimate	6 percent	18 percent	26 percent
Estimated total acquisition cost growth	$42 Billion	$202 Billion	$295 Billion
Share of programs with 25 percent or more increase in program acquisition unit cost	37 percent	44 percent	44 percent
Average schedule delay in delivering initial capabilities	16 months	17 months	21 months

Source: Government Accountability Office, *Defense Acquisitions: Assessment of Selected Weapon Programs*, GAO-08-467SP, March 31, 2008.

To summarize the results: GAO compared the average acquisition performance of all the Major Defense Acquisition Programs (MDAPs) on which DOD reported in 2000, 2005, and 2007. There were 75 MDAPs in 2000, 91 in 2005, and 95 in 2007. On average, DOD underestimated R&D costs of MDAP programs in the 2000 program by 27 percent and in 2007 by 40%. It underestimated total acquisition costs of MDAPs in the 2000 program by an average of 6 percent, and it underestimated total acquisition costs of MDAPs in the 2007 plan by an average of 26 percent. In the 2007 program, 44 percent of the programs had cost growth of more than 25%, a thresholds established by the Nunn-McCurdy amendment, which triggers requirements for a thorough program review.

Most significantly, total cost growth in the 2007 programs is now expected to total $295 billion, which is 18% of the overall $1.6 trillion value of the major weapons programs in the acquisition plan. Such substantial unplanned cost growth undermines efficiency, further increases costs, and creates a need to restructure acquisition programs across the all the services. Some programs may have to be cancelled and many stretched out to adjust the overall budget to accommodate the resulting gap on funding.

New Requirements for Ground Forces

A fifth factor driving up defense costs is the apparent need to restructure the Army, in particular, and the Marine Corps to some degree, to be able to respond to new missions that have been adopted in response to the attacks of 9/11. The decision to engage first in Afghanistan and then in Iraq led the Army to accelerate plans to restructure its basic organization. Instead of a force

designed for wholesale mobilization for a major war, the Army has become a modular force organized around fully manned and readily deployable Brigade Combat Teams (BCTs) designed for rotational deployment abroad. The Defense Department, with broad support in Congress, has also decided to increase the size of the Army by 65,000 active duty troops, mainly to add six additional brigades, and of the Marine Corps by 27,000. When fully phased in, the addition of 92,000 active duty troops will cost more than $13 billion a year in increased personnel and operating expenses of the Army and Marine Corps.

The modularization of the Army in itself will cost more than $50 billion, mainly to fill out equipment requirements for the force.[7] The conflicts in Iraq and Afghanistan have also led the Army to redefine its requirements for equipment in all its units. To fight the wars in Iraq and Afghanistan the Army has, in effect, established new standards that it sees necessary for force protection equipment, transportation equipment, and communications equipment for almost every unit in the force. And these requirements now extend not only to active duty units but also to National Guard combat units that have become part of the regular rotation base for deployment abroad, and therefore require largely the same equipment as active duty forces.

The cost of reorganizing ground forces to be more flexible and deployable is a significant factor that has driven the overall cost of defense somewhat higher. The Army's case for reorganizing and for adding to the size of the force is based on anticipated requirements for rotating forces abroad. Following the 2004 Quadrennial Defense Review, the goal to be able to deploy 18 or 19 brigade combat teams abroad on a recurring basis. Later, the force generation goal was increased to as many as 23 forward deployed brigades.

If active duty units are available for deployment one year out of every three, then 45 active brigades, as is now planned, would provide 15 deployable brigades a year. Additional brigades would be generated from the Army National Guard, which requires Guard units to be trained and equipped for regular deployments.

A Broader Array of Global Security Challenges

A final, and much less easily quantifiable factor that may affect the defense budget has to do with entirely new security challenges that planners have only begun to characterize. A good starting point in thinking about the range of new challenges is what has come to be called the "Quad Chart" in the Pentagon. One version of the Quad Chart is included as **Figure 6**, (page 20.)

In brief, the Quad Chart divides security challenges into four categories: Traditional military conflicts between states with conventional military forces; irregular conflict such as insurgencies in Iraq, Afghanistan and elsewhere; catastrophic challenges posed by, for example, state-sponsored or non-state terrorist groups with access to weapons of mass destruction; and, the newest category, disruptive threats from a range of competitors, including peer or near-peer regional or global actors, who would not attempt to compete with traditional U.S. military forces directly, but would instead try to identify and attack U.S. vulnerabilities. The quad chart divides these challenges according to likelihood and vulnerability. The premise is that traditional military threats are unlikely and the United States has such overwhelming capabilities that it is not vulnerable to them. Catastrophic challenges are seen as likely to appear, and vulnerability as high. Irregular threats are likely, but vulnerability low. Disruptive threats are regarded as unlikely, but vulnerability high.

The quad chart has important implications for the allocation of resources. If traditional challenges are unlikely, and U.S. vulnerability is low, the implication is that resources might be

[7] See CRS Report RL32476, *U.S. Army's Modular Redesign: Issues for Congress*, by Andrew Feickert, updated January 24, 2007.

shifted away from investments in such capabilities in favor of other, higher, priorities. Much of what Secretary Gates has said in recent articles and speeches reflects this perspective. An effort to reduce investments in traditional military capabilities, however, implies a willingness to accept greater risks to U.S. security in some potential areas of conflict. While direct state-on-state conflict may appear less likely than in the past, assessments of the international security environment nonetheless point up the potential for future conflicts over many issues, including access to resources, economic and social dislocations caused by climate change, and remaining unresolved regional disputes. So traditional challenges could reappear in the future, and planners must decide in the present how much to invest as a means of hedging against them.

The apparent need to prepare for a broader array of new challenges than planners had assumed at the end of the Cold War may prove to have a very big effect on budgets – or it may not. It is not clear to what extent the new challenges may shape spending in the future. Some more spending to counter anti-satellite weapons and cyberwarfare may prove necessary – but it is very difficult to anticipate how much money will be required to counter other "disruptive" challenges that remain to be defined.

So far, the main effect of identifying new challenges seems to have been to push budget requirements marginally higher, though there may later be offsetting trade-offs. In the long-term, however, new kinds of challenges may have a much more substantial effect on defense budgets. The upcoming Quadrennial Defense Review (QDR) appears to be focusing much more than in the past on new kinds of challenges.

The Impact of Recent Changes in Defense Plans

In part because of budget constraints, Secretary of Defense Gates announced a number of significant changes in long-term defense plans last April. Some of the changes entailed higher spending, particularly for health care and social services for personnel returning from combat and their families. The Secretary also reaffirmed plans to increase ground force end-strength, with costs being absorbed in the base defense budget rather than in supplemental appropriations. Many of the changes announced in April, however, particularly the termination of several major weapons programs, might very well limit future costs, especially to the extent they mark changes in policies that will affect designs of future weapon systems. In addition, in May, Congress passed a major defense acquisition reform measure, the Weapon Systems Acquisition Reform Act of 2009, P.L. 111-23, which, if implemented effectively, might also limit weapons cost growth.

The changes in major weapons programs that Secretary Gates announced might be particularly significant to the extent they provide an impetus to pursue more efficient production practices for systems that were not eliminated. For tactical fighter aircraft, the Defense Department has narrowed production to two platforms – various versions of the F/A-18 Navy-Marine fighter and of the multi-service F-35 Joint Strike Fighter. In shipbuilding, while there are some uncertainties, the effect of recent decisions may be to allow fairly long and relatively large production runs of DDG-51 destroyers, perhaps with some variants; of the Littoral Combat Ship (LCS); of new ships based on LPD-17 amphibious ship; and of Virginia-class submarines. Even in satellites, the termination of the Transformational Communications Satellite (TSAT) program will entail reliance on improved designs of existing, more proven technologies. To the extent the changes result in regular, predictable, and robust annual production runs of technologically mature systems with stable designs, both acquisition officials in the government and production teams in industry might focus on efficiency measures. Weapon costs might be driven down considerably by such measures as productivity improving investments and production practices; cost saving financial mechanisms including multiyear contracting; and expanded use of competitive sourcing in subcontracting.

Similarly, in the weapons development process, the termination of programs that had experienced significant cost growth and schedule delays – including TSAT, the presidential helicopter, and the Combat Search and Rescue (CSAR) helicopter – may reflect a determination to ensure that development efforts rely on proven technologies before committing to large development and production investments. The Weapons Acquisition Reform Act provides further statutory support for DOD acquisition policies that require achievement of appropriate levels of technological maturity in key elements of development programs before milestone approval for progressively more costly stages of a project. The Act also creates an independent cost analysis directorate. While some of the program terminations remain matters of debate, there appears to be a growing consensus on the general principle that development should proceed on the basis of sufficient knowledge about the availability and cost of key technologies throughout the development process in order to avoid excessive technical risk that has contributed to delays and cost increases in the past.

Trade-Offs in Future Defense Budgets

While progress in these areas may, if pursued consistently in the future, help ameliorate some of the factors that have been driving the cost of defense so high, budget trade-offs remain an issue for the Defense Department, particularly in the years following the current Future Years Defense Plan (FYDP), which runs through FY2015. A key issue for the QDR may be how to balance potential trade-offs between the size of the force, the pace of weapons modernization, and the size of future defense appropriations, particularly in view of currently projected long-term federal budget deficits.

To date, DOD officials have not said much about how the QDR will address intermediate- and longer-term budget issues. Officials had said that, at least for initial planning purposes, the QDR assumed that the base defense budget, not including war-related funding, will be essentially flat for the next five years, with growth sufficient only to cover inflation – i.e., "zero real growth."[8] And they acknowledged that this would require at least modest trade-offs between programs. At the end of July, David Ochmanek, a leader of the Pentagon's QDR integration group, told defense reporters that the QDR had already led to a decision to move about $60 billion over the FYDP into programs supporting current operations – "the wars we are in" as Secretary Gates has put it – and that the military services were developing lists of cuts in other programs to act as bill payers.

A shift of $60 billion within the DOD FYDP is by no means unusual. On the contrary, it is well within the range of adjustments that the Defense Department makes in every annual budget cycle. But trade-offs in the years beyond the current FYDP will have to be much more substantial unless spending turns up at least modestly within the next few years. To illustrate that point, a very simple exercise may be useful. Consider, not as a prediction, but only for the sake of analysis, what would happen to the allocation of funds within major categories of the defense budget between FY2010 and FY2020 if (1) the overall level of spending is frozen at the FY2010 level for the next ten years, (2) military personnel funding grows at the historical rate of the Employment Cost Index (ECI), which increased by 0.7% per year above base inflation between

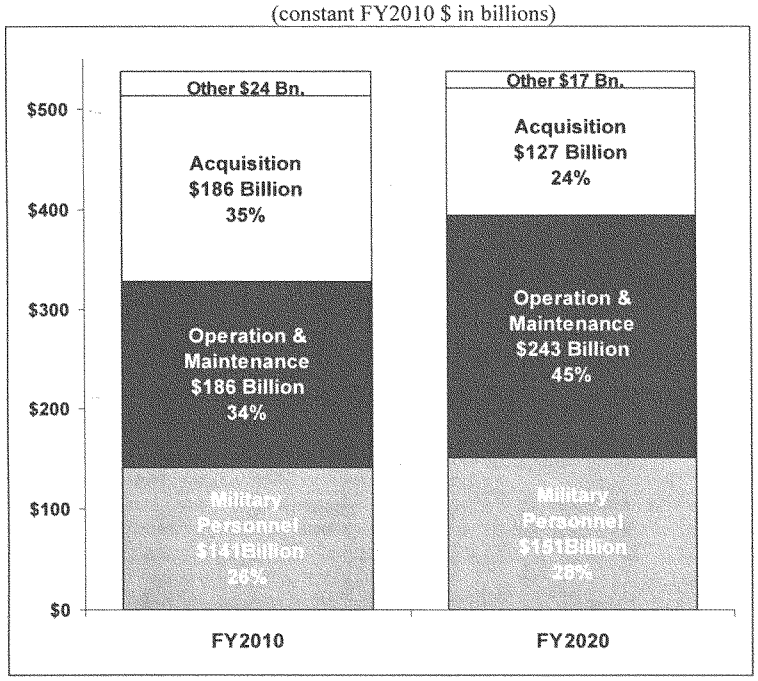
[8] In questions and answers following a presentation at the Center for Strategic and International Studies (CSIS) on April 29, 2009, Under Secretary of Defense Michèle Flournoy said that QDR budget planning was focused strictly on the FYDP – audio and video recordings are available on line at CSIS, though not a transcript. Also see David Ochmanek, Deputy Assistant Secretary of Defense for Force Planning, Interview with the Defense Writers Group, July 28, 2009, of which a transcript is available on line from Air Force Magazine.

FY1981 and FY2005, and (3) DOD operation and maintenance accounts are assumed to grow at the historical rate of 2.7% per year above inflation.[9]

Figure 5 shows the allocation of funds between (1) military personnel, (2) operation and maintenance, (3) acquisition (the sum of procurement plus R&D funding), and (4) other programs in the Department of Defense base budget, not including war-related supplemental funding, in FY2010 compared to FY2020, on those assumptions. The result, as one would expect, is a dramatic reduction in funding for weapons acquisition, which declines, in constant FY2010 prices, from $186 billion and 35% of the budget in FY2010 to $127 billion and 24% of the budget in FY2020.[10] In relative terms, that is a cut of 32% in funding to replace equipment and modernize the force between FY2010 and FY2020 in the base defense budget.

Figure 5. DOD Base Budget with No Real Growth: FY2010-FY2020

(constant FY2010 $ in billions)



[9] The Employment Cost Index is a Bureau of Labor Statistics measure of the average change of pay and benefits in the overall economy. The annual real growth in DOD O&M accounts is a CRS calculation that measures the change per active duty service member in O&M funding excluding funding of overseas contingency operations.

[10] This is analysis is based on a discussion with Mr. Hugh Brady of the Raytheon Corporation of a defense industry 10 year budget projection under the auspices of TechAmerica.

Source: CRS based on the FY2010 Department of Defense budget request, with growth of 0.7% per year in Military Personnel accounts and 2.7% per year in Operation and Maintenance accounts through FY2020.

While, again, this is not intended as a prediction of likely budget trends, it may suggest a need for the Defense Department to discuss intermediate-term budget trade-offs in the QDR. CBO and other budget projections over the next ten years show potential budget deficits as a percentage of GDP that have, in the past, been followed by long-term limits on defense spending.[11] The alternatives to a steep reduction in acquisition accounts are (1) a resumption of at least modest real growth in the overall defense budget, (2) cuts in the size of the force, or (3) measures to reduce operating costs. Each 2% increase in the defense budget above inflation would add about $10 billion in funds available for acquisition accounts. A cut of 100,000 active duty troops would save $12-15 billion per year in military personnel and in directly related operation and maintenance costs. A smaller force would entail limits on U.S. military capabilities – one choice might be to reduce requirements for ground forces for long-term stability operations.

The need for difficult budget trade-offs could, of course, be ameliorated to some extent by further limiting defense costs. The QDR will certainly address that issue. Business process reform is one of five focus areas in the original QDR guidance that Secretary Gates issued in April, and one of five QDR issue teams is responsible for addressing defense costs. Earlier QDRs also led to efforts to reduce costs by reducing infrastructure, outsource activities, and improving contracting procedures.

How much DOD can save – and how much it should count on saving – is a matter that deserves careful consideration. In the past, the Defense Department has perennially projected that operation and maintenance (O&M) budgets, which, as noted, have grown historically at 2.5 to 3 percent per year above inflation per active duty service member, would level off, freeing up funds for weapons investments. Throughout the 1990s, however, projected savings in O&M did not materialize, in spite of concerted efforts at management reform, and procurement accounts ended up being cut from year to year to finance must-pay-bills in the operating accounts.

In the FY2010-FY2020 budget exercise shown in **Figure 5**, the assumption is that O&M would continue to grow at the historic rate of 2.7% per year above inflation. Given past experience, DOD will have strong incentives in the QDR to assume that reforms will slow that rate of growth. But experience also shows that reforms generally serve to keep O&M cost growth down to historical levels rather than to achieve additional savings. In addition, the FY2010-FY2020 analysis shown above assumes much more limited increases in military pay and benefits than Congress approved in the years between FY1999 and FY2009. The premise is that service members have already won most of the increases in pay and benefits that support groups were seeking, so growth may be more modest in the future. That assumption may not be correct, however, and the analysis may well underestimate personnel costs. Long-term budget trade-offs might be more difficult to the extent personnel costs grow faster.

Will the QDR Lead to More Radical Changes in Budget Plans?

As well as discussing budget trade-offs over the next decade or so, the current QDR may be an occasion for considering more far-reaching, longer-term changes in policy with potentially very substantial effects on budget planning. Perhaps the central issue in debate over earlier QDRs has concerned whether the Defense Department has kept up with the pace of global change and has

[11] Congress passed the original Gramm-Rudman-Hollings deficit control act in November 1985 after the federal budget deficit exceeded 6% of GDP in FY1983. Defense spending subsequently declined in real terms every year until FY1999, when the federal budget ran a surplus.

adjusted defense plans accordingly. That issue appears likely to remain a matter of debate over the current QDR.

The current QDR, on which the Defense Department is required to provide a report early next year, is the fourth such review mandated by a provision that Congress originally included in the FY1997 National Defense Authorization Act and later made permanent. QDRs in 1997, 2001, and 2006 were preceded by two earlier, similarly broad reviews – the "Base Force" analysis that the Joint Chiefs carried out under then Chairman Colin Powell in 1990, and the "Bottom-Up Review" conducted at the beginning of the Clinton Administration under Secretary of Defense Les Aspin in 1993.

The Base Force analysis and the Bottom-Up Review (BUR) were intended first of all to establish a rationale for maintaining strong military capabilities as the Cold War came to an end. The BUR, following the Persian Gulf War of 1991, established as a basic planning principle a requirement that U.S. military forces should be able to prevail in two nearly simultaneous regional conflicts – now termed "Major Theater Wars" (MTWs) – comparable to the war with Iraq. Planners did not neglect post-Cold War requirements for capabilities to manage other kinds of operations. Rather, the BUR argued that forces able to prevail in two major wars would also be able to meet less demanding requirements.

By the time Congress enacted the original QDR requirement, however, that premise was being very widely questioned. Ongoing, long-term U.S. military missions in Bosnia and Herzegovina and later in Kosovo, plus enforcement of no-fly zones in Iraq, were straining the Army and Air Force, neither of which was organized to sustain long-term rotational deployments abroad. The Army, in particular, was still organized in a way that required the mobilization of large numbers of reserves and the reassignment of substantial numbers of active duty troops in order to fill out units selected for deployment. The effect was to disrupt Army personnel management across the whole force and to degrade the readiness of many non-deployed units in order to support even a modest rotational deployment of 5,000 troops to the Balkans.

The 1997 QDR reflected efforts to assess and later ameliorate some of these strains. Among other things, it identified so-called low density-high demand units; mandated additions to some of the more highly stressed forces, including military police and civil affairs teams; made offsetting reductions in other units; and undertook systematic studies of the burdens of recent and ongoing contingency operations on military personnel. It also included a substantially new statement of the missions of U.S. military forces that stressed military engagement and other measures to make use of military forces in non-conflict situations to improve ties with foreign nations and prevent regional conflicts.

As one means of encouraging an even more far-reaching policy reassessment, Congress required as part of the 1997 process the appointment of an independent group, called the National Defense Panel (NDP), to provide input to the QDR and then to prepare an alternative assessment. The NDP's final report emphasized the prospect that future foes would not challenge U.S. conventional military power directly, but would instead use asymmetric means to exploit U.S. weaknesses. The panel warned that critical U.S. capabilities, particularly the ability to project power far around the globe from bases in distant regions and naval forces offshore, would be increasingly at risk because of the diffusion of advanced technologies. The NDP recommended new programs, including converting ballistic missile submarines to launch cruise missiles against targets ashore, and substantial annual investments in experimental technologies to cope with rapidly evolving challenges.

The NDP report is in many ways representative of the discussion, in Congress and elsewhere, about the apparent limitations of successive QDRs. Even though the 1997 QDR, by most accounts, reflected considerable progress in addressing new challenges, the NDP report was quite

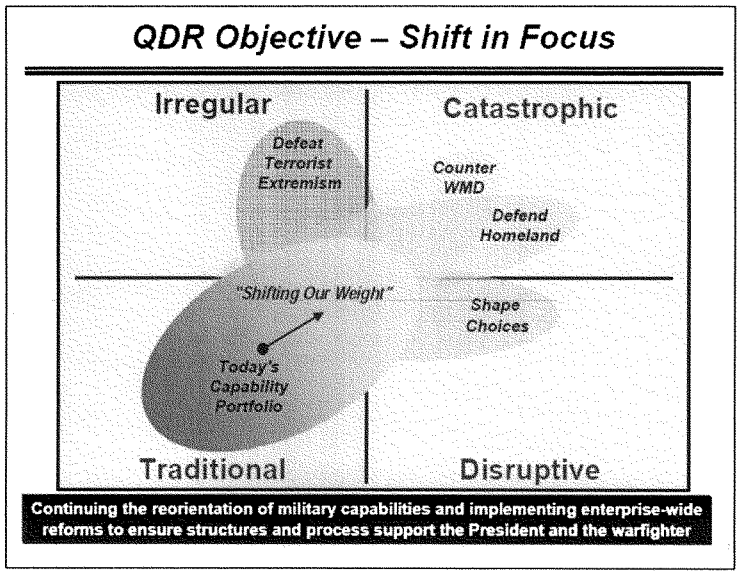
critical of the Defense Department for not adjusting rapidly enough to accelerating changes in the international security environment. Critical as it was, the NDP also received a respectful hearing from senior leaders – the authors of the QDR – inside the Pentagon.

In general, successive QDRs can be seen as progressive steps away from force planning that remained wed to weapons and organizations inherited from the Cold War and toward a much fuller appreciation of the extraordinarily broad array of challenges facing the United States in first half of the 21st Century. The 1997 QDR was succeeded by the 2001 QDR, which emphasized the need to build a full range of capabilities to cope with often unpredictable dangers. It added to the two-war requirement a mandate to protect the homeland from potentially catastrophic attacks and to maintain an effective deterrent presence in four critical regions of the globe.[12]

The 2006 QDR, the first composed after the attacks of September 11, 2001, included the "new challenges" framework that has since shaped much of the discussion of defense planning. **Figure 6**, taken directly from the a DOD briefing on the 2006 QDR, illustrates the premise – which Secretary Gates has pursued since then more assiduously – that investments should be shifted from means of engaging in traditional, conventional force-on-force conflicts, in which the United States still appears to have a significant margin of superiority, and toward irregular, disruptive (i.e., asymmetric attacks on U.S. vulnerabilities), and catastrophic (WMD attacks on the homeland) challenges.

[12] The 2001 QDR articulated what it called the 1-4-2-1 force planning construct, which called for forces to (1) protect the homeland, (4) deter aggression in Europe, Northeast Asia, the East Asian littoral, and Southwest Asia and the Middle East, (2) simultaneously halt attacks in two regions, and (1) win decisively in one major conflict.

Figure 6. 2006 QDR Four Challenges Framework for Setting Priorities



Source: Department of Defense, Briefing Slides on the 2006 Quadrennial Review, February 3, 2006.

Based on briefings by senior DOD officials, the current QDR appears likely to pursue the discussion changes in the international security environment, with implications for force planning, somewhat further yet. Secretary Gates and other officials have, for example, stressed that distinctions between traditional, irregular, and disruptive challenges are eroding. Groups like Hezbollah and Hamas have employed quite sophisticated short-range missiles, including anti-ship missiles, supplied by sponsoring nations. Insurgents in Iraq and Afghanistan have used modern shaped-charge munitions in IEDs to attack armored vehicles. Analysts describe the result as "hybrid warfare," in which non-state groups, considered to operate at the lower end of the conflict spectrum, employ quite advanced technology, a merger of irregular warfare with advanced means of warfare.

Officials also emphasize that even relatively sophisticated future enemies, including peer- or near-peer competitors, will almost certainly employ whatever means they believe will be effective in a conflict with the United States and its allies, including irregular and disruptive asymmetric attacks and even assaults on the U.S. homeland. A focus of the current QDR appears to be on what officials term "high end asymmetric" threats, meaning challenges that a technologically sophisticated and relatively wealthy opponent might pose in an effort to prevail without having to defeat the U.S. on its own terms. High-end asymmetric warfare was another focus of the April QDR guidance, and it is the subject of one of the QDR's issue teams.

In focusing on high-end asymmetric challenges, part of what defense officials are thinking may be reflected in recent discussions by Under Secretary of Defense for Policy Michèle Flournoy,

who has stressed the need to safeguard what she and others call "the global commons," meaning air, sea, space, and cyberspace means of transport, intelligence, and communications.[13] Threats to the global commons could involve the use of some new technologies, including anti-satellite devices (not just weapons but jammers) and cyber-attacks. They could also involve aggressive, wide-scale use by possible future foes of new versions of older technologies. In attacking sea lanes, for example, enemies could use high-speed small boats packed with high explosives (perhaps with suicide pilots); advanced, very quiet diesel-electric submarines with highly capable munitions; smart sea mines that can be deployed in large numbers, hidden, maneuvered, and activated when needed; short- to intermediate-range ballistic missiles with highly accurate and perhaps even maneuverable warheads to attack ships as well as fixed sites; and long-range, stealthy anti-ship cruise missiles. Some of these technologies, particularly ballistic and cruise missiles, could also be used to attack U.S. forward bases in regions of conflict.

Taken as a whole, discussions of security challenges in successive QDRs appear to represent considerable progress over time. The issue, however, is whether the progress has been rapid enough, and, more importantly, whether it has led to sufficiently rapid changes in policy. One goal Congress had in requiring quadrennial defense reviews was to push the discussion of post-Cold War force requirements further. QDRs may have helped to some degree in doing so, simply by requiring senior DOD leaders to think systematically about long-term issues. At the same time, it would be hard to say that QDRs have fully anticipated the evolving nature of future threats. On the contrary, they seem in many cases to have lagged behind emerging threats.

Moreover, changes in military force posture appear to have been even slower to mature. It took the Army until 2001, just on the verge of subsequent conflicts in Afghanistan and Iraq, to begin implementing a new force posture based on more deployable, modular brigades that were sufficiently manned in peacetime to be deployed without disrupting personnel movements over the whole of the force. In general, earlier QDRs appear to constitute snapshots of progress in ongoing discussions of strategy rather than radical departures from earlier views – an evolutionary process driven by the pressing need to adjust to unexpected events, rather than anything revolutionary.

Anti-Access Strategies as an Example of Major Asymmetric Challenges

This raises what may be the key issue for Congress in assessing the current QDR. Will this QDR be another in a line of modest adjustments to global changes, or will it more fully anticipate the impact on U.S. security of fast-moving global trends? A goal of DOD's current leadership appears to be, not merely to identify the range of challenges facing the nation, but also to establish priorities in addressing them. But will this include not only identifying areas that may warrant greater investment, but also capabilities that may be becoming obsolete?

One common criticism of the "capabilities based" analysis of the 2001 and 2006 QDRs, even as they helped to broaden awareness of the range of threats, is that the analytical framework did not help much in allocating resources away from some areas and into others. Leaving aside whether such criticism is fair, the current Administration has emphasized the need to analyze specific threats in order to establish priorities. The question that follows is, how boldly will the current QDR address the potential need for major changes in forces in view of its assessment of new challenges?

[13] Michèle Flournoy and Shawn Brimley, "The Contested Commons," *Proceedings of the U.S. Naval Institute*, Vol 135, No. 7, July 2009.

To give one example of the kinds of more radical changes in force posture that the QDR might address, consider the long-standing debate over anti-access/area denial strategies. The issue has been debated at least since the National Defense Panel discussed it in 1997. A "Red Team" established as part of the 2006 QDR, and headed by Andrew Marshall, director of the Office of Net Assessment, also discussed it and recommended some far-reaching changes in force structure, including a cut of up to one-third in the number of short-range tactical fighter aircraft and an increase in funding for longer-range strike systems. Now a similar "Red Team" has been established for the current QDR, also co-chaired by Marshall, and it includes prominent advocates of changes in forces to cope with anti-access/area denial strategies. They include Andrew Krepinevich, who served on earlier panels as well, and who has long highlighted the issue, and retired Marine Lieutenant General Paul Van Riper, who, in a major war game, called "Millennium Challenge 2002," directed a "Red Force" group that exploited with great effect creative means of disrupting U.S. forces in a Persian Gulf-type scenario.

It is important to note that the Defense Department has not ducked the issue. The National Defense Panel and later internal Red Teams were not suppressed or dismissed – on the contrary, the Defense Department has appeared to welcome the involvement of some forceful critics of some of its policies. After he read Krepinevich's recent book, *7 Deadly Scenarios*, Secretary Gates reportedly directed the QDR team to incorporate Krepinevich's examples into its set of planning exercises.[14]

That said, there appears to be a considerable gulf between the urgency that Krepinevich and others attach to the issue and views of senior DOD officials. In a recent article in *Foreign Affairs*, Krepinevich characterized current U.S. means of projecting and sustaining power around the globe – a capability now unique to the United States and also extremely expensive to maintain – as a "wasting asset." "Several events in recent years have demonstrated that traditional means and methods of projecting power and accessing the global commons are growing increasingly obsolete," he wrote. Citing General Van Riper's success in Millennium Challenge, which, he says, led to the early loss of half the U.S. ships deployed in a model conflict with Iran in the Persian Gulf, Krepinevich concluded:

> Van Riper's success should have served as a warning: projecting power into an area of vital interest to the United States using traditional forces and operational concepts will become increasingly difficult. Indeed, these means and methods are at great risk of experiencing significant, perhaps even precipitous, declines in value....
>
> In the real world, Iran and other states can buy high-speed, sea-skimming ASCMS [anti-ship cruise missiles] in quantity. In confined waters near shore, U.S. warships would have little warning time to defend against these weapons. The same can be said of high-speed suicide boats packed with explosives, which can hide among commercial vessels. Widely available modern sea mines are far more difficult to detect than were those plaguing the U.S. fleet during the 1991 Gulf War. Quiet diesel submarines operating in noisy waters, such as the Strait of Hormuz, are very difficult to detect. Iran's possession of all of these weapons and vessels suggests that the Persian Gulf – the jugular of the world's oil supply – could become a no-go zone for the U.S. Navy.[15]

China, too, he says, is concentrating on anti-access/area denial capabilities as well as the ability to disrupt U.S. freedom of action in space and cyberspace.

---

[14] Andrew F. Krepinevich, *7 Deadly Scenarios* (New York: Bantam Books, 2009). Christopher J. Castelli, "QDR Shakes Up Planning Scenarios for Future Military Missions," *Inside the Pentagon*, May 28, 2009.
[15] Andrew F. Krepinevich, "The Pentagon's Wasting Assets," *Foreign Affairs*, JulyAugust, 2009, Vol. 88, Issue 4.

In contrast, Under Secretary Flournoy and co-author Shawn Brimley, acknowledge similar challenges, but come to a starkly different conclusion about the immediacy of the threat:

> ... barriers to entry for both state and non-state actors to develop and field capabilities that can pose challenges to U.S. and allied freedom of action will lower substantially over time. The proliferation of knowledge and technology will allow an increasing number of state and non-state actors to deploy anti-access capabilities and high-end asymmetric technologies that can put allied infrastructure at risk and hamper U.S. power projection.
>
> [.....]
>
> While these trends are already apparent today, their enumeration should not be interpreted to mean that U.S. dominance in, for example, space-based capabilities or in blue-water naval power projection is being eroded at a precipitous pace. Far from it – America's military will remain without peer for some time in the ability to project and sustain substantial military power from the air and sea over large distances.
>
> These trends are, however, harbingers of a future strategic environment in which America's role as an arbiter or guarantor of stability within the global commons will become increasingly complicated and contested.

What evidence the Defense Department has to support the conclusion that power projection capabilities are not "being eroded at a precipitous pace," is a matter of critical importance. This judgment appears to be at odds, to some degree at least, with the conclusions of the 2006 QDR Red Team, as well as with the views of Krepinevich and other well-regarded independent analysts. A measure of the value of the QDR may be how directly and effectively it addresses this and similar issues that raise questions about the pace at which the Defense Department is adjusting to changes in the international security environment.

The amount of new investment that may be needed to cope with asymmetric threats may very well be substantial. If area denial strategies are effective in forcing shorter-range U.S. forces away from regions of conflict, for example, investments in longer-range air- or even space-based strike systems might be needed, particularly for use in the early stages of a conflict. The task of striking against mobile ballistic and cruise missile launchers remains challenging, and much larger investments in intelligence, surveillance, and reconnaissance systems for the mission, as well as in long-range and loitering strike systems, might be required. One alternative may be a substantial increase in submarines and submarine launched weapons. Defenses against ballistic and cruise missiles might also be required in very large numbers. Cost exchange ratios may not favor existing sea- or land-based missile defense systems, and new investments in air-launched anti-missile systems may be needed.[16]

Other asymmetric threats could also require expensive measures in response. Defense against anti-satellite systems might require not only measures to protect current generations of large satellites, but, as many have proposed, the development of smaller satellites for key missions that could be launched in substantial numbers in the run up to a conflict. This might also require large investments in launch systems.

The Cold War was punctuated by occasional, unexpected international crises, but, in retrospect defense planning was characterized by a remarkable degree of stability. The post-Cold War era, in contrast, appears to be defined both by a succession of unpredictable challenges and by the accelerating pace of global change. Experience with earlier QDRs suggests that the Defense Department may sometimes be slow to adjust to new challenges, and that institutional inertia may make senior leaders reluctant to pursue far-reaching changes in policy. The central issue for this

[16] There has been some discussion of using upgrades of Sparrow or AMRAAM air-to-air missiles for missile defense.

and future QDRs may be how effective they are in turning investments that will determine U.S. military capabilities twenty years and more in the future, in the right direction.

Table A-1. DOD Base Budget and Supplemental Funding, FY1976-FY2014 Updated Through the Mid-Session Review of the Budget, August 2009

(budget authority in billions of current year and constant FY2010 dollars)

	DOD Base Discretionary (Current Year $)	DOD Supplementals/ Bridge Funds (Current Year $)	DOD Total Discretionary (Current Year $)	DOD Base Discretionary (Constant FY2010 $)	DOD Supplementals/ Bridge Funds (Constant FY2010 $)	DOD Total Discretionary (Constant FY2010 $)
FY1976	93.8	1.9	95.7	355.2	7.3	362.5
FY1977	106.6	1.5	108.1	376.9	5.3	382.3
FY1978	111.7	3.0	114.7	365.2	9.8	375.0
FY1979	120.4	3.6	124.1	363.9	11.0	374.9
FY1980	135.0	6.4	141.3	364.3	17.2	381.5
FY1981	169.4	7.2	176.6	406.4	17.3	423.7
FY1982	211.7	0.5	212.2	466.7	1.0	467.7
FY1983	238.2	0.7	238.9	500.4	1.4	501.8
FY1984	258.1	0.5	258.6	523.7	1.0	524.7
FY1985	287.1	0.0	287.1	560.0	0.1	560.1
FY1986	281.1	0.8	282.0	538.0	1.6	539.6
FY1987	279.3	0.7	280.1	521.4	1.4	522.8
FY1988	284.3	–	284.3	512.3	–	512.3
FY1989	291.4	–	291.4	505.7	–	505.7
FY1990	291.7	2.0	293.8	492.1	3.4	495.6
FY1991	276.1	43.6	319.7	449.1	70.9	520.0

	DOD Base Discretionary (Current Year $)	DOD Supplementals/ Bridge Funds (Current Year $)	DOD Total Discretionary (Current Year $)	DOD Base Discretionary (Constant FY2010 $)	DOD Supplementals/ Bridge Funds (Constant FY2010 $)	DOD Total Discretionary (Constant FY2010 $)
FY1992	276.7	9.6	286.3	438.6	15.2	453.8
FY1993	259.3	3.1	262.3	407.5	4.8	412.3
FY1994	249.1	1.3	250.4	383.7	1.9	385.7
FY1995	249.7	2.7	252.4	376.1	4.0	380.1
FY1996	252.7	1.0	253.7	372.0	1.5	373.5
FY1997	252.1	1.9	254.0	362.3	2.8	365.0
FY1998	257.0	2.8	259.8	359.3	4.0	363.2
FY1999	265.6	9.1	274.7	361.4	12.4	373.8
FY2000	278.7	8.6	287.3	369.8	11.3	381.1
FY2001	296.9	19.4	316.3	382.0	24.9	406.9
FY2002	328.2	16.2	344.4	410.7	20.3	431.0
FY2003	374.9	62.6	437.5	453.7	75.7	529.5
FY2004	398.1	69.5	467.6	467.1	81.6	548.7
FY2005	377.0	101.9	478.9	425.4	115.0	540.4
FY2006	410.5	124.0	534.5	448.1	135.4	583.4
FY2007	429.6	171.3	600.9	456.9	182.2	639.1
FY2008	478.8	187.1	666.0	495.7	193.7	689.4
FY2009	520.9	145.8	666.7	530.7	148.5	679.2
FY2010	533.8	130.0	663.8	533.8	130.0	663.8
FY2011	541.8	50.0	591.8	528.7	48.8	577.5

	DOD Base Discretionary (Current Year $)	DOD Supplementals/ Bridge Funds (Current Year $)	DOD Total Discretionary (Current Year $)	DOD Base Discretionary (Constant FY2010 $)	DOD Supplementals/ Bridge Funds (Constant FY2010 $)	DOD Total Discretionary (Constant FY2010 $)
FY2012	550.7	50.0	600.7	524.5	47.6	572.1
FY2013	561.1	50.0	611.1	521.3	46.5	567.7
FY2014	574.5	50.0	624.5	520.6	45.3	565.9

Sources: Totals for FY1976-FY2008, Office of Management and Budget, *Budget of the United States Government, FY2010 Historical Tables*, May 2009; totals for FY2009-FY2014, Office of Management and Budget, *Mid-Session Review: Budget of the U.S. Government, Fiscal Year 2010*, August 2009; Supplementals from FY1976-FY1980 from Department of Defense Comptroller, Annual FAD Table 809; Supplementals from FY1981-FY1999 from Congressional Budget Office; Supplementals and Bridge Funds from FY2000 on, Congressional Research Service based on House Appropriations Committee tables on appropriations bills.

Stephen Daggett

Stephen Daggett is a Specialist in Defense Policy and Budgets with the Congressional Research Service of the Library of Congress. He has been with CRS since 1989. His work focuses on the defense budget, the congressional budget process, and the relationship between strategy and budget planning. Recently he has been working on the FY2009 defense authorization and appropriations bills; FY2008 and FY2009 supplemental appropriations; the effects of the growing costs of personnel, operations, and weapon systems on long-term defense plans; and the historical costs of major U.S. wars. Before coming to CRS, he worked as a defense and arms control analyst at a number of private research groups, including the Council on Economic Priorities and the Committee for National Security..

Education: BA, University of Massachusetts; MA, University of Michigan

Phone: 202 707-7642

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

Statement before the House Armed Services Committee

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG TERM DEFENSE BUDGET TRENDS

A Statement by

David J. Berteau

Senior Adviser and

Director, Defense Industrial Initiatives Group

Center for Strategic and International Studies (CSIS)

November 18, 2009

House Visitor Center

RESOURCING THE NATIONAL DEFENSE STRATEGY: IMPLICATIONS OF LONG TERM DEFENSE BUDGET TRENDS

Statement Before the House Armed Services Committee

David J. Berteau
Senior Adviser and
Director, Defense Industrial Initiatives Group
Center for Strategic and International Studies

November 18, 2009

Chairman Skelton, Congressman McKeon, and Members of the Committee: I appreciate the opportunity to appear before you this morning as part of this distinguished panel to offer my views on what may well be the most important national security issue faced by this Committee and by the Congress. I refer of course to the long term challenges and issues of the national defense budget.

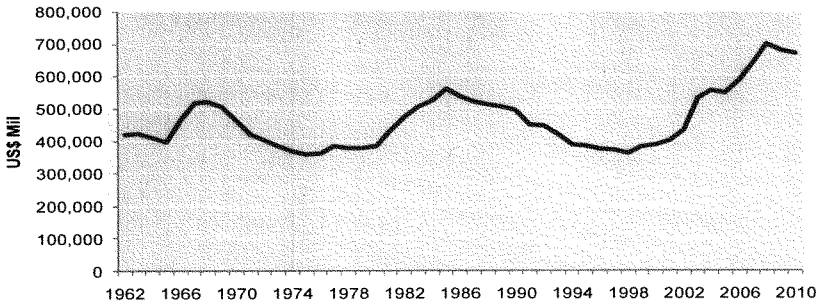
Mr. Chairman, since I arrived at the Pentagon in 1981, I have been involved in building, executing, studying, and teaching defense budgets and programs. My goal today is to try to help shed some light on what this Committee and the Congress can do to deal with DoD budget challenges that are coming. My statement today draws from research at the Center for Strategic and International Studies. I want to begin by noting that my comments here today are entirely my own and do not necessarily reflect the views of either CSIS or any other entity with which I am affiliated.

Mr. Chairman, I would like to recognize the valuable contributions to today's hearing that is made by the testimony from the distinguished staff from the Congressional Budget Office and the Congressional Research Service. At CSIS, we use data and analyses from both CBO and CRS in our research, and I use their work as assignments in my graduate classes. It is top-notch material. Today, I will not repeat the facts in their statements but will instead base some of my key points on those same facts.

The Defense Budget Will Come Down

Defense budgets run in cycles, with periods of increase followed by periods of decline. For years, defense analysts have been predicting that the defense budget is coming down, but it has been on an historic run. The FY 2009 DoD Authorization Act was 65 per cent higher than in FY 2001 in real dollars. This exceeds even the "Reagan Buildup" from FY 1980-1985. Figure 1 shows the annual trends in the DoD budget since 1962, Robert McNamara's first budget under the Planning, Programming, and Budgeting System or PPBS.

Figure 1: DoD Budget Authority, Total DoD (Constant FY2010 Dollars)



Source: DoD Comptroller

We all know that this run of increases will end and that defense budgets will come down. I don't think it will be in FY 2011, but it will occur soon thereafter. Whether defense budgets start coming down next year or the year after is not what's important. What's important is that neither Congress nor the Defense Department is ready to deal with declining defense budgets. Let's look at the reasons why this is so and on what the solutions might be.

Inadequate Defense Planning and Programming

In his 1971 book on defense budgets How Much Is Enough?, Alain Enthoven stated that the worst thing one can do to the Military Services is to take away their shortfalls, because they won't then know how to manage. What has been interesting to me for the past few years is that even the time of riches in the defense budget has not eliminated the shortfalls or even reduced them. What has instead happened is that we have quit calculating how big our shortfalls are, and we have ceased to make conscious trade-off decision about these shortfalls. So, while technically we did not "take away" the Services shortfalls, we instead lost sight of them, and the net effect is the same.

Let me explain a bit.

In the regular order of Pentagon budget business, the budget year is actually just the first year of the FYDP, the Future Years Defense Program. This FYDP is a key element of the PPBS, a remarkable management tool created in the early 1960s that projects defense programs and spending for the budget year and 5 additional years. It is also essential for DoD to manage for the long term, because the cycles in defense spending are so long and because building defense capability takes a long time and careful advance planning. This is true whether we are talking about weapon systems that take years to design and build and field or soldiers and sailors and airmen and Marines that take years to train and develop.

It's easy to overlook how long it takes to build the force of military personnel. In war games during my time in the Pentagon, we were surprised to discover that it takes longer to develop a

new crew for a tank than it takes to build a new tank. That's why it is so important for DoD to build and use a FYDP that is fiscally disciplined.

People are the most expensive part of the defense budget. The size of the budget is fixed by the size of the force, the military and civilians and contractors that get up every morning and train and prepare for and execute and support the missions. The CBO testimony today most eloquently makes the case that military pay and benefits and pay for civilian employees will continue to rise faster than inflation.

Military health care, of course, we all know is the fastest growing part of the defense budget, and projections show no sign of it abating.

Similarly, funds for Operation and Maintenance (O&M) are also projected to increase on a per-person basis for active duty military. I note that O&M budgets have historically been 1.5% below actual costs. All of these trends point to unrecognized shortfalls in the budget as projected today.

There is a final area of the shortfall that merits our attention, and that is the shortfall in equipment. The Navy cannot lay out an affordable shipbuilding plan that even maintains the size of today's fleet, much less reaches its reported target. The Air Force cannot sustain funding for needed aircraft. The Marines have stated publicly that their FYDP projections will not support their planned equipment modernization programs. The Army faces perhaps the largest set of unrecognized shortfalls, with the projected costs of replacement vehicles, armor, and helicopters exceeding the budget by billions each year.

It is difficult to quantify equipment shortfalls to which the Services themselves will not yet admit, but CSIS estimates that today's shortfalls in the Army alone may exceed the size of the entire Army budget pre-9/11. Small wonder that DoD does not want to calculate or admit the size of its shortfalls. Small wonder that there is no fiscally-disciplined FYDP to make this clear.

Shortfall Fixes Are Indequate

There have been at least three ways DoD has tried to address these shortfalls. One has been to use emergency supplemental appropriations to fund equipment. We think of these emergency supplementals as being used to pay for the costs of the wars in Iraq and Afghanistan, but they have also been used to fund equipment. By FY 2007, for example, fully two thirds of Army procurement funding came from supplemental appropriations.

The influx of cash into DoD by way of the emergency supplemental appropriations has masked the fact that DoD has not maintained its fiscally disciplined FYDP process. This situation was exacerbated by the changes to the PPBS undertaken by Secretary Rumsfeld, a second way that DoD tackled shortfalls. By combining the program review and the budget review, his changes in theory made the PPBS take less time and stay more current. In implementation, though, the program issues have tended to get less attention and have therefore become less relevant. At CSIS, we conducted a critique of the Rumsfeld PPBS changes. We found that the result of less attention to program review issues withered the tools of the PPBS and the FYDP. As a result, it

has been easier for DoD to avoid making the hard choices about requirements, programs, and budgets. We recommended a return to the previous program and budget processes. Mr. Chairman, I would be happy to provide this short CSIS assessment for the record.

The absence of a disciplined FYDP also hurts your ability in the Congress to evaluate the shortfalls in DoD and to adjust the priorities in the defense budget, in accordance with the constitutional roles of the Congress. You need a clear straightforward projection of the Defense Program in order to judge the balance of requirements to programs and resources.

A third way DoD has addressed shortfalls is the adjustments made by Secretary of Defense Robert Gates in his FY 2010 budget, as announced last April and as reflected in the FY 2010 National Defense Authorization Act recently passed by this Congress. Secretary Gates' reductions and cancellations made headlines, but they did little to fix long term budget shortfalls. Nearly every one of his reductions was offset by an increase elsewhere, leaving little in the way of overall FYDP savings. We should not be surprised at this, because it is of course exactly what the Secretary said he was doing – changing the focus of defense spending from the old ways of conventional warfare to the new demands of what he called "irregular warfare."

The Solutions

Absent a new or expanded engagement of forces, defense budgets will begin to decline next year or the year after that, and when budgets decline, shortfalls become worse. The FYDP and the PPBS are the tools DoD has used throughout its history to identify shortfalls and prioritize scarce resources, and they have been neglected. It might seem then that the solution is easy: fix the tools. Of course, it's not that simple.

The forces that drive those shortfalls are powerful, and the choices they present us are stark. The prime driver behind defense spending is the size of the force. Today's defense budget, despite its historically high level, is not enough to pay for the people, their benefits and support, and the equipment needed. CBO's projections make that clear.

The challenge is not spending more money. The challenge is identifying the requirements, based on the threats we face and the forces we need to respond to those threats, and then figuring out how best to fund those requirements, with what priorities. Shortfalls have always existed, and they will continue to exist. The question has always been, "how much is enough?" The issue has always been how much risk can we accept and how we allocate that risk to different threats.

Will the Quadrennial Defense Review lay this out for us? That's what we expect it to do. The process inside DoD has not been transparent enough for us to say that the QDR will answer the question for us of how much Defense do we need. My own suspicion is that the QDR will leave too many questions unanswered. I recently asked one of the Service Chiefs whether he had sufficient guidance from Secretary Gates to build his FYDP along the rebalancing lines that Mr. Gates has emphasized. His reply was that he hoped to get that guidance from the QDR. I fear he will be disappointed.

Ultimately, there is only one path to a solution. DoD must define and articulate its force requirements, pay for what it can to meet those requirements, lay out the shortfalls and the long-term program in the FYDP, and propose that to Congress in the FY 2011 budget and the associated outyears. There is no shortcut to this process, and there is no easy fix. We either have to provide the resources needed to meet force structure and requirements, adjust the overall size of the force, constrain the requirements for their use, or live with more risk than we want. Regardless of which path we choose, we need to revitalize the tools of a fiscally disciplined Defense Program, program review, and FYDP. There is no other real solution.

The Four Per Cent "Solution" Won't Work

Some have suggested that we can skip the hard work of defining requirements and making the priority tradeoff decisions to fit them into a budget. They suggest that we can make this work easy by tying the level of the defense budget to a percentage of the Gross Domestic Product. There is an obvious and seductive appeal to this solution, but here is why it won't work from my perspective.

1. Fixing the defense budget as a percentage of GDP is an arbitrary, variable figure that neither relates to force size or threats. It does not reflect DoD requirements or what DoD should spend.

2. The percentage-of-GDP approach masks real changes in DoD spending. In times of fast-rising GDP, the percentage may decline even as real spending increases. The reverse could happen when GDP shrinks.

3. The effect of supplementals on defense spending over the last decade has blurred the baseline. Including supplementals, defense spending today is at 4.7% of GDP – yet we still have shortfalls, and we are not dealing with them. In fact, the percentage-of-GDP approach could reduce our flexibility to respond to shortfalls. All too often, congressional floors become ceilings.

4. One of the lessons of Iraq and Afghanistan is the gap between DoD capacity and the capabilities of the rest of the federal government. By focusing solely on DoD rather than on national security capability as a whole-of-government issue, the percentage-of-GDP approach undermines the need to get more capability into the Departments of State, Commerce, Treasury, Justice, Agriculture, USAID, etc. The inability of those agencies to perform their missions in support of expeditionary operations has put additional burdens on DoD. Those burdens will be made worse, not better, under the percentage-of-GDP approach.

5. Another lesson of Iraq and Afghanistan is the need for alliances and partners in our global missions. Fixing defense spending without leaving room for encouraging more integration with our allies and coalition partners could undermine our efforts at burden-sharing.

6. The debate on federal spending is more than just defense. The constitutional role of the Congress is to assess and determine, on behalf of the people, the "opportunity cost" of defense spending. That is the real message of President Eisenhower's focus on the size and nature of the defense budget and of the national tradeoffs that budget represents, from the perspective of what makes America truly strong.

Conclusion

My bottom line is that there is only one way to budget for defense in a way that makes sense, and that is for the Administration to illuminate the threats and set the requirements, to define the Defense Program that meets those threats and addresses those requirements, to make the priority tradeoffs that produce a defense budget and FYDP, to articulate the inherent risks to mission and to costs and schedules, and to turn it over to Congress to make the final decisions. This is hard work, and there is no shortcut to this process. Failing to engage in a disciplined process will make today's shortfalls worse, but there is hope here. Both Congress and the Executive Branch recognize the depth of the issues, and Congress and this Committee have clearly indicated their willingness to work with the Administration to meet these challenges.

Mr. Chairman, Congressman McKeon, and Members of the Committee, that concludes my remarks, and I look forward to your questions and our discussion.

CSIS | CENTER FOR STRATEGIC & INTERNATIONAL STUDIES

Published on *Center for Strategic and International Studies* (http://csis.org)

David J. Berteau

David J. Berteau is senior adviser and director of the CSIS Defense-Industrial Initiatives Group, covering defense management, programs, contracting, and acquisition. His group also assesses national security economics and industry. Mr. Berteau is an adjunct professor at Georgetown University, a member of the Defense Acquisition University Board of Visitors, a director of the Procurement Round Table, and a fellow of the National Academy of Public Administration. He also serves on the secretary of the army's Commission on Army Acquisition and Program Management in Expeditionary Operations. Prior to joining CSIS, he was director of national defense and homeland security for Clark & Weinstock. From 2001 to 2003, he was the director of Syracuse University's National Security Studies Program. Mr. Berteau was a senior vice president at Science Applications International Corporation (SAIC) for seven years, and he served in the Defense Department under four defense secretaries, including four years as principal deputy assistant secretary of defense for production and logistics. Mr. Berteau graduated with a B.A. from Tulane University in 1971 and received his master's degree in 1981 from the LBJ School of Public Affairs at the University of Texas.

RESOURCING THE NATIONAL DEFENSE STRATEGY

Implications of Long-Term Defense Budget Trends

Testimony to the House Committee on Armed Services
November 18, 2009

Thomas Donnelly
Director, Center for Defense Studies
American Enterprise Institute

I want to thank Mr. Skelton, Mr. McKeon and the members of the committee for inviting me to testify. As an alumnus of the committee staff, it is a special pleasure to return to my old haunts. This committee continues to stand as a beacon of professionalism and collegiality among members dedicated first to doing the people's business – and their most important business: defending America.

I further appreciate the opportunity to talk to you at a critical time on a most critical subject. For those who believe that American strength is the best guarantee of international peace, global prosperity and the hopes of free people, the disparity between what we ask of those in uniform and the resources they have to fulfill their many missions is disturbing. The commitment of those in our armed services is not in doubt; indeed, if this hearing had been held on September 12, 2001, and we had known what the intervening years held in store for the U.S. military, we would have unanimously predicted that the force would break. That it has not broken – yet – is something of a miracle. But miracles are not a method. What is in doubt is whether our commitment to the mission begins to match theirs.

My testimony will be an attempt to answer three questions about long-term defense budget trends since the end of the Cold War: First, what are the trends within the defense budget? Is there a healthy and sustainable balance among the costs of personnel, operations and maintenance, research and development and procurement accounts? Second, how does overall defense spending compare to other budgetary, fiscal and economic trends? Is there a healthy and sustainable balance of defense spending relative to other government spending and consistent with continued economic growth? Finally, and most important, are military budgets and forces adequate to meet U.S. national security strategy goals? Is there a health and sustainable balance between our strategic ends and our military means?

Before analyzing what has happened internally to U.S. defense budgets, I want to establish the facts of the case, not just in regard to the post-Cold War period but the post-World War II era. This is the right way to frame the question, because what we really need to know is not just how much it cost to defeat the Soviet Union but how much it costs to maintain the U.S. guarantee and protection of the liberal, international order that

has defined the world since World War II until today. And, as I will argue in the conclusion of this testimony, this remains the yardstick by which we should measure our defense requirements and budgets going forward.

Two additional program notes: in my testimony I will measure defense spending as a percentage of U.S. gross domestic product whenever possible. I regard this as the most reliable yardstick to compare budgets over time, in that it represents the "opportunity cost" of defense relative to the economy as a whole. In a dynamic and growing economy, even "constant dollars" do not adequately capture the political elements of defense budget decisions, or reflect the level of sacrifice that Americans are willing to make. Second, in dealing with budgets of the post-9/11 period, I will distinguish between the "baseline" budget – those figures that capture the costs of raising, training and initially equipping the force – and the wartime costs covered by supplemental appropriations. To the Treasury or the taxpayer, it is true that a dollar spent is a dollar spent, no matter how it is accounted for. On the other hand, if we are to measure our level of preparedness across time, then baseline budgets are the most appropriate numbers to compare. A footnote: my figures will be, for the most part, those published by the Office of Management and Budget.

To begin: at the height of World War II, from 1943 to 1943, military spending consumed slightly more than 37 percent of U.S. gross domestic product, but as the war came to an end, the traditional American post-conflict demobilization set in and spending quickly fell to 3.5 percent of GDP in Fiscal Year 1948 – less than one-tenth as much. With the beginning of the Cold War, the promulgation of the Truman Doctrine, the development of the strategy of containment and the guidance of NSC 68, the United States began to rearm, in 1951 devoting 7.4 percent of its wealth to defense. The outbreak of the Korean War drove defense spending as high as 14 percent of GDP.

President Eisenhower came to office promising to end the conflict in Korea and rein in the "military industrial complex." He embraced the Cold War commitment and the basic containment strategy, but looked for less-costly military means and found them in the form of nuclear weapons and the doctrine of "massive retaliation." But while the Eisenhower reductions represented almost a 30 percent reduction in defense spending, the overall level remained above 10 percent of GDP until the final year of his administration.

The Kennedy-Johnson years saw a continued dip in expenditures that only ended with the escalation of the Vietnam war. Still, defense spending represented 9.4 percent of GDP in 1961 and 9.4 percent of GDP in 1968, the height of the Vietnam buildup; the low point was 7.5 percent of GDP in 1965. After Vietnam, defense spending was gradually reduced to a further low of 4.6 percent of GDP in 1979 – the year of the Soviet invasion of Afghanistan, the year of the Iranian hostage crisis, the seizure of the Grand Mosque in Mecca and the year that Saddam Hussein came to power in Iraq.

The Reagan buildup peaked at 6.2 percent of GDP in 1986 and then slid to its Cold-War "close" in 1992 at 4.8 percent, also the year of Operation Desert Storm. President Clinton oversaw the post-Cold War drawdown, with U.S. armed forces

essentially reduced by one-third and spending dropping to an even 3 percent of GDP. Through the Bush years and into the first year of the Obama Administration, FY 2010, "baseline" defense spending – that is, the core defense budget not including war-related costs – has risen to about 3.6 percent of GDP. War-time costs have averaged just about 1 percent of GDP, though with the Iraq surge and perhaps now with some kind of surge in Afghanistan, and with the slowed economic growth, war costs may rise to a level of about 1.2 percent of GDP.

In sum, the general pattern is this: the overall "baseline" cost of the U.S. military, carrying out its global mission, has become cheaper and cheaper: during the 1950s this baseline posture cost about 9 percent of GDP, during the 1960s it fell to about 7.5 percent, during the 1970s to about 5 percent, and during the 1990s to about 3.5 percent, where it remains. Only the Reagan years interrupt the general pattern of peacetime defense declines, and that increase was but 1 percent of GDP, for a period of five years.

Further, the cost of America's wars has likewise been reduced: Korea cost about 3 percent of GDP, Vietnam about 2 percent, and the "Long War" campaigns in Iraq and Afghanistan a little more than 1 percent; no other conflict, not even Desert Storm, makes any macroeconomic imprint.

Altogether, the costs of American primacy have been low and generally getting lower over time. That doesn't mean that it will ever be thus, but it does suggest that the preservation of American primacy is entirely affordable.

The Post-Cold War 'Cap' on Defense

This quick historical summary also makes plain that there has been a *de facto* "cap" on baseline defense spending for the past 15 years, instituted by the Clinton Administration, confirmed by the second Bush Administration and that is reflected in the Obama Administration's budget plans: Clinton reduced Pentagon spending to 3 percent of GDP; Bush bumped it to 3.5 percent, and Obama's plan to "freeze" the defense topline will see the level fall again to 3 percent at the mid-point of a projected second term in office.

Naturally, the fall in military spending from the end of the Reagan term through the 1990s had many effects: the size of the Cold-War force was cut by a quarter to, in the Army's case, about a third. But there were deeper cuts in weapons research and, most critically, procurement; the 1990s quickly became known as a "procurement holiday," and this was reflected in several rounds of defense industry consolidation. Both Democratic and Republican administrations strove mightily to preserve the all-volunteer force, which not only had proved itself a highly capable military instrument, but was essential to preserving domestic social harmony; no one wanted a return to the draft or a conscript force.

Within an essentially fixed budget top line, the increasing emphasis on people gradually began to have larger, unanticipated debilitating effects. As the Rand Corp. has

written: "Besides good [basic] pay, careerists demanded quality-of-life benefits such as good housing, child care, health benefits, family advocacy programs and military stores." An all-volunteer force had to be "family friendly," and to offer people in uniform something that resembled the kind of life the rest of us came to take for granted; military servicemembers were to be included in the American Dream.

Over time – and paralleling civilian experience – personnel costs and benefits have consumed an increasing slice of a fixed defense pie. Stephen Daggett of the Congressional Research Service has calculated that the costs of military pay and benefits, even after adjusting for inflation, have risen from $55,000 per individual servicemember in 1998 to $80,000 in 2009. When health care costs are included, the figure rises to more than $100,000 per year. That's before training or equipping anyone – these are just the costs of being present.

Again reflecting civilian trends, the most rapidly rising personnel-related costs are health-care expenses. At the end of the Cold War – when the force was much larger – health care accounted for about 4 percent of defense spending. During the Bush years, that doubled and current trends would take it to 12 percent by 2015. Most of this increase is due to a single benefit, "TRICARE for Life," enacted in 2001. This extended the benefits of the military health insurance program to members, their families and survivors of their lifetimes; formerly, they were transferred to Medicare coverage upon reaching age 65. Thus, the GAO has found that TRICARE costs have been growing at an annual rate of 16 percent, doubling the cost to the defense budget from $17.4 billion in FY2000 to $35.4 billion in FY2005. Prescription drug costs are rising even more rapidly, tripling in the same period.

The expansion of benefits continues. The 2008 "Post-9/11 Veterans Educational Assistance Act," a kind of new "GI Bill" extending educational benefits to those who have served since 9/11, will cost about $52 billion dollars through 2018, according to the Congressional Budget Office.

I am not arguing that these benefits are not deserved nor that they do not contribute to military effectiveness: the amazing resilience of the current force through the trials and multiple deployments of Iraq and Afghanistan is far more than personnel experts might have anticipated, and no doubt these benefits played some part in that. If nothing else, they are an expression of moral gratitude from the many who do not serve to the few who do. Nevertheless, these benefits consume an increasing slice of the Pentagon's baseline budget. In 1985, at the height of the Reagan buildup (and with a much larger force), the Pentagon spent $1.42 in weapons procurement for every dollar it spent on personnel. By 1998, at the depth of the Clinton drawdown, the situation was more than reversed: for every procurement dollar, the Pentagon spent $1.55 on personnel. The 2001 defense budget, reflecting the initial adjustments of the Bush Administration but prior to the 9/11 attacks, had a procurement-to-personnel rate of 1:1.22. In sum, we take better care of our soldiers, sailors, airmen and Marines when they're at home than when they're at war, where a good weapon is the best form of health care.

The Rest of the Picture

But these shifts among accounts within the constrained defense budgets of the post-Cold War period are only a part of the story. Consider this snapshot of federal spending in 1992: total federal spending claimed about 22 percent of GDP. Defense spending was 4.8 percent, and "non-defense discretionary" programs – that is, domestic programs voted on by the Congress – to 3.7 percent. Social security accounted for 4.6 percent, while Medicaid, Medicare and other entitlements took a further 6.4 percent of GDP. Servicing the national debt added 3.2 percent, for a total of 14.2 percent in mandatory spending. In sum, not only was defense spending beginning to fall, but other forms of federal mandatory spending were on the rise, amounted to three times as much.

Now look at the situation in 2001. Federal revenues claimed 18.4 percent of American income. Defense spending had fallen to just 3 percent of GDP, now outpaced by non-defense discretionary spending at 3.4 percent. Luckily, economic growth had momentarily reduced the burdens of mandatory spending, with the cost of entitlements holding steady but interest payments down to just 2 percent of GDP. While the active defense establishment had remained small, the United States might have mobilized its wealth to expand its military power. Yet despite the attacks of September 11, the Bush Administration refused to systematically rebuild the armed services.

Fast-forward to 2016, using numbers released by the administration as it rolled out its budget plan this spring – and before even a guess at the final effects of any health care legislation could be taken into account. Thanks to the presumption of a rapid and sustained recovery, the White House predicted that federal spending will be held to 22.4 percent of GDP in 2016. Alas, the administration will have been borrowing a lot of money in the interim, and so the total debt will have grown from 40 percent to about 70 percent of GDP. Total mandatory spending in that year – social entitlements plus debt service – accounts for 22 percent of GDP, domestic discretionary programs about 4.2 percent of GDP, while baseline defense spending drops a shade below 3 percent.

At this point, the nation's ability to rebuild the armed forces could be in serious question. Entitlements and debt will claim all but a small portion of federal revenues. Almost all annual appropriations – not, of course, including any wartime or other "emergency" appropriations – would require further borrowing. While the relationship between finance and strategy is a complex one – at the height of the Napoleonic wars, Great Britain's debt was 250 percent of annual GDP – the accelerating growth of entitlements is unquestionably a threat to the ability to mobilize the American economy for military purposes. At the beginning of the Korean War, entitlement costs were 0.3 percent of GDP; in 1968, at the apogee of the Vietnam mobilization, entitlements were less than 5 percent; at the height of the Reagan buildup, they were about 9 percent of GDP. As these costs continue to grow and indeed are accelerated by the aging of the "Baby Boom" generation and the addition of further entitlements, the ability to regenerate military power will atrophy.

Implications for Strategy

These trends would be bad enough news if the effects were limited to the nation's finances and economy more broadly. Many Western European nations have found themselves in similar circumstances, but the geopolitical consequences of Europe's decline have been mild.

The consequences of American decline would not be the same. This is how the Australian government put it in their recent defense white paper: "Of particular concern would be any diminution in the willingness or capacity of the United States to act as a stabilizing force. In circumstances where a global transformation in economic power and commensurate redistribution of strategic power continued to the point where its cumulative effect required us to alter our assumptions about the weight and reach of U.S. strategic primacy," the Australians would have to fundamentally reassess their situation. Already, the white paper is intended as a "hedge" against uncertainty about U.S. power and purpose, not only in East Asia, but in the world.

When the Aussies start talking like that, we should take notice. The assumption of "U.S. strategic primacy," which our allies regard as a very good thing, rests upon a number of pillars: a proven nuclear deterrent, assured access to and the ability to achieve local supremacy across the "global commons" – that is, the ocean, the air, space and, increasingly, cyberspace – and a favorable balance of power in vital regions: continental Europe, East Asia, and what we have come to call "the greater Middle East."

There are new challenges to American primacy in all these areas. Europe's great-power peace, bought after a century of effort at great cost in blood and treasure, is durable, but Russia's inability to accommodate to its loss of empire remains a worry. In the 30 years since the creation of the Rapid Deployment Joint Task Force, the precursor to U.S. Central Command, the American military presence in the Middle East has mushroomed, and our posture is no longer one of "offshore balancing" but an "onshore," long-term stabilizing mission. And in East Asia, the engine room of future economic growth, the rise of China and the surge in Chinese military power is sparking new competitions, if not yet new conflicts. And the global nuclear balance is becoming more complex and less stable: the bipolar, Cold-War "balance of terror" is giving way to a multipolar, even more terrifying regime wherein all great powers but the United States are modernizing and expanding their arsenals and where proliferation is putting nuclear capabilities within reach of otherwise "derelict" states, to borrow a phrase form John Quincy Adams; it is their weakness that makes them most dangerous.

This is the most ominous long-term defense budget trend of all: that the level of investment will not match the level of threat or the level of our strategic need. The requirement far outpaces any reasonable hope of internal reform. If we are to preserve American primacy – and the remarkably peaceful, prosperous and free international system that we have created – we must not only spend smarter. We must try to restrain our appetite for social entitlements. But most of all and first of all, we must reverse the

trend toward decline, and rebuild our armed forces. The longer we postpone these decisions, the more painful they become.

SCHOLARS AND FELLOWS

Thomas Donnelly

Resident Fellow

Contact Information

Email: thomas.donnelly@aei.org
Phone: 202-862-7186
Fax: 202-862-4877
Assistant: Philipp Tomio
Assistant Email: philipp.tomio@aei.org
Assistant Phone: 202-862-7184

Biography

Thomas Donnelly, a defense and security policy analyst, is the coauthor with Frederick W. Kagan of ***Ground Truth: The Future of U.S. Land Power*** (2008). Among his recent books are ***Of Men and Materiel: The Crisis in Military Resources*** (2007), coedited with Gary J. Schmitt; ***The Military We Need*** (2005); and ***Operation Iraqi Freedom: A Strategic Assessment*** (2004). From 1995 to 1999, he was policy group director and a professional staff member for the House Committee on Armed Services. Mr. Donnelly also served as a member of the U.S.-China Economic and Security Review Commission. He is a former editor of *Armed Forces Journal*, *Army Times*, and *Defense News*.

Experience

- Member, U.S.-China Economic and Security Review Commission, 2005-2006
- Editor, *Armed Forces Journal*, 2005-2006
- Director, Strategic Communications and Initiatives, Lockheed Martin Corporation, 2002
- Deputy Executive Director, Project for the New American Century, 1999-2002
- Director, Policy Group, 1996-99; Professional Staff Member, 1995, Committee on Armed Services, U.S. House of Representatives
- Executive Editor, *The National Interest*, 1994-95
- Editor, *Army Times*, 1987-93
- Deputy Editor, *Defense News*, 1984-87

Education

M.I.P.P., School of Advanced International Studies, Johns Hopkins University
B.A., Ithaca College

DOCUMENTS SUBMITTED FOR THE RECORD

NOVEMBER 18, 2009

CONGRESSIONAL BUDGET OFFICE
U.S. Congress
Washington, DC 20515

Douglas W. Elmendorf, Director

December 31, 2009

Honorable John M. Spratt, Jr.
Chairman
Committee on the Budget
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

During my testimony before the Committee on Armed Services on November 18, 2009, you asked me whether it was valid to estimate the cost of one soldier in Afghanistan or Iraq as $1 million per year; and if not, what would be the proper way to approximate the annual incremental costs for deploying troops to those theaters.

The $1 million figure is an *average* cost that can be derived by dividing the $65 billion requested for operations in Afghanistan in 2010 by the estimated 68,000 troops that the Administration planned to maintain in the Afghanistan theater (prior to the President's decision to send an additional 30,000 troops to that country).

For a number of reasons, that estimate may not hold for the *incremental* costs of adding troops in that theater, especially when the number of troops is changing significantly. On the one hand, that estimate may be too high because not all costs covered by the budget request for overseas contingency operations will vary in proportion to, or even at all, with the number of troops. For example, operating funds for the defense agencies that support operations in Afghanistan (Operation Enduring Freedom (OEF)) are unlikely to be affected by an increase in Army and Marine Corps personnel in that country, and funding requirements for most procurement programs are also unlikely to be significantly affected.

On the other hand, a large increase of forces in Afghanistan (from about 33,000 troops at the end of fiscal year 2008 to about 65,000 at the end of 2009, and prospectively to 100,000 in 2010) could require a significant increase in funding for facilities and infrastructure. Such appropriations have comprised a relatively small portion of total funding for OEF in the past; however, the incremental cost of infrastructure for each additional soldier could exceed the average cost implied in the original funding request for 2010.

Recruiting, training, and equipping Afghan security forces at a faster rate—another part of the President's new strategy—also could increase costs for those activities above the average cost in

the budget request. The logistical challenges of supporting a larger number of personnel in a landlocked nation with a difficult terrain such as Afghanistan could cause the incremental costs of additional troops to be higher than the average cost for current force levels in southwest Asia.

Thus, it is difficult to estimate the cost of a troop surge through the use of simple cost factors. Instead, CBO is preparing two alternate paths for outlays resulting from overseas contingency operations to be published in its January budget outlook report. At your request, CBO is also preparing an analysis of the cost of deploying 30,000 more troops to Afghanistan.

I hope this information is helpful to you. If you have any additional questions on this topic, we would be happy to address them.

Sincerely,

Matthew S. Goldberg
Acting Assistant Director
National Security Division

cc: Honorable Paul Ryan
Ranking Member
House Committee on the Budget

Honorable Ike Skelton
Chairman
House Committee on Armed Services

Honorable Howard P. McKeon
Ranking Member
House Committee on Armed Services

○