

ANALYSIS

OF THE FY 2012

DEFENSE BUDGET

Todd Harrison

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**Center for Strategic
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EXECUTIVE SUMMARY

The FY 2012 budget requests a total of \$676 billion for the Department of Defense (DoD). The base budget for DoD includes \$553 billion in discretionary funding and \$5 billion in mandatory funding, and an additional \$118 billion is requested for the wars in Afghanistan and Iraq. The budget request also includes \$19 billion for defense-related atomic energy programs and \$8 billion for defense-related activities in other agencies, bringing the total national defense budget to \$703 billion. Separately, the budget includes \$129 billion for veterans' benefits and services through the Department of Veterans Affairs.

The FY 2012 request grows the base defense budget by 3.0 percent in real terms from the level enacted in FY 2011. The war funding requested for FY 2012 is 27 percent less than the amount enacted for FY 2011, bringing it to the lowest level seen since FY 2005. The Future Years Defense Program (FYDP) submitted with the budget projects continued growth in the base defense budget through FY 2016, albeit at a slower rate than previously projected. The Department's cumulative base budget over the FY 2012 FYDP is \$78 billion less (in then-year dollars) than planned in the FY 2011 FYDP, a 2.6 percent reduction. While still allowing the base budget to grow, this represents the first significant reduction from one year's FYDP to the next since FY 1996.

Adjusting for inflation, the level of funding proposed for the base defense budget in the FY 2012 request is the highest level since World War II, surpassing the Cold War peak of \$531 billion (in FY 2012 dollars) reached in FY 1985. However, total national defense spending as a percent of GDP (measured using outlays rather than budget authority) is 4.7 percent in the FY 2012 budget request, below the post-World War II average of 6.3 percent. When measured as a fraction of overall federal government spending, national defense funding is 19 percent of the FY 2012 request, compared to an average level of 21 percent since FY 1976. Together, these three metrics indicate that defense spending is at a high level by historical standards but is affordable given the size of the U.S. economy and is consistent with modern-day norms as a portion of overall federal spending.

HIGHLIGHTS OF THE ADMINISTRATION'S BUDGET PROPOSAL

- **EFFICIENCY INITIATIVE:** The efficiency initiative identified a total of \$178 billion in potential savings over the next five years, or six percent of the planned funding over that time period. Some \$100 billion of the savings is being reinvested within the

defense budget in high-priority programs, such as a new long-range bomber and carrier-based unmanned strike and surveillance aircraft, but these programs could be at risk if the planned savings do not materialize.

- **WAR FUNDING:** A total of \$1.3 trillion has been appropriated for the wars through FY 2011, \$813 billion for Iraq and \$445 billion for Afghanistan. The FY 2012 budget requests an additional \$107 billion for Afghanistan and \$11 billion for Iraq.
- **AFGHANISTAN DRAWDOWN:** The FY 2012 request was released months before the president's announcement of the timeline for withdrawal of surge forces from Afghanistan. The drawdown plans imply a lower level of troops deployed to Afghanistan in FY 2012 than assumed in the budget request (81,000 versus 98,000). As a result, the funding required for Afghanistan in FY 2012 is likely to be about \$17 billion less than requested.
- **LIBYA:** At the current operational tempo, operations in Libya are likely to cost slightly more than \$1 billion in the current fiscal year. In comparison, DoD funding for Libya is one one-hundredth of what it is spending in Afghanistan and can be supported by moving funding between accounts in the base budget.
- **SOURCES OF GROWTH:** From FY 2001 to FY 2011, the annual defense budget grew by \$300 billion in real terms. The sources of this growth are due to four main factors: 54 percent is due to the wars in Afghanistan and Iraq; 19 percent is due to increases in military pay and benefits; 16 percent is due to increases in funding for modernization and replacement of weapon systems; and 10 percent is due to growth in peacetime operating costs.
- **HOLLOW GROWTH:** Overall, nearly half of the growth in defense spending over the past decade is unrelated to the wars in Afghanistan and Iraq—personnel costs grew while end strength remained relatively flat, the cost of peacetime operations grew while the pace of peacetime operations declined, and acquisition costs increased while the inventory of equipment grew smaller and older. The base budget now supports a force with essentially the same size, force structure, and capabilities as in FY 2001 but at a 35 percent higher cost. The Department is spending more but not getting more.
- **PROPOSALS TO REDUCE DEFENSE SPENDING:** At least 30 different proposals have been offered over the past year to reduce the federal deficit, most of which include cuts to defense. The president's most recent proposal to cut \$400 billion from security spending over the next 12 years, for example, could be achieved by allowing the defense budget to grow only at the rate of inflation.
- **KEY LEVERS OF CONTROL:** The key levers of control over the budget available to defense planners are: 1) force structure, 2) end strength, 3) compensation and benefits, 4) readiness and training, and 5) weapon systems. Reductions in any of these areas

come at the price of reduced capabilities and will require senior leaders to make strategic choices about how the military will compete in the future.

- **ROLES AND MISSIONS REVIEW:** The roles and missions review ordered by the president provides an opportunity to explore the trade space of strategic options available and the impact these decisions would have on the resources required. The success of this review can be measured by whether it brings defense strategy and budget into alignment in such a way as to minimize the overall risk to national security given the resources allocated.
- **PERSONNEL COSTS:** Personnel-related costs consume 45 percent of the base defense budget, or \$250 billion in FY 2012. Some \$181 billion of this is for pay, allowances, retirement pay, healthcare, and other expenses for military personnel. The remaining \$70 billion covers the cost of DoD civilian personnel (not including contractors) and is spread across the other titles of the budget. The FY 2012 budget provides a 1.6 percent increase in basic pay for military personnel as well as a 4.2 percent increase in the allowance for housing and a 3.4 percent increase in the allowance for subsistence. DoD civilian personnel, like all other federal employees, do not receive a pay increase in FY 2012.
- **PEACETIME OPERATING COSTS:** The total cost of peacetime operations in the FY 2012 request is \$173 billion. This includes the cost of air operations (\$34 billion), land forces (\$32 billion), and ship operations (\$11 billion). Peacetime operating costs have grown at a real rate of 1.9 percent annually since FY 2001 while the overall size of the force and the number of flight hours, steaming days, and tank miles have declined.
- **ENERGY COSTS:** DoD consumes over 130 million barrels of petroleum per year—nearly two percent of total U.S. consumption. In FY 2010, DoD spent \$14.9 billion on petroleum, with the Air Force responsible for more than half the cost. Given the volatility of oil prices, it is difficult to predict DoD's fuel costs in the future. If the price of oil averages \$150 per barrel over the fiscal year, DoD's fuel costs could soar to over \$25 billion. If the price of oil falls to an average of \$20 per barrel over the fiscal year, DoD's fuel costs could drop to less than \$4 billion.
- **MAJOR ACQUISITION PROGRAMS:** The 95 major acquisition programs listed in the most recent Selected Acquisition Report (SAR) account for 42 percent of the acquisition funding in the FY 2012 request. The largest acquisition program by far is the Joint Strike Fighter program with a total projected acquisition cost of \$333 billion, of which some \$72 billion has already been spent. But not all of DoD's major programs planned for the next decade are included in the SAR, such as: the Navy's SSBN(X) replacement for the Ohio-class ballistic missile submarine, the Air Force's Next-Generation Bomber, the Army's Ground Combat Vehicle (GCV), and the Air Force's new tanker (KC-46A).

- **CLASSIFIED PROGRAMS:** Funding for classified programs and activities totals some \$59.3 billion in the FY 2012 request. The vast majority of classified acquisition funding, nearly 80 percent, comes from the Air Force's budget.
- **COST OF CANCELLED PROGRAMS:** Over the past decade at least a dozen major programs were terminated without any operational systems being fielded. The sunk cost of these terminated programs totals at least \$46 billion in then-year dollars. Additional programs had their quantities cut far below initial plans, such as the F-22 and DDG 1000. While the reasons for cancelling each program may have been justified due to significant cost overruns or technical challenges, the aggregate effect is that a significant portion of DoD's investment in modernization over the past decade did not result in force modernization. The Department may not have a similar opportunity to recapitalize its inventory of equipment for a decade or longer given the fiscal constraints the nation now faces.

I. OVERVIEW OF THE BUDGET REQUEST

The Obama Administration requests a total of \$676 billion for the Department of Defense (DoD) in the FY 2012 budget. The base budget for the Department includes \$553 billion in discretionary funding and \$5 billion in mandatory funding. An additional \$118 billion is requested for the wars in Afghanistan and Iraq.

Total defense spending, however, includes more than the DoD budget alone. The budget request also includes \$19 billion for defense-related atomic energy programs, \$8 billion for defense-related activities in other agencies, and \$129 billion for veterans. Together these expenses total \$832 billion, or 23 percent of the total federal budget, including both mandatory and discretionary funding.

TABLE 1. SUMMARY OF DEFENSE-RELATED FUNDING
IN THE FY 2012 BUDGET REQUEST

Account	FY 2012 Request (in billions)
DoD Base Discretionary	\$ 552.8
DoD Base Mandatory	\$ 5.1
DoD Overseas Contingency Operations	\$ 117.8
DoD Total (051)	\$ 675.7
Department of Energy	\$ 18.0
Department of Labor	\$ 1.1
Other Agencies	\$ 0.2
Atomic Energy Total (053)	\$ 19.3
Department of Justice	\$ 4.7
Department of Homeland Security	\$ 1.7
Other Agencies	\$ 1.4
Defense-Related Activities Total (054)	\$ 7.8
Department of Veterans Affairs	\$ 129.0
Other Agencies	\$ 0.3
Veterans Total (700)	\$ 129.3
Total Defense-Related Spending	\$ 832.1

The FY 2012 budget request comes under somewhat unusual circumstances. For the first time in decades, a full-year FY 2011 appropriations bill for the Department of Defense was not enacted by the time the president's budget request for FY 2012 was released, which by statute is supposed to occur on the first Monday in February. Congress's delay in enacting an FY 2011 budget created uncertainty in planning the FY 2012 budget request, which combined with a four-month delay in gaining Senate confirmation of the new budget director, led the Office of Management and Budget (OMB) to delay the release of the budget request by one week.

The level of FY 2011 funding proposed for DoD varied significantly over the course of budget deliberations, ranging from \$526 billion under the continuing resolution to \$539 billion in the Senate's omnibus appropriations bill. The 111th Congress ultimately adjourned without passing any full-year appropriations bills. In the 112th Congress, the House of Representatives quickly passed H.R. 1, which included \$533 billion for defense. The budget deal reached on April 9 and signed into law on April 15 provides \$530 billion for DoD in FY 2011, some \$20 billion less than the president initially requested. Nearly half of this reduction, \$9.6 billion, was taken from procurement accounts, with the cuts spread widely across a number of programs.

BASE DEFENSE BUDGET

The Obama administration's \$558 billion base defense budget request covers the peacetime costs of the Department of Defense.¹ The FY 2012 request is a 3.0 percent real increase from the level enacted for FY 2011, but it is 0.6 percent less than the level requested in FY 2011.² This is the first time since FY 1997 that the base defense budget request is less than the level submitted in the previous year's request. Moreover, the Future Year Defense Program (FYDP) projects that the base defense budget will grow at a slower rate in the coming years than previously projected, with a real annual rate of growth of 0.8 percent through FY 2016 compared to a 1.2 percent real annual rate of growth projected in the FY 2011 FYDP.

Procurement, military personnel, and operation and maintenance (O&M) accounts all increase at inflation-adjusted rates of 9.8 percent, 2.4 percent, and 1.9 percent, respectively, above the levels enacted in FY 2011. Research, development, test, and evaluation (RDT&E) declines slightly by 0.4 percent, while military construction (MILCON), family housing, and other funding declines by 3.9 percent. Overall, 63 percent of the base defense budget is allocated for operations and support (O&M and military personnel) and 34 percent for acquisition (RDT&E and procurement), similar to the division in

1 This figure includes \$5 billion in mandatory funding, primarily accrual payments to the Military Retirement Fund.

2 Unless otherwise stated in this report, all values shown are in real (inflation-adjusted) FY 2012 dollars and are calculated using the GDP deflators provided in the Office of Management and Budget's Historical Tables, Table 10.1. Using DoD's own deflators would show a more modest change in defense spending because, relative to the GDP deflator, DoD's deflators tend to understate growth in personnel costs.

the FY 2011 budget. Each Service's budget receives an increase in the FY 2012 request, and the share of the base budget allocated to each Service remains relatively constant, with 26 percent going to the Army, 29 percent to the Navy, 27 percent to the Air Force, and 18 percent for Defense-Wide activities.

On January 6, 2011, prior to the official release of the FY 2012 budget request, Secretary of Defense Robert Gates announced the results of his efficiency initiative. The initiative, begun nearly a year ago, identified a total of \$178 billion in potential savings over five years (FY 2012 to FY 2016), or six percent of the planned funding over that time period. Some \$100 billion of the savings came from the Services and the remainder from defense-wide agencies, a government-wide pay freeze that applies to DoD civilians, and revised economic assumptions.³ Several high-profile weapon systems were affected by the announcement, including the Expeditionary Fighting Vehicle (EFV), the Joint Strike Fighter (JSF), and the Surface-Launched Advanced Medium-Range Air-to-Air Missile (SLAMRAAM), which are discussed in more detail in Chapter IV of this report. Of the \$178 billion in potential savings identified, \$78 billion is being used to reduce total defense spending from FY 2012 to FY 2016 compared to what was projected in the FY 2011 FYDP. For example, the effect on the FY 2012 budget is a reduction of \$13 billion from the \$566 billion in base discretionary budget authority that was previously planned for FY 2012. The remaining \$100 billion in potential savings is being reinvested within the defense budget in high-priority programs and activities, such as a new long-range bomber, next-generation jammer, and carrier-based unmanned strike and surveillance aircraft.

The funding for these new programs, however, could be at risk in future years if the potential savings identified through the efficiency initiative do not materialize as projected. Previous attempts at achieving similar efficiencies have fallen short of their intended goal. For example, former Secretary of Defense Donald Rumsfeld suggested that DoD could save some \$15 billion annually from efficiencies when he took office, roughly 5 percent of the annual budget at the time. But instead of declining, DoD's peacetime operating costs grew substantially over the years that followed. Current DoD Comptroller Bob Hale wrote in a 2002 report, "After adjusting for changes in force size and inflation, day-to-day operating costs have consistently and persistently increased for decades." Hale went on to conclude, "These barriers suggest that DoD should be realistic in assessing the prospects for future efficiency savings. The idea that multiple tens of billions of dollars a year can be saved through efficiencies over the next few years—and used to pay for new programs—is almost certainly unrealistic."⁴

3 Robert Gates, "Statement on Department Budget and Efficiencies," Speech delivered at the Pentagon, January 6, 2011, accessed at: <http://www.defense.gov/speeches/speech.aspx?speechid=1527> (accessed January 21, 2011).

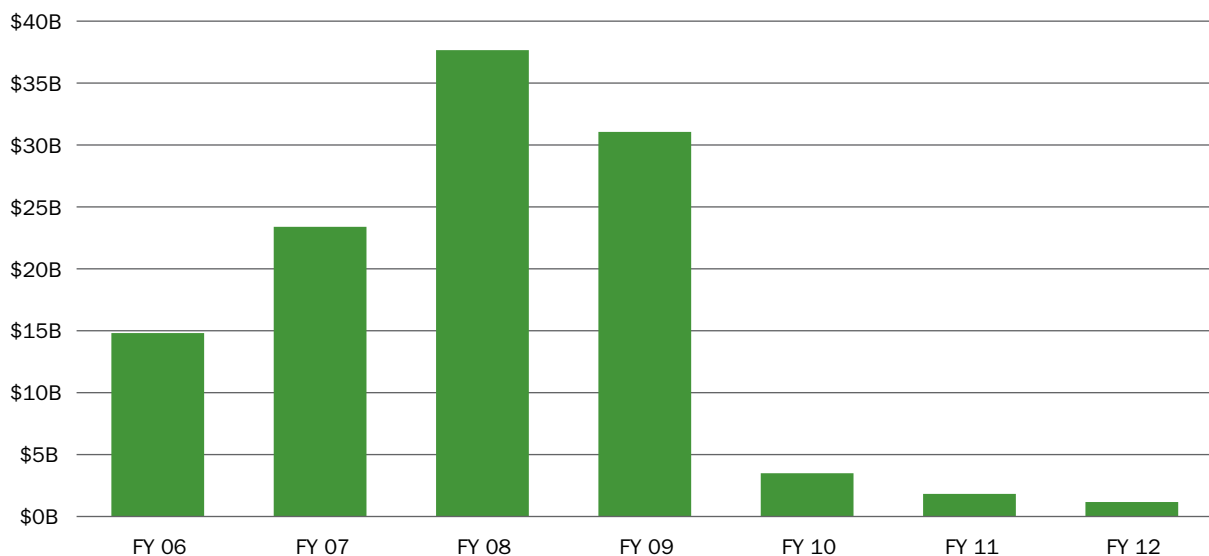
4 Bob Hale, "Promoting Efficiency in the Department of Defense: Keep Trying, But Be Realistic" (Washington DC: CSBA, January 2002), pp. i–ii.

UNFUNDED PRIORITIES

Each year, the Services rank and prioritize items for inclusion in the budget request. Unfunded priorities are those items not included in the budget request because they are a lower priority and do not fit within the funding ceiling set for the Department. The Services' lists of unfunded priorities, sometimes referred to as "wish lists," are routinely requested by Congress for consideration during their markup of the budget. The total amount of unfunded priorities grew dramatically over the past decade, rising from \$9.5 billion in FY 2001 to a peak of \$38 billion in FY 2008 (both figures in FY 2012 dollars). In the FY 2010 budget process, Secretary Gates required the Services to present their unfunded priorities to him for review before submitting them to Congress. Unfunded priorities for that year fell by an order of magnitude to just \$3.5 billion. In FY 2011 unfunded priorities fell to \$1.8 billion, and in FY 2012 they total only \$1.2 billion.

Nearly all of the unfunded priorities submitted to Congress are in procurement and O&M. This indicates that if the Services had additional funding available they would prioritize the maintenance of existing equipment and would procure additional equipment or spares to augment their inventory.

FIGURE 1. UNFUNDED PRIORITIES (in FY 2012 dollars)



ARMY: The Army did not submit any unfunded priorities for FY 2012. In a letter to Congress, General Dempsey, Chief of Staff of the Army, wrote that "the FY12 President's Budget request reflects funding for the highest priorities of the Army...I will endeavor to fund all Army requirements with whatever funding the Congress may see fit to appropriate."⁵

⁵ Martin E. Dempsey, letter to Congressman Adam Smith, April 15, 2011.

NAVY: The Navy's unfunded priorities total \$684 million, the highest amount submitted among the services. The Navy's list includes \$367 million for additional ship depot maintenance and \$317 million for aviation spares, citing an unspecified increase in operational tempo. The request for additional ship depot maintenance would restore funding for 44 deferred surface ship maintenance opportunities. Funding for additional aviation spares would primarily support the V-22, EA-18G, F/A-18E/F, and MH-60R/S—some of the newest aircraft in the Navy inventory.⁶

AIR FORCE: The Air Force requests \$124 million in unfunded priorities. At the top of the list is \$42.5 million for 75 maintenance testers and spares to support the A-10 aircraft. According to the Air Force, the currently fielded testing equipment is "obsolete and no longer procurable," and the lack of new testing equipment will result in some aircraft being grounded in FY 2013. An additional \$33.7 million is requested for an EC-130H avionics upgrade to replace the air data computer, which if not replaced would result in Compass Call aircraft groundings, also beginning in FY 2013. The remaining \$47.5 million funds the replacement of Joint Direct Attack Munitions (JDAM), Anti-Missile Countermeasures Decoy Systems, Air-to-Ground Missiles, and Laser-Guided Weapons expended due to operations in Libya.⁷

MARINE CORPS: The unfunded priorities list submitted to Congress by the Marine Corps totals \$227 million. More than two-thirds of this amount, \$155 million, is to support the Marine Corps University Master Plan, particularly to fund the transfer of certain Marine Corps historical/curatorial materials and functions so that construction of additional academic facilities can proceed. The list includes \$45 million for Enterprise Land Mobile Radios (E-LMR), which was originally included in the FY 2011 Overseas Contingency Operations (OCO) request but was deemed by Congress to belong in the base budget. It also requests \$17 million for secondary fire suppression systems for vehicles deployed in Afghanistan and \$9.5 million for upgrades to incident response equipment based on lessons learned during relief operations following the recent earthquake and tsunami in Japan.⁸

SOCOM: The U.S. Special Operations Command also submitted a list of unfunded requirements to Congress, totaling \$135 million. The list includes ten items, most of which are for training facilities. The largest request is \$47.2 million for a SOF operations and skills training complex at a classified location. It also includes \$10.1 million for a SEAL team training support facility in Little Creek, Virginia, and \$27 million for a SOF headquarters and operations facility in Fort Bragg, North Carolina.⁹

6 Gary Roughead, letter to Congressman Adam Smith, April 22, 2011.

7 Norton A. Schwartz, letter to Congressman Adam Smith, April 29, 2011.

8 James F. Amos, letter to Congressman Adam Smith, April 26, 2011.

9 "FY 2012 USSCOM MILCON Congressional UFR List," undated.

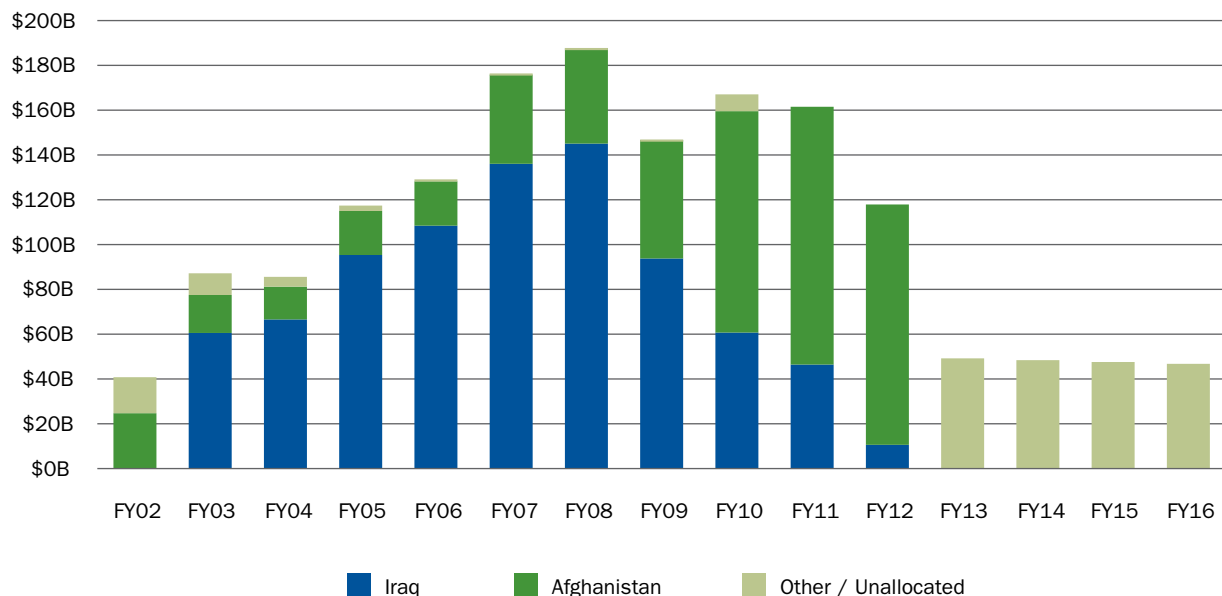
WAR FUNDING

Iraq and Afghanistan

Adjusting for inflation, roughly \$1.3 trillion has been appropriated for the wars in Iraq and Afghanistan through FY 2011: \$813 billion for Iraq and \$445 billion for Afghanistan. The FY 2012 budget requests a total of \$118 billion in additional funding for the wars, of which \$107.3 billion is designated for operations in Afghanistan and \$10.6 billion for Iraq. This is a substantial decline from the level of funding enacted in FY 2011, 27 percent in real terms, and brings total annual war funding to the lowest level it has been since FY 2005. Nearly all of the reduction in war funding from FY 2011 to FY 2012 is due to Iraq, where costs are projected to decline by 77 percent in real terms as troop levels drop to less than 4,500 in the first quarter of FY 2012 and to zero after December 31, 2011, the date by which all military forces must be withdrawn from the country according to the status of forces agreement. The budget request projects funding for Afghanistan will decline by 7 percent in real terms, with troop levels projected to fall from 102,000 in FY 2011 to 98,000 in FY 2012.¹⁰ However, this budget was released months before the president's decision on a timetable for the withdrawal of surge forces from Afghanistan. As in previous years, the budget request does not include a projection for war costs in future years. Instead, it includes "allowances" of \$50 billion per year for FY 2013 to FY 2016, the same amount that was used in the FY 2010 and FY 2011 budget requests as a placeholder for future OCO funding.

¹⁰ DoD, Overview—FY 2012 Defense Budget (Arlington VA: DoD, February, 2010), p. 6–7.

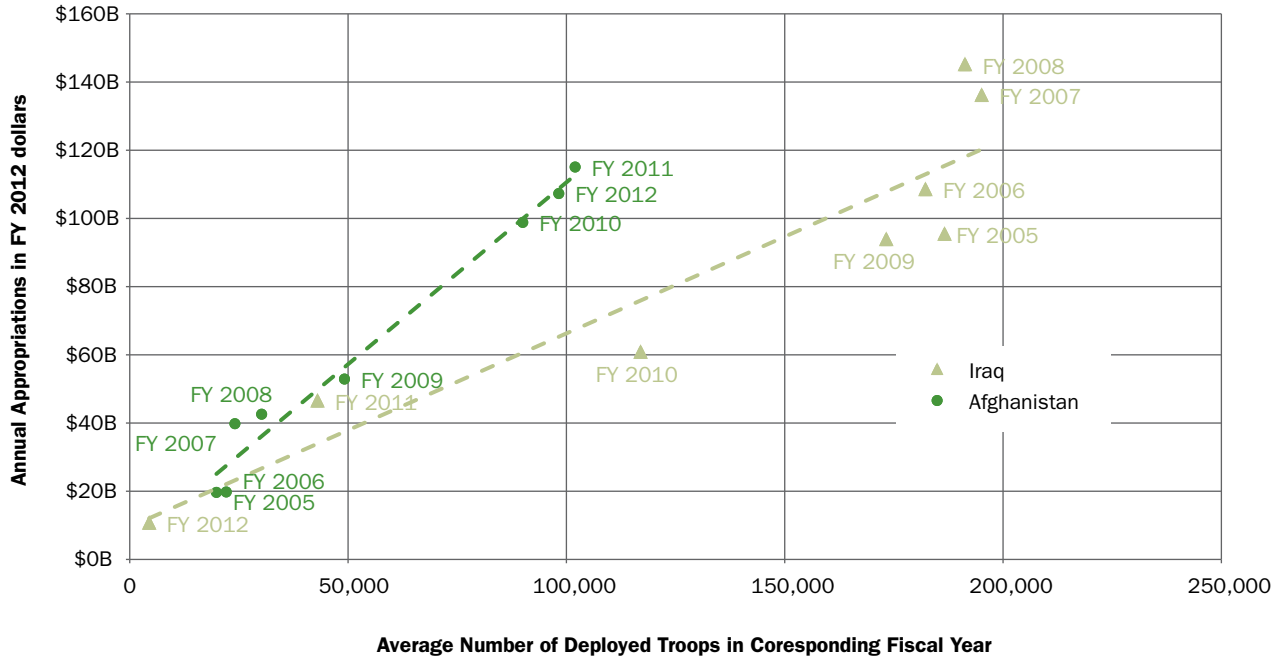
FIGURE 2. DOD WAR FUNDING (in FY 2012 dollars)



The future cost of the wars depends on a number of external factors that cannot be known in advance, such as operational tempo, fuel prices, and the number and composition of forces required in future years. Previous analysis by CSBA has demonstrated a strong correlation between the number of troops deployed and the total annual cost.¹¹ However, as the troop levels in Iraq fall to zero in FY 2012 and the State Department assumes the lead for the U.S. mission, the correlation between cost and the number of troops will no longer hold true. The cost of operations in Iraq will likely remain in the range of \$5–10 billion dollars annually as long as U.S. support for the Iraqi government continues as planned. If the Iraqi government requests that U.S. military forces remain in country after the December 31, 2011 withdrawal date, the costs could be significantly higher than the FY 2012 budget requests and would likely require a supplemental appropriation or budget amendment. Spending in Afghanistan remains closely correlated to the number of troops deployed, averaging \$1.2 million per troop per year (in FY 2012 dollars) with a correlation coefficient of 0.99.

11 Todd Harrison, *Estimating Funding for Afghanistan* (Washington DC: CSBA, December 1, 2009).

FIGURE 3. COST VERSUS NUMBER OF TROOPS (FY05–FY12)



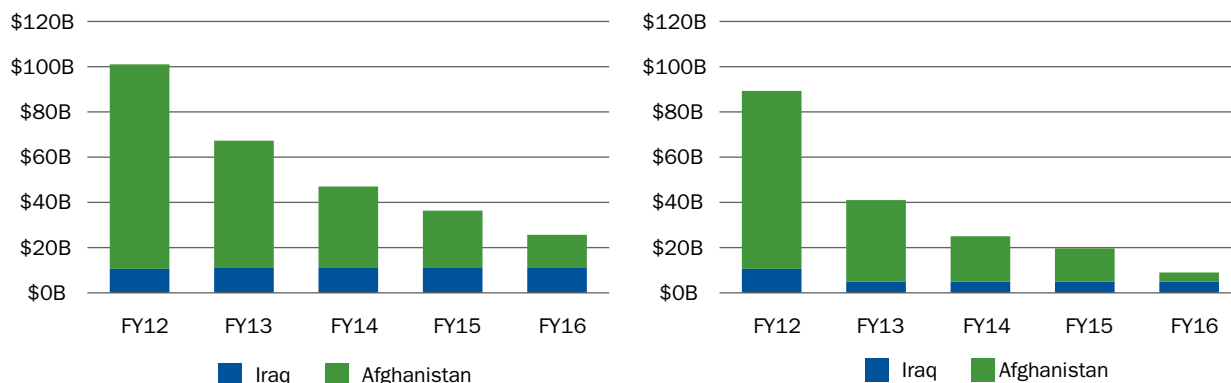
The figures below show both a higher and lower estimate for future war costs based on different assumptions for troop levels in the coming years. The higher estimate is based on the president's recently announced plan for the withdrawal of surge forces from Afghanistan. Under this plan, 10,000 troops will be withdrawn by the end of calendar year 2011 and the remaining 23,000 surge forces will be withdrawn by the summer of 2012. Troop levels are assumed to continue to decline in 2013 and 2014. The president's plan for withdrawal implies an average of 81,000 troops in Afghanistan over FY 2012, compared to 98,000 in the budget request, and thus should require about \$17 billion less in funding than the administration is requesting. The higher estimate also assumes that the Iraqi government requests additional forces and the United States maintains about 5,000 troops in the country through FY 2016.

The lower budget estimate uses an accelerated withdrawal timeline for Afghanistan, returning to the pre-surge level of 70,000 by the end of 2011 with all combat forces withdrawn by 2014. This would require \$29 billion less in funding for Afghanistan in FY 2012 than is requested in the budget. In Iraq, the lower estimate assumes the withdrawal of forces is completed in FY 2012 as currently planned and no troops remain in country from FY 2013 forward. These assumptions lead to a total cost for the higher and lower estimates of \$277 billion and \$184 billion, respectively, over the FYDP. In comparison, the current budget request includes \$318 billion in funding and allowances over the FYDP.

The drawdown in OCO funding could influence the base defense budget in future years. The cost of replacement, repair, and replenishment of equipment—known as equipment reset—has been funded on an ongoing basis through OCO appropriations. The CBO found that equipment reset funding has been sufficient to cover the actual reset costs incurred.¹² The FY 2012 OCO request, for example, includes \$11.9 billion for

¹² CBO, *Replacing and Repairing Equipment Used in Iraq and Afghanistan: The Army's Reset Program* (Washington DC: CBO, September 2007), p. xi.

FIGURE 4. PRESIDENT'S PLAN / FASTER WITHDRAWAL
(in billions of FY 2012 dollars)



equipment reset. Because reset does not occur until units return from a deployment, these costs lag behind other operational costs. As a result, once combat forces are out of both Iraq and Afghanistan, the cost of resetting equipment could linger for another two to three years. If a separate OCO appropriation is not included for these costs—which could be politically unpalatable since the wars would effectively be over—then reset costs may have to be absorbed into the base budget. An alternative would be to pre-fund estimated reset costs in the final years of OCO funding, making this funding available in anticipation of when it will be needed.

Libya

On March 19, 2011, the United States and its allies and partners began enforcing a United Nations Security Council resolution calling for the establishment of a no-fly zone over Libya “to protect civilians and civilian areas targeted by Colonel Muammar Al-Qadhafi, his allied forces and mercenaries.”¹³ The initial phase of the operation, known as Operation Odyssey Dawn, targeted Libyan air defenses, command and control systems, aircraft, and air bases using a combination of standoff weapons, such as Tomahawk cruise missiles launched from ships and submarines in the Mediterranean Sea, and penetrating air strikes, including missions flown from the United States using B-2 bombers. Unlike Iraq and Afghanistan, where the large presence of deployed ground forces drives costs, a significant portion of the cost of the in Libya so far has been the cost of munitions expended.¹⁴ According to DoD, the total cost to the United States of Operation Odyssey Dawn from March 19 to April 4 was \$608 million.¹⁵

On April 1, the United States handed over leadership of the operation to NATO. The United States will continue to play a support role, providing air refueling, reconnaissance and surveillance capabilities, and unmanned aerial vehicles to support the mission. Since taking control, America’s NATO allies and partners have begun flying the majority of sorties both in support of the no-fly zone and to strike Libyan ground targets. As a result, the ongoing cost to the United States for Operation Odyssey Dawn will be significantly less than if the United States was leading the mission. On June 15, 2011 the administration released a report that estimated the total cost of operations in Libya would be \$1.1 billion in FY 2011.¹⁶ This relatively small amount of funding—one one-hundredth of U.S. spending in Afghanistan—can be reallocated from within existing DoD accounts and will not necessarily require a supplemental appropriation.

13 United Nations, “Security Council Approves ‘No-Fly Zone’ Over Libya, Authorizing ‘All Necessary Measures’ To Protect Civilians, By Vote Of 10 In Favour With 5 Abstentions,” Press Release, March 17, 2011, accessed at: <http://www.un.org/News/Press/docs/2011/sc10200.doc.htm>.

14 As has been the norm for funding in Iraq and Afghanistan, the cost of the operation uses the replacement cost of the munitions expended or weapons systems that have been destroyed. The current replacement cost of a Tomahawk cruise missile, for example, is \$1.5 million.

15 Jim Garamone, “U.S. Provides Support for NATO’s Libya Operations,” *Armed Forces Press Service*, April 11, 2011, accessed at: <http://www.defense.gov/news/newsarticle.aspx?id=63516>.

16 White House, *United States Activities in Libya* (Washington, DC: White House, June 15, 2011), p. 15.

However, if the mission expands beyond air support or if greater U.S. support is required by NATO, the costs could grow significantly.

OTHER DEFENSE-RELATED FUNDING

Atomic Energy and Other Defense-Related Activities

The FY 2012 budget request includes \$19.3 billion for atomic energy defense activities, primarily through the Department of Energy. This funding is used for weapons activities (\$7.6 billion), defense environmental cleanup (\$5.4 billion), non-proliferation programs (\$2.5 billion), and naval nuclear reactors (\$1.2 billion).

The budget request includes an additional \$7.8 billion for defense-related activities in other agencies. More than half of this amount, \$4.6 billion, is directed for defense-related activities in the Federal Bureau of Investigation (FBI). It also provides \$1.7 billion for the Department of Homeland Security—specifically to the U.S. Coast Guard, Federal Emergency Management Agency (FEMA), and the National Protection and Programs Directorate—and provides \$0.6 billion to the Intelligence Community Management Account.

Veterans' Benefits and Services

A total of \$129 billion is included for veterans and veterans' benefits (\$59 billion in discretionary funding and \$70 billion in mandatory funding), primarily through the Department of Veterans Affairs. This is a 3.1 percent real increase over the amount requested in FY 2011, which significantly slows the rate of growth from the 8 percent and 14 percent real growth requested in the FY 2011 and FY 2010 budgets, respectively. Since FY 2000, spending on veterans increased at a real annual rate of 6.8 percent, making it one of the fastest-growing areas in the federal budget. After FY 2012, the administration projects 3.7 percent real growth annually in veteran-related funding through FY 2016.

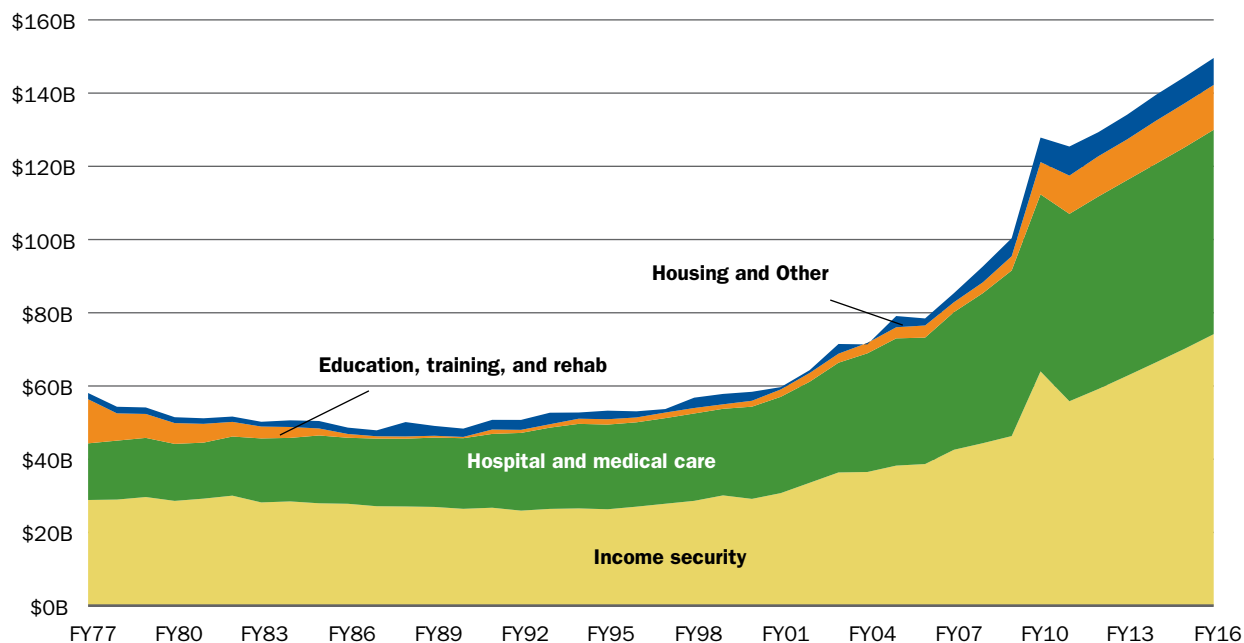
The overall number of veterans is falling as the number of surviving World War II, Korea, and Vietnam-era veterans continues to decline. The number of veterans fell from 24 million in 2006 to 22 million in 2012 and is projected to drop to less than 19 million by 2020.¹⁷ Despite the decline in the number of veterans, the total cost of veterans' benefits and services is increasing due to several factors. The number of veterans enrolled in the healthcare system is increasing, and nearly one-tenth of all healthcare patients are now Iraq/Afghanistan veterans.¹⁸ At the same time, the rate of use of healthcare services is increasing, with the number of outpatient visits growing at 5.9 percent annually.¹⁹

¹⁷ Department of Veterans Affairs, *2012 Congressional Submission* (Washington DC: GPO, February 14, 2011) p. 1F-1.

¹⁸ Department of Veterans Affairs, p. 2A-2.

¹⁹ Department of Veterans Affairs, p. 2A-7.

FIGURE 5. VETERANS FUNDING (in billions of FY 2012 dollars)



Congress and the administration have also expanded and enhanced veterans’ benefits in recent years, including the ability to transfer GI Bill educational benefits to dependents, concurrent receipt of DoD and VA benefits for medically retired veterans, and expanded enrollment to cover additional moderate-income veterans. Collectively, these changes have raised the cost of veterans’ benefits and services and will likely continue to do so for the foreseeable future.

HISTORICAL PERSPECTIVES

Level of Defense Spending

The overall level of defense spending is a frequent subject of debate, with wide disagreements over whether the current level of funding proposed is sufficient. Three different metrics are commonly used—defense spending in inflation-adjusted dollars, defense spending as a percentage of gross domestic product (GDP), and defense spending as a percentage of the overall federal budget—each of which supports a different conclusion.

Adjusting for inflation, the base defense budget grew at a rate of 4 percent annually from FY 2000 to FY 2010. The FY 2011 defense budget enacted by Congress, however, reduced the base defense budget by 1.1 percent in real terms. The FY 2012 base defense budget proposed by the Obama administration would grow the base defense budget beyond its FY 2010 peak to the highest level in inflation-adjusted dollars since World War

II, exceeding the previous peak in defense spending in FY 1985 of \$531 billion (in FY 2012 dollars). By this measure, defense spending—even if war funding is excluded—is at an unusually high level.

However, defense spending as a percent of GDP (measured using outlays rather than budget authority) is 4.7 percent in the FY 2012 budget request, below the post-World War II average of 6.3 percent. The apparent discrepancy between defense spending being at a peak level in inflation-adjusted dollars but not as percent of GDP is due to the different rates of growth in the defense budget and national economic output. National defense spending has grown and declined several times since the end of World War II. GDP, in contrast, has grown at a relatively steady pace, averaging real annual growth of 3.2 percent from 1947 to 2011. In periods when defense spending and GDP grow at nearly the same rate, defense spending as a percent of GDP remains constant. But when GDP grows at a faster rate than defense spending, defense spending as a percent of GDP declines. From the previous peak in defense spending in FY 1985 to the current FY 2012 budget, defense spending has grown by 58 percent in real terms, compared to 106 percent real growth in GDP over the same period. As a result, defense spending as a percentage of GDP has fallen from 6.1 to 4.7 percent over that time period because the denominator (GDP) has grown faster than the numerator (defense spending). This metric does not indicate whether or not defense spending is increasing or decreasing. Rather it suggests that, given the size of our economy, the current level of defense spending is affordable, at least by historical standards.²⁰

When measured as a fraction of overall federal government spending, defense spending has ranged between 16 percent and 29 percent since FY 1976, averaging 21 percent of the federal budget. In the FY 2012 budget request, defense spending is 19 percent of the overall budget, compared to 21 percent for social security and 13 percent for Medicare—the other major components of the federal budget, collectively known as the “big three.” In the coming years, however, the costs of Social Security, Medicare, and net interest on the national debt are expected to grow faster than the defense budget, making defense a relatively smaller share of the budget over time. Together, these three metrics indicate that defense spending is at a high level by historical standards but is affordable given the size of the U.S. economy and is consistent with modern-day norms as a portion of overall federal spending.

Future Years Defense Program

Each year as part of the annual budget submission to Congress, the Pentagon releases what is known as the Future Years Defense Program, which provides a detailed projection of defense spending over the coming five years. The chart below compares the FYDPs produced with each budget request, color-coded by administration, to the actual level of funding in the base defense budget enacted into law. War funding is not included

²⁰ It is affordable in the sense that the United States can sustain the current level of funding, if the public is willing to pay the taxes required, without damaging the economy in the long run.

in this analysis since it is not part of the FYDP. Three observations are notable from this chart. First, during the steepest part of the previous downturn in defense spending from FY 1985 to FY 1994, the FYDP consistently overestimated the level of funding for defense in future years. Moreover, the level of overestimation increased the farther into the future the FYDP projected, as shown in the table below. Second, during the relatively flat budget environment of FY 1995 to FY 2002, the FYDP tended to underestimate the level of future funding by nearly as much. And third, the FYDP proved to be more accurate during the most recent period of growth in the defense budget from FY 2003 to FY 2011; however, the use of supplemental appropriations for war funding allowed DoD to fund unanticipated needs outside the base defense budget, which was not the case in the two periods previously discussed. Two of the worst FYDPs in terms of how far their projections differed from the level of funding actually enacted were FY 1986 and FY 1999, whose projections were off by +59 percent and -28 percent in their fifth years, respectively.²¹ These data suggest that the FYDP is at best a lagging indicator of the direction of future defense spending.

The FYDP submitted with the FY 2012 budget request, extending from FY 2012 through FY 2016, projects continued growth in the defense budget at a rate faster than inflation. However, the rate of growth and the overall level of funding in the FY 2012

²¹ The imprecision of these two FYDPs, however, merely reflects an inability to predict future world events—the fifth year of the FY 1986 FYDP was FY 1990, the year the Berlin Wall fell, and the fifth year of the FY 1999 FYDP was FY 2003, the first budget submitted after 9/11.

FIGURE 6. BASE DEFENSE BUDGET FYDP VS. ACTUAL BUDGET AUTHORITY (in FY 2012 dollars)

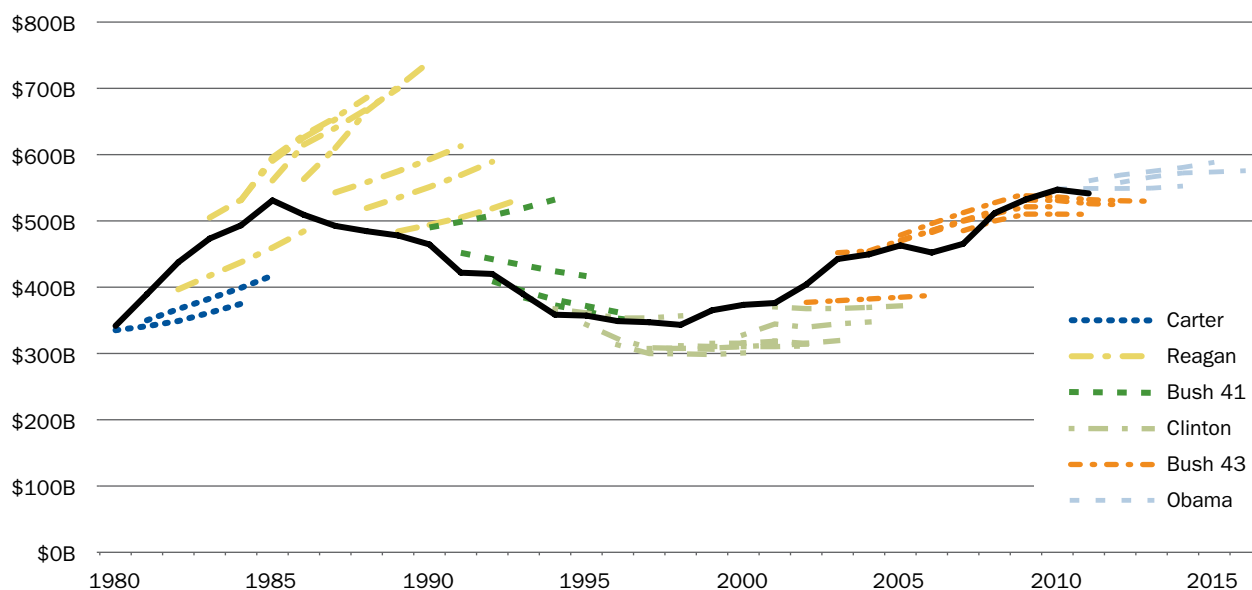


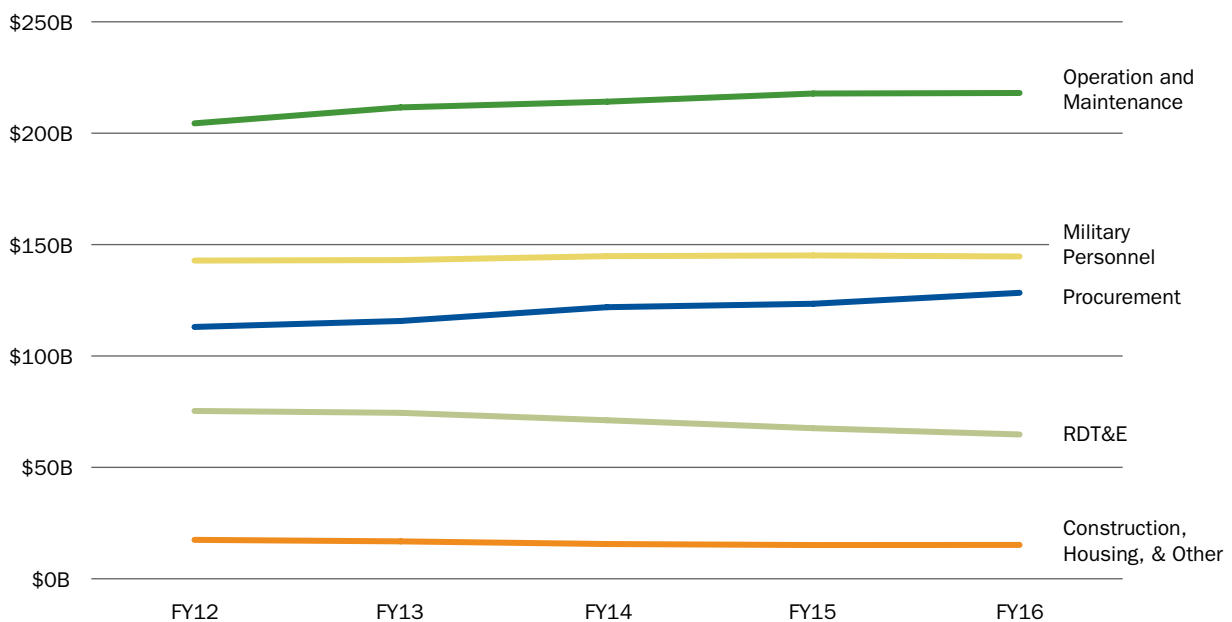
TABLE 2: AVERAGE PERCENT DIFFERENCE BETWEEN FYDP PROJECTION AND ACTUAL BUDGET (overestimation shown as positive)

FYDPs	Budget Year	Budget Year +1	Budget Year +2	Budget Year +3	Budget Year +4
FY 1985–1994	5%	11%	17%	23%	30%
FY 1995–2002	-9%	-12%	-15%	-18%	-20%
FY 2003–2011	2%	1%	0%	0%	-1%

FYDP are both less than projected in the FY 2011 FYDP. The reduction, part of Secretary Gates’ efficiency initiative, totals \$78 billion in then-year dollars over five years. This represents a 2.6 percent reduction from the \$2.9 trillion base defense budget planned over the next five years, in then-year dollars. While still a relatively small reduction, this is the largest reduction in the total amount of funding projected over the FYDP since FY 1996. In comparison, the greatest percent reduction in a FYDP in the past 30 years was the FY 1991 FYDP, which reduced defense spending some 15 percent below what was projected in the FY 1990 FYDP.

Several factors suggest that, despite the growth the FY 2012 FYDP projects, the defense budget is at an inflection point and may begin a gradual decline over the coming years. The FY 2011 base defense budget enacted into law was 1.1 percent less in real

FIGURE 7: FY 2012 FYDP BY TITLE (base discretionary budget in FY 2012 dollars)



terms than the FY 2010 base budget and 3.5 percent less than the president requested, indicating that Congress is willing to constrain defense spending as part of its efforts to reduce overall government spending. As previously discussed, total funding over the FY 2012 FYDP was less than projected in the FY 2011 FYDP, indicating that expectations for future defense funding are on the decline. Moreover, this pattern of behavior—Congress enacting a budget substantially lower than the request and a new FYDP that is lower than the previous FYDP—also occurred at the beginning of the previous downturn in defense spending in the mid-1980s.

Key differences in the threat level, size of the force, age of equipment, and composition of the budget, however, will make a similar decline in defense spending more difficult to achieve this time. As the following chapters demonstrate, the costs of personnel, operations, and acquisitions are all on the rise, creating a “perfect storm” for defense planners in a declining budget environment. To weather this storm the Department will have to make difficult trades between force structure, end strength, weapon systems, readiness and training, and compensation. It cannot continue to fund growth in all of these activities simultaneously as it has over the past decade.

II. PROPOSALS TO REDUCE THE BUDGET

Numerous proposals have been offered over the past year to reduce the federal deficit, most of which include cuts to defense. But few of these proposals acknowledge the strategic choices that must be made in order to reduce defense spending meaningfully and responsibly. The final FY 2011 defense budget that emerged from Congress in April was some \$20 billion less than the president requested—further evidence that the fiscal and economic environment has increased the pressure on the defense budget. Ideally, a strategic approach to budgeting for defense would involve an iterative process that matches resources with objectives and constrains strategic options to those which are affordable given the fiscal and economic challenges the nation faces. This chapter compares competing proposals to reduce the defense budget, highlights the sources of growth in the defense budget, and identifies the key drivers that control the defense budget.

COMPETING PROPOSALS

At least 30 different proposals have been offered to reduce the budget deficit, each of which would affect the defense budget in different ways.²² Nearly all of these proposals reduce the base defense budget below the FY 2011 FYDP and treat war funding separately. For example, the President's National Commission on Fiscal Responsibility and Reform and the Bipartisan Policy Center's Domenici-Rivlin Debt Reduction Task Force released reports in late 2010 proposing real cuts in the base defense budget. The Fiscal Commission called for a reduction in annual defense spending of \$100 billion below FY 2011 budget projections by FY 2015.²³ The Domenici-Rivlin Task Force called for a freeze in defense spending through FY 2016 at the level requested in FY 2011.²⁴ The FYDP contained in the president's FY 2012 base budget request is a modest reduction from the administration's FY 2011 FYDP. More recently, the House of Representatives passed a budget resolution for FY 2012 that mirrors the president's FY 2012 FYDP in terms of defense spending. In response to the House Budget, the administration issued its own deficit reduction proposal that cuts \$400 billion²⁵ over 12 years from

22 Committee for a Responsible Federal Budget, "Deficit Reduction Plan Comparison Tool," accessed at <http://crfb.org/compare/index.php?id=01> on July 5, 2011.

23 Erskine Bowles and Alan Simpson, "CoChairs' Proposal," National Commission on Fiscal Responsibility and Reform, November 10, 2010, pp. 18–20.

24 Pete Domenici, Alice Rivlin, et al., "Restoring America's Future: Reviving the Economy, Cutting Spending and Debt, and Creating a Simple, Pro-Growth Tax System," *Bipartisan Policy Center*, November 2010, p. 100.

25 The \$400 billion in savings proposed by the president is measured in then-year dollars.

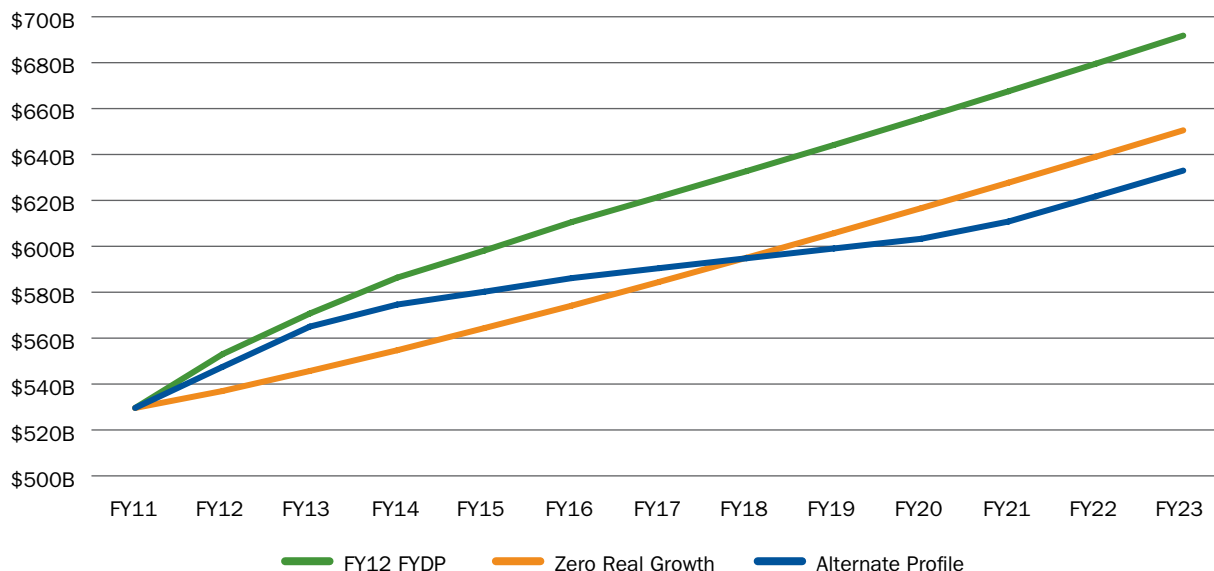
security spending²⁶ as compared to the FY 2012 FYDP and projections—most of which will presumably come from DoD.

An important factor in each of these proposals is how the cuts will be phased-in over time. For example, the president’s call for a \$400 billion reduction over 12 years does not specify the profile of these reductions. If the defense budget was only allowed to grow at the rate of inflation from the level of funding enacted in FY 2011 it would save more than \$400 billion over 12 years, as shown in the “Zero Real Growth” line in the chart below.²⁷ But this approach would require a substantial cut in FY 2012 funding—some 2.9 percent below what is requested—and by FY 2023 would be 6.0 percent below the projected FY 2012 FYDP baseline. An alternative approach would be to phase in the cuts more gradually in FY 2012 and FY 2013, giving the Department more time to adjust. This approach would be less disruptive to DoD’s current programs and activities and give the Department time to begin implementing efficiencies that could help reduce costs in the long run. But it would also mean that DoD’s budget would have to be cut more deeply in the future to achieve the same level of total savings, as shown in the “Alternate Profile” line in the figure below. This alternative profile only cuts 1.0 percent from DoD’s budget in FY 2012 and FY 2013. But to still achieve a total of \$400 billion in savings over the 12-year period, the budget must be cut to 8.5 percent below the FY 2012 FYDP baseline by FY 2023, far below the zero real growth profile.

26 Security spending, as defined by OMB, includes the budgets for DoD, Veterans Affairs, and Homeland Security, as well as the parts of other departments that are deemed security-related.

27 This figure is calculated in then-year dollars and uses OMB’s inflation assumptions.

FIGURE 8. ALTERNATE FUNDING PROFILES FY11–23 (in then-year dollars)



Secretary Gates has argued that these budget proposals should be “focused on priorities, strategy and risks, and ... not simply a math and accounting exercise.”²⁸ In order to bring down the level of spending in the base budget responsibly and efficiently, decision makers must understand the strategic consequences of their decisions. Decisions that cut weapon systems, end strength, or force structure all involve military risks. The goal should be not to minimize these risks across all areas equally but to take calculated risks in areas that are a low priority or where the United States already enjoys a substantial advantage. The prioritization of missions and capabilities should be based on an assessment of future threats and the evolution of military competition. But ultimately defense strategy must be constrained by the resources available, because a strategy the nation cannot afford (or is not willing to afford) is not executable. Thus, efforts to reduce the defense budget should be about both “math” and strategy. But to understand how the budget can be responsibly reduced and the strategic choices available, one must first understand how the Department got to where it is today.

SOURCES OF GROWTH SINCE FY 2001

The federal budget was last balanced in FY 2001, recording a budget surplus of \$128 billion. Since then, the budget deficit has grown to a projected \$1.6 trillion in FY 2011. While defense spending is not solely responsible for the deficit, growth in defense spending since FY 2001 has contributed to growth in the deficit. From FY 2001 to FY 2011, the annual defense budget grew by nearly \$300 billion in real terms—about one-sixth of the increase in the deficit over the same period. The sources of growth in the defense budget can be divided into four main areas, each of which is discussed in more detail in the following chapters:

- **WAR FUNDING:** Funding for the wars in Iraq and Afghanistan is responsible for 54 percent of the growth in defense spending since FY 2001. This funding is used for the cost of operations in these countries, including expendable items such as fuel and ammunition, procurement of equipment specific to the wars, and additional pay and benefits incurred due to deployments and the temporary increase in Army end strength.²⁹
- **MILITARY PERSONNEL:** Increases in military pay and benefits account for 19 percent of the growth. Since FY 2001, overall active-duty end strength has remained relatively flat, hovering between 1,451,000 and 1,510,000. But during this time Congress repeatedly enacted pay raises in excess of the employment cost index (ECI)³⁰ and

²⁸ Robert Gates, “American Enterprise Institute (Defense Spending),” speech delivered in Washington, DC, May 24, 2011.

²⁹ The permanent increase in Army and Marine Corps end strength was funded out of the base budget since these additional troops will remain in the force structure once the current conflicts subside.

³⁰ The ECI, calculated by the Bureau of Labor Statics, is a broad measure of the change in the cost of labor for U.S. businesses.

added or expanded a number of benefits that increased the cost of military personnel on a per person basis by 46 percent in real terms. Military healthcare is a significant contributor to the growth in personnel costs, rising by 85 percent in real terms over the past decade.³¹

- **ACQUISITIONS:** Sixteen percent of the growth in defense spending is due to increased funding for the modernization and replacement of weapon systems in the base budget. Despite the increase in funding over the past decade, the pace of recapitalization has not improved significantly from the 1990s. A number of major aircraft, space, and ship building programs experienced cost overruns, schedule delays, or terminations, and much of the procurement of ground vehicles has been financed through war funding.
- **PEACETIME OPERATIONS:** Peacetime operations account for 10 percent of the growth in defense spending since FY 2001. This funding is used for the daily operations and training of air, sea, ground, and space forces, as well as base operations and administrative functions. Despite the growth in operations funding, the pace of peacetime operations generally declined, offset in part by the higher OPTEMPO of the wars in Iraq and Afghanistan, which is funded separately. Costs grew in part because items such as the cost per flight hour, cost per tank mile, and cost per steaming day all increased.

Only half of the increase in defense spending since 9/11 can be attributed to the wars in Iraq and Afghanistan. This funding is not permanent and will decline as deployments to Iraq and Afghanistan subside. The other half of the growth, however, is built into the annual base defense budget in the form of higher personnel costs, higher operating costs, and higher acquisition costs.³² It appears that the Department is spending more but not necessarily getting more. The base budget now supports a force with essentially the same size, force structure, and capabilities as in FY 2001 but at a 35 percent higher cost. But even if the cost growth in the base budget has been unjustified, rolling back this growth is no simple task.

KEY LEVERS OF CONTROL

The nation now faces a set of strategic choices—decisions about how and where the United States will compete militarily in the future. These strategic choices include, but are not limited to, whether the U.S. military will continue: preserving a stable military balance in the Western Pacific; preserving access to the global energy core in the

³¹ This figure reflects growth in the Defense Health Program only.

³² Some have argued that part of the growth in the base budget is due to war-related costs not covered by OCO funding. This argument is questionable because the Services have every incentive to put costs that are truly war-related into the OCO budget to protect their base budget. On the other hand, there are examples of OCO funding being used for items that are not legitimately war-related and actually belong in the base budget. If anything, the growth in the base budget may be understated.

Persian Gulf; protecting our investment in undersea commerce (e.g., energy infrastructure and fiber optic cables along the continental shelves); protecting and extending the nation's access to space; maintaining assured access to critical cyber infrastructure; and maintaining the ability to project power in the face of low-end anti-access/area-denial capabilities.³³ If and how the United States decides to compete in each of these areas will inform decisions about force structure, end strength, compensation and benefits, readiness and training, and weapon systems—the key levers of control that drive the budget and impact the capabilities of the military and the missions it is able to perform. The following section provides an overview of each of these levers of control and how they can be used independently or in combination to reduce the budget. This overview is not intended to advocate for or against any particular option or set of strategic choices but rather provides a framework for the broad range of trades that are possible.

- **FORCE STRUCTURE:** Changes in force structure alter the basic building blocks of the overall force, such as the number of aircraft squadrons, carrier strike groups, or brigade combat teams (BCTs). Force structure can be reduced without corresponding reductions in end strength and weapon systems, resulting in a higher level of staffing and readiness for the units that remain. For example, the number of personnel assigned to each BCT or the ratio of aircrew to aircraft could increase if end strength remains constant while force structure is reduced, increasing the probability that a sufficient number of personnel will be available to deploy at any given moment.
- **END STRENGTH:** The end strength of the Services can be adjusted to reduce military personnel costs. A reduction in end strength may or may not be made in combination with a reduction in force structure, as mentioned above. The shape of the force can also be changed by selective reductions (or additions) to end strength for different specialties and ranks. For example, the number of enlisted personnel could be increased while the number of officers is reduced, leaving the total end strength constant while reducing overall costs.
- **COMPENSATION AND BENEFITS:** Total military compensation includes basic pay and allowances, retired pay accrual, healthcare benefits, and other non-cash or deferred compensation. Altering the rate of growth in pay and allowances can have a powerful effect on long-term personnel costs because even temporarily reducing the rate of growth in pay and allowances has a compounding effect on all future raises and continues to accumulate savings year after year.³⁴ Changes to the retirement system, such as transitioning to a defined contribution plan instead of a pension system or extending the time in service required to qualify for a pension, can also result in long-term savings, depending on how the changes are implemented.

³³ The author is indebted to Andrew Krepinevich for raising the issue of strategic choices, to include those listed here.

³⁴ For a more detailed discussion of this point, see Todd Harrison, *The New Guns Versus Butter Debate* (Washington, DC: CSBA, May 2010), p. 4.

Healthcare costs can be reduced by raising the annual premium military retirees pay to participate in TRICARE or instituting a premium for TRICARE for Life, which could incentivize some retirees to use private-sector care instead. But altering compensation even in minor ways has proven to be politically challenging, particularly when troops are deployed overseas in combat, and could have an adverse effect on recruiting and retention.

- **READINESS AND TRAINING:** The cost of peacetime operations can be reduced by lowering the amount of unit funding allocated for training and readiness. For example, the number of flight hours per aircrew, the number of steaming days per ship, or the number of tank miles per unit can be reduced, along with the number of live-fire training exercises. Instead of maintaining all units at a consistently high level of readiness, select units can be maintained at high readiness while others are maintained at a relatively low level of readiness. Reducing the level of readiness, however, can have an impact that is not immediately visible by increasing the risk that some or all of these units may be unfit or underprepared for combat and other operations on short notice.
- **WEAPON SYSTEMS:** Options to reduce the cost of weapon systems include upgrading or extending the life of existing equipment rather than replacing it with next-generation systems, reducing the quantity of equipment procured, or scaling back the requirements of next-generation systems. As previously mentioned, cuts to weapon systems can be in combination with reductions to force structure. For example, if the number of fighter squadrons is reduced, the number of new fighters can be reduced accordingly. Cuts to weapon systems, however, can have long-term consequences in terms of eroding the technological advantage of U.S. forces and the capabilities of the U.S. defense industrial base.

The process of aligning strategy and budget should involve exploring the range of options available and cost implications of each. Using these five levers of control, a set of strategic choices can be developed that reduces the strain on the budget while enabling U.S. forces to address high-priority threats adequately and to hedge against uncertainty. For example, one option may be to rely more heavily on air and sea power to counter future threats in an anti-access/area-denial environment. This would require additional funding for new weapons systems. To offset this increase and still achieve additional savings for deficit reduction, the force structure and end strength of ground forces could be reduced. A different approach, however, might be to selectively reduce the end strength and readiness of some ground forces without reducing overall force structure—a tiered readiness approach. This would make some units less ready for combat on short notice, but would provide a hedge in case these forces need to be reconstituted in the future. In this manner a broad trade space of options can be developed,

using different combinations of increases and decreases in these five levers of control. The roles and missions review ordered by the president provides an opportunity to explore the trade space of strategic options available and the impact these decisions would have on the resources required. The success of this review can be measured by whether it brings defense strategy and budget into alignment in such a way as to minimize the overall risk to national security given the resources allocated for this purpose.

III. DETAILS OF THE BUDGET REQUEST

The following sections provide a detailed analysis of DoD's major areas of funding under the administration's FY 2012 budget request.

PERSONNEL

Personnel costs consume 45 percent of the base defense budget, totaling \$250 billion of the \$558 billion requested in FY 2012. This funding supports the direct costs of 1.5 million active-duty troops and 784,000 DoD civilian employees. Some \$148 billion of this total is in the military personnel title of the budget, which funds pay, allowances, and some of the benefits for active and reserve members of the military. An additional \$32 billion for the Defense Health Program is included in the operations and maintenance title of the budget. The remaining \$70 billion for DoD civilian personnel is spread across various accounts in the defense budget, mostly in O&M. Over the next five years, overall personnel costs on a per person basis are projected to grow faster than inflation. In a flat or declining budget environment this will limit the Department's flexibility and begin to crowd out funding for other items in the budget. The following sections examine each of the major components of personnel costs in more detail.

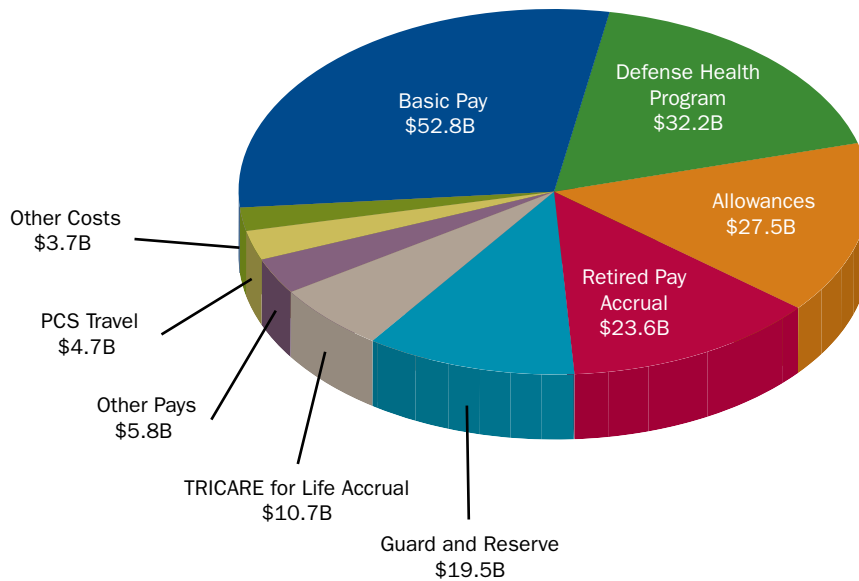
Military Personnel

The FY 2012 request includes a total of \$181 billion in military personnel-related costs in the base budget, an increase of 2.4 percent in real terms above what was enacted in the FY 2011 budget. The single largest item is basic military pay for active-duty troops, which totals \$52.8 billion and includes a 1.6 percent pay increase equal to the ECI for the previous year ending September 2010.³⁵ The request also increases allowances for housing and subsistence by 4.2 percent and 3.4 percent respectively, bringing the total budget for allowances to \$27.5 billion. Special and incentive pays add another \$5.8 billion to the request, bringing the total budget for active-duty cash compensation to \$86.1 billion, or an average of \$57,400 per service member. In terms of deferred compensation, the request sets aside a total of \$23.6 billion in retired pay accrual to fund the pension system for military retirees.³⁶ An additional \$19.5 billion is budgeted for

³⁵ Pay raises are compared to the ECI for the 12-month period ending the September before the budget request is released, as required by law. ECI data are from the Bureau of Labor Statistic's Employment Cost Index Historical Listing, Table 9, accessed at: <http://www.bls.gov/web/eci/ecicois.pdf>.

³⁶ This figure includes both the discretionary budget for retired pay accrual as well as the mandatory budget for concurrent receipt accrual payments to the military retirement fund.

FIGURE 9. MILITARY PERSONNEL-RELATED COSTS



National Guard and Reserve pay and benefits, and \$4.7 billion is included for permanent change of station travel.

The other major area of military personnel costs is healthcare. The total cost of military healthcare in the base budget request is \$52.5 billion, or 9.5 percent of the base defense budget. This includes funding for the Defense Health Program (\$32.2 billion), TRICARE for Life accrual payments (\$10.7 billion),³⁷ healthcare-related military construction (\$1.3 billion), and pay and benefits for military personnel who work in DoD healthcare (which are included in the personnel costs listed in the preceding paragraph). Military healthcare costs are growing at a rate significantly above the rate of inflation, posing a serious challenge for DoD. The Defense Health Program in particular grew at a real annual rate of 6.3 percent from FY 2001 to FY 2011, and the FY 2012 budget requests a 1.2 percent real increase. The FY 2012 FYDP projects future real growth of 3.9 percent annually in the Defense Health Program through FY 2016.

DoD attributes the growth in healthcare costs to new and expanded benefits, general healthcare cost inflation, and the increase in usage of healthcare benefits by eligible beneficiaries. The DoD healthcare system covers 9.6 million eligible beneficiaries, including active-duty troops, retirees, members of the guard and reserve, and dependents. In FY 2012 the Department will operate 56 inpatient hospitals, 363 military medical clinics, and 273 dental clinics around the world. In addition to DoD operated treatment facilities, TRICARE users can also receive care at private-sector facilities.

³⁷ The TRICARE for Life program is a Medicare supplemental insurance program for military retirees over the age of 65.

This private-sector care, managed under three regional support contracts, consumes \$16.3 billion or just over half of the Defense Health Program budget. DoD projects that the number of outpatient visits at military treatment facilities will remain relatively flat at 34.5 million visits in FY 2012 but the number of outpatient visits to private-sector care facilities will jump by 6.5 percent to 58.7 million visits.³⁸

For the first time, the Obama administration's budget request includes an increase in the annual TRICARE premiums paid by military retirees under the age of 65. The proposal would increase the premiums by a modest \$5 per month. In comparison, the previous administration proposed increasing premiums by an average of \$50 per month in its final budget requests—consistent with the final report of the Task Force on the Future of Military Health Care.³⁹ In each of these instances, Congress did not approve the increase in TRICARE premiums and instead left them at the same level they have been since FY 1995. As a result of Congress's failure to raise TRICARE premiums, more working-age retirees—most of whom hold private-sector jobs—have been incentivized to stay in the military-run healthcare system rather than pay the higher premiums charged by their employers' healthcare plans.

An additional \$12.5 billion is included in the OCO budget request for military personnel-related costs attributed to the on-going wars in Iraq and Afghanistan, down more than 25 percent from the OCO personnel funding enacted for FY 2011. The sharp reduction is commensurate with the decline in the number of troops deployed in Iraq, which is projected to fall from an average of 43,000 in FY 2011 to an average of 4,450 in FY 2012. The number of U.S. forces in Afghanistan is projected to decline more modestly, falling from an average of 102,000 in FY 2011 to an average of 98,250 in FY 2012. OCO funding also supports the full cost of the temporary increase in Army end strength, which peaked at 22,000 soldiers in FY 2011 but will fall to 14,600 in FY 2012. For the rest of the force, only the additional pay, allowances, and other benefits service members receive while deployed, such as hazardous duty and separation pay, are included in OCO funding.

While costs are increasing, the overall end strength remains steady at 1.5 million in the FY 2012 request. This figure includes 1,408,000 in the active-duty forces, 77,000 full-time guard and reservists, and the 14,600 temporary increase in Army end strength. Total military personnel-related costs on a per-person basis in the base budget is projected to reach a new high of \$121,600. Since FY 2001, the cost per troop increased at a real annual rate of 4 percent due to new and expanded benefits, healthcare inflation, growth in allowances for housing and subsistence, and pay raises higher than the ECI. The rate of growth in personnel costs slows to 2.6 percent in the FY 2012 budget request and is projected to grow at a real annual rate of 1.7 percent through FY 2016.

38 DoD, *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington VA: DoD, February 2011), p. 215. (accessed at http://comptroller.defense.gov/defbudget/fy2012/fy2012_OM_Overview.pdf)

39 DoD, *Task Force on the Future of Military Health Care Final Report* (Arlington, VA: DoD, December 2007), p. 93.

DoD Civilian Personnel

The total cost of DoD civilian personnel in the FY 2012 budget request is \$70 billion.⁴⁰ The O&M portion of the budget funds 70 percent of these personnel.⁴¹ From FY 1999 to FY 2009, DoD civilians received pay raises that were consistently at or above the ECI and equal or just below the pay raises enacted for military personnel. As a result, the total cost of DoD civilian personnel grew by 27 percent in real terms over this time period while the number of personnel grew by just 2.6 percent. However, Congress enacted a pay raise that was 0.9 percent below the ECI in FY 2010 and no pay increase in FY 2011 (1.4 percent below the ECI). The FY 2012 request continues the pay freeze for DoD civilians (1.6 percent below the ECI) as part of a government-wide pay freeze that exempts only military personnel.

In the FY 2010 budget request Secretary Gates laid out a plan to grow the civilian workforce through in-sourcing—i.e., replacing contractors with government employees. The total number of DoD civilian personnel declined steadily through the 1990s from 1,073,000 in 1990 to 687,000 in 2001, a reduction of more than a third. This decline corresponded to a similar decline in the end strength of the active-duty military (down 32 percent) and the overall defense budget (down 14 percent in real terms) over the same period. However, as the defense budget and operational tempo of the Department increased in the early 2000s, the number of DoD civilians remained relatively constant. The additional workload for the Department, particularly from the 70 percent real increase in acquisition funding from FY 2001 to FY 2009, was largely accomplished through the use of private-sector contractors. The Department's stated goal in the FY 2010 budget request was to reduce the number of these service support contractors from 39 percent of the workforce to the pre-2001 level of 26 percent by FY 2014, which would require hiring 33,400 new civil servants.

The planned growth in the civilian workforce has been tempered, however, by the Department's recent efficiency initiative. It calls for a hiring freeze in the total number of DoD civilians at the FY 2010 level of 778,000 personnel, with the only exception being to sustain the acquisition workforce. As a result, the total number of civilian employees will fall from 790,000 in FY 2011 to 784,000 in FY 2012. According to DoD estimates, the hiring freeze saves \$2.5 billion in the FY 2012 budget and a total of \$13.3 billion over the FYDP. In comparison, the pay freeze for DoD civilians is estimated to save \$7.8 billion in FY 2012 and \$37.1 billion over the FYDP.⁴²

40 Funding for DoD Civilian personnel is through the O&M, RDT&E, Procurement, MILCON, and other titles of the budget and is therefore not additive with the budget totals listed in the operations and acquisition sections that follow. It is discussed separately here to highlight this important driver of costs.

41 Office of the Under Secretary of Defense (Comptroller), *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 2011), p. 187.

42 Office of the Under Secretary of Defense (Comptroller), *Department of Defense Efficiency Initiatives: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 18, 2011), pp. 23, 25.

OPERATIONS

The total cost of peacetime operations in the FY 2012 budget request is \$173 billion, and an additional \$90 billion is requested in operating costs for the wars in Iraq and Afghanistan.⁴³ Since FY 2001, peacetime operating costs have grown at a real annual rate of 1.9 percent while the overall size of the force has remained relatively constant. The FY 2012 FYDP included with the budget request, however, would slow the rate of growth to just 1.2 percent in real terms through FY 2016.

Operating Forces

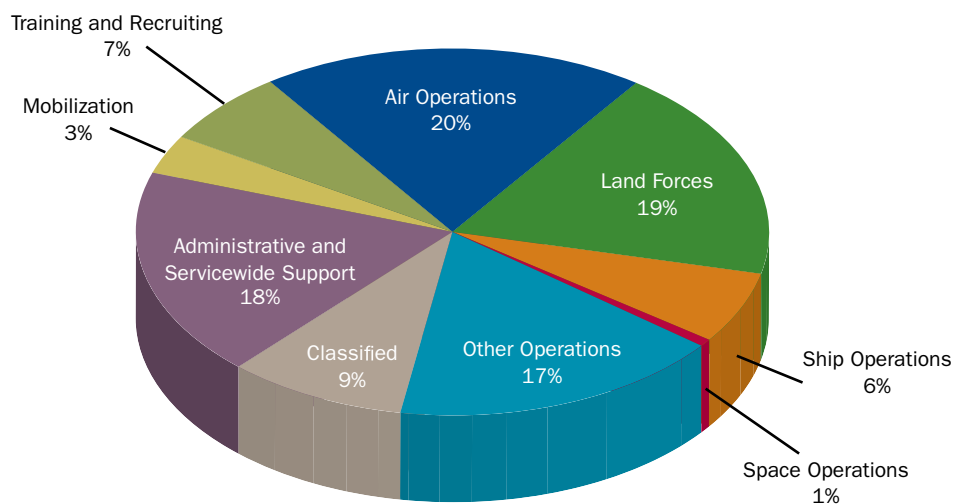
Operating forces accounts for \$105 billion or 61 percent of the operations budget. Within operating forces, air operations for the Air Force and Navy total \$34 billion.⁴⁴ The average cost per flight hour for the active Air Force rose at a real annual rate of 6.1 percent since FY 2001 to \$23,800 per hour in the FY 2012 budget.⁴⁵ In contrast, the average cost per flight hour for the active Navy has risen at a real annual rate of 3.6 percent

43 This figure includes the base budget for O&M minus the Defense Health Program, which was included in the discussion of military personnel costs above.

44 Air operations here is limited to funding classified under O&M Budget Activity 1: Operating Forces, Activity Group: Air Operations.

45 The average cost per flight hour includes the costs of training, base support, maintenance, and facilities, as well as direct the operating costs of fuel and other expendables as reported in *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 2011), pp. 94–95; and *Operation and Maintenance Overview: Fiscal Year 2003 Budget Estimates* (Arlington, VA: DoD, February 2002), pp. 88–89.

FIGURE 10. PEACETIME OPERATIONS COSTS IN THE BASE BUDGET



over the same period.⁴⁶ One explanation for the difference in the rate of growth is that the Navy is flying its aircraft more frequently, planning nearly 50 percent more flight hours per airframe on average than the Air Force in FY 2012 base budget. Since FY 2001, the Air Force has cut the number of flight hours per airframe in the base budget by over 40 percent, causing its fixed overhead costs to be spread across fewer hours of flight and therefore increase the apparent cost per hour. The average age of aircraft in the Air Force inventory is also at its highest level ever, resulting in higher maintenance costs to keep these aircraft operational.⁴⁷

Land forces receive \$32 billion in the request for operations, readiness, and support. Some \$1.7 billion of this budget supports the peacetime sustainment training and daily operations of the Marine Air Ground Task Forces (MAGTFs). The active Army receives \$21 billion and the National Guard and Army Reserve receive \$9.4 billion. As was the case with air operations, the cost of land forces has grown significantly over the past decade. The Army measures the OPTEMPO of training activity in tank miles, and the cost per tank mile has grown at a real annual rate of 3.4 percent since FY 2001. At the same time, the number of tank miles per year in the budget has fallen from 849 in FY 2001 to 675 in the FY 2012 request. This is due in part to the high OPTEMPO for real-world operations in Iraq and Afghanistan, which lowers the availability of units for routine training exercises.

The FY 2012 request includes \$11 billion in O&M funding for ship operations and \$1.1 billion for unclassified space operations. The Navy's ship operations budget for FY 2012 is 21 percent higher in real terms than in FY 2001, despite the fact that the number of steaming days per quarter for deployed ships has declined by 11 percent since that time and the total size of the fleet is down 9 percent.⁴⁸ The majority of the space operations O&M budget goes to the Air Force to fund the upkeep of launch facilities and space control systems. The cost of space operations has grown at a real annual rate of less than 1 percent since FY 2001 even as the average number of contacts per day—one metric of the workload for space control systems—has increased by 26 percent.

Other Operations Funding

The other major areas of operations funding are classified O&M, administrative and service-wide support, and training and recruiting. Classified O&M funding in the base budget totals \$16 billion in the FY 2012 request, up 7 percent from the amount requested in the FY 2011 base budget. Administrative and service-wide support receives \$31.7 billion in the request. This activity funds the operations of various programs throughout

⁴⁶ *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 2011), pp. 89–90; and *Operation and Maintenance Overview: Fiscal Year 2003 Budget Estimates* (Arlington, VA: DoD, February 2002), p. 84.

⁴⁷ Megan Scully, "Needed: 200 New Aircraft a Year," *Air Force Magazine*, October 2008.

⁴⁸ *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 2011), pp. 168–172; and *Operation and Maintenance Overview: Fiscal Year 2003 Budget Estimates* (Arlington, VA: DoD, February 2002), pp. 163–166.

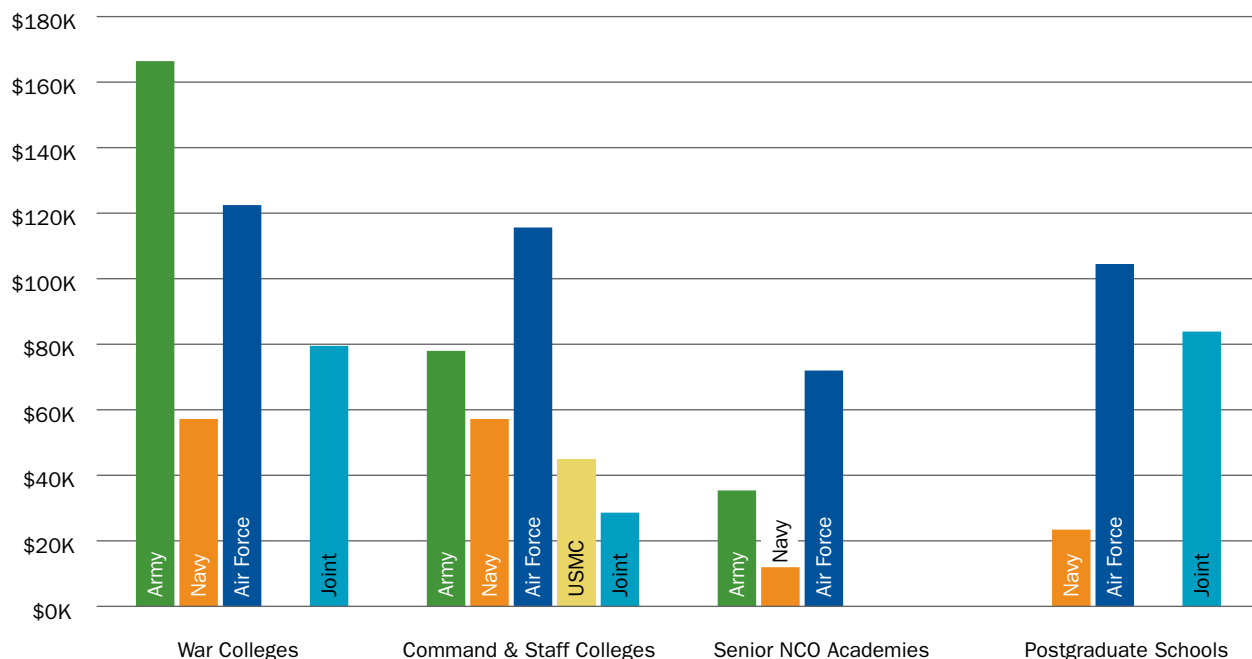
the Department, such as K-12 schools (\$2.8 billion), the Defense Contract Management Agency (\$1.1 billion), and the Office of the Secretary of Defense (\$2.2 billion).

Training and recruiting receives a total of \$11 billion in the O&M budget request for FY 2012. Since FY 2001, overall cost growth in training and recruiting has been moderate at just over one percent annually in real terms. But some specific costs within the training budget have been growing at a faster rate, such as the cost of Professional Military Education (PME). DoD maintains four separate war colleges, four command and staff colleges, three senior non-commissioned officer academies, and multiple postgraduate schools, such as the Air Force Institute of Technology, the Naval Postgraduate School, and the Industrial College of the Armed Forces. The cost per student across these different institutions varies significantly, as shown in the figure below. For example, the cost of the war colleges—a ten-month, in-residence, Master’s degree-awarding course for senior officers—ranges from \$57,000 per student at the Naval War College⁴⁹ to \$166,000 per student at the Army War College.⁵⁰ The cost of students attending the Army War College, the largest of the war colleges, has grown at a real annual rate of 5.1 percent since FY 2001.

49 Department of the Navy, *Fiscal Year (FY) 2012 Budget Estimates: Operations and Maintenance, Navy, Volume II Data Book* (Arlington, VA: DoD, February 2011), Exhibit PB-24, p. 2.

50 Department of the Army, *Fiscal Year (FY) 2012 Budget Estimates: Operations and Maintenance, Army Data Book, Volume II* (Arlington, VA: DoD, February 2011), p. 8.

FIGURE 11. COST PER STUDENT IN FY 2012 REQUEST



An additional \$90 billion dollars is included in the request for operations-related OCO funding. Nearly two-thirds of this amount, \$58 billion, is allocated for operating forces, including \$41 billion for land forces, \$7 billion for air operations, and \$2 billion for ship operations. Other major components of the OCO operations budget are classified programs (\$3.1 billion), the Defense Security Cooperation Agency (\$2.2 billion), transportation of Army goods and materiel (\$3.5 billion), and mobilization (\$4.1 billion).

While the FY 2012 FYDP projects relatively low growth in peacetime operations costs at 1.2 percent annually, recent history suggests this slower projected rate of growth may be overly optimistic. The costs of air, land, and sea operating forces are growing faster when measured in terms of the cost per flight hour, cost per tank mile, and cost per steaming day. Growth in these operational costs is, to a certain extent, driven by factors beyond the control of DoD. Fuel costs, for example, are a major component of the cost of operating forces and these costs vary with market rates. DoD consumes over 130 million barrels of petroleum per year—nearly two percent of total U.S. oil consumption.⁵¹ The charts below shows how these costs have varied from year to year depending on price and total consumption by U.S. forces. In FY 2010, the most recent year reported, DoD spent \$14.9 billion on petroleum, with the Air Force responsible for more than half of the costs. Given the volatility of oil prices, it is difficult to accurately predict what the price of oil—and thus DoD’s fuel costs—will be in future years. For example, if the market price of oil were to average \$150 per barrel over the fiscal year, DoD’s fuel costs could soar to over \$25 billion annually at the current level of consumption.⁵² Likewise, if the average cost of a barrel of oil fell to \$20, DoD’s annual fuel costs could drop to less than \$4 billion.⁵³

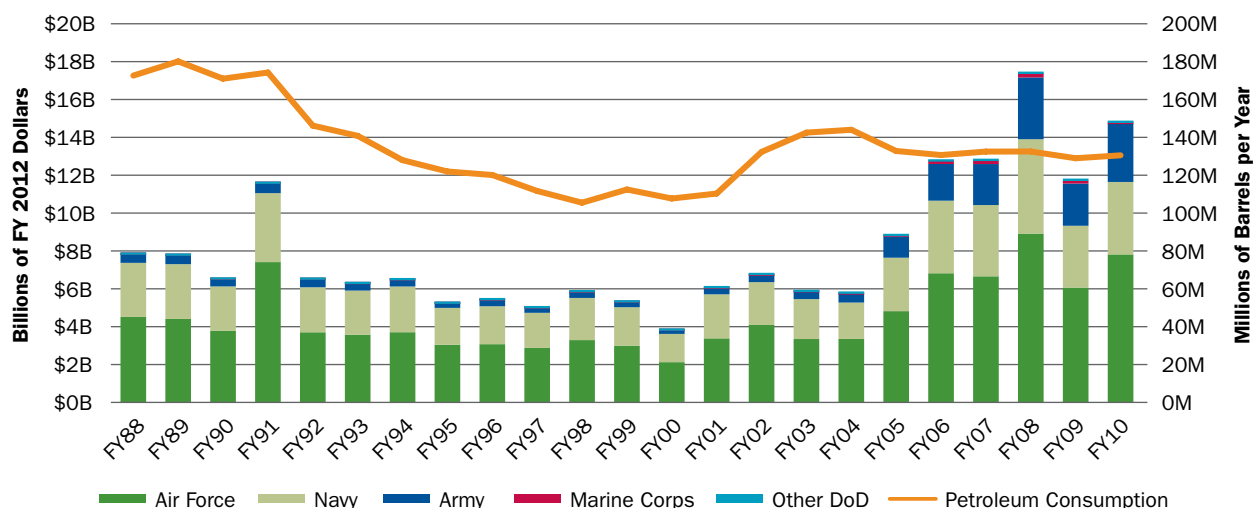
In a flat or declining budget environment, faster-than-expected growth in operating costs will begin to crowd out other areas of the defense budget, particularly acquisitions. While DoD may not have complete control over the cost per flight hour, tank mile, or steaming day, it can reduce overall costs by cutting back on the total amount of peacetime training and activity these forces sustain. Cuts in peacetime training and operations can be detrimental to unit readiness, but the specific effects of such cuts are difficult to measure. In a recent report, the CBO noted that their efforts to identify a linkage between the level of O&M spending and the readiness of military units were not successful “largely because the information needed to determine that linkage—effective

51 DoD petroleum consumption can be found in Defense Logistics Agency—Energy, *Fact Book Fiscal Year 2010* (DoD, April 2011), p. 24. Total U.S. oil consumption is from U.S. Energy Information Administration data for 2010, accessed at: http://www.eia.gov/dnav/pet/pet_cons_psup_dc_nus_mbbbl_a.htm.

52 While \$150 per barrel would be an extraordinarily high price for oil, it is conceivable that prices would reach this level. The spot market price of West Texas Intermediate Crude reached a peak of \$145 per barrel on July 3, 2008, or \$152 in FY 2012 dollars. See U.S. Energy Information Agency data on Cushing, OK WTI Spot Price FOB, accessed at: <http://www.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rwte&f=d>.

53 While a price of \$20 per barrel would be significant drop from current levels, the price of oil was at or near this level (adjusting for inflation) as recently as 2002.

FIGURE 12. DOD ANNUAL FUEL COSTS AND TOTAL CONSUMPTION



measures of readiness and detailed data on spending—is not readily available or may not, in fact, exist.” The CBO went on to conclude that to determine precisely how O&M spending affects unit readiness, DoD would need to “conduct controlled experiments in which it methodically varies readiness-related spending for otherwise similar units.”⁵⁴ This sort of experimental approach could be useful both to identify specific operational costs that can be reduced without adversely affecting readiness and to identify those operational costs that are most critical to sustaining readiness.

ACQUISITION

The acquisition and upgrade of weapon systems is funded through the research, development, test, and evaluation (RDT&E) and procurement titles of the budget. RDT&E funding is generally used to pay for basic and applied research, technology and component development, and system development. Procurement funding generally supports the purchase of weapon systems that have already been developed and are in production. In many cases, however, the distinctions between these two types of acquisition funding are blurred. Some RDT&E funding is used to procure early production articles for testing purposes that are in fact fully operational systems, and at times, procurement funds are used to pay for further development and testing of systems.

54 CBO, *Linking the Readiness of the Armed Forces to DoD’s Operation and Maintenance Spending* (Washington, DC: CBO, April 2011), p. 2.

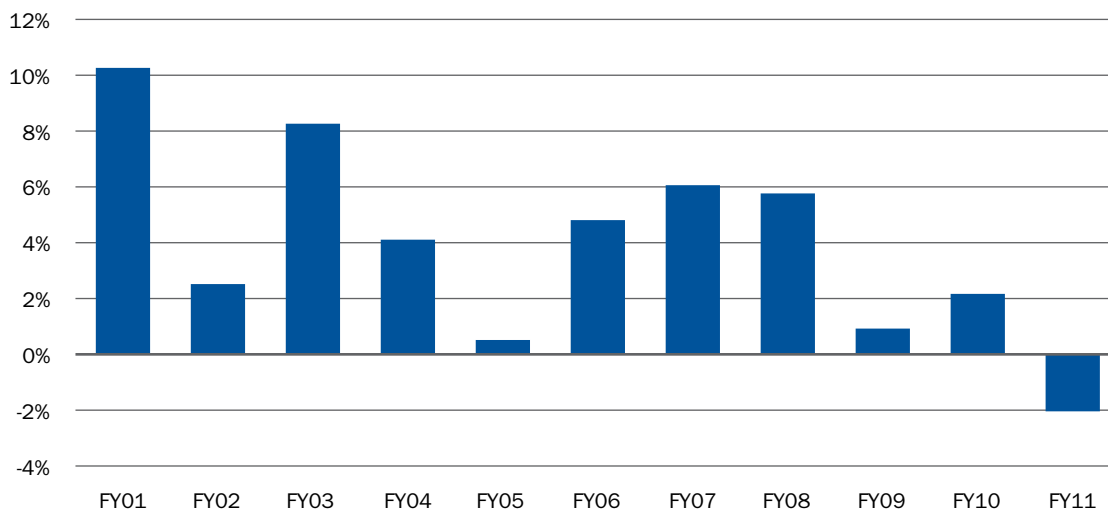
RDT&E

The FY 2012 base defense budget proposes \$75.4 billion⁵⁵ in funding for RDT&E, a 0.3 percent real decrease from the amount appropriated for FY 2011. An additional \$397 million is included in OCO funding for RDT&E. While RDT&E funding reached its all-time high in FY 2009 at \$83 billion, the level of funding requested in FY 2012 remains well above the previous peak in RDT&E spending of \$63 billion in FY 1987. Under the FYDP included with the administration's budget request, RDT&E funding would continue to decline in future years to \$65 billion in FY 2016—nearly a quarter less than the FY 2009 peak.

Within the RDT&E budget, the FY 2012 budget request continues to shift funding away from early research activities (basic research, applied research, and advanced technology demonstration) and into later developmental activities (advanced component development, system development and demonstration, and operational system development) and classified activities. As a share of the RDT&E budget, early research activities have fallen from 21 percent in FY 2001 to 16 percent in the FY 2012 request. At the same time, the share of the RDT&E budget allocated for later developmental activities has risen from 60 percent to a peak of 64 percent in FY 2007 before falling to 58 percent in the FY 2012 request. Classified R&D funding has risen steadily over the past decade from 19 percent in FY 2001 to 26 percent of total RDT&E funding in the FY 2012 request.

⁵⁵ This includes \$100 million in mandatory RDT&E funding for DARPA's Wireless Innovation Fund, a program to develop new technologies to enable more efficient use of radio frequencies.

FIGURE 13. CONGRESSIONAL ADDS TO RDT&E FUNDING
(compares enacted to request for each year)



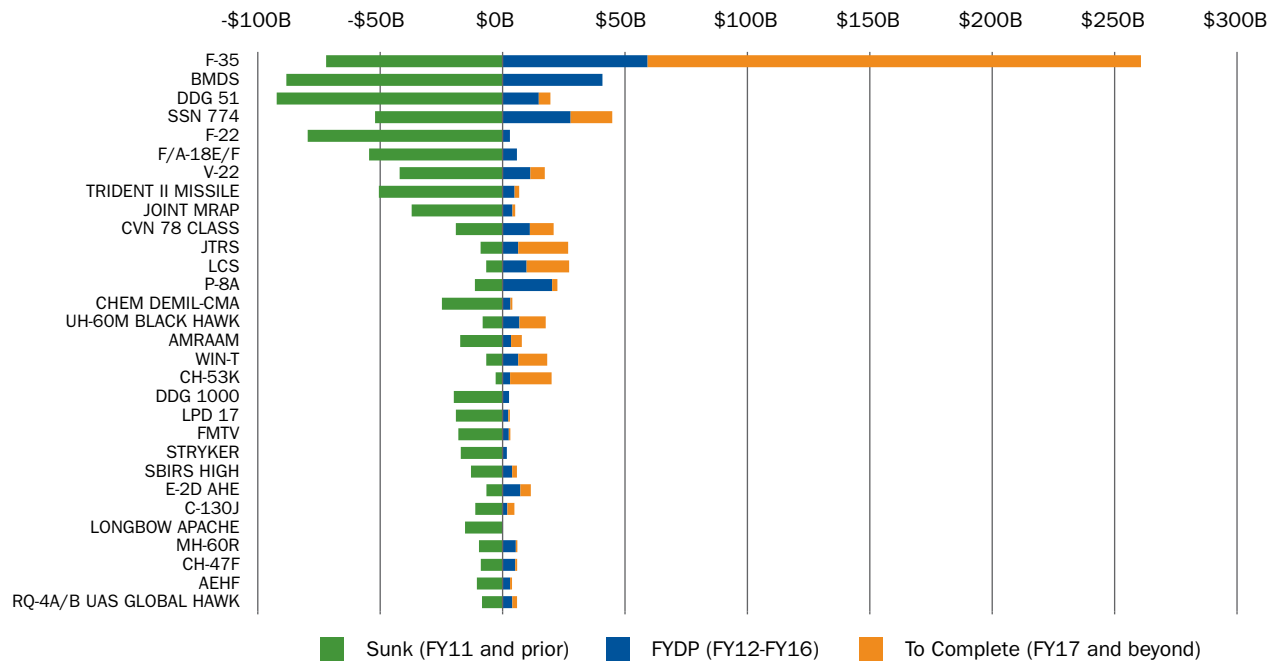
The FY 2011 budget enacted by Congress broke a long-standing trend of enacting RDT&E funding greater than requested. In each year from FY 2001 to FY 2010, Congress enacted funding for RDT&E that was higher than the president's request, averaging a 4.5 percent increase in the form of earmarks and other congressional adds to programs and activities that DoD otherwise did not intend to fund. In the FY 2011 budget, however, Congress cut the RDT&E budget by \$1.6 billion, or 2.0 percent, from what was requested—and the FY 2011 request was already a 6 percent real decrease from FY 2010. If Congress treats future defense budgets in a similar fashion, the decline in RDT&E funding over the coming years could be steeper than currently projected in the FY 2012 FYDP.

Procurement

Procurement funding in the FY 2012 base defense budget request is \$113.0 billion, a real increase of 9.8 percent over the FY 2011 base budget. An additional \$15.0 billion in procurement funding is included in the OCO request. The large apparent increase in procurement funding in the FY 2012 base budget request is primarily because Congress cut \$9.6 billion or about 9 percent from the FY 2011 procurement budget in the final appropriation bill passed in April, well after the FY 2012 request was released in February. If Congress had appropriated the full amount of procurement funding requested by the administration in FY 2011, the FY 2012 request would be a 1.3 percent real decline. The FY 2012 FYDP projects gradual growth in procurement for FY 2013 and beyond. But if Congress continues to enact an amount well below the president's request, it could require the Department to reassess its future plans for modernization and lead to additional programs being delayed, cancelled, or curtailed.

Aircraft procurements consume the largest share of the FY 2012 procurement base budget request at 36 percent of total funding. This includes procuring and modernizing fixed-wing and rotary-wing aircraft, manned and unmanned, for the Army, Navy, Air Force, and Marine Corps. As a share of overall procurement funding, aircraft procurement is up slightly to 36 percent of the budget from FY 2001 when it made up 32 percent. Space systems and classified programs are two of the fastest-growing areas in the procurement budget, increasing 163 percent and 59 percent in real terms, respectively, from FY 2001 to the FY 2012 request. Space systems have risen from 1.9 percent to 3.6 percent of the procurement budget over that period, and classified programs have risen from 13.5 to 15.0 percent. This reflects an increased emphasis on intelligence, surveillance, and reconnaissance (ISR) systems that often have a space-based component or are classified. Funding for both ordnance and ground systems has fallen as a share of the base procurement budget from 9.1 to 7.4 percent and 7.1 to 4.4 percent, respectively. However, these declines have been offset by a significant increase in war funding for these items.

FIGURE 14. FUNDING PLANS FOR TOP 30 ACQUISITION PROGRAMS
(in billions of FY 2012 dollars)



Funding for Major Programs

The Selected Acquisition Report (SAR) includes details on the funding for DoD's major acquisition programs. Together the programs listed in the SAR account for 42 percent (\$78.2 billion) of the acquisition budget in the FY 2012 request and 38 percent (\$366 billion) of acquisition funding over the FYDP. As shown in the figure below, the largest program in the DoD portfolio is the Joint Strike Fighter (JSF), a program to develop the next-generation tactical fighter for the Air Force, Navy, and Marine Corps. The total cost of the JSF acquisition program (not including long-term operating costs) is estimated to be \$333 billion (in FY 2012 dollars). Of this total, some \$72 billion has already been spent on the development and testing of this aircraft through FY 2011, another \$59 billion is budgeted across the FYDP, and \$202 billion is projected for FY 2017 and beyond.

The other major programs with the highest level of future funding required are the Ballistic Missile Defense System (BMDS), SSN 774 Virginia-class Attack Submarine, Littoral Combat Ship (LCS), and Joint Tactical Radio System (JTRS). The SAR combines a number of missile defense programs under the BMDS heading, including Aegis BMD, Ground-based Missile Defense, and the Theater High Altitude Area Defense (THAAD). To date, DoD has spent a total of \$88 billion on these programs and another \$41 billion is projected over the FYDP. DoD does not project costs for BMDS beyond the

FYDP, but presumably funding would continue at a similar level for years to come. The Navy's Virginia-class Attack Submarine has a total price tag of \$97 billion, \$52 billion of which has already been spent. The program will need another \$28 billion over the FYDP and \$17 billion beyond the FYDP to continue production as currently planned. Both the LCS program and JTRS are relatively early in their lifecycles in terms of the total costs incurred, with an additional \$27 billion needed for each of these programs in the FYDP and beyond.⁵⁶

The cost to complete all of the 95 major acquisition programs reported in the SAR is projected to be \$774 billion from FY 2012 through completion. However, it is important to note that some of these projected costs extend more than twenty years into the future. The JSF program, for example, includes funding through FY 2035. Another important caveat is that not all of DoD's major programs planned for the next decade and beyond are included in the SAR, for example: the Navy's SSBN(X) replacement for the Ohio-class ballistic missile submarine, the Air Force's Next-Generation Bomber, the Army's Ground Combat Vehicle (GCV), and the Air Force's new tanker (KC-46A). The cost of the Navy's program to replace its fleet of carriers over the coming decades is only partially included in SAR—only the first three of ten planned ships are included. With the exception of the carrier replacement, all of these future programs were highlighted by Secretary Gates in a recent speech as programs “that our nation's civilian and military leadership deem absolutely critical.”⁵⁷ The projected costs of these additional programs could add over \$300 billion to the cost to complete for DoD's major acquisition programs, bringing the total to well over \$1 trillion.⁵⁸

Major Issues Facing Defense Acquisitions

A major issue facing the Department now and in the coming years is the lagging pace of recapitalization for certain types of equipment. For example, the average age of aircraft in the Air Force inventory is twenty-four years and is projected to climb to twenty-seven years by 2020.⁵⁹ The size of the Navy's fleet has fallen from 316 ships in FY 2001 to 284 in FY 2011.⁶⁰ As Secretary Gates has noted, DoD modernization initiatives have been plagued by the piling on of “exquisite” requirements, which have driven up costs and

56 Cost figures used here and in the chart above are derived from OSD data used to produce the SAR. This source data includes program costs on an annual basis in then-year dollars. The annual costs were converted to constant-year FY 2012 dollars using the GDP deflators published in OMB Historical Tables and using the OMB's projection of 1.8 percent annual inflation for years beyond the table (FY 2017 and later).

57 Robert Gates, *Speech at the American Enterprise Institute* (Washington, DC: n/p, May 24, 2011).

58 The approximate costs for future programs not included in the current SAR include: seven additional CVN 78 Class Carriers (\$80–90 billion), Next-Generation Bomber (\$40–50 billion), SSBN(X) Ohio Class Replacement Submarine (\$80–100 billion), KC-46A Tanker (\$35 billion), and Ground Combat Vehicle (\$20–40 billion).

59 Norton A. Schwartz, *Answers to Advance Questions from Senate Armed Services Committee* (Washington DC: US Senate, July 22, 2008).

60 DoD, *Operation and Maintenance Overview: Fiscal Year 2012 Budget Estimates* (Arlington, VA: DoD, February 2011), pp. 168–172; and DoD, *Operation and Maintenance Overview: Fiscal Year 2003 Budget Estimates* (Arlington, VA: DoD, February 2002), pp. 163–166.

stretched out procurement schedules.⁶¹ Despite the sharp increase in the base budget for acquisitions since 2001—a 44 percent real increase—lower quantities of equipment have been procured, and a “bow wave”⁶² of equipment needs has been pushed out year after year beyond the Future Years Defense Program. Moreover, the increased usage rates of equipment in the harsh environments of Iraq and Afghanistan have only exacerbated the problem, creating an even greater need for replacement equipment.

Over the past decade at least a dozen major programs were terminated without any operational systems being fielded. The sunk cost of the terminated programs shown in the table below, for example, totals some \$46 billion in then-year dollars. Additional programs had their quantities cut far below initial plans, such as the F-22 and DDG 1000. While the cancelation of individual programs may have been justified due to significant cost overruns or technical challenges, the aggregate effect is that a significant portion of DoD’s investment in modernization over the past decade did not result in force modernization. In many cases, follow-on programs have been initiated or will soon be initiated to fill the gaps created by these cancelled programs. To be sure, some of the technologies developed under these terminated programs may be salvaged for use in the future. But much of this investment in time and resources is not recoverable, particularly given the outlook for DoD’s future topline. From this perspective, DoD missed an

61 Robert Gates, *Defense Budget Recommendation Statement* (Arlington, VA: n/p, April 6, 2009).

62 The term “bow wave” refers to the bow wave a ship produces ahead of it in the water. Just as a ship pushes a bow wave out ahead of it as it travels, sharp increases in spending keep getting pushed out into the future with each successive budget.

TABLE 3. MAJOR PROGRAMS CANCELLED SINCE 2001
WITHOUT FIELDING ANY SYSTEMS

Program Name	Sunk Cost (in billions of then-year dollars)	Source
Future Combat Systems (FCS)	\$18.1 B	September 2008 SAR
Comanche	\$7.9 B	December 2003 SAR
NPOESS	\$5.8 B	December 2009 SAR
VH-71 Presidential Helicopter	\$3.7 B	September 2008 SAR
Expeditionary Fighting Vehicle (EFV)	\$3.3 B	December 2010 SAR
Transformational SATCOM (TSAT)	\$3.2 B	Annual Budget Justification Documents
Crusader	\$2.2 B	December 2001 SAR
Advanced SEAL Delivery System (ASDS)	\$0.6 B	December 2005 SAR
Armed Reconnaissance Helicopter	\$0.5 B	September 2008 SAR
Aerial Common Sensor	\$0.4 B	December 2005 SAR
CG(X) Next Generation Cruiser	\$0.2 B	Annual Budget Justification Documents
CSAR-X	\$0.2 B	Annual Budget Justification Documents

opportunity to recapitalize its inventory of equipment—an opportunity it may not have again for another decade or longer given the fiscal constraints the nation now faces.

Overall, the relatively high level of funding allocated to the development of new weapon systems has been a major factor in cost overruns on acquisition programs and has undermined DoD's ability to fund for the quantity of new weapon systems needed to correct the lagging pace of procurements over the past two decades. The ratio of procurement to RDT&E in the defense budget has fallen from a peak of 3.5 to 1 during the early 1980s to its current level of 1.4 to 1 in the FY 2011 budget. The FY 2012 budget request begins to reverse this trend by increasing procurement funding and decreasing RDT&E funding, bringing the ratio up to 1.5 to 1. Under the FYDP submitted with the budget, funding for procurement is projected to continue to rise and RDT&E is projected to continue to decline. As a result, the ratio of procurement to RDT&E in the base budget will rise to 2.0 to 1 by FY 2016, the highest level since FY 1990, if these levels of funding are enacted in future years. But this projection of increasing procurement and decreasing RDT&E funding in the future is at odds with recent history—such a situation has occurred only once in the past 35 years.⁶³

A more detailed discussion of the status and future plans for major weapon systems is included in Chapter 4: Major Acquisition Programs.

MILITARY CONSTRUCTION AND FAMILY HOUSING

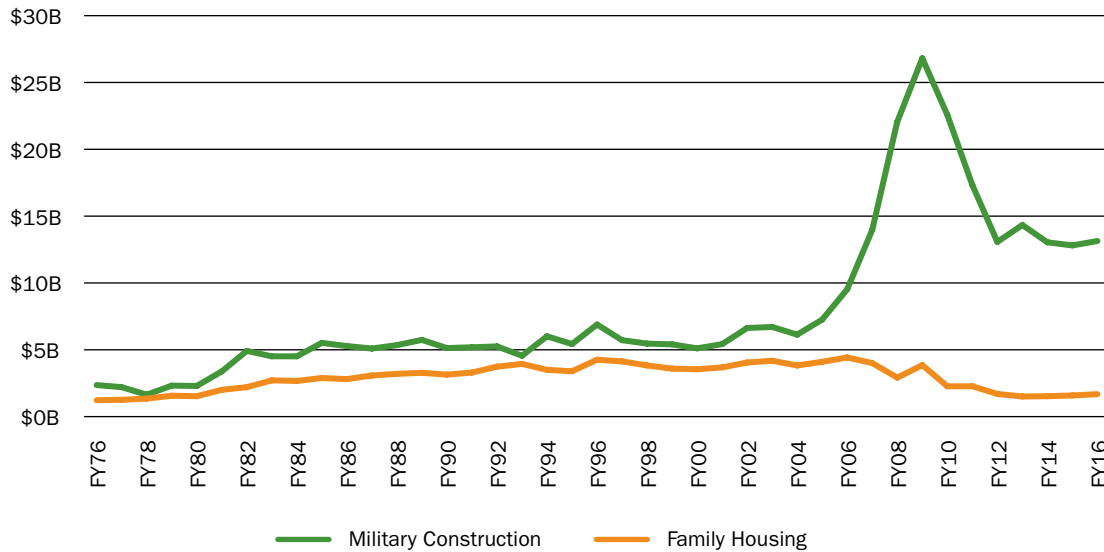
The FY 2012 base budget requests a total of \$13.1 billion for military construction (MILCON) and \$1.7 billion for family housing. No MILCON or family housing funding is included in the OCO request for FY 2012. While the base MILCON and family housing budgets decline by 18 percent in real terms from FY 2011, they remain at a high level by historical standards. The FYDP projects a gradual decline in both military construction and family housing, falling to \$12.3 billion and \$1.6 billion respectively in FY 2016 (in FY 2012 dollars).

BRAC

The surge and subsequent decline in MILCON funding since FY 2006 has been driven primarily by the 2005 base realignment and closure (BRAC) process. Four previous rounds of BRACs begun in 1988, 1991, 1993, and 1995 resulted in the closure of ninety-seven major bases (equivalent to about 21 percent of DoD's domestic basing structure). The 2005 round identified twenty-two major bases for closure. Over the long term, base closures save money, but there are substantial upfront costs associated with the BRAC process related to environmental cleanup and the need to reconstitute, at remaining bases, some existing capabilities at bases selected for closure.

⁶³ In FY 2000, procurement increased by 5.5 percent while RDT&E declined by 0.9 percent, in real terms.

FIGURE 15. MILCON AND FAMILY HOUSING
(in billions of FY 2012 dollars, includes war funding)



The FY 2011 budget was the last to include substantial funding (\$2.4 billion) for the 2005 BRAC. Spending related to the 2005 BRAC has totaled \$36 billion to date, with funding peaking in FY 2009 at \$9.3 billion. The FY 2012 budget includes an additional \$259 million for the 2005 BRAC, and residual funding averages \$133 million per year for FY 2013 to FY 2016. The total cost of the 2005 BRAC is now estimated to reach \$37 billion, compared to the \$24 billion original estimate of the Commission (in FY 2012 dollars). With this revised cost figure, the 2005 BRAC will exceed the cost of all previous BRACs combined. As the costs of implementing the BRAC recommendations have increased, the estimated savings have decreased. The commission originally estimated that their recommendations would result in a net savings of \$41 billion (in FY 2012 dollars) on a 20-year net present-value basis.⁶⁴ The Government Accountability Office (GAO) now estimates the net savings to be \$12.5 billion.⁶⁵

64 Defense Base Realignment and Closure Commission, *2005 Defense Base Closure and Realignment Commission Report* (Arlington, VA, September 8, 2005), p. N-1.

65 GAO, *Military Base Realignments and Closures: Estimated Costs Have Increased While Savings Estimates Have Decreased Since Fiscal Year 2009* (Washington DC: GAO, November 13, 2009), p. 4. (accessed at <http://www.gao.gov/new.items/d1098r.pdf>)

Recapitalization

In its FY 2010 report, DoD estimated the replacement value of its real property portfolio of buildings, structures, and linear structures (such as roads, pipelines, and runways) at some \$816 billion.⁶⁶ In order to recapitalize this infrastructure on a 67-year basis, as DoD policy states⁶⁷, the Department would need an annual MILCON funding level of \$12.2 billion. Given this requirement, the Department appears to be adequately funded for recapitalization of its infrastructure. The FY 2012 request slightly exceeds this amount at \$12.5 billion, excluding BRAC-related funding, and the FY 2012 FYDP includes an average of \$12.4 billion in annual MILCON funding. However, the total replacement cost of DoD's real property portfolio is based in part on the total number of bases, buildings, and other structures and the construction costs of rebuilding these facilities. If the number of facilities decreases from another round of base closures, for example, then the replacement cost and annual level of MILCON funding required would decline accordingly. If, however, construction costs grow faster than overall inflation, the replacement cost and annual level of MILCON funding required could exceed current projections.

66 Office of the Deputy Undersecretary of Defense (Installations and Environment), *Base Structure Report Fiscal Year 2010: A Summary of DoD's Real Property Inventory* (Arlington, VA: DoD), p. 11.

67 DoD Facilities Recapitalization Benchmark, accessed at: www.acq.osd.mil/ie/fim/library/DoD_facilities_recap.doc

IV. MAJOR ACQUISITION PROGRAMS

This chapter reviews the status and funding of DoD's major aircraft, ground systems, shipbuilding, space, missile defense, and communications and electronics programs.⁶⁸

AIRCRAFT

AH-64 APACHE: The FY 2012 budget request provides \$712 million for modifications to the Army's AH-64 Apache attack helicopters and \$104 million in advanced procurement for new build aircraft. Upgrades include the addition of Target Acquisition Designation Sight (TADS)/Pilot Night Vision Sensors (PNVS), as well as a variety of safety and reliability improvements. The budget request supports the remanufacture of 19 helicopters to the more capable AH-64D (Longbow) Block 3 configuration. The Apache Block 3 program reported a critical Nunn-McCurdy breach in the December 2009 SAR.⁶⁹ The cost overrun was due to the addition of 56 new aircraft to the program which are significantly more expensive than the remanufactured aircraft that were already part of the baseline program. As part of the program restructuring, DoD split the program into two subprograms for the new-build aircraft and the remanufactured aircraft.

B-2 SPIRIT MODERNIZATION: The administration is requesting \$432 million for the B-2 bomber modernization program in FY 2012 for the development and procurement of modifications and upgrades to the existing fleet of 20 aircraft. Much of the RDT&E funding on the program is being used to upgrade the satellite communications systems on the B-2 to eventually operate over the new AEHF satellite constellation currently being launched. The Radar Modernization Program finished development in FY 2010 and is scheduled to complete procurement in FY 2012. Work continues in FY 2011 on airframe and avionics improvements, the Defensive Management System, and other upgrades. A total of \$2.3 billion is planned for B-2 modernization over the FYDP.

⁶⁸ All dollar amounts, including future costs and total program costs are shown in constant-year FY 2012 dollars. Figures are converted to FY 2012 dollars using the GDP deflator from OMB Historical Table 10.1 and OMB's assumption for long term inflation of 1.8 percent annually for FY 2017 and later.

⁶⁹ A Nunn-McCurdy breach refers to a breach of the statutory limits for cost growth in defense acquisition programs. The threshold for a "significant" cost growth breach is an increase in the program acquisition unit cost (PAUC) or the average procurement unit cost (APUC) of 15 percent over the current baseline or 30 percent over the original baseline. Similarly, a "critical" cost growth breach is an increase of 25 percent over the current baseline or 50 percent over the original baseline. A significant Nunn-McCurdy breach requires notification of Congress. A critical Nunn-McCurdy breach requires notification of Congress and recertification of the program, among other things.

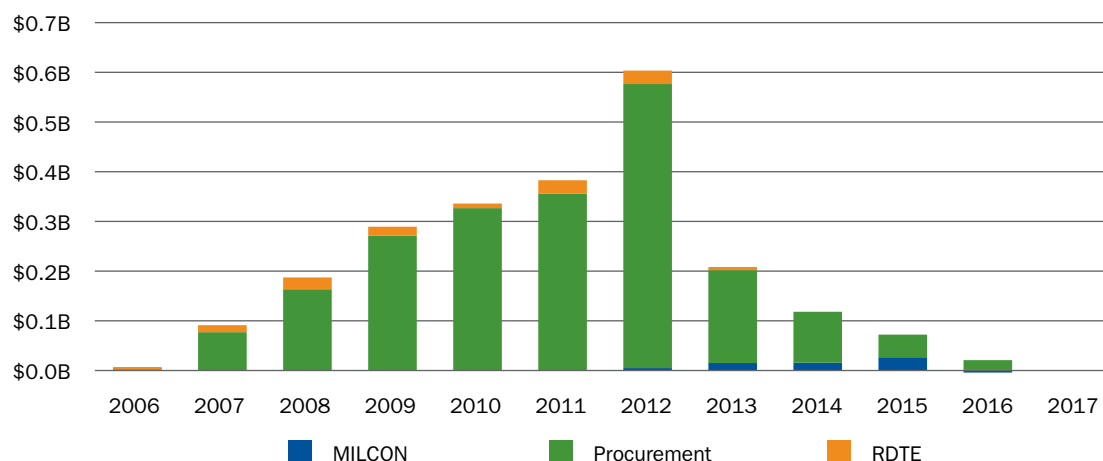
C-130J HERCULES: The FY 2012 budget continues the procurement of C-130J aircraft, funding a total of 12 aircraft at \$1.3 billion. The Air Force plans to buy one C-130J and ten HC/MC-130s at a total cost of \$1.2 billion. The Marine Corps requests one KC-130J for aerial refueling at a cost of \$87 million. The C-130 first entered service in 1957 and has been in continuous production for more than 50 years.

C-17 GLOBEMASTER: The Air Force’s procurement of C-17s ended in FY 2010. The current budget request includes a total of \$539 million for the program to continue modifications to existing aircraft, development and testing of aeromedical evacuation equipment, and production shutdown activities. To date, the Air Force has procured a total of 223 C-17s, well above the Air Force’s goal of 180 aircraft. India recently committed to purchase 10 C-17s at a price of \$4.1 billion.⁷⁰ The production line in Long Beach, California was scheduled to shut down in 2013, but the Indian order should be sufficient to keep the line running for another year. Australia and Kuwait are also considering buying additional C-17s.

C-27J SPARTAN JOINT CARGO AIRCRAFT (JCA): The FY 2012 budget includes \$604 million for the JCA. The JCA is a commercial derivative aircraft that provides an intra-theater, light cargo airlift capability. The program had previously been funded through the Army, but the FY 2010 request moved the program to the Air Force. The budget provides for the procurement of nine additional aircraft in FY 2012. Funding for the program peaks in FY 2012 and is projected to decline sharply over the remainder of the FYDP, falling to \$208 million in FY 2013 and ending with \$21 million in FY 2016. Total funding for the C-27J over the FYDP is \$1.0 billion.

70 “India clears biggest deal with US for C-17s at \$4.1 bn,” *Thaindian News*, June 6, 2011.

FIGURE 16. C-27J



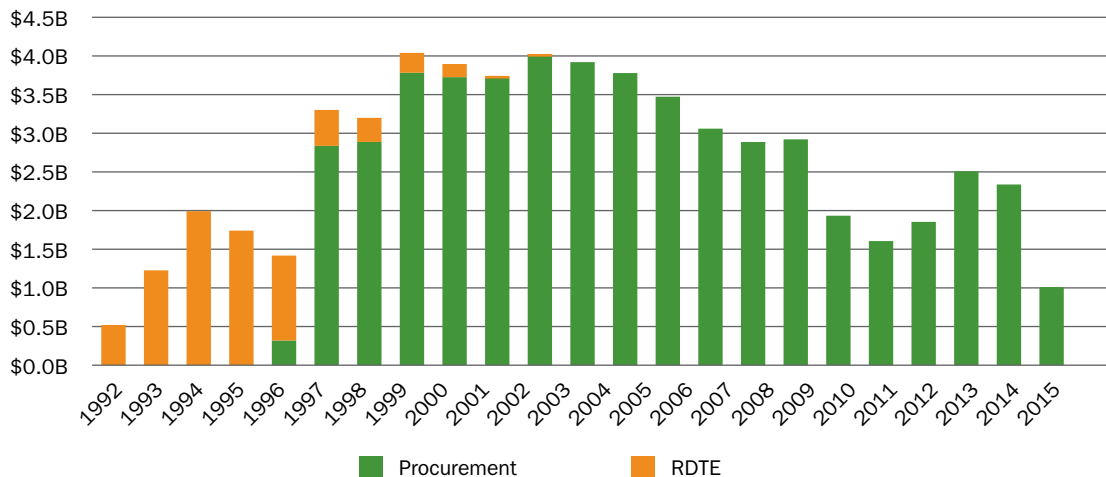
C-5 MODERNIZATION: The C-5 modernization initiative consists of two programs. The Avionics Modernization Program (AMP) upgrades the cockpit, flight control system, navigation system, and safety equipment, and the Reliability Enhancement and Re-engining Program (RERP) replaces the propulsion system and makes numerous upgrades to the structure, landing gear, hydraulics, and electrical systems. Virtually all C-5s in the inventory will receive the AMP upgrades, while only 52 aircraft (primarily C-5Bs) are planned to receive the RERP upgrade. The FY 2012 budget includes \$1.1 billion in funding for C-5 modernization.

CH-47 CHINOOK: The Army is requesting a total of \$1.4 billion in the FY 2012 base budget to acquire 47 aircraft—32 new-build aircraft and 15 remanufactured aircraft. The CH-47F is used to transport troops, ammunition, and other supplies for combat operations. Funding for the CH-47 is projected to decline over the FYDP as procurements draw to a close in FY 2018.

E/A-18G GROWLER: The FY 2012 budget includes a total of \$1.1 billion for 12 additional E/A-18G aircraft. This variant of the F/A-18 is intended to replace the Navy’s EA-6B in the electronic warfare role. The FY 2011 budget projected that 24 aircraft would be procured in FY 2012. The current plan is to procure the same number of aircraft but split the buy over FY 2012 and FY 2013. Spreading the procurement over two years helps offset the additional orders of the F/A-18E/F included in the FY 2012 request.

F/A-18E/F: Due to delays in the JSF program, the Department is requesting additional F/A-18E/Fs in the FY 2012 budget. The request includes \$2.5 billion for 28 aircraft, up from just 1 aircraft that was projected for FY 2012 in last year’s budget. In production

FIGURE 17. F/A-18E/F

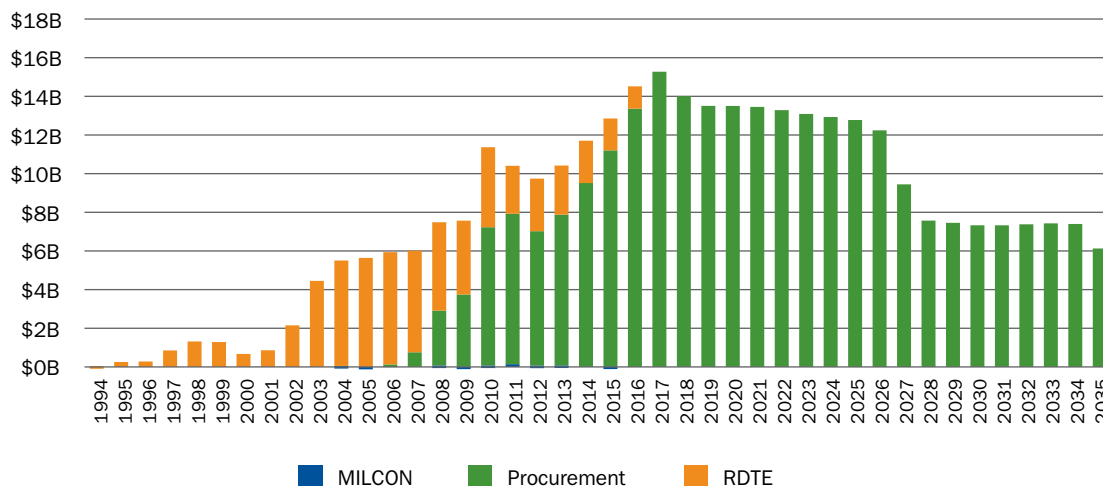


since FY 1997, the F/A-18E/F is a substantially changed derivative of the older A-D versions of the F/A-18, featuring, among other things, a longer fuselage and larger wings. The request projects procurements of 28 aircraft in FY 2013 and 11 in FY 2014, bringing the total F/A-18E/F buy from a previously projected 515 to 556.

F-35 JOINT STRIKE FIGHTER: The F-35 is a multi-role fighter, with separate variants being produced for the Air Force, Navy, and Marine Corps. It is intended to replace the A-10, F-16, AV-8B (Harrier), and F/A-18C/D. The proposed FY 2012 budget provides a total of \$9.7 billion for the F-35 program. It includes the procurement of a total of 13 aircraft for the Navy and Marine Corps and 19 aircraft for the Air Force. The F-35 is by far the largest acquisition program in the DoD portfolio, totaling \$333 billion. With 2,457 aircraft planned, the average cost per plane (including RDT&E, procurement, and MILCON) is \$135 million. In January 2011, Secretary Gates announced that the JSF program would again be restructured. The change resulted in 124 fewer aircraft being procured and a net budget reduction of \$6.9 billion over the FYDP. The Marine Corp’s variant, the F-35B or the STOVL (Short Take-Off and Vertical Landing) version, was placed on a two-year probation to allow for additional development and testing.⁷¹ The British Ministry of Defence recently scaled back its planned purchase of F-35s and indicated it plans to buy the Navy’s carrier-based version rather than the Marine Corps version.⁷² The FY 2012 FYDP includes a total of \$59 billion for the program, ramping

71 Robert Gates, “Statement on Department Budget and Efficiencies,” Speech delivered at the Pentagon, January 6, 2011, accessed at: <http://www.defense.gov/speeches/speech.aspx?speechid=1527>.
 72 Bob Cox, “Great Britain to delay, trim F-35 purchases,” *Fort Worth Star Telegram*, October 20, 2010.

FIGURE 18. F-35



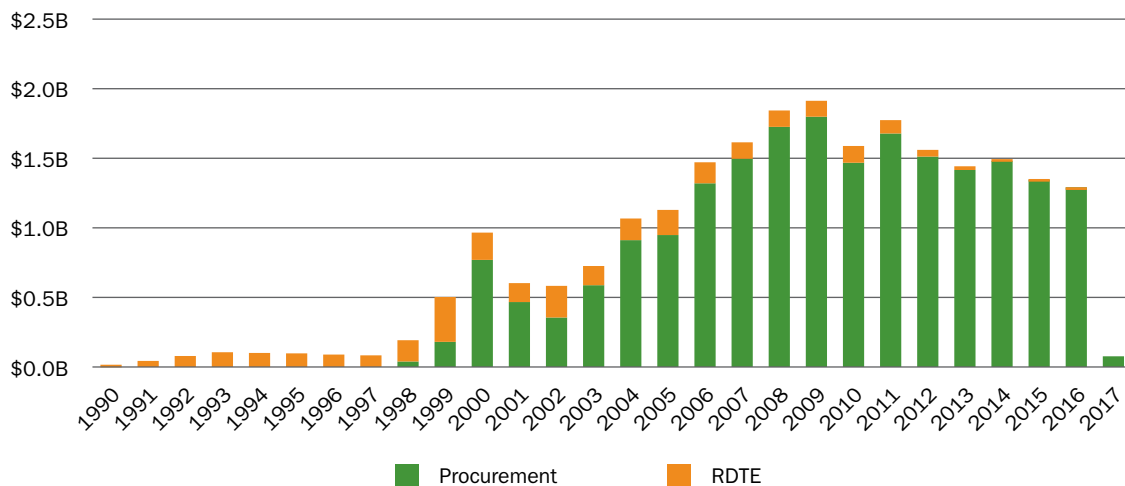
up to \$14.5 billion by FY 2016. Funding is projected to stay above \$12 billion annually through FY 2026 and terminate in FY 2035.

KC-46A AERIAL REFUELING TANKER: In February 2011 the Air Force announced that Boeing won the contract to build the KC-X tanker. A new tanker is needed to replace the Air Force’s existing fleet of over 500 KC-135 tankers, which first entered service in 1957. In March 2008, the Air Force selected a team led by Northrop Grumman and the European Aeronautic Defense and Space (EADS) Company to produce the KC-X Tanker. Boeing subsequently protested this decision, and the GAO ruled in its favor, forcing the Air Force to re-compete the contract. A request for proposals (RFP) was released in 2010. Northrop Grumman withdrew from the EADS team in March 2010, and subsequently EADS announced that it would enter the competition alone. The FY 2012 request includes \$877 million in RDT&E funding to begin development work. The total program cost is expected to be \$35 billion for 179 aircraft. The first 18 aircraft are expected by 2017.⁷³

MH-60R AND MH-60S: The FY 2012 budget request provides continued funding for the Navy’s MH-60R multi-mission helicopter and MH-60S fleet combat support helicopter programs. The MH-60R program, designed for anti-submarine warfare, search-and-rescue, anti-surface warfare, and transport, receives \$1.0 billion in funding for 24 aircraft, and the MH-60S program receives \$514 million for 18 aircraft. Both programs begin follow-on multi-year procurement contracts in FY 2012 that run through FY 2016. The programs are to end production by FY 2017.

73 DoD, “Air Force Announces KC-46A Tanker Contract Award,” *DoD News Release*, February 24, 2011.

FIGURE 19. MH-60 R/S



MQ-1 PREDATOR, MQ-9 REAPER, AND MQ-1C GREY EAGLE: The Predator, Reaper, and Grey Eagle Unmanned Aerial Systems (UAS) provide an over-the-horizon, long-endurance reconnaissance and strike capability. The FY 2012 request includes \$2.5 billion for an additional 48 Reapers and 36 Grey Eagles. DoD's goal is to field a sufficient number of Predator-class UAS's to support 50 Combat Air Patrols (CAPs), or orbits, by the end of FY 2011 and 65 CAPs by the end of FY 2013. More than \$9 billion is included over the FYDP for these aircraft, with funding projected to peak in FY 2013 at over \$2.7 billion.

NEXT-GENERATION BOMBER: The FY 2012 budget request includes \$197 million in funding to begin maturing technologies for the Air Force's Next-Generation Bomber (NGB). Secretary of Defense Gates recently announced that the new bomber, as planned, will be long range, penetrating, optionally-manned, and nuclear capable.⁷⁴ A total of \$3.7 billion is included for the NGB.

P-8A POSEIDON: The P-8A is a land-based maritime patrol and ISR aircraft derived from the Boeing 737 commercial airliner. It replaces the Navy's existing fleet of P-3s, which date to the 1960s. The FY 2012 budget request provides \$3.0 billion for 11 aircraft. The total program cost is projected to be \$34 billion for 122 aircraft through FY 2017.

RQ-7 SHADOW/RQ-11 RAVEN: The Raven is a small, backpack-portable UAV for use at the battalion level and below to enhance "over the hill" situational awareness. The Shadow is a larger, more capable UAV that provides force protection, reconnaissance, and target acquisition. The base budget requests for the Army and Marine Corps provide \$246 million for continued R&D and the procurement of 1,272 Raven aircraft. No Shadow aircraft are procured in the FY 2012 budget, although continued RDT&E funding for Shadow is included. The Army and Marine Corps' OCO budgets provide an additional \$95 million in related procurement funding.

RQ-4A/B AND MQ-4C GLOBAL HAWK: The Global Hawk UAV provides high-altitude, long-endurance, high-resolution ISR capabilities for the Air Force. In 2008, the Navy selected the Northrop Grumman-built RQ-4 platform for its Broad Area Maritime Surveillance (BAMS) aircraft program. The Global Hawk program ran into difficulties during testing in October 2010, causing OSD to conclude that the "Block 20 and Block 30 systems are unlikely to meet operational availability or reliability performance thresholds during IOT&E or for initial fielding in FY11."⁷⁵ The FY 2012 budget request includes \$1.6 billion in total funding for the procurement of three aircraft and support equipment for the Air Force and to continue system development and demonstration

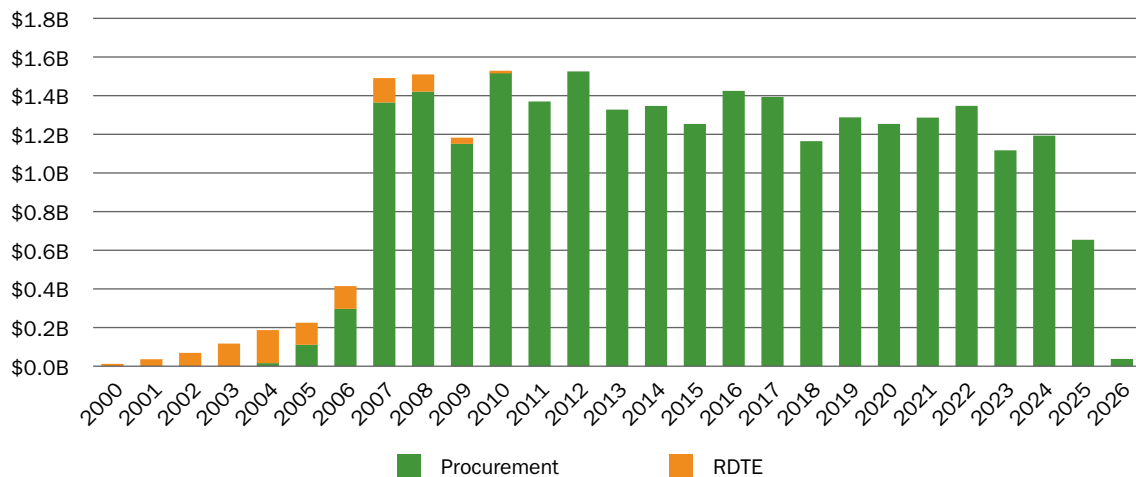
⁷⁴ Robert Gates, "Statement on Department Budget and Efficiencies."

⁷⁵ OSD Office of the Director of Operational Test and Evaluation, *FY 2010 Annual Report* (Arlington, VA: DoD, December 2010), p. 201.

for the Navy. The total program cost is projected to be \$14.3 billion for the Air Force's RQ-4A/B and \$13.3 billion for the Navy's MQ-4C BAMS.

UH-60M BLACK HAWK: The FY 2012 request includes \$1.6 billion for the procurement of 75 Blackhawk UH-60 utility helicopters and continued R&D. The request supports a follow-on multiyear procurement contract that runs through FY 2016. A total of \$6.9 billion in funding is projected over the FYDP, with plans to continue procurements through FY 2025.

FIGURE 20. UH-60M BLACK HAWK



UH-72A LIGHT UTILITY HELICOPTER (LUH): The budget request includes \$250 million for the procurement of 39 Light Utility Helicopters. The UH-72A replaces the UH-1 and OH-58 Kiowa Warrior and provides aerial transport for logistical and administrative support. It is a commercial-off-the-shelf aircraft based on the EADS North America Eurocopter EC145. The Army plans to eventually field a fleet of 345 aircraft by FY 2016 at a total program cost of \$2.0 billion.

V-22 OSPREY: The proposed FY 2012 budget provides a total of \$3.1 billion in funding for the V-22 tilt-rotor, vertical take-off and landing aircraft. The budget procures 30 Marine Corps (MV-22) versions of the aircraft, five CV-22s for USSOCOM, and one CV-22 for the Air Force to replace a combat loss. The V-22 program suffered from significant technical problems in the past, but is now being used extensively in Iraq and Afghanistan. The MV-22 is intended to replace the Marine Corps' CH-46 and CH-53 helicopters. DoD plans to buy a total of 458 aircraft at a projected cost of \$59 billion through FY 2019.

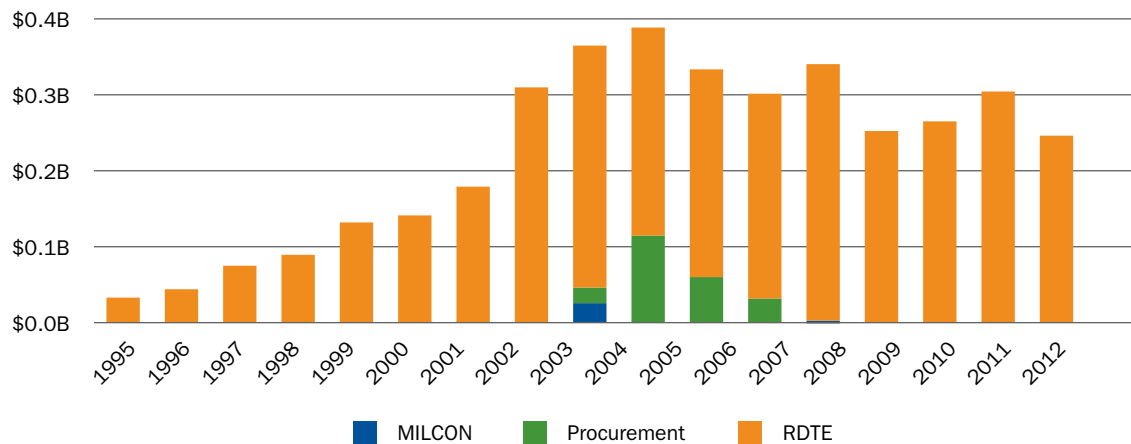
GROUND SYSTEMS

EARLY – INFANTRY BRIGADE COMBAT TEAM (E-IBCT) MODERNIZATION: The E-IBCT modernization is the follow-on program to the Army’s now terminated Future Combat System (FCS) program. FCS was the centerpiece of Army plans to equip the future force to be more deployable, lethal, and survivable than today’s forces. The FCS program experienced significant cost growth and schedule delays, with costs projected to exceed \$160 billion or more to equip just one-third of the active-duty Army. The E-IBCT Modernization program leverages FCS technologies to field incremental capabilities more quickly across the force structure. In 2009, the E-IBCT Modernization program ran into issues during testing that “revealed pervasive performance and reliability shortcomings.”⁷⁶ Subsequent testing in 2010 indicated improvements had been made, but the systems still did not perform as originally planned. The FY 2012 budget request provides \$749 million to procure 1 additional brigade set of network integration kits and two additional brigade sets of small unmanned ground vehicles. The other elements of the E-IBCT program, including the Class I UAV and Tactical and Urban Unattended Ground Sensors, are cancelled.

EXPEDITIONARY FIGHTING VEHICLE (EFV): The FY 2012 budget proposes terminating the Marine Corps’ EFV, a tracked, amphibious combat vehicle for ship-to-shore operations that was projected to cost an additional \$13 billion to complete. Designed to carry a crew of three, plus seventeen combat-loaded marines, it would have replaced

⁷⁶ Andrew Feickert, *The Army’s Ground Combat Vehicle (GCV) and Early Infantry Brigade Combat Team (E-IBCT) Programs: Background and Issues for Congress* (Washington, DC: CRS Report R41597, January 18, 2011), p. 12.

FIGURE 21. EFV



the currently fielded Amphibious Assault Vehicle (AAV). In cancelling this program, Secretary Gates called for a new, more affordable amphibious vehicle and the refurbishment of the current fleet of amphibious assault vehicles. The program, which had been funded since FY 1995, was restructured in 2007 following a Nunn-McCurdy breach. Due to manufacturing and reliability issues, the initial operational capability (IOC) date had slipped by five years and R&D costs had more than doubled.⁷⁷ While the FY 2012 request does not have funding for the EFV, it does include \$12 million in FY 2012 and \$472 million over the rest of the FYDP to begin initial work on a new amphibious assault vehicle.

FAMILY OF MEDIUM TACTICAL VEHICLES (FMTV): FMTV is a family of 2.5- to 5-ton vehicles that provide unit mobility and resupply of equipment and personnel. The Army developed an up-armored cab for the vehicles based on experiences in Iraq and Afghanistan. The FY 2012 budget provides \$437 million in the base budget for 2,390 vehicles and \$11 million in the OCO budget for 32 vehicles. A total of \$2.5 billion is included in the FYDP for FMTV, and procurements are projected to end in FY 2017.

JOINT LIGHT TACTICAL VEHICLE (JLTV): JLTV is a joint program between the Army and Marine Corps to develop a replacement for the High Mobility Multipurpose Wheeled Vehicle (HMMWV). The program is in technology development and an acquisition milestone B decision is not planned until the fourth quarter of FY 2011. The FY 2012 budget request includes \$244 million in RDT&E funding. The JLTV's future remains uncertain because of concerns over the vehicle's weight, cost, and redundancy with the MRAP-All Terrain Vehicle (ATV) the Services are already procuring. The unit cost is estimated to be \$320,000 compared to the \$200,000 up-armored HMMWVs they would replace.⁷⁸

M-1 ABRAMS TANK UPGRADE: The budget request provides \$191 million to upgrade 21 Abrams tanks to the M1A2 System Enhancement Package (SEP) configuration. Among other things, upgrades include improved frontal and side armor, a forward-looking infrared sensor, and digitized communications. The program plans to upgrade a total of 1,200 tanks through FY 2013. After that time, funding will cease and the production line will be idle.

MINE RESISTANT AMBUSH PROTECTED (MRAP) VEHICLE: The MRAP family of vehicles is designed to survive IED and ambush attacks. The MRAP program arose from an urgent operational need in Iraq and Afghanistan and was declared to be the Department's highest priority by Secretary Gates in 2007. MRAP vehicles use a "V"-shaped hull to deflect the explosive forces of roadside bombs away from the vehicle.

⁷⁷ GAO, *Defense Acquisitions: Assessments of Selected Weapon Programs* (Washington, DC: GAO, March 30, 2009), pp. 77–8.

⁷⁸ Andrew Feickert, *Joint Light Tactical Vehicle (JLTV): Background and Issues for Congress* (Washington, DC: CRS Report RS22942, March 10, 2011), p. 5.

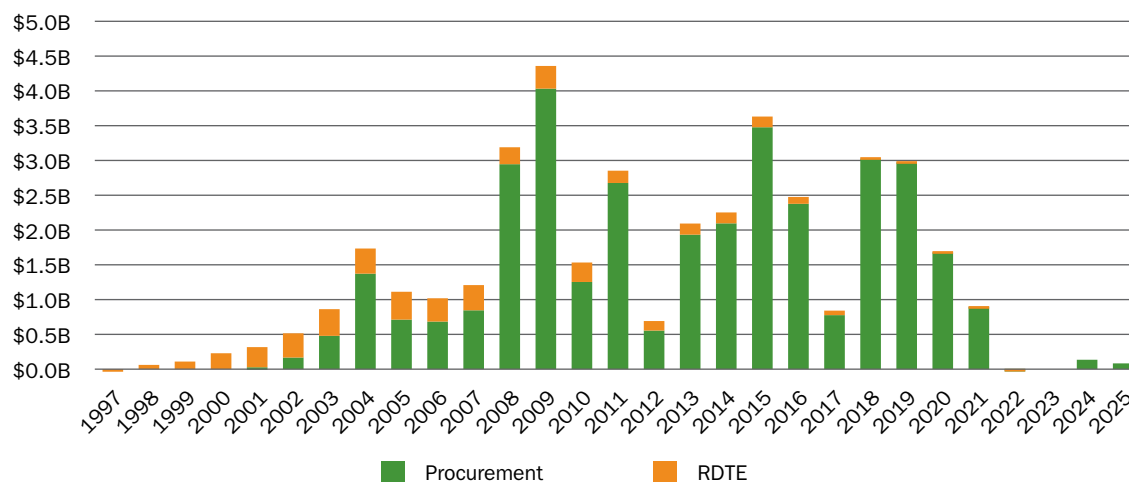
Four major categories of MRAPs of different sizes and for different missions have been procured. Contracts have been awarded to multiple vendors for each category of vehicle, and there is no common design across vendors. The most recent version of the MRAP is the MRAP-ATV, an all-terrain version of the vehicle better suited for conditions in Afghanistan. As of December 2010, the Department has 22,000 MRAP vehicles, of which more than 6,700 are MRAP-ATVs. The FY 2012 OCO budget requests \$3.2 billion for sustainment, upgrade, and overhaul of MRAP vehicles.

STRYKER FAMILY OF ARMORED VEHICLES: The Stryker program is a key element in the Army’s transformation plans. The Stryker is intended to provide a relatively light and easily deployable combat vehicle. It comes in two basic versions—the Infantry Carrier Vehicle (ICV) and the Mobile Gun System (MGS)—and eight different configurations. The FY 2012 request includes \$834 million for 100 new vehicles, continued R&D, and spare parts. Although the \$19 billion program is nearing completion with 4,157 vehicles procured through FY 2012, the Army recently announced plans to proceed with a “double-V hull” for the Stryker that would improve its survivability to roadside blasts. This modification could keep the production line active.

SHIPBUILDING

CVN-78 FORD-CLASS CARRIER REPLACEMENT: The administration’s FY 2012 budget calls for \$692 million in funding for the carrier replacement program, down from nearly \$3 billion in FY 2011. In 2009, the Department decided to stretch the procurement rate of the replacement carriers to one every five years instead of one every four years, which is sufficient to maintain a fleet of 11 carriers through 2040. However, this

FIGURE 22. CVN-78 CARRIER REPLACEMENT

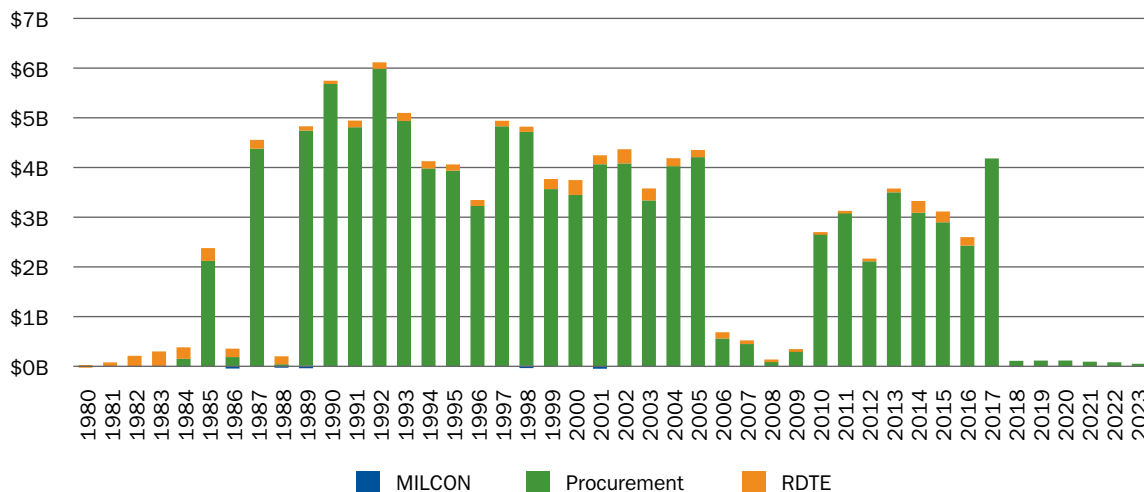


change will result in a temporary decrease to 10 carriers between the USS *Enterprise*'s retirement in 2013 and the USS *Ford*'s commissioning in 2015. Funding is projected to rebound to over \$2 billion in FY 2013, with a total of \$11 billion in funding planned over the FYDP. The total program cost, as reported in the December 2010 SAR, is \$40 billion for the first three Ford-Class carriers. An additional seven carriers are planned through 2040 but are not yet included in program cost estimates.

DDG 1000: The FY 2012 budget request includes \$454 million in procurement and \$262 million in RDT&E funding for the third and final DDG 1000 destroyer. These amounts are notably different than what the FY 2011 FYDP projected for FY 2012—RDT&E is cut by \$76 million and procurement is increased by \$315 million. Unlike the DDG-51 guided-missile destroyer, which is primarily focused on air defense missions, the DDG 1000—formerly the DD(X)—is a multi-mission combatant with a substantial land-attack capability. Previous plans called for buying up to ten DDG 1000s, but the Navy decided to end the program at three due to cost overruns and technological challenges.

DDG-51 AEGIS DESTROYER: The FY 2012 budget request includes \$2.1 billion in funding for the procurement of one additional DDG-51 Aegis destroyer. The ship is armed with a vertical launching system for missiles and a five-inch gun. The program was restarted as part of broader changes to missile defense programs that shifts the focus to theater missile defense systems, like Aegis, needed to meet near-term threats. The FYDP projects that the Navy will procure an additional seven ships from FY 2013 to FY 2016 at a cost of \$12.6 billion.

FIGURE 23. DDG-51

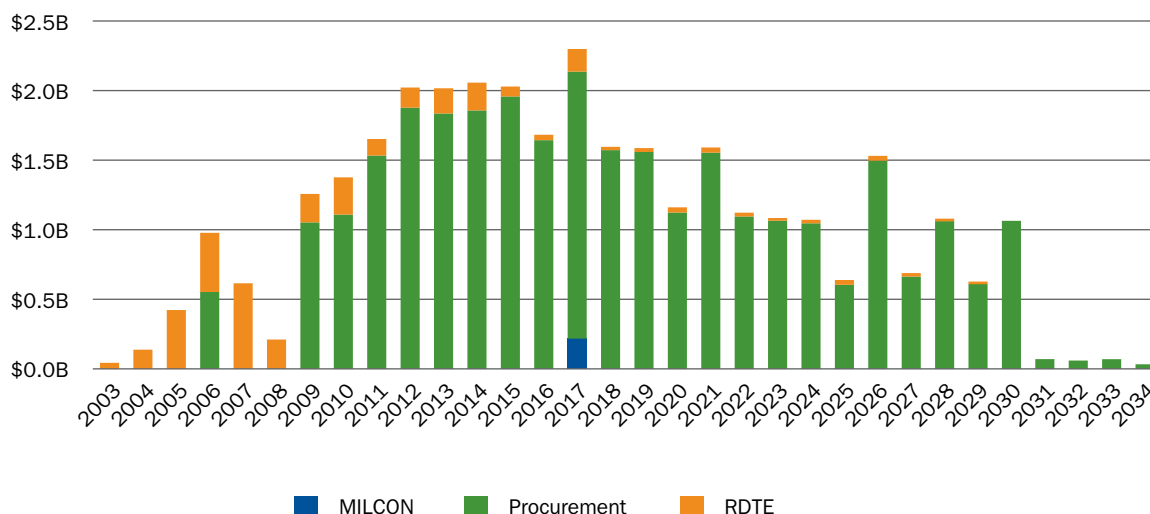


JOINT HIGH SPEED VESSEL (JHSV): The JHSV is a joint Army-Navy program to procure a high-speed, shallow-draft ship for intra-theater transport. Based on a commercial design, the JHSV is relatively low-cost. The FY 2012 budget requests two additional ships, one each for the Army and Navy, at \$204.5 million each. The first orders were placed in FY 2009, and delivery of the first JHSV is expected in FY 2013. An additional nine ships are planned through FY 2017 at a cost of \$2.0 billion.

LHA 6 AMERICA-CLASS: The America-Class Landing Helicopter Assault (LHA) ship is a small aircraft carrier intended to replace the existing Tarawa-Class LHAs. It will be capable of carrying Marine Corps MV-22s and F-35B STOVL aircraft, as well as some 1,600 marines. The FY 2012 request includes \$2.0 billion for the second installment of funding for the second ship. A third and final ship is planned for FY 2016 for a total program cost of \$11.2 billion.

LITTORAL COMBAT SHIP (LCS): The LCS is a new surface combatant intended to focus on the threats likely to be confronted in coastal waters, such as mines, diesel submarines, and “swarm attacks” by small boats. Each ship can be equipped with one of a number of mission modules focused on different types of threats. The LCS is roughly the size of a frigate (i.e., around 3,000 tons) and more affordable than the much larger (14,000-ton) DDG 1000. The Navy contracted with two industry teams, led by Lockheed Martin and Austal USA, to build four initial ships. Instead of down-selecting to one vendor as planned, the Navy decided to award 10 ships to each vendor. The proposed FY 2012 budget provides a total of \$2.2 billion for the procurement of four LCSs,

FIGURE 24. LCS



two mission modules, and continued R&D. The Navy plans to buy a total of 55 LCSs at a total cost of \$34 billion.

SSN-774 VIRGINIA-CLASS SUBMARINE: The administration's FY 2012 request includes \$5.0 billion in funding for two Virginia-class attack submarines and advance procurement for future ships. This class of submarines is being built jointly by General Dynamics-Electric Boat and Northrop Grumman's Newport News Shipbuilding (now part of Huntington Ingalls Industries) and will replace the existing fleet of Los Angeles-Class attack subs. The Navy had been buying Virginia-class submarines at a rate of one per year but increased the production rate to two boats per year in FY 2011 and beyond to achieve cost savings. A total of 16 subs are procured through FY 2012, and the program of record calls for an additional 14 through FY 2020.

SPACE SYSTEMS

ADVANCED EXTREMELY HIGH FREQUENCY (AEHF): The FY 2012 budget request includes \$975 million for the AEHF program, which will provide worldwide, survivable, jam-resistant communications at data rates up to 8.2 Mbps—five times the data rate provided by the Milstar satellites they are replacing. The first AEHF satellite was launched on August 14, 2010 but did not reach its intended orbit due to a failed thruster on the satellite. The Air Force was forced to use smaller thrusters intended for station keeping to raise the satellite's orbit, a process that will take an additional six to seven months.⁷⁹ The FY 2012 request supports on-orbit tests and operation of the first satellite and the second satellite's launch and on-orbit support. The AEHF budget also includes early procurement funding for the fifth and sixth satellites of the constellation using the Air Force's new Evolutionary Acquisition for Space Efficiency (EASE) approach for multi-year funding, block buy, and parallel funding for continued improvement programs. The program reported a critical Nunn-McCurdy breach in September 2008 when the unit cost increased by 35 percent. Since then, two additional satellites have been added to the program, bringing the total to six and the program cost to more than \$14 billion.

EVOLVED EXPENDABLE LAUNCH VEHICLE (EELV): The FY 2012 budget provides \$2.0 billion for the procurement of four launch vehicles for the Air Force and one for the Navy. The EELV program began in the early 1990s to develop a new launch vehicle for medium- to heavy-class satellites. DoD awarded contracts to two teams to develop the Atlas V and Delta IV families of launch vehicles, with the idea that having more than one launch vehicle would ensure on-going competition and reduce launch costs. However, this plan relied on a robust commercial space launch market to support two competing launch vehicles. When the commercial market did not materialize as planned, costs increased significantly above baseline estimates. In December 2006,

⁷⁹ Turner Brinton, "Raising of AEHF-1 Orbit Proceeding as Planned," *Space News*, October 5, 2010.

Boeing and Lockheed merged their respective business units to form the United Launch Alliance (ULA), which is now the sole provider of EELV launch services. ULA may have competition for DoD's space launch business in the coming years from SpaceX, a new company that successfully launched its first Falcon 9 rocket in December 2010. The Falcon 9 has a lift capability roughly equivalent to a Delta IV Medium rocket. SpaceX plans to launch its first Falcon Heavy rocket in 2012 with a lift capability more than double the Delta IV Heavy rocket and second only to the venerable Saturn V rocket, which has long been out of production. Both the Falcon 9 and Falcon Heavy have an advertised price that is less than half their EELV counterparts'.⁸⁰

GLOBAL POSITIONING SYSTEM (GPS) IIIA: The FY 2012 request provides a total of \$1.5 billion for the GPS IIIA program, including the space and ground control segments. The GPS program has experienced difficulties with delays and cost overruns in the Block IIF satellites. The next-generation Block IIIA satellites need to launch on time in order to avoid a risk of degradation or gaps in GPS service.⁸¹

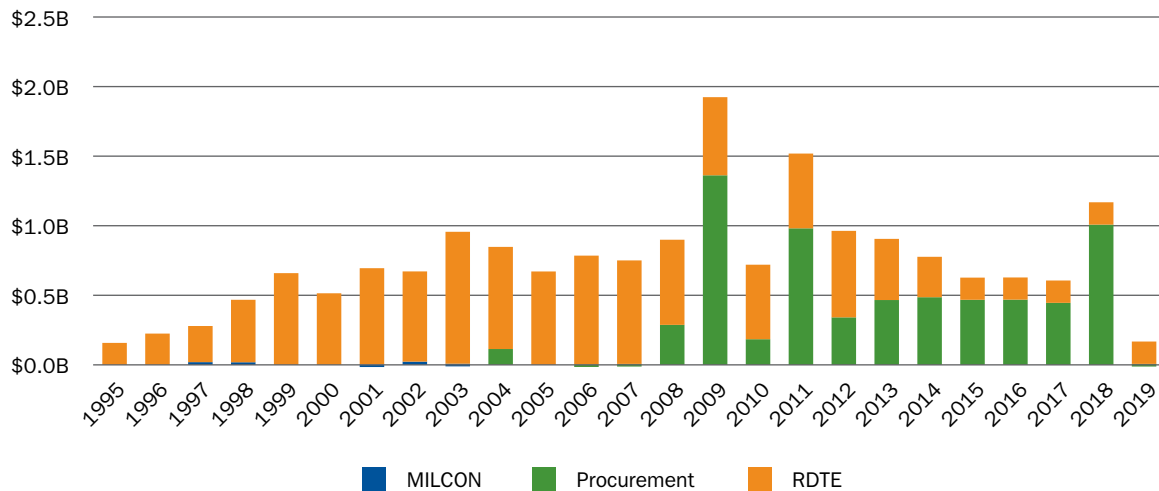
MOBILE USER OBJECTIVE SYSTEM (MUOS): MUOS is a replacement for the Navy's existing UHF Follow-On (UFO) constellation of narrowband communications satellites. It will provide higher data rates, improved voice quality, and a greater number of connections for mobile users. The first satellite is expected to launch in early FY 2012. Once in orbit, the new capabilities of the system may remain largely unused for several years because the radios needed to access these improved capabilities are being developed as part of the JTRS program, which is many years behind schedule. The FY 2012 budget request includes \$244 million for continued RDT&E. The launch vehicle for satellite 4 of the constellation is included under the EELV program.

DEFENSE WEATHER SATELLITE SYSTEM (DWSS): DWSS is a constellation of weather satellites intended to replace the Defense Meteorological Space Program (DMSP) satellites currently in orbit. It was originally conceived as an inter-agency program, known as NPOESS, with the National Oceanic and Atmospheric Agency (NOAA) and NASA. However, disagreements between DoD, NOAA, and NASA over requirements and cost overruns led to the administration ending the inter-agency program in 2010. The government will instead pursue two separate lines of polar-orbiting weather satellites. The FY 2012 budget request for DoD includes \$445 million for the redesign of the satellite according to DoD specifications. The DWSS is expected to be ready for launch no earlier than 2018.

⁸⁰ SpaceX Corporate Web Site, accessed at: http://www.spacex.com/falcon_heavy.php.

⁸¹ GAO, *Global Positioning System: Significant Challenges in Sustaining and Upgrading Widely Used Capabilities* (Washington DC: GAO, April 2009).

FIGURE 25. SBIRS HIGH



SPACE-BASED INFRARED SYSTEM (SBIRS): The FY 2012 budget request includes \$995 million for the SBIRS program. The program is a replacement for the existing Defense Support Program satellite constellation and will provide improved warning of ballistic missile launches and support national missile defense and intelligence collection efforts. The program consists of satellites intended for geosynchronous orbit (SBIRS-GEO) and additional sensor payloads to be hosted on other satellites in highly elliptical orbit (SBIRS-HEO). Two SBIRS-HEO sensor payloads have already been launched as hosted payloads on classified satellites. The first SBIRS-GEO satellite was successfully launched in May 2011. The FY 2012 budget funds the preparation for the launch of the second GEO satellite, fabrication of the third and fourth GEO satellites and the third and fourth HEO satellites, and advance procurement of the fifth and sixth GEO satellites. The program plans to launch a total of four HEO payloads and six GEO satellites at a cost of \$19 billion through FY 2019.

WIDEBAND GLOBAL SATCOM (WGS): The WGS system provides high-data-rate communications for fixed and mobile users and replaces the Defense Satellite Communications System (DSCS) constellation. Three satellites of the WGS constellation are already in orbit. The first is located over the Pacific and covers an area stretching from the west coast of the United States to Southeast Asia. The second satellite is in CENTCOM's area of operations and provides coverage to Iraq, Afghanistan, and other parts of Southwest Asia. The third satellite covers the eastern Atlantic region. The FY 2012 budget provides a total of \$469 million in procurement for the eighth and final satellite and \$13 million for continued RDT&E. The sixth satellite was funded by Australia under an agreement to share with it the use of other satellites in the constellation. The total projected cost of the program is \$3.8 billion.

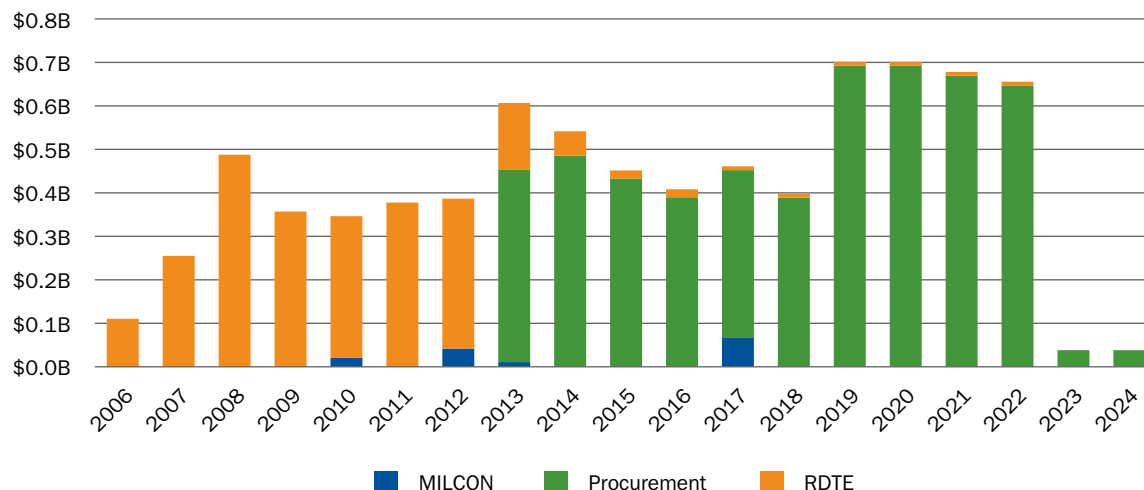
MISSILE DEFENSE

AEGIS BALLISTIC MISSILE DEFENSE (BMD): Aegis BMD builds upon the existing Aegis Weapons System to provide a forward-deployable capability to detect, track, and destroy short-, medium-, intermediate-, and some long-range ballistic missiles. The administration includes \$1.5 billion in funding for Aegis BMD. This funding procures Aegis upgrades for five additional Aegis ships and 46 SM-3 block IB interceptors. The FYDP projects a ramp up of production in SM-3 Block IB interceptors to 62 in FY 2013, 73 in FY 2014, and 82 in FY 2015. MDA’s plan is to split production in FY 2016 between 68 SM-3 Block IB and 15 SM-3 Block IIA missiles. A total of more than \$10 billion in funding is projected over the FYDP.

GROUND-BASED MIDCOURSE DEFENSE (GMD): The GMD system provides a ground-based national missile defense system against long-range ballistic missiles. The FY 2012 budget request includes \$1.2 billion in RDT&E funding for GMD. It includes funding to deploy and sustain 30 interceptor missiles in Alaska and California. The program was scaled down in 2009 from its original plan of 44 missiles in the United States and 10 missiles in Poland. The program also suffered a setback in December 2010 with the failure of an intercept test, the second consecutive test failure for the program. The FYDP projects a total of \$4.9 billion in funding will be required for this program from FY 2012 to FY 2016.

JOINT LAND-ATTACK CRUISE MISSILE DEFENSE ELEVATED NETTED SENSOR SYSTEM (JLENS): JLENS is a tethered aerostat (i.e. a lighter-than-air vehicle, such as a blimp or balloon) that can stay aloft for up to a month, providing continuous over-the-horizon

FIGURE 26. JLENS



surveillance in 360 degrees. It is capable of detecting and tracking cruise missiles, UAVs, tactical ballistic missiles, large caliber rockets, and surface moving targets. In September 2010 one of the aerostats was lost in a collision with a commercial aerostat, delaying the program test schedule,⁸² and in December 2010 the program reported a Nunn-McCurdy breach to Congress due to “engineering challenges.”⁸³ The FY 2012 budget request provides \$345 million in funding for continued development and testing. The total program is projected to cost \$8 billion for 16 systems.

PATRIOT/MEDIUM EXTENDED AIR DEFENSE SYSTEM (MEADS): Patriot/MEADS is intended to replace the Patriot (U.S.), Hawk (Germany), and Nike Hercules (Italy) air and missile defense systems. Developed under a memorandum of understanding between the United States, Germany, and Italy, the program recently completed critical design review in August 2010. In February 2011, however, the Pentagon announced that the program had become unaffordable and the United States would end its participation in the MEADS program after the development phase already agreed to with the partner nations reaches its conclusion in 2014.⁸⁴ Germany also announced it does not plan to procure the MEADS system once development is completed.⁸⁵ The FY 2012 request includes \$407 million in RDT&E funding to continue development, and an additional \$397 million is planned for FY 2013.

THEATER HIGH ALTITUDE AREA DEFENSE (THAAD): The FY 2012 request includes a total of \$1.2 billion for the THAAD program, of which \$833 million is for procurement, \$291 million is for RDT&E, and \$51 million is for operations and maintenance. Production of interceptor missiles is increasing from three per month in FY 2010 to four per month in FY 2011 and six per month in the FY 2012 request. The FY 2012 budget supports completion of fielding the first two THAAD batteries, continued procurement of batteries 3 and 4, and initiation of procurement for battery 5. The request projects a total of \$6 billion in funding for the THAAD program over the FYDP.

COMMUNICATIONS AND ELECTRONICS

FAMILY OF ADVANCED BEYOND-LINE-OF-SIGHT TERMINALS (FAB-T): The FAB-T program will produce airborne terminals for the B-2, B-52, and RC-135 and replacement command post terminals on the ground and in the E-4 and E-6 aircraft. These terminals are needed to enable strategic communications over the new AEHF and Enhanced Polar satellite constellations as the existing Milstar constellation reaches the end of

⁸² GAO, *Defense Acquisitions: Assessments of Selected Weapons Programs* (Washington, DC: GAO, March 2011), p. 87.

⁸³ DoD, *Selected Acquisitions Report (SAR) Summary Tables* (Arlington, VA: DoD, December 31, 2010), p. 4.

⁸⁴ OSD, *Medium Extended Air Defense System (MEADS) Fact Sheet* (Arlington, VA: DoD, February 11, 2011).

⁸⁵ Tom Kington and Albrecht Müller, “2 of 3 MEADS Partners Cancel Production,” *Defense News*, February 21, 2011.

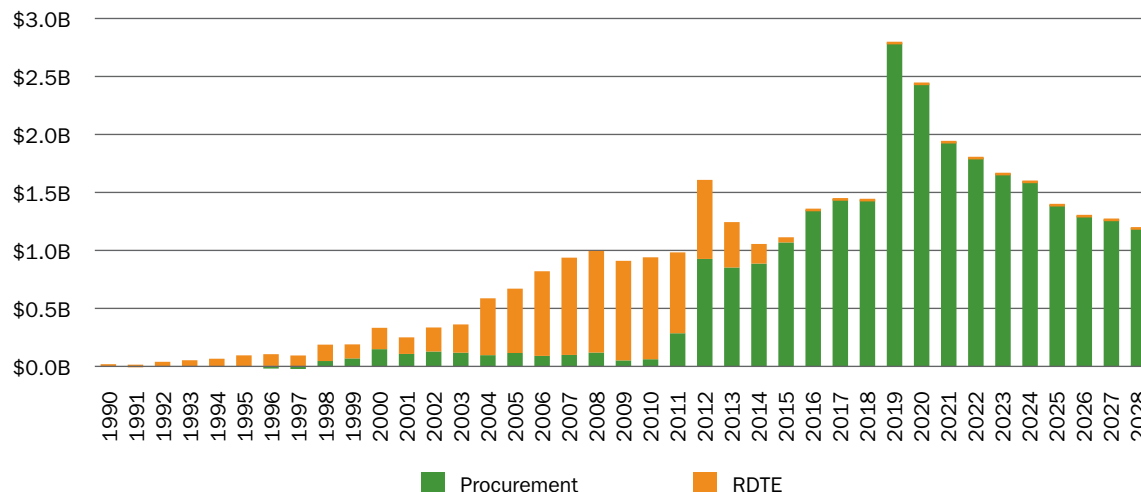
its useful life. The FAB-T program has had numerous technical issues, cost overruns, and schedule slips since it began in FY 2001. The program will not field terminals in sufficient time to support the first AEHF satellites, forcing the Air Force to fund an interim terminal to provide command and control for the constellation. A December 2010 report by the OSD Director of Operational Test and Evaluation concluded that “the FAB-T, Increment 1 AWT is not on track to meet mission requirements and not on track to become operationally effective and operationally suitable.”⁸⁶ In April 2011, the Air Force issued a pre-solicitation notice that it would be considering alternative sources for FAB-T, raising the possibility of a change in prime contractors and a complete restructuring of the program.⁸⁷ The FY 2012 budget provides \$349 million in funding to continue development efforts. The program is projected to cost a total of \$4.7 billion through FY 2019.

JOINT TACTICAL RADIO SYSTEM (JTRS): The JTRS program is intended to provide a family of software-programmable, interoperable radios for use across the DoD. Over the past decade, the program encountered numerous technical and management challenges. It planned to begin low-rate initial production in 2005, but due to delays and a program restructuring in 2006, production of JTRS radios has only recently begun. While JTRS radios are more capable in terms of interoperability, data rates, and other factors, they cost substantially more than legacy radios. For example, the Ground Mobile Radio (JTRS GMR) is projected to cost nearly ten times as much as comparable

86 OSD Office of the Director of Operational Test and Evaluation, *FY 2010 Annual Report* (Arlington, VA: DoD, December 2010), pp. 199–200.

87 Air Force Materiel Command, *FAB-T Alternate Source* (Solicitation Number: R2795, April 21, 2011).

FIGURE 27. JTRS



legacy radios.⁸⁸ If the Department maintains its current plan to procure some 341,000 JTRS radios, the total cost of the program is projected to reach \$36 billion through FY 2028. In a May 2011 letter to Congress, Army Secretary John McHugh indicated that the Army was planning to cut its procurement of JTRS GMR radios by nearly 76,000 units due to problems with the program and will instead increase its buy of Handheld, Manpack, Small Form Fit (JTRS HMS) units by 36,000 to partially offset the cut.⁸⁹ The FY 2012 budget request includes \$1.6 billion to fund continued development and low-rate initial production (LRIP) of JTRS hardware and software.

NAVY MULTIBAND TERMINAL (NMT): NMT is the Navy's next-generation maritime satellite communications terminal. It will provide Navy ships, subs, and shore sites the ability to communicate using the Air Force's new AEHF satellite constellation, as well as the WGS, Milstar, and DSCS constellations. The total program cost is projected to be \$1.9 billion for 304 terminals. The FY 2012 budget request provides \$128 million for continued development and production.

WARFIGHTER INFORMATION NETWORK-TACTICAL (WIN-T): The FY 2012 budget request includes \$1.3 billion in funding for the Army's WIN-T program. WIN-T is a communications and network suite that provides warfighters with satellite and terrestrial communication links. The WIN-T program is divided into three increments, with each increment providing progressively greater capabilities. The first increment includes an upgrade to the Army's Joint Network Node (JNN) that allows the system to use the Air Force's WGS satellite constellation. Increment 2 adds a limited ability to communicate while on the move, and Increment 3 provides a full communications-on-the-move capability and links to an airborne layer. A notional Increment 4 is intended to provide a jam-resistant satellite communications capability but is not yet included in program cost estimates. The total cost of Increments 1, 2, and 3 is projected to be \$25 billion.

NEXT-GENERATION JAMMER: In his January 2011 speech announcing the results of the efficiency initiative, Secretary Gates announced that some of the projected savings would be reinvested in high-priority programs. One of the programs specifically cited was the Navy's Next-Generation Jammer. This program is intended to replace the ALQ-99 jammer used aboard the EA-6B Prowler and EA-18G Growler electronic attack aircraft. The FY 2012 budget request provides \$190 million for early development activities, including an analysis of alternatives and Milestone A review. A total of \$1.6 billion in RDT&E funding is projected for the program over the FYDP.

88 GAO, *Defense Acquisitions: Department of Defense Needs Framework for Balancing Investments in Tactical Radios* (Washington DC, August 2008), p. 20.

89 "Army Plans To Increase Joint Tactical Radio System HMS Order To Fill Gap," *Inside Defense*, May 20, 2011.

MISSILES AND MUNITIONS

ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM): The AMRAAM is a radar-guided air-to-air missile in production since the 1980s. The missile has undergone several improvements over the years, and the most recent variant, the AIM-120D, includes a two-way data link, GPS-enhanced guidance system, and a 50 percent increase in range. The FY 2012 request of \$580 million supports full-rate production of 379 missiles for the Air Force and Navy. A total of \$3.5 billion is budgeted for the program over the FYDP, and production is projected to continue through FY 2024.

JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM): JASSM is a long-range precision-guided cruise missile with a 1,000-pound penetrating warhead jointly developed by the Air Force and Navy, although only the Air Force is currently procuring the missile. It has been successfully integrated with the B-1, B-2, B-52, and F-16 aircraft and there are future plans to expand the JASSM's use to the F-15E, F/A-18, and F-35 fighters, although the missile is too long to fit in the internal weapons bay of the F-35 and would need to be carried externally, negating the stealth capabilities of the aircraft. The JASSM-ER is an extended-range version of the missile capable of striking targets at a distance of 500 nm, compared to 200 nm for the standard version. The program halted missile production in FY 2010 due to technical issues. Production resumed in FY 2011, and the FY 2012 budget request includes \$242 million to procure 142 missiles at full-rate production. The total program cost is projected to be \$7.7 billion to acquire 5,018 missiles through FY 2028.

STANDARD MISSILE 6 (SM-6): The SM-6 is a follow-on to the SM-2 designed to provide area and ship self-defense using the same airframe and similar internal components. Relative to the SM-2, the SM-6 will have an extended range and effectiveness against fixed and rotary wing aircraft, UAVs, and cruise missiles. The FY 2012 budget provides a total of \$467 million for the program to procure an additional 89 missiles. The program is expected to cost \$6.4 billion to procure 1,200 missiles through FY 2019.

TACTICAL TOMAHAWK CRUISE MISSILE: The Tactical Tomahawk, or Tomahawk Block IV, is an evolved version of the Tomahawk missile with loitering and retargeting capabilities. It can carry a 1,000-pound warhead and has a range of 900 nautical miles. The FY 2012 request includes \$312 million to procure 196 Tomahawk cruise missiles, considered by the Navy to be the minimum sustaining level of production. For comparison, over 200 Tomahawks were expended in the opening days of the conflict in Libya—more than a year's worth of production at current rates. The current plan is to continue production at roughly the same rate through FY 2020, bringing the total program cost to \$7.1 billion for 4,740 missiles.

TRIDENT II BALLISTIC MISSILE: The Navy's Trident II, also known as the Trident D5, is a submarine-launched nuclear ballistic missile. First deployed in 1990, Trident II provides greater accuracy and payload capacity than the Trident I. The D5 Life Extension Program is intended to extend the service life of these missiles to FY 2040. The FY 2012 budget request provides \$1.4 billion to procure missile motors and other critical components for the life extension program.

V. FUNDING FOR CLASSIFIED OR “BLACK” PROGRAMS

Funding for classified programs and activities totals some \$59.3 billion in the FY 2012 request. Classified or “black” programs account for about 18 percent of the acquisition funding and 7.7 percent of the O&M funding included in the FY 2012 base defense budget request. Classified programs and activities in the base budget total \$17.2 billion in procurement, \$19.7 billion in RDT&E, and \$15.8 billion in O&M funding. The OCO budget request includes an additional \$3.2 billion in procurement, \$0.2 billion in RDT&E, and \$3.1 billion in O&M classified funding.

Trends in classified funding tend to mirror trends in the overall defense budget. As overall defense funding grew rapidly over the past decade, classified funding grew rapidly as well. Classified funding remains nearly flat in real terms in the FY 2012 request, but like the overall defense budget remains near its peak. One noticeable difference is the ratio of procurement to RDT&E funding in the classified budget. Classified funding is more heavily weighted in research and development activities, which brings the procurement to RDT&E ratio down to 0.87 to 1 in the FY 2012 base classified budget. Classified OCO funding, however, is heavily weighted toward procurement, with a ratio of 13 to 1 in the FY 2012 OCO classified request.

Classified funding contained in the DoD budget includes funding for the Military Intelligence Program (MIP) as well as the defense elements of the National Intelligence Program (NIP). MIP refers to the military’s intelligence programs and activities intended for tactical military operations, while NIP includes intelligence programs and activities across the broader intelligence community.⁹⁰ The two categories of classified funding are mutually exclusive. In October 2010, the Director of National Intelligence disclosed, as required by law, that the total amount appropriated to NIP for FY 2010 stands at \$53.1 billion.⁹¹ This compares to \$49.8 billion in FY 2009⁹² and \$47.5 billion in FY 2008.⁹³ DoD reported a total of \$27 billion in MIP funding in FY 2010⁹⁴, which brings the total amount of classified funding in the NIP and MIP to \$80 billion. Because the

90 DoD, *DoD Financial Management Regulation Volume 2B, Chapter 16* (Arlington, VA: DoD, July 2008).

91 ODNI News Release, “DNI Releases Budget Figure For 2010 National Intelligence Program,” News Release, October 28, 2010.

92 ODNI News Release, “DNI Releases Budget Figure For 2009 National Intelligence Program,” News Release, October 30, 2009.

93 ODNI News Release, “DNI Releases Budget Figure For 2008 National Intelligence Program,” News Release, October 28, 2008.

94 OASD Public Affairs, “DOD Releases Military Intelligence Program 2010 Topline Budget,” News Release, October 28, 2010.

NIP is broader than just DoD and includes funding from other sources this sum exceeds the \$58.7 billion in classified funding previously identified in DoD's FY 2010 budget.

The record for classified acquisition programs has been mixed. A notable success was the Corona program for reconnaissance satellites, which produced valuable imagery intelligence from 1960 to 1972. Several successful and effective aircraft have also been developed and even produced as black programs, including the F-117 stealth fighter, the B-2 stealth bomber, and the SR-71 reconnaissance plane. On the other hand, some classified programs have had troubled histories. A recent example is the Future Imagery Architecture program to develop the next generation of spy satellites for the National Reconnaissance Office. The electro-optical satellite component of the program was cancelled in 2005 due to significant cost overruns and technical issues, resulting in what was reported as a \$4 billion loss for the government.

Restrictions placed on access to classified programs have meant that DoD and Congress typically exercise less oversight over classified programs than unclassified ones. This lower level of scrutiny, coupled with the compartmentalization of information generally associated with classified efforts, has led some members of Congress to argue that the Pentagon's classification policies should be reformed. However, classified programs can, at times, field systems more quickly, and the potential existence of such programs increases uncertainty in the minds of potential adversaries. Such uncertainty complicates their planning and, potentially, compels them to divert resources to hedge against unanticipated U.S. military capabilities.⁹⁵

As in the past, the Air Force's FY 2012 budget request contains the largest share of DoD's classified acquisition funding—nearly 79 percent of the total. Classified programs in the base and OCO budget account for 51 percent, or \$19.7 billion, of the Air Force's procurement request and 44 percent, or \$12.1 billion, of its RDT&E request. The concentration of classified funding in the Air Force's budget is the result of two factors. First, the Air Force acquisition budget is believed to contribute funds to a number of intelligence agencies, including the Central Intelligence Agency (CIA), National Security Agency (NSA), and National Reconnaissance Office (NRO).⁹⁶ Second, the Air Force is responsible for most command, control, communications, and intelligence (C3I) functions and related assets such as reconnaissance satellites and satellite launch and control facilities, which tend to be heavily classified programs. For this reason, the common observation that the Services receive roughly equal shares of the base budget may be overstated—some of the Air Force's budget, perhaps billions, does not actually go to the Air Force.

Estimates of DoD's classified acquisition budget request are calculated from publicly available information in DoD's Procurement Programs (P-1), Research, Development, Test and Evaluation (R-1), and Operation and Maintenance (O-1) books. It includes both

⁹⁵ Andrew F. Krepinevich, *Defense Investment Strategies in an Uncertain World* (Washington, DC: CSBA, August 2008), pp. 56–7.

⁹⁶ Stephen I Schwartz, et al., *Atomic Audit* (Washington DC: Brookings Institution Press, 1998), pp. 253–55.

named classified programs, i.e., programs or funding lines that are listed by name and are described as classified, as well as unnamed classified funding that is either labeled only as classified or is omitted from the budget justification documents but included in the total funding. A more detailed explanation and a list of specific programs and activities that were included in the classified funding totals can be found in the appendix.

VI. CONCLUSION

The defense budget is at an inflection point. For the first time in more than a decade, both the base budget and war budget are declining. If history is any indicator, the decline will be long and gradual—spanning a decade or longer—and will reshape the military into a smaller force. But a smaller, less costly force does not necessarily equate to a less effective or less capable military. It depends to a great extent on how budget cuts are targeted and how U.S. defense strategy adapts.

Nearly half of the growth in defense spending from FY 2001 to FY 2011 was in the base defense budget. But in many respects this was a period of hollow growth: personnel costs grew while end strength remained relatively flat, the cost of peacetime operations grew while the pace of peacetime operations declined, and acquisition costs increased while the inventory of equipment grew smaller and older. In short, the Department is now spending more but not getting more.

But getting more efficient is not easily done—there is no line item in the budget for waste and previous efforts at achieving savings from efficiencies have come up short. Rather, the key levers of control available for defense planners are force structure, end strength, compensation and benefits, readiness and training, and weapon systems. Reductions in any of these areas come at the price of reduced capabilities and will require strategic choices about how the military will compete in the future. An additional complication for DoD is that the Department is currently on a budget trajectory where compensation and benefits are growing faster than the overall budget and the lagging pace of acquisitions over the past two decades has created a backlog of recapitalization needs for major weapons systems. Altering the trajectory of the budget to simply curb the projected growth in these areas will itself be a challenge.

While the prospect of a flat or declining defense budget may seem like a daunting challenge, it should also be viewed as an opportunity. It can provide both the fiscal and political imperative to jettison programs and activities that are no longer needed—so called “wasting assets”⁹⁷—and focus resources more efficiently on confronting the most likely future threats. The roles and missions review currently underway provides an opportunity to begin a dialogue about defense strategy in a constrained budget environment. This period of constrained budgets can, if properly managed, result in a truly transformed military that fundamentally looks and operates differently—and more effectively—than today’s force.

⁹⁷ See Andrew F. Krepinevich, “The Pentagon’s Wasting Assets,” *Foreign Affairs*, July/August 2009. Accessed at <http://www.foreignaffairs.com/articles/65150/andrew-f-krepinevich-jr/the-pentagons-wasting-assets>.

VII. ACRONYM LIST

AAV	Amphibious Assault Vehicle
AEHF	Advanced Extremely High Frequency
ALCM	Air Launched Cruise Missile
AOA	Analysis of Alternatives
AMP	Avionics Modernization Program
BAMS	Broad Area Maritime Surveillance
BCT	Brigade Combat Team
BMD	Ballistic Missile Defense
BRAC	Base Realignment and Closure
C3I	Command, Control, Communications, and Intelligence
CAP	Combat Air Patrol
CENTCOM	Central Command
DAGR	Defense Advanced GPS Receivers
DODEA	Department of Defense Education Activity
DMSP	Defense Meteorological Space Program
DSCS	Defense Satellite Communications System
EADS	European Aeronautic Defense and Space
ECI	Employment Cost Index
EELV	Evolved Expendable Launch Vehicle
EHF	Extremely High Frequency
EFV	Expeditionary Fighting Vehicle
FAB-T	Family of Advanced Beyond Line-of Sight Terminals
FCS	Future Combat System
FMTV	Family of Medium Tactical Vehicles
FY	Fiscal Year
FYDP	Future Years Defense Program
GAO	Government Accountability Office
GDP	Gross Domestic Product
GEO	Geostationary Orbit
GMD	Ground Based Midcourse Defense
GMR	Ground Mobile Radio

GPS	Global Positioning System
GS	General Schedule
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HMO	Health Maintenance Organization
IBCT	Infantry Brigade Combat Team
IED	Improvised Explosive Device
IOC	Initial Operational Capability
ISR	Intelligence, Surveillance, and Reconnaissance
JASSM	Joint Air-to-Surface Standoff Missile
JCA	Joint Cargo Aircraft
JLENS	Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System
JNN	Joint Network Node
JTRS	Joint Tactical Radio System
JLTV	Joint Light Tactical Vehicle
JHSV	Joint High Speed Vessel
JSF	Joint Strike Fighter
LCC-R	Landing Command and Control Ship Replacement
LCMR	Light Weight Counter-Mortar Radar
LCS	Littoral Combat Ship
LRIP	Low-Rate Initial Production
LUH	Light Utility Helicopter
MEADS	Medium Extended Air Defense System
MILCON	Military Construction
MIP	Military Intelligence Program
MRAP	Mine Resistant Ambush Protected
MUOS	Mobile User Objective System
MYP	Multiyear Procurement
NECC	Net Enabled Command Capability
NGB	Next-Generation Bomber
NGNN	Northrop Grumman's Newport News Shipbuilding
NIP	National Intelligence Program
NMT	Navy Multiband Terminal
NOAA	National Oceanic and Atmospheric Agency
NPOESS	National Polar-orbiting Operational Environmental Satellite System
NRO	National Reconnaissance Office

NSA	National Security Agency
NSPS	National Security Personnel System
O&M	Operations and Maintenance
O&S	Operations and Support
OCO	Overseas Contingency Operations
OMB	Office of Management and Budget
OPTEMPO	Operational Tempo
PUAC	Program Unit Acquisition Cost
PCS	Permanent Change of Station
PNVS	Pilot Night Vision Sensors
QDR	Quadrennial Defense Review
RDT&E	Research, Development, Test, and Evaluation
RERP	Reliability Enhancement and Re-engining Program
SAR	Selected Acquisitions Report
SATCOM	Satellite Communications
SBIRS	Space-Based Infrared System
SEP	System Enhancement Package
SOF	Special Operations Forces
TACLAN	Tactical Local Area Network
TADS	Target Acquisition Designation Sight
THAAD	Theater High Altitude Area Defense
TSAT	Transformational Satellite Communications System
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicle
UFO	UHF-Follow On
UHF	Ultra High Frequency
USMC	United States Marine Corps
WGS	Wideband Global SATCOM
WIN-T	Warfighter Information Network-Tactical

VIII. APPENDIX

Table 4. National Defense Budget Authority

Table 5. National Defense Outlays

Table 6. Department of Defense Budget Authority by Title

Table 7. Federal Spending and Gross Domestic Product

Table 8. Classified Acquisition Funding Summary

TABLE 4. NATIONAL DEFENSE (050) BUDGET AUTHORITY, FY 1946–FY 2016
(in billions of dollars)

	Current Dollars	FY 2012 Dollars*	% real change		Current Dollars	FY 2012 Dollars*	% real change
FY 1946	44.0	425.5		FY 1982	216.5	448.1	12.6%
FY 1947	9.0	78.5	(81.5%)	FY 1983	245.0	485.7	8.4%
FY 1948	9.5	76.0	(3.2%)	FY 1984	265.2	506.8	4.4%
FY 1949	10.9	84.7	11.5%	FY 1985	294.7	545.5	7.6%
FY 1950	16.5	129.6	53.0%	FY 1986	289.1	523.2	(4.1%)
FY 1951	57.8	431.4	232.8%	FY 1987	287.4	506.6	(3.2%)
FY 1952	67.5	484.5	12.3%	FY 1988	292.0	498.7	(1.6%)
FY 1953	56.9	400.9	(17.3%)	FY 1989	299.6	492.5	(1.2%)
FY 1954	38.7	269.5	(32.8%)	FY 1990	303.3	480.8	(2.4%)
FY 1955	32.9	227.2	(15.7%)	FY 1991	288.9	441.3	(8.2%)
FY 1956	35.0	235.6	3.7%	FY 1992	295.1	439.3	(0.5%)
FY 1957	39.4	256.0	8.6%	FY 1993	281.1	409.4	(6.8%)
FY 1958	40.0	252.3	(1.5%)	FY 1994	263.3	375.6	(8.3%)
FY 1959	45.1	279.9	11.0%	FY 1995	266.4	372.1	(0.9%)
FY 1960	44.3	271.9	(2.9%)	FY 1996	266.2	364.8	(2.0%)
FY 1961	45.1	273.1	0.5%	FY 1997	270.4	363.8	(0.3%)
FY 1962	50.2	300.2	9.9%	FY 1998	271.0	360.2	(1.0%)
FY 1963	52.1	308.0	2.6%	FY 1999	292.3	383.3	6.4%
FY 1964	51.6	301.4	(2.2%)	FY 2000	304.0	391.0	2.0%
FY 1965	50.6	290.3	(3.7%)	FY 2001	334.7	420.6	7.6%
FY 1966	64.4	362.2	24.8%	FY 2002	362.0	447.5	6.4%
FY 1967	73.1	398.2	9.9%	FY 2003	456.0	552.2	23.4%
FY 1968	77.8	409.4	2.8%	FY 2004	490.6	579.1	4.9%
FY 1969	78.5	394.9	(3.5%)	FY 2005	505.8	578.2	(0.2%)
FY 1970	75.3	359.7	(8.9%)	FY 2006	556.3	614.9	6.3%
FY 1971	72.7	330.5	(8.1%)	FY 2007	625.8	671.5	9.2%
FY 1972	76.4	331.6	0.3%	FY 2008	696.2	730.4	8.8%
FY 1973	79.1	328.8	(0.8%)	FY 2009	697.8	722.3	(1.1%)
FY 1974	81.5	316.1	(3.9%)	FY 2010	721.3	741.1	2.6%
FY 1975	86.2	302.7	(4.2%)	FY 2011	720.0	730.0	(1.5%)
FY 1976	97.3	318.9	5.3%	FY 2012	702.8	702.8	(3.7%)
FY 1977	110.2	335.8	5.3%	FY 2013	652.4	641.9	(8.7%)
FY 1978	117.2	334.8	(0.3%)	FY 2014	668.7	647.3	0.8%
FY 1979	126.5	334.3	(0.1%)	FY 2015	681.2	648.1	0.1%
FY 1980	143.9	349.4	4.5%	FY 2016	694.223	649.2	0.2%
FY 1981	180.0	397.9	13.9%				

Source: CSBA, June 2011. Based on OMB and DoD data.

* Derived using GDP deflator.

TABLE 5. NATIONAL DEFENSE (050) OUTLAYS, FY 1946– FY 2016
(in billions of dollars)

	Current Dollars	FY 2012 Dollars*	% real change		Current Dollars	FY 2012 Dollars*	% real change
FY 1946	42.7	412.8		FY 1982	185.3	383.4	10.1%
FY 1947	12.8	112.3	(72.8%)	FY 1983	209.9	416.0	8.5%
FY 1948	9.1	72.9	(35.1%)	FY 1984	227.4	434.7	4.5%
FY 1949	13.2	101.9	39.7%	FY 1985	252.7	467.9	7.6%
FY 1950	13.7	108.0	6.0%	FY 1986	273.4	494.7	5.7%
FY 1951	23.6	176.0	63.0%	FY 1987	282.0	497.0	0.5%
FY 1952	46.1	330.8	88.0%	FY 1988	290.4	495.9	(0.2%)
FY 1953	52.8	372.2	12.5%	FY 1989	303.6	499.0	0.6%
FY 1954	49.3	343.2	(7.8%)	FY 1990	299.3	474.6	(4.9%)
FY 1955	42.7	295.3	(14.0%)	FY 1991	273.3	417.5	(12.0%)
FY 1956	42.5	286.5	(3.0%)	FY 1992	298.4	444.2	6.4%
FY 1957	45.4	295.1	3.0%	FY 1993	291.1	424.0	(4.5%)
FY 1958	46.8	295.2	0.0%	FY 1994	281.6	401.8	(5.2%)
FY 1959	49.0	304.5	3.2%	FY 1995	272.1	380.0	(5.4%)
FY 1960	48.1	295.3	(3.0%)	FY 1996	265.8	364.2	(4.2%)
FY 1961	49.6	300.2	1.6%	FY 1997	270.5	364.0	(0.0%)
FY 1962	52.3	313.3	4.4%	FY 1998	268.2	356.4	(2.1%)
FY 1963	53.4	315.7	0.7%	FY 1999	274.8	360.4	1.1%
FY 1964	54.8	319.9	1.3%	FY 2000	294.4	378.6	5.1%
FY 1965	50.6	290.5	(9.2%)	FY 2001	304.8	382.9	1.1%
FY 1966	58.1	326.6	12.4%	FY 2002	348.5	430.7	12.5%
FY 1967	71.4	389.0	19.1%	FY 2003	404.8	490.1	13.8%
FY 1968	81.9	431.0	10.8%	FY 2004	455.8	538.1	9.8%
FY 1969	82.5	414.9	(3.7%)	FY 2005	495.3	566.3	5.2%
FY 1970	81.7	389.9	(6.0%)	FY 2006	521.8	576.8	1.9%
FY 1971	78.9	358.5	(8.1%)	FY 2007	551.3	591.5	2.5%
FY 1972	79.2	343.6	(4.2%)	FY 2008	616.1	646.3	9.3%
FY 1973	76.7	318.9	(7.2%)	FY 2009	661.0	684.3	5.9%
FY 1974	79.3	307.9	(3.4%)	FY 2010	693.6	712.6	4.1%
FY 1975	86.5	303.8	(1.3%)	FY 2011**	768.2	778.9	9.3%
FY 1976	89.6	293.6	(3.4%)	FY 2012**	737.5	737.5	(5.3%)
FY 1977	97.2	296.4	1.0%	FY 2013**	675.8	664.9	(9.8%)
FY 1978	104.5	298.4	0.7%	FY 2014**	665.0	643.7	(3.2%)
FY 1979	116.3	307.5	3.0%	FY 2015**	671.9	639.2	(0.7%)
FY 1980	134.0	325.4	5.8%	FY 2016**	679.8	635.8	(0.5%)
FY 1981	157.5	348.2	7.0%				

Source: CSBA, June 2011. Based on OMB and DoD data.

* Derived using GDP deflator.

** Outlays have not been adjusted to reflect the lower level of spending enacted in the FY 2011 appropriations bill

TABLE 6. DEPARTMENT OF DEFENSE (051) BUDGET AUTHORITY BY TITLE
(in billions of dollars)

Current Dollars	FY 1980	~	FY 1985	~	FY 1990	~	FY 1995	~	FY 2000	FY 2001	FY 2002	FY 2003
Military Personnel	41.1		67.8		78.9		71.6		73.8	76.9	87.0	109.1
O&M	46.4		77.8		88.4		93.7		108.7	125.2	133.2	178.3
Procurement	35.3		96.8		81.4		43.6		55.0	62.6	62.7	78.5
RDT&E	13.6		31.3		36.5		34.5		38.7	41.6	48.7	58.1
Military Construction	2.3		5.5		5.1		5.4		5.1	5.4	6.6	6.7
Family Housing	1.5		2.9		3.1		3.4		3.5	3.7	4.0	4.2
Other*	0.5		4.7		-0.4		3.4		5.5	3.3	2.6	2.9
DoD	140.7		286.8		292.9		255.7		290.3	318.7	344.9	437.7

FY 2012 Dollars**	FY 1980	~	FY 1985	~	FY 1990	~	FY 1995	~	FY 2000	FY 2001	FY 2002	FY 2003
Military Personnel	99.7		125.5		125.1		100.0		95.0	96.6	107.5	132.0
O&M	112.7		144.0		140.1		130.9		139.8	157.3	164.7	215.9
Procurement	85.7		179.3		129.0		61.0		70.7	78.7	77.5	95.0
RDT&E	32.9		58.0		57.8		48.2		49.8	52.3	60.2	70.3
Military Construction	5.6		10.2		8.1		7.6		6.6	6.8	8.2	8.1
Family Housing	3.7		5.4		5.0		4.7		4.6	4.6	5.0	5.1
Other	1.3		8.6		-0.6		4.8		7.0	4.1	3.2	3.5
DoD	341.6		531.0		464.5		357.1		373.4	400.4	426.3	530.0

Source: CSBA, June 2011. Based on OMB and DoD data.

* Years 2013 to FY 2016 include allowances for future OCO funding that is not yet allocated across the titles.

** Derived using GDP deflator.

FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
116.1	121.3	128.5	131.8	139.0	149.3	157.1	158.5	159.5	150.7	155.1	158.1	160.3
189.8	179.2	213.5	240.2	256.2	271.6	293.6	306.0	295.7	215.6	221.9	229.6	233.8
83.1	96.6	105.4	133.8	165.0	135.4	135.8	126.6	128.1	117.6	125.9	129.7	137.2
64.6	68.8	72.9	77.5	79.6	80.0	80.2	75.6	75.8	75.8	73.6	71.1	69.4
6.1	7.3	9.5	14.0	22.1	26.8	22.6	16.0	13.1	14.3	13.0	12.8	13.1
3.8	4.1	4.4	4.0	2.9	3.9	2.3	1.8	1.7	1.5	1.5	1.6	1.7
7.4	6.6	2.3	1.7	9.9	0.6	4.0	8.1	1.8	49.9	50.3	50.3	50.1
470.9	483.9	536.5	603.0	674.7	667.5	695.6	692.5	675.7	625.5	641.3	653.2	665.6

FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
137.1	138.6	142.0	141.4	145.8	154.5	161.4	160.7	159.5	148.3	150.1	150.4	149.9
224.0	204.9	236.0	257.8	268.8	281.1	301.7	310.2	295.7	212.2	214.8	218.4	218.6
98.1	110.4	116.5	143.5	173.1	140.2	139.5	128.4	128.1	115.7	121.9	123.4	128.3
76.3	78.7	80.5	83.2	83.5	82.8	82.4	76.6	75.8	74.6	71.2	67.7	64.9
7.2	8.3	10.5	15.0	23.1	27.8	23.2	16.2	13.1	14.1	12.6	12.2	12.3
4.5	4.7	4.9	4.3	3.1	4.0	2.3	1.8	1.7	1.5	1.5	1.5	1.6
8.7	7.5	2.5	1.8	10.4	0.6	4.1	8.2	1.8	49.1	48.7	47.8	46.9
555.9	553.2	593.0	647.0	707.8	691.0	714.7	702.1	675.7	615.5	620.8	621.4	622.5

TABLE 7. NATIONAL DEFENSE, FEDERAL SPENDING, AND THE GROSS DOMESTIC PRODUCT, FY 1980–FY 2016 (outlays in billions of current dollars)

Fiscal Year	National Defense Outlays (O50)	Federal Outlays	O50 as % of Federal Outlays	GDP	O50 as % of GDP
FY 1980	134.0	590.9	22.7%	2,724.2	4.9%
FY 1981	157.5	678.2	23.2%	3,057.0	5.2%
FY 1982	185.3	745.7	24.8%	3,223.7	5.7%
FY 1983	209.9	808.4	26.0%	3,440.7	6.1%
FY 1984	227.4	851.8	26.7%	3,844.4	5.9%
FY 1985	252.7	946.3	26.7%	4,146.3	6.1%
FY 1986	273.4	990.4	27.6%	4,403.9	6.2%
FY 1987	282.0	1,004.0	28.1%	4,651.4	6.1%
FY 1988	290.4	1,064.4	27.3%	5,008.5	5.8%
FY 1989	303.6	1,143.7	26.5%	5,399.5	5.6%
FY 1990	299.3	1,253.0	23.9%	5,734.5	5.2%
FY 1991	273.3	1,324.2	20.6%	5,930.5	4.6%
FY 1992	298.3	1,381.5	21.6%	6,242.0	4.8%
FY 1993	291.1	1,409.4	20.7%	6,587.3	4.4%
FY 1994	281.6	1,461.8	19.3%	6,976.6	4.0%
FY 1995	272.1	1,515.8	17.9%	7,341.1	3.7%
FY 1996	265.7	1,560.5	17.0%	7,718.3	3.4%
FY 1997	270.5	1,601.1	16.9%	8,211.7	3.3%
FY 1998	268.2	1,652.5	16.2%	8,663.0	3.1%
FY 1999	274.8	1,701.8	16.1%	9,208.4	3.0%
FY 2000	294.4	1,789.0	16.5%	9,821.0	3.0%
FY 2001	304.7	1,862.9	16.4%	10,225.3	3.0%
FY 2002	348.5	2,010.9	17.3%	10,543.9	3.3%
FY 2003	404.7	2,159.9	18.7%	10,979.8	3.7%
FY 2004	455.8	2,292.9	19.9%	11,685.6	3.9%
FY 2005	495.3	2,472.0	20.0%	12,445.7	4.0%
FY 2006	521.8	2,655.1	19.7%	13,224.9	3.9%
FY 2007	551.3	2,728.7	20.2%	13,891.8	4.0%
FY 2008	616.1	2,982.6	20.7%	14,394.1	4.3%
FY 2009	661.0	3,517.7	18.8%	14,097.5	4.7%
FY 2010	693.6	3,456.2	20.1%	14,508.2	4.8%
FY 2011*	768.2	3,818.8	20.1%	15,079.6	5.1%
FY 2012*	737.5	3,728.7	19.8%	15,812.5	4.7%
FY 2013*	675.8	3,770.9	17.9%	16,752.4	4.0%
FY 2014*	665.0	3,977.1	16.7%	17,782.2	3.7%
FY 2015*	671.9	4,189.8	16.0%	18,804.1	3.6%
FY 2016*	679.8	4,467.8	15.2%	19,790.5	3.4%

Source: CSBA, June 2011. Based on OMB and DoD data.

* Outlays have not been adjusted to reflect the lower level of spending enacted in the FY 2011 appropriations bill

TABLE 8. DEPARTMENT OF DEFENSE CLASSIFIED BUDGET FOR ACQUISITION PROGRAMS, FY 1987–FY 2012 (Total Obligational Authority in Billions of Current Year Dollars)

	Classified R&D					Classified Procurement				
	Army	Navy	Air Force	Defense-Wide	Total	Army	Navy	Air Force	Defense-Wide	Total
FY 1987	0.5	1.0	5.6	1.2	8.3	0.4	0.3	11.1	0.8	12.6
FY 1988	0.5	1.7	5.5	1.5	9.2	0.0	0.0	9.9	0.7	10.6
FY 1989	0.5	2.4	3.2	1.2	7.3	0.2	0.2	8.2	0.7	9.3
FY 1990	0.5	1.4	3.0	1.4	6.3	0.1	0.1	8.4	0.6	9.2
FY 1991	0.7	1.4	3.0	2.0	7.1	0.1	0.1	8.3	0.7	9.2
FY 1992	0.5	1.4	3.2	1.4	6.5	0.2	0.1	8.3	0.7	9.3
FY 1993	0.4	1.1	3.1	1.3	5.9	0.0	0.1	7.2	0.6	7.9
FY 1994	0.3	0.8	2.4	1.2	4.7	0.0	0.1	7.4	0.7	8.2
FY 1995	0.1	0.9	2.4	1.2	4.6	0.0	0.1	6.5	0.5	7.1
FY 1996	0.1	1.0	3.2	1.0	5.3	0.0	0.0	6.7	0.6	7.3
FY 1997	0.1	1.1	4.6	1.3	7.2	0.0	0.1	5.4	0.6	6.1
FY 1998	0.1	1.3	5.4	1.2	8.1	0.1	0.1	6.1	0.5	6.8
FY 1999	0.1	1.2	4.9	1.5	7.8	0.0	0.0	6.7	0.5	7.2
FY 2000	0.1	1.0	4.9	1.3	7.4	0.0	0.0	6.7	0.5	7.2
FY 2001	0.1	1.3	4.8	1.6	7.8	0.0	0.0	8.2	0.4	8.6
FY 2002	0.1	1.5	5.1	2.1	8.8	0.0	0.0	8.5	0.4	8.9
FY 2003	0.1	1.9	7.0	4.0	13.1	0.0	0.0	12.7	0.8	13.6
FY 2004	0.2	2.0	6.7	4.0	12.8	0.0	0.0	14.2	0.7	14.9
FY 2005	0.1	2.1	7.0	3.9	13.1	0.0	0.0	16.0	0.6	16.7
FY 2006	0.3	2.3	7.3	4.0	13.9	0.0	0.0	16.6	0.5	17.1
FY 2007	0.3	2.5	9.0	4.1	15.9	0.0	0.0	17.5	0.5	18.0
FY 2008	0.2	2.6	10.8	4.8	18.4	0.0	0.0	17.5	0.9	18.4
FY 2009	0.2	2.7	11.7	4.8	19.4	0.0	0.0	17.8	0.9	18.7
FY 2010	0.2	2.8	12.0	4.8	19.7	0.0	0.0	19.0	1.4	20.4
FY 2011*	0.2	2.8	12.6	4.2	19.8	0.0	0.0	19.1	1.0	20.1
FY 2012*	0.2	3.0	12.1	4.6	20.0	0.0	0.0	19.7	0.7	20.4

SSource: Center for Strategic and Budgetary Assessments based on DoD data, June 2011.

* FY 2011 and FY 2012 figures are requested funding levels and include both base and OCO funding.



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