

# TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

## OVERVIEW

The budget request contained \$75.3 billion for research, development, test, and evaluation.

The committee recommends \$75.6 billion, an increase of \$255.9 million to the budget request.

## RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY

### Overview

The budget request contained \$9.7 billion for research, development, test, and evaluation, Army. The committee recommends \$9.8 billion, an increase of \$82.0 million to the budget request.

The committee recommendations for the fiscal year 2012 research, development, test, and evaluation, Army program are identified in division D of this Act.

### Items of Special Interest

#### *Active protection systems technology development*

The committee continues to believe that active protection systems (APS) will be a critical component of all future Army and Marine Corps combat vehicles including both tracked and wheeled platforms, due to the anticipated advances in threats, such as mis-

siles, mines, improvised explosive devices, and rocket-propelled grenades. The committee notes that section 216 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110–181), required the Department of Defense to conduct a series of tests of available APS systems, to inform future APS research or procurement decisions. The committee understands that the last of these systems will complete testing in the summer of 2011. The committee notes that several of the systems tested were developed, in part, using Department of Defense research and development funds from the Future Combat Systems program. The other systems tested were foreign or commercially-developed.

The committee believes that the investments in sensor and interception APS technologies to-date should not be wasted. The committee notes that future upgrades of Abrams tanks, Bradley Fighting Vehicles, Amphibious Assault Vehicles, as well as new vehicles such as the Ground Combat Vehicle, will likely require the incorporation of APS technology in order to achieve future survivability requirements. For those and other vehicles, the committee encourages the leveraging of effective APS technologies that were developed with past Department of Defense funding, if they meet requirements and are affordable. Therefore, the committee directs the Under Secretary of Defense for Acquisition, Technology, and Logistics to provide a report to the congressional defense committees by February 28, 2012, that describes the results of the APS testing conducted under section 216 of Public Law 110–181. The report should also identify government-developed APS technologies that could be used to equip combat vehicles and all funds that have been allocated in fiscal year 2013 and beyond to further develop and field these technologies.

#### *Armed Deployable Helicopter*

The budget request contained \$166.1 million in PE 64220A for the Armed Deployable Helicopter program. Of this amount, \$87.4 million was requested for the Kiowa Warrior program and \$78.7 million was requested for the Armed Scout Helicopter (ASH) program.

The committee notes that the phase II analysis of alternatives for the follow-on effort to the terminated Armed Reconnaissance Helicopter program has not been completed and that this program does not yet have firm requirements or an approved acquisition strategy.

The committee recommends \$43.2 million, a decrease of \$35.5 million, in PE 64220A for the ASH program.

#### *Army science and technology management*

The committee recognizes the critical contributions the science and technology community makes to providing the military with technological capabilities needed to address future military challenges. Innovative technology, weapon systems, and other equipment are critical for the Nation to meet challenges presented by 21st Century asymmetrical conflict. The committee believes that Department of Defense systems are more integrated now than 10 years ago, but these defense systems must maintain a high level of jointness to comply with a common operating environment and ensure interoperability.

The committee is concerned that the recent Army decision to disestablish the Research Development and Engineering Command (RDECOM) on the basis of efficiency neglects the effectiveness of the organization to protect longer term science and technology (S&T) investments and to ensure integrated and interoperable technology systems. Without a unified voice and high level advocate on behalf of Army S&T, the committee is concerned that the contributions of the S&T community will largely be overlooked or ignored.

Therefore, the committee directs the Secretary of the Army to deliver a report to the congressional defense committee within 150 days after enactment of this Act. This report should include an analysis of the efficiencies to be gained through the disestablishment of RDECOM compared to the status quo, as well as a description of how the new management structure will maintain oversight, coordination and integration of Army S&T planning and execution.

#### *Bioinformatics initiative*

The committee remains committed to military medical research directed to pressing needs validated by the Surgeons General. The committee is aware that the Army is developing advanced medical information systems in conjunction with established university research partners. The committee supports the Army's efforts to develop further and expand the utility of bioinformatics tools for Department of Defense missions.

Among the goals for Army bioinformatics research are the creation of an information hub for all Army medical genomic and proteomic partners that will allow collaboration among the funded sites to promote sharing of clinical data, bio-specimens and research data; the development of a systems biology analytical team to identify therapeutic and diagnostic targets for both preventative and predictive medicine as well as key areas of bio-surveillance and bioterrorism threat detection; a fully developed capability that will integrate semantically standardized electronic medical record data to generate datasets of longitudinal clinical information from diverse sources with personally identifiable information removed; the capability to support advanced predictive modeling and comparative effectiveness research on therapy for diseases of military importance; and, bioinformatics and bio-statistical support for advanced analysis of the large data sets produced by Government and university research partners.

#### *Development of personnel protection equipment for female soldiers*

The budget request contained \$19.5 million for soldier systems-advanced development. Of this amount, \$1.8 million was requested for soldier protective equipment efforts to evaluate integrated technologies that help expedite individual soldier ballistic protection.

The committee understands that the Army is comprised of 14 percent women. The committee has heard concerns from a number of service women who are deployed in Operation New Dawn (OND) and Operation Enduring Freedom (OEF) that due to the physical differences between service men and women the current interceptor body armor system's design may not be as ergonomically effective for the female body type. The female soldiers in communication with the committee noted issues of restriction and discomfort and

suggested this could impact their operational effectiveness. The committee notes that the current counter-insurgency and dismounted operations in OND and OEF place service women in direct combat action with the enemy. The committee believes there is merit in conducting an evaluation as to whether there is an operational need to tailor interceptor body armor (IBA) systems fielded to service women specifically for the physical requirements of women.

The committee understands the Army's Natick Soldier Systems Center (NSSC) is currently pursuing several programs to improve upon organizational clothing and individual equipment for soldiers to include female soldiers. The committee notes the NSSC is evaluating the operational benefit for developing a separate, female combat uniform for female soldiers to include body armor. The committee understands the NSSC is conducting a female sizing study for improved outer tactical vests and should finalize patterns and deliver prototypes by the conclusion of fiscal year 2012. Further, the committee is aware that the NSSC has a science and technology program called "Improved Geometry and Sizing for Ballistic Plates" that includes efforts to ergonomically improve the current IBA for female soldiers. The committee commends the Army for acknowledging this issue and encourages the acceleration of these efforts to help determine the most effective organizational clothing and individual equipment, to include body armor and associated components, for military service women.

The committee recommends \$19.5 million, the full amount of the request, for soldier systems-advanced development.

#### *Ground Combat Vehicle*

The budget request contained \$884.4 million in PE 65625A for the Ground Combat Vehicle (GCV) program.

The committee understands that in order to capture lessons learned from the terminated Future Combat Systems (FCS) program the Army established a red team to solicit recommendations that would benefit the GCV program. The red team questioned the urgency of the need for the GCV within the 7-year schedule. The red team reported that the funds that migrated from the terminated FCS program were driving the urgency of the 7-year schedule, rather than a true capabilities gap. The committee understands that the red team concluded that the Army should either moderately improve an existing vehicle within the 7-year timeframe or spend the time necessary to develop a new vehicle. Because the red team's analysis was performed before the Army revised its requirements for the current GCV program, the committee believes that another red team assessment should be conducted to examine whether the changes to the GCV requirements are sufficient to place it on a path to success within a 7-year timeframe.

In addition, the committee notes that the Army's initial analysis of alternatives compared the GCV design to a broad set of alternatives, including the current and upgraded Bradley Fighting Vehicle. The analysis was based on combat modeling and other quantitative evaluations that found the original GCV design to be more advantageous than the alternatives in various categories, including lethality and survivability, but it presented a high-affordability risk at a cost of over \$18.0 million per vehicle. Consequently, the Army

updated its analysis and reconsidered the design, making substantial trades to achieve a lower cost vehicle. The revised GCV design eliminated immature technologies and reduced the estimated cost to \$10.5 million per vehicle. The Army's updated analysis was based in large part on qualitative assessments conducted by subject matter experts, rather than the more rigorous methodology used in the original analysis. In addition, the updated analysis did not compare the new GCV design with the original range of alternatives, but only with the unimproved Bradley. The committee believes the new design has substantial changes that may impact survivability and lethality and should be compared to the full range of alternatives and evaluated using the same methodology as the original design.

Elsewhere in this title, the committee includes a provision that would restrict the use funds fiscal year 2012 until the Secretary of the Army provides an updated analysis of alternatives to the congressional defense committees that includes a quantitative comparison of the current upgraded Bradley Fighting Vehicle and other alternatives, against the revised GCV design concept. In addition, the committee encourages the Army to establish another red team prior to the milestone B review to assess the cost, schedule, and technical risks of the GCV acquisition strategy.

The committee recommends \$884.4 million, the full amount requested in PE 65625A for the GCV program.

#### *Improved Turbine Engine Program*

The budget request contained \$62.1 million in PE 63003A for aviation advanced technology.

The committee supports the Army's Improved Turbine Engine Program (ITEP). The investment in ITEP would provide a more fuel efficient and powerful engine for the current Black Hawk and Apache helicopter fleets. The committee notes that ITEP has been identified by the Army to power the next-generation Joint Multi-Role aircraft. The committee believes it is important that the Army's ITEP acquisition strategy include full and open competition. The committee also believes it is important that the ITEP program baseline establishes a competitive acquisition strategy into Engineering Manufacturing and Development and validates operational performance with a flight demonstration prior to making a production decision. The committee encourages the Secretary of the Army to provide an update to the congressional defense committees on the acquisition strategy to maintain competition through flight demonstration.

The committee recommends \$62.1 million, the full amount requested, in PE 63003A for aviation advanced technology.

#### *Joint Light Tactical Vehicle*

The budget request contained \$251.1 million in PE 64804A for Logistics and Engineer Equipment-SDD. Of this amount, \$172.1 million was requested for the Joint Light Tactical Vehicle (JLTV) program. The budget request also contained \$79.8 million in PE 63635M for Marine Corps Ground Combat/Support System. Of this amount, \$71.8 million was requested for the JLTV program.

The committee understands the JLTV program is expected to replace at least one-third of the Army and Marine Corps light tactical

vehicle fleet beginning in calendar year 2016. The committee understands the Army and Marine Corps have taken a knowledge-based approach to development of the JLTV by investing in the Technology Development phase, which includes a focus on early testing of prototypes. The committee understands that initial test results indicate that the JLTV program may face many operational and technical challenges. The committee notes that cost estimates are not yet available but base vehicle costs have recently been projected to be at least \$350,000 per vehicle. Further, the committee understands that the JLTV program schedule has been delayed four months and notes the milestone B decision has slipped from October 2011 to January 2012 in order to refine the program's capabilities development document. In addition, the milestone C decision has already slipped 17 months as a result of potential increased development engineering efforts and is now expected in January 2016. The committee believes that there must be a clear match between the JLTV program's requirements and resources, and believes that this will be a challenge given fiscally constrained budget environments.

The committee recommends \$147.1 million, a decrease of \$25.0 million, in PE 64804A, and \$46.8 million, a decrease of \$25.0 million, in PE 63635M for the JLTV program.

#### *Medium Extended Air Defense System*

The budget request contained \$406.6 million in PE 64869A for the Patriot/Medium Extended Air Defense System (MEADS) Combined Aggregate Program.

Elsewhere in this title, the committee explains its concerns about the MEADS program and includes a provision that would limit the obligation and expenditure of funds made available for MEADS in fiscal year 2012 until the Secretary of Defense either negotiates a multilateral termination of the MEADS contract or restructures the MEADS program. The limitation would also require the Secretary to submit to the congressional defense committees written notification on several elements.

The committee notes that the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law 112-10) provides the program with the full fiscal year 2011 budget request of \$467.1 million. The committee would support the use of these funds, in addition to any funds made available in fiscal year 2012, for costs associated with multilateral termination of the MEADS contract. Should the Secretary further restructure the MEADS program, the committee encourages the Secretary to immediately identify and harvest promising MEADS technologies, whether U.S. or partner-developed, transition those technologies into a Patriot air and missile defense system upgrade effort or other viable program of record, and adequately resource that approach.

The committee recommends this reduction on the premise that the Department is able to negotiate a multilateral contract termination where the U.S. cost share is approximately 58 percent, consistent with the cost share agreement in the 2004 MEADS memorandum of understanding, or further restructure the program.

The committee recommends \$257.1 million, a decrease of \$149.5 million, in PE 64869A for the MEADS program.

*Nett Warrior*

The budget request contained \$48.3 million in PE 64827A for Soldier Systems development. Of this amount, \$25.5 million was requested for the Nett Warrior, Increment 1 development program.

The committee understands the Nett Warrior, Increment 1 program is intended to provide an integrated dismounted leader situational awareness system for use during combat operations. The system would also provide information and data to the dismounted leader, allowing for faster and more accurate decisions in the tactical fight, while simultaneously reducing fratricide. The committee notes that Increment 1 will use technically mature systems, including radios and communication software, with program risk limited to the integration of the systems. The committee is aware the program is already 3 months behind schedule because of integration and weight challenges and that the current program requirements are not stable.

Therefore, the committee recommends \$17.9 million, a decrease of \$7.6 million, in PE 64827A for the Nett Warrior, Increment 1 program.

*Precision artillery munitions acquisition strategy*

The budget request contained \$42.6 million in PE 64814A for continued Excalibur development and \$13.8 million in PE 64802A for continued Precision Guidance Kit (PGK) test and evaluation. The budget request also contained \$69.1 million for procurement of M982 Excalibur artillery munitions but contained no funding for the PGK program.

The committee is aware the Vice Chief of Staff of the Army conducted a Capability Portfolio Review (CPR) for Precision Fires in 2010 which resulted in a significant decrease in the quantity of Excalibur rounds in favor of investment in the PGK program. The committee recognizes that the Excalibur 1B round, scheduled to begin procurement in fiscal year 2012, is more expensive than the projected cost of the PGK. However, the committee notes that there appears to be significant differences in the accuracy performance between the precision Excalibur round and the near-precision PGK system in that the Excalibur system significantly outperforms the PGK system.

The committee understands that since the Army concluded its CPR, the Excalibur round has continued to be successfully fired in Operation New Dawn and Operation Enduring Freedom against multiple targets. The Excalibur program was also recertified as essential to national security following a Nunn-McCurdy review triggered by the decrease in procurement quantity from the CPR. The committee notes the PGK program has encountered continued reliability problems with a greater than 3-year delay, prompting the Army to delay PGK full-rate production from October 2010 to November 2012. The committee is concerned about these developments and believes the Army should revisit its mix of artillery munitions that could include an increase in the requirement for Excalibur precision guided rounds.

Therefore, the committee recommends \$3.8 million, a decrease of \$10.0 million, in PE 64802A, for the PGK program.

### *Status of Future Combat Systems contract actions*

The committee notes that the Army has terminated the Future Combat Systems (FCS) and Early Infantry Brigade Combat Team (EIBCT) development activities after spending approximately \$20.0 billion since 2003. The committee understands that the Army has chosen to continue development of multiple legacy FCS systems and capabilities within various funding lines, although precisely which efforts the Army is continuing is still unclear. The committee understands that the termination of these two major programs has resulted in extensive contract termination negotiations with the prime contractor and its subcontractors, which has an associated cost and timeframe. The committee believes that in order for Congress to make informed funding decisions, the Army must provide an accounting of the FCS legacy efforts that it expects to continue, as well as cost and schedule projections for closing out the original FCS and EIBCT development contracts. Therefore, the committee directs the Secretary of the Army to submit a report to the congressional defense committees by April 1, 2012 that shows all current and projected funding in regards to FCS legacy efforts. The report should include the status of all terminated and pending contract actions resulting from the termination of the FCS and EIBCT programs.

## RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, NAVY

### Overview

The budget request contained \$18.0 billion for research, development, test, and evaluation, Navy. The committee recommends \$18.0 billion, an increase of \$51.7 million to the budget request.

The committee recommendations for the fiscal year 2012 research, development, test, and evaluation, Navy are identified in division D of this Act.

### Items of Special Interest

#### *Defense University Research Instrumentation Program*

The budget request contained \$18.9 million in PE 61103N for the Defense University Research Instrumentation Program.

The committee is aware that the Department of Defense and the military services execute a program known as the Defense University Research Instrumentation Program (DURIP). DURIP funds are used for the acquisition of major equipment to augment current or develop new research capabilities in support of defense relevant research.

The committee understands that DURIP proposals are typically limited to \$50,000 to \$1.0 million, but that waivers may be granted for larger awards. The committee believes that these award levels have remained static for more than 15 years, without regard to inflation and the increasing costs associated with technologically sophisticated equipment. As it is vital for cutting edge research to be supported by cutting edge instrumentation, the committee encourages the Department and the military services to make greater use of waivers to ensure that there are adequate resources available to support the instrumentation needs of the research community.

The committee recommends \$28.9 million, an increase of \$10.0 million, in PE 61103N to provide for additional competitive DURIP awards.

*Expeditionary Fire Support System Precision Extended Range Munition*

The budget request contained \$209.4 million in PE 26623M for Marine Corps ground combat support research and development. Of this amount, \$12.2 million was requested for the Expeditionary Fire Support System (EFSS) Precision Extended Range Munition (PERM) program.

The committee understands the EFSS PERM program is part of the EFSS mortar system program. The EFSS PERM was originally intended as a sole source development effort, but is now being transitioned to full and open competition for demonstration, qualification and production and that a request for proposals is expected to be released in fiscal year 2012. The committee notes that the EFSS 120mm mortar system could be capable of firing the Army Accelerated Precision Mortar Initiative (APMI) round, which would offer dismounted infantrymen and Marines similar performance to the proposed EFSS PERM round. The committee also notes that the PERM round will not achieve low-rate initial production until fiscal year 2015 and that the Army APMI round has already begun fielding. Therefore, the committee recommends that the Marine Corps conduct a comprehensive Cost and Operational Effectiveness Analysis prior to beginning a new development program for the EFSS PERM round.

The committee recommends \$12.2 million for the EFSS PERM program.

*Joint Expeditionary Fires Analysis of Alternatives*

In March 2010, the Secretary of the Navy submitted a report to Congress on Naval Surface Fire Support as directed by the conference report (H. Rept. 111-288) accompanying the National Defense Authorization Act for Fiscal Year 2010. This report includes comments and recommendations from both the Chief of Naval Operations and the Commandant of the Marine Corps. In the report, the Commandant states that the Marine Corps concurs with the findings of the Joint Expeditionary Fires Analysis of Alternatives (AOA). In the report to Congress, however, the Secretary of the Navy did not address the results of this AOA.

Therefore, the committee directs the Secretary of the Navy to submit the Joint Expeditionary Fires Analysis of Alternatives to the Senate Committee on Armed Services and the House Committee on Armed Services within 30 days after the date of enactment of this Act.

*Naval gunfire support*

The committee is concerned about the Department of the Navy's lack of progress in developing Naval Surface Fires in support of Marine Corps operating forces. While the committee is aware of the Navy's earlier efforts in this area that ended in terminated programs, the requirement still exists and the Navy's own Fire Support Analysis of Alternatives recommends the development of a 5-inch guided projectile. The committee expects the establishment of

a program to develop this capability. In testimony before the committee in recent years, the Marine Corps has repeated the immediate need to fill the requirement for Naval Surface Fires. The current security environment, the truncation of the DDG-1000 program to three ships, and the proposed termination of the Expeditionary Fighting Vehicle program add urgency to the need for this capability. The committee encourages the Navy to address this long neglected capability deficit by assessing, through a competitive demonstration, the capabilities of existing technology to meet the Navy and Marine Corps requirements in the fiscal year 2013 time-frame.

*Navy remotely piloted demonstration and strike aircraft programs*

The budget request contained \$198.3 million in PE 64402N for the Unmanned Combat Air System (UCAS) technology demonstration program, and \$121.2 million in PE 64404N for the Future Unmanned Carrier-based Strike System (FUCSS) program.

The committee supports the Chief of Naval Operations' stated desire to investigate the feasibility of sea-basing unmanned, low-observable aircraft on aircraft carriers to potentially provide intelligence, surveillance, reconnaissance and limited strike capabilities. However, the committee is concerned with the Navy's current execution strategy for both programs.

In fiscal year 2011, the UCAS program experienced an over-target baseline breach because the original schedule was too aggressive and the level of effort required to demonstrate UCAS goals was underestimated by Navy officials. Furthermore, the UCAS program is not planning to demonstrate an aircraft carrier landing until late in fiscal year 2013 and is not planning to demonstrate autonomous aerial-refueling until late in fiscal year 2014. Both are critical capabilities and necessary precursors for informing subsequent FUCSS feasibility and development.

The committee's concerns include: the Navy plans not to accomplish a thorough FUCSS analysis of alternatives; the desired aircraft fielding date of fiscal year 2018 was randomly selected and not derived through a threat-based analysis; and the current engineering and technology development strategy is considered high-risk by Navy officials to meet the fiscal year 2018 date. Lastly, the Navy has been unable to articulate to the committee the required capabilities and performance characteristics of FUCSS, but plans to award multiple development contracts in fiscal year 2012 prior to having been fully informed by the UCAS program. The committee encourages the Secretary of the Navy to develop a fair, open, transparent, competitive acquisition strategy that is medium or less risk, and incorporates critical knowledge points demonstrated by the UCAS program into the FUCSS acquisition strategy.

Elsewhere in this title, the committee includes a provision that would limit obligation of fiscal year 2012 FUCSS funds to no more than 15 percent until 60 days after the Chairman of the Joint Requirements Oversight Council, the Under Secretary of Defense for Acquisition, Technology and Logistics, and the Assistant Secretary of the Navy for Research, Development and Acquisition submit certain certifications regarding the acquisition of FUCSS to the congressional defense committees. This provision would also require the Comptroller General of the United States to provide the con-

gressional defense committees a briefing, subsequent to a review of the Navy's FUCSS acquisition strategy, not later than 90 days after the date on which the aforementioned Department of Defense officials submit the certain certifications to the congressional defense committees.

#### *Over-the-horizon vessel tracking*

The committee is aware that the Department of Defense has been conducting research to transition existing high frequency radar for monitoring the health of coastal waters to over-the-horizon vessel tracking. This effort tests new technology to detect approaching vessels by filling the gap between microwave radar, which works in harbors and near shore at close-in-scale, and satellites, which track ships at the global ocean scale to strengthen maritime domain awareness. The committee encourages the Department to continue research into this area and integrate promising technology and concepts into broader maritime domain awareness initiatives.

#### *Study on LHD Class steam plants and propulsion systems*

The committee is concerned about management of future lifecycle costs of WASP-class amphibious assault ships (LHD). The first seven ships of the LHD-class were constructed using steam propulsion, which requires extensive crew training to safely operate and is more expensive to repair than gas turbine or diesel propulsion. Further, LHD 1-7 steam propulsion plants are inefficient at higher speeds, exacerbating well known Navy fossil fuel dependence.

The committee notes that the Military Sealift Command has installed machinery monitoring technologies in diesel-powered ships to improve safety and reduce total ownership cost, and that the technology is available for real-time monitoring of steam plant systems. To this end, the committee directs the Secretary of the Navy to conduct a study that examines the feasibility of using a software-based monitoring system that would provide LHD 1-7 steam plant operators real-time machinery monitoring diagnostic and prognostic, predictive analytics for mission critical systems, including main propulsion steam turbines, electrical power generators, and auxiliary systems. This study, to be submitted within 180 days of enactment, should focus on options for monitoring systems that could include:

- (1) Providing plant operators early warning or prognostic recognition of impending failures and recommended remedial actions;
- (2) Providing real-time recommended operator actions to improve plant efficiency;
- (3) Reducing fuel consumption;
- (4) Minimizing component and sensor wear to enable LHD 1-7 to meet full design service life; and
- (5) Enabling more efficient maintenance planning by automatic generation of maintenance work orders, and immediate delivery of equipment health information to both shipboard crews and shore-side support staff.

## RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, AIR FORCE

## Overview

The budget request contained \$27.7 billion for research, development, test, and evaluation, Air Force. The committee recommends \$27.7 billion, an increase of \$12.0 million to the budget request.

The committee recommendations for the fiscal year 2012 research, development, test and evaluation, Air Force program are identified in division D of this Act.

## Items of Special Interest

*Air Force advanced materials research*

The budget request contained \$39.7 million in PE 63112F for the development of advanced materials for weapon systems.

Congress has historically supported the Metals Affordability Initiative (MAI) with budgetary increases to ensure adequate funding is provided to this important initiative, a peer review process to provide science and technology funding for promising aerospace projects in the Air Force advanced materials program. MAI, a joint government and industry consortium, uses a process to improve the manufacturing of specialty metals and consequently provides the warfighter with metals of improved strength and durability, often at a reduced cost.

The committee notes that the Air Force has increased the level of funding it has dedicated to the cost-sharing partnership with the consortium and encourages the Air Force to continue budgeting for this initiative. The committee encourages the Department of Defense to expand the scope of this initiative beyond the Air Force to fully leverage the collaborative technology development and transition opportunities available to better meet the requirements for specialty metals across the Department.

The committee recommends \$49.7 million, an increase of \$10.0 million, in PE 63112F to support the Metals Affordability Initiative.

*Air Force missile field monitoring technology*

In October 2010, an incident occurred at a Minuteman-III intercontinental ballistic missile (ICBM) missile field at F.E. Warren Air Force Base whereby for approximately one hour, the ability of the Air Force to monitor the status of one squadron's ICBMs was interrupted. In subsequent briefings to the committee, the Air Force described its corrective measures as being largely based on human-in-the-loop checklists and procedure improvements. The committee believes the Air Force should also consider improvements that leverage modern technology, including modern automated systems and remote sensing technologies, to monitor the status of Air Force ICBMs.

The committee therefore directs the commander of Air Force Global Strike Command to provide a briefing by September 6, 2011, to the congressional defense committees on the current capabilities to monitor the status of Air Force ICBMs; a summary of potential technologies to improve the status monitoring of ICBMs; the benefits, risks, technical maturity costs, and schedules to imple-

ment such technologies; and any recommendations for specific technologies the Air Force plans to pursue.

*Army and Air Force test, evaluation, range, and facility support*

The budget request contained \$270.9 million in PE 65601A for Army test range and facility support. The budget request also contained \$654.4 million in PE 65807F for Air Force test and evaluation support.

The committee notes that the Weapon Systems Acquisition Reform Act of 2009 (Public Law 111–23) requires the Department of Defense to rebuild its systems engineering and developmental testing organizations to ensure that design problems are understood and addressed early in the acquisition process. The committee is concerned that the budget request would make deep cuts to the test and evaluation workforce and undermines the requirement in Public Law 111–23.

Therefore, the committee recommends \$370.9 million, an increase of \$100.0 million, in PE 65601A for Army test range and facility support. The committee also recommends \$763.4 million, an increase of \$109.0 million, in PE 65807F for Air Force test and evaluation support.

*Common propulsion technology development*

The budget request contained \$67.2 million in PE 63851F for the Intercontinental Ballistic Missile (ICBM) Demonstration/Validation program. Of this amount, \$40.1 million was requested for common propulsion technology development.

The committee remains concerned about the health and long-term viability of the solid rocket motor industrial base. The committee notes that the demand for large solid rocket motors (SRMs) has decreased significantly, particularly with the decision by the National Aeronautics and Space Administration to retire the Space Shuttle and terminate the Constellation program. The Air Force Minuteman III ICBM program and Navy Trident II/D5 submarine-launched ballistic missile program rely on this industrial base and are likely to bear the increasing cost of SRMs as demand decreases and infrastructure costs get passed to the Department of Defense (DOD).

The committee believes the sustainment of the SRM industrial base is a national challenge that spans multiple departments and agencies of the U.S. Government. Elsewhere in this Act, the committee includes a provision that recommends the President develop a national rocket propulsion strategy.

In the committee report (H. Rept. 111–491) accompanying the National Defense Authorization Act for Fiscal Year 2011, the committee stated that “the Department should invest in a substantive defense-wide research and development (R&D) activity” for SRMs that could be leveraged for future strategic strike, missile defense, and space launch systems. In a March 2011 report to Congress on the SRM industrial base sustainment and implementation plan, the Under Secretary of Defense for Acquisition, Technology, and Logistics stated that the Department will consider “expanding current research and development (R&D) programs” whose intent would be for “the Air Force and Navy to pursue development and maturation of common technologies for future strategic missile sys-

tem designs . . . [and] maintaining design and engineering expertise in the large-SRM industry.” The report further states that the Department would recommend starting such a program no later than 2014. The committee supports such an expanded SRM research and development program. The committee is concerned about further erosion of the SRM industrial base and encourages the Department to immediately start a competitive R&D program rather than wait until 2014.

The committee therefore recommends \$87.2 million, an increase of \$20.0 million, in PE 63851F for common propulsion technology development.

#### *Deep Space Climate Observatory Launch Service*

The budget request contained \$158.1 million in PE 65860F for the Rocket System Launch Program. Of this amount, \$134.5 million was requested for launch support services for the Deep Space Climate Observatory (DSCOVR) mission.

The committee understands the Air Force would provide launch services for the National Oceanic and Atmospheric Administration (NOAA) DSCOVR mission upon its refurbishment in fiscal year 2014. The committee is also aware of commercial data purchase solutions that could meet the Government’s space weather data needs by fiscal year 2014 and preclude the need for the Air Force to fund launch services. The committee encourages the Department of Defense to work with the NOAA to consider a competitively acquired commercial solution.

The committee recommends \$33.6 million, a decrease of \$124.5 million, in PE 65860F for launch support services for the DSCOVR mission.

#### *Electronic, Scheduling and Dissemination Upgrade*

The committee is aware that the current electronic, scheduling and dissemination (ESD) system for the Air Force Satellite Control Network (AFSCN) faces several sustainment challenges. The ESD system allows satellite operators at 40 geographically separated locations to request contact time on 16 shared AFSCN antennas and allows schedulers to de-conflict overlapping requests to create and publish a schedule. The ESD system must accommodate some 1,300 different vehicle configurations for over 160 supported satellites to manage an average 410 satellite contacts per day, to include up to 120 real-time mission changes per day. The ESD hardware is largely commercial-off-the-shelf technology based on 1980’s era technology including the disk operating system and 286-equivalent computers. For example, a majority of these items are not available through either government supply systems or commercial vendors, as the components and software are technologically obsolete. The committee understands, based on information provided by the Air Force, that the current ESD system will only be fully sustainable through 2014. The committee has learned from the Air Force that sufficient funding is available to continue development of the ESD upgrade through fiscal year 2011 and that the Air Force will seek approval of a \$20.7 million reprogramming request in fiscal year 2011 to continue development through fiscal year 2012.

The committee directs the Secretary of the Air Force to submit a report that details the remaining ESD program costs and associated fiscal year funding profile as well as an updated integrated master schedule to the congressional defense committees by December 1, 2011.

### *F-35 aircraft*

The budget request contained \$2.7 billion in PEs 64800F, 64800N, and 64800M for development of the F-35 aircraft, but contained no funds for development of a competitive F-35 propulsion system. The F-35 is also known as the Joint Strike Fighter (JSF).

The competitive F-35 propulsion system program has been developing the F136 engine, which would have provided a competitive alternative to the currently-planned F135 engine. For the past 5 years, the committee recommended increases for the F-35 competitive propulsion system, and notes funds have been appropriated by Congress for this purpose through the first half of fiscal year 2011. Despite section 213 of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110-181), which required the Secretary of Defense to obligate and expend sufficient annual amounts for the continued development and procurement of a competitive propulsion system for the F-35, the committee is disappointed that the Department of Defense (DOD) has, for the sixth consecutive year, chosen not to comply with both the spirit and intent of this law, by opting not to include funds for this purpose in the budget request. According to the Department of Defense, the life-cycle cost of the F-35 engine program is \$110.0 billion. A January 10, 2011, report by the Congressional Research Service notes that there has never been a separate engine competition for F-35 engines. The committee notes that the Department of Defense terminated the F136 contract on April 25, 2011.

On February 23, 2010, the Deputy Secretary of Defense submitted to the committee an update of the 2007 Department of Defense report, "Joint Strike Fighter Alternate Engine Acquisition and Independent Cost Analysis" for the competitive engine program, which noted that an investment of \$2.9 billion over 6 years in additional cost would be required to finish F136 engine development and to conduct directed buys to prepare the F136 for competitive procurement of F-35 engines in 2017. This report also projected that long-term costs for either a one-engine or two-engine competitive acquisition strategy would be the same, on a net present value basis. Last September, the Government Accountability Office (GAO) reported that this estimate was based on two key assumptions made by the Department of Defense in developing the \$2.9 billion funding projection that have significant impact on the estimated amount of upfront investment needed. These assumptions were: (1) four years of noncompetitive procurements of both engines would be needed to allow the alternate engine contractor sufficient time to gain production experience and complete developmental qualification of the engine, and (2) the Government would need to fund quality and reliability improvements for engine components. GAO notes that past studies and historical data it examined indicate that it may take less than 4 years of noncompetitive procurements and that competition may obviate the need for the Government to fund component improvement programs. GAO

concludes that if these conditions hold true for the alternate engine, the funding projection for the alternate engine could be lower than DOD's projection.

The committee notes that reports on the F-35 alternate engine program completed in 2007 by the Institute for Defense Analyses, GAO, and the Department of Defense all agree that non-financial benefits of a competitive engine program include improved contractor responsiveness, a more robust industrial base, improved operational readiness, better engine performance, and technological innovation. The committee further notes that the 2007 study by the Institute for Defense Analyses on the JSF engine cost analysis noted that, "In 2035, the JSF would comprise 95 percent of the fighter attack force structure." Among other reasons, the committee remains concerned about proceeding with a \$110.0 billion, sole-source engine program for that percentage of the Department of Defense's future tactical fighter fleets.

The committee is also concerned about the operational risk of having a one engine program for the F-35 fleet, and notes that a former F-35 Program Executive Officer has stated, "The Pentagon needs to carefully consider the operational risk of having just one engine for the F-35 fighter jet. Competition could bring faster technology development and lower costs. A single engine could be worrisome if an engine problem ever grounded the fighters. In the past, having a variety of fighters meant the Pentagon could use other planes to offset any groundings, like an 11-month engine-related halt in Harriers in 2000. I simply think that we've focused too much on the discussion about cost benefit and not the operational risk benefit."

The committee also notes that section 3, titled "Scope of Work", of the 2006 memorandum of understanding (MOU) signed by all JSF partner nation senior defense officials regarding the production, sustainment, and follow-on development of the Joint Strike Fighter states that "the production work will include, but will not be limited to, the following: Production of the JSF air vehicle, including propulsion systems, both F135 and F136." The committee understands that this MOU is still current.

The committee further notes that, "The Final Report of the Quadrennial Defense Review Independent Panel" published on July 29, 2010, states: "History has shown that the only reliable source of price reduction through the life of a program is competition between dual sources." Consistent with that view, the committee strongly supports the December 2010 announcement by the Department of Defense that the Littoral Combat Ship (LCS) program would award a contract to 2 contractors for 10 ships each. The budget request contained \$1.9 billion through fiscal year 2016 for continued LCS development. Like the LCS program, the F-35 competitive engine program would also require development funding in the Future Years Defense Program, and the committee is perplexed why the Department would implement a dual-source acquisition strategy for the LCS program and not for the F-35 competitive engine program.

The committee believes that the F-35 competitive engine program has its roots in the F-16 alternate engine program which began in the early 1980s. Often called, "The Great Engine War" the committee notes that Robert Drewes, in his 1987 book, "The Air

Force and The Great Engine War,” wrote: “Competition is the only sure way to get the best effort. Competition did yield . . . some substantial initial benefits to the Air Force . . . engine improvements [were offered] to the Air Force earlier than the Air Force had been led to expect without the competition. Furthermore, unit prices were lower than . . . had previously been offer[ed]. Since the initial split buy in February 1984, competition further induced [the contractor] to grant even more concessions to the Air Force. Warranty prices have been reduced significantly and arrangements with the European Participating Governments have improved.”

The committee believes it is too early to have terminated the F136 development contract because it was 2 years after initial operational capability for the F-15 that problems first became apparent with the F-15 and F-16 F100 engine that resulted in the first alternate engine program, an equivalent point in time for the F-35, 7 years from now. The F-35 primary engine has 1,000 flight hours. The Department of Defense standard to achieve maturity on an engine requires 200,000 flight hours. In response to section 211 of the John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109-364), on March 15, 2007, the GAO presented to the committee, “Analysis of Costs for the Joint Strike Fighter Program,” which stated that experience suggests that competition between the F135 and F136 can generate savings and benefits up to 20 percent if:

- (1) Contractors are incentivized to achieve more aggressive production learning curves;
- (2) Annual completion for procurement is kept in place over an extended period;
- (3) Contractors produce more reliable engine, resulting in lower maintenance costs; and
- (4) Contractors invest additional corporate money to remain competitive.

For these reasons, the committee remains steadfast in its belief that continuing the F-35 competitive propulsion system program would be the right course of action for the F-35 propulsion system.

The committee understands that the F136 contractor intends to provide its own funds to continue F136 development for fiscal year 2012. Accordingly, elsewhere in this title, the committee includes a provision that would preserve and store property related to the F136 contract, and would ensure that the Secretary of Defense, at no cost to the Federal Government, provides support and allows for the use of such property by the contractor under a contract to conduct research, development, test, and evaluation of the F136 engine, if such activities are self-funded by the contractor.

#### *F-35 alternative ejection seat*

The budget request contained \$11.2 million in PE 64706F for Life Support Systems. Of this amount, no funding was requested for an F-35A alternative ejection seat.

The committee notes that the Department of the Air Force has benefited from a common family of ejection seats in its tactical aircraft fleet since the late 1970s. The committee understands that preliminary internal Air Force studies have determined that the potential exists for significant cost savings and increased pilot safety with an alternative ejection seat system for the F-35A. The com-

mittee also notes that the Department of Commerce has expressed concern about risks to national security if the United States becomes totally reliant on foreign sources for ejection seat technology. Accordingly, the committee believes the Department of Defense should be particularly mindful of these issues in evaluating competitive options for F-35A ejection seat program.

The committee understands that the Department of the Air Force is conducting a business-case analysis to determine whether an alternative F-35A ejection seat offers substantial F-35A life-cycle cost savings and commonality benefits to the Department of the Air Force tactical fighter fleets, while also considering the impacts on the Department of the Navy F-35B and F-35C programs as well as the F-35 program's international partners. The committee believes that the F-35 program's ejection seat requirement should be reviewed in the context of this analysis. If a decision to change the F-35A's ejection seat requirement is warranted by the business-case analysis, the committee urges the qualification and integration of an alternative ejection seat in the F-35A.

The committee recommends \$11.2 million in PE 64706F for Life Support Systems.

#### *Hosted payloads*

In the committee report (H. Rept. 111-491) accompanying the National Defense Authorization Act for Fiscal Year 2011, the committee directed the Secretary of Defense, in consultation with the Secretary of the Air Force, to "conduct a study of the options for hosting defense payloads on commercial satellites" which would "identify feasible options that offer potential savings and the specific actions required to take advantage of these opportunities," and submit the report by March 1, 2011. The committee is disappointed that it has not yet received the report and that the study has only recently begun.

The committee notes that the January 2011 National Security Space Strategy concluded that "hosting payloads on a mix of platforms in various orbits" can help achieve greater resiliency in space. The committee remains concerned that the Department of Defense has not devoted adequate attention and focus on evaluating opportunities for hosting defense payloads on commercial satellites. Such an approach may provide augmentation or gap-filler capabilities for the warfighter, and may be available sooner and at a lower cost than current major space acquisition programs.

The committee urges the Secretary of Defense to expedite the completion of this report and submit it to the congressional defense committees in a timely manner. The committee continues to support opportunities to host defense payloads on commercial satellites, including communications, space situational awareness, space weather, and classified payloads. Specifically, the committee looks forward to assessing potential cost savings, identifying funding opportunities for hosted payloads, and identifying legal or regulatory barriers that may hamper the government's flexibility to take advantage of hosted payload opportunities.

#### *KC-46A aerial refueling aircraft program*

The budget request contained \$877.1 million in PE 65221F for the next generation aerial refueling aircraft, KC-46A.

The committee supports the attributes and benefits regarding the KC-46A competition and acknowledges that the source-selection process was conducted fairly amongst all competitors. According to Department of Defense acquisition officials, the competition resulted in at least a twenty percent savings for the unit cost of the aircraft and a savings of \$3.0 to \$4.0 billion as compared to the source-selection competition held for the tanker in 2008.

The committee plans to closely monitor the KC-46A engineering, manufacturing and development program to ensure that the taxpayer dollars are wisely invested and that the platform will result in a capability that enhances the warfighter's global reach capabilities. The committee also understands that the Under Secretary of Defense for Acquisition, Technology and Logistics (USD, AT&L) will conduct quarterly reviews of the Air Force's KC-46A program.

Elsewhere in this title, the committee includes a provision that would require the Comptroller General of the United States to conduct an annual review of the KC-46A program and to provide the results to the congressional defense committees beginning on March 1, 2012. Furthermore, the committee directs USD, AT&L to provide to the congressional defense committees the results of each quarterly review of the KC-46A program within 30 days after the date of completion of each review. At each quarterly review briefing, USD, AT&L is directed to provide notice of a major engineering, design, capability or configuration change to the KC-46A, and cost for that change when it becomes known, that is different from the baseline aircraft offered in the final proposal related to Air Force contract #FA8625-11-C600.

The committee recommends \$849.9 million, a decrease of \$27.2 million, in PE 65221F for the next generation aerial refueling aircraft because that funding is in excess to the \$818.0 million obligation authority limited by USD, AT&L for the program for fiscal years 2010 and 2011.

#### *Lead-free electronic components*

The committee understands that international efforts to produce lead-free electronic components may lead to the widespread use of tin-based solder products and finishes in commercial electronic components. The committee further understands that the Secretary of the Air Force may use lead-free electronic components in the future through purchases of commercial-off-the-shelf items. The committee notes, however, that lead-free or tin-based solder products and finishes may result in an increased failure rate for military systems due to weaker solder finishes and tin whiskers. The committee believes that the Air Force needs to establish protocols to assess the risk and reliability of such components, including determination of potential failure mechanisms, development of test methodologies and models, and establishing reliability rates. The committee urges the Secretary of the Air Force to move rapidly to develop protocols for lead-free electronic components.

#### *Military satellite communications technology development*

The budget request contained \$421.7 million in PE 63430F for the Advanced Extremely High Frequency (AEHF) satellite program. Of this amount, \$142.2 million was requested for Evolved AEHF military satellite communications (MILSATCOM).

The budget request for Evolved AEHF MILSATCOM reflected the cost savings the Air Force expects to achieve in fiscal year 2012 as a result of its new Evolutionary Acquisition for Space Efficiency (EASE) approach to space acquisition. The EASE approach reinvests cost savings from satellite block buys into a steady research and development program called the “capability and affordability insertion program” (CAIP). Such an approach is envisioned to lower the cost and risk of follow-on systems, by placing the risk of new technology development and capability improvements outside of the critical path for satellite procurement until such technologies and capabilities are sufficiently mature for insertion into future satellite block upgrades.

While the committee supports CAIP, it is concerned that CAIP funds contained in the larger AEHF program element (PE) may be more susceptible to use as an offset source within the AEHF program than funds contained in a separate PE. The committee is also concerned that CAIP funds may be directed to specific contractors should they remain in a PE associated with a legacy satellite program and its associated contractors.

The committee believes that CAIP funds should be applied to a broad range of MILSATCOM technology development activities and competitively awarded. The committee also expects the Air Force to develop a spend plan for the funds, identify objectives for each activity, and establish a process for determining how each activity might transition to an existing program or be established as a new program, as would be required in a provision included elsewhere in this Act.

The committee therefore recommends the transfer of \$142.2 million from PE 63430F for the Advanced Extremely High Frequency satellite program to PE 64436F for next-generation MILSATCOM technology development.

The committee recommends \$279.5 million, a decrease of \$142.2 million, in PE 63430F for the AEHF satellite program.

#### *Next generation long-range strike bomber program*

The committee supports the decision to restart the development of a new bomber aircraft. The committee acknowledges that the current fleet of bomber aircraft are still effective and relevant in meeting the combatant commanders’ warfighting requirements but believes that the long-range strike requirements have been sufficiently analyzed on numerous occasions over the last 18 years against forecasted threats and that a recapitalization program must begin.

The committee expects the Secretary of the Air Force to monitor critical aspects of the new bomber program and to keep the committee informed of the program’s progress in a timely manner. The committee remains concerned with the workload being levied on the Air Force Rapid Capabilities Office (AFRCO) and will monitor the acquisition governance structure to ensure that AFRCO is staffed with acquisition officials that represent an appropriate and sufficient cross-section of recent operational experience, major defense acquisition program management, requirements development, technology integration, and cost estimation to effectively execute the bomber program.

The committee remains concerned that the Secretary of the Air Force has not performed a comprehensive life-cycle cost analysis comparing the development of one bomber platform, integrating all long-range strike capabilities, to a “family of long-range strike systems” to determine the affordability of the Department of Defense’s long-range strike portfolio strategy.

Elsewhere in this title, the committee includes a provision that would require the Secretary of Defense to designate the main propulsion system of the bomber aircraft as a major subprogram, as well as require the Secretary of the Air Force to develop a competitive acquisition strategy for the propulsion system.

#### *Operationally responsive space*

The John Warner National Defense Authorization Act for Fiscal Year 2007 (Public Law 109–364) established the Operationally Responsive Space (ORS) Office to respond to the needs of the joint force commander and to build an enabling infrastructure to support the rapid deployment of space capabilities. ORS capabilities have the potential to reduce the fragility of the space architecture through rapid reconstitution, provide augmentation or surge capabilities, and offer a pathway for demonstrating new technology or operational concepts. While ORS satellites would not have the performance of those from larger, traditional space acquisition programs, they are envisioned to be a quicker, lower cost way to get “good enough” capabilities on-orbit.

The committee is aware of two key ORS launches: ORS–1 is a small electro-optical and infrared satellite developed in response to a U.S. Central Command urgent need and planned for launch in May 2011; and TacSat–4 is planned for launch in July 2011. The committee understands the ORS Office is also pursuing a rapid response space works capability, as well as modular plug-and-play mission kits to enable a reconfigurable architecture and ultimately to demonstrate end-to-end solutions to support the U.S. Strategic Command vision of achieving a 6-day call up to launch.

The committee continues to support these ORS activities. However, the committee notes that funding for the ORS program has decreased over the past few fiscal years, from \$133.8 million in fiscal year 2010, to \$94.0 million in fiscal year 2011, to \$86.5 million requested in fiscal year 2012. The committee believes a steady level of effort and funds are necessary to advance ORS capabilities so they become sufficiently mature to provide rapid support to the warfighter.

#### *Space-Based Infrared System*

The budget request contained \$621.6 million in PE 64441F for the Space Based Infrared System (SBIRS), but contained no funds for data exploitation.

Two SBIRS highly elliptical orbit satellites are currently on orbit and the first SBIR geosynchronous earth orbit (GEO) satellite is expected to launch in May 2011, followed by a second GEO satellite launch in April 2012. Each satellite carries a scanning and staring sensor that provides missile warning, and supports missile defense, technical intelligence, and battlespace awareness missions.

The committee is concerned that the Air Force has not provided funds for the exploitation of SBIRS data, particularly the staring

sensor, and notes previous congressional efforts to include funds for such purpose.

The committee believes the Air Force and the broader defense and intelligence communities have not fully utilized the overhead persistent infrared (OPIR) data available from SBIRS. In particular, the committee believes SBIRS data could be further exploited to provide increased support to missile defense, and encourages the Missile Defense Agency to work with the Air Force and other OPIR experts, such as Sandia National Laboratory, to explore the extent to which SBIRS can provide some of the capability planned for the Precision Tracking Space System (PTSS). The committee also believes SBIRS data could be further exploited to provide new technical intelligence and battlespace awareness capabilities.

The committee understands that a joint OPIR ground effort has been established to focus on the longer-term needs of the OPIR community. The committee anticipates such effort will shape future budget requests for data exploitation capabilities from SBIRS and other OPIR sensors.

The committee recommends \$641.6 million, an increase of \$20.0 million, in PE 64441F, to be competitively awarded by the Secretary of the Air Force for the development of SBIRS data exploitation capabilities.

## RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, DEFENSE-WIDE

### Overview

The budget request contained \$19.8 billion for research, development, test, and evaluation, Defense-Wide. The committee recommends \$19.9 billion, an increase of \$109.2 million to the budget request.

The committee recommendations for the fiscal year 2012 research, development, test, and evaluation, Defense-Wide program are identified in division D of this Act.

### Items of Special Interest

#### *3-D advanced integrated circuit capabilities*

The committee is concerned about the domestic capacity to produce 3-D advanced integrated circuits in the United States. The committee is aware that much of the commercial capacity has been moved offshore, making the global supplier base for defense microelectronics increasingly insecure and susceptible to compromise through counterfeit or maliciously-altered circuits.

Therefore, the committee directs the Secretary of Defense to conduct a comprehensive assessment regarding 3-D integrated circuits manufacturing capacity to serve the U.S. military and other national security interests and to provide a report on the findings to the Senate Committee on Armed Services and the House Committee on Armed Services within 90 days after the date of the enactment of this Act. The report should include the following:

- (1) An assessment of the military requirements for 3-D integrated circuits in future microelectronic systems as a critical enabling technology for military applications;

(2) An assessment of the current domestic commercial capability to securely develop and manufacture 3-D integrated circuits for use in military systems and;

(3) An assessment of the feasibility, as well as planning and design requirements, for the development of a domestic manufacturing capability for 3-D integrated circuits at a number of locations within the United States, including Fort Leonard Wood, Missouri.

### *Airborne Infrared*

The budget request contained \$46.9 million in PE 64884C for the Airborne Infrared (ABIR) program for the Missile Defense Agency (MDA).

According to MDA budget materials, ABIR is planned to provide early precision tracking of ballistic missiles, discrimination, and fire control quality data to enable early intercepts. ABIR is also expected to increase the missile raid handling capacity of the ballistic missile defense system. The committee understands that ABIR technical feasibility has been demonstrated in several recent flight tests and experiments.

The committee is aware, based on an April 2011 briefing by Joint Staff officials on the Joint Capabilities Mix-III (JCM-III) study, that ABIR provides a significant contribution to the ballistic missile defense system. The JCM-III study further recommended accelerating ABIR capability development.

The committee understands that no less than 12 Government and contractor organizations participate in the ABIR program, including several Government research laboratories. The committee further understands that MDA issued a request for information in fiscal year 2011 and plans to issue a request for proposals in fiscal year 2012 for ABIR technology development.

Therefore, the committee recommends \$66.9 million, an increase of \$20.0 million, in PE 64884C, to be allocated at the discretion of the Director of the Missile Defense Agency, to accelerate ABIR development and experimentation.

### *Basic research international cooperation*

The committee recognizes the importance of basic research to the Department of Defense and is encouraged by the Department's continued emphasis in supporting funding increases in the budget request. Basic research is a key long-term strategic investment by the Department that has a track record of supporting the development of important technological capabilities, many of which were not clearly foreseen at the time. The committee is encouraged that basic research investments continue to grow at a rate of 2 percent above inflation, when most other areas of the President's budget request are flat or declining.

The committee is also aware that the current basic research strategic plan places significant emphasis on cyber capabilities, including enabling capabilities such as quantum information science. The committee encourages the Department to utilize the basic research program to increase cooperation and collaboration with our foreign allies and partners in the area of cyber security. The committee believes that this could serve as an important component in supporting the development of critical future capabilities for our

Armed Forces, as well as boosting the capacity of our foreign partners.

*Capabilities to support humanitarian assistance and disaster relief*

The committee recognizes the value that Department of Defense science and technology (S&T) efforts provide in addressing the full range of military missions. S&T investments are critical in providing technological options to address known requirements, as well as hedge against uncertainty. The committee notes that the preponderance of S&T investments are in traditional areas like weapons systems, platforms, and sensors. The committee is concerned that the current investment strategy leaves gaps in areas of unconventional or irregular threats.

Humanitarian assistance and disaster relief (HA/DR) represents one mission area that has not been a traditional focus of S&T investment. The committee notes that HA/DR missions are particularly prominent as part of a broader strategy of international engagement and show U.S. commitment to the global commons. Recent examples include Operation Unified Response in which the U.S. provided emergency disaster relief in the wake of the earthquake in the Republic of Haiti in 2010 and providing recent support following the earthquake and tsunami in Japan in 2011.

The committee believes that the Department of Defense should develop a strategy to focus more of its S&T investments on HA/DR. The committee is aware of existing work that could be accelerated and transitioned more widely, such as the Sustainable Technologies Accelerated Research Transformative Innovation for Development and Emergency Support initiative. The committee also recognizes that there are other areas where the Department of Defense has not traditionally focused many resources, such as the development of thermostable vaccines, where there are opportunities to collaborate with outside entities that offer expertise in developing global health technologies that could be pursued and better leveraged. The committee believes that the Department's increasing role in HA/DR missions will require greater technological options than are currently available and should be addressed through S&T development opportunities.

*Composite technology for use in missile defense interceptors*

The committee notes efforts by the Department of Defense (DOD) to develop and test carbon fiber composite materials for use in missile defense interceptors to improve performance and withstand the operational environment experienced by such interceptors.

The committee encourages the Department of Defense to continue efforts to increase the performance of high thermally conductive composites, such as carbon fiber composites, to improve the performance of missile defense interceptors.

*Conventional prompt global strike*

The budget request contained \$204.8 million in PE 64165D8Z for conventional prompt global strike (CPGS) capability development. The request would fund hypersonic boost-glide experiments, concept development and demonstration, alternate payload development and test, test-range development, and studies and analysis.

The committee notes that the first hypersonic technology vehicle (HTV-2) flight test in April 2010 was unsuccessful. According to the Department of Defense, a second HTV-2 flight test is planned for August 2011 and the first flight test of an alternative design, the advanced hypersonic weapon (AHW), is planned for fiscal year 2012. The committee understands that hypersonic technology is cutting-edge. The committee further recognizes that designing a vehicle to glide through the Earth's atmosphere at Mach 20, and developing the associated thermal management and guidance and control technology, is a significant scientific and engineering challenge.

While the committee values such innovation and scientific discovery, it is also concerned about pursuing a weaponized missile system, or any material development decision, before demonstrating that the technology is feasible. The committee believes a critical design review in fiscal year 2012 for an operational demonstration of a conventional strike missile (CSM) is premature.

The committee also questions the Department's apparent focus on one specific system solution. As stated in the President's February 2, 2011, report to Congress on conventional prompt global strike, in response to Condition 6 of the New START Treaty resolution of ratification, "preliminary discussions [regarding any specific acquisition programs for CPGS weapon systems] . . . is informed by one plausible configuration: the Air Force CSM utilizing the boost-glide approach." The committee is concerned about the affordability of CPGS given the current budgetary environment.

Based on briefings by the Department, the committee is aware of other potential conventional long-range strike capabilities that may be lower cost, carry less technical risk, and provide a capability sooner than CSM. The committee encourages a broader examination of the tradespace of CPGS capabilities and concepts to meet warfighter requirements.

The committee recommends \$179.8 million, a decrease of \$25.0 million, in PE 64165D8Z for CPGS capability development. The committee encourages the Department to focus on basic technology feasibility and believes its recommended reduction can be partially offset by expected fiscal year 2011 unobligated funds.

#### *Cyber test and evaluation*

The committee recognizes the importance of information technology (IT) and cyber security-related technologies in providing critical capabilities to Armed Forces in the future. The Weapon Systems Acquisition Reform Act of 2009 (Public Law 111-23) and the report "Panel on Defense Acquisition Reform Findings and Recommendations" places significant importance on conducting rigorous testing and evaluation in order to improve defense acquisition outcomes. While the "2010 Test and Evaluation Strategic Plan" addresses numerous capability gaps in cyber testing, the committee is concerned that the Department of Defense is not providing sufficient resources to address rapidly increasing demands to conduct developmental and operational test and evaluation (T&E) for future IT systems.

Therefore, the committee directs the Under Secretary of Defense for Acquisition, Technology, and Logistics, in coordination with the Secretaries of the military departments, to conduct an analysis of

T&E resources needed to address the capability gaps outlined by the “2010 Test and Evaluation Strategic Plan.” The analysis should examine the following:

- (1) Whether the Department of Defense is sufficiently funding T&E at the level necessary to address cyber and IT capability needs over the Future Years Defense Program;
- (2) Whether the Department of Defense has sufficient numbers of technical personnel with the expertise in IT disciplines to conduct T&E for cyber and IT systems over the Future Years Defense Program; and
- (3) Whether the Department of Defense has adequate infrastructure to conduct T&E for cyber and IT systems over the Future Years Defense Program.

The committee further directs the Under Secretary of Defense for Acquisition, Technology, and Logistics to brief the Senate Committee on Armed Services and the House Committee on Armed Services on the results of this analysis within 180 days after date of the enactment of this Act.

#### *Defense laboratory survey*

The committee recognizes the key role that Department of Defense (DOD) laboratories play in technology development, scientific innovation, and acquisition excellence. DOD laboratories are critical to maintaining the technological superiority and competency of the military, and to monitor global technology developments to prevent surprise and mitigate adversarial developments. The committee remains committed to ensuring that the Department of Defense laboratory system has the resources and authority to support the scientific and technological management of the military.

The committee is concerned, however, that there may be certain regulations, instructions, policies and practices instituted by the Department and the military services that may lessen the laboratories effectiveness and efficiency, hindering the innovative spirit that drives the laboratories. The committee believes that an assessment of the possible constraints on the mission of the various laboratories would be beneficial to ensuring their long-term viability as leaders in the pursuit of technological advancement.

Therefore, the committee directs the Assistant Secretary of Defense for Research and Engineering to survey directors of the Department of Defense laboratories to determine how to streamline DOD regulations, instructions and policies impacting the laboratories and to make recommendations to improve the Department of Defense laboratory system. The committee further directs the Assistant Secretary of Defense for Research and Engineering to provide a briefing on the results of this survey to the Senate Committee on Armed Services and House Armed Services Committee within 120 days after the date of enactment of this Act.

#### *Directed energy research*

The budget request contained \$96.3 million in PE 63901C for directed energy research programs for the Missile Defense Agency (MDA).

The budget request supports the maintenance of the Airborne Laser Test Bed (ALTB) as a science and technology test bed, addi-

tional beam propagation and lethality testing, and further maturation of Diode Pumped Alkaline-gas Laser System technology.

In the committee report (H. Rept. 111-491) accompanying the National Defense Authorization Act for Fiscal Year 2011, the committee directed the Director, Defense Research and Engineering (DDR&E) to submit a report on the Department's review of directed energy technologies to the congressional defense committees by July 1, 2010. The committee is disappointed that it has not received this report.

The committee notes that the ALTB is the only megawatt-class laser currently within the Department of Defense and understands that it is providing risk reduction for future airborne systems by performing wide-ranging laser science and technology. However, the committee notes a March 2011 Government Accountability Office report on ballistic missile defense that found, "technical issues continued to affect the test bed's experiments throughout fiscal year 2010 and into early fiscal year 2011." The committee is concerned that these technical issues, combined with recent ALTB flight test failures, may delay important laser technology risk reduction activities.

The committee supports the promising technologies and technology demonstration activities currently being reviewed which may warrant additional resources, and understands that the review of these technologies and research activities is to be included in the aforementioned DDR&E report. However, the committee is concerned that the budget request does not include sufficient funds to maintain the ALTB platform, support further testing, continue technology development, and retain a uniquely skilled workforce.

The committee recommends \$146.3 million, an increase of \$50.0 million, in PE 63901C for directed energy research programs for MDA, to be allocated at the discretion of the Director, Missile Defense Agency, in consultation with the Director, Defense Research and Engineering, to support increased research, development, and testing of directed energy technologies, including the use of the ALTB platform.

#### *Engineer and Scientist Exchange Program*

The committee is aware that the Department of Defense executes a program known as the Engineer and Scientist Exchange Program (ESEP). Its purpose is to promote international cooperation in military research, development, and acquisition through the exchange of defense scientists and engineers. The primary goals of ESEP are as follows:

- (1) Broaden perspectives in research and development techniques and methods;
- (2) Form a cadre of professionals with international experience to enhance research and development programs;
- (3) Gain insight into foreign research and development methods, organizational structures, procedures, production, logistics, testing, and management systems;
- (4) Cultivate future international cooperative endeavors; and
- (5) Avoid duplication of research efforts among allied nations.

The committee supports the goals of this program and encourages the Department to make greater use of this program to facili-

tate cooperation and collaboration with our foreign allies and partners in the area of computer network operations. The committee believes that this could help our foreign partners build their own cyber operations capabilities, as well as boost U.S. capacity in this area.

#### *Fabrication of micro-air vehicles*

The committee is aware that the Department of Defense is developing an array of micro-air vehicles to provide small-unit oriented sensing capabilities for tactical reconnaissance, hazardous materials sensing and clandestine surveillance. Many of the designs for these micro-air vehicles are based on biomimetic constructions that leverage the unique characteristics inherent in birds and insects. The committee is aware that these biomimetic designs pose unique fabrication challenges at the micro scale, particularly with regards to robustness and maintainability. The committee encourages the Department of Defense to continue research and development in the area of fabrication for micro-air vehicles, which the committee believes represents an underappreciated challenge to the widespread adoption and deployment of micro-air vehicles for defense applications.

#### *Ground-based midcourse defense*

The budget request contained \$1.2 billion in PE 63882C for the ballistic missile defense midcourse segment for the Missile Defense Agency (MDA).

The request supports the continued development, testing, operations, and sustainment of the ground-based midcourse (GMD) system, including the acquisition of 5 ground-based interceptors (GBI); completion of the new 14-silo Missile Field 2 at Fort Greely, Alaska; placement of the six-silo Missile Field 1 in Fort Greely, Alaska, in a mothball status; and beginning preliminary design work to locate an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at an East Coast site by 2015.

The last two intercept flight tests of the GMD system, FTG-06 in January 2010 and FTG-06a in December 2010, failed to achieve intercept. The committee understands that the FTG-06 failure was principally due to a quality control issue associated with a component in the exo-atmospheric kill vehicle (EKV). The FTG-06a failure is still under investigation but is also centered on technical issues involving the EKV.

The committee is troubled by these back-to-back flight test failures and, when viewed in the context of the entire GMD flight test history, questions whether there are more systemic issues within the GMD program. The committee remains concerned about the reliability of the GMD system and its overall operational effectiveness. The committee notes that the GMD system is currently the only missile defense system that protects the United States homeland from long-range ballistic missile attacks. The committee believes the Department must prioritize the GMD system and allocate sufficient resources to sustain, test, and evolve it. Elsewhere in this Act, the committee includes a provision that would establish the sense of Congress and require the Secretary of Defense to submit to the congressional defense committees a plan by the Director, Missile Defense Agency to address the GMD flight-test failures, in-

cluding the schedule and additional resources necessary to implement the plan.

The committee is also concerned about the budget trends in the GMD program and its potential impact on the reliability and effectiveness of the system. In the fiscal year 2010 budget, the GMD program was reduced by \$445.3 million. The fiscal year 2011 budget request restored \$324.2 million of this amount, but the fiscal year 2012 request would reduce the program by \$185.2 million. Furthermore, the Future Years Defense Program spending profile for GMD is approximately \$1.0 billion less than was projected 1-year ago.

Furthermore, the committee has learned that the combination of flight-test failures and MDA operations under reduced spending limits resulting from continuing resolutions during fiscal year 2011, before the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law 112-10) was enacted, has resulted in several schedule delays within the GMD program. In information provided to the committee, MDA indicates that it plans to delay GBI manufacturing and fleet upgrades; Stockpile Reliability Program component testing; new capability development, modeling, testing, and fielding; and missile defense complex communications upgrades at Fort Greely. In testimony before the Senate Committee on Armed Services in April 2011, the Director of the Missile Defense Agency noted that MDA also plans to delay flight testing of the two-stage GBI to harvest its funds to fix the EKV.

The committee supports the need to investigate and resolve the problems that plagued the EKV in the FTG-06a test, and believes this should be done prior to conducting additional intercept flight tests. However, the committee questions plans by MDA to wait over 2 years to repeat the FTG-06a intercept flight test given recent testimony by the Director of the Missile Defense Agency that MDA's top priority is to resolve the problem and successfully repeat FTG-06a.

Additionally, in testimony before the committee in March 2011, the Director, Missile Defense Agency acknowledged that procurement of additional GBIs will be necessary in light of recent flight-test results and that the Department should reassess the number of GBIs it should procure.

The committee understands, based on information provided by the Government Accountability Office (GAO), that MDA has halted deliveries of completed EKVs until the root cause is determined and resolved, but has allowed the contractor to continue work on components of the EKV that were deemed not part of the December 2010 failure in order to keep the production line moving and to allow a rapid recovery of deliveries once changes or mitigations are implemented. The committee supports such an approach and further believes MDA should begin acquiring long-lead components, deemed not part of the December 2010 failure, for additional GBIs. The committee further expects that MDA would procure additional GBIs in fiscal year 2013. The committee notes a GAO observation, contained in its October 2010 interim briefing to the congressional defense committees on the GMD program, that GBI purchases after fiscal year 2013 may incur manufacturing line restart costs for third and fourth tier suppliers, which might be higher than expected. The committee notes that MDA plans to award a new de-

velopment and sustainment contract for the GMD system in June 2011, and urges MDA to closely manage any contractor transition to minimize mission impact during this critical period in the GMD program.

The committee recommends \$1.3 billion, an increase of \$100.0 million, in PE 63882C for the ground-based midcourse defense system to accelerate resolution of the EKV failure, restore delays in testing, restore other program delays described above, and begin acquisition of long-lead components, deemed not part of the December 2010 failure, for additional GBIs.

#### *High Energy Liquid Laser Area Defense System*

The committee commends the Defense Advanced Research Projects Agency (DARPA) for its work in directed energy technology, and in particular the High Energy Liquid Laser Area Defense System (HELLADS) program. The committee believes that advancing the development of directed energy weapons will provide the Department with valuable technical capabilities to counter a range of perceived future threats. The committee recognizes that DARPA's innovative approach employed in the HELLADS program offers a valuable technological alternative that complements the approaches being pursued by the military departments. The size, weight, and power reductions expected from HELLADS are necessary steps if the Department wishes to find suitable tactical applications for directed energy weapons.

#### *Historically Black Colleges and Universities and Minority Serving Institutions*

The budget request contained no funds in PE 62228D8Z for the Historically Black Colleges and Universities and Minority Serving Institutions (HBCU/MI) program.

The committee is aware that the HBCU/MI program serves a number of objectives for the Department of Defense (DOD), including:

- (1) Enhancing research programs and capabilities in scientific and engineering disciplines critical to the national security functions of the Department;
- (2) Encouraging greater participation in DOD programs and activities;
- (3) Increasing the number of graduates, including underrepresented minorities in science, technical engineering and mathematics fields; and
- (4) Encouraging research and educational collaboration with other colleges and universities.

The committee continues to support the objectives of the HBCU/MI program, and the role it plays in expanding the breadth and diversity of the scientific workforce. Furthermore, the committee encourages the Department to explore ways to leverage the participation of not-for-profit institutions to enhance the goals of the HBCU/MI program.

The committee recommends \$10.0 million, an increase of \$10.0 million, in PE 62228D8Z to support additional competitive awards through the HBCU/MI program.

*Industrial research and development activities*

The committee continues to support the Department of Defense's research and development enterprise, including the key role played by the Department of Defense laboratories, product centers, and other engineering facilities. The committee believes that these facilities are critical to maintaining the military's technological superiority, as well as contributing to the economic health and scientific competitiveness of the United States.

The committee also recognizes that the defense industrial base makes significant investments that complement and sometimes supplant government funding in order to promote technological development. These industrial research and development (IR&D) investments are important components to creating a sustainable foundation for economic growth and technological advancement. In an era of shrinking budgets and fiscal constraint, the committee encourages the Department and the defense industrial base to create additional information sharing mechanisms that will increase visibility into these IR&D investments and better leverage limited resources, reduce the potential for duplication and waste, and improve government to industry collaboration on research.

*Israeli cooperative missile defense*

The budget request contained \$106.1 million in PE 63913C for Israeli cooperative programs for the Missile Defense Agency (MDA). Of this amount, \$11.8 million was requested for improvements to the Arrow Weapon System (AWS), \$53.2 million for continued development of the Arrow-3 interceptor, and \$41.1 million for continued development of the David's Sling Weapon System (DSWS).

The fiscal year 2012 request represents a decrease of \$103.8 million from the fiscal year 2011 appropriated level.

Since 1986, the United States and the State of Israel have cooperated on missile defense. MDA has four major initiatives with Israel to develop and improve the Israelis' indigenous capabilities to defend against short- and medium-range ballistic missiles: (1) AWS for defense against medium-range missile threats; (2) the Arrow-3 interceptor, an upper tier follow-on to AWS; (3) DSWS for defense against short-range systems; and (4) Iron Dome for defense against long-range rockets and short-range missiles. The United States and Israel also participate in joint missile defense exercises and tests, to enhance the interoperability and integration of U.S. and Israeli missile defense systems.

The committee commends Israel for its rapid development and deployment of the Iron Dome short-range rocket and missile defense system. In April 2011, the Iron Dome system shot down several rockets fired from the Gaza Strip aimed at Israeli cities. The committee believes such attacks are a reminder of the immediacy of the missile threat to Israel and the need for supporting accelerated efforts to cooperatively develop, test, and field missile defense capabilities for Israel.

However, the budget request does not support full-scale development of the DSWS to ensure that a first battery will be delivered in 2012. The budget request also fails to provide for completion of development and testing of AWS enhancements and acceleration of Arrow-3 interceptor development. The committee is aware that

steady progress continues to be made in meeting the agreed Arrow-3 knowledge points.

The committee therefore recommends \$216.1 million, an increase of \$110.0 million, in PE 63913C for Israeli cooperative programs, to be allocated at the discretion of the Director, Missile Defense Agency.

*Medical Countermeasures Initiative and the Chemical and Biological Defense Program*

The committee is aware that the Department of Defense is pursuing a new Medical Countermeasure Initiative (MCMI) within the Chemical and Biological Defense Program designed to enable rapid delivery of new medical countermeasures to dangerous pathogens through a strategic partnership between the U.S. Government and industry. The committee is also aware that MCMI is designed to enhance force protection for military personnel against emerging threats and infectious diseases and fill a capability gap, which was underscored by the inability to rapidly produce vaccine for the 2009 H1N1 influenza virus pandemic.

The committee is also aware that the Government Accountability Office (GAO) recently reported in GAO-11-318SP "Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue" that most Federal efforts and programs within the bio-defense enterprise are fragmented and that the overarching enterprise lacks strategic oversight mechanisms. GAO also concludes that there is no broad, integrated national strategy that encompasses all stakeholders with bio-defense responsibilities that can be used to guide the systemic identification of risk, assessment of resources needed to address those risks, and the prioritization and allocation of investment across the entire Federal Government. As such, neither the Office of Management and Budget, nor the Federal agencies account for bio-defense spending across the entire Federal Government.

While the committee understands the need to ensure rapid delivery of advanced medical countermeasures to dangerous pathogens, the committee is concerned that the Department is initiating MCMI as a new-start program in a bio-defense sector already identified by GAO as fragmented and disjointed. The committee therefore directs the Secretary of Defense to provide a detailed briefing to the Senate Committee on Armed Services and the House Committee on Armed Services within 90 days after the date of enactment of this Act, on the efforts taken by the Department to ensure programmatic success in this area, including but not limited to: cost, schedule, and performance in the Future Years Defense Program; efforts to interface with and implement cost-sharing mechanisms across industry; efforts to enhance efficiencies and reduce fragmentation related to Department of Defense equities within the interagency bio-defense enterprise; and efforts taken to ensure interagency collaboration such as cross-cutting information management and communications, research and development, and acquisition efforts.

### *Meeting airspace needs for defense-related Unmanned Aerial Systems research*

The committee notes that availability of special use airspace is important to research related to Unmanned Aerial Systems (UAS) and national defense needs. The proliferation of technology enabling the use of UAS represents a clear future threat to national security; however, lack of special use airspace to research detection techniques is a potential impediment to the Nation's ability to counter the threat. The committee encourages discussions between the Air Force Research Laboratory and the Federal Aviation Administration (FAA) to explore ways for the FAA and the Department of Defense to work together on problems related to integrating UAS into the National Airspace System. The committee urges the Department of Defense and the FAA to place a high priority on meeting national defense needs for special use airspace related to UAS research, including addressing defense needs for special use airspace for research in "detect and destroy" technologies.

### *Missile defense adjunct sensor capabilities*

The committee is aware of Department of Defense sensor capabilities that are not funded by the Missile Defense Agency but have the potential to contribute to the missile defense mission. Such adjunct sensor capabilities, including the radars on the Cobra Judy Replacement mobile maritime ship, could be integrated with ballistic missile defense software and linked with existing communications networks to provide additional detection, tracking, and discrimination of ballistic missiles, thereby improving sea- and land-based missile defense capabilities. The committee urges the Missile Defense Agency to work with the military services to identify such sensor capabilities and pursue opportunities to conduct simulations, experiments, and demonstrations to assess the feasibility and benefit of integrating adjunct sensors.

### *Mitochondrial disease research*

The committee believes that mitochondrial disease and dysfunction is relevant to military medicine. In particular, the role of the mitochondria as the "power plant" of the cell implicates it in a whole range of questions pertaining to energy levels and fatigue, which is directly related to human performance. Therefore the committee encourages the Department of Defense to include mitochondrial disease and dysfunction as one of the types of diseases researched through the general "Peer-Reviewed Medical Research Program".

### *Mobile applications development*

The committee is aware that the military departments and Defense agencies are pursuing future network strategies that would leverage developments in the commercial marketplace. These commercially-developed mobile devices, such as smart phones and tablet computers, are in high demand by the Armed Forces, and offer computational power, flexibility, and technology refresh rates not currently achievable in military-developed communications and computing devices.

The committee is also aware that some defense organizations, such as the Army, the Defense Information Systems Agency, and

the Defense Advanced Research Projects Agency (DARPA), have begun experimenting with mobile computing devices to field relevant applications for military use. For example, the Army held a competition in 2010 to spur development of mobile device applications, and has established a small, dedicated effort within Training and Doctrine Command to focus on mobile applications development. DARPA has also begun examining how the Department might support applications development for mobile computing devices in the future.

The committee is concerned that the Department has not devoted sufficient attention to these efforts, and thus the necessary policy developments needed to support these technology developments has been lagging. For example, the process for test, evaluation, certification and accreditation of these applications for network use has not been sufficiently clarified and takes significantly longer than similar processes in the commercial sector. This time lag and policy ambiguity has resulted in some users bypassing security procedures in order to get access to the capabilities these applications provide.

Therefore, the committee directs the Department of Defense (DOD) Chief Information Officer to develop and issue a Department of Defense Instruction within 180 days after the date of enactment of this Act to clarify the process for developing and using mobile applications on DOD networks. The Instruction should address development, test, evaluation, certification, accreditation, and mechanisms for making these applications available to the user community. The development of the Instruction should also be coordinated through the working group process supporting the development of a rapid information technology acquisition process as part of section 804 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84).

#### *Multidisciplinary research in cyber-related fields*

The committee is encouraged by the importance placed by the Department overall on research into cyber-related fields in the budget request. The committee is concerned that the current research emphasis has been on traditional computational and mathematical sciences and insufficient emphasis has been placed on the behavioral and economic aspects of cyber-related activities to develop a solid understanding of how decision-making and risk analysis are conducted. The committee encourages the Department to create more multidisciplinary research opportunities which combine traditional computational scientific fields with social science disciplines in order to provide a more quantitative scientific underpinning for understanding the behavioral aspects of cyber security.

#### *Nanotechnology research*

The committee is aware that the Department of Defense is pursuing research into a variety of nanotechnology applications for defense purposes. New capabilities enabled by the unique performance enhancements of nanostructure materials hold the potential of transforming the technology landscape. The committee encourages the Department to continue to make investments in nanotechnology research that is needed to create the next generation of sensors, electronics, weapons, and manufacturing processes.

However, the committee is concerned that the Department of Defense lacks sufficient expertise in some emerging research disciplines related to nanotechnology to support a long-term research investment strategy. The committee is aware that a dedicated federally funded research and development center (FFRDC) could support the Department in this effort, but that no such broad-based nanotechnology FFRDC exists.

Therefore, the committee directs the Assistant Secretary of Defense for Research and Engineering to provide a report to the Senate Committee on Armed Services and the House Committee on Armed Services within 90 days after the date of enactment of this Act on how the Department of Defense receives support from the research community on nanotechnology issues, including identifying where within the existing FFRDC community that expertise comes from, and assessing whether a dedicated FFRDC is needed.

#### *National Research and Education Center for Corrosion*

The committee recognizes the critical role that academia and university programs play in avoiding costly design and development errors and encourages the Department of Defense to strengthen its ties with researchers, service laboratories, and educators in the field of corrosion. The committee recommends that the Department of Defense Office of Corrosion Policy and Oversight expand university-related initiatives in the Department of Defense Corrosion Prevention and Mitigation Strategic Plan, which could include bachelor of science programs in corrosion engineering; expansion of projects that address high-cost areas in the Cost of Corrosion Baseline Study; and outreach, communication, education, training, and policy activities that support the warfighter. The committee endorses the action of the Director of Corrosion Policy and Oversight to establish a national research and education center for corrosion and recommends that the Secretary of Defense provide the necessary funding to support the faculty and associated resources at the center.

#### *Phased, adaptive approach*

The committee commends the Department of Defense (DOD) for the progress it has made over the past year in the implementation of the phased, adaptive approach (PAA) for missile defense in Europe. The committee also appreciates the Department's improved engagement with the committee on the European phased, adaptive approach (EPAA).

As announced by the President in September 2009, the EPAA is designed to: sustain U.S. homeland defense against long-range ballistic missile threats; speed protection of U.S. deployed forces, civilian personnel, and their accompanying families against the near-term missile threat from Iran; ensure and enhance the protection of the territory and populations of all North Atlantic Treaty Organization (NATO) allies, in concert with their missile defense capabilities, against the current and growing ballistic missile threat; deploy proven capabilities and technologies to meet current threats; and provide flexibility to upgrade and adjust the architecture, and to do so in a cost-effective manner, as the threat evolves.

The committee notes that NATO formally endorsed territorial missile defense at its November 2010 Lisbon Summit and in its

new Strategic Concept, and welcomed the EPAA “as a valuable national contribution to the NATO missile defence architecture.” The Lisbon Summit Declaration further stated that such a territorial missile defense capability would be “based on the principles of the indivisibility of Allied security and NATO solidarity.”

The committee has observed a range of DOD activities, many in conjunction with the Department of State, to implement EPAA. These include the March 2011 deployment of the Aegis ballistic missile defense cruiser USS *Monterey* to the Mediterranean for a 6-month mission to provide some defensive coverage of south and southeastern Europe as part of EPAA phase one, and ongoing bilateral negotiations with Romania and the Republic of Poland for the hosting of a land-based Aegis Ashore site as part of phase two and phase three, respectively. The committee is concerned, however, about the Department’s plans for forward-basing an AN/TPY-2 radar in southeastern Europe to meet the 2011 timeline for EPAA phase one, as a location has yet to be determined.

The committee expects continued engagement with the Department of Defense as the EPAA further evolves. The committee understands that specific command and control arrangements between the U.S. and other NATO members are still being developed. The committee believes contributions by U.S. allies are essential if EPAA is to be a NATO-wide capability and reflect the burden sharing commitment underpinning NATO.

Additionally, at the committee’s request, the Government Accountability Office (GAO) evaluated the Department of Defense’s plans for EPAA implementation. In its December 2010 report, GAO expressed concern that “DOD has not developed an overall investment cost or an acquisition decision schedule. The limited visibility into the costs and schedule for European PAA constrains independent assessments of progress as well as limits oversight.” Furthermore, a September 2010 independent assessment of EPAA by the Institute for Defense Analyses, required by section 235 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111–84), estimated the 27-year total costs for the EPAA at \$22.0 billion to \$23.0 billion, which is significantly more than cost estimates provided to the committee by MDA. As the committee continues its oversight of EPAA, it expects MDA to further refine its cost estimates.

GAO further observed that system schedules are highly optimistic in technology development, testing, production, and integration, leaving little room for potential delays. To this point, the committee is concerned about the development of the standard missile (SM)–3 Block IIA and SM–3 Block IIB interceptors as well as the timeline for phase 4 of the EPAA, which is planned to provide additional protection of the United States. Elsewhere in this Act, the committee includes an increase in SM–3 Block IIA funds.

#### *Precision Tracking Space System*

The budget request contained \$160.8 million in PE 64883C for the Precision Tracking Space System (PTSS) for the Missile Defense Agency (MDA).

The request would support trade studies and alternative analyses, preliminary subsystem designs, and risk reduction activities. According to MDA budget materials, PTSS is planned to provide

tracking, discrimination, and fire control quality data to enable earlier intercept opportunities. PTSS is also expected to increase the missile raid handling capacity of the ballistic missile defense system. The program was a new start in fiscal year 2011.

The committee is concerned about the acquisition approach for PTSS, which is planned to leverage mature technology, and be a less complex and lower-cost design than its predecessor, two Space Tracking and Surveillance System demonstration satellites launched in 2009 that are providing risk reduction for PTSS. However, MDA is leveraging Government and military laboratories to design and develop the first two PTSS satellites for launch in fiscal year 2016. The committee sees a dichotomy between MDA's plans for a technically mature, less complex system and an approach that leverages labs, which primarily focus on scientific research and advanced technology development. Furthermore, the committee is concerned that the technical trades required to implement a less complex, lower-cost design would lead to performance trade-offs that may impact the ability of PTSS to provide sufficient ascent and midcourse tracking.

Based on MDA descriptions, both PTSS and the Airborne Infrared (ABIR) system are planned to provide larger raid size tracking and support early intercept opportunities. The committee is concerned about the affordability of continuing both PTSS and ABIR given the current budgetary environment and the committee's other missile defense priorities.

The committee recommends no funds, a decrease of \$160.8 million, in PE 64883C for the Precision Tracking Space System. As noted elsewhere in this report, the committee recommends additional funds to accelerate ABIR, based on recommendations contained in the Joint Capabilities Mix-III study, and to increase data exploitation from other overhead persistent infrared sensors to include the Space-Based Infrared System and a program discussed in the classified annex accompanying this report.

### *Project Pelican*

The committee continues to support the efforts within the Office of the Assistant Secretary of Defense for Research and Engineering to pursue a technology demonstrator for a rigid-hull, variable-buoyancy hybrid air vehicle, known as "Project Pelican." As noted in the committee report (H. Rept. 111-166) accompanying the National Defense Authorization Act for Fiscal Year 2010, the proposed capabilities have the potential to revolutionize the future of intra-theater lift, as well as other areas of importance, such as intelligence, surveillance, reconnaissance, and communications relay.

However, the committee is cautiously optimistic about the progress of the demonstrator vehicle, and cautions against scaling this vehicle up to an operational system before the technology is adequately validated. The committee is concerned that airship technology has a history of being hampered by a variety of operational constraints that the military has not adequately dealt with since the last military airships were retired more than 50-years ago. The committee believes the Department should pursue a parallel path that demonstrates robust concepts of operation as the technology is matured and validated. Part of the process of developing concepts of operation should include planning and analysis

for addressing operational and logistical constraints of using large airships, such as basing, airspace management, and environmental issues.

Therefore, the committee directs the Assistant Secretary of Defense for Research and Engineering to conduct a series of tabletop exercises, in conjunction with the service acquisition executives of the military departments and the combatant commanders, to develop concepts of operations for how rigid-hull, variable-buoyancy hybrid air vehicle technology might be employed in future platforms. The committee further directs the Assistant Secretary to brief the Senate Committee on Armed Services and the House Committee on Armed Services on the results of the tabletop exercises within 270 days after the date of enactment of this Act.

#### *Scientific and engineering fellowships*

The committee recognizes the importance of the various fellowship and scholarship programs operated by the Department of Defense and the intelligence agencies. The committee strongly encourages the Department and other agencies to aggressively examine ways to increase the participation of diverse graduate level students in the physical sciences in these programs. The committee also encourages the Department to complement existing programs by partnering with non-profit organizations for these purposes when doing so would be cost-effective and beneficial.

#### *Semiconductor development*

The committee recognizes the importance of the development of advanced integrated circuits by the semiconductor industry for defense applications. The committee is aware that the diminishing domestic semiconductor supply chain poses a critical challenge to U.S. national security interests, particularly with regard to the impact that counterfeit and maliciously altered electronics could potentially have on systems requiring a high-degree of trust. Therefore, the committee encourages the Department of Defense to continue working with industry and academia to pursue development of new advanced domestic manufacturing technologies for semiconductors.

#### *Social media tools for collaboration*

The committee is aware that the Defense Information Systems Agency has been developing a range of collaboration tools as part of the Net Centric Enterprise Services (NCES) program. These collaboration tools are necessary for Department of Defense personnel to carry out their missions. However, it is unclear whether these tools can evolve rapidly enough to meet the growing capability demands of the user community.

The committee understands that emerging social media applications for the commercial marketplace have been developed in parallel at a much faster pace, and also provide significant capability for collaboration and information analysis. The committee urges the Defense Information Systems Agency to examine these social media tools to determine how they might be better integrated into future increments of NCES to complement traditional collaboration tools.

*Standard Missile-3 Block IIA interceptor*

The budget request contained \$424.5 million in PE 64881C for Standard Missile (SM)-3 Block IIA Co-Development for the Missile Defense Agency (MDA).

The request would support the continued development and testing of the SM-3 Block IIA interceptor, which is being co-developed in cooperation with the Government of Japan. The SM-3 Block IIA is being designed with a larger diameter missile and more advanced kill vehicle technology than the SM-3 Block IA/IB interceptor. Upon planned deployment in 2018 as part of phase 3 of the President's phased, adaptive approach to missile defense in Europe, the SM-3 Block IIB is expected to provide expanded coverage of Europe against intermediate range ballistic missile threats, and may provide some limited intercontinental ballistic missile intercept capability.

The committee is concerned about schedule risk in the SM-3 Block IIA program. The system preliminary design review (PDR) is planned for fiscal year 2012, leading to a first flight test planned for the first quarter of fiscal year 2015. The committee understands, however, that technical issues surfaced during component-level PDRs involving the divert and attitude control system in the kill vehicle, nosecone weight, and third stage rocket motor. The committee understands the technology maturation process and appreciates MDA efforts to retire technology risk. However, the committee believes MDA will be challenged in holding to its current schedule and is concerned about the program's ability to meet its planned 2018 deployment date.

The committee requests MDA to provide an updated schedule and funding profile for the SM-3 Block IIA program should either change in the near-term. The committee also notes that arrangements for SM-3 Block IIA production have not been determined with the Government of Japan, and the committee encourages the Department of Defense to begin such discussions.

The committee recommends \$464.5 million, an increase of \$40.0 million, in PE 64881C for SM-3 Block IIA Co-Development to fund additional development and technology risk reduction efforts, at the discretion of the Director, Missile Defense Agency, to reduce schedule risk.

*Study on possible establishment of a power and energy University Affiliated Research Center*

The committee recognizes the national security imperative for diversifying fuel supply and reducing energy consumption. The Department of Defense has many Department goals and laws for reducing energy consumption including increasing the use of renewable technologies.

Establishing a University Affiliated Research Center (UARC) is one potential method for providing the Department of Defense with long-term continuity for essential research, development, and engineering capability enhancements in specific mission areas. Therefore, the committee directs the Secretary of Defense to conduct a study to assess the cost and feasibility of establishing a UARC that researches and develops power and energy technologies to reduce energy demand, improve energy-efficiency, and help achieve the overall mission requirements of the Department of Defense and

military services. The committee further directs the Secretary of Defense to submit a report to the Senate Committee on Armed Services and the House Committee on Armed Services by February 29, 2012. The report should include recommendations regarding the potential establishment of this UARC, the proposed funding required to establish the UARC, and an analysis of potential locations.

### *Technology transition and insertion*

The committee understands that rapid acquisition programs are increasingly used in the place of dedicated technology transition programs and that the Department did not request any funds for fiscal year 2012 for the Defense Acquisition Challenge program. The committee is concerned about the effectiveness of technology transition within the Department and the opportunity to insert innovative and cost-saving technologies into Department of Defense acquisition programs.

The committee notes that technology transition is essential to fulfilling the mandate of section 202 of the Weapon Systems Acquisition Reform Act of 2009 (Public Law 111–23), which requires acquisition strategies to ensure competition throughout the lifecycle of major defense acquisition programs. The committee believes that program managers are risk averse and are not incentivized to pull new technologies into programs of record in order to foster competition and reduce program cost. Consequently, there is a need for mechanisms external to a program of record to identify promising new technologies and to reduce the risk of technology transition for major defense acquisition programs. However, both the committee and the Government Accountability Office have observed that the Department's approach to funding transition is flawed and that multiple, small funding sources for specific transition activities offer a piecemeal solution to a more systemic problem.

Accordingly, section 253 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110–417) required the Under Secretary of Defense for Acquisition, Technology and Logistics (USD (AT&L)) to assess the feasibility of consolidating technology transition accounts into one account to be managed at the Department-level. Section 253 also required the USD (AT&L) to submit a report to Congress on the aforementioned assessment and include recommendations concerning the streamlining and improvement of technology transition activities throughout the Department. Unfortunately, the USD(AT&L) has failed to comply with this statutory requirement, which was required no later than October 1, 2009.

Elsewhere in this Act, the committee includes a provision that would repeal the Technology Transition Initiative, section 2359a of title 10, United States Code effective October 1, 2012. However, the repeal of that initiative is incumbent upon compliance with section 253 of Public Law 110–417. The committee expects the USD(AT&L) to comply with section 253 no later than August 31, 2011, so the congressional defense committees can understand the full ramifications of the repeal or modification of technology transition and insertion activities, such as the Technology Transition Initiative and the Defense Acquisition Challenge program.

### *University Affiliated Research Centers*

The committee is aware that the Department of Defense funds a number of University Affiliated Research Centers (UARC) to support its research needs. Although permitted by law to award research and development contracts non-competitively to universities and other non-profit organizations, the Department of Defense has chosen to limit the UARC program to universities. The committee is concerned that by barring non-profit research organizations from programs such as UARCs, the Department is depriving itself from utilizing specialized expertise that exists within non-profit research and development organizations.

Therefore, the committee directs the Assistant Secretary of Defense for Research and Engineering to review the Department of Defense's guidance pertaining to non-profit research institutions to participate in UARCs and other research and development contracting opportunities to ensure that these organizations are not being unfairly excluded from competitions. The committee further directs the Assistant Secretary of Defense for Research and Engineering to provide a briefing on the results of this review to the Senate Committee on Armed Services and House Committee on Armed Services within 90 days after the date of enactment of this Act.

### *Vertical lift consortium*

The committee recognizes the essential role that vertical lift aircraft serve as a critical enabler for the Department's execution of time-sensitive and terrain-restricted combat and humanitarian missions around the world. The committee notes that the requirements of the combatant commanders for vertical lift capabilities continue to increase. The committee supports the Department's future vertical lift initiative to improve the long-term state of military vertical lift aircraft. The committee also supports the Department's efforts to promote the formation of, and its subsequent engagement with the Vertical Lift Consortium (VLC), a non-profit corporation with open membership made up of large, small, and non-traditional U.S. businesses and academia engaged in rotorcraft technology development. The Department established an Other Transaction Agreement with the VLC which provides a mechanism for it to receive direct feedback regarding the development of realistic and achievable requirements, and provides a simplified contract vehicle for the competitive award of contracts for the rapid and low-cost flight demonstration of vertical lift technologies responsive to warfighter needs.

The committee notes that despite encouraging the establishment of the VLC, the Department has yet to fund it. The committee encourages the Department to take action to either fund the VLC or to disestablish it in the near future. In addition, the committee directs the Under Secretary of Defense for Acquisition, Technology, and Logistics to submit a report to the congressional defense committees by April 1, 2012, that states the Department's current and future plans for the VLC.

### *Weaponization of rail-launched Unmanned Aerial Systems*

The committee is encouraged by the Department of Defense's interest in weaponizing rail-launched Unmanned Aerial Systems

(UAS) to respond to urgent requirements to protect U.S. and coalition forces. The committee further understands there is an urgent needs statement being staffed to meet requirements in U.S. Central Command's area of responsibility.

The committee recommends that the Department of Defense continue to pursue the conventional weaponization of rail-launched UAS, like the RQ-7B Shadow and similar systems to respond to urgent requirements to better defend U.S. and coalition forces.

#### *Weapons of Mass Destruction defeat technologies and capabilities*

The committee notes that the Defense Threat Reduction Agency (DTRA) continues a strong partnership with each of the services and U.S. Special Operations Command to develop and field innovative weapons of mass destruction (WMD) defeat technologies and solutions that reduce, eliminate and counter the threat of chemical, biological, radiological, nuclear, and high-yield explosive materials (CBRNE). In particular, the committee supports DTRA's ongoing activities to develop and demonstrate innovative munitions that incinerate and destroy chemical and biological agents without incidental target agent dispersal and area contamination. These technical capabilities remain an area of particular interest to the committee since the national intelligence community continues to assess credible threats posed by terrorist groups, states, and state-sponsored entities to acquire and weaponize CBRNE materials for use against the United States and its allies. The committee therefore encourages DTRA to continue development and demonstration of innovative and emerging agent and functional defeat technologies to ensure prompt transition of validated capabilities to address national security requirements.

### OPERATIONAL TEST AND EVALUATION, DEFENSE

#### Overview

The budget request contained \$191.3 million for operational test and evaluation, Defense. The committee recommends \$191.3 million, the requested amount for fiscal year 2012.

The committee recommendations for the fiscal year 2012 operational test and evaluation, Defense program are identified in division D of this Act.

### LEGISLATIVE PROVISIONS

#### SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

##### Section 201—Authorization of Appropriations

This section would authorize appropriations for Research, Development, Test, and Evaluation at the levels identified in section 4201 of division D of this Act.

SUBTITLE B—PROGRAM REQUIREMENTS, RESTRICTIONS, AND  
LIMITATIONS

Section 211—Limitation on Availability of Funds for the Ground  
Combat Vehicle Program

This section would limit obligation or expenditure of funds to not more than 70 percent for the Ground Combat Vehicle (GCV) program until the Secretary of the Army provides a report to the defense committees containing an updated analysis of alternatives that includes a quantitative comparison of the most current upgraded Bradley Fighting Vehicle and other alternatives against the revised GCV design concept.

The committee continues to support the Army's goal of pursuing a modernized combat vehicle. However, before the Army starts another major development program that could cost over \$30.0 billion, the committee must be convinced that the GCV will be significantly more capable than an upgraded version of current fielded platforms. The committee understands that the Army wants the GCV to carry three additional soldiers, but the committee believes that should not be the primary attribute that drives the decision on continuing the project on its current path. The committee believes that the GCV program should not proceed beyond the technology development phase unless the committee's issues and concerns are addressed.

Section 212—Limitation on the Individual Carbine Program

This section would require the Secretary of the Army to conduct a robust and comprehensive analysis of alternatives (AOA) assessment, similar to a cost and operational effectiveness analysis for the Individual Carbine (IC) program. The section would also prohibit the IC program from moving beyond its milestone C decision point until such analysis has occurred and has been reported to the congressional defense committees not later than 90 days after enactment of this Act.

The committee expects the AOA to evaluate the operational effectiveness and affordability of system alternatives that satisfy the Army's needs for a primary small arms weapon system, highlighting the relationship between cost, schedule, and performance. The committee believes this AOA should include commercial off-the-shelf solutions, solutions requiring minimal developmental efforts, and current programs of record. The committee expects that for each alternative, the analysis would detail implications for doctrine, organizations, training, leadership and education, personnel, and facilities.

The committee understands the objective of the IC program is to procure and field a carbine that can achieve greater accuracy, lethality, and reliability than the existing M4 carbine, while also providing better ergonomics, and use current accessory items or accessory items with like-capabilities. The committee notes that this program could potentially be worth over \$1.0 billion and could replace all M4 carbines in the current inventory. Because of the value and significance of this program, the committee believes an analysis of alternatives is required before any production decision is made.

The committee is also aware that the Army is initiating a competitive product improvement program (PIP) as a near-term solution for system upgrades to the M4 carbine and encourages the Secretary of the Army to consider these product improvements as part of the required AOA. The committee encourages the Secretary of the Army to consider evaluating commercial-off-the-shelf solutions as part of any PIP solution.

#### Section 213—Limitation on Availability of Funds for Ohio-class Ballistic Missile Submarine Replacement Program

This section would contain four findings concerning the number of submarine launched ballistic missile (SLBM) launchers (missile tubes) planned for the Ohio-class ballistic missile submarine (SSBN) replacement, the composition of the deployed nuclear deterrent force of the United States planned under the New Strategic Arms Reduction Treaty (New START), and recent testimony by the commander of the United States Strategic Command.

This section would express a sense of Congress that:

(1) The long-term ability of the United States to maintain a nuclear force sufficient to address the range of mission requirements necessary to deter, dissuade, and defeat potential adversaries and assure allies and partners must not be comprised solely on the basis of the promise of potential cost savings resulting from the Department's decision to reduce the planned number of missile tubes per Ohio-class ballistic missile submarine from 24 to 16; and

(2) The planned Ohio-class ballistic submarine replacement is expected to be in operations through 2080 and therefore near-term design decisions should take into consideration uncertainties in the future threat and strategic environment.

This section would also limit the obligation and expenditure of funds authorized to be appropriated or otherwise made available for fiscal year 2012 for the Ohio-class ballistic missile submarine replacement program to not more than 90 percent until the Secretary of Defense submits to the congressional defense committees a report summarizing the analysis that supported the Department's decision to reduce the planned number of missile tubes per submarine to 16. Reporting elements would include: a description of the assumed threat and strategic environment throughout the expected operational lifetime of the program; a description of any assumptions regarding changes in nuclear policy and strategy, and further nuclear reductions; an identification of any missions or requirements that may have increased risk; and a summary of the cost comparison between 16 and 20 missile tube designs, including the accuracy of the cost estimate.

Over the course of the last year, the committee has received inconsistent information on the number of missile tubes per hull planned for the Ohio-class ballistic missile submarine replacement. In a May 13, 2010, report to Congress, required by section 1251 of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84), the President outlined his SSBN force structure plans: "The Secretary of Defense, based on recommendations from the Joint Chiefs of Staff, has established a baseline nuclear force structure that fully supports U.S. security requirements and conforms to the New START limits. . . . The United States will reduce

the number of SLBM launchers (launch tubes) from 24 to 20 per SSBN, and deploy no more than 240 SLBMs at any time.” These plans for 20 missile tubes per SSBN were reaffirmed in the joint Department of Energy and Department of Defense February 16, 2011, update to the report required by section 1251. However, on January 10, 2011, the Under Secretary of Defense for Acquisition, Technology, and Logistics issued an acquisition decision memorandum for the Ohio-class submarine replacement program whereby the Navy received milestone A approval to proceed with a design based on 16 missile tubes.

The committee remains unclear as to the analysis and assumptions that informed the Department’s decision to reduce the planned number of missile tubes per SSBN from 24 to 16, and the rationale for its deviation from the baseline force structure of 20 missile tubes per SSBN outlined in the report required by section 1251, other than the promise of potential cost savings. The committee seeks to hold the Department accountable to providing it with such information.

#### Section 214—Limitation on Availability of Funds for Amphibious Assault Vehicles of the Marine Corps

This section would limit the obligation of funds committed for the amphibious assault vehicle until the Secretary of Defense meets certain requirements.

The committee notes that the budget request contained no funds for the Expeditionary Fighting Vehicle (EFV) and that the Department is terminating the program. The committee continues to be frustrated with the lack of transparency by the Department, and its failure to inform Congress prior to making major weapons systems decisions that have significant national security implications. The committee agrees with the June 5, 2007, Nunn-McCurdy recertification letter submitted to Congress, which stated there are no options other than a restructured EFV program that could provide equal or greater military capability at less cost. The recertification letter also stated that initiating a new start program would increase operational risk due to further delayed deliveries, and pursuing an upgraded Amphibious Assault Vehicle (AAV), while entailing lower cost, would provide less military capability due to the slow speed of the AAV. In addition, the recertification letter stated that the Joint Requirements Oversight Committee (JROC) affirmed the need for a high-speed amphibious assault capability. The EFV’s ability to accelerate until the vehicle moves along the top of the water is what gave it the capability to reach speeds in excess of 25 knots.

The Department briefed the committee on its rationale for termination of the EFV program on April 7, 2011. The committee remains concerned that the Department failed to conduct the proper analysis prior to making the decision to terminate the EFV program. The committee has yet to see the detailed analysis that would show one way or the other whether or not other alternatives may have been a more efficient solution rather than terminating the EFV program. The committee questions the Department’s assumptions behind the decision to change the deployment distance from 25 nautical miles to 12 nautical miles. In addition, the committee believes that the Marine’s combat effectiveness will be nega-

tively impacted as a result of potential motion sickness stemming from riding in an amphibious assault vehicle that is not up on plane for long periods of time. The current AAV is launched from approximately 2 nautical miles and can travel up to 6 knots in ideal sea state conditions. During the April 7 briefing, the committee was told that an upgraded AAV might be able to reach 10 knots and that the speed requirement for the follow-on effort to the EFV, the Amphibious Combat Vehicle (ACV), would be somewhere in the vicinity of 14 knots. The committee notes that a replacement vehicle to the EFV would have to go 16 or 17 knots in order to accelerate until the vehicle moves along the top of the water. The committee is concerned that although no analysis has yet to be completed, the Department has determined that it does not have a high-speed water requirement as validated by the JROC in 2007.

The committee is concerned by what it believes is the Department's current plan to spend approximately \$3.0 billion to upgrade the current AAV for it to go from a max speed of 6 knots to 10 knots, travel and then spend an additional \$6.0 to \$7.0 billion on the ACV so that it can travel up to 14 knots. The committee is concerned that the Department may not be able afford both a comprehensive upgrade to the AAV, and a new start ACV program. The committee believes that a more affordable plan would be minor upgrades that are focused on survivability to the current AAV, which would allow the Department to focus its remaining resources on the ACV program. The committee encourages the Department to develop an acquisition strategy that would produce the ACV program within approximately 5 years upon new start approval.

#### Section 215—Limitation on Obligation of Funds for the Propulsion System for the F-35 Lightning II Aircraft Program

This section would limit the obligation or expenditure of funds for performance improvements to the F-35 Lightning II propulsion system unless the Secretary of Defense ensures the competitive development and production of such propulsion system. This section would define the term "performance improvement," with respect to the propulsion system for the F-35 Lightning II aircraft program, as an increase in fan or core engine airflow volume or maximum thrust in military or afterburner setting for the primary purpose of improving the take-off performance or vertical load bring back of such aircraft, and would not include development or procurement improvements with respect to weight, acquisition cost, operations and support costs, durability, manufacturing efficiencies, observability requirements, or repair costs.

#### Section 216—Limitation on Obligation of Funds for Joint Replacement Fuze Program

This section would limit the obligation and expenditure of funds authorized to be appropriated or otherwise made available for fiscal year 2012 for the Air Force for the joint/common replacement fuze program for Air Force and Navy nuclear warheads to not more than 75 percent until the Secretary of Defense submits a report to the congressional defense committees on the feasibility of the program. The committee notes that an ongoing Air Force effort to modernize fuzes on the Mk21 reentry vehicle through a depot re-

refurbishment program experienced significant schedule delays. A review of this refurbishment program indicates that the Air Force failed to conduct a feasibility study to determine whether the depot had the expertise and capability to perform the refurbishment.

The committee understands that the Air Force and Navy are pursuing a joint/common replacement fuze program for both intercontinental and submarine-launched ballistic missile reentry vehicles. The committee applauds their efforts to seek efficiencies and share lessons learned through such a program. However, the committee seeks to ensure that all stakeholders have developed a full understanding of the feasibility of the proposed replacement program before full development proceeds, and avoid the pitfalls experienced in the Air Force refurbishment program.

#### Section 217—Limitation on Availability of Funds for the Joint Space Operations Center Management System

This section would limit the obligation or expenditure of funds authorized to be appropriated or otherwise made available for fiscal year 2012 for release one of the Joint Space Operations Center Management System (JMS) until the Under Secretary of Defense for Acquisition, Technology, and Logistics and the Secretary of the Air Force jointly provide to the congressional defense committees the acquisition strategy for JMS, to include a description of the acquisition policies and procedures applicable to JMS and any additional acquisition authorities that may be necessary.

This section would also express a sense of Congress that improvements to U.S. space situational awareness and space command and control capabilities are necessary, and the traditional defense acquisition process is not optimal for developing the services oriented architecture and net-centric environment planned for JMS.

#### Section 218—Limitation on Availability of Funds for Wireless Innovation Fund

This section would prohibit the Defense Advanced Research Projects Agency from obligating more than 10 percent of the funds available for fiscal year 2012 for the Wireless Innovation Fund until the Under Secretary of Defense for Acquisition, Technology, and Logistics provides a report on how the fund will be managed and executed.

#### Section 219—Advanced Rotorcraft Flight Research and Development

This section would authorize the Secretary of the Army to conduct a program for flight research and demonstration of advanced helicopter technology in accordance with section 2226(f)(3) of title 10, United States Code.

Section 220—Designation of Main Propulsion System of the Next-Generation Long-Range Strike Bomber Aircraft as Major Subprogram

This section would require the Secretary of Defense to designate the main propulsion system of the next-generation long-range strike bomber aircraft as a major subprogram and would require

the Secretary of the Air Force to develop a competitive acquisition strategy for the propulsion system.

#### Section 221—Designation of Electromagnetic Aircraft Launch System Development and Procurement Program as Major Subprogram

This section would direct the Secretary of Defense to designate the Electromagnetic Aircraft Launch System (EMALS) as a major subprogram of the CVN-78 Ford-class aircraft carrier major defense acquisition program within 30 days after the date of enactment of this Act. A major subprogram is defined in section 2430a of title 10, United States Code.

The committee is aware that EMALS is progressing through its land-based testing. However, earlier problems in development have reduced almost all schedule margin in order to make the date the equipment must be in the shipyard for installation in the first ship of the class. The committee acknowledges elevating EMALS to a major subprogram will provide the proper oversight to this critical system as it continues its development and production.

#### Section 222—Prohibition on Delegation of Budgeting Authority for Certain Research and Educational Programs

This section would prohibit the Secretary of Defense from delegating the authority for programming or budgeting of the Office of the Secretary of Defense Historically Black Colleges and Universities and Minority Serving Institutions program to an individual outside the Office of the Secretary of Defense.

#### Section 223—Limitation on Availability of Funds for Future Unmanned Carrier-based Strike System

This section would limit obligation of fiscal year 2012 FUCSS funds to no more than 15 percent until 60 days after the Chairman of the Joint Requirements Oversight Council, the Under Secretary of Defense for Acquisition, Technology and Logistics, and the Assistant Secretary of the Navy for Research, Development and Acquisition submit certain certifications regarding the acquisition of FUCSS to the congressional defense committees. This provision would also require the Comptroller General of the United States to provide the congressional defense committees a briefing, subsequent to a review of the Navy's FUCSS acquisition strategy, no later than 90 days after the date on which the aforementioned Department of Defense officials submit the certain certifications to the congressional defense committees.

### SUBTITLE C—MISSILE DEFENSE PROGRAMS

#### Section 231—Acquisition Accountability Reports on the Ballistic Missile Defense System

This section would amend chapter 9 of title 10, United States Code, by adding a new section 225 that would require the Secretary of Defense to establish and maintain an acquisition baseline for each program element and designated subprogram element of the ballistic missile defense system before the program or subpro-

gram enters engineering and manufacturing development, and production and deployment.

This section would incorporate and expand upon annual reporting requirements established in section 225 of the Ike Skelton National Defense Authorization Act for Fiscal Year 2011 (Public Law 111–383), to include reporting on schedules and milestones, acquisition quantities, requirements, technical capabilities, cost estimates, and test plans. Additionally, this section would repeal section 225 of the Ike Skelton National Defense Authorization Act for Fiscal Year 2011, section 223(g) of the National Defense Authorization Act for Fiscal Year 2008 (Public Law 110–181), and section 221 of the Bob Stump National Defense Authorization Act for Fiscal Year 2003 (Public Law 107–314), to reduce duplication in missile defense reporting requirements.

### Section 232—Limitation on Availability of Funds for Medium Extended Air Defense System

This section would express the sense of Congress on the Medium Extended Air Defense System (MEADS). This section would also provide a limitation that no funds made available in fiscal year 2012 for MEADS may be obligated or expended until the Secretary of Defense either negotiates a multilateral termination of the MEADS contract or restructures the MEADS program, and ensures that specific deliverables will be transitioned to a program of record by September 30, 2013.

This limitation would also require the Secretary of Defense to submit written notification to the congressional defense committees on several elements, including: MEADS termination costs or program restructure costs; the program schedule and specific deliverables; the specific technologies to be harvested and the plans for transitioning such technologies to a current program of record; and how the Secretary plans to address the Department’s air and missile defense requirements in the absence of a fielded MEADS capability, including a summary of the activities, and cost estimate and funding profile, necessary to sustain and upgrade the Patriot air and missile defense system.

In a Department of Defense MEADS fact sheet, dated February 14, 2011, and subsequent Medium Extended Air Defense System Report to Congress, dated March 18, 2011, the Department concluded that the completion of MEADS design and development (D&D) would require an additional \$2.0 billion, of which the U.S. Government’s share would be \$1.2 billion, and extend the schedule by 30 months at a minimum. The Department of Defense estimated that an additional \$800.0 million would be required to complete U.S.-unique certification, test, and evaluation requirements, and integration. Therefore, the Department of Defense concluded that, “The U.S. cannot afford to purchase MEADS and make required upgrades to Patriot concurrently over the next two decades,” and decided to complete a proof of concept effort, which is scheduled to be completed by 2014, using the remaining D&D funds agreed to in a 2004 memorandum of understanding. The Department argues that this effort would put the D&D program on stable footing should the Italian Republic and the Federal Republic of Germany wish to continue MEADS development and production, although the U.S. has decided not to pursue MEADS procurement and pro-

duction. The budget request contained \$804.0 million across fiscal years 2012–13 for the U.S. share of the proof of concept effort.

The committee is concerned about authorizing significant funds for a program that the Department does not intend to procure, and whose record of performance, according to the February 14, 2011 Department of Defense fact sheet, “might ordinarily make it a candidate for cancellation.” Additionally, the committee lacks confidence that the proof of concept would result in viable prototypes and demonstrated capabilities. The Chief of Staff of the Army testified before the committee in March 2011 that he is “not convinced” the MEADS proof of concept is viable.

Rather than focus on a proof of concept effort, the committee believes the Department should immediately identify and harvest promising MEADS technologies, whether U.S. or partner-developed, and transition those technologies into a Patriot air and missile defense system upgrade effort or other viable program of record. The committee understands that the Department must now sustain the Patriot system longer than previously planned and expects the Department to provide its plans for sustaining and upgrading the system. Several countries in the Middle East, Europe, and East Asia operate Patriot systems. The committee believes a Patriot system upgrade effort that includes promising MEADS technologies may benefit not only the U.S., but many other countries with Patriot systems.

In conjunction with the Department’s Patriot sustainment and upgrade plans, the committee expects the Department to develop a cost estimate and funding profile for such plans and to include those funds in the fiscal year 2013 budget request.

The committee is aware that the Department’s maximum termination liability is approximately \$846.0 million should it unilaterally terminate the MEADS contract. Therefore, the committee encourages the Department to pursue multilateral termination options to lower the contract termination liability belonging to the United States.

Elsewhere in this title, the committee recommends a reduction to the fiscal year 2012 budget request for MEADS on the premise that the Department is able to negotiate a multilateral contract termination or further restructure the program.

Lastly, the committee wants to make clear its support for international missile defense cooperation, and encourages the Department to continue to pursue cooperative missile defense activities that are affordable and benefit the security of all parties.

### Section 233—Homeland Defense Hedging Policy and Strategy

This section would make it the policy of the United States to develop and maintain a hedging strategy to provide protection of the United States:

- (1) If the intercontinental ballistic missile (ICBM) threat from the Middle East materializes earlier than 2020, or technical challenges or schedule delays affect the availability of the Standard Missile-3 Block IIB interceptor planned for fielding in Europe by 2020 to protect the United States as part of phase 4 of the President’s phased, adaptive approach;
- (2) If the ICBM threat from East Asia materializes more rapidly than expected;

(3) That improves or enhances the protection of the United States beyond the ground-based midcourse defense capabilities currently deployed for the defense of the United States; and

(4) That includes plans for ensuring that hedging capabilities are suitable to perform the assigned mission, operationally effective, and use technologies that are sufficiently matured and tested prior to fielding.

This section would also require the Secretary of Defense to submit to the congressional defense committees the Department of Defense's homeland defense hedging strategy by December 5, 2011, or the date on which the Secretary completes the development of such strategy, whichever comes earlier.

The committee is aware that the Department of Defense is currently developing a hedging strategy for the protection of the U.S. homeland, to include continued development and assessment of a two-stage ground-based interceptor as noted in the February 2010 Department of Defense Ballistic Missile Defense Review. The committee notes that during testimony before the committee on October 1, 2009, the Under Secretary of Defense for Policy stated, "we keep the development of the two-stage [ground-based interceptor] on the books as a hedge in case things come earlier, in case there's any kind of technological challenge with the later models of the [Standard Missile-3]." This section would clarify and expand such policy.

#### Section 234—Ground-based Midcourse Defense System

This section contains five findings concerning the Ground-based Midcourse Defense (GMD) system, including recent intercept flight test failures, its role in protecting the U.S. homeland, reductions in the President's budget request for GMD, schedule delays resulting from the flight-test failures and Missile Defense Agency operations before the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law 112–10) was enacted, and additional ground-based interceptors (GBI).

Additionally, this section would express the sense of Congress that the GMD system is currently the only missile defense system that protects the U.S. homeland from long-range ballistic missile threats.

This section would further require the Secretary of Defense to submit to the congressional defense committees a plan by the Director, Missile Defense Agency to address the GMD flight-test failures, including the schedule and additional resources necessary to implement the plan. This section would also require the Secretary of Defense to provide written certification that the Director of the Missile Defense Agency has thoroughly investigated the root cause of the flight-test failures, and that the plan, schedule, resources, and prioritization for implementation of corrective measures are sufficient.

#### Section 235—Study on Space-based Interceptor Technology

This section would require the Secretary of Defense to conduct a study examining the technical and operational considerations associated with developing and operating a limited space-based interceptor (SBI) capability and submit a report on such study to the

congressional defense committees within one year of enactment of the Act. The study would be required to include an identification of the technical risks, gaps, and constraints associated with developing and operating such a capability; an assessment of the maturity levels of various related technologies; the key knowledge, research, and testing that would be needed for any nation to develop and operate an effective SBI capability; and the estimated effectiveness and cost of potential options for developing and operating an SBI capability, including their effectiveness in conjunction with existing and planned terrestrially-based missile defense systems. Of the funds authorized to be appropriated by the Act for ballistic missile defense technology, this section would require the Secretary to obligate or expend \$8.0 million on the study and report. The report submitted to Congress would be required to be in unclassified form, but may include a classified annex.

#### SUBTITLE D—REPORTS

##### Section 241—Annual Comptroller General Report on the KC-46A Aircraft Acquisition Program

This section would require the Comptroller General of the United States to conduct an annual review of the KC-46A aircraft acquisition program and provide the results of that review to the congressional defense committees by March 1, 2012, and annually thereafter through 2017.

##### Section 242—Independent Review and Assessment of Cryptographic Modernization Program

This section would require the Secretary of Defense to conduct an independent assessment of the cryptographic modernization program for the Department of Defense and submit a report to Congress by March 1, 2012.

##### Section 243—Report on Feasibility of Electromagnetic Rail Gun System

This section would require the Secretary of Defense to submit a report to the congressional defense committee within 180 days after the enactment of this Act in the feasibility of developing and deploying the electromagnetic rail gun system to be used for either land- or ship-based force protection.

#### SUBTITLE E—OTHER MATTERS

##### Section 251—Repeal of Requirement for Technology Transition Initiative

This section would repeal section 2359a of title 10, United States Code effective October 1, 2012.

##### Section 252—Preservation and Storage of Certain Property Related to F136 Propulsion System

This section would require the Secretary of Defense to develop and carry out a plan for the preservation and storage of property owned by the Federal Government that was acquired under the

F136 propulsion system development contract that would: ensure that the Secretary preserves and stores such property in a manner that would allow the development of the F136 propulsion system to be restarted after a period of idleness, provide for the long-term sustainment and repair of such property, and allow for such preservation and storage to be conducted at either the facilities of the Federal Government or a contractor under such contract; identify supplier base costs of restarting development; ensure that the Secretary, at no cost to the Federal Government, provides support and allows for the use of such property by the contractor under such contract to conduct research, development, test, and evaluation of the F136 engine, if such activities are self-funded by the contractor; and identify any contract modifications, additional facilities or funding that the Secretary determines necessary to carry out the plan. This section would also prohibit the obligation or expenditure of amounts authorized to be appropriated by this Act or otherwise make available for fiscal year 2012 for research, development, test, and evaluation, Navy, or research, development, test and evaluation, Air Force, for the F-35 Lightning II program for activities related to destroying or disposing of the property acquired under the F136 propulsion system development contract. Additionally, this section would require the Secretary of Defense to submit a report to the congressional defense committee, not later than 45 days after the enactment of the Act, on the Secretary's plan for the preservation and storage of such property.

#### Section 253—Extension of Authority for Mechanism to Provide Funds for Defense Laboratories for Research and Development of Technologies for Military Missions

This section would amend Section 219 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-317; 122 Stat. 4389; 10 U.S.C. 2358 note), as amended by subsection 2801(c) of the National Defense Authorization Act for Fiscal Year 2010 (Public Law 111-84; 123 Stat. 2660) by striking “October 1, 2013” and inserting “September 30, 2016”.

# TITLE XLII—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

## SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION.

### SEC. 4201. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION (In Thousands of Dollars)

Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
		<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, ARMY</b>			
		<b>BASIC RESEARCH</b>			
001	0601101A	IN-HOUSE LABORATORY INDEPENDENT RESEARCH .....	21,064		21,064
002	0601102A	DEFENSE RESEARCH SCIENCES .....	213,942	2,000	215,942
		Program Increase .....		[2,000]	
003	0601103A	UNIVERSITY RESEARCH INITIATIVES .....	80,977	9,000	89,977
		Clinical Care and Research .....		[2,000]	
		Program Increase .....		[7,000]	
004	0601104A	UNIVERSITY AND INDUSTRY RESEARCH CENTERS .....	120,937	-15,245	105,692
		Realignment of Funds for Proper Oversight and Execution .....		[-15,245]	
		<b>SUBTOTAL BASIC RESEARCH</b> .....	<b>436,920</b>	<b>-4,245</b>	<b>432,675</b>
		<b>APPLIED RESEARCH</b>			
005	0602105A	MATERIALS TECHNOLOGY .....	30,258	10,500	40,758
		Program Increase .....		[10,500]	
006	0602120A	SENSORS AND ELECTRONIC SURVIVABILITY .....	43,521	10,000	53,521
		Program Increase .....		[10,000]	
007	0602122A	TRACTOR HIP .....	14,230		14,230

008	0602211A	AVIATION TECHNOLOGY .....	44,610	44,610
009	0602270A	ELECTRONIC WARFARE TECHNOLOGY .....	15,790	15,790
010	0602303A	MISSILE TECHNOLOGY .....	50,685	50,685
011	0602307A	ADVANCED WEAPONS TECHNOLOGY .....	20,034	20,034
012	0602308A	ADVANCED CONCEPTS AND SIMULATION .....	20,933	30,933
		Program Increase .....		10,000
				[10,000]
013	0602601A	COMBAT VEHICLE AND AUTOMOTIVE TECHNOLOGY .....	64,306	64,306
014	0602618A	BALLISTICS TECHNOLOGY .....	59,214	59,214
015	0602622A	CHEMICAL, SMOKE AND EQUIPMENT DEFEATING TECHNOLOGY .....	4,877	4,877
016	0602623A	JOINT SERVICE SMALL ARMS PROGRAM .....	8,244	8,244
017	0602624A	WEAPONS AND MUNITIONS TECHNOLOGY .....	39,813	69,813
		Program Increase .....		30,000
				[30,000]
018	0602705A	ELECTRONICS AND ELECTRONIC DEVICES .....	62,962	62,962
019	0602709A	NIGHT VISION TECHNOLOGY .....	57,203	69,203
		Program Increase .....		12,000
				[12,000]
020	0602712A	COUNTERMEASURE SYSTEMS .....	20,280	24,780
		Program Increase .....		4,500
				[4,500]
021	0602716A	HUMAN FACTORS ENGINEERING TECHNOLOGY .....	21,801	21,801
022	0602720A	ENVIRONMENTAL QUALITY TECHNOLOGY .....	20,837	20,837
023	0602782A	COMMAND, CONTROL, COMMUNICATIONS TECHNOLOGY .....	26,116	26,116
024	0602783A	COMPUTER AND SOFTWARE TECHNOLOGY .....	8,591	8,591
025	0602784A	MILITARY ENGINEERING TECHNOLOGY .....	80,317	86,317
		Rotary Wing Surfaces .....		6,000
				[6,000]
026	0602785A	MANPOWER/PERSONNEL/TRAINING TECHNOLOGY .....	18,946	18,946
027	0602786A	WARFIGHTER TECHNOLOGY .....	29,835	29,835
028	0602787A	MEDICAL TECHNOLOGY .....	105,929	118,897
		Program Increase .....		12,968
				[12,968]
		<b>SUBTOTAL APPLIED RESEARCH .....</b>	<b>869,332</b>	<b>965,300</b>
029	0603001A	<b>ADVANCED TECHNOLOGY DEVELOPMENT</b> WARFIGHTER ADVANCED TECHNOLOGY .....	52,979	57,979
		Program Increase .....		5,000
				[5,000]

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
030	0603002A	MEDICAL ADVANCED TECHNOLOGY .....	68,171	26,000	94,171
		Program Increase .....		[23,000]	
		Treatment of Wounded Warriors .....		[3,000]	
031	0603003A	AVIATION ADVANCED TECHNOLOGY .....	62,193	27,800	89,993
		Advanced Rotorcraft Flight Research .....		[8,000]	
		Program Increase .....		[19,800]	
032	0603004A	WEAPONS AND MUNITIONS ADVANCED TECHNOLOGY .....	77,077	5,000	82,077
		Program Increase .....		[5,000]	
033	0603005A	COMBAT VEHICLE AND AUTOMOTIVE ADVANCED TECHNOLOGY .....	106,145	3,000	106,145
034	0603006A	COMMAND, CONTROL, COMMUNICATIONS ADVANCED TECHNOLOGY .....	5,312		8,312
		Communications Advanced Technology .....		[3,000]	
035	0603007A	MANPOWER, PERSONNEL AND TRAINING ADVANCED TECHNOLOGY .....	10,298		10,298
036	0603008A	ELECTRONIC WARFARE ADVANCED TECHNOLOGY .....	57,963		57,963
037	0603009A	TRACTOR HIKE .....	8,155		8,155
038	0603015A	NEXT GENERATION TRAINING & SIMULATION SYSTEMS .....	17,936		17,936
039	0603020A	TRACTOR ROSE .....	12,597		12,597
040	0603105A	MILITARY HIV RESEARCH .....	6,796		6,796
041	0603125A	COMBATING TERRORISM, TECHNOLOGY DEVELOPMENT .....	12,191		12,191
042	0603130A	TRACTOR NAIL .....	4,278		4,278
043	0603131A	TRACTOR EGGS .....	2,261		2,261
044	0603270A	ELECTRONIC WARFARE TECHNOLOGY .....	23,677		23,677
045	0603313A	MISSILE AND ROCKET ADVANCED TECHNOLOGY .....	90,602	10,550	101,152
		Program Increase .....		[10,550]	
046	0603322A	TRACTOR CAGE .....	10,315		10,315
047	0603461A	HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM .....	183,150		183,150
048	0603606A	LANDMINE WARFARE AND BARRIER ADVANCED TECHNOLOGY .....	31,541		31,541
049	0603607A	JOINT SERVICE SMALL ARMS PROGRAM .....	7,686		7,686

050	0603710A	NIGHT VISION ADVANCED TECHNOLOGY .....	42,414	13,800	56,214
		Night Vision Advanced Technology .....		[4,800]	
		Program Increase .....		[9,000]	
051	0603728A	ENVIRONMENTAL QUALITY TECHNOLOGY DEMONSTRATIONS .....	15,959	7,000	15,959
052	0603734A	MILITARY ENGINEERING ADVANCED TECHNOLOGY .....	36,516	[2,000]	43,516
		Base Camp Fuel .....		[5,000]	
		Military Engineering Advanced Technology .....			
053	0603772A	ADVANCED TACTICAL COMPUTER SCIENCE AND SENSOR TECHNOLOGY .....	30,600		30,600
		<b>SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT .....</b>	<b>976,812</b>	<b>98,150</b>	<b>1,074,962</b>
		<b>ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES</b>			
054	0603024A	UNIQUE ITEM IDENTIFICATION (UID) .....	21,126		21,126
055	0603305A	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION(NON SPACE) .....	14,883		14,883
055A	0603XXXA	INDIRECT FIRE PROTECTION .....	9,612		9,612
056	0603308A	ARMY MISSILE DEFENSE SYSTEMS INTEGRATION (SPACE) .....			
057	0603327A	AIR AND MISSILE DEFENSE SYSTEMS ENGINEERING .....			
058	0603619A	LANDMINE WARFARE AND BARRIER—ADV DEV .....	35,383		35,383
059	0603627A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-ADV DEV .....	9,501	-5,000	4,501
		Engineering, Modeling and Environmental Studies for SOD and SOM systems — funding unjustified.		[-5,000]	
060	0603639A	TANK AND MEDIUM CALIBER AMMUNITION .....	39,693		39,693
061	0603653A	ADVANCED TANK ARMAMENT SYSTEM (ATAS) .....	101,408		101,408
062	0603747A	SOLDIER SUPPORT AND SURVIVABILITY .....	9,747		9,747
063	0603766A	TACTICAL ELECTRONIC SURVEILLANCE SYSTEM—ADV DEV .....	5,766		5,766
064	0603774A	NIGHT VISION SYSTEMS ADVANCED DEVELOPMENT .....			
065	0603779A	ENVIRONMENTAL QUALITY TECHNOLOGY .....	4,946	8,000	12,946
		Army Net Zero Programs .....		[8,000]	
066	0603782A	WARFIGHTER INFORMATION NETWORK-TACTICAL .....	297,955		297,955
067	0603790A	NATO RESEARCH AND DEVELOPMENT .....	4,765		4,765
068	0603801A	AVIATION—ADV DEV .....	7,107		7,107
069	0603804A	LOGISTICS AND ENGINEER EQUIPMENT—ADV DEV .....	19,509		19,509
070	0603805A	COMBAT SERVICE SUPPORT CONTROL SYSTEM EVALUATION AND ANALYSIS .....	5,258		5,258

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
071	0603807A	MEDICAL SYSTEMS—ADV DEV .....	34,997		34,997
072	0603827A	SOLDIER SYSTEMS—ADVANCED DEVELOPMENT .....	19,598		19,598
073	0603850A	INTEGRATED BROADCAST SERVICE .....	1,496		1,496
074	0604115A	TECHNOLOGY MATURATION INITIATIVES .....	10,181		10,181
075	0604131A	TRACTOR JUTE .....	15,609	-15,609	
		Unjustified Requirement .....		[-15,609]	
076	0604284A	JOINT COOPERATIVE TARGET IDENTIFICATION—GROUND (JCT-G) / TECHNOLOGY DEVELOPME .....	41,652		41,652
077	0305205A	ENDURANCE UAVS .....	42,892		42,892
		<b>SUBTOTAL ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES .....</b>	<b>753,084</b>	<b>-12,609</b>	<b>740,475</b>
		<b>SYSTEM DEVELOPMENT &amp; DEMONSTRATION</b>			
078	0604201A	AIRCRAFT AVIONICS .....	144,687		144,687
079	0604220A	ARMED, DEPLOYABLE HELOS .....	166,132	-35,500	130,632
		Early to Need .....		[-35,500]	
080	0604270A	ELECTRONIC WARFARE DEVELOPMENT .....	101,265		101,265
081	0604280A	JOINT TACTICAL RADIO .....			
082	0604321A	ALL SOURCE ANALYSIS SYSTEM .....	17,412		17,412
083	0604328A	TRACTOR CABE .....	26,577		26,577
084	0604601A	INFANTRY SUPPORT WEAPONS .....	73,728	3,000	76,728
		Portable Helicopter Oxygen Delivery Systems .....		[3,000]	
085	0604604A	MEDIUM TACTICAL VEHICLES .....	3,961		3,961
086	0604609A	SMOKE, OBSCURANT AND TARGET DEFEATING SYS-SDD .....			
087	0604611A	JAVELIN .....	17,340		17,340
088	0604622A	FAMILY OF HEAVY TACTICAL VEHICLES .....	5,478		5,478
089	0604633A	AIR TRAFFIC CONTROL .....	22,922		22,922
090	0604642A	LIGHT TACTICAL WHEELED VEHICLES .....			
091	0604646A	NON-LINE OF SIGHT LAUNCH SYSTEM .....			

092	0604660A	FCS MANNED GRD VEHICLES & COMMON GRD VEHICLE .....	383,872	383,872
093	0604661A	FCS SYSTEMS OF SYSTEMS ENGR & PROGRAM MGMT .....		
094	0604662A	FCS RECONNAISSANCE (UAV) PLATFORMS .....		
095	0604663A	FCS UNMANNED GROUND VEHICLES .....	143,840	143,840
096	0604664A	FCS UNATTENDED GROUND SENSORS .....	499	499
097	0604665A	FCS SUSTAINMENT & TRAINING R&D .....		
098	0604710A	NIGHT VISION SYSTEMS—SDD .....	59,265	59,265
099	0604713A	COMBAT FEEDING, CLOTHING, AND EQUIPMENT .....	2,075	2,075
100	0604715A	NON-SYSTEM TRAINING DEVICES—SDD .....	30,021	30,021
101	0604716A	TERRAIN INFORMATION—SDD .....	1,596	1,596
102	0604741A	AIR DEFENSE COMMAND, CONTROL AND INTELLIGENCE—SDD .....	83,010	83,010
103	0604742A	CONSTRUCTIVE SIMULATION SYSTEMS DEVELOPMENT .....	28,305	28,305
104	0604746A	AUTOMATIC TEST EQUIPMENT DEVELOPMENT .....	14,375	14,375
105	0604760A	DISTRIBUTIVE INTERACTIVE SIMULATIONS (DIS)—SDD .....	15,803	15,803
106	0604778A	POSITIONING SYSTEMS DEVELOPMENT (SPACE) .....		
107	0604780A	COMBINED ARMS TACTICAL TRAINER (CAIT) CORE .....	22,226	22,226
108	0604802A	WEAPONS AND MUNITIONS—SDD .....	13,828	13,828
		Program Reduction- Precision Guidance Kit .....	-10,000	-10,000
109	0604804A	LOGISTICS AND ENGINEER EQUIPMENT—SDD .....	[251,104]	[251,104]
		Joint Light Tactical Vehicle Schedule Slip .....		
110	0604805A	COMMAND, CONTROL, COMMUNICATIONS SYSTEMS—SDD .....	137,811	137,811
111	0604807A	MEDICAL MATERIEL/MEDICAL BIOLOGICAL DEFENSE EQUIPMENT—SDD .....	27,160	27,160
112	0604808A	LANDMINE WARFARE/BARRIER—SDD .....	87,426	87,426
113	0604814A	ARTILLERY MUNITIONS .....	42,627	42,627
114	0604817A	COMBAT IDENTIFICATION .....		
115	0604818A	ARMY TACTICAL COMMAND & CONTROL HARDWARE & SOFTWARE .....	123,935	123,935
		Army Tactical Command and Control Hardware and Software .....	[2,000]	[2,000]
116	0604820A	RADAR DEVELOPMENT .....	2,890	2,890
117	0604822A	GENERAL FUND ENTERPRISE BUSINESS SYSTEM (GFEBs) .....	794	794
118	0604823A	FIREFINDER .....	10,358	10,358
119	0604827A	SOLDIER SYSTEMS—WARRIOR DEMVAL .....	48,309	48,309
		Early to Need- Nett Warrior .....	-7,600	-7,600
			[7,600]	[7,600]

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
120	0604854A	ARTILLERY SYSTEMS .....	120,146		120,146
121	0604869A	PATRIOT/MEADS COMBINED AGGREGATE PROGRAM (CAP) .....	406,605	-149,500	257,105
		Program Decrease .....		[-149,500]	
122	0604870A	NUCLEAR ARMS CONTROL MONITORING SENSOR NETWORK .....	7,398		7,398
123	0605013A	INFORMATION TECHNOLOGY DEVELOPMENT .....	37,098		37,098
124	0605018A	ARMY INTEGRATED MILITARY HUMAN RESOURCES SYSTEM (A-IMHRS) .....	68,693		68,693
125	0605450A	JOINT AIR-TO-GROUND MISSILE (JAGM) .....	127,095		127,095
126	0605455A	SLAMRAAM .....	19,931		19,931
127	0605456A	PAC-3/MSE MISSILE .....	88,993		88,993
128	0605457A	ARMY INTEGRATED AIR AND MISSILE DEFENSE (AIAMD) .....	270,607		270,607
129	0605625A	MANNED GROUND VEHICLE .....	884,387		884,387
130	0605626A	AERIAL COMMON SENSOR .....	31,465		31,465
131	0303032A	TROJAN—RH12 .....	3,920		3,920
132	0304270A	ELECTRONIC WARFARE DEVELOPMENT .....	13,819		13,819
		<b>SUBTOTAL SYSTEM DEVELOPMENT &amp; DEMONSTRATION .....</b>	<b>4,190,788</b>	<b>-222,600</b>	<b>3,968,188</b>
<b>RD&amp;E MANAGEMENT SUPPORT</b>					
133	0604256A	THREAT SIMULATOR DEVELOPMENT .....	16,992		16,992
134	0604258A	TARGET SYSTEMS DEVELOPMENT .....	11,247		11,247
135	0604759A	MAJOR T&E INVESTMENT .....	49,437		49,437
136	0605103A	RAND ARROYO CENTER .....	20,384		20,384
137	0605301A	ARMY KWAJALEIN ATOLL .....	145,606		145,606
138	0605326A	CONCEPTS EXPERIMENTATION PROGRAM .....	28,800		28,800
139	0605502A	SMALL BUSINESS INNOVATIVE RESEARCH .....		5,000	5,000
		Small Business Innovative Research .....		[5,000]	
140	0605601A	ARMY TEST RANGES AND FACILITIES .....	262,456		362,456
		Program Increase .....		[100,000]	

141	0605602A	ARMY TECHNICAL TEST INSTRUMENTATION AND TARGETS .....	70,227	70,227	
142	0605604A	SURVIVABILITY/LETHALITY ANALYSIS .....	43,483	43,483	
143	0605605A	DOD HIGH ENERGY LASER TEST FACILITY .....	18	18	
144	0605606A	AIRCRAFT CERTIFICATION .....	5,630	5,630	
145	0605702A	METEOROLOGICAL SUPPORT TO RDT&E ACTIVITIES .....	7,182	7,182	
146	0605706A	MATERIEL SYSTEMS ANALYSIS .....	19,669	19,669	
147	0605709A	EXPLOITATION OF FOREIGN ITEMS .....	5,445	5,445	
148	0605712A	SUPPORT OF OPERATIONAL TESTING .....	68,786	68,786	
149	0605716A	ARMY EVALUATION CENTER .....	63,302	63,302	
150	0605718A	ARMY MODELING & SIM X-OMD COLLABORATION & INTEG .....	3,420	3,420	
151	0605801A	PROGRAMWIDE ACTIVITIES .....	83,054	83,054	
152	0605803A	TECHNICAL INFORMATION ACTIVITIES .....	63,872	58,872	-5,000
		Program Reduction .....			[-5,000]
153	0605805A	MUNITIONS STANDARDIZATION, EFFECTIVENESS AND SAFETY .....	57,142	62,142	5,000
		Program Increase .....			[5,000]
154	0605857A	ENVIRONMENTAL QUALITY TECHNOLOGY MGMT SUPPORT .....	4,961	4,961	
155	0605898A	MANAGEMENT HQ—R&D .....	17,558	17,558	
156	0909980A	JUDGMENT FUND REIMBURSEMENT .....			
157	0909999A	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS .....			
		<b>SUBTOTAL RDT&amp;E MANAGEMENT SUPPORT .....</b>	<b>1,048,671</b>	<b>1,153,671</b>	<b>105,000</b>
		<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>			
158	0603778A	MLRS PRODUCT IMPROVEMENT PROGRAM .....	66,641	66,641	
159	0603820A	WEAPONS CAPABILITY MODIFICATIONS UAV .....	24,142	24,142	
		Unjustified Requirement .....			
160	0102419A	AEROSTAT JOINT PROJECT OFFICE .....	344,655	344,655	
161	0203347A	INTELLIGENCE SUPPORT TO CYBER (ISC) MIP .....			
162	0203726A	ADV FIELD ARTILLERY TACTICAL DATA SYSTEM .....	29,546	29,546	
163	0203735A	COMBAT VEHICLE IMPROVEMENT PROGRAMS .....	53,307	78,307	25,000
		Program Increase .....			[25,000]
164	0203740A	MANEUVER CONTROL SYSTEM .....	65,002	65,002	
165	0203744A	AIRCRAFT MODIFICATIONS/PRODUCT IMPROVEMENT PROGRAMS .....	163,205	163,205	

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
166	0203752A	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM .....	823		823
167	0203758A	DIGITIZATION .....	8,029		8,029
168	0203759A	FORCE XXI BATTLE COMMAND, BRIGADE AND BELOW (FBCB2) .....			
169	0203801A	MISSILE/AIR DEFENSE PRODUCT IMPROVEMENT PROGRAM .....	44,560	14,500	59,060
		Program Increase for Stinger per Army Request .....		[14,500]	
170	0203802A	OTHER MISSILE PRODUCT IMPROVEMENT PROGRAMS .....			
171	0203808A	TRACTOR CARD .....	42,554		42,554
172	0208053A	JOINT TACTICAL GROUND SYSTEM .....	27,630		27,630
173	0208058A	JOINT HIGH SPEED VESSEL (HJV) .....	3,044		3,044
175	0303028A	SECURITY AND INTELLIGENCE ACTIVITIES .....	2,854		2,854
176	0303140A	INFORMATION SYSTEMS SECURITY PROGRAM .....	61,220		61,220
177	0303141A	GLOBAL COMBAT SUPPORT SYSTEM .....	100,505		100,505
178	0303142A	SATCOM GROUND ENVIRONMENT (SPACE) .....	12,104		12,104
179	0303150A	WMMCCS/GLOBAL COMMAND AND CONTROL SYSTEM .....	23,937		23,937
181	0305204A	TACTICAL UNMANNED AERIAL VEHICLES .....	40,650		40,650
182	0305208A	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	44,198		44,198
183	0305219A	MQ-1 SKY WARRIOR A UAV .....	137,038		137,038
184	0305232A	RQ-11 UAV .....	1,938		1,938
185	0305233A	RQ-7 UAV .....	31,940		31,940
186	0307207A	AERIAL COMMON SENSOR (ACS) .....			
187	0307665A	BIOMETRICS ENABLED INTELLIGENCE .....	15,018	7,000	15,018
188	0708045A	END ITEM INDUSTRIAL PREPAREDNESS ACTIVITIES .....	59,297	[7,000]	66,297
		End Item Industrial Preparedness Activities .....			
188A	9999999999	CLASSIFIED PROGRAMS .....	4,536		4,536
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT .....</b>	<b>1,408,373</b>	<b>22,358</b>	<b>1,430,731</b>
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, ARMY .....</b>	<b>9,683,980</b>	<b>82,022</b>	<b>9,766,002</b>

<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, NAVY</b>					
<b>BASIC RESEARCH</b>					
001	0601103N	UNIVERSITY RESEARCH INITIATIVES .....	113,157	10,000	123,157
		Program Increase .....		[10,000]	
002	0601152N	IN-HOUSE LABORATORY INDEPENDENT RESEARCH .....	18,092		18,092
003	0601153N	DEFENSE RESEARCH SCIENCES .....	446,123	4,500	450,623
		Program Increase .....		[2,500]	
		Study of Renewable and Alternative Energy Applications in the Pacific Region .....		[2,000]	
		<b>SUBTOTAL BASIC RESEARCH</b> .....	<b>577,372</b>	<b>14,500</b>	<b>591,872</b>
<b>APPLIED RESEARCH</b>					
004	0602114N	POWER PROJECTION APPLIED RESEARCH .....	104,804		104,804
005	0602123N	FORCE PROTECTION APPLIED RESEARCH .....	156,901	2,000	158,901
		Alternative Energy for Mobile Power Applications .....		[2,000]	
006	0602131M	MARINE CORPS LANDING FORCE TECHNOLOGY .....	44,845	3,000	47,845
		Marine Corps Landing Force Technology .....		[3,000]	
007	0602234N	MATERIALS, ELECTRONICS AND COMPUTER TECHNOLOGY .....			65,448
008	0602235N	COMMON PICTURE APPLIED RESEARCH .....	65,448		65,448
009	0602236N	WARFIGHTER SUSTAINMENT APPLIED RESEARCH .....	101,205	2,500	103,705
		Warfighter Sustainment Applied Research .....		[2,500]	
010	0602271N	ELECTROMAGNETIC SYSTEMS APPLIED RESEARCH .....	108,329		108,329
011	0602435N	OCEAN WARFIGHTING ENVIRONMENT APPLIED RESEARCH .....	50,076		50,076
012	0602651M	JOINT NON-LETHAL WEAPONS APPLIED RESEARCH .....	5,937		5,937
013	0602747N	UNDERSEA WARFARE APPLIED RESEARCH .....	108,666		108,666
014	0602782N	MINE AND EXPEDITIONARY WARFARE APPLIED RESEARCH .....	37,583	8,000	45,583
		Mine and Expeditionary Warfare Applied Research .....		[8,000]	
		<b>SUBTOTAL APPLIED RESEARCH</b> .....	<b>783,794</b>	<b>15,500</b>	<b>799,294</b>
<b>ADVANCED TECHNOLOGY DEVELOPMENT</b>					
015	0603114N	POWER PROJECTION ADVANCED TECHNOLOGY .....	114,270		114,270
016	0603123N	FORCE PROTECTION ADVANCED TECHNOLOGY .....	64,057	7,100	71,157

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		Advanced Battery Technologies .....		[2,000]	
		Lightweight Body Armor .....		[5,100]	
017	0603235N	COMMON PICTURE ADVANCED TECHNOLOGY .....	49,068		49,068
018	0603236N	WARFIGHTER SUSTAINMENT ADVANCED TECHNOLOGY .....	71,232		71,232
019	0603271N	ELECTROMAGNETIC SYSTEMS ADVANCED TECHNOLOGY .....	102,535		102,535
020	0603640M	USMC ADVANCED TECHNOLOGY DEMONSTRATION (ATD) .....	124,324		124,324
021	0603651M	JOINT NON-LETHAL WEAPONS TECHNOLOGY DEVELOPMENT .....	11,286		11,286
022	0603729N	WARFIGHTER PROTECTION ADVANCED TECHNOLOGY .....	18,119		18,119
023	0603747N	UNDERSEA WARFARE ADVANCED TECHNOLOGY .....	37,121		37,121
024	0603758N	NAVY WARFIGHTING EXPERIMENTS AND DEMONSTRATIONS .....	50,157		50,157
025	0603782N	MINE AND EXPEDITIONARY WARFARE ADVANCED TECHNOLOGY .....	6,048		6,048
		<b>SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT .....</b>	<b>648,217</b>	<b>7,100</b>	<b>655,317</b>
<b>ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES</b>					
026	0603207N	AIR/OCEAN TACTICAL APPLICATIONS .....	94,972		94,972
027	0603216N	AVIATION SURVIVABILITY .....	10,893		10,893
028	0603237N	DEPLOYABLE JOINT COMMAND AND CONTROL .....	3,702		3,702
029	0603251N	AIRCRAFT SYSTEMS .....	10,497		10,497
030	0603254N	ASW SYSTEMS DEVELOPMENT .....	7,915		7,915
031	0603261N	TACTICAL AIRBORNE RECONNAISSANCE .....	5,978		5,978
032	0603382N	ADVANCED COMBAT SYSTEMS TECHNOLOGY .....	1,418		1,418
033	0603502N	SURFACE AND SHALLOW WATER MINE COUNTERMEASURES .....	142,657		142,657
034	0603506N	SURFACE SHIP TORPEDO DEFENSE .....	118,764		118,764
035	0603512N	CARRIER SYSTEMS DEVELOPMENT .....	54,072		54,072
036	0603513N	SHIPBOARD SYSTEM COMPONENT DEVELOPMENT .....			
037	0603525N	PILOT FISH .....	96,012		96,012
038	0603527N	RETRACT LARCH .....	73,421		73,421

039	0603536N	RETRACT JUNIPER .....	130,267	130,267
040	0603542N	RADIOLOGICAL CONTROL .....	1,338	1,338
041	0603553N	SURFACE ASW .....	29,797	33,297
		Surface Anti-Submarine Warfare .....	3,500	
042	0603561N	ADVANCED SUBMARINE SYSTEM DEVELOPMENT .....	[3,500]	[3,500]
		Program Increase .....	9,000	9,000
		[9,000]		[9,000]
043	0603562N	SUBMARINE TACTICAL WARFARE SYSTEMS .....	9,253	9,253
044	0603563N	SHIP CONCEPT ADVANCED DESIGN .....	14,308	14,308
045	0603564N	SHIP PRELIMINARY DESIGN & FEASIBILITY STUDIES .....	22,213	42,113
		Ship Preliminary Design and Feasibility Studies .....	[19,900]	[19,900]
046	0603570N	ADVANCED NUCLEAR POWER SYSTEMS .....	463,683	463,683
047	0603573N	ADVANCED SURFACE MACHINERY SYSTEMS .....	18,249	28,249
		Program Increase .....	10,000	10,000
		[10,000]		[10,000]
048	0603576N	CHALK EAGLE .....	584,159	584,159
049	0603581N	LITTORAL COMBAT SHIP (LCS) .....	286,784	286,784
050	0603582N	COMBAT SYSTEM INTEGRATION .....	34,157	34,157
051	0603609N	CONVENTIONAL MUNITIONS .....	4,753	4,753
052	0603611M	MARINE CORPS ASSAULT VEHICLES .....	12,000	12,000
053	0603635M	MARINE CORPS GROUND COMBAT/SUPPORT SYSTEM .....	79,858	54,858
		Joint Light Tactical Vehicle Schedule Slip .....	-25,000	-25,000
		[ -25,000]		[ -25,000]
054	0603654N	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT .....	33,654	33,654
055	0603658N	COOPERATIVE ENGAGEMENT .....	54,783	54,783
056	0603713N	OCEAN ENGINEERING TECHNOLOGY DEVELOPMENT .....	9,996	9,996
057	0603721N	ENVIRONMENTAL PROTECTION .....	21,714	21,714
058	0603724N	NAVY ENERGY PROGRAM .....	70,538	70,538
059	0603725N	FACILITIES IMPROVEMENT .....	3,754	3,754
060	0603734N	CHALK CORAL .....	79,415	79,415
061	0603739N	NAVY LOGISTIC PRODUCTIVITY .....	4,137	4,137
062	0603746N	RETRACT MAPLE .....	276,383	276,383
063	0603748N	LINK PLUMERIA .....	52,721	52,721
064	0603751N	RETRACT ELM .....	160,964	160,964
065	0603755N	SHIP SELF DEFENSE .....		

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066	0603764N	LINK EVERGREEN .....	144,985		144,985
067	0603787N	SPECIAL PROCESSES .....	43,704		43,704
068	0603790N	NATO RESEARCH AND DEVELOPMENT .....	9,140		9,140
069	0603795N	LAND ATTACK TECHNOLOGY .....	421		421
070	0603851M	NONLETHAL WEAPONS .....	40,992		40,992
071	0603860N	JOINT PRECISION APPROACH AND LANDING SYSTEMS .....	121,455		121,455
072	0603879N	SINGLE INTEGRATED AIR PICTURE (SIAP) SYSTEM ENGINEER (SE) .....			
073	0603889N	COUNTERDRUG RD&E PROJECTS .....			
074	0603925N	DIRECTED ENERGY AND ELECTRIC WEAPON SYSTEMS .....			
075	0604272N	TACTICAL AIR DIRECTIONAL INFRARED COUNTERMEASURES (TADIROM) .....	64,107		64,107
076	0604279N	ASE SELF-PROTECTION OPTIMIZATION .....	711		711
077	0604653N	JOINT COUNTER RADIO CONTROLLED IED ELECTRONIC WARFARE (JCREW) .....	62,044		62,044
078	0604659N	PRECISION STRIKE WEAPONS DEVELOPMENT PROGRAM .....	22,665	-18,200	4,465
		Cancellation of FMU-164/B Bomb Fuze Program .....		[-18,200]	
079	0604707N	SPACE AND ELECTRONIC WARFARE (SEW) ARCHITECTURE/ENGINEERING SUPPORT .....	33,621		33,621
080	0303354N	ASW SYSTEMS DEVELOPMENT—MIP .....	1,078		1,078
081	0303562N	SUBMARINE TACTICAL WARFARE SYSTEMS—MIP .....			
082	0304270N	ELECTRONIC WARFARE DEVELOPMENT—MIP .....	625		625
		<b>SUBTOTAL ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES .....</b>	<b>4,481,053</b>	<b>-800</b>	<b>4,480,253</b>
<b>SYSTEM DEVELOPMENT &amp; DEMONSTRATION</b>					
083	0604212N	OTHER HELO DEVELOPMENT .....	35,651		35,651
084	0604214N	AV-8B AIRCRAFT—ENG DEV .....	30,676		30,676
085	0604215N	STANDARDS DEVELOPMENT .....	51,191		51,191
086	0604216N	MULTI-MISSION HELICOPTER UPGRADE DEVELOPMENT .....	17,673		17,673
087	0604218N	AIR/OCEAN EQUIPMENT ENGINEERING .....	5,922		5,922
088	0604221N	P-3 MODERNIZATION PROGRAM .....	3,417		3,417

089	0604230N	WARFARE SUPPORT SYSTEM .....	9,944	9,944
090	0604231N	TACTICAL COMMAND SYSTEM .....	81,257	81,257
091	0604234N	ADVANCED HAWKEYE .....	110,994	110,994
092	0604245N	H-1 UPGRADES .....	72,569	72,569
093	0604261N	ACOUSTIC SEARCH SENSORS .....	56,509	56,509
094	0604262N	V-22A .....	84,477	84,477
095	0604264N	AIR CREW SYSTEMS DEVELOPMENT .....	3,249	3,249
096	0604269N	EA-18 .....	17,100	17,100
097	0604270N	ELECTRONIC WARFARE DEVELOPMENT .....	89,418	89,418
098	0604273N	VH-71A EXECUTIVE HELO DEVELOPMENT .....	180,070	180,070
099	0604274N	NEXT GENERATION JAMMER (NGJ) .....	189,919	189,919
100	0604280N	JOINT TACTICAL RADIO SYSTEM—NAVY (JTRS-NAVY) .....	688,146	688,146
101	0604307N	SURFACE COMBATANT COMBAT SYSTEM ENGINEERING .....	223,283	223,283
102	0604311N	LPD-17 CLASS SYSTEMS INTEGRATION .....	884	884
103	0604329N	SMALL DIAMETER BOMB (SDB) .....	47,635	47,635
104	0604366N	STANDARD MISSILE IMPROVEMENTS .....	46,705	46,705
105	0604373N	AIRBORNE MCM .....	41,142	41,142
106	0604378N	NAVAL INTEGRATED FIRE CONTROL—COUNTER AIR SYSTEMS ENGINEERING .....	24,898	24,898
107	0604404N	FUTURE UNMANNED CARRIER-BASED STRIKE SYSTEM .....	121,150	121,150
108	0604501N	ADVANCED ABOVE WATER SENSORS .....	60,790	60,790
108A	0604XXXX	AIR AND MISSILE DEFENSE RADAR .....	166,568	166,568
109	0604503N	SSN-688 AND TRIDENT MODERNIZATION .....	100,591	100,591
110	0604504N	AIR CONTROL .....	5,521	5,521
111	0604512N	SHIPBOARD AVIATION SYSTEMS .....	45,445	45,445
112	0604518N	COMBAT INFORMATION CENTER CONVERSION .....	3,400	3,400
113	0604558N	NEW DESIGN SSN .....	97,235	10,000
		Program Increase .....		[10,000]
114	0604562N	SUBMARINE TACTICAL WARFARE SYSTEM .....	48,466	48,466
115	0604567N	SHIP CONTRACT DESIGN/ LIVE FIRE T&E .....	161,099	161,099
116	0604574N	NAVY TACTICAL COMPUTER RESOURCES .....	3,848	3,848
117	0604601N	MINE DEVELOPMENT .....	3,933	3,933
118	0604610N	LIGHTWEIGHT TORPEDO DEVELOPMENT .....	32,592	32,592

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
119	0604654N	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT .....	9,960		9,960
120	0604703N	PERSONNEL, TRAINING, SIMULATION, AND HUMAN FACTORS .....	12,992		12,992
121	0604727N	JOINT STANDOFF WEAPON SYSTEMS .....	7,506		7,506
122	0604755N	SHIP SELF DEFENSE (DETECT & CONTROL) .....	71,222		71,222
123	0604756N	SHIP SELF DEFENSE ENGAGE: HARD KILL .....	6,631		6,631
124	0604757N	SHIP SELF DEFENSE ENGAGE: SOFT KILL/EW .....	184,095		184,095
125	0604761N	INTELLIGENCE ENGINEERING .....	2,217		2,217
126	0604771N	MEDICAL DEVELOPMENT .....	12,984		12,984
127	0604777N	NAVIGATION/ID SYSTEM .....	50,178		50,178
128	0604800M	JOINT STRIKE FIGHTER (JSF)—EMD .....	670,723		670,723
129	0604800N	JOINT STRIKE FIGHTER (JSF) .....	677,486		677,486
130	0605013M	INFORMATION TECHNOLOGY DEVELOPMENT .....	27,461		27,461
131	0605013N	INFORMATION TECHNOLOGY DEVELOPMENT .....	58,764		58,764
132	0605018N	NAVY INTEGRATED MILITARY HUMAN RESOURCES SYSTEM (N-IMHRS) .....	55,050		55,050
133	0605212N	CH-53K RDTA .....	629,461		629,461
134	0605430N	C/MC-130 AVIONICS MODERNIZATION PROGRAM (AMP) .....			
135	0605450N	JOINT AIR-TO-GROUND MISSILE (JAGM) .....	118,395		118,395
136	0605500N	MULTI-MISSION MARITIME AIRCRAFT (MMA) .....	622,713		622,713
137	0204201N	CG(X) .....			
138	0204202N	DDG-1000 .....	261,604		261,604
139	0304231N	TACTICAL COMMAND SYSTEM—MIP .....	979		979
140	0304503N	SSN-688 AND TRIDENT MODERNIZATION—MIP .....			
141	0304785N	TACTICAL CRYPTOLOGIC SYSTEMS .....	31,740		31,740
		<b>SUBTOTAL SYSTEM DEVELOPMENT &amp; DEMONSTRATION .....</b>	<b>6,475,528</b>	<b>10,000</b>	<b>6,485,528</b>
142	0604256N	<b>RD&amp;E MANAGEMENT SUPPORT</b> .....			
		THREAT SIMULATOR DEVELOPMENT .....	28,318		28,318

143	0604258N	TARGET SYSTEMS DEVELOPMENT .....	44,700	44,700
144	0604759N	MAJOR T&E INVESTMENT .....	37,957	37,957
145	0605126N	JOINT THEATER AIR AND MISSILE DEFENSE ORGANIZATION .....	2,970	2,970
146	0605152N	STUDIES AND ANALYSIS SUPPORT—NAVY .....	23,454	23,454
147	0605154N	CENTER FOR NAVAL ANALYSES .....	47,127	47,127
148	0605502N	SMALL BUSINESS INNOVATIVE RESEARCH .....	10	10
149	0605804N	TECHNICAL INFORMATION SERVICES .....	571	571
150	0605853N	MANAGEMENT, TECHNICAL & INTERNATIONAL SUPPORT .....	68,301	68,301
151	0605856N	STRATEGIC TECHNICAL SUPPORT .....	3,277	3,277
152	0605861N	RD&E SCIENCE AND TECHNOLOGY MANAGEMENT .....	73,917	73,917
153	0605863N	RD&E SHIP AND AIRCRAFT SUPPORT .....	136,531	136,531
154	0605864N	TEST AND EVALUATION SUPPORT .....	335,367	335,367
155	0605865N	OPERATIONAL TEST AND EVALUATION CAPABILITY .....	16,634	16,634
156	0605866N	NAVY SPACE AND ELECTRONIC WARFARE (SEW) SUPPORT .....	4,228	4,228
157	0605867N	SEW SURVEILLANCE/RECONNAISSANCE SUPPORT .....	7,642	7,642
158	0605873M	MARINE CORPS PROGRAM WIDE SUPPORT .....	25,655	25,655
159	0305885N	TACTICAL CRYPTOLOGIC ACTIVITIES .....	2,764	2,764
160	0804758N	SERVICE SUPPORT TO JFCOM, JNTC .....		
161	0909980N	JUDGMENT FUND REIMBURSEMENT .....		
162	0909999N	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS .....		
		<b>SUBTOTAL RD&amp;E MANAGEMENT SUPPORT .....</b>	<b>859,423</b>	<b>859,423</b>
<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>				
164	0604402N	UNMANNED COMBAT AIR VEHICLE (UCAV) ADVANCED COMPONENT AND PROTOTYPE DEVELOPMENT.	198,298	198,298
165	0604717M	MARINE CORPS COMBAT SERVICES SUPPORT .....	400	400
166	0604766M	MARINE CORPS DATA SYSTEMS .....	1,650	1,650
167	0101221N	STRATEGIC SUB & WEAPONS SYSTEM SUPPORT .....	88,873	88,873
168	0101224N	SSBN SECURITY TECHNOLOGY PROGRAM .....	33,553	33,553
169	0101226N	SUBMARINE ACOUSTIC WARFARE DEVELOPMENT .....	6,360	6,360
170	0101402N	NAVY STRATEGIC COMMUNICATIONS .....	23,208	23,208
171	0203761N	RAPID TECHNOLOGY TRANSITION (RTT) .....	30,021	30,021

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
172	0204136N	F/A-18 SQUADRONS .....	151,030		151,030
173	0204152N	E-2 SQUADRONS .....	6,696		6,696
174	0204163N	FLEET TELECOMMUNICATIONS (TACTICAL) .....	1,739		1,739
175	0204228N	SURFACE SUPPORT .....	3,377		3,377
176	0204229N	TOMAHAWK AND TOMAHAWK MISSION PLANNING CENTER (TMPC) .....	8,819		8,819
177	0204311N	INTEGRATED SURVEILLANCE SYSTEM .....	21,259		21,259
178	0204413N	AMPHIBIOUS TACTICAL SUPPORT UNITS (DISPLACEMENT CRAFT) .....	5,214		5,214
179	0204571N	CONSOLIDATED TRAINING SYSTEMS DEVELOPMENT .....	42,244		42,244
180	0204574N	CRYPTOLOGIC DIRECT SUPPORT .....	1,447		1,447
181	0204575N	ELECTRONIC WARFARE (EW) READINESS SUPPORT .....	18,142		18,142
182	0205601N	HARM IMPROVEMENT .....	11,147		11,147
183	0205604N	TACTICAL DATA LINKS .....	69,224		69,224
184	0205620N	SURFACE ASW COMBAT SYSTEM INTEGRATION .....	22,010		22,010
185	0205632N	MK-48 ADCAP .....	39,288		39,288
186	0205633N	AVIATION IMPROVEMENTS .....	123,012	-12,600	110,412
		Cancellation of Multi-Purpose Bomb Racks Program .....		[-22,600]	
		Electrophotonic Component Capability Development .....		[10,000]	
187	0205658N	NAVY SCIENCE ASSISTANCE PROGRAM .....	1,957		1,957
188	0205675N	OPERATIONAL NUCLEAR POWER SYSTEMS .....	82,705		82,705
189	0206313M	MARINE CORPS COMMUNICATIONS SYSTEMS .....	320,864		320,864
190	0206623M	MARINE CORPS GROUND COMBAT/SUPPORTING ARMS SYSTEMS .....	209,396		209,396
191	0206624M	MARINE CORPS COMBAT SERVICES SUPPORT .....	45,172		45,172
192	0206625M	USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIP) .....	14,101		14,101
193	0207161N	TACTICAL AIM MISSILES .....	8,765		8,765
194	0207163N	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) .....	2,913		2,913
195	0208058N	JOINT HIGH SPEED VESSEL (JHSV) .....	4,108		4,108
200	0303109N	SATELLITE COMMUNICATIONS (SPACE) .....	263,712		263,712

201	0303138N	CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERVICES (CANES) .....	12,906	12,906
202	0303140N	INFORMATION SYSTEMS SECURITY PROGRAM .....	25,229	25,229
203	0303150M	WMCCS/GLOBAL COMMAND AND CONTROL SYSTEM .....	1,250	1,250
204	0303238N	CONSOLIDATED AFLOAT NETWORK ENTERPRISE SERVICES (CANES)—MIP .....	6,602	6,602
206	0305149N	COBRA JUDY .....	40,605	40,605
207	0305160N	NAVY METEOROLOGICAL AND OCEAN SENSORS-SPACE (METOC) .....	904	904
208	0305192N	MILITARY INTELLIGENCE PROGRAM (MIP) ACTIVITIES .....	4,099	4,099
209	0305204N	TACTICAL UNMANNED AERIAL VEHICLES .....	9,353	9,353
		TACAIR-Launched UAS Capability Development .....		
210	0305206N	AIRBORNE RECONNAISSANCE SYSTEMS .....	10,000	10,000
		Advance Reconnaissance Systems .....	[10,000]	[10,000]
		Manned Reconnaissance Systems .....	3,000	3,000
		.....	[3,000]	[3,000]
211	0305207N	MANNED RECONNAISSANCE SYSTEMS .....		
212	0305208M	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	23,785	23,785
213	0305208N	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	25,487	25,487
214	0305220N	RQ-4 UAV .....	548,482	548,482
215	0305231N	MQ-8 UAV .....	108,248	108,248
216	0305232M	RQ-11 UAV .....	979	979
217	0305233N	RQ-7 UAV .....	872	872
218	0305234M	SMALL (LEVEL 0) TACTICAL UAS (STUASLO) .....		
219	0305234N	SMALL (LEVEL 0) TACTICAL UAS (STUASLO) .....	22,698	22,698
220	0305237N	MEDIUM RANGE MARITIME UAS .....	15,000	15,000
221	0305239M	RQ-21A .....	26,301	26,301
222	0307217N	EP-3E REPLACEMENT (EPX) .....		
223	0308601N	MODELING AND SIMULATION SUPPORT .....	8,292	8,292
224	0702207N	DEPOT MAINTENANCE (NON-IF) .....	21,609	21,609
225	0702239N	AVIONICS COMPONENT IMPROVEMENT PROGRAM .....		
226	0708011N	INDUSTRIAL PREPAREDNESS .....	54,031	54,031
		Industrial Preparedness .....	5,000	5,000
227	0708730N	MARITIME TECHNOLOGY (MARITECH) .....	5,000	5,000
227A	9999999999	CLASSIFIED PROGRAMS .....	1,308,608	1,308,608
227U	0607UNDN	UNDISTRIBUTED .....		
		Aviation Component Development .....	[10,000]	[10,000]

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		Program Decrease .....		[-20,000]	
		UAS Development .....		[10,000]	
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT .....</b>	<b>4,131,044</b>	<b>5,400</b>	<b>4,136,444</b>
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, NAVY .....</b>	<b>17,956,431</b>	<b>51,700</b>	<b>18,008,131</b>
		<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, AF</b>			
		<b>BASIC RESEARCH</b>			
001	0601102F	DEFENSE RESEARCH SCIENCES .....	364,328		364,328
002	0601103F	UNIVERSITY RESEARCH INITIATIVES .....	140,273	7,000	147,273
		Program Increase .....		[7,000]	
003	0601108F	HIGH ENERGY LASER RESEARCH INITIATIVES .....	14,258		14,258
		<b>SUBTOTAL BASIC RESEARCH .....</b>	<b>518,859</b>	<b>7,000</b>	<b>525,859</b>
		<b>APPLIED RESEARCH</b>			
004	0602102F	MATERIALS .....	136,230		136,230
005	0602201F	AEROSPACE VEHICLE TECHNOLOGIES .....	147,628		147,628
006	0602202F	HUMAN EFFECTIVENESS APPLIED RESEARCH .....	86,663	2,200	88,863
		Program Increase .....		[2,200]	
007	0602203F	AEROSPACE PROPULSION .....	207,508	2,000	209,508
		Program Increase .....		[2,000]	
008	0602204F	AEROSPACE SENSORS .....	134,787		134,787
009	0602601F	SPACE TECHNOLOGY .....	115,285	3,000	118,285
		Program Increase .....		[3,000]	
010	0602602F	CONVENTIONAL MUNITIONS .....	60,692		60,692
011	0602605F	DIRECTED ENERGY TECHNOLOGY .....	111,156		111,156
012	0602788F	DOMINANT INFORMATION SCIENCES AND METHODS .....	127,866		127,866

013	0602890F	HIGH ENERGY LASER RESEARCH .....	54,059	54,059
		<b>SUBTOTAL APPLIED RESEARCH .....</b>	<b>1,181,874</b>	<b>1,189,074</b>
		<b>ADVANCED TECHNOLOGY DEVELOPMENT</b>		
014	0603112F	ADVANCED MATERIALS FOR WEAPON SYSTEMS .....	39,738	10,000
		Program Increase—Metals Affordability Initiative .....		[10,000]
015	0603199F	SUSTAINMENT SCIENCE AND TECHNOLOGY (S&T) .....	5,780	5,780
016	0603203F	ADVANCED AEROSPACE SENSORS .....	53,075	53,075
017	0603211F	AEROSPACE TECHNOLOGY DEV/DEMO .....	67,474	67,474
018	0603216F	AEROSPACE PROPULSION AND POWER TECHNOLOGY .....		
018A	0603XXXF	FUELS .....	6,770	6,770
018B	0603XXXF	POWER TECHNOLOGY .....	5,747	5,747
018C	0603XXXF	PROPULSION .....	80,833	80,833
018D	0603XXXF	ROCKET PROPULSION .....	27,603	27,603
019	0603270F	ELECTRONIC COMBAT TECHNOLOGY .....	22,268	22,268
020	0603401F	ADVANCED SPACECRAFT TECHNOLOGY .....	74,636	74,636
021	0603444F	MAUI SPACE SURVEILLANCE SYSTEM (MSSS) .....	13,555	13,555
022	0603456F	HUMAN EFFECTIVENESS ADVANCED TECHNOLOGY DEVELOPMENT .....	25,319	25,319
023	0603601F	CONVENTIONAL WEAPONS TECHNOLOGY .....	54,042	54,042
024	0603605F	ADVANCED WEAPONS TECHNOLOGY .....	28,683	28,683
025	0603680F	MANUFACTURING TECHNOLOGY PROGRAM .....	40,103	40,103
026	0603788F	BATTLESPACE KNOWLEDGE DEVELOPMENT AND DEMONSTRATION .....	38,656	4,000
		Program Increase .....		[4,000]
027	0603924F	HIGH ENERGY LASER ADVANCED TECHNOLOGY PROGRAM .....	1,122	1,122
		<b>SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT .....</b>	<b>585,404</b>	<b>14,000</b>
		<b>ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES</b>		
028	0603260F	INTELLIGENCE ADVANCED DEVELOPMENT .....	4,013	4,013
029	0603287F	PHYSICAL SECURITY EQUIPMENT .....	3,586	3,586
030	0603423F	GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT .....		
031	0603430F	ADVANCED EHF MILSATCOM (SPACE) .....	421,687	-142,200
		Transfer to RDAF—49 .....		[-142,200]

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032	0603432F	POLAR MILSATCOM (SPACE) .....	122,991		122,991
033	0603438F	SPACE CONTROL TECHNOLOGY .....	45,755		45,755
034	0603742F	COMBAT IDENTIFICATION TECHNOLOGY .....	38,496		38,496
035	0603790F	NATO RESEARCH AND DEVELOPMENT .....	4,424		4,424
036	0603791F	INTERNATIONAL SPACE COOPERATIVE R&D .....	642		642
037	0603830F	SPACE PROTECTION PROGRAM (SPP) .....	9,819		9,819
038	0603850F	INTEGRATED BROADCAST SERVICE .....	20,046		20,046
039	0603851F	INTERCONTINENTAL BALLISTIC MISSILE .....	67,202	20,000	87,202
		Program increase .....		[20,000]	
040	0603854F	WIDEBAND GLOBAL SATCOM RDT&E (SPACE) .....	12,804		12,804
041	0603859F	POLLUTION PREVENTION .....	2,075		2,075
042	0603860F	JOINT PRECISION APPROACH AND LANDING SYSTEMS .....	20,112		20,112
043	0604015F	NEXT GENERATION BOMBER .....	197,023		197,023
044	0604283F	BATTLE MGMT COM & CTRL SENSOR DEVELOPMENT .....	60,250		60,250
045	0604317F	TECHNOLOGY TRANSFER .....	2,553	9,000	11,553
		Program increase .....		[9,000]	
046	0604327F	HARD AND DEEPLY BURIED TARGET DEFEAT SYSTEM (HDBTDS) PROGRAM .....	38,248		38,248
047	0604330F	JOINT DUAL ROLE AIR DOMINANCE MISSILE .....	29,759		29,759
048	0604337F	REQUIREMENTS ANALYSIS AND MATURATION .....	24,217		24,217
049	0604436F	NEXT-GENERATION MILSATCOM TECHNOLOGY DEVELOPMENT .....		142,200	142,200
		Transfer from RDAF-031 .....		[142,200]	
050	0604635F	GROUND ATTACK WEAPONS FUZE DEVELOPMENT .....	24,467		24,467
051	0604796F	ALTERNATIVE FUELS .....			
052	0604830F	AUTOMATED AIR-TO-AIR REFUELING .....			
053	0604857F	OPERATIONALLY RESPONSIVE SPACE .....	86,543	20,000	106,543
		Program increase .....		[20,000]	
054	0604858F	TECH TRANSITION PROGRAM .....	2,773		2,773

055	0305178F	NATIONAL POLAR-ORBITING OPERATIONAL ENVIRONMENTAL SATELLITE SYSTEM (NPOESS) .....	444,900	444,900
		<b>SUBTOTAL ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES .....</b>	<b>1,684,385</b>	<b>1,733,385</b>
		<b>SYSTEM DEVELOPMENT &amp; DEMONSTRATION</b>		
056	0603840F	GLOBAL BROADCAST SERVICE (GBS) .....	5,680	5,680
057	0604222F	NUCLEAR WEAPONS SUPPORT .....	18,538	18,538
058	0604233F	SPECIALIZED UNDERGRADUATE FLIGHT TRAINING .....	21,780	21,780
059	0604270F	ELECTRONIC WARFARE DEVELOPMENT .....	26,880	26,880
060	0604280F	JOINT TACTICAL RADIO .....		
061	0604281F	TACTICAL DATA NETWORKS ENTERPRISE .....	52,355	52,355
062	0604287F	PHYSICAL SECURITY EQUIPMENT .....	51	51
063	0604329F	SMALL DIAMETER BOMB (SDB) .....	132,891	132,891
064	0604421F	COUNTERSPACE SYSTEMS .....	31,913	31,913
065	0604425F	SPACE SITUATION AWARENESS SYSTEMS .....	273,689	273,689
066	0604429F	AIRBORNE ELECTRONIC ATTACK .....	47,100	47,100
067	0604441F	SPACE BASED INFRARED SYSTEM (SBIRS) HIGH EMD .....	621,629	641,629
		Program Increase .....	20,000	20,000
068	0604443F	THIRD GENERATION INFRARED SURVEILLANCE (3GIRS) .....	[20,000]	[20,000]
069	0604602F	ARMAMENT/ORDNANCE DEVELOPMENT .....	10,055	10,055
070	0604604F	SUBMUNITIONS .....	2,427	2,427
071	0604617F	AGILE COMBAT SUPPORT .....	11,878	11,878
072	0604618F	JOINT DIRECT ATTACK MUNITION .....		
073	0604706F	LIFE SUPPORT SYSTEMS .....	11,280	11,280
074	0604735F	COMBAT TRAINING RANGES .....	28,106	28,106
075	0604740F	INTEGRATED COMMAND & CONTROL APPLICATIONS (IC2A) .....	10	10
076	0604750F	INTELLIGENCE EQUIPMENT .....	995	995
077	0604800F	JOINT STRIKE FIGHTER (JSF) .....	1,387,926	1,388,926
		Establish Protocols for Joint Strike Fighter Lead-Free Electronic Components .....	1,000	1,000
078	0604851F	INTERCONTINENTAL BALLISTIC MISSILE .....	[1,000]	[1,000]
079	0604853F	EVOLVED EXPENDABLE LAUNCH VEHICLE PROGRAM (SPACE) .....	158,477	158,477
080	0605221F	NEXT GENERATION AERIAL REFUELING AIRCRAFT .....	20,028	20,028
		Program Reduction .....	877,084	849,884
			-27,200	-27,200
			[ -27,200 ]	[ -27,200 ]

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
081	0605229F	CSAR HH-60 RECAPITALIZATION .....	94,113	-83,113	11,000
		Budget Adjustment per Air Force Request to APAF-63 .....		[-10,400]	
		Budget Adjustment per Air Force Request to APAF-73 .....		[-54,600]	
		Program Reduction .....		[-18,113]	
082	0605277F	CSAR-X RDT&E .....			
083	0605278F	HC/MC-130 RECAP RDT&E .....	27,071		27,071
084	0605452F	JOINT SIAP EXECUTIVE PROGRAM OFFICE .....			
085	0101125F	NUCLEAR WEAPONS MODERNIZATION .....	93,867		93,867
086	0207100F	LIGHT ATTACK ARMED RECONNAISSANCE (LAAR) SQUADRONS .....	23,721		23,721
087	0207451F	SINGLE INTEGRATED AIR PICTURE (SIAP) .....			
088	0207701F	FULL COMBAT MISSION TRAINING .....	39,826		39,826
089	0401138F	JOINT CARGO AIRCRAFT (JCA) .....	27,089		27,089
090	0401318F	CV-22 .....	20,723		20,723
091	0401845F	AIRBORNE SENIOR LEADER C3 (SLC3S) .....	12,535		12,535
		<b>SUBTOTAL SYSTEM DEVELOPMENT &amp; DEMONSTRATION .....</b>	<b>4,079,717</b>	<b>-89,313</b>	<b>3,990,404</b>
		<b>RT&amp;E MANAGEMENT SUPPORT</b>			
092	0604256F	THREAT SIMULATOR DEVELOPMENT .....	22,420		22,420
093	0604759F	MAJOR T&E INVESTMENT .....	62,206		62,206
094	0605101F	RAND PROJECT AIR FORCE .....	27,579		27,579
095	0605502F	SMALL BUSINESS INNOVATION RESEARCH .....			
096	0605712F	INITIAL OPERATIONAL TEST & EVALUATION .....	17,767		17,767
097	0605807F	TEST AND EVALUATION SUPPORT .....	654,475	109,000	763,475
		Program Increase .....		[109,000]	
098	0605860F	ROCKET SYSTEMS LAUNCH PROGRAM (SPACE) .....	158,096	-124,500	33,596
		Program Reduction .....		[-124,500]	
099	0605864F	SPACE TEST PROGRAM (STP) .....	47,926		47,926

100	0605976F	FACILITIES RESTORATION AND MODERNIZATION—TEST AND EVALUATION SUPPORT .....	44,547	44,547
101	0605978F	FACILITIES SUSTAINMENT—TEST AND EVALUATION SUPPORT .....	27,953	27,953
102	0606323F	MULTI-SERVICE SYSTEMS ENGINEERING INITIATIVE .....	13,953	13,953
103	0702806F	ACQUISITION AND MANAGEMENT SUPPORT .....	31,966	31,966
104	0804731F	GENERAL SKILL TRAINING .....	1,510	1,510
105	0909999F	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS .....	3,798	3,798
106	1001004F	INTERNATIONAL ACTIVITIES .....		
		<b>SUBTOTAL ROT&amp;E MANAGEMENT SUPPORT .....</b>	<b>1,114,196</b>	<b>-15,500</b>
		<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>		
107	0603423F	GLOBAL POSITIONING SYSTEM III—OPERATIONAL CONTROL SEGMENT .....	390,889	390,889
108	0604263F	COMMON VERTICAL LIFT SUPPORT PLATFORM .....	5,365	5,365
109	0605018F	AF INTEGRATED PERSONNEL AND PAY SYSTEM (AF-IPPS) .....	91,866	91,866
110	0605024F	ANTI-TAMPER TECHNOLOGY EXECUTIVE AGENCY .....	35,467	35,467
112	0101113F	B-52 SQUADRONS .....	133,261	133,261
113	0101122F	AIR-LAUNCHED CRUISE MISSILE (ALCM) .....	803	803
114	0101126F	B-1B SQUADRONS .....	33,011	33,011
115	0101127F	B-2 SQUADRONS .....	340,819	340,819
116	0101313F	STRAT WAR PLANNING SYSTEM—USSTRATCOM .....	23,072	23,072
117	0101314F	NIGHT FIST—USSTRATCOM .....	5,421	-5,421
		Program Termination		[-5,421]
119	0102325F	ATMOSPHERIC EARLY WARNING SYSTEM .....	4,485	4,485
120	0102326F	REGION/SECTOR OPERATION CONTROL CENTER MODERNIZATION PROGRAM .....	12,672	12,672
121	0102823F	STRATEGIC AEROSPACE INTELLIGENCE SYSTEM ACTIVITIES .....	14	14
122	0203761F	WARFIGHTER RAPID ACQUISITION PROCESS (WRAP) RAPID TRANSITION FUND .....	19,934	39,934
		Mixed Conventional Load Capacity for Bomber Aircraft		20,000
123	0205219F	MQ-9 UAV .....	146,824	[20,000]
124	0207040F	MULTI-PLATFORM ELECTRONIC WARFARE EQUIPMENT .....		146,824
125	0207131F	A-10 SQUADRONS .....	11,051	11,051
126	0207133F	F-16 SQUADRONS .....	143,869	143,869
127	0207134F	F-15E SQUADRONS .....	207,531	207,531
128	0207136F	MANNED DESTRUCTIVE SUPPRESSION .....	13,253	13,253

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
129	0207138F	F-22A SQUADRONS .....	718,432		718,432
130	0207142F	F-35 SQUADRONS .....	47,841		47,841
131	0207161F	TACTICAL AIM MISSILES .....	8,023		8,023
132	0207163F	ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE (AMRAAM) .....	77,830		77,830
133	0207170F	JOINT HELMET MOUNTED CUEING SYSTEM (JHMCS) .....	1,436		1,436
134	0207224F	COMBAT RESCUE AND RECOVERY .....	2,292		2,292
135	0207227F	COMBAT RESCUE—PARARESCUE .....	927		927
136	0207247F	AF TENCAP .....	20,727		20,727
137	0207249F	PRECISION ATTACK SYSTEMS PROCUREMENT .....	3,128		3,128
138	0207253F	COMPASS CALL .....	18,509		18,509
139	0207268F	AIRCRAFT ENGINE COMPONENT IMPROVEMENT PROGRAM .....	182,967		182,967
140	0207277F	ISR INNOVATIONS .....			
141	0207325F	JOINT AIR-TO-SURFACE STANDOFF MISSILE (JASSM) .....	5,796		5,796
142	0207410F	AIR & SPACE OPERATIONS CENTER (AOC) .....	121,880		121,880
143	0207412F	CONTROL AND REPORTING CENTER (CRC) .....	3,954		3,954
144	0207417F	AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) .....	135,961		135,961
145	0207418F	TACTICAL AIRBORNE CONTROL SYSTEMS .....	8,309		8,309
146	0207423F	ADVANCED COMMUNICATIONS SYSTEMS .....	90,083		90,083
148	0207431F	COMBAT AIR INTELLIGENCE SYSTEM ACTIVITIES .....	5,428		5,428
149	0207438F	THEATER BATTLE MANAGEMENT (TBM) C41 .....	15,528		15,528
150	0207444F	TACTICAL AIR CONTROL PARTY-MOD .....	15,978		15,978
151	0207445F	FIGHTER TACTICAL DATA LINK .....			
152	0207448F	C2ISR TACTICAL DATA LINK .....	1,536		1,536
153	0207449F	COMMAND AND CONTROL (C2) CONSTELLATION .....	18,102		18,102
154	0207581F	JOINT SURVEILLANCE/TARGET ATTACK RADAR SYSTEM (USTARS) .....	121,610		121,610
155	0207590F	SEEK EAGLE .....	18,599		18,599
156	0207601F	USAF MODELING AND SIMULATION .....	23,091		23,091

157	0207605F	WAR Gaming AND SIMULATION CENTERS .....	5,779	5,779
158	0207697F	DISTRIBUTED TRAINING AND EXERCISES .....	5,264	5,264
159	0208006F	MISSION PLANNING SYSTEMS .....	69,918	69,918
160	0208021F	INFORMATION WARFARE SUPPORT .....	2,322	2,322
161	0208059F	CYBER COMMAND ACTIVITIES .....	702	702
168	0301400F	SPACE SUPERIORITY INTELLIGENCE .....	11,866	11,866
169	0302015F	E-4B NATIONAL AIRBORNE OPERATIONS CENTER (NAOC) .....	5,845	5,845
170	0303131F	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECON) .....	43,811	43,811
171	0303140F	INFORMATION SYSTEMS SECURITY PROGRAM .....	101,788	101,788
172	0303141F	GLOBAL COMBAT SUPPORT SYSTEM .....	449	449
173	0303150F	GLOBAL COMMAND AND CONTROL SYSTEM .....	3,854	3,854
174	0303158F	JOINT COMMAND AND CONTROL PROGRAM (JC2) .....		
175	0303601F	MILSATCOM TERMINALS .....	238,729	238,729
177	0304260F	AIRBORNE SIGINT ENTERPRISE .....		
177A	0304XXXF	RE-135 .....	34,744	34,744
177B	0304XXXF	COMMON DEVELOPMENT .....	87,004	87,004
180	0305099F	GLOBAL AIR TRAFFIC MANAGEMENT (GATM) .....	4,604	4,604
181	0305103F	CYBER SECURITY INITIATIVE .....	2,026	2,026
182	0305105F	DOD CYBER CRIME CENTER .....	282	282
183	0305110F	SATELLITE CONTROL NETWORK (SPACE) .....	18,337	18,337
184	0305111F	WEATHER SERVICE .....	31,084	31,084
185	0305114F	AIR TRAFFIC CONTROL, APPROACH, AND LANDING SYSTEM (ATCAL) .....	63,367	63,367
186	0305116F	AERIAL TARGETS .....	50,620	50,620
189	0305128F	SECURITY AND INVESTIGATIVE ACTIVITIES .....	366	366
190	0305146F	DEFENSE JOINT COUNTERINTELLIGENCE ACTIVITIES .....	39	39
192	0305164F	NAVSTAR GLOBAL POSITIONING SYSTEM (USER EQUIPMENT) (SPACE) .....	133,601	133,601
193	0305165F	NAVSTAR GLOBAL POSITIONING SYSTEM (SPACE AND CONTROL SEGMENTS) .....	17,893	17,893
195	0305173F	SPACE AND MISSILE TEST AND EVALUATION CENTER .....	196,254	196,254
196	0305174F	SPACE INNOVATION AND DEVELOPMENT CENTER .....	2,961	2,961
197	0305182F	SPACELIFT RANGE SYSTEM (SPACE) .....	9,940	9,940
198	0305193F	INTELLIGENCE SUPPORT TO INFORMATION OPERATIONS (IO) .....	1,271	1,271
199	0305202F	DRAGON U-2 .....		

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
200	0305205F	ENDURANCE UNMANNED AERIAL VEHICLES .....	52,425		52,425
201	0305206F	AIRBORNE RECONNAISSANCE SYSTEMS .....	106,877		106,877
202	0305207F	MANNED RECONNAISSANCE SYSTEMS .....	13,049		13,049
203	0305208F	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	90,724		90,724
204	0305219F	MQ-1 PREDATOR A UAV .....	14,112		14,112
205	0305220F	RQ-4 UAV .....	423,462		423,462
206	0305221F	NETWORK-CENTRIC COLLABORATIVE TARGETING .....	7,348		7,348
207	0305265F	GPS III SPACE SEGMENT .....	463,081		463,081
208	0305614F	JSPC MISSION SYSTEM .....	118,950		118,950
209	0305887F	INTELLIGENCE SUPPORT TO INFORMATION WARFARE .....	14,736		14,736
210	0305913F	NUDET DETECTION SYSTEM (SPACE) .....	81,989		81,989
211	0305924F	NATIONAL SECURITY SPACE OFFICE .....			
212	0305940F	SPACE SITUATION AWARENESS OPERATIONS .....	31,956		31,956
213	0307141F	INFORMATION OPERATIONS TECHNOLOGY INTEGRATION & TOOL DEVELOPMENT .....	23,931		23,931
214	0308699F	SHARED EARLY WARNING (SEW) .....	1,663		1,663
215	0401115F	C-130 AIRLIFT SQUADRON .....	24,509		24,509
216	0401119F	C-5 AIRLIFT SQUADRONS (IF) .....	24,941		24,941
217	0401130F	C-17 AIRCRAFT (IF) .....	128,169		128,169
218	0401132F	C-130J PROGRAM .....	39,537		39,537
219	0401134F	LARGE AIRCRAFT IR COUNTERMEASURES (LAIRCIM) .....	7,438		7,438
220	0401139F	LIGHT MOBILITY AIRCRAFT (LIMA) .....	1,308		1,308
221	0401218F	KC-135S .....	6,161		6,161
222	0401219F	KC-10S .....	30,868		30,868
223	0401314F	OPERATIONAL SUPPORT AIRLIFT .....	82,591		82,591
224	0401315F	C-STOL AIRCRAFT .....			
225	0408011F	SPECIAL TACTICS / COMBAT CONTROL .....	7,118		7,118
226	0702207F	DEPOT MAINTENANCE (NON-IF) .....	1,531		1,531

227	0702976F	FACILITIES RESTORATION & MODERNIZATION—LOGISTICS .....		
228	0708012F	LOGISTICS SUPPORT ACTIVITIES .....	944	944
229	0708610F	LOGISTICS INFORMATION TECHNOLOGY (LOGIT) .....	140,284	140,284
230	0708611F	SUPPORT SYSTEMS DEVELOPMENT .....	10,990	10,990
231	0801711F	RECRUITING ACTIVITIES .....		
232	0804743F	OTHER FLIGHT TRAINING .....	322	322
233	0804757F	JOINT NATIONAL TRAINING CENTER .....	11	11
234	0804772F	TRAINING DEVELOPMENTS .....		
235	0808716F	OTHER PERSONNEL ACTIVITIES .....	113	113
236	0901202F	JOINT PERSONNEL RECOVERY AGENCY .....	2,483	2,483
237	0901218F	CIVILIAN COMPENSATION PROGRAM .....	1,508	1,508
238	0901220F	PERSONNEL ADMINISTRATION .....	8,041	8,041
239	0901226F	AIR FORCE STUDIES AND ANALYSIS AGENCY .....	928	928
240	0901279F	FACILITIES OPERATION—ADMINISTRATIVE .....	12,118	12,118
241	0901538F	FINANCIAL MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT .....	101,317	101,317
242	0902998F	MANAGEMENT HQ—ADP SUPPORT (AF) .....	299	299
242A	9999999999	CLASSIFIED PROGRAMS .....	12,063,140	12,088,140
		Defense Reconnaissance Support Activities .....		25,000
				(25,000)
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT .....</b>	<b>18,573,266</b>	<b>18,612,845</b>
		TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, AF .....	27,737,701	27,749,667
		<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, DW</b>		
		<b>BASIC RESEARCH</b>		
001	0601000BR	DTRA BASIC RESEARCH INITIATIVE .....	47,737	47,737
002	0601101E	DEFENSE RESEARCH SCIENCES .....	290,773	290,773
003	0601110D8Z	BASIC RESEARCH INITIATIVES .....	14,731	14,731
004	0601111D8Z	GOVERNMENT/INDUSTRY COSPONSORSHIP OF UNIVERSITY RESEARCH .....		
005	0601117E	BASIC OPERATIONAL MEDICAL RESEARCH SCIENCE .....	37,870	37,870
006	0601120D8Z	NATIONAL DEFENSE EDUCATION PROGRAM .....	101,591	86,591
		Program Reduction .....		-15,000
		CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM .....		(-15,000)
007	0601384BP		52,617	52,617

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
		<b>SUBTOTAL BASIC RESEARCH</b>	<b>545,319</b>	<b>-15,000</b>	<b>530,319</b>
		<b>APPLIED RESEARCH</b>			
008	060200008Z	JOINT MUNITIONS TECHNOLOGY	21,592		21,592
009	06021115E	BIOMEDICAL TECHNOLOGY	110,000		110,000
010	060222808Z	HISTORICALLY BLACK COLLEGES AND UNIVERSITIES (HBCU) SCIENCE		25,245	25,245
		Program Increase		[10,000]	
		Realignment of Funds for Proper Oversight and Execution		[15,245]	
011	060223408Z	LINCOLN LABORATORY RESEARCH PROGRAM	37,916		37,916
012	060225008Z	SYSTEMS 2020 APPLIED RESEARCH	4,381		4,381
013	06023030E	INFORMATION & COMMUNICATIONS TECHNOLOGY	400,499		350,499
		Program Reduction		-50,000	
				[-50,000]	
014	0602304E	COGNITIVE COMPUTING SYSTEMS	49,365		49,365
015	0602305E	MACHINE INTELLIGENCE	61,351		61,351
016	0602383E	BIOLOGICAL WARFARE DEFENSE	30,421		30,421
017	0602384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	219,873		224,873
		Program Increase		5,000	
				[5,000]	
018	060266308Z	DATA TO DECISIONS APPLIED RESEARCH	9,235		5,235
		Program Reduction		-4,000	
				[-4,000]	
019	060266808Z	CYBER SECURITY RESEARCH	9,735		9,735
020	060267008Z	HUMAN, SOCIAL AND CULTURE BEHAVIOR MODELING (HSCB) APPLIED RESEARCH	14,923		10,923
		Program Reduction		-4,000	
				[-4,000]	
021	0602702E	TACTICAL TECHNOLOGY	206,422		206,422
022	0602715E	MATERIALS AND BIOLOGICAL TECHNOLOGY	237,837		237,837
023	0602716E	ELECTRONICS TECHNOLOGY	215,178		215,178
024	0602718BR	WEAPONS OF MASS DESTRUCTION DEFEAT TECHNOLOGIES	196,954		201,954
		Program Increase		5,000	
				[5,000]	

025	1160401BB	SPECIAL OPERATIONS TECHNOLOGY DEVELOPMENT .....	26,591		26,591
026	1160407BB	SOF MEDICAL TECHNOLOGY DEVELOPMENT .....			
		<b>SUBTOTAL APPLIED RESEARCH .....</b>	<b>1,852,273</b>	<b>-22,755</b>	<b>1,829,518</b>
		<b>ADVANCED TECHNOLOGY DEVELOPMENT (ATD)</b>			
027	0603000D8Z	JOINT MUNITIONS ADVANCED TECHNOLOGY .....	24,771		24,771
028	0603121D8Z	SO/LIC ADVANCED DEVELOPMENT .....	45,028		45,028
029	0603122D8Z	COMBATING TERRORISM TECHNOLOGY SUPPORT .....	77,019	23,200	100,219
		Program Increase .....		[23,200]	
030	0603160BR	COUNTERPROLIFERATION INITIATIVES—PROLIFERATION PREVENTION AND DEFEAT .....	283,073		283,073
031	0603175C	BALLISTIC MISSILE DEFENSE TECHNOLOGY .....	75,003		75,003
032	0603200D8Z	JOINT ADVANCED CONCEPTS .....	7,903		7,903
033	0603225D8Z	JOINT DOD-DOE MUNITIONS TECHNOLOGY DEVELOPMENT .....	20,372		20,372
034	0603250D8Z	SYSTEMS 2020 ADVANCED TECHNOLOGY DEVELOPMENT .....	4,381		4,381
035	0603264S	AGILE TRANSPORTATION FOR THE 21ST CENTURY (AT21)—THEATER CAPABILITY .....	998		998
036	0603274C	SPECIAL PROGRAM—MDA TECHNOLOGY .....	61,458		61,458
037	0603286E	ADVANCED AEROSPACE SYSTEMS .....	98,878		98,878
038	0603287E	SPACE PROGRAMS AND TECHNOLOGY .....	97,541		97,541
039	0603384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM—ADVANCED DEVELOPMENT .....	229,235		229,235
040	0603618D8Z	JOINT ELECTRONIC ADVANCED TECHNOLOGY .....	7,287		7,287
041	0603648D8Z	JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS .....	187,707	-20,000	167,707
		Unjustified Growth .....		[-20,000]	
042	0603662D8Z	NETWORKED COMMUNICATIONS CAPABILITIES .....	23,890		23,890
043	0603663D8Z	DATA TO DECISIONS ADVANCED TECHNOLOGY DEVELOPMENT .....	9,235	-4,000	5,235
		Program Reduction .....		[-4,000]	
044	0603665D8Z	BIOMETRICS SCIENCE AND TECHNOLOGY .....	10,762		10,762
045	0603668D8Z	CYBER SECURITY ADVANCED RESEARCH .....	10,709		10,709
046	0603670D8Z	HUMAN, SOCIAL AND CULTURE BEHAVIOR MODELING (HSCB) ADVANCED DEVELOPMENT .....	18,179	-4,000	14,179
		Program Reduction .....		[-4,000]	
047	0603680D8Z	DEFENSE-WIDE MANUFACTURING SCIENCE AND TECHNOLOGY PROGRAM .....	17,888	2,000	19,888
		Defense Alternative Energy .....		[2,000]	
048	0603699D8Z	EMERGING CAPABILITIES TECHNOLOGY DEVELOPMENT .....	26,972		26,972

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049	0603711D8Z	JOINT ROBOTICS PROGRAM/AUTONOMOUS SYSTEMS .....	9,756		9,756
050	0603712S	GENERIC LOGISTICS R&D TECHNOLOGY DEMONSTRATIONS .....	23,887	15,000	38,887
		Secure Microelectronics .....		[15,000]	
051	0603713S	DEPLOYMENT AND DISTRIBUTION ENTERPRISE TECHNOLOGY .....	41,976	10,750	41,976
052	0603716D8Z	STRATEGIC ENVIRONMENTAL RESEARCH PROGRAM .....	66,409	[1,750]	77,159
		Offshore Range Environmental Baseline Assessment .....		[5,000]	
		Program Increase .....		[4,000]	
		Radiological Contamination Research .....		[3,000]	
053	0603720S	MICROELECTRONICS TECHNOLOGY DEVELOPMENT AND SUPPORT .....	91,132	-8,000	83,132
		Microelectronics Technology Development and Support .....		[3,000]	
		Program Reduction .....		[-11,000]	
054	0603727D8Z	JOINT WARFIGHTING PROGRAM .....	10,547		10,547
055	0603739E	ADVANCED ELECTRONICS TECHNOLOGIES .....	160,286		160,286
056	0603745D8Z	SYNTHETIC APERTURE RADAR (SAR) COHERENT CHANGE DETECTION (COD) .....			
057	0603755D8Z	HIGH PERFORMANCE COMPUTING MODERNIZATION PROGRAM .....			
058	0603760E	COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS .....	296,537	-50,000	246,537
		Program Reduction .....		[-50,000]	
059	0603765E	CLASSIFIED DARPA PROGRAMS .....	107,226		107,226
060	0603766E	NETWORK-CENTRIC WARFARE TECHNOLOGY .....	235,245		235,245
061	0603767E	SENSOR TECHNOLOGY .....	271,802		271,802
062	0603768E	GUIDANCE TECHNOLOGY .....			
063	0603769SE	DISTRIBUTED LEARNING ADVANCED TECHNOLOGY DEVELOPMENT .....	13,579		13,579
064	0603781D8Z	SOFTWARE ENGINEERING INSTITUTE .....	30,424		30,424
065	0603826D8Z	QUICK REACTION SPECIAL PROJECTS .....	89,925		89,925
066	0603828D8Z	JOINT EXPERIMENTATION .....	58,130		58,130
067	0603832D8Z	DOD MODELING AND SIMULATION MANAGEMENT OFFICE .....	37,029	-6,000	31,029
		Program Reduction .....		[-6,000]	

068	0603901C	DIRECTED ENERGY RESEARCH .....	96,329	50,000	146,329
		Program Increase .....		[50,000]	
069	0603902C	NEXT GENERATION AEGIS MISSILE .....	123,456		123,456
070	0603941D8Z	TEST & EVALUATION SCIENCE & TECHNOLOGY .....	99,593		99,593
071	0603942D8Z	TECHNOLOGY TRANSFER .....			
072	0604055D8Z	OPERATIONAL ENERGY CAPABILITY IMPROVEMENT .....	20,444	14,000	34,444
		Operational Energy Improvement Pilot Project .....		[4,000]	
		Program Increase .....		[10,000]	
073	0303310D8Z	CWMD SYSTEMS .....	7,788		7,788
074	1160402BB	SPECIAL OPERATIONS ADVANCED TECHNOLOGY DEVELOPMENT .....	35,242	5,000	40,242
		Program Increase .....		[5,000]	
075	1160422BB	AVIATION ENGINEERING ANALYSIS .....	837		837
076	1160472BB	SOF INFORMATION AND BROADCAST SYSTEMS ADVANCED TECHNOLOGY .....	4,924		4,924
		<b>SUBTOTAL ADVANCED TECHNOLOGY DEVELOPMENT (ATD) .....</b>	<b>3,270,792</b>	<b>27,950</b>	<b>3,298,742</b>
<b>ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES</b>					
077	0603161D8Z	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E ADC&P .....	36,798		36,798
078	0603527D8Z	RETRACT LARCH .....	21,040		21,040
079	0603600D8Z	WALKOFF .....	112,142		112,142
080	0603709D8Z	JOINT ROBOTICS PROGRAM .....	11,129		11,129
081	0603714D8Z	ADVANCED SENSOR APPLICATIONS PROGRAM .....	18,408		18,408
082	0603851D8Z	ENVIRONMENTAL SECURITY TECHNICAL CERTIFICATION PROGRAM .....	63,606		63,606
		Realignment to RDDW-082A .....		-30,000	
		Installation Energy Test Bed Program Increase .....		[-30,000]	
082A	0603XXXD8Z	Microgrid Pilot Program .....	47,000		47,000
		Realignment from RDDW-082 .....		[15,000]	
083	0603881C	BALLISTIC MISSILE DEFENSE TERMINAL DEFENSE SEGMENT .....	290,452		290,452
084	0603882C	BALLISTIC MISSILE DEFENSE MIDCOURSE DEFENSE SEGMENT .....	1,161,001	100,000	1,261,001
		Program Increase .....		[100,000]	
085	0603883C	BALLISTIC MISSILE DEFENSE BOOST DEFENSE SEGMENT .....			
086	0603884BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM .....	261,143		261,143

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087	0603884C	BALLISTIC MISSILE DEFENSE SENSORS .....	222,374		222,374
088	0603888C	BALLISTIC MISSILE DEFENSE TEST & TARGETS .....	1,071,039		1,071,039
089	0603890C	BMD ENABLING PROGRAMS .....	373,563		373,563
090	0603891C	SPECIAL PROGRAMS—MDA .....	296,554		296,554
091	0603892C	AEGIS BMD .....	960,267	5,000	965,267
		AEGIS Ballistic Missile Defense .....		[5,000]	
092	0603893C	SPACE TRACKING & SURVEILLANCE SYSTEM .....	96,353		96,353
093	0603895C	BALLISTIC MISSILE DEFENSE SYSTEM SPACE PROGRAMS .....	7,951		7,951
094	0603896C	BALLISTIC MISSILE DEFENSE COMMAND AND CONTROL, BATTLE MANAGEMENT AND COMMUNICATI.....	364,103		364,103
095	0603897C	BALLISTIC MISSILE DEFENSE HERCULES .....			
096	0603898C	BALLISTIC MISSILE DEFENSE JOINT WARRIOR SUPPORT .....	41,225		41,225
097	0603904C	MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC) .....	69,325		69,325
098	0603906C	REGARDING TRENCH .....	15,797		15,797
099	0603907C	SEA BASED X-BAND RADAR (SBX) .....	177,058		177,058
100	0603911C	BMD EUROPEAN CAPABILITY .....			
101	0603913C	ISRAELI COOPERATIVE PROGRAMS .....	106,100	110,000	216,100
		Program Increase .....		[110,000]	
102	0603920D8Z	HUMANITARIAN DEMINING .....	14,996		14,996
103	0603923D8Z	COALITION WARFARE .....	12,743		12,743
104	0604016D8Z	DEPARTMENT OF DEFENSE CORROSION PROGRAM .....	3,221	10,300	13,521
		Department of Defense Corrosion Protection Projects .....		[10,300]	
105	0604400D8Z	DEPARTMENT OF DEFENSE (DOD) UNMANNED AIRCRAFT SYSTEM (UAS) COMMON DEVELOPMENT .....	25,120		25,120
106	0604648D8Z	JOINT CAPABILITY TECHNOLOGY DEMONSTRATIONS .....			
107	0604670D8Z	HUMAN, SOCIAL AND CULTURE BEHAVIOR MODELING (HSCB) RESEARCH AND ENGINEERING .....	10,309		10,309
108	0604787D8Z	JOINT SYSTEMS INTEGRATION COMMAND (JSIC) .....	13,024		13,024
109	0604828D8Z	JOINT FIRES INTEGRATION AND INTEROPERABILITY TEAM .....	9,290		9,290

110	0604880C	LAND-BASED SM-3 (LBSM3)	306,595		306,595
111	0604881C	AEGIS SM-3 BLOCK IIA CO-DEVELOPMENT	424,454	40,000	464,454
		Program Increase		[40,000]	
112	0604883C	PRECISION TRACKING SPACE SENSOR RDT&E	160,818	-160,818	
		Program Reduction		[-160,818]	
113	0604884C	AIRBORNE INFRARED (ABIR)	46,877	20,000	66,877
		Program Increase		[20,000]	
114	0605017D8Z	REDUCTION OF TOTAL OWNERSHIP COST			
115	0303191D8Z	JOINT ELECTROMAGNETIC TECHNOLOGY (JET) PROGRAM	3,358		3,358
		<b>SUBTOTAL ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES</b>	<b>6,808,233</b>	<b>141,482</b>	<b>6,949,715</b>
<b>SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD)</b>					
116	0604051D8Z	DEFENSE ACQUISITION CHALLENGE PROGRAM (DACP)			
117	0604161D8Z	NUCLEAR AND CONVENTIONAL PHYSICAL SECURITY EQUIPMENT RDT&E SDD	7,220		7,220
118	0604165D8Z	PROMPT GLOBAL STRIKE CAPABILITY DEVELOPMENT	204,824	-25,000	179,824
		Program Reduction		[-25,000]	
119	0604384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM	400,608		400,608
120	0604709D8Z	JOINT ROBOTICS PROGRAM	2,782		2,782
121	0604764K	ADVANCED IT SERVICES JOINT PROGRAM OFFICE (AITS-JPO)	49,198		49,198
122	0604771D8Z	JOINT TACTICAL INFORMATION DISTRIBUTION SYSTEM (JTIDS)	17,395		17,395
123	0605000BR	WEAPONS OF MASS DESTRUCTION DEFEAT CAPABILITIES	5,888		5,888
124	0605013BL	INFORMATION TECHNOLOGY DEVELOPMENT	12,228		12,228
125	0605018BTA	DEFENSE INTEGRATED MILITARY HUMAN RESOURCES SYSTEM (DIMHRS)			
126	0605020BTA	BUSINESS TRANSFORMATION AGENCY R&D ACTIVITIES			
127	0605021SE	HOMELAND PERSONNEL SECURITY INITIATIVE	389		389
128	0605022D8Z	DEFENSE EXPORTABILITY PROGRAM	1,929		1,929
129	0605027D8Z	OUSS(C) IT DEVELOPMENT INITIATIVES	4,993		4,993
130	0605070S	DOD ENTERPRISE SYSTEMS DEVELOPMENT AND DEMONSTRATION	134,285		134,285
131	0605075D8Z	DCMO POLICY AND INTEGRATION	41,808		41,808
132	0605140D8Z	TRUSTED FOUNDRY			
133	0605210D8Z	DEFENSE-WIDE ELECTRONIC PROCUREMENT CAPABILITIES			
134	0605648D8Z	DEFENSE ACQUISITION EXECUTIVE (DAE) PILOT PROGRAM	14,950		14,950

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135	0303141K	GLOBAL COMBAT SUPPORT SYSTEM .....	19,837		19,837
136	0807708D8Z	WOUNDED ILL AND INJURED SENIOR OVERSIGHT COMMITTEE (WII-SOC) STAFF OFFICE .....			
		<b>SUBTOTAL SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD) .....</b>	<b>918,334</b>	<b>-25,000</b>	<b>893,334</b>
		<b>ROT&amp;E MANAGEMENT SUPPORT</b>			
137	0604774D8Z	DEFENSE READINESS REPORTING SYSTEM (DRRS) .....	6,658		6,658
138	0604875D8Z	JOINT SYSTEMS ARCHITECTURE DEVELOPMENT .....	4,731		4,731
139	0604940D8Z	CENTRAL TEST AND EVALUATION INVESTMENT DEVELOPMENT (CTEIP) .....	140,231		140,231
140	0604942D8Z	ASSESSMENTS AND EVALUATIONS .....	2,757		2,757
141	0604943D8Z	THERMAL VICAR .....	7,827		7,827
142	0605100D8Z	JOINT MISSION ENVIRONMENT TEST CAPABILITY (JMETC) .....	10,479		10,479
143	0605104D8Z	TECHNICAL STUDIES, SUPPORT AND ANALYSIS .....	34,213		34,213
144	0605110D8Z	USD(A&T)--CRITICAL TECHNOLOGY SUPPORT .....	1,486	-1,468	18
		Program Decrease .....		[-1,468]	
145	0605117D8Z	FOREIGN MATERIAL ACQUISITION AND EXPLOITATION .....	64,524		64,524
146	0605126J	JOINT INTEGRATED AIR AND MISSILE DEFENSE ORGANIZATION (JIAMDO) .....	79,859		79,859
147	0605128D8Z	CLASSIFIED PROGRAM USD(P) .....			
148	0605130D8Z	FOREIGN COMPARATIVE TESTING .....	19,080		19,080
149	0605142D8Z	SYSTEMS ENGINEERING .....	41,884		41,884
150	0605161D8Z	NUCLEAR MATTERS-PHYSICAL SECURITY .....	4,261		4,261
151	0605170D8Z	SUPPORT TO NETWORKS AND INFORMATION INTEGRATION .....	9,437		9,437
152	0605200D8Z	GENERAL SUPPORT TO USD (INTELLIGENCE) .....	6,549		6,549
153	0605384BP	CHEMICAL AND BIOLOGICAL DEFENSE PROGRAM .....	92,806		92,806
154	0605502BP	SMALL BUSINESS INNOVATIVE RESEARCH--CHEMICAL BIOLOGICAL DEF .....			
155	0605502BR	SMALL BUSINESS INNOVATIVE RESEARCH .....			
156	0605502C	SMALL BUSINESS INNOVATIVE RESEARCH--MDA .....			
157	0605502D8Z	SMALL BUSINESS INNOVATIVE RESEARCH .....			

158	0605502E	SMALL BUSINESS INNOVATIVE RESEARCH .....		
159	0605502S	SMALL BUSINESS INNOVATIVE RESEARCH .....	1,924	1,924
160	0605790D8Z	SMALL BUSINESS INNOVATION RESEARCH (SBIR)/ SMALL BUSINESS TECHNOLOGY TRANSFER (S	16,135	16,135
161	0605798D8Z	DEFENSE TECHNOLOGY ANALYSIS .....		
162	0605799D8Z	EMERGING CAPABILITIES .....		
163	0605801KA	DEFENSE TECHNICAL INFORMATION CENTER (DTIC) .....	56,269	51,269
		Program Increase		[-5,000]
164	0605803SE	R&D IN SUPPORT OF DOD ENLISTMENT, TESTING AND EVALUATION .....	49,810	49,810
165	0605804D8Z	DEVELOPMENT TEST AND EVALUATION .....	15,805	15,805
166	0605897E	DARPA AGENCY RELOCATION .....	1,000	1,000
167	0605898E	MANAGEMENT HQ—R&D .....	66,689	66,689
168	0606100D8Z	BUDGET AND PROGRAM ASSESSMENTS .....	4,528	4,528
169	0606301D8Z	AVIATION SAFETY TECHNOLOGIES .....	6,925	6,925
170	0203345D8Z	OPERATIONS SECURITY (OPSEC) .....	1,777	1,777
171	0204571J	JOINT STAFF ANALYTICAL SUPPORT .....	18	18
174	0303166D8Z	SUPPORT TO INFORMATION OPERATIONS (IO) CAPABILITIES .....	12,209	12,209
175	0303169D8Z	INFORMATION TECHNOLOGY RAPID ACQUISITION .....	4,288	4,288
176	0305103E	CYBER SECURITY INITIATIVE .....	10,000	10,000
177	0305193D8Z	INTELLIGENCE SUPPORT TO INFORMATION OPERATIONS (IO) .....	15,002	15,002
179	0305400D8Z	WARFIGHTING AND INTELLIGENCE-RELATED SUPPORT .....	861	861
180	0804767D8Z	COCOM EXERCISE ENGAGEMENT AND TRAINING TRANSFORMATION (CE2T2) .....	59,958	59,958
181	0901585C	PENTAGON RESERVATION .....		
182	0901598C	MANAGEMENT HQ—MDA .....	28,908	28,908
183	0901598D8W	IT SOFTWARE DEV INITIATIVES .....	167	167
184	0909999D8Z	FINANCING FOR CANCELLED ACCOUNT ADJUSTMENTS .....		
184A	9999999999	CLASSIFIED PROGRAMS .....	82,627	82,627
		<b>SUBTOTAL RDT&amp;E MANAGEMENT SUPPORT .....</b>	<b>961,682</b>	<b>-6,468</b>
<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>				
185	0604130V	ENTERPRISE SECURITY SYSTEM (ESS) .....	8,706	8,706
186	0605127T	REGIONAL INTERNATIONAL OUTREACH (RIO) AND PARTNERSHIP FOR PEACE INFORMATION MANA	2,165	2,165
187	0605147T	OVERSEAS HUMANITARIAN ASSISTANCE SHARED INFORMATION SYSTEM (OHAISIS) .....	288	288

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188	0607384BP	CHEMICAL AND BIOLOGICAL DEFENSE (OPERATIONAL SYSTEMS DEVELOPMENT)	15,956		15,956
189	0607828D8Z	JOINT INTEGRATION AND INTEROPERABILITY	29,880		29,880
190	0208043J	CLASSIFIED PROGRAMS	2,402		2,402
191	0208045K	C4I INTEROPERABILITY	72,403		72,403
193	0301144K	JOINT/ALLIED COALITION INFORMATION SHARING	7,093		7,093
200	0302016K	NATIONAL MILITARY COMMAND SYSTEM-WIDE SUPPORT	481		481
201	0302019K	DEFENSE INFO INFRASTRUCTURE ENGINEERING AND INTEGRATION	8,366		8,366
202	0303126K	LONG-HAUL COMMUNICATIONS—DCS	11,324		11,324
203	0303131K	MINIMUM ESSENTIAL EMERGENCY COMMUNICATIONS NETWORK (MEECN)	12,514		12,514
204	0303135G	PUBLIC KEY INFRASTRUCTURE (PKI)	6,548		6,548
205	0303136G	KEY MANAGEMENT INFRASTRUCTURE (KMI)	33,751		33,751
206	0303140D8Z	INFORMATION SYSTEMS SECURITY PROGRAM	11,753		11,753
207	0303140G	INFORMATION SYSTEMS SECURITY PROGRAM	348,593		348,593
208	0303140K	INFORMATION SYSTEMS SECURITY PROGRAM	5,500		5,500
209	0303148K	DISA MISSION SUPPORT OPERATIONS			
210	0303149J	C4I FOR THE WARRIOR			
211	0303150K	GLOBAL COMMAND AND CONTROL SYSTEM	54,739		54,739
212	0303153K	DEFENSE SPECTRUM ORGANIZATION	29,154		29,154
213	0303170K	NET-CENTRIC ENTERPRISE SERVICES (NCES)	1,830		1,830
214	0303260D8Z	JOINT MILITARY DECEPTION INITIATIVE	1,241		1,241
215	0303610K	TELEPORT PROGRAM	6,418		6,418
217	0304210BB	SPECIAL APPLICATIONS FOR CONTINGENCIES	5,045	4,000	9,045
		Special Applications for Contingencies		[4,000]	
220	0305103D8Z	CYBER SECURITY INITIATIVE	411		411
222	0305103K	CYBER SECURITY INITIATIVE	4,341		4,341
223	0305125D8Z	CRITICAL INFRASTRUCTURE PROTECTION (CIP)	13,008		13,008
227	0305186D8Z	POLICY R&D PROGRAMS	6,603		6,603

229	0305199D8Z	NET CENTRICITY .....	14,926	14,926
232	0305208BB	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	4,303	4,303
235	0305208K	DISTRIBUTED COMMON GROUND/SURFACE SYSTEMS .....	3,154	3,154
237	0305219BB	MQ-1 PREDATOR A UAV .....	2,499	2,499
239	0305387D8Z	HOMELAND DEFENSE TECHNOLOGY TRANSFER PROGRAM .....	2,660	2,660
240	0305600D8Z	INTERNATIONAL INTELLIGENCE TECHNOLOGY AND ARCHITECTURES .....	1,444	1,444
248	0708011S	INDUSTRIAL PREPAREDNESS .....	23,103	23,103
		Industrial Preparedness Manufacturing Technology .....	5,000	5,000
		LOGISTICS SUPPORT ACTIVITIES .....	[5,000]	[5,000]
249	0708012S	MANAGEMENT HEADQUARTERS (JCS) .....	2,466	2,466
250	0902298J	NATO AGS .....	2,730	2,730
251	1001018D8Z	MQ-9 UAV .....	2,499	2,499
252	1105219BB	RQ-11 UAV .....	3,000	3,000
253	1105232BB	RQ-7 UAV .....	450	450
254	1105233BB	SMALL BUSINESS INNOVATIVE RESEARCH/SMALL BUS TECH TRANSFER PILOT PROG .....	89,382	89,382
255	1160279BB	SPECIAL OPERATIONS AVIATION SYSTEMS ADVANCED DEVELOPMENT .....	799	799
256	1160403BB	SPECIAL OPERATIONS TACTICAL SYSTEMS DEVELOPMENT .....	27,916	27,916
257	1160404BB	SPECIAL OPERATIONS INTELLIGENCE SYSTEMS DEVELOPMENT .....	60,915	60,915
258	1160405BB	SOF OPERATIONAL ENHANCEMENTS .....	10,775	10,775
259	1160408BB	SPECIAL OPERATIONS CV-22 DEVELOPMENT .....	4,617	4,617
260	1160421BB	JOINT MULTI-MISSION SUBMERSIBLE .....	18,571	18,571
261	1160423BB	OPERATIONS ADVANCED SEAL DELIVERY SYSTEM (ASDS) DEVELOPMENT .....	1,392	1,392
262	1160426BB	MISSION TRAINING AND PREPARATION SYSTEMS (MTPS) .....	2,610	2,610
263	1160427BB	UNMANNED VEHICLES (UV) .....	2,971	2,971
264	1160428BB	AC/MC-130J .....	3,000	3,000
265	1160429BB	SOF COMMUNICATIONS EQUIPMENT AND ELECTRONICS SYSTEMS .....	3,522	3,522
266	1160474BB	SOF TACTICAL RADIO SYSTEMS .....	1,500	1,500
267	1160476BB	SOF WEAPONS SYSTEMS .....		
268	1160477BB	SOF SOLDIER PROTECTION AND SURVIVAL SYSTEMS .....		
269	1160478BB	SOF VISUAL AUGMENTATION, LASERS AND SENSOR SYSTEMS .....		
270	1160479BB	SOF TACTICAL VEHICLES .....		
271	1160480BB	SOF MUNITIONS .....		
272	1160481BB			

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Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
273	1160482BB	SOF ROTARY WING AVIATION .....	51,123		51,123
274	1160483BB	SOF UNDERWATER SYSTEMS .....	92,424		92,424
275	1160484BB	SOF SURFACE CRAFT .....	14,475		14,475
276	1160488BB	SOF MILITARY INFORMATION SUPPORT OPERATIONS .....	2,990		2,990
277	1160489BB	SOF GLOBAL VIDEO SURVEILLANCE ACTIVITIES .....	8,923		8,923
278	1160490BB	SOF OPERATIONAL ENHANCEMENTS INTELLIGENCE .....	9,473		9,473
278A	9999999999	CLASSIFIED PROGRAMS .....	4,227,920		4,227,920
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT .....</b>	<b>5,399,045</b>	<b>9,000</b>	<b>5,408,045</b>
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, DW .....</b>	<b>19,755,678</b>	<b>109,209</b>	<b>19,864,887</b>
		<b>OPERATIONAL TEST &amp; EVAL, DEFENSE</b>			
		<b>RD&amp;E MANAGEMENT SUPPORT</b>			
001	06051180TE	OPERATIONAL TEST AND EVALUATION .....	60,444		60,444
002	06051310TE	LIVE FIRE TEST AND EVALUATION .....	12,126		12,126
003	06058140TE	OPERATIONAL TEST ACTIVITIES AND ANALYSES .....	118,722		118,722
		<b>SUBTOTAL RD&amp;E MANAGEMENT SUPPORT .....</b>	<b>191,292</b>		<b>191,292</b>
		<b>TOTAL OPERATIONAL TEST &amp; EVAL, DEFENSE .....</b>	<b>191,292</b>		<b>191,292</b>
		<b>TOTAL RD&amp;E .....</b>	<b>75,325,082</b>	<b>254,897</b>	<b>75,579,979</b>

**SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS.**

**SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS**  
(In Thousands of Dollars)

Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
140	0605601A	RESEARCH, DEVELOPMENT, TEST & EVAL, ARMY RDT&E MANAGEMENT SUPPORT ARMY TEST RANGES AND FACILITIES .....	8,513 8,513		8,513 8,513
		<b>SUBTOTAL RDT&amp;E MANAGEMENT SUPPORT .....</b>			
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, ARMY .....</b>	<b>8,513</b>		<b>8,513</b>
054	0603654N	RESEARCH, DEVELOPMENT, TEST & EVAL, NAVY ADVANCED COMPONENT DEVELOPMENT & PROTOTYPES JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT .....	1,500 1,500		1,500 1,500
		<b>SUBTOTAL ADVANCED COMPONENT DEVELOPMENT &amp; PROTOTYPES .....</b>			
097	0604270N	SYSTEM DEVELOPMENT & DEMONSTRATION ELECTRONIC WARFARE DEVELOPMENT .....	5,600		5,600
119	0604654N	JOINT SERVICE EXPLOSIVE ORDNANCE DEVELOPMENT .....	3,500		3,500
126	0604771N	MEDICAL DEVELOPMENT .....	1,950		1,950
		<b>SUBTOTAL SYSTEM DEVELOPMENT &amp; DEMONSTRATION .....</b>	<b>11,050</b>		<b>11,050</b>
172	0204136N	OPERATIONAL SYSTEMS DEVELOPMENT F/A-18 SQUADRONS .....	2,000		2,000
189	0206313M	MARINE CORPS COMMUNICATIONS SYSTEMS .....	1,500		1,500
192	0206625M	USMC INTELLIGENCE/ELECTRONIC WARFARE SYSTEMS (MIF) .....	4,050		4,050
227A	9999999999	CLASSIFIED PROGRAMS .....	33,784		33,784
227U	0607UNDN	UNDISTRIBUTED .....			
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT .....</b>	<b>41,334</b>		<b>41,334</b>

SEC. 4202. RESEARCH, DEVELOPMENT, TEST, AND EVALUATION FOR OVERSEAS CONTINGENCY OPERATIONS (In Thousands of Dollars)					
Line	Program Element	Item	FY 2012 Request	House Change	House Authorized
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, NAVY</b> .....	<b>53,884</b>		<b>53,884</b>
		<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, AF</b>			
		<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>			
200	0305205F	ENDURANCE UNMANNED AERIAL VEHICLES .....	73,000		73,000
242A	9999999999	CLASSIFIED PROGRAMS .....	69,000		69,000
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT</b> .....	<b>142,000</b>		<b>142,000</b>
		<b>TOTAL RESEARCH, DEVELOPMENT, TEST &amp; EVAL, AF</b> .....	<b>142,000</b>		<b>142,000</b>
		<b>RESEARCH, DEVELOPMENT, TEST &amp; EVAL, DW</b>			
		<b>ROD&amp;E MANAGEMENT SUPPORT</b>			
152	0605200D8Z	GENERAL SUPPORT TO USD (INTELLIGENCE) .....	9,200		9,200
		<b>SUBTOTAL ROD&amp;E MANAGEMENT SUPPORT</b> .....	<b>9,200</b>		<b>9,200</b>
		<b>OPERATIONAL SYSTEMS DEVELOPMENT</b>			
202	0303126K	LONG-HAUL COMMUNICATIONS—DCS .....	10,500		10,500
207	0303140G	INFORMATION SYSTEMS SECURITY PROGRAM .....	32,850		32,850
211	0303150K	GLOBAL COMMAND AND CONTROL SYSTEM .....	2,000		2,000
254	11052338B	RQ-7 UAV .....	2,450		2,450
278A	9999999999	CLASSIFIED PROGRAMS .....	135,361		135,361
		<b>SUBTOTAL OPERATIONAL SYSTEMS DEVELOPMENT</b> .....	<b>183,161</b>		<b>183,161</b>
		<b>UNDISTRIBUTED</b>			
279	0901560D	CONTINUING RESOLUTION PROGRAMS			
		<b>SUBTOTAL UNDISTRIBUTED</b>			

TOTAL RESEARCH, DEVELOPMENT, TEST & EVAL, DW .....	192,361	192,361
TOTAL RDT&E .....	396,758	396,758

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