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**Statement of
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**Before the
Senate Appropriations Committee
Subcommittee on Military Construction,
Veterans Affairs and Related Agencies**

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Chairman Johnson, Senator Kirk and distinguished members of the subcommittee: Thank you for the opportunity to present the President's Fiscal Year (FY) 2013 budget request for the Department of Defense programs to support installations, facility energy and the environment. My testimony covers four topics: international and domestic basing, including the Department's request for authorization of two new rounds of Base Realignment and Closure; our management of the built environment, including the programs that support military construction, family housing, and sustainment and recapitalization; our strategy for managing facility energy to reduce costs and improve installation energy security; and our management of the natural environment, including the programs that support environmental conservation and restoration, environmental technology and compatible development.

I. THE GLOBAL PICTURE: INTERNATIONAL AND DOMESTIC BASING

To project power globally, the Department must have the right mix of forces and facilities at strategic locations. My office supports the Department's strategic security objectives by ensuring that decisions about basing of troops and facilities are the product of joint planning and rigorous analysis. We also seek to reduce our installation footprint wherever possible.

Rebasing Marines from Okinawa to Guam

The United States is rebalancing its global posture to reduce its presence in certain regions and enhance it in others. As the recent U.S.-Japan joint statement made clear, the United States and Japan are strongly committed to strengthening our robust security alliance, which is dedicated to the security of Japan and to the maintenance of peace and security in the Asia-Pacific region. The United States has conducted a strategic review of its defense posture in Asia in order to achieve a more geographically distributed, operationally resilient and politically sustainable force structure. Japan has welcomed this initiative.

Based on that review, the development of Guam as a strategic hub, with an operational Marine Corps presence including Marines relocated from Okinawa, remains an essential part of the Alliance's Asia-Pacific Strategy. The United States and Japan have begun official discussions to adjust our plans as set forth in the 2006 Realignment Roadmap. In particular, we propose to delink the movement of Marines to Guam and the resulting land returns south of Kadena from progress by Japan on the Futenma Replacement Facility (FRF) near Camp Schwab. We remain committed to mitigating the impact of U.S. forces on Okinawa and to construction of the FRF as the only viable way forward. That said, we believe the two sides must invest in the Futenma facility in the near-term, to ensure both safety and combat readiness.

The President's FY13 budget request includes \$51 million for construction to support the Marine relocation to Guam. Our request includes another \$139.4 million for Guam civilian infrastructure to address population growth there, of which \$106.4 million is for Guam water and wastewater infrastructure capital improvements such as water treatment plant modifications, supply well improvements and provision of backup power at wastewater pump stations.

Base Realignment and Closure

After a decade of war the United States is at a strategic turning point. With changes in strategy come changes—in this case reductions—in force structure. Simply stated, the cuts in force structure that we are implementing must be accompanied by cuts in supporting infrastructure, including military bases. Absent a process for closing and realigning bases, the Department will be locked in a status quo configuration that does not match its evolving force structure, doctrine and technology. Given the high cost of our infrastructure, moreover, if we retain bases that we do not need, we will be forced to cut spending on forces, training and modernization.

Overseas Basing Review

The Department's request for additional rounds of BRAC comes at a time when we are looking aggressively at where we can close bases overseas—particularly in Europe. (Although domestic closures require legislative authority, overseas closures do not.)

We have already made significant reductions in our European footprint. Since 2003, the Department has returned more than 100 sites in Europe to their respective host nations, and we have reduced our personnel by one-third. Between FY12 and FY15 the Army alone will close 23 additional sites as previously announced.

With the recently announced force structure changes in Europe, we can do more to consolidate our infrastructure with the goal of reducing long-term costs while still supporting our operational requirements and strategic commitments. First, we can reduce the number of discrete installation sites we maintain in Europe. We have more than 300 such sites—ranging from small communications posts to robust Main Operating Bases—of which about 200 house most of our activities. Second, we can eliminate excess support infrastructure such as warehouses, administrative space and housing. The infrastructure located off-base presents a particularly attractive target for consolidation. Third, we can take advantage of the capacity made excess by force structure changes to accommodate new functions.

My office has undertaken the first step in this process: we are working with the EUCOM theater commander, his component commanders and Service leadership here in Washington to measure the capacity of all of our European installations. This inventory will allow us to analyze how much capacity can be shed and where. With the goal of long-term cost reduction, we will assess the costs and savings of each proposed action and identify those with the highest payback. We anticipate having preliminary options for the Secretary to review by the Fall.

Domestic Basing: The Need for BRAC

Even a significant reduction of our footprint overseas will not achieve the needed cuts to overall infrastructure—hence our request for a parallel, BRAC process. It makes sense to look at our domestic and overseas bases at the same time, moreover, so that the two reviews can inform one another. The Department took this approach in 2004-2005, and it would be no less useful now given the major strategic realignment underway. Let me briefly summarize the case for BRAC.

First, the same strategic and fiscal factors that compel consolidation overseas require it here. In addition to the global posture shifts discussed above, we are shaping a joint force for the future that, while agile and technologically advanced, will be smaller and leaner across the board. The Army is reducing force levels by 72,000, the Marine Corp is resizing to 182,000 active Marines, and the Air Force is eliminating approximately 300 aircraft over five years. We are also delaying, restructuring and canceling modernization programs. To adjust to these strategic changes, and to eliminate the excess capacity that results from reductions in force structure, the Department will need to close and realign installations in the United States as well as Europe.

Moreover, the overhead cost to maintain, sustain and protect bases is high. In recent years we have spent about \$40 billion a year on facilities construction, sustainment and recapitalization. Other costs associated with operating military installations (e.g., air traffic control, religious services and programs; payroll support; personnel management; morale, welfare, and recreation services; and physical security) have averaged about \$15 billion a year. If we retain bases that are excess to need, we will be forced to cut spending on forces, training and modernization.

Second, the statutory commission process provided by BRAC is the only fair, objective and proven method for eliminating excess domestic infrastructure and reconfiguring what remains. BRAC provides for a sound, thorough and transparent analytical process, based on a 20-year force structure plan developed by the Joint Staff; a comprehensive inventory of installations by the Department to ensure a thorough capacity analysis; and defined selection criteria that place priority on military value. The requirement to look at every installation means DoD must consider a broad range of approaches, not just the existing configuration; and the transparency of the process facilitates independent review by the commission and affected communities. Most important, the requirement that the President and Congress accept or reject the Commission's recommendations on an "all-or-none" basis insulates BRAC from political interference.

Third, the savings from BRAC are real and substantial. Of all the efficiency measures that the Department has undertaken over the years, BRAC is perhaps the most successful and significant. The first four rounds of BRAC (1988, 1991, 1993 and 1995) are producing a total of about \$8 billion in annual recurring savings, and the comparable figure for BRAC 2005 is \$4 billion. This amount (\$12 billion) represents the additional costs that the Department would incur every year for base operating support, personnel and leasing costs had we not had BRAC. These annual savings, or avoided costs, are equivalent to what the Department would spend to buy 300 Apache attack helicopters, 124 F/A-18E/F Super Hornets or four Virginia class submarines.

Understandably, some have questioned the specifics of our savings calculations, and critics have pointed to the 2005 round as evidence that BRAC does not produce the hoped for savings—or at least not in a reasonable time frame. I will respond to these criticisms in more detail tomorrow when I testify before the House Armed Services Committee's Subcommittee on Readiness, but let me say this here: The 2005 round took place during a period of growth in the military, and it reflected the goals and needs of that time. Because the focus was on transforming installations to better support forces—as opposed to saving money and space—it is a poor gauge of the savings that the Department can achieve through another BRAC round. The prior BRAC rounds—which reduced capacity and paid off in two to three years—represent a better gauge of the savings potential of future BRAC rounds.

Joint Basing

A significant action under BRAC 2005 that my office has championed is the consolidation of 26 installations into 12 Joint Bases. This action responded to persistent internal and external criticism that base support was duplicative. The Department also felt that joint operation would enhance the military value of Service-unique installations, making them a DoD-wide asset.

The creation of a joint base is complex. The commander must merge diverse, service-specific financial systems, management structures, operating procedures, and staffs, so as to jointly manage functions ranging from facilities sustainment to mail delivery to the provision of family support services. Considering the size of many of our installations, such a consolidation is equivalent to the merger of two corporations. As with corporate mergers, moreover, the cultural differences are often the hardest to bridge.

I chair a flag-level group (the Senior Joint Base Working Group, SJBWG) that has met regularly for the last three years to oversee the implementation and operation of Joint Bases. The SJBWG created the initial framework for joint basing, including a body of policy guidance (Joint Base Implementation Guidance) and a collaborative governance structure (Joint Management Oversight Structure). Throughout the process, the SJBWG made key strategic decisions.

First, to hold the lead Service accountable, the SJBWG created a comprehensive set of Common Output Level Standards, or COLS. Previous efforts to create joint bases had encountered strong resistance because of concerns by one Service that another Service would not provide adequate base support—i.e., that it would adopt a “lowest-common-denominator” approach to installation management. To allay this fear, the SJBWG led an exhaustive effort to define a COLS metric for every relevant aspect of base support—274 COLS in all.¹ Significantly, in every case the SJBWG opted for the highest standard used by any of the Services as the COL standard for Joint Bases. Although this “highest-common-denominator” approach allayed the fears that had doomed joint basing in the past, it did so at a price: installation support costs for the Joint Bases have gone up by six percent on average. However, we expect the savings from consolidation to offset this. Moreover, COLS give the Department a solid basis for estimating and budgeting for installation support requirements—a best practice that we hope to apply to all military bases.

Second, the SJBWG opted to give the Joint Bases a transition period to merge their organizations before asking them to achieve a savings target.² This represents a conscious decision by the Services to defer the near term savings from joint basing in order to increase the odds that it will succeed in the long run. It is directly analogous to the Department’s approach to traditional BRAC actions, which often require an up-front investment in order to achieve the long-term savings.

¹ For example, one COLS metric specifies the maximum height that grass on an installation can reach before it must be cut. In addition to defining the underlying metric (grass height, measured in inches), the SJBWG selected the actual value (standard) for that metric to which the Joint Bases as a whole would be held.

² Specifically, Joint Base commanders were given leeway to adjust resources within their portfolios, for fear that premature staff reductions could compromise the design and implementation of their new organizational constructs. Ironically, the Joint Bases have had to function with a large number of civilian vacancies largely because of the Services’ backlog of personnel actions.

Joint Bases represent a fundamental change in our approach to installation management. Although these bases have been operating for only a short time, we are already beginning to see the expected economies of scale from consolidation. For example, by combining its recycling operations, Joint Base McGuire-Dix-Lakehurst is avoiding \$1 million in facility and equipment costs and \$200,000 a year in contract costs. Less expected, however, is that our Joint Bases are proving to be incubators for innovation, as the commanders, faced with inconsistent Service rules and requirements, adopt new, cross-cutting business processes. For example, at Joint Base San Antonio, the commander standardized security procedures and created a single chain-of-command across the three facilities that make up the installation, thus facilitating cooperation with state and local law enforcers.

I have had the opportunity to meet personally with most of the Joint Base Commanders. They get it. They see “jointness” not just as a more efficient and effective way to support the installation missions on their bases but as a superior way to support the soldiers, sailors, airmen and marines learning to fight together. I strongly believe their ability to transcend traditional practices and develop innovative solutions to long-standing inefficiencies will position us for future, Department-wide reforms.

II. MANAGING OUR BUILT ENVIRONMENT

The President's FY13 budget requests \$11.2 billion for Military Construction (MilCon) and Family Housing—a decrease of approximately \$3.5 billion from the FY12 budget request. This decrease primarily reflects the declining budget environment and the Services’ decision to defer facility investments at locations that may be impacted by changes in force structure.

Table 1. MilCon and Family Housing Budget Request, FY12 vs. FY13

(\$ Millions)	FY12 Request	FY13 Request	Change from FY12	
			Funding	Percent
Military Construction	12,006.4	8,540.6	(3,465.8)	(29%)
Base Realignment and Closure	582.3	476.0	(106.3)	(18%)
Family Housing	1,694.4	1,650.7	(43.7)	(3%)
Chemical Demilitarization	75.3	151.0	75.7	100%
Energy Conservation Investment Program	135.0	150.0	15.0	11%
NATO Security Investment Program	272.6	254.1	(18.5)	(7%)
TOTAL	14,767.0	11,222.7	(3,544.3)	(24%)

Military Construction

We are requesting \$8.5 billion for “pure” military construction—i.e., exclusive of BRAC and Family Housing. This addresses routine needs for construction at enduring installations here and overseas and for specific programs such as the NATO Security Investment Program and the Energy Conservation Investment Program. In addition, we are targeting three priorities.

First and foremost are the operational missions. Our FY13 budget requests \$3.5 billion to support operations and training requirements, including a second Explosives Handling Wharf at Kitsap, Washington; communications facilities in California and Japan that are needed for operations in the Pacific region; specialized facilities for Special Operations forces at various global locations; and range and training facilities for ground forces at several Army installations.

Second, our budget request continues the recapitalization of DoD-owned schools as part of the 21st Century Schools Initiative. We are requesting \$547 million to replace or renovate 11 schools that are in poor or failing condition, primarily at enduring locations overseas. By the end of FY18, more than 70 percent of the DoD-owned schools will have been replaced or undergone substantial renovation. The new buildings, intended to be models of sustainability, will provide a modern teaching environment for the children of our military members.

Although it is not part of the military construction budget, the FY13 budget also requests \$51 million to construct, renovate, repair or expand schools that, while located on military

installations, are operated by Local Education Agencies (LEA). This request represents a third year of funding for LEA schools (Congress set aside \$250 million for LEA schools in FY11 and again in FY12, in response to concerns about poor conditions and overcapacity). The request is part of DoD’s proposed budget for the Office of Economic Adjustment (OEA), which Congress designated to execute the LEA school funding it provided. OEA is working with other parts of the Department and giving priority to those schools with the most serious deficiencies.

Third, the FY13 budget request includes \$1 billion for 21 projects to upgrade our medical infrastructure. By modernizing our hospitals and related facilities, we can improve healthcare delivery for our service members and their families, and enhance our efforts to recruit and retain personnel. The FY13 request provides the next increment of funding to replace the William Beaumont Army Regional Medical Center in Texas (\$207 million) and the Landstuhl Regional Medical Center in Germany (\$127 million). It also provides for continued improvement of the medical research facilities that support our chemical-biological mission.

Family and Unaccompanied Housing

The Services rely largely on privatization to provide family housing on U.S. bases. As I have said many times, privatization of family housing—where the Services partner with the private sector to generate housing built to market standards—is the single most effective reform my office has carried out. Prior to privatization, the Services’ chronic underinvestment in their facilities had created a crisis, with almost 200,000 of the Department’s family housing units rated “inadequate.” Privatization leveraged the power of the commercial market to serve our needs. With an investment of approximately \$3.6 billion, the Services have generated \$29.7 billion in construction to build new and renovate existing family housing units. The Services also transferred responsibility for maintenance, operation and recapitalization for 50 years to (private) entities that have an incentive to maintain the housing so as to attract and retain military tenants. My office works closely with the Office of Management and Budget to ensure that the relevant federal budget policy continues to support this much-heralded success story.

Table 3. Family Housing Budget Request, FY12 vs. FY13

(\$ Millions)	FY12 Request	FY13 Request	Change from FY12	
			Funding	Percent
Family Housing Construction/Improvements	372.7	190.6	-182.1	-49%
Family Housing Operations & Maintenance	1,318.2	1,458.3	+140.1	+11%
Family Housing Improvement Fund	2.2	1.8	-0.4	-18%
Homeowners Assistance Program	1.3	0	-1.3	-100%
TOTAL	1,694.4	1,650.7	-43.7	-3%

Most of the remaining government-owned family housing is on (enduring) bases overseas. The FY13 budget requests \$1.7 billion for government-owned family housing. This allows us to maintain 90 percent of non-Navy, government-owned family housing in good or fair condition in keeping with the goal we will meet this year; the Navy-owned family housing will not achieve this goal until FY17. The request includes \$191 million for construction and improvements of government-owned family housing and \$1.4 billion to operate and maintain it.

The Department is committed to improving housing for our unaccompanied personnel as well. In recent years, we have made sizable investments in this area to support initiatives such as BRAC, global restationing, force structure modernization and Homeport Ashore—a Navy program to move Sailors from their ships to shore-based housing. The FY13 budget request includes \$1.1 billion for 28 construction and renovation projects that will improve living conditions for more than 10,000 unaccompanied personnel. We are also focusing on long-term sustainment of the modernized inventory. My office has worked closely with the Comptroller to establish performance goals for sustaining our permanent party unaccompanied housing. Under these standards, 90 percent of the non-Navy government-owned housing for unaccompanied personnel must be in good or fair condition by FY18; the Navy will not achieve that benchmark until FY22.

Facilities Sustainment and Recapitalization

In addition to investing in new construction, we must maintain, repair, and recapitalize our existing facilities. The Department’s Sustainment and Recapitalization programs strive to keep our inventory of facilities mission capable and in good working order. Moreover, by maintaining a consistent level of quality in our facilities, we can improve the productivity and quality of life of our personnel.

Table 2. Sustainment and Recapitalization Budget Request, FY12 vs. FY13

(\$ Millions)	FY12 Request	FY13 Request	Change from FY12	
			Funding	Percent
Sustainment (O&M & MilPers)	8,835	8,674	(161)	(2%)
Recapitalization (O&M, MilCon, MilPers, RDT&E)	9,031	5,331	(3,700)	(41%)
TOTAL	17,866	14,005	(3,861)	(22%)

The FY13 budget request includes \$8.7 billion for sustainment, which is the single most important investment we make to keep our facilities in good working condition. Sustainment includes regularly scheduled maintenance and repair and replacement of facility components. Our policy calls for the Services to fund sustainment at no less than 90 percent of the requirement generated by DoD’s Facilities Sustainment Model, which uses industry benchmarks to estimate the annual cost of regularly scheduled maintenance and repair for different types of facilities. Nevertheless, for FY13, as was the case in FY12, the Navy and Air Force are funding

sustainment at only 80 and 82 percent of their requirement, respectively. Thus, our budget request funds sustainment DoD-wide at only 84 percent of the FSM-generated estimate.

The FY13 budget requests \$5.3 billion for recapitalization, a reduction of \$2.5 billion from last year. Recapitalization (restoration and modernization) serves to keep the inventory of facilities modern and relevant, extend the service life of individual facilities and restore capability lost due to man-made or natural causes. The reduction in recapitalization funding reflects an overall decrease in both O&M- and MilCon-funded replacement and renovation projects.

A final category of investment (one not shown in the table) is demolition, which allows the Services to eliminate facilities that are excess to need or no longer cost effective to repair. Our FY13 budget request includes \$123 million in operations and maintenance funding, which will allow us to demolish 5 million square feet of facilities. With this funding, we will reach our formal goal, established in FY08, to eliminate over 62 million square feet by FY13. We are also working with the Services to identify facilities that could be repurposed—for example, the use of barracks as administrative space.

Ongoing Initiatives to Reduce Costs

Finally, I would like to mention three ongoing initiatives designed to improve the Department's management of the built environment. The first initiative has to do with the Department's anti-terrorism/force protection (AT) standards, which impose certain minimum requirements on all buildings and add as much as nine percent to the cost of leased space and new construction. The rest of the federal government uses a somewhat different approach, based on the Interagency Security Committee (ISC) standards, which were developed by a 21-agency group led by the Department of Homeland Security and issued in updated form in April 2010. The ISC standards reflect the risk to an individual building, including its size, location, mission criticality and symbolism.

To evaluate the two approaches, my office looked first at leased space. Working closely with the General Services Administration (GSA), which is responsible for incorporating AT standards into its leases, we commissioned an expert analysis that compared the scope, cost and effectiveness of the DoD standards versus the ISC standards for six DoD leases in the National Capital Region. Based on that expert analysis, an internal DoD working group, led by the Office of the Under Secretary of Policy and the Joint Staff, is evaluating the merits of adopting the ISC process for leased space. Once the Department has made a decision on whether to alter DoD's AT standards with respect to leased space, we will pose the same question for on-base buildings.

Second, my office is looking at how to promote innovation and efficiency in the construction industry—in particular, military construction. The U.S. construction industry is plagued by high costs and low productivity growth as a result of low investment in research and development, a fragmented industry structure and other factors. Moreover, some data suggest that the federal government's construction costs are higher than those of the private sector for comparable facilities. Finally, the contractual incentives for federal construction projects lead to a focus on reducing "first costs"—the cost of constructing a building—as opposed to the much larger costs associated with building ownership and operations (life cycle costs).

We are working with the GSA to identify ways that the two largest federal customers for construction (DoD and GSA) can incentivize behavior on the part of construction firms that will lead to more innovation and lower costs, including life cycle costs. Two areas offer promise. We are looking at accelerating requirements for the use of new technologies, such as building information modeling (BIM), which can improve the efficiency and reduce the cost of the construction process as well as and lead to lower life cycle costs for the buildings themselves. In addition, we are looking at alternative contracting methods, such as ones that reward contractors based on how well they meet the owner's objectives (e.g., optimal energy efficiency).

Third, we are analyzing the effect that investments in energy efficiency and sustainability have on the long-term cost of owning and operating our buildings. Building on past studies, we are working with the National Research Council to understand the impact of the requirement that DoD facilities be built to certain sustainability standards—namely, LEED (Leadership in Energy and Environmental Design) Silver or an equivalent standard and/or the five principles of High Performance Sustainable Buildings, as well as consensus based standards such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) 189.1. The study will help us invest smartly in our buildings to reduce the total cost of ownership while increasing mission effectiveness.³

³ The study will also meet the requirement to report to Congress on the return on investment from using consensus standards such as ASHRAE 189.1.

III. MANAGING OUR ENERGY USE

Facility energy is important to the Department for two reasons.⁴ The first is cost. With more than 300,000 buildings and 2.2 billion square feet of building space, DoD has a footprint three times that of Wal-Mart and six times that of GSA. Our corresponding energy bill is \$4 billion annually—roughly 10 percent of what DoD spends to maintain its installation infrastructure. There are non-monetary costs as well: although facility energy represents only 20-25 percent of DoD's energy costs, it accounts for nearly 40 percent of our greenhouse gas emissions.

Second, facility energy is key to mission assurance. Our military installations here at home support combat operations more directly than ever before, and they serve as staging platforms for humanitarian and homeland defense missions. DoD installations are almost entirely dependent on a commercial power grid that is vulnerable to disruption due to aging infrastructure, weather related events and (potentially) direct attacks. According to the Defense Science Board, DoD's reliance on a fragile grid to deliver electricity to its bases places critical missions at risk.⁵

The Department's facility energy strategy is designed to reduce costs and improve the energy security of our fixed installations. It has four elements: reduce the demand for traditional energy through conservation and improved energy efficiency; expand the supply of renewable and other distributed (on-site) generation sources; enhance the energy security of our installations directly (as well as indirectly, through the first two elements); and leverage advanced technology.

Reduce Demand

First and most important, we are reducing the demand for traditional forms of energy through conservation and improved energy efficiency. The Department's FY13 budget includes more than \$1.1 billion for energy conservation investments—up from \$400 million in 2010. Almost all of that funding is designated for energy efficiency improvements to existing buildings.⁶

In addition to their own funding, the Services are using third-party financing tools, such as Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs), to improve the energy efficiency of their existing buildings. In response to the President's memo calling on the federal government to initiate \$2 billion worth of these performance-based

⁴ Facility energy refers to the energy (largely electricity) used to operate the buildings on DoD's 500+ fixed military installations in the United States and overseas. It also includes the fuel used by DoD's approximately 200,000 non-tactical vehicles. Facility energy is distinct from operational energy—largely fuel used for mobility (military aircraft, ships and tanks) and by the generators that produce power on our forward operating bases.

⁵ "More Fight-Less Fuel," Report of the Defense Science Board Task Force on DoD Energy Strategy, February 2008.

⁶ Of the \$1.1 billion, \$968 million is in the Military Components' operations and maintenance accounts, to be used for sustainment and recapitalization projects aimed at energy efficiency, including improved lighting, high-efficiency HVAC systems, double-pane windows, energy management control systems and new roofs. Another \$150 million is for the Energy Conservation Investment Program (ECIP), a MilCon fund that my office distributes to the Services for specific projects (see discussion below). Only about \$35 million of ECIP's budget will go for investments in distributed and renewable energy as opposed to energy efficiency and water conservation.

contracts over the next two years, the Department has as its own goal to execute roughly \$465 million in ESPCs and UESCs in FY12 and \$718 million in FY13.

In addition to retrofitting existing buildings, we are taking advantage of new construction to incorporate more energy-efficient designs, material and equipment into our inventory. Currently, all new construction projects must meet the LEED Silver or an equivalent standard and/or comply with the five principles of High Performance Sustainable Buildings. This year my office will issue a new construction code for high-performance, sustainable buildings, which will govern all new construction, major renovations and leased space acquisition. This new code, which will draw on ASHRAE 189.1, will accelerate DoD's move toward efficient, sustainable facilities that cost less to own and operate, leave a smaller environmental footprint and improve employee productivity.

As DoD strives to improve its energy efficiency, accurate, real-time facility energy information is becoming essential. Although we collect a massive amount of data, we lack the standardized processes and integrated systems needed to systematically track, analyze and benchmark our facility energy and water use and the related costs. The absence of usage and cost data reduces the efficiency of our existing facility operations, and it limits our ability to make the right investments in new, efficiency-enhancing technology and tools.

To fill this gap, my office has been leading the development of an Enterprise Energy Information Management system (EEIM) that will collect facility energy data in a systematic way. The EEIM will also provide advanced analytical tools that allow energy professionals at all levels of the Department both to improve existing operations and to identify cost-effective investments.

I will also be issuing an updated policy on the metering of DoD facilities; in addition to lowering the threshold for buildings that must be metered, the policy will address the types of meters that can be used and establish guidelines for determining when advanced meters make financial sense. No less important, the policy will help ensure that installed meters can securely deliver data to the energy professionals in the field. As an example, Naval District Washington has developed an innovative approach that uses a secure network to integrate data on energy usage with information on building management so as to allow for active management of facility energy. We would like to see this approach or one like it deployed throughout the Department.

Expand Supply of On-Site Energy

Second, DoD is increasing the supply of renewable and other distributed (on-site) sources of energy on our installations. On-site energy is critical to making our bases more energy secure. Together with the kind of smart microgrid and storage technologies discussed below, it allows a military base to maintain its critical operations "off-grid" for weeks or months if necessary.

DoD's installations are well situated to support solar, wind, geothermal and other forms of distributed energy. In response to a congressional directive, my office commissioned a study of the potential for solar energy development on military installations in the Mojave and Colorado Deserts in California and Nevada. The year-long study looked at seven military bases in California and two in Nevada. It found that, even though 96 percent of the surface area of the

nine bases was unsuited for solar development because of military activities, the presence of endangered species and other factors, the solar-compatible area on four of the California bases was nevertheless large enough to support the generation of 7000 megawatts (MW) of solar energy—equivalent to the output of seven nuclear power plants.⁷

The study also confirmed the logic of the approach the Department is already taking for large-scale renewable energy projects—namely, third-party financing. (Third-party financing makes sense because private developers can take advantage of tax incentives that are not available to federal agencies.) In September, the Army established its Energy Initiatives Task Force to work with the private sector to execute 10+ MW projects at Army installations. The Army hopes to develop around one gigawatt of renewable energy on its installations by 2025, and it has projects underway at Fort Bliss, TX, and White Sands Missile Range, NM. The Navy has used the Title 10 authority in Section 2922a to contract for renewable energy development in California, including a 3 MW landfill gas facility at Marine Corps Air Station Miramar, a 14 MW solar photovoltaic (PV) array at Naval Air Weapons Station China Lake, and a 1 MW solar PV array at Marine Corps Air Ground Combat Center Twentynine Palms. The Air Force is using the Title 10 authority in Section 2667 to lease non-excess land for the development of large-scale renewable projects, the first of which is under negotiation at Edwards Air Force Base.

My office is working closely with the Department of Interior (DOI) to identify and overcome impediments to the execution of renewable energy projects on public lands withdrawn for military purposes (many of the sites identified in the ICF study are on “withdrawn land”). Where renewable energy development is compatible with the military mission, these lands offer a significant opportunity to improve our energy security while lowering the cost of energy. However, we must first overcome the policy and authority challenges posed by this unique construct whereby DoD uses and manages land under the administrative jurisdiction of DOI.

Enhance Security

The first two elements of our facility energy strategy contribute indirectly to installation energy security; in addition, we are addressing the problem directly. A major focus of my office is smart microgrid technology. Smart microgrids and energy storage offer a more robust and cost effective approach to ensuring installation energy security than the current one—namely, back-up generators and (limited) supplies of on-site fuel. Although microgrid systems are in use today, they are relatively unsophisticated, with limited ability to integrate renewable and other distributed energy sources, little or no energy storage capability, uncontrolled load demands and “dumb” distribution that is subject to excessive losses. By contrast, we envision microgrids as local power networks that can utilize distributed energy, manage local energy supply and demand, and operate seamlessly both in parallel to the grid and in “island” mode.

⁷ ICF International, *Solar Energy Development on Department of Defense Installations in the Mojave and Colorado Deserts* (January 2012). <http://www.serdp.org/News-and-Events/News-Announcements/Program-News/DoD-study-finds-7-000-megawatts-of-solar-energy-potential-on-DoD-installations-in-Mojave-Desert>

Advanced microgrids are a “triple play” for DoD’s installations. Such systems will reduce installation energy costs on a day-to-day basis by allowing for load balancing and demand response. They will also facilitate the incorporation of renewable and other on-site energy generation. Most important, the combination of on-site energy and storage, together with the microgrid’s ability to manage local energy supply and demand, will allow an installation to shed non-essential loads and maintain mission-critical loads if the grid goes down.

The Installation Energy Test Bed, discussed below, has funded ten demonstrations of microgrid and storage technologies to evaluate the benefits and risks of alternative approaches and configurations. Demonstrations are underway at Twentynine Palms, CA; Fort Bliss, TX; Joint Base McGuire-Dix-Lakehurst, NJ; Fort Sill, OK; and several other installations.

Although microgrids will address the grid security problem over time, we are taking steps to address near-term concerns. Together with the Assistant Secretary of Defense for Homeland Defense and Americas’ Security Affairs, I co-chair DoD’s Electric Grid Security Executive Council (EGSEC), which works to improve the security, adequacy and reliability of electricity supplies and related infrastructure key to the continuity of critical defense missions. In addition to working across DoD, the EGSEC works with the Departments of Energy and Homeland Security. The three agencies recently created an Energy Surety Public Private Partnership (ES3P) to work with the private sector. As an initial focus, the ES3P is collaborating with four utilities in the National Capital Region to improve energy security at mission critical facilities.

Finally, my office is updating the DoD Instruction on “Installation Energy Management” (DoDI 4170.11), which provides guidance to installation commanders and energy managers on a range of energy security and energy efficiency matters. For example, we are updating the requirements for fuel distribution plans to ensure that emergency generators can operate for a sufficient time.

Leverage Advanced Technology

As the discussion of microgrids illustrates, one of the ways DoD can lower its energy costs and improve its energy security is by leveraging advanced technology. Technology has been DoD’s comparative advantage for 200 years, as evidenced by the military’s leadership in the development of everything from interchangeable machine made parts for musket production to the Internet. This advantage is no less important when it comes to facility energy.

To leverage advanced technology relevant to facility energy, three years ago my office created the Installation Energy Test Bed, as part of the existing Environmental Security Technology Certification Program (ESTCP). The rationale is straightforward. Emerging technologies offer a way to cost effectively reduce DoD’s facility energy demand by a dramatic amount (50 percent in existing buildings and 70 percent in new construction) and provide distributed generation to improve energy security. Absent outside validation, however, these new technologies will not be widely deployed in time for us to meet our energy requirements. Among other problems, the first user bears significant costs but gets the same return as followers. These barriers are particularly problematic for new technologies intended to improve energy efficiency in the retrofit market, which is where DoD has the greatest interest.

As the owner of 300,000 buildings, it is in DoD's direct self-interest to help firms overcome the barriers that inhibit innovative technologies from being commercialized and/or deployed on DoD installations. We do this by using our installations as a distributed test bed to demonstrate and validate the technologies in a real-world, integrated building environment.⁸ Projects conduct operational testing and assessment of the life cycle costs of new technology while addressing DoD unique security issues. For example, the Test Bed is doing a demonstration of an advanced control system that could increase boiler efficiency by 10 percent; if the technology proves out, DoD can deploy it on thousands of boilers and see a meaningful energy savings. More generally, by centralizing the risk and distributing the benefits of new technology to all DoD installations, the Test Bed can provide a significant return on DoD's investment.

The Test Bed has about 70 projects underway in five broad areas: advanced microgrid and storage technologies, such as the project at Twentynine Palms; advanced component technologies to improve building energy efficiency, such as advanced lighting controls, high performance cooling systems and technologies for waste heat recovery; advanced building energy management and control technologies; tools and processes for design, assessment and decision-making on energy use and management; and on-site energy generation, including waste-to-energy and building integrated systems. (See the next section for additional detail.)

Progress on Goals

In 2011, the Department made progress in its performance with respect to facility energy and water although it fell short of its statutory and regulatory goals for energy.

- DoD reduced its energy intensity by 2 percent—a meaningful improvement but less than the 3 percent needed to meet the annual goal. Overall, DoD has reduced its energy intensity by 13.3 percent since 2005, compared to the cumulative goal of 18 percent.
- With respect to the renewable energy goal (produce or procure 25 percent of all electricity from renewable sources by 2025), DoD lost ground, going from 9.6 percent to 8.5 percent. The drop was partly the result of a policy decision to buy fewer Renewable Energy Credits.⁹ It also reflected a decline in the output of the 270 MW geothermal facility at China Lake.
- DoD continued to reduce its consumption of petroleum, reaching a cumulative reduction of 11.8 percent since 2005—just shy of the 12 percent goal.
- DoD reduced its potable water intensity (measured as consumption per gross square foot) by 10.7 percent from 2007 to 2011—well above the goal of 8 percent.

FY13 Budget Request

The President's FY13 budget request includes funding for the ESTCP Installation Energy Test Bed as well as the Energy Conservation Investment Program (ECIP).

⁸ The approach is similar to one that ESTCP has used since 1995 to demonstrate innovative environmental technologies on DoD sites and in doing so help them transition to the commercial market. As discussed in section IV below, ESTCP has a strong track record of reducing DoD's environmental costs.

⁹ The purchase of renewable energy credits (RECs) is an alternative to the actual development of renewable energy; DoD has decided to meet the goals by adding supply on its installations as opposed to buying RECs.

Installation Energy Test Bed

The budget request includes \$32 million in FY13 for energy technology demonstrations under ESTCP.¹⁰ ESTCP began these demonstrations—now known as the Installation Energy Test Bed—as a \$20 million pilot in 2009. Seeing its value, the Department continued to fund the Test Bed on an annual basis the \$30 million level. Starting this year, we have funded the test bed, as an RDT&E line, across the FYDP. Although a modest investment, the Test Bed is a high leverage program that the Department believes will produce major savings.

ESTCP awards funds based on rigorous competition. The process begins with a solicitation to firms and others to identify emerging technologies that would meet installation needs. The response has been huge: the 2012 solicitation drew 600 proposals from leading companies in the building energy sector, small startups with venture capital funding and the major DOE labs. The proposals are reviewed by teams made up of technical experts from inside and outside of DoD along with Service representatives familiar with the installations' needs; winning proposals are matched up with a Service and an installation at which to demonstrate the technology. ESTCP has funded about 70 projects, and the FY10 projects will begin reporting results this year.

The timing for an Energy Test Bed is ideal—one reason the response from industry has been so strong. The federal government has invested significant resources in energy R&D, largely through DOE, and the private sector is making even larger investments as evidenced by the growth of venture capital backing for “cleantech.” As a structured demonstration program linked to the large DoD market, the Test Bed can leverage these resources for the military's benefit.

Energy Conservation Investment Program

The FY13 budget requests \$150 million for ECIP, \$15 million above the FY12 appropriation. ECIP has a long history of producing savings for the Services, and we have reoriented the program to give it even greater leverage.

ECIP traditionally has funded small projects that promised a significant payback in reduced energy costs, and the Services relied heavily on it to achieve their energy goals. In keeping with DoD's focus on energy, last year we began to reshape the role that ECIP plays—from one of funding the Services' routine energy projects to one of leveraging their now-larger investments in ways that will produce game-changing improvements in energy consumption, costs or security. Two other changes are worth noting. To encourage long-term planning, we are requiring the Services to build a five-year program of projects that they want to get funded through ECIP. To encourage them to put forward their best ideas, we are replacing formula-funding with competition. In FY13, we incorporated competition but guaranteed each service a minimum level of funding. Beginning in FY14, we will award the funds based purely on competitive merit.

¹⁰ As discussed in section IV, we are also requesting \$43.9 million for ESTCP for *environmental* technology demonstrations. These two demonstration programs appear as separate lines under ESTCP in the FY 2013 budget.

V. ENVIRONMENTAL MANAGEMENT

The Department has long made it a priority to protect the environment on our installations, not only to preserve irreplaceable resources for future generations, but to ensure that we have the land, water and airspace we need for military readiness. Over the last ten years, the Department has invested more than \$40 billion in its environmental programs, and our steady level of expenditure has produced quality results. In the President’s FY13 budget, we are requesting \$3.97 billion to continue the legacy of excellence in our environmental programs. While this is below the FY12 request, the reduction reflects management efficiencies and improved technology rather than any decline in effort.

Environmental Program Budget Request, FY13 vs. FY12

(\$ Millions)	FY12 Request	FY13 Request	Change from FY12	
			Funding	Percent
Environmental Restoration	\$1,467	\$1,424	-\$43	-2.9%
Environmental Compliance	\$1,552	\$1,449	-\$103	-6.6%
Environmental Conservation	\$380	\$378	-\$2	-0.3%
Pollution Prevention	\$104	\$111	+\$6.4	+6.1%
Environmental Technology	\$227	\$220	-\$6.9	-3.0%
Legacy BRAC Environmental	\$394	\$318	-\$75.6	-19.2%
BRAC 2005 Environmental	\$127	\$73	-\$54.2	-42.7%
TOTAL	\$4,250	\$3,974	-\$277	-6.5%

Environmental Conservation

In order to maintain access to the land, water and airspace needed to support our mission needs, the Department continues to manage successfully the many threatened and endangered species found on our lands. (Military installations are home to more than 400 threatened and endangered species, about 40 of which are found only on our installations.) DoD develops and implements detailed Installation Integrated Natural Resource Management Plans (INRMPs) in coordination with the U.S. Fish & Wildlife Service (USFWS) and its state counterparts. These plans help us avoid critical habitat designations—thereby maintaining our flexibility to carry out mission activities—while providing equal or greater protection for endangered species.

To preserve mission readiness while complying with the Endangered Species Act, we must prepare for new requirements. The USFWS is required to evaluate 251 “candidate” species for potential listing on the Federal Endangered Species List by 2017. The Services have identified some 60 of these as species sufficiently present on our bases that a listing could impact mission activities. We are establishing a partnership with USFWS to share management and scientific data and discuss natural resource management actions that can benefit these species. We are also working with the Services to ensure they are actively managing the candidate species that pose the greatest risk to mission, including making the appropriate changes to their INRMPS.

In addition to natural resources, the Department is responsible for thousands of archaeological sites, historic buildings and other cultural resources. DoD owns or manages the nation’s largest inventory of Federal historic properties and continues to use many of these historic properties to meet mission requirements. Use of these properties allows DoD to retain significant cultural resources for future generations. In addition, many older buildings have features that are now considered “green,” such as high ceilings to encourage air circulation, large windows to provide maximum natural light and operational shutters to reduce heat gain.

The Department is requesting \$378 million in FY13 for environmental conservation, which includes \$213 million in recurring funds for ongoing activities and \$165 million in non-recurring funds for one-time projects directed at threatened and endangered species, wetland protection, or other natural, cultural and historical resources.

Environmental Restoration

The Defense Environmental Restoration Program provides funds for two types of environmental cleanup. The Installation Restoration Program (IRP) manages the cleanup of hazardous substances, pollutants and contaminants—things that cause human health concerns. The Military Munitions Response Program (MMRP) manages the cleanup of unexploded ordnance and discarded military munitions—things that may explode. The cleanup occurs at three types of locations: active military bases, bases closed through the BRAC process, and other Formerly Used Defense Sites (FUDS).

By the end of 2011, the Department, in cooperation with state agencies and the U.S. Environmental Protection Agency, completed cleanup activities on 78 percent of IRP sites and is now monitoring the results. For MMRP sites, the comparable figure is 40 percent. The Department determines the order of cleanup for both IRP and MMRP sites on the basis of risk: by cleaning up the “worst first,” we reduce our long-term liability and expedite the return of properties to productive reuse.

Our cleanup program is mature enough that we can begin to envision completion. We are approaching 2014, by which time we have committed to have a remedy in place (RIP) or response complete (RC) for every cleanup site. In anticipation of reaching that milestone, we are developing the next major goal for our environmental cleanup program. We have established as goals to achieve RC at 90 percent of our active installations in 2018 and at 95 percent in 2021. The sites that remain will be the most complex ones, and we will need to conduct another review of the cleanup program when we reach that point.

We are requesting \$1.8 billion for FY13 to clean up IRP and MMRP sites. This includes \$1.42 billion for "Environmental Restoration," which encompasses active installations and FUDS sites, \$318 million for "Legacy BRAC Environmental" and \$73 million for "BRAC 2005 Environmental." While these figures represent reductions from FY12, we have not reduced our commitment to the program, as evidenced by our ambitious goals for achieving 95 percent RC over the next decade. Rather, the cut to Environmental Restoration is attributable to program reforms and reorganized oversight of the FUDS program by the Corps of Engineers. In addition, we have temporarily reduced investments in the MMRP portion of our program, anticipating validation of a major new cleanup approach able to detect and characterize unexploded ordinance (see the discussion below). We expect the MMRP request to increase once the new technology is validated and put into wider use. Finally, the BRAC investments are decreasing because we are making progress completing the much smaller number of BRAC sites.

Pollution Prevention

For FY13, the DoD is requesting \$110 million for pollution prevention efforts. DoD's approach to pollution prevention has many elements: recycling, reducing the use of hazardous materials and developing safer alternatives to them, eliminating the use of ozone-depleting substances, purchasing environmentally preferable products, and ensuring that DoD activities do not adversely impact the nation's air, water and land resources.

DoD is working to incorporate sustainable practices into acquisition and maintenance operations of military systems and into the day-to-day operations of our installations. By designing systems or practices such that waste (hazardous or non-hazardous) is minimized or eliminated, we reduce the overall cost of operations over the long term. For operational systems that are well past the design phase, the pollution prevention program funds initiatives that will, for example, change maintenance practices or find alternatives for toxic substances used to prevent corrosion.

With its limited budget, DoD's pollution prevention program has emphasized cost-effective investments that lower life-cycle costs and improve efficiency. These investments continue to pay dividends. In FY11, the Department diverted 4.1 million tons or 64 percent of our solid waste from landfills, avoiding approximately \$148 million in landfill disposal costs. We generated over 4 million tons of construction and demolition debris, diverting more than 77 percent of that debris to reuse and recycle. Additionally, the Department realized a 4 percent reduction in Toxic Release Inventory reportable releases in 2010 compared to 2009.

Environmental Compliance

Clean water and air are essential to the health and well being of our communities and ecosystems. The Department continues to maintain a high level of compliance with environmental laws and regulations. For example, the Department provides safe drinking water to the 3.4 million men, women, and children working and living on our military installations. Our FY13 budget requests \$1.4 billion for environmental compliance—\$103 million below last year's request. This decrease reflects the fact that the Department has completed many one-time repairs and upgrades to infrastructure, such as hazardous waste storage facilities, underground storage tanks and waste water treatments facilities.

Environmental Technology

A key part of DoD's approach to meeting its environmental obligations and improving its performance is its pursuit of advances in science and technology. The Department has a long record of success when it comes to developing innovative environmental technologies and getting them transferred out of the laboratory and into actual use—on our installations, in our depots and in the very weapon systems we acquire.

To accomplish this, the Department relies on two closely linked programs—the Strategic Environmental Research and Development Program (SERDP) and the Environmental Security Technology Certification Program (ESTCP). SERDP is DoD's environmental science and technology program; its mission is to address high priority cross-service environmental requirements and develop solutions to the Department's most critical environmental challenges. As one of the only R&D programs aimed at reducing DoD operating costs, SERDP has allowed Department to avoid spending billions of dollars for environmental cleanup, environmental liability and weapons system maintenance. ESTCP's mission is to transition technology out of the lab. It does this by demonstrating the technology in a real-world setting, such as a clean-up site on a military installation or at an aircraft maintenance depot. This “direct technology insertion” has proven key to getting regulators and end users to embrace new technology.

A decade ago, SERDP and ESTCP took on a challenge—developing technologies that could discriminate between scrap metal and hazardous UXO (“beer cans and bombs”). Current clean-up methods lack that ability—their false-positive rate is 99.99 percent. As a result, contractors must dig up hundreds of thousands of metal objects in order to identify and remove just a few pieces of UXO. Because this process is so labor-intensive, it is very expensive: the estimated cost to clean up UXO on known DoD sites is more than \$14 billion. However, as I reported last year, ten years of investment by SERDP and ESTCP have yielded technologies that can discriminate between UXO and harmless metal objects with a high degree of reliability. This is a remarkable achievement and one that many clean-up experts thought was impossible.

ESTCP has initiated live-site demonstrations to acquire the data needed to validate, gain regulatory approval for and fully transition these technologies into the field. Beginning in FY11, we accelerated these demonstrations so that the technology would be ready by 2015, when the Services undertake major UXO clean-up efforts. We have conducted demonstrations on seven sites exhibiting diverse conditions, and the results show that on most sites the new technologies can distinguish the metallic scrap 70-90 percent of the time.

The challenges to implementing new technology go beyond demonstration of technical success, however. For these new UXO technologies to get deployed, our key partners—commercial cleanup firms, state and federal regulators, and DoD contracting experts—must all be comfortable with what represents a fundamentally new approach to UXO cleanup (e.g., with the current technology, DoD pays contractors for each hole they dig up). Toward that end, my office is engaging with each group to work through its concerns. For example, contractors want to be sure they can recoup their investment in expensive new equipment; and regulators want to provide for management of the residual risk (i.e., any UXO found after the cleanup is complete).

The interactions to date have been promising: all of our partners appear committed to adopting the new technologies once we have answered their concerns. State regulators are particularly supportive because they recognize that DoD will be able to clean up UXO sites sooner.

The FY13 budget request includes \$65.3 million for SERDP and \$43.9 million for ESTCP for environmental technology demonstrations. (The budget request for ESTCP includes an additional \$32 million for energy technology demonstrations, as discussed in section III above.) Of the \$43.9 million requested for ESTCP environmental technology demonstrations, \$14 million will go to support the UXO live-site technology demonstrations.

The FY13 budget request for Environmental Technology overall is \$220 million. In addition to SERDP and ESTCP, this includes funding for the Services' environmental research and development. The Services' investments focus on Service-unique environmental technology requirements and complement the larger, cross-Service SERDP and ESTCP investments. SERDP and ESTCP work closely with the Services to coordinate and leverage their investments.

Compatible Development

Encroachment is a growing challenge to the military mission, particularly test and training. Sprawl, incompatible land use and other forms of encroachment put the Department's test and training missions at risk and reduce military readiness. For example, lights from developments near installations reduce the effectiveness of night vision training, and land development that destroys endangered species habitat causes those species to move onto less developed military lands, resulting in restrictions on the type, timing and frequency of test and training. I want to highlight three efforts I oversee that are designed to deal with this challenge.

Readiness and Environmental Protection Initiative

The Readiness and Environmental Protection Initiative (REPI) is a key tool for combating the encroachment that could negatively impact the operations of our bases. Under REPI, the Department partners with conservation organizations and state and local governments to preserve buffer land around our installations and ranges. The preservation of buffer land allows the Department to avoid much more costly alternatives, such as training workarounds or investments to replace existing testing and training capability. Through its unique cost-sharing partnerships, REPI directly leverages the Department's investments one-to-one. In the current real estate market, where property is more affordable and there are a great many willing sellers, REPI is a particularly good investment.

REPI's utility can be enhanced by looking beyond the immediate vicinity of installations and leveraging it across a regional landscape. For example, the airspace in and around Eglin Air Force Base has become increasingly crowded as new missions drive testing and training requirements. To avoid saturating the airspace, the Air Force is looking at the possibility of conducting missions across the entire gulf coast region (lower Alabama, Mississippi and the Florida Panhandle) in an effort called the Gulf Regional Airspace Strategic Initiative (GRASI). REPI can help GRASI achieve its goals by conserving key areas well outside Eglin—effectively expanding the training space available to Eglin and other installations in the region. This

strategy will allow the Air Force to expand capacity at a fraction of what it would cost to acquire additional installations and build permanent infrastructure. Further, REPI hopes to take advantage of its unique authority by leveraging funding from environmental organizations that have a similarly ambitious plan to conserve lands in this region, providing an opportunity to meet compatible military and environmental goals at reduced cost for each stakeholder.

The President's FY13 budget requests \$50.6M million for REPI.

Office of Economic Adjustment's Compatible Use Program

OEA's Compatible Use Program provides direct assistance to communities to help them prevent and/or mitigate development that is incompatible with nearby military operations. OEA provides technical and financial assistance to state and local governments to undertake a Joint Land Use Study (JLUS) in cooperation with the local military installation.

A JLUS serves as a powerful tool to bring a military installation and the surrounding community together to identify and address compatible use issues, develop a set of compatibility guidelines and implement specific measures to ensure the long-term viability of the military mission. The kinds of implementation measures that come out of a JLUS include: conservation buffers; aviation easements; the establishment of military influence areas with associated limits on development; the incorporation of sound-attenuation measures into building codes; requirements for disclosure of military activities (e.g., aircraft noise) in real estate transactions; ordinances to limit lighting that would interfere with night vision training; the transfer of development rights; and local development review procedures that ensure military input.

OEA has more than 70 JLUS projects currently underway, and they provide a useful complement to REPI's efforts. For example, through the JLUS process, military and stakeholder communities may identify an issue for which a REPI project may provide resolution.

Renewable Energy Siting

Although most transmission and renewable energy projects are compatible with the military mission, some can interfere with test, training and operational activities. Until recently, the process by which DoD reviewed projects and handled disputes was opaque, time-consuming and ad hoc, resulting in costly delays. Spurred in part by Congress, DoD created the DoD Siting Clearinghouse to serve as a single point of contact within the Department on this issue and to establish a timely and transparent review process. The goal is to facilitate the siting of energy projects while protecting test, training, and operational assets vital to the national defense.

The results are impressive: to date, the Clearinghouse has overseen the evaluation by technical experts of 506 proposed energy projects; 486 of these projects, or 96 percent, have been cleared, having been found to have little or no impact. These 486 projects represent 24 gigawatts of potential energy from wind, solar and geothermal sources. The 20 projects that have not been cleared are undergoing further study, and we are working with industry, state and local governments, and federal permitting and regulatory agencies to identify and implement mitigation measures wherever possible.

In addition to reviewing projects, the Clearinghouse has conducted aggressive outreach to energy developers, environmental and conservation groups, state and local governments, and other federal agencies. By encouraging developers to share project information, we hope to avert potential problems early in the process. We are being proactive as well in looking at regions where renewable projects could threaten valuable test and training ranges.¹¹ The Clearinghouse is working with DOE, DHS, and the Federal Aviation Administration to model the impact of turbines on surveillance radars, evaluate alternative mitigation technologies, and expedite fielding of validated solutions.

Finally, the Clearinghouse is taking advantage of Section 358 of the FY11 NDAA, which allows DoD to accept voluntary contributions from developers to pay for mitigation. The Clearinghouse and the Navy recently negotiated an agreement that provides for the developer to pay the cost to mitigate the impact of wind turbines on the precision approach radar on a runway at Naval Air Station (NAS) Kingsville, TX. The agreement facilitates the continued growth of wind energy generation along the Texas Coastal Plain while providing for the safety of student pilots at NAS Kingsville and NAS Corpus Christi. We believe there will be many other situations in which a developer is willing to pay the relatively small cost of mitigation in order to realize the much larger value of the project; Section 358 is an extremely useful, market-based tool that allows us to negotiate those win-win deals.

Conclusion

My office takes seriously our mission to strengthen DoD's infrastructure backbone—the installations that serve to train, deploy and support our warfighters. Thank you for your strong support for the Department's installation and environment programs and for its military mission more broadly. I look forward to working with you on the challenges and opportunities ahead.

¹¹ DoD is conducting a study to identify areas of likely adverse mission impact in the region that is home to China Lake and Edwards Air Force Base in California, and Nellis Air Force Base and the Nevada Test and Training Range in Nevada. These installations are the Department's premier sites for test and evaluation and require a pristine environment clear of interference. The results of the study will be used to inform stakeholders of areas where the Department is likely to oppose the siting of wind turbines and solar towers.