January 31, 2012

Congressional Committees

Subject: Defense Infrastructure: DOD Did Not Fully Address the Supplemental Reporting Requirements in Its Energy Management Report

This report formally transmits our January 2012 briefing to committees in response to section 332(c) of the National Defense Authorization Act (NDAA) for Fiscal Year 2010\(^1\) (section 332) and our response to House Report 111-166\(^2\) regarding the Department of Defense’s (DOD) energy- efficiency programs. The act and House report directed DOD to report on a specific set of energy issues and directed GAO to review DOD’s report and submit to Congress a report on our findings. A summary of the eight required energy- efficiency reporting issues is included as enclosure I. Details on our findings and the basis for them are provided in enclosure II.

Background

The House Report (H.R. Rep. No. 111-166) directed the Secretary of Defense to conduct an assessment of seven specific energy issues and to submit the findings and recommendations resulting from the assessment to the Senate Committee on Armed Services and the House Committee on Armed Services. Also, the National Defense Authorization Act for Fiscal Year 2010, section 332(b), states that the first report submitted by the Secretary of Defense under 10 U.S.C. § 2925(a) (DOD’s Annual Energy Management Report) after the date of the enactment of the NDAA for Fiscal Year 2010 shall include information on a similar list of eight specific energy issues.\(^3\)

The first report submitted by DOD in response to 10 U.S.C. § 2925(a) after the date of the enactment of the NDAA for Fiscal Year 2010 was its Fiscal Year 2009 Annual Energy Management Report, issued in May 2010. As we previously reported,\(^4\) the

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\(^3\)There is considerable overlap between the two lists of issues, and seven of the eight issues are substantively similar. The one issue that is in section 332 that is not reflected in the committee report (H.R. Rep. No. 111-166) relates to DOD’s making a determination of the cost and feasibility of developing or acquiring equipment or systems that would result in maximized use of renewable energy sources at contingency locations.
# Defense Infrastructure: DOD Did Not Fully Address the Supplemental Reporting Requirements in Its Energy Management Report

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Fiscal Year 2009 Annual Energy Management Report did not include information on the eight specific issues identified by the NDAA for Fiscal Year 2010. DOD officials stated that they planned to comply with the reporting requirement by including the required information in their Fiscal Year 2010 Annual Energy Management Report. The officials noted that the Fiscal Year 2010 Annual Energy Management Report would be the first report commenced and developed under the expanded section 332 reporting requirements. DOD’s Fiscal Year 2010 Annual Energy Management Report was issued in July 2011.

Scope and Methodology

To examine the extent to which DOD’s Fiscal Year 2010 Annual Energy Management Report addresses the expanded reporting requirements contained in the NDAA for Fiscal Year 2010, we analyzed the report and compared it with the legislative requirements. Additionally, we interviewed officials in the Office of the Deputy Under Secretary of Defense, Installations and Environment; and in the Office of the Assistant Secretary of Operational Energy Plans and Programs, to ascertain what changes, if any, were incorporated into the 2010 Report to address the reporting requirements, and what challenges DOD faced in complying with those reporting requirements. We determined that the data were sufficiently reliable for the purposes of our review.

We conducted this performance audit from November 2011 through January 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.

Summary

Our analysis showed that DOD’s Fiscal Year 2010 Annual Energy Management Report fully addressed two, did not address one (issue 4), and partially addressed five of the eight expanded reporting requirements (see table 1). In some cases, it was difficult to determine the extent to which DOD had addressed an issue because information related to a specific reporting requirement was fragmented or scattered throughout the report. With regard to the one issue not addressed, DOD indicated it had plans to address it in a separate report tentatively scheduled to be published in early 2012.
Table 1: Extent to Which DOD’s Fiscal Year 2010 Annual Energy Management Report Addressed the Eight Expanded Reporting Requirements (Issues) Mandated by Section 332 of the National Defense Authorization Act for Fiscal Year 2010

<table>
<thead>
<tr>
<th>Reporting issues</th>
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- Fully addressed
- Partially addressed
- Not addressed

Source: GAO’s analysis of DOD data

*DOD plans to address this in a separate report tentatively scheduled to be published in early 2012.

For additional information on the results of our work, see the briefing at pages 7 through 21 of this report.

**Agency Comments and Our Evaluation**

In oral comments on a draft of our briefing, officials from the Office of the Deputy Under Secretary of Defense for Installations and Environment (Facilities Energy) commented that they believed the finding that DOD has not addressed issue number 4 is inaccurate. Department officials stated that they are in the process of preparing a report in response to Section 333 of the Duncan Hunter National Defense
Authorization Act for Fiscal Year 2009\(^5\) that will address this issue and provided GAO a copy of the draft. In our report we acknowledged that the department plans to issue a separate report on this issue and shared a draft of the report with GAO. However, because the department previously told us it planned to include the required information in its fiscal year 2010 Annual Energy Management Report but did not, we stand behind our finding that DOD’s 2010 report did not address this issue. DOD also provided technical comments, which we have incorporated into this report as applicable.

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We are sending copies of this report to appropriate congressional committees and to the Secretary of Defense. In addition, this letter will be made available at no charge on the GAO website at http://www.gao.gov.

Should you or your staff have any questions concerning this report, please contact James R. McTigue, Jr., at (202) 512-7968 or mctiguej@gao.gov or Frank Rusco at (202) 512-3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this letter. Key contributors to this correspondence are listed in enclosure III.

James R. McTigue, Jr., Acting Director
Defense Capabilities and Management

Frank Rusco, Director
Natural Resources and Environment

Enclosures-3

List of Committees

The Honorable Carl Levin
Chairman
The Honorable John McCain
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Howard McKeon
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives
Enclosure I

**Summary of Section 332(b) of the National Defense Authorization Act for Fiscal Year 2010 (Pub. L. No. 111-84, 2009)): Additional Material Required for DOD’s First Expanded Report**

1. A determination of whether the tools that exist as of the date of the enactment of this Act, including the Energy Conservation Investment Program and the Energy Savings Performance Contracts (ESPCs) Program, are sufficient to support renewable energy projects to achieve the Department’s installation energy goals, or if new funding mechanisms would be beneficial.

2. A determination of the cost and feasibility of a policy that would require new power generation projects established on installations to be able to switch to provide power for military operations in the event of a commercial grid outage.

3. An assessment of the extent to which state and regional laws and regulations and market structures provide opportunities or obstacles to establish renewable energy projects on military installations.

4. A determination of the cost and feasibility of developing or acquiring equipment or systems that would result in maximized use of renewable energy sources at contingency locations.

5. An assessment of the feasibility of meeting the Department’s renewable energy goals with on-base renewable energy production rather than with renewable energy credits.

6. An analysis of the percentage of new construction projects subject to the Department’s current building construction sustainable design standards (Leadership in Energy and Environmental Design standards) that include a renewable energy component, and a determination as to whether the criteria of the Department’s design standards, as in effect on the date of the enactment of this Act, are consistent with the overall goals, including renewable energy goals, of the Secretary.

7. The feasibility and cost of developing net-zero energy installations and a detailed assessment, by installation, of power production (including renewable energy) measured against energy consumption.

8. A determination of whether a dedicated funding mechanism for renewable energy projects for stand-alone facilities, including National Guard and Reserve centers, would encourage greater use of renewable energy sources both at existing facilities and in new construction.
Defense Infrastructure: DOD Did Not Fully Address the Supplemental Reporting Requirements in Its Energy Management Report

Briefing for Congressional Committees
January 2012
Enclosure II

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Introduction
Researchable Objective
Scope and Methodology
Summary and Findings
Discussion of Energy Issues 1 through 8
Agency Comments and Our Evaluation
Related GAO Product
Introduction

The National Defense Authorization Act (NDAA) for fiscal year 2010\(^1\) House Report 111-166, directed the Department of Defense (DOD) to conduct assessments and report on a specific set of energy issues. By doing so, the committee stated that DOD could identify impediments that inhibit installations from furthering their renewable-energy goals and make recommendations for actions to address those impediments. Furthermore, the committee report and NDAA directed the GAO Comptroller General to review DOD’s report and submit to Congress a report on such review.

On September 29, 2010, we reported\(^2\) that DOD’s first submission following the enactment of the NDAA, the Fiscal Year 2009 Annual Energy Management Report, did not include information on the eight specific issues as required. We also reported that according to DOD officials, DOD planned to comply with the reporting requirement by including the required information in its Fiscal Year 2010 Annual Energy Management Report. That report was issued in July 2011.

Researchable Objective

To what extent does the Fiscal Year 2010 Department of Defense Annual Energy Management Report address the supplemental reporting requirements mandated by the National Defense Authorization Act for Fiscal Year 2010?
Scope and Methodology

To conduct this work we did the following:

• We examined the extent to which DOD’s Fiscal Year 2010 Annual Energy Management Report addressed the reporting requirements from the fiscal year 2010 NDAA, by reviewing the report and comparing it with the legislative requirements.

• We interviewed officials in the Office of the Deputy Under Secretary of Defense, Installations and Environment; and in the Office of the Assistant Secretary of Operational Energy Plans and Programs about any changes that might have been incorporated into the 2010 report to address the legislative requirements, and about any challenges in complying with the reporting requirements.

• We conducted this performance audit from November 2011 through January 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective.
## Summary and Findings

Table 1. Extent to which DOD’s Fiscal Year 2010 Annual Energy Management Report addresses the eight supplemental reporting requirements (issues) mandated by the National Defense Authorization Act for Fiscal Year 2010.

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*Not addressed.

Note: GAO evaluated DOD's Fiscal Year 2010 Annual Energy Management Report and assessed whether it addressed the eight supplemental reporting requirements (issues) mandated by the National Defense Authorization Act for Fiscal Year 2010. The report was not addressed.

*DOD plans to address this in a separate report tentatively scheduled to be published in early 2012.
Issue 1: A determination of whether the tools that exist as of the date of the enactment of this Act, including the Energy Conservation Investment Program (ECIP)\(^3\) and the Energy Savings Performance Contracts (ESPCs)\(^4\) Program, are sufficient to support renewable energy projects to achieve the Department’s installation energy goals, or if new funding mechanisms would be beneficial.

- **DOD reported:** DOD determined that it is currently taking advantage of existing tools as well as exploring other financing mechanisms for renewable energy projects. DOD’s report emphasizes that all the military departments plan on continuing the use of existing tools and discusses using other financing alternatives. For example, while some projects may be cost-prohibitive if the department must rely solely on existing tools, such as military construction or ECIP appropriations, other funding mechanisms such as third-party financing from utilities and private developers could provide the level of funding needed for these projects.

- **What GAO found:** In its report DOD discusses both existing tools—such as the ECIP and the ESPCs—and new funding mechanisms—such as third-party financing. DOD’s report provides specific information on funding and includes examples of the various tools that the department currently employs, and is pursuing, in order to fund projects to meet its energy goals. Furthermore, according to Officials from the Office of the Deputy Under Secretary of Defense, Installations and Energy, DOD has the tools to execute renewable-energy projects appropriately by using both appropriated funding as well as leveraging other funding mechanisms.

- **What GAO concluded:** DOD fully addressed this issue.

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\(^3\)Energy Conservation Investment Program (ECIP)—An Office of the Secretary of Defense centrally managed, project-oriented element within the Defense-wide military construction account that is programmed annually and represents the primary direct DOD investment in energy and water conservation.

\(^4\)Energy Savings Performance Contracts allow federal agencies to hire a contractor to develop energy-conservation or renewable-energy projects with the expectation that the annual savings from the project will fund the project’s annual costs.
Issue 2: A determination of the cost and feasibility of a policy that would require new power generation projects established on installations to be able to switch to provide power for military operations in the event of a commercial grid outage.

- **DOD reported:** DOD considered the feasibility of a new policy to address this issue; however, it did not address cost. In its report DOD determined the following in terms of feasibility:
  - The department can benefit from the flexibility to decide whether new power-generation projects must be able to operate independently from the commercial grid based primarily on protecting critical DOD missions.
  - A requirement to include this capability will increase costs due to requirements for new infrastructure, such as installing electrical transmission lines to areas on an installation where they would not normally be installed.
- **What GAO found:** DOD did not address the cost element of this issue in its report. According to DOD officials, cost is difficult to address due to risk that is regional and site-specific. Further, DOD officials explained that the Defense Critical Infrastructure Program considers costs of a variety of resources, such as water and electricity, in its evaluations of how to protect an installation. The results of these evaluations are contained in classified assessments.
- **What GAO concluded:** DOD has partially addressed this issue in that it determined feasibility, but has not addressed the cost element of the issue.
Enclosure II

**Issue 3:** An assessment of the extent to which state and regional laws and regulations and market structures provide opportunities or obstacles to establish renewable energy projects on military installations.

- **DOD reported:** The Department discussed the consideration of market and regulatory factors when planning renewable-energy projects. For example, the report emphasizes the importance of three factors: local demand for energy, local/regional energy prices, and regulatory incentives. In its discussion of regulatory incentives, DOD refers to several market structures, such as low-cost loans, loan guarantees, grants, and tax incentives.

- **What GAO found:** It is unclear whether DOD's assessment included a review of state and regional laws and regulations, and if so, there is no explanation of how DOD assessed the various state and regional laws and regulations in its report. According to officials from the Office of the Deputy Under Secretary of Defense, Installations and Energy, laws and regulations were assessed and the results of those assessments are summarized in a by-installation chart included in the report. However, there is no reference to the chart in the section of the report that addresses this issue, and there are no references on the chart to laws and regulations.

- **What GAO concluded:** DOD has partially addressed this issue by discussing market structures, but it is unclear from reading the report whether, how, or to what extent state and regional laws and regulations were assessed.
Issue 4: A determination of the cost and feasibility of developing or acquiring equipment or systems that would result in maximized use of renewable energy sources at contingency locations.

- **DOD reported:** This issue was not addressed in DOD’s Fiscal Year 2010 Annual Energy Management Report.
- **What GAO found:** DOD officials had previously stated that they would address the reporting requirements in their Fiscal Year 2010 Annual Energy Management Report. However, the report does not include a discussion of this issue. According to officials from the Office of the Secretary of Defense’s Office of Operational Energy Plans and Programs, this issue will be addressed in a report that they are preparing in response to other legislation. That report is currently being reviewed by the department with a target release date in early 2012.
- **What GAO concluded:** The fiscal year 2010 report that DOD submitted to the Congressional committees did not address this issue.
**Issue 5:** An assessment of the feasibility of meeting the Department’s renewable energy goals with on-base renewable energy production rather than with renewable energy credits.\(^5\)

- **DOD reported:** The department is subject to two statutory renewable-energy targets: one mandates that renewable energy produced or procured must total a specific percentage of total facility electricity consumption by 2025, and the other mandates that a specific percentage of electricity consumption come from renewable sources.\(^6\) DOD reports that it conducted a preliminary assessment of renewable-energy potential at its installations using fiscal year 2009 data that determined the department is well positioned to meet its 2025 goal. The report notes that to add certainty to the assessment, DOD will need additional in-depth feasibility studies on a project-by-project basis at the installation level. In meeting the second goal, DOD reports that the statute has established targets, such as increasing renewable-energy consumption to 5 percent in fiscal year 2010, and while it has not met this requirement, the department continues to make progress. According to the report, DOD expects that without using renewable-energy certificates it can attain the 2025 goal, but it does not expect to attain the other goal.

- **What GAO found:** DOD's report includes an assessment of the feasibility of meeting the department's renewable energy goals with on-base renewable-energy production rather than with renewable-energy certificates. DOD's results are clearly provided in trend analysis at both the service and department wide level.

- **What GAO concluded:** DOD has fully addressed this issue. As stated in its report, DOD has conducted an assessment and reported its conclusion on the feasibility of meeting its renewable-energy goals with on-base renewable-energy production rather than with renewable-energy certificates.

\(^5\)Although the statute refers to renewable-energy credits, in its report DOD referred to them as renewable-energy certificates. Renewable-energy certificates are tradable, non tangible energy commodities, that can be bought and sold between multiple parties, and represent the environmental attributes of renewable-energy generation. Generation of renewable energy in effect produces two products: the energy and accompanying renewable-energy certificate.

\(^6\)\(\)Title 10 U.S.C. § 2911(e) mandates that renewable energy (electric and non electric) produced or procured must total 25 percent of total electricity consumption by the year 2025, and (2) the Energy Policy Act of 2005 mandates that 5 percent of electricity consumption come from renewable sources, increasing to 7.5 percent by 2013.
Issue 6: An analysis of the percentage of new construction projects subject to the Department’s current building construction sustainable design standards (Leadership in Energy and Environmental Design standards) that include a renewable energy component, and a determination as to whether the criteria of the Department’s design standards, as in effect on the date of the enactment of this Act, are consistent with the overall goals, including renewable energy goals, of the Secretary.

- DOD reported: On-site renewable energy generation at the facility level does not contribute significantly to the Department’s renewable energy generation. DOD plans to achieve renewable energy goals by initiating large-scale, renewable energy generation projects, which are not incorporated into current Leadership in Energy and Environmental Design standards. Those standards are consistent with renewable energy goals, but likely will not significantly contribute to adding generation capacity. Furthermore, DOD is including new approaches to renewable technology in the overall design for new military construction to make its infrastructure more energy self-sufficient.

- What GAO found: DOD provided a list of new construction and funded renewable energy initiatives for both the Army and the Air Force, including a variety of renewable energy projects such as solar, wind, and geothermal. The Navy did not submit its data to DOD for inclusion in the report. The report does not include an analysis of the percentage of new construction projects subject to DOD’s design and the Leadership in Energy and Environmental Design standards. Although DOD’s design standard criteria appear to be consistent with renewable energy goals, DOD informed us that these renewable energy projects will not significantly contribute to meeting renewable energy goals.

- What GAO concluded: DOD has partially addressed this issue. The report does not include data on the Navy, nor does it provide an analysis of the percentage of new construction projects subject to the Department’s current building construction sustainable design standards that include a renewable energy component.

Leadership in Energy and Environmental Design standards are an internationally recognized green building certification system. Green building practices are construction and maintenance practices designed to make efficient use of resources, reduce environmental problems, and provide long-term financial and health benefits through lower annual operating costs and better indoor air quality. According to DOD, DOD Instruction 4170.11 and Executive Order 13514 require new buildings to be constructed to Leadership in Energy and Environmental Design Silver standards, where cost effective.

Index point for: GAO-12-79, page 24, footnote 1 for LEED definition in footnote and page 1, first paragraph after the word “quality” in the footnote.
Issue 7: The feasibility and cost of developing net-zero energy installations and a detailed assessment, by installation, of power production (including renewable energy) measured against energy consumption.

- DOD reported: Net-zero energy is a concept of energy self-sufficiency, based on minimized demand and use of local renewable-energy sources. DOD determined that net-zero assessments on an installation require in-depth analyses of energy use, the potential for energy-consumption reduction, the potential for on-site renewable-energy production, and local grid modifications required to control energy supply from more-diverse and often intermittent sources. DOD identified four pilot installations and several other net-zero energy candidate installations and reported that a more-comprehensive and in-depth net-zero feasibility study for each installation will be required to develop cost estimates. Furthermore, each military department will refine its net-zero energy installations focus based on results from ongoing and planned studies.

- What GAO found: DOD officials reported that although the feasibility of net-zero installations was assessed, cost was not assessed.

- What GAO concluded: DOD has partially addressed this issue. DOD’s report describes its approach for evaluating the feasibility of net-zero energy installations; however, it does not address the cost aspect of the issue.

\[A \text{ net-zero energy installation is one that produces as much energy on-site or nearby as it consumes in its buildings and facilities, and maximizes the use of renewable energy resources.}\]
Issue 8: A determination of whether a dedicated funding mechanism for renewable energy projects for stand-alone facilities, including National Guard and Reserve centers, would encourage greater use of renewable energy sources both at existing facilities and in new construction.

- DOD reported: DOD components will execute energy projects that are cost-effective over their life cycles, both at stand-alone facilities and those that are connected with the commercial grid. The report also notes that DOD has not identified a need for any funding mechanisms for renewable-energy projects beyond those currently available.
- What GAO found: According to DOD officials, existing funding mechanisms are sufficient to encourage greater use of renewable-energy sources both at existing facilities and in new construction. They also said the department has determined it will have the tools to execute renewable-energy projects appropriately by using appropriated funding and third-party financing.
- What GAO concluded: DOD has partially addressed this issue. DOD’s response to this issue in its report was not complete. For example, the report does not specifically address whether a dedicated funding mechanism would encourage greater use of renewable-energy sources, and it does not address National Guard and Reserve centers in the discussion of stand-alone facilities.
In oral comments on a draft of this briefing, officials from the Office of the Deputy Under Secretary of Defense for Installations and Environment (Facilities Energy) commented that they believed the finding that DOD has not addressed issue number 4 is inaccurate. Department officials stated that they are in the process of preparing a report in response to Section 333 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 that will address this issue and provided GAO a copy of the draft. In our briefing we acknowledged that the department plans to issue a separate report on this issue and provided GAO a copy of the draft. However, because the department previously told us it planned to include the required information in its fiscal year 2010 Annual Energy Management Report but did not, we stand behind our finding that DOD’s 2010 report did not address this issue. DOD also provided technical comments, which we have incorporated into this briefing as applicable.
Related GAO Products


Related GAO Products (cont.)


GAO Contact and Staff Acknowledgments

**GAO Contacts**

James R. McTigue, Jr., at (202) 512-7968 or mctiguej@gao.gov or Frank Rusco at (202) 512-3841 or ruscof@gao.gov

**Staff Acknowledgments**

In addition to the contacts named above, GAO staff who made key contributions to this report include Harold Reich, Assistant Director; Ernie Hazera, Assistant Director; Tim Burke; Larry Bridges; Cheryl Weissman; Charles Perdue, and Michael Willems.
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Katherine Siggerud, Managing Director, siggerudk@gao.gov, (202) 512-4400, U.S. Government Accountability Office, 441 G Street NW, Room 7125, Washington, DC 20548

Chuck Young, Managing Director, youngc1@gao.gov, (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, DC 20548