

Naval Audit Service



Audit Report



American Recovery and Reinvestment Act of 2009 – Advanced Metering Infrastructure Projects at Navy Installations in Florida, Mississippi, and Texas

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N2011-0062

23 September 2011

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MEMORANDUM FOR DIRECTOR, NAVY STAFF

**Subj: AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009 –
ADVANCED METERING INFRASTRUCTURE PROJECTS AT NAVY
INSTALLATIONS IN FLORIDA, MISSISSIPPI, AND TEXAS (AUDIT
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Ref: (a) NAVAUDSVC memo N2009-NIA000-0143.000, dated 23 Jun 09
(b) SECNAV Instruction 7510.7F, “Department of the Navy Internal Audit”

Encl: (1) Status of Recommendations
(2) Scope and Methodology
(3) Management Response from Commander, Naval Installations Command

1. Introduction.

a. This is one of a series of reports on our audit of selected projects of the American Recovery and Reinvestment Act of 2009 (Recovery Act). This report presents the results of our audit of three Recovery Act projects at Navy facilities in Florida, Mississippi, and Texas for advanced metering infrastructure.¹ Advanced metering infrastructure projects include advanced utility meters and an advanced metering system to measure and track utility (electricity, water, natural gas, and steam) usage. Advanced meters are those that have the capability to measure and record interval data (at least hourly for electricity), and communicate the data to a remote location in a format that can be easily integrated into an advanced metering system. An advanced metering system is one that collects time-differentiated energy usage data from advanced meters via a network system on either an on-request or defined-schedule basis. The three advanced metering projects we audited were shown in the March 2009 Recovery Act Department of Defense (DoD) Expenditure Plans as three projects programmed for a total of \$36.8 million. The expenditure plans showed advanced metering infrastructure worth \$19.9 million for Navy installations in Florida, \$8.45 million for Navy installations in Texas, and \$8.45 million for Navy installations in Mississippi.

¹ Advanced metering infrastructure is sometimes referred to as advanced metering installation.

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b. In July 2009, Naval Facilities Engineering Command Engineering Service Center solicited proposals from the three contractors² who had been awarded the multiple award construction contract in Fiscal Year 2008. They selected one of the multiple-award construction contractors and, on 15 September 2009, awarded 11 firm-fixed-price task orders for advanced metering infrastructure at Navy installations in Florida, Mississippi, and Texas. As of February 2011, the task orders with modifications call for 1,482 electric meters, 1,001 water meters, 424 natural gas meters, and 34 steam meters to be installed at 11 Navy installations at a total price of about \$29 million.

c. We concluded that the advanced metering infrastructure projects were competitively awarded under a multiple award construction contract;³ the funds were distributed in a prompt, fair, and reasonable manner; and the awarded task orders contained all the necessary Federal Acquisition Regulation clauses. However, we also concluded that using Recovery Act funds to purchase and install utility meters may not have been the best use of Recovery Act funds because the Navy:

- Did not sufficiently plan the projects. Specifically, in its original requirements the Navy overstated (by 74 percent) the amount of meters needed, and after the contractor's proposal was accepted, Navy management and the contractor continued to adjust the number and types of meters to be purchased and the buildings that would receive them.
- Did not perform cost analyses for each meter installation to verify the selected meters were cost effective.
- Did not infuse jobs or funds quickly into the economy. As of 31 March 2011, the contractor reported creating or retaining about 8 jobs, and had invoiced \$1,575,746, or 5.4 percent, of the \$29,129,256 awarded. Work installing meters did not begin until October 2010, which was 13 months after the task orders were awarded and funds were obligated. According to the Naval Facilities Engineering Command, installations are not scheduled to be completed until March 2012.

d. The Navy did not accurately plan its advanced meter infrastructure requirement because the Recovery Act funds arrived as a windfall. Prior to receiving the Recovery Act funds, the Navy had not planned to fund the purchase and installation of these advanced metering infrastructure systems.

² These three contractors previously were awarded indefinite delivery-indefinite quantity contracts for advanced metering infrastructure.

³ Specifically, the multiple award construction contract was competitively awarded and the task orders were competed.

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e. As a result of funding these advanced metering installation projects, the Navy did not meet the Recovery Act goal of infusing funds quickly into the economy. Further, in our opinion the creation/retention of about 8 jobs does not appear significant in comparison to the cost (over \$29 million) of the project.

f. We recommend that the Navy conduct a cost analysis for the advanced metering infrastructure that has not yet been purchased or installed to ensure the meters are cost effective. We also recommend that for future metering projects the Navy calculates costs and benefits to ensure the projects meet established criteria and the intent of legislation providing the funds. Commander, Navy Installations Command did not concur with the recommendations and will rely on their overall method of planning to metering 95 percent of the Navy's utility consumption without regard to the cost effectiveness of the specific buildings being metered. Because Commander, Navy Installations Command non-concurred with our recommendations, these recommendations are considered undecided and we are elevating them to Director, Navy Staff for response. The Director, Navy Staff is required to provide comments on the undecided recommendations within 30 days; management may comment on other aspects of the report, if desired.

2. **Reason for Audit.** The audit objective was to verify that funds received by the Department of the Navy (DON) under the Recovery Act were obligated and used in accordance with the Act. This audit was requested by the Office of the Inspector General, Department of Defense to assist in oversight of the implementation of the Recovery Act within DON. Our specific objectives for this phase of the audit were to verify that:

- The selected Recovery Act projects for advanced metering infrastructure at Navy installations in Florida, Mississippi, and Texas were sufficiently planned to ensure the appropriate use of Recovery Act funds;
- The advanced metering infrastructure projects were properly planned and designed to infuse money and jobs quickly into the economy.
- Contract/Task Orders for the selected Recovery Act projects:
 - Were properly awarded and funds distributed in a prompt, fair, and reasonable manner; and
 - Included all Federal Acquisition Regulation clauses required by the Recovery Act; and
- Solicitation and contract award information for the selected Recovery Act projects was reported by DON on the Federal Business Opportunities Web site to promote transparency to the public.

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3. **Communication with Navy Management.** We communicated our preliminary audit results and conclusions with representatives from the Naval Facilities Engineering Command Engineering Service Center on 3 December 2009, and Naval Facilities Engineering Command Southeast, Naval Air Station, Jacksonville, FL, and Naval Station Mayport, FL, on 23 September 2010. We briefed our tentative results to Commander, Navy Installations Command on 3 February 2011. We met with Commander, Navy Installations Command on 6 July 2011 and 2 September 2011 and with Commander, Navy Installations Command and Commander, Naval Facilities Engineering Command on 13 July 2011 to discuss the draft audit results and recommendations.

4. **Background.**

a. On 17 February 2009, the President signed the Recovery Act into law, with the express purpose of stimulating the economy. The Recovery Act provided DON with \$280 million for Military Construction that is available for obligation until 30 September 2013. It also provided \$865.9 million for Facilities Sustainment, Restoration, and Modernization projects. This amount was available for obligation until 30 September 2010.

b. The goal of the Recovery Act was to provide an infusion of money, within specific guidelines, that would result in a jump-start to the United States economy. Recovery Act guidelines include initiating expenditures and activities as quickly as possible in a manner consistent with prudent management. Further, Recovery Act projects should be fully justified and consistent with Recovery Act goals and requirements. The President indicated multiple goals for the legislation, including: (1) awarding projects quickly and infusing the money into the economy quickly; (2) fostering competition; and (3) creating and retaining jobs. In addition, organizations should use competitive, firm-fixed-price contracts to reduce risk to the Government and taxpayers. Beginning in October 2009, contractors who received Recovery Act funds have been required to submit information quarterly (amount of money expended, percent of project completion, salaries of particular personnel, and the number of jobs created/retained).

c. **Pertinent Guidance.**

i. **Implementing Guidance for the American Recovery and Reinvestment Act of 2009**, dated 3 April 2009, outlines necessary enhancements to standard processes for awarding and overseeing funds to meet accelerated timeframes and other unique challenges posed by the Recovery Act's transparency and accountability framework. Specifically, Section 2 provides guidance regarding agency plans and public reporting; Section 4 provides guidance regarding budget execution; and Section 6 provides guidance regarding contracts.

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ii. **Federal Acquisition Regulation reissue of March 2005** provides guidance regarding competition and acquisition planning, contracting methods and contract types, general contracting requirements, special categories of contracts, contracts management, and contract clauses and forms.

iii. **Energy Policy Act of 2005, Section 103, “Energy Use Measurement and Accountability,”** dated 8 August 2005, states that “by 1 October 2012, all Federal buildings shall, for the purposes of efficient use of energy and reduction in the cost of electricity used in such buildings, be metered. Each agency shall use, to the maximum extent practicable, advanced meters or advanced metering devices that provide data [at] least daily and that measure at least hourly consumption of electricity.” The Energy Policy Act of 2005 also states that the Secretary of the Department of Energy shall establish guidelines for agencies to carry out the metering requirements.

iv. Pursuant to Energy Policy Act of 2005, the Department of Energy issued “**Guidance for Electric Metering in Federal Buildings**” on 3 February 2006. The Department of Energy determined that Section 103 pertains to electric metering only. The guidance defines a practicable meter application as one that can be justified on the basis of its cost effectiveness – a measure relating the estimated costs to the estimated savings.

v. **National Energy Conservation Policy Act, Section 8253,** states that no later than 1 October 2016, each agency shall provide for equivalent metering of natural gas and steam.

vi. **Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management,”** dated 24 January 2007, outlines conduct for Federal agencies regarding energy-related activities, and specifically energy usage in a sustainable, efficient, and economically and fiscally sound manner. In its “Goals for Agencies” section, it says: In implementing the policy set forth in section 1 of this order, the head of each agency shall: improve energy efficiency and reduce greenhouse gas emissions of the agency through reduction of energy intensity by...3 percent annually through the end of fiscal year 2015. Instructions for implementing Executive Order 13423, dated 29 March 2007, state that each agency shall consider life-cycle costs and savings in planning and making determinations about investments in all capital assets, services, and procurements, which will lower the Government’s costs, achieve sustainable design principles, reduce energy and water consumption, and reduce the environmental impact/footprint of the Government’s operations as it implements its primary mission and improves the quality of service and effectiveness of Government.

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vii. **DoD Instruction 4170.11, “Installation Energy Management,”** dated 11 December 2009, nearly 9 months after the DoD Expenditure Plan was approved, reiterates that meters are required for all appropriate facilities where it is cost effective and practical as a management enhancement tool. The instruction also requires that by 2012, electricity, natural gas, and water shall be metered at appropriate facilities; steam will be metered at steam plants.

viii. **The Energy Independence and Security Act of 2007** (Public Law 110-140[1], originally named the Clean Energy Act of 2007), 19 December 2007, requires that, no later than 1 October 2016, each agency shall provide for equivalent metering of natural gas and steam, in accordance with guidelines established by the Secretary of the Department of Energy.

5. Federal Manager’s Financial Integrity Act. The Federal Manager’s Financial Integrity Act of 1982, as codified in Title 31, United States Code, requires each Federal agency head to annually certify the effectiveness of the agency’s internal and accounting system controls. In our professional judgment, we did not find weaknesses systemic enough to be considered for inclusion in the Auditor General’s annual Federal Manager’s Financial Integrity Act memorandum identifying material management control weaknesses to the Secretary of the Navy.

6. Audit Results/Conclusions.

a. Using Recovery Act funds to purchase and install advanced metering devices may not have been the best use of these funds. We concluded that: (1) the advanced metering infrastructure projects were properly awarded using three previous multiple award construction contracts; (2) funds were distributed in a prompt, fair, and reasonable manner; and (3) the awarded task orders contained all the necessary Federal Acquisition Regulation clauses. In addition, the prime contractor was reporting information, such as a contracts award summary, on the Recovery.gov Web site on a quarterly basis as required; the solicitation and contract award notification was also available on the Web site as required, although it was somewhat difficult to locate.⁴ However, the selected Recovery Act projects for advanced metering infrastructure were not sufficiently planned to ensure the appropriate use of Recovery Act funds or infuse money and jobs quickly into the economy, as follows.

- The Navy estimated the original advanced metering requirement at 5,118 meters, which is 2,177 meters more than the current requirement of 2,941 meters (a 74 percent overstatement).

⁴ Because the information was available as required, we are not making a recommendation on this issue.

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- The current requirement for 2,941 meters includes 1,001 meters for measuring water use that was not mandated by Energy Policy Act 2005, and 458 meters for measuring steam or gas use that is not required until 1 October 2016.⁵
- After accepting the winning proposal, Naval Facilities Engineering Command Engineering Service Center, Naval Facilities Engineering Command Southeast, the installations, and the contractor continued to adjust the number and types of meters that would be purchased and the buildings that would receive the meters.
- The Navy did not perform cost analyses for each meter installation to verify the selected meters were cost effective.
- The advanced metering infrastructure projects infused about \$1.6 million of \$29 million of funds obligated as of 30 March 2011 and created or retained less than 8 full time jobs during that period.

b. Advanced Meter Requirements

i. Although metering of electricity use is required by 1 October 2012 and metering of natural gas and steam use is required by 1 October 2016, the Navy overstated the number of meters needed by 2,177 meters (or 43 percent of the original estimated requirement of 5,118 meters) when they developed the Expenditure Plan. Although the Naval Facilities Engineering Command Engineering Service Center developed an advanced metering infrastructure plan prior to receiving the Recovery Act funds, the number of advanced meters for the audited projects were estimated after Recovery Act funds were made available. To support the DoD Expenditure Plan submission, the Naval Facilities Engineering Command Engineering Service Center received DD Forms 1391 (Fiscal Year Military Construction Program) from the Naval Facilities Engineering Command Southeast. These forms showed the estimated numbers and types of meters required for various Navy installations in Florida, Mississippi, and Texas. Subsequent to the approval of the DoD Expenditure Plans, the Naval Facilities Engineering Command Engineering Service Center revised the meter estimates based on Comprehensive Utility Billing and Control System data. The result was a meter requirement much less than the original estimate provided by Naval Facilities Engineering Command Southeast. The Naval Facilities Engineering Command Engineering Service Center issued the request for proposals using the updated requirements. After accepting the winning proposal, the Naval Facilities Engineering Command Engineering Service Center, Naval Facilities Engineering Command Southeast, the installations, and the contractor continued to adjust

⁵ Subsequent to selecting and awarding the advanced metering infrastructure projects for economic stimulus funding, DoD Instruction 4170.11 was issued on 11 December 2009, stating that by 2012, electricity, natural gas, and water shall be metered on appropriate facilities; steam will be metered at steam plants.

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the number and types of utility meters and the locations where the meters would be installed. Table 1 shows that the original estimates of the number and types of meters required were not accurate when compared with the number and types of meters that will be installed under the task orders. Overall, the original estimated requirement of 5,118 meters was nearly double the current requirement of 2,941 utility meters. This showed that the Navy did not accurately assess its needs when planning how it would spend the Recovery Act funds.

Table 1: Original Planned Meter Requirement versus Final Meter Quantity

	Estimated/ Actual Cost \$	Number of Meters				
		Total	Electric	Gas	Water	Steam
Task Order 0007, Naval Air Station Pensacola, FL						
Original Per 1391	5,812,000	910	400	100	400	10
Current	7,069,716	795	618	66	108	3
Difference	1,257,716	115 / 13%	218 / 55%	34 / 34%	292 / 73%	7
Task Order 0008, Naval Air Station Jacksonville, FL						
Original Per 1391	5,345,000	836	413	0	413	10
Current	2,496,621	236	0	53	163	20
Difference	2,848,379	600 / 72%	413 / 100%	53 / Und.*	250 / 61%	10
Task Order 0009, Naval Station Mayport, FL						
Original Per 1391	3,594,000	560	275	0	275	10
Current	1,891,175	148	0	0	137	11
Difference	1,702,825	412 / 74%	275 / 100%	0	138 / 50%	1
Task Order 0010, Naval Air Station Key West, FL						
Original Per 1391	825,000	130	65	0	65	0
Current	2,151,851	298	163	0	135	0
Difference	1,326,851	168 / 129%	98	0	70	0
Task Order 0011, Naval Support Activity Panama City, FL						
Original Per 1391	1,364,000	215	100	15	100	0
Current	2,526,565	264	148	52	64	0
Difference	1,162,565	49 / 23%	48 / 48%	37 / 247%	36 / 36%	0
Task Order 0012, Naval Air Station Whiting Field, Milton, FL						
Original Per 1391	0 ⁶	178	78	22	78	0

⁶ The original DD Form 1391 did not include a cost estimate for the meters at Naval Air Station Whiting Field.

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	Estimated/ Actual Cost \$	Number of Meters				
		Total	Electric	Gas	Water	Steam
Current	724,700	73	46	3	24	0
Difference	724,700	105 / 59%	32 / 41%	19 / 86%	54 / 69%	0
Task Order 0013, Naval Support Activity Orlando, FL						
Original Per 1391	0 ⁷	0	0	0	0	0
Current	47,627	2	1	0	1	0
Difference	47,627	2 / Und.*	1 / Und.*	0	1 / Und.*	0
Task Order 0014, Naval Air Station Corpus Christi, TX						
Original Per 1391	4,470,000	705	300	105	300	0
Current	4,792,773	406	180	83	143	0
Difference	322,773	299 / 42%	120 / 40%	22 / 21%	157 / 52%	0
Task Order 0015, Naval Air Station Kingsville, TX						
Original Per 1391	2,727,000	450	200	50	200	0
Current	1,308,505	120	78	20	22	0
Difference	1,418,495	330 / 73%	122 / 61%	30 / 60%	178 / 89%	0
Task Order 0016, Construction Battalion Center Gulfport, MS						
Original Per 1391	4,521,000	713	300	113	300	0
Current	3,981,199	385	148	100	137	0
Difference	539,801	328 / 46%	152 / 51%	13 / 12%	163 / 54%	0
Task Order 0017, Naval Air Station Meridian, MS						
Original Per 1391	2,671,000	421	200	21	200	0
Current	2,138,524	214	100	47	67	0
Difference	532,476	207 / 49%	100 / 50%	26 / 124%	133 / 67%	0
Task Orders 0007 through 17						
Original Per 1391	31,329,000	5,118	2,331	426	2,331	30
Current	29,129,256	2,941	1,482	424	1,001	34
Difference	2,199,744	2,177 / 43%	849 / 36%	2 / <1%	1,330 / 57%	4

* Und. - Undefined. A number cannot be divided by 0.

⁷ The original DD Form 1391 did not include a cost estimate for the meters at Naval Support Activity Orlando.

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ii. Table 1 also shows that of the current estimated procurement of 2,941 meters, 1,482 meters (50 percent) are for electric meters that may be required by 1 October 2012 per the Energy Policy Act 2005. The 1,459 non-electric meters consist of 1,001 water meters (34 percent of the total) that are not required by legislation, and 424 natural gas meters and 34 steam meters that are not mandated until 1 October 2016.⁸ To better meet the intent of the Recovery Act to infuse money and jobs quickly into the economy, in our judgment, the Commander, Navy Installations Command, (which is responsible for the selection and funding of Navy Recovery Act projects) should have explored the possibility of using the funds to pay for other unfunded requirements that would have reduced the backlog of critical maintenance and resulted in the creation/retention of jobs much sooner.

c. **Cost Analysis.** The Navy did not perform a life cycle cost analysis to verify that each of the selected meters were cost effective. Based on discussions with Commander, Navy Installations Command and Naval Facilities Engineering Command managers, we concluded that the Navy assumed that meters were required on most of its buildings and should be installed regardless of the costs and benefits of the meter installation. The “Guidance for Electric Metering in Federal Buildings,” issued by the Department of Energy, instructs that Federal agencies are to install metering and advanced metering where found to be cost effective. The guidance indicates that the desired simple payback is 10 years or less. Without the cost analysis, the Navy cannot be sure if the installed meters will result in a reduction of energy costs as required. Table 2 shows the number, types, and costs of the meters that will be installed. The table illustrates that the overall average cost for an installed advanced meter is about \$9,905. However, at Naval Support Activity Orlando, Florida, the Navy will pay \$47,627 for the installation of one electric meter and one water meter.

Table 2: Number of Advanced Meters to be Installed and Cost to the Navy

Task Order	Location	\$ Amount	\$ Average Per Meter	Total Meters
0007	Naval Air Station Pensacola, FL	7,069,716	8,893	795
0008	Naval Air Station Jacksonville, FL	2,496,621	10,579	236
0009	Naval Station Mayport, FL	1,891,175	12,778	148
0010	Naval Air Station Key West, FL	2,151,851	7,221	298
0011	Naval Support Activity Panama City, FL	2,526,565	9,570	264
0012	Naval Air Station Whiting Field Milton, FL	724,700	9,927	73
0013	Naval Support Activity Orlando, FL	47,627	23,814	2
Subtotal – FL		16,908,255	9,310	1,816

⁸ Subsequent to selecting and awarding the advanced metering infrastructure projects for economic stimulus funding, DoD Instruction 4170.11 was issued on 11 December 2009, stating that by 2012, electricity, natural gas, and water shall be metered on appropriate facilities; steam will be metered at steam plants.

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Task Order	Location	\$ Amount	\$ Average Per Meter	Total Meters
0014	Naval Air Station Corpus Christi, TX	4,792,773	11,805	406
0015	Naval Air Station Kingsville, TX	1,308,505	10,904	120
Subtotal – TX		6,101,278	11,599	526
0016	Construction Battalion Center Gulfport, MS	3,981,199	10,341	385
0017	Naval Air Station Meridian, MS	2,138,524	9,993	214
Subtotal – MS		6,119,723	10,217	599
Total		29,129,256	9,905	2,941

d. Status of Meter Installation

i. The Navy began work purchasing and installing meters on October 2010, which was 13 months after the task orders were awarded and funds were obligated. The Recovery Act funds were provided to stimulate the economy. Therefore, it was imperative that projects funded with Recovery Act appropriations be ready to start work immediately to push funds into the economy and bring employees to work. Although the task orders were promptly awarded and funds obligated within 6 months of the expenditure plans, the projects have required many months of design work to determine the quantity and types of meters, as well as their future locations. As of 31 March 2011, the Navy has begun installing meters at 5 of 11 locations. In addition, the contractor has reported invoicing only \$1,575,746 (5.4 percent) of the \$29,129,256 obligated. The contractor also reported creating or retaining only about 8 jobs, which in our judgment is not significant considering the project cost of more than \$29 million. In our opinion, to better meet the intent of the Recovery Act, Commander, Navy Installations Command should have determined whether there were more critical unfunded maintenance/construction projects that would have resulted in the creation/retention of jobs and infusion of funds into the economy much sooner.

ii. Table 3 shows, by project, the current status of the project, jobs created, and the amount of funds invoiced as reported by the contractor on the Recovery.gov Web site. Only the Kingsville, TX and Meridian, MS projects reached more than 50 percent of completion as of 31 March 2011. The contractor reported invoicing \$1,575,746 for 5 of 11 task orders. No funds have been invoiced or received for the other six task orders. Naval Facilities Engineering Command provided the estimated start and completion dates for each project.

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Table 3: Project Status, Jobs Created, and Funds Invoiced as of 31 March 2011

Order No.	Project Location	\$ Award Amount	\$ Invoiced Amount	Project Status	Jobs Created/ Retained ⁹	Estimated Start Date	Estimated Completion Date
0007	Naval Air Station Pensacola, FL	7,069,716	0	< 50%	1.3	15 Nov 10 ¹⁰	31 Aug 11
0008	Naval Air Station Jacksonville, FL	2,496,621	0	< 50%	1.6	27 May 11	7 Jun 11
0009	Naval Station Mayport, FL	1,891,175	0	< 50%	0.7	23 Jan 11	21 Jul 11
0010	Naval Air Station Key West, FL	2,151,851	0	< 50%	0.2	30 May 11	18 May 11
0011	Naval Support Activity Panama City, FL	2,526,565	55,754	< 50%	0.2	22 Dec 10	20 May 11
0012	Naval Air Station Whiting Field, FL	724,700	15,393	< 50%	0.2	20 Dec 10	21 Apr 11
0013	Naval Support Activity Orlando, FL	47,627	0	< 50%	0.1	4 Mar 11	28 Mar 11
Subtotal – FL (RM09-1444)		16,908,255	71,147		4.3	-	-
0014	Naval Air Station Corpus Christi, TX	4,792,773	0	< 50%	0.5	18 Aug 11	1 Mar 12
0015	Naval Air Station Kingsville, TX	1,308,505	643,740	> 50%	1.3	7 Oct 10 ¹¹	1 Dec 10
Subtotal – TX (RM09-1446)		6,101,278	643,740		1.8		
0016	Construction Battalion Center Gulfport, MS	3,981,199	86,433	< 50%	0.6	7 Mar 11	12 Nov 11
0017	Naval Air Station Meridian, MS	2,138,524	774,426	> 50%	0.9	10 Jan 11	30 Jun 11
Subtotal – MS (RM09-1445)		6,119,723	860,859		1.5		
Total		29,129,256	1,575,746		7.6		

e. Causes.

i. The Navy had not completed its planning regarding how to satisfy its advanced metering infrastructure requirement when the Recovery Act funds arrived as a windfall. Prior to receiving the Recovery Act funds, the Navy had begun planning for advanced metering infrastructure by awarding multiple award construction contracts in June 2008. However, the Navy did not accurately know how many advanced meters would be needed or where they would be needed for the Southeastern United States. When the Recovery Act funds became available, Naval Facilities Engineering Command Southeast

⁹ Recovery Act fund recipients calculate the number of jobs funded by taking the total number of Recovery Act-funded hours worked in a quarter, and dividing it by the number of hours of a full-time schedule in a quarter as defined by the recipient.

¹⁰ Actual start date.

¹¹ Actual start date.

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INSTALLATIONS IN FLORIDA, MISSISSIPPI, AND TEXAS (AUDIT
REPORT N2011-0062)**

created DD Forms 1391 as place holders for the meters. We could not determine how Naval Facilities Engineering Command Southeast estimated the meter requirements for the Southeast.

ii. Work installing meters was delayed because the advanced metering infrastructure projects required planning and design before the installation could begin. Planning involved selecting the buildings or locations for meters, the type of meter to be installed, and the data and communication system to collect the data from the meters. The Navy was aware that the design process would take time, but believed the investment in meters met other goals of the Recovery Act.

f. Effects.

i. The effect of selecting metering projects that were not accurately planned and that did not infuse funds and jobs quickly into the economy is that the goals of the Recovery Act were not fully met. The Recovery Act funds were made available to create and retain jobs and infuse funds quickly to stimulate the economy. While the contractor reported creating about 8 jobs as of 31 March 2011, in our judgment, this is not a significant number when compared to the \$29 million project. We concluded the Navy should have researched whether there were more critical unfunded maintenance/construction projects whose selection could have resulted in the creation/retention of jobs and infusion of funds into the economy sooner. If other projects were not available, the Navy should have returned the funds.

ii. The effect of not doing a cost analysis for each advanced meter installation is that meters may be installed where they are not cost effective. The Navy may be spending more for these meters than they could recover in reduced energy use.

iii. The effect of purchasing and installing meters that will not be required until October 2016 or not required at all is that other unfunded Navy projects may remain unfunded.

7. Recommendations and Corrective Actions.

Our recommendations, summarized management responses, and our comments on the responses follow. The complete text of the management responses is in Enclosure 3.

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We recommend that Commander, Navy Installations Command:

Recommendation 1. Compute a cost analysis for the buildings where meters are planned but have not been purchased or installed to ensure the meters are cost effective.

Commander, Navy Installations Command response to Recommendation 1.

Non-concur. The decision on where to install Advanced Meters in order to meet legislative mandates was made using a programmatic approach, not a building cost analysis approach. Navy leadership determined that metering 95 percent of energy consumption met the intent of the legislation, both maximizing the benefits of Advanced Metering Infrastructure and controlling cost by not metering buildings with negligible consumption. Future Advanced Metering Infrastructure initiatives will continue to install meters to capture 95 percent of energy consumption, rather than conducting a time intensive building by building analysis.

From a programmatic perspective, by metering approximately 25 percent of the Navy buildings, we capture the targeted 95 percent consumption. We used a 2 percent payback over 10 years for enterprise-wide cost analysis. At an enterprise cost of less than \$250 million, we need an average annual payback of \$25 million to achieve the 10-year payback goal. The minimum annual utilities cost to meet a 10-year payback is \$1,250 million. Actual baseline annual utilities cost for commodities being metered exceeds this threshold; therefore, our enterprise-wide analysis is that the Navy enterprise solution is cost effective.

Naval Audit Service comment on the Commander, Navy Installations Command response to Recommendation 1. We do not disagree with the Navy strategy to set an overall goal of capturing 95 percent utility consumption with advanced meters. However, we consider each meter as a separate project and each meter should be cost effective on its own, not in combination with other meters. The individual cost of each meter installation should be compared against the cost of the energy consumed through that meter to be sure we are placing meters where they need to be and not where they do not make sense. The location of a meter and the number of meters being installed affect the cost to meter a building. In addition, the utility costs can vary by location. Therefore, we believe it is imperative to perform the individual cost analyses.

We do not believe the cost analyses would be burdensome. They can be straightforward computations or comparisons of the estimated annual commodity costs versus the costs of the meter installations. The Navy can

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establish parameters to make the comparisons. For example, Department of Defense Instruction 4170.11, “Installation Energy Management” of 11 December 2009 states, “for existing facilities, cost effectiveness can generally be achieved where the cost of the meter, installation, and ongoing maintenance, data collection, and data management does not exceed 20 percent of the yearly cost of the utility being metered.” Calculating 20 percent of the yearly cost of the utility being metered on a selected facility is not difficult, and comparing that to the cost of the meter, installation, and ongoing maintenance cannot be categorized as time intensive analysis or impractical. This recommendation is considered undecided and is being elevated to Director, Navy Staff for comment.

Recommendation 2. Establish procedures to evaluate future metering projects to ensure they meet established criteria regarding cost effectiveness and practicality.

Commander, Navy Installations Command response to Recommendation 2.

Concur. Future Advanced Metering Infrastructure initiatives will continue to install meters to capture 95 percent of energy consumption and fall under the same macro cost analysis as above; again, conducting a time intensive meter-by-meter analysis is neither practical nor warranted under our integrated enterprise solution.

For future metering projects the same methodology will be employed: The building list for the installation will be reviewed with available consumption data from the standard meters currently in place. Engineering estimates will be used for facilities which are not metered. The consolidated list using both metered and engineering estimates will be assessed and a cut line will be set at 95 percent of energy consumption for that commodity. All facilities above that line will be included in the Advanced Metering Infrastructure project.

Naval Audit Service comment on the Commander, Navy Installations Command response to Recommendation 2. Although Commander, Navy Installations Command concurs, their response indicates that they “will continue to install meters to capture 95 percent of energy consumption and fall under the same macro cost analysis as above....” Their response does not meet the intent of our recommendation to evaluate future metering projects to be sure they are cost effective and practical. As we commented above, we believe a cost analysis must be done to ensure each metering application is cost effective and the analysis is both warranted and practical. This recommendation is considered undecided and is being elevated to Director, Navy Staff for comment.

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8. The Commander, Naval Installations Command did not concur with Recommendations 1 and 2; therefore, Recommendations 1 and 2 are considered undecided and are being elevated to the Director, Navy Staff for action. The Director, Navy Staff is required to provide comments on the undecided recommendations within 30 days; management may comment on other aspects of the report, if desired. Please provide all correspondence to the Assistant Auditor General for Assistant Auditor General for Installations and Environment Audits, Ron Booth, by e-mail at ronnie.booth@navy.mil, with a copy to the Director, Policy and Oversight, Vicki McAdams, by e-mail at vicki.mcadams@navy.mil. Please submit correspondence in electronic format (Microsoft Word or Adobe Acrobat file), and ensure that it is on letterhead and includes a scanned signature.

9. Any requests for this report under the Freedom of Information Act must be approved by the Auditor General of the Navy as required by reference (b). This audit report is also subject to followup in accordance with reference (b).

10. We appreciate the cooperation and courtesies extended to our auditors.



RON J. BOOTH
Assistant Auditor General
Installations and Environment Audits

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UNSECNAV
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ASSTSECNAV RDA
CNO (VCNO, DNS-33, N40, N41)
CMC (RFR, ACMC)
DON CIO
NAVINGEN (NAVIG-4)
AFAA/DO
CNIC
NAVFAC (IG2)

Status of Recommendations

Recommendations							
Finding ¹²	Rec. No.	Page No.	Subject	Status ¹³	Action Command	Target or Actual Completion Date	Interim Target Completion Date ¹⁴
1	1	14	Compute a cost analysis for the buildings where meters are planned but have not been purchased or installed to ensure the meters are cost effective.	U	Director, Navy Staff	10/24/11	
1	2	15	Establish procedures to evaluate future metering projects to ensure they meet established criteria regarding cost effectiveness and practicality..	U	Director, Navy Staff	10/24/11	

¹² / + = Indicates repeat finding.

¹³ / O = Recommendation is open with agreed-to corrective actions; C = Recommendation is closed with all action completed; U = Recommendation is undecided with resolution efforts in progress.

¹⁴ If applicable.

Scope and Methodology

Scope

We audited the following three projects awarded on 11 task orders under a multiple award construction contract for advanced metering infrastructure at Navy installations in Florida, Mississippi, and Texas. The current cost estimate for these projects is about \$29.129 million.¹⁵ The projects were originally shown in the March 2009 DoD Expenditure Plans as three projects estimated to cost \$36.8 million.

- **Project RM09-1444 (seven Task Orders: TO-0007 through-TO-0013)**
 - Advanced metering infrastructure at Naval facilities in Florida, \$16.908 million, Facilities, Sustainment, Restoration and Modernization Funds
 - Task Order # 0007, Naval Air Station Pensacola, FL, \$7.070 million
 - Task Order # 0008, Naval Air Station Jacksonville, FL, \$2.497 million
 - Task Order #0009, Naval Station Mayport, FL, \$1.891 million
 - Task Order #0010, Naval Air Station Key West, FL, \$2.152 million
 - Task Order # 0011, Naval Support Activity Panama City, FL, \$2.527 million
 - Task Order #0012, Naval Air Station Whiting Field, Milton, FL, \$0.725 million
 - Task Order #0013, Naval Support Activity Orlando, FL, \$0.048 million
- **Project RM09-1445 (two Task Orders: TO-0014 and TO-0015)**
 - Advanced metering infrastructure at Naval facilities in Texas, \$6.102 million, Facilities, Sustainment, Restoration and Modernization Funds
 - Task Order #0014, Naval Air Station Corpus Christi, TX, \$4.793 million
 - Task Order #0015, Naval Air Station Kingsville, TX, \$1.309 million
- **Project RM09-1446 (two Task Orders: TO-0016 and TO-0017)**
 - Advanced metering infrastructure at Naval facilities in Mississippi, \$6.120 million, Facilities, Sustainment, Restoration and Modernization Funds
 - Task Order #0016, Construction Battalion Center Gulfport, MS, \$3.981 million

¹⁵Numbers in the bullets that follow may not round to total due to rounding.

- Task Order #0017, Naval Air Station Meridian, MS, \$2.139 million

We reviewed transactions occurring from Fiscal Years 2008¹⁶ through 2010 (as of 31 March 2010). Conditions noted in this report existed during the period of our review from November 2009 until 6 May 2011. We performed on-site work at Commander, Navy Installations Command and Naval Facilities Engineering Command Headquarters, Washington, DC; Naval Facilities Engineering Command Southeast, and Naval Air Station Jacksonville, FL; Naval Station Mayport, FL; and Naval Facilities Engineering Command Engineering Service Center, Port Hueneme, CA. We reviewed data on the Recovery.gov Web site for the quarter ending 31 March 2011.

Methodology

The DoD Inspector General identified and provided the sample of projects to be audited from the Recovery Act DoD Expenditure Plans, 20 March 2009, using predictive analytics.

We determined whether the advanced metering infrastructure projects were included on the Federal Business Operations Web site and attempted to obtain posted information from the Web site.

We visited Naval Facilities Engineering Command Engineering Service Center in Port Hueneme and obtained copies of the latest Military Construction Project Data Forms (DD Forms 1391), and/or other applicable documentation, to determine the justification and scope of the projects. We interviewed Naval Facilities Engineering Command Engineering Service Center personnel who determined the preliminary advanced metering infrastructure requirements for Florida, Mississippi, and Texas, and obtained their supporting documentation.

We visited Naval Facilities Engineering Command Southeast, Naval Air Station Jacksonville and Naval Station Mayport, FL. We toured the buildings or locations where the advanced metering infrastructure is due for installation, observing whether it had been installed. We also analyzed documentation to evaluate the need for the projects.

While on-site in Jacksonville and Mayport, we interviewed responsible Naval Facilities Engineering Command Southeast, Naval Air Station Jacksonville, and Naval Station Mayport personnel to determine whether that documentation was developed in compliance with appropriate guidelines. We also evaluated documentation to determine the status of the advanced metering infrastructure projects.

¹⁶ The Fiscal Year in which the multiple award metering contract was awarded.

We obtained contract solicitation, award, and funding documentation from Naval Facilities Engineering Command Engineering Service Center personnel and reviewed it for compliance with the Recovery Act guidance.

We obtained data from the Recovery.gov Web site to verify whether the recipient of the funds was providing required information.

We obtained data from the Comprehensive Utility Billing and Control System, which shows historical meter information, and compared the data with the request for proposal for advanced metering infrastructure.

We did not review internal controls because that was not within the limited scope of our objectives.

We conducted this performance audit 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We did not identify any Naval Audit Service, DoD Inspector General, or Government Accountability Office reports that related to our specific objectives. However, the DoD Inspector General and the Government Accountability Office are currently conducting audits related to the Recovery Act.

Enclosure (3):

Management Response from Commander, Naval Installations Command



DEPARTMENT OF THE NAVY
COMMANDER, NAVY INSTALLATIONS COMMAND
716 SICARD STREET, SE, SUITE 1000
WASHINGTON NAVY YARD, DC 20374-5140

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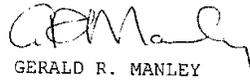
From: Inspector General, Navy Installations Command
To: Assistant Auditor General, Installations and
Environmental Audits, Naval Audit Service

Subj: DRAFT NAVAUDSVC REPORT AMERICAN RECOVERY AND REINVESTMENT
ACT OF 2009 - ADVANCED METERING INFRASTRUCTURE PROJECTS
AT NAVY INSTALLATIONS IN FLORIDA, MISSISSIPPI AND TEXAS
(N2009-NIA000-0143.005)

Ref: (a) NAVAUDSVC memo N2009- NIA000-0143.005 of 25 Jul 11

Encl: (1) CNIC Response to the Subject Draft Report

1. Per reference (a), enclosure (1) is provided.
2. The technical point of contact is CDR Tabitha Pierzchala,
CNIC N4, at commercial (202) 433-4710 or email
tabitha.pierzchala@navy.mil. The Audit Liaison is Brenna
Folkman, CNIC OIG, at commercial (202) 433-3972 or email
brenna.folkman@navy.mil.


GERALD R. MANLEY

Copy to:
CNIC N4

Freedom of
Information Act
(b)(6)

Commander, Navy Installations Command Response to NAVAUDSVC
Report American Recovery and Reinvestment Act of 2009 -
Advanced Metering Infrastructure Projects at
Navy Installations in Florida, Mississippi,
and Texas (Draft Audit Report
N2009- NIA000-0143.005)

We reviewed the draft audit report and do not concur with the findings and recommendations contained therein that relate to Commander, Navy Installations Command (CNIC). Below are our responses to the recommendations addressed to CNIC.

Recommendation 1: Compute a cost analysis for the buildings where meters are planned but have not been purchased or installed to ensure the meters are cost effective.

Management Response: Non-concur. The decision on where to install Advanced Meters in order to meet legislative mandates was made using a programmatic approach, not a building cost analysis approach. Navy leadership determined that metering 95% of energy consumption met the intent of the legislation, both maximizing the benefits of Advanced Metering Infrastructure (AMI) and controlling cost by not metering buildings with negligible consumption. Future AMI initiatives will continue to install meters to capture 95% of energy consumption, rather than conducting a time intensive building by building cost analysis.

From a programmatic perspective, by metering approximately 25% of the Navy buildings, we capture the targeted 95% consumption. In accordance with Department of Energy's February 2006 EPAct-2005 guidance, we used a 2% payback over ten years for enterprise-wide cost analysis. At an enterprise cost of less than \$250M, we need an average annual payback of \$25M to achieve the ten-year payback goal. The minimum annual utilities cost to meet a ten-year payback is \$1,250M. Actual baseline annual utilities cost for commodities being metered exceeds this threshold; therefore, our enterprise-wide analysis is that the Navy enterprise solution is cost effective. Again, doing a meter-by-meter cost analysis is neither practical nor warranted as we are implementing an integrated enterprise solution.

The Commander Navy Region South East (CNRSE) AMI contract is installing 2941 electrical meters. There are approximately 14,700 facilities in CNRSE. The Navy is installing meters on approximately 20% of the facilities in CNRSE in order to capture 95% of electric consumption.

Enclosure (1)

The ability of AMI to provide data that is analyzed to provide actionable information is critical to effective management of all utilities. Modern AMI meters provide a wealth of information, including overall usage, time of use, power quality and distribution fault information. These meters will help enable improved utility allocation, clean and efficient production and distribution of utilities, and management of facility energy usage.

All future energy projects have stringent requirements for Measurement and Verification (M&V) to reliably determine actual savings created within an individual facility by an energy project. This includes having an energy baseline to compare to. Full implementation of AMI is critical to future M&V efforts.

If we view AMI only for the specific purpose of satisfying Environmental Protection Agency (EPA) 2005 and Energy Independence and Security Act (EISA) 2007 requirements, we will shortchange the task of intelligently managing energy and facilities.

Recommendation 2: Establish procedures to evaluate future metering projects to ensure they meet established criteria regarding cost effectiveness and practicality.

Management Response: Concur. Future AMI initiatives will continue to install meters to capture 95% of energy consumption and fall under the same macro cost analysis as above; again, conducting a time intensive meter-by-meter analysis is neither practical nor warranted under our integrated enterprise solution.

For future metering projects the same methodology will be employed: The building list for the installation will be reviewed with available consumption data from the standard meters currently in place. Engineering estimates will be used for facilities which are not metered. The consolidated list using both metered and engineering estimates will be assessed and a cut line will be set at 95% of energy consumption for that commodity. All facilities above that line will be included in the AMI project.

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