Department of Defense

INSTRUCTION

NUMBER 4170.11
November 22, 2005

USD(AT&L)

SUBJECT: Installation Energy Management

References: (a) DoD Instruction 4170.11, same subject as above, October 13, 2004 (hereby canceled)
(b) Public Law 109-58, Energy Policy Act of 2005, August 8, 2005
(c) DoD Directive 4140.25, "DoD Management Policy for Energy Commodities and Related Services," April 12, 2004
(d) Executive Order 13123, "Greening the Government through Efficient Energy Management," June 3, 1999
(e) through (t), see Enclosure 1

1. PURPOSE

This Instruction:

1.1. Reissues reference (a) according to the guidance in reference (b).

1.2. Implements reference (c) to provide guidance, assign responsibilities, and prescribe procedures for DoD installation energy management.

2. APPLICABILITY AND SCOPE

This Instruction:

2.1. Applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Defense Agencies, the DoD Field Activities, and all other organizational entities in the Department of Defense (hereafter referred to collectively as the "DoD Components"). The term "Military Services," as used herein, refers to the Army, the Navy, the Air Force, and the Marine Corps.

2.2. Pertains to all phases of administration, planning, programming, budgeting, operations, maintenance, training, and materiel acquisition activities that affect the supply, reliability and consumption of facilities energy.

3. POLICY

It is DoD policy, according to reference (c), that:

3.1. The DoD utility infrastructure is secure, safe, reliable and efficient.

3.2. Utility commodities are procured effectively and efficiently.

3.3. The DoD Components shall maximize energy and water conservation efforts.

3.4. The Department of Defense invests in cost-effective renewable energy sources, energy efficient facility designs, and regionally consolidates Defense requirements to aggregate bargaining power to get better energy deals.

4. RESPONSIBILITIES

4.1. The Principal Deputy Under Secretary of Defense for Acquisition, Technology and Logistics shall:

4.1.1. Ensure that the Department meets the goals of the Energy Policy Act of 2005 (reference (b)) and Executive Order (E.O.) 13123 (reference (d)).

4.1.2. Represent the Department on the Interagency Energy Policy Committee.

4.2. The Deputy Under Secretary of Defense for Installations and Environment (DUSD(I&E)) shall:

4.2.1. Implement policies and provide guidance to the DoD Components for managing facility energy resources in the Department of Defense and serve as the primary adviser for facility energy policy matters according to reference (a).

4.2.2. Provide for energy conservation and resource management, including the following:

4.2.2.1. Goals. Establish Departmental energy conservation program goals and develop procedures to measure energy conservation accomplishments by the DoD Components.

4.2.2.2. Annual Guidance. Provide annual programming guidance and oversight for the achievement of DoD energy goals and objectives.

4.2.2.3. Investment. Establish criteria, program and budget for, and monitor the execution of the Military Construction (MILCON)- Energy Conservation Investment Program (ECIP).

4.2.2.4. Reporting. Develop policy guidance, consistent with current legislation and executive orders, to report energy use and results of energy conservation accomplishments against Federal energy conservation and management goals.

4.3. The Director of Installations, Requirements and Management (DUSD(I&E)IRM) shall:

4.3.1. Represent the Department on the Interagency Energy Management Task Force (IEMTF) which is the technical support to the Interagency Energy Policy Committee for meeting the goals of references (c) and (d).

4.4. The Heads of the DoD Components shall:

4.4.1. General

4.4.1.1. Implementation. Implement defense installation energy policies in section 3., above, according to the procedures described in section 5., below.

4.4.1.2. Representation. Designate and assign qualified individuals to represent the DoD Component in national, international, Government, or industry organizations deliberating installation energy policy matters.

4.4.1.3. Resources. Provide management and resources for the execution of installation energy policies and procedures outlined herein.

4.4.2. Energy Conservation and Resource Management

4.4.2.1. Program. Establish and execute an energy program management structure to provide for the following:

4.4.2.1.1. Funding. Program and budget funds sufficient to meet energy conservation goals.

4.4.2.1.2. Measure Progress. Implement DoD-established policies and procedures to measure progress in meeting energy conservation goals.

4.4.2.1.3. Reporting. Report energy use and progress in meeting energy conservation goals and program costs. Report ECIP program execution.

4.4.2.1.4. Efficiency. Develop programs that shall result in facilities that are designed, constructed, operated, and maintained to achieve optimum performance and maximize energy efficiency according to sustainable design principles.

4.4.2.1.5. Staffing. Ensure facilities are provided with trained energy program managers and operators and maintenance personnel for heating, power generating, water, ventilating, and air-conditioning plants and systems. Conduct training programs, as required, to ensure energy efficient operation of facilities.

4.4.2.1.6. Leased Facilities. Ensure facility leases for Government-owned, contractor-operated facilities contain the requirement to implement sound energy conservation procedures; allow contract modification to accommodate energy efficiency improvements; and measure and report energy use and the resulting savings.

4.4.2.2. Energy Awareness. Develop internal energy awareness programs to provide the following:

4.4.2.2.1. Publicity. Publicize energy conservation goals.

4.4.2.1.2. Shared Information. Disseminate information on energy matters and energy conservation techniques.

4.4.2.1.3. Command Attention. Emphasize energy conservation at all command levels and relate energy conservation to operational readiness.

4.4.2.1.4. Incentives. Promote energy efficiency awards and recognition.

4.5. The Director, Defense Logistics Agency (DLA), shall provide the following:

4.5.1. Management. Perform energy management responsibilities assigned according to reference (c).

4.5.2. Reporting. Utilize the DoD energy database assigned under DoD Directive 5126.46 (reference (e)), in addition to other required information provided by the DoD Components, to compile Component data and prepare the Department of Defense's annual energy management report described in subparagraph 5.1.1.

4.5.3. Energy Markets. Monitor the utility markets to determine existing or potential adverse conditions.

5. PROCEDURES

5.1. Reporting. The following reporting mechanisms shall be used to track energy conservation measures, investments, and performance against established goals.

5.1.1. Annual Energy Management Report and Implementation Plan. The Department of Energy (DoE) Federal Energy Management Program, working with Office of Management and Budget, consolidated the separate energy management data and reports required by the National Energy Conservation Policy Act (reference (f)) as amended by the Energy Policy Act of 1992 (reference (g)) and references (c) and (b). The National Defense Authorization Act for FY 2002

(reference (h)) requires the Department of Defense to also submit reports required by reference (b) to the congressional defense committees. The Annual Energy Management Report is the primary vehicle in which the Department tracks and measures its performance and energy efficiency improvement. The format for the report is prescribed annually by DoE and contains a narrative section, tables, a data report spreadsheet (quantitative data on consumption and costs), implementation plan and a scorecard.

5.1.2. Defense Utility Energy Reporting System (DUERS). DUERS is the Department of Defense's energy data collection and reporting system that generates reports which are provided to the different levels (Major commands, regions, and installations) within their organization on a recurring frequency to evaluate performance and trends against established goals.

5.1.3. ECIP. ECIP is an OSD-centrally managed, project-oriented, Defense-wide MILCON account which is programmed annually and represents the only direct DoD investment in conservation. The program requires congressional notification prior to project execution and periodic update of execution status. Components with active projects are required to submit monthly status updates to DUSD(I&E).

5.2. Implementation Strategies. It is the Department of Defense's philosophy to give the DoD Components the flexibility of managing their own energy programs to meet goals. The primary objectives are to improve energy efficiency and eliminate energy waste while maintaining reliable utility service.

5.2.1. Awareness campaign. Energy awareness programs publicize energy conservation goals, disseminate information on energy matters and energy conservation techniques, and emphasize energy conservation at all command levels and relate energy conservation to operational readiness.

5.2.1.1. Training and Education. Awareness and training programs are important to the Department of Defense for achieving and sustaining energy-efficient operations at the installation level. DoD personnel shall be trained through either commercially available or in-house-generated technical courses, seminars, conferences, software, videos, and certifications. The DoD Components shall increase awareness and publicize program goals, tools, and progress at different organizational levels through web sites, conferences, e-mails, displays, reports, newsletters, handbooks, and guidance.

5.2.1.2. Recognition. Energy conservation awards shall be presented to individuals, organizations, and installations in recognition of their energy-savings and water conservation efforts. In addition to recognition, these awards provide motivation for continued energy-reduction achievements. The DoD Components shall establish and/or maintain their individual awards programs, and incorporate on-the-spot awards and incentive awards to recognize exceptional performance and participation in the energy management program. Components are encouraged to participate in the DoE's Federal Energy and Water Management Awards Program. This program recognizes organizations, small groups, and individuals for outstanding achievements in several energy-related categories within the Federal sector. Categories include energy management, renewable energy, water conservation, Energy Saving Performance

Contracts (ESPC), and beneficial landscaping. Each DoD Component may also recognize one outstanding individual for overall contribution to the program. In addition to DoE and Service energy award programs, the White House recognizes Leadership in Federal Energy Management with Presidential Awards.

5.2.1.3. Showcase Facilities. Showcase facilities demonstrate promising best commercial practices and the use of innovative techniques to improve energy and water efficiency. The Department of Defense shall emphasize the benefit of these facilities, with a target of each Service developing at least one showcase facility for the federally sponsored program (www.eere.energy.gov/femp/prodtech/fed_showcase.html) per year.

5.2.2. Energy and Water Efficiency Investment.

5.2.2.1. Capital Investment.

5.2.2.1.1. Project Development.

5.2.2.1.1.1. Life-Cycle Cost Analysis. DoD facilities shall continue to utilize life-cycle cost analysis in making decisions about their investment in products, services, construction, and other projects to lower the Federal Government's costs and to reduce energy and water consumption. All projects with 10 year or less simple payback that fit within financial constraints shall be implemented. The DoD Components shall consider the life-cycle-costs of combining projects, and encourage aggregating of energy efficiency projects with renewable energy projects, where active solar technologies are appropriate. The use of passive solar design shall be required when cost-effective over the life of the project. Sustainable development projects shall continue to use life-cycle costing methodology and should follow the Whole Building Design Guide (reference (i)).

5.2.2.1.1.2. Facility Energy Audits. Energy audits evaluate current energy usage and assist installations in determining the best locations to incorporate energy savings measures. Reference (b) requires Federal Agencies to audit approximately 10 percent of their facilities each year. Since auditing 10 percent of DoD facilities each year may be cost prohibitive, the DoD Components are encouraged to use either appropriated funding or alternative financing through Utility Energy Savings Contracts (UESC) and ESPC projects to conduct their energy audits. In addition to facility audits, software such as Renewable and Energy Efficiency Planning and the Federal Energy Decision Screening system may be utilized to assist this process by determining the investment required to meet energy reduction goals.

5.2.2.1.1.3. Sustainable Building Design. Sustainability initiatives require an integrated design approach to the life-cycle of buildings and infrastructure. The concepts of sustainable development as applied to DoD installations shall continue to be incorporated into the master planning process of each of the Services. MILCON and facility repair and/or sustainment projects shall include an energy analysis to show compliance with 10 CFR 434 (reference (j)), relevant E.O.s, and other Federal energy conservation requirements. All new facility construction and major renovations shall use current American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) standards according to Unified Facilities Criteria (UFC 3-400-01), Design: Energy Conservation, (reference (k)) for design

criteria and follow life-cycle cost analysis for sustainable development principles. Renewable energy systems may be considered when cost effective through a life cycle cost analysis. The DoD Components shall strive to obtain U.S. Green Building Council's Leadership in Energy and Environmental Design level of performance or equivalent. The DoD Components shall document sustainable development costs on DD Form 1391, "Military Construction Project Data," and are encouraged to approach land use planning and urban design in a holistic manner and integrate it with energy planning. Additional information on "sustainable design" is found in reference (i). This intuitive, internet-based tool (located at www.wbdg.org) serves as a portal to the design principles and other resources needed to construct cost-effective, sustainable buildings.

5.2.2.1.2. Project Execution. The DoD Components are encouraged to include cogeneration systems, fuel switching, lighting efficiency upgrades, waste heat usage, and thermal storage units in new construction and/or retrofit projects when cost-effective. The DoD Components are encouraged to incorporate energy saving technologies such as efficient thermal storage systems, chillers, boilers, lights, motors, Energy Management Control Systems (EMCS), ground source heat pumps, and water reducing devices.

5.2.2.1.2.1. Operation and Maintenance (O&M). The DoD Components shall insure that the energy efficiency measures are incorporated into repair and minor construction projects using available O&M funding. The DoD Components shall also ensure that sufficient O&M funding is available to support other projects using alternative financing vehicles such as UESC and ESPC contracts.

5.2.2.1.2.2. MILCON. Congress appropriates funding for the ECIP to execute projects that save energy or reduce energy costs. Funds shall be allocated on a fair share basis based on the DoD Component's previous year reported facility energy use and factoring in the obligation rate for the last 5 years. This approach allows the DoD Components to manage the program with a degree of funding certainty and encourages timely execution. The DoD Components shall strive to obligate 100 percent of the ECIP funds provided by the end of third quarter in which the funds were issued. At the end of the third quarter, any unobligated funding at that point may, at the discretion of the Office of the DUSD(I&E)(IRM), be withdrawn and redistributed to another DoD Component poised to obligate against a valid design-complete project, with priority given to renewable energy projects. MILCON funding should only be applied to projects that directly produce energy savings and/or cost reduction, however the Office of the DUSD(I&E)(IRM) shall have the discretion to directly apply funding for other uses such as studies and assessments if deemed appropriate. Realized saving should not only be auditable, but initial submission on DD Form 1391 of proposed projects shall identify the method to be used for savings verification. Project lists shall include project title, installation, Savings to Investment Ratio (SIR), and payback, as well as the estimated project cost and annual energy savings in British Thermal Units and dollars. At the discretion of the DoD Component, up to 10 percent of its annual ECIP target budget may be programmed against renewable energy applications that do not necessarily meet the SIR and payback criteria in order to expand use of renewable energy applications and to meet the goals of references (c) and (b). Detailed ECIP program guidance can be found in the Office of the Assistant Secretary of Defense for Logistics Memorandum (reference (l)).

5.2.2.1.2.3. Alternate Financing Mechanisms. Partnerships with the private sector through alternative financing (UESC and ESPC) are a crucial tool for financing energy efficiency measures and allow installations to improve their infrastructure. These contracts shall include infrastructure upgrades (e.g. new cogeneration, renewable systems and ancillary structures) and new equipment (e.g. HVAC, lighting, motors, fixtures and controls) to help the installations reduce energy and water consumption. Increasingly, projects with higher SIR should be first pursued using UESC and ESPC before consideration for ECIP, since these projects shall typically be more attractive to the commercial sector. Any funds paid by the Component in the agreement pursuant to such a financed energy project shall be from funds made available through the same project's recurring or nonrecurring energy or water related cost savings. Payments may be made only when the project is determined to be life cycle cost effective and when actual savings generated from the financed project, exceed the payment amount in the same year. Non-recurring savings are defined as ancillary savings such as utility rebates and avoided costs from repairs, replacements, retrofits, or capital improvements that have been budgeted for but are no longer required because of the financed energy project. Recurring savings are defined as reductions in energy, water, or wastewater consumption; maintenance; or operations costs because of the financed energy project. The basis for all cost savings used to pay for these projects must be fully documented in the contract file. Components shall track all estimated and actual costs, estimated and verified savings, interest rates, measurement and verification (M&V) information, and mark-ups, as well as any changes to project scope that may affect costs and savings. Components shall make this information available on a central web-based application. Each Component entering into a financed project agreement shall ensure that a qualified project facilitator is designated and assigned, that aggregate annual costs do not exceed the savings, and that contracts are only awarded and administered by teams with appropriately documented experience and training. Activities not possessing the prerequisite expertise may use the contracting centers of the Air Force, Navy, Army, and Defense Energy Support Center according to Inter Service Support Agreements (ISSA) or Memorandums of Understanding (MOU). Contracting agencies should ensure that multi-year indefinite delivery/indefinite quantity contracts are re-competed at regular intervals. Each Component contracting center that awards or administers ESPC contracts or task orders shall conduct internal audits at intervals no greater than every 5 years to ensure project performance and guaranteed savings. Components may issue more detailed implementing guidance.

5.2.2.2. EnergyStar® and Other Energy-Efficient Products. The DoD Components shall select energy efficient standby power devices, EnergyStar®, Federal Energy Management Program (FEMP)-designated energy efficient products, and other energy-efficient products when acquiring energy-consuming products when life-cycle cost-effective. Guidance generated by the DoE, the General Services Administration (GSA), and the DLA are continuously being incorporated into the sustainable design and development of new and renovated facilities. Information technology hardware, computers and copying equipment shall be acquired under the Energy Star Program using GSA Schedules, Government-wide contracts, or Service Contracts. Computer equipment should be turned off at night or when not in use. The DLA distribution centers shall serve as the focal point of the Department of Defense's program to procure energy and water efficient products. DLA and GSA product catalogs shall be widely used, as well as the Construction Criteria Base (available on CD-ROM and the Internet). Procuring agents, including users of government credit cards, shall procure EnergyStar® products and other products in the top 25 percent of energy efficiency.

5.2.2.3. EnergyStar® Buildings. The DoD Components shall encourage participation in this program, developed by the U.S. Environmental Protection Agency, which promotes energy efficiency in buildings and requires measured building data and a comparison with archetypes in various regions of the country. EnergyStar® Building criteria are based on a five-stage implementation strategy consisting of lighting upgrades, building tune-up, load reductions, fan system upgrades, and heating and cooling system upgrades.

5.2.3. Energy Security/Flexibility. The DoD Components shall take necessary steps to ensure the security of energy and water resources.

5.2.3.1. Vulnerability Assessments. Installations shall perform periodic evaluation of the vulnerability of basic mission requirements to energy disruptions and assess the risk of such disruptions, implement remedial actions to remove unacceptable energy security risks and investigate off-base utility distribution and energy supply systems.

5.2.3.2. Critical Asset Assurance Program. Subject to findings of vulnerability assessments, critical nodes of assessed systems with unacceptable risk implications to mission achievement shall be nominated for inclusion in the Critical Asset Assurance Program under DoD Directive 5160.54 (reference (m)).

5.2.3.3. Renewable Energy. The Department of Defense is committed to creating opportunities to install renewable energy technologies and purchase electricity generated from renewable sources when life cycle cost-effective to enhance energy flexibility. Passive solar designs, such as building orientation and window placement and sizing, shall be implemented in a variety of building types and new facility construction.

5.2.3.3.1. Purchases. The Military Services shall purchase renewable energy generated from solar, wind, geothermal, and biomass sources when cost-effective and any premium is considered fair and reasonable. The DoD Components are encouraged to aggregate regionally when considering renewable energy purchases to leverage the Departments buying power and produce economy of scale savings.

5.2.3.3.2. Generation. Exploration in efficiency opportunities in renewable energy technologies such as wind, biomass, geothermal, ground source heat pumps and photovoltaics shall be pursued when life cycle cost effective. Self-generated power may be coupled with ground-source heat pumps, solar water heating systems and photovoltaic arrays to generate electricity at isolated locations, such as range targets, airfield landing strip lighting and remote water pumping stations.

5.2.3.4. Distributed Energy Generation. Distributed Energy Resources shall be used for on-site generation using micro-turbines, fuel cells, combined heat and power, and renewable technologies when determined to be life cycle cost effective or to provide flexibility and security to mitigate unacceptable risk. In most cases, larger scale, off-grid, electrical generation systems should be privately owned and operated. Off-grid generation, owned and operated by the DoD Components may make sense for mission criticality and remote sites when it is life-cycle cost-effective. In these cases, innovative energy generation technologies such as

solar lighting, large photovoltaic arrays, wind turbine generators, micro-turbines and fuel cell demonstration projects shall be utilized.

5.2.3.5. Procurement Strategy. Reference (b) requires Agencies to take advantage of competitive opportunities in the electricity and natural gas markets to reduce costs and enhance services. The DoD Components are encouraged to partner with Defense Energy Support Center (DESC) to identify and develop risk mitigation strategies appropriate for the risk preference profile of the end-user and are encouraged to aggregate demand across facilities or agencies to maximize the economic advantage.

5.2.3.5.1. Electricity. The DoD Components are encouraged to partner with DESC and aggregate regional electricity requirements (including renewable energy) to competitively procure electricity, and ancillary and incidental services needed to meet the identified requirements. Award determinations shall be based on best value compared to the applicable utility tariff available under a Utility Services Contract.

5.2.3.5.2. Direct Supply Natural Gas (DSNG) Program (DSNGP). The Department of Defense's policy is to competitively acquire DSNG under the DSNGP, managed by DESC, when cost effective and the DSNG has the same degree of supply reliability as other practical alternative energy sources. The DESC and the DoD Components may mutually agree to exclude an installation from a DSNG contract when:

5.2.3.5.2.1. An award is uneconomical.

5.2.3.5.2.2. The local distribution company (LDC) does not provide transportation from the citygate to the end use customer.

5.2.3.5.2.3. If ongoing or pending legal or regulatory action adversely impacts participation in the program.

5.2.3.5.2.4. It is impacted by base realignment and closure actions.

5.2.3.5.2.5. Existing contractual arrangements with the LDC or with existing multi-year DSNG suppliers offer better prices or have termination liabilities exceeding DESC direct supply contract cost benefits, or

5.2.3.5.2.6. Loss of utility-sponsored demand side management program benefits is greater than the potential savings available through the DESC DSNG program. The DoD Components shall enter into and maintain all necessary LDC transportation agreements to support delivery to the burnertip and for ensuring that sufficient funding is available for payment. The DoD Components shall consult with DESC to ensure that the DSNG and LDC contracts are synchronized.

5.2.4. Conservation Measures.

5.2.4.1. EMCS. The DoD Components are encouraged to apply EMCS or other energy management technology on all new and existing system expansion applications subject to funding availability and cost effectiveness. The DoD Components shall ensure that installed systems are provided with the necessary O&M support to maintain efficiency and resultant savings. EMCS implementation using shared energy savings contracts, which provide continuous O&M through the contract term, is an option to assure adequate O&M support.

5.2.4.2. Metering. Application of meters and/or sub meters is required for all appropriate facilities. Appropriate facilities are defined as those for which the Component has determined metering would be cost effective and practical as a management enhancement tool to identify energy cost savings attributed to conservation projects, energy systems maintenance activities, energy load management, command leadership or other specific, discrete measures implemented during the year. Usage shall be determined through engineering estimates only when metering proves to be cost prohibitive and shall be reported through DUERs. By 2012, electricity, natural gas, and water shall be metered on appropriate facilities; steam will be metered at steam plants. Annually, installations should strive to install meters in at least 15 percent of facilities that are in noncompliance with this policy. Components should document their findings that support a determination that a given facility is not an appropriate facility to meter, and accordingly, exempt from this guidance. Each Component should establish policy and specific criteria for installations to establish a metering program. Each policy should address the process to be used for the Service's approval of exemptions. Final approval should reside at the Component Headquarters level. The DoD Energy Manager's Handbook, reference (n) is available to assist in the determination of cost effectiveness and practicality. 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% of the yearly cost of the utility being metered. Digital meters with interval and remote reading capabilities are required when utility costs exceed the DoD Energy Manager's Handbook guidelines. Meters with interval and remote reading capabilities are required on all new construction and utilities system renovation projects exceeding $200K. On a case by case basis, Components may install simpler, locally read meters if it is determined that advanced meters are not practical. Safety switches will be required on all new electrical metering systems in order to facilitate meter replacement and maintenance. Metering data will be incorporated into existing energy tracking systems and made available to facility and installation energy managers. While meters themselves do not constitute a direct energy conservation measure, it is expected that the management of data collected through metering will lead to energy and cost savings. Meter data should be collected, assimilated, interpreted, and made available to facility and energy program managers. This information should serve as the foundation to establishing facility energy efficiency relative to other facilities in the building inventory. It should also serve to identify and confirm opportunities for energy reduction or increased energy efficiency through improved operational procedures, best practices, or energy conservation and retrofit projects.

5.2.4.3. Water Conservation/Best Management Practices (BMP). Reference (b) requires water efficiency improvement goals for Federal Agencies, suggesting specific strategies that include development of a water management plan and adoption of at least four of the Federal Energy Management Program Water Efficiency Improvement BMP. The BMPs range from

system-related (boiler and/or steam, cooling tower, faucets and showerheads, etc.) to public information and education programs. Installations shall incorporate water management plans in their existing O&M plans and shall focus on dissemination of information to all levels to educate personnel on water conservation practices. Audits shall be conducted to identify the best opportunities and where economical, installations shall initiate water conservation projects using O&M, ECIP, UESC or ESPC. The DoD Components shall continue to concentrate on water conservation methods such as public awareness programs, early leak detection and repair, and installation of low-flow water-efficient fixtures in housing and administration buildings consisting of electronic flush sensors, electronic sensor control valves for hand wash lavatories, and waterless urinals.

5.2.4.4. Electrical Load Reduction Measures. Because of the Presidential Memorandum (reference (o)), DoD installations' emergency load reduction plans were updated. The DoD Components shall continue to identify load-shedding techniques to cut electricity consumption in buildings and facilities during power emergencies. Examples of these techniques include EMCS, sub-metering, cogeneration, thermal storage systems, duty cycling of air conditioning in military family housing by EMCS, alternative energy sources for air-conditioning, and turning off unneeded lights with motion sensors and separate lighting circuits. In addition, the Department continues to focus its energy conservation program on measures that reduce electric consumption.

5.2.5. Modernize Infrastructure.

5.2.5.1. Establish and Maintain C-2 level for Utility Systems that are not Privatized. Under current Defense Planning Guidance, the DoD Components are directed to achieve a 67-year recapitalization and sustainment rate in which the readiness of existing facilities is restored to a C-2 status, on average, by the end of FY 2008. The Military Services shall program sufficient funds to accomplish this goal.

5.2.5.2. Utilities Privatization. Historically, military installations have been unable to maintain reliable utility systems due to inadequate funding and competing installation management priorities. Utilities privatization is the preferred method for modernizing and recapitalizing DoD utility systems. By allowing military installations to focus on core defense missions and functions instead of the responsibilities of utility ownership, this program shall transform how installations obtain utility services. Activities will benefit from innovative industry practices, the reliability of systems kept at current industry standards and private sector financing and efficiencies. Following the Deputy Secretary of Defense guidance issued on October 9, 2002 (reference (p)), and supplemental guidance issued by the Under Secretary for Acquisition, Technology and Logistics (reference (q)), the DoD Components shall complete privatization decisions on all electric, water, wastewater and natural gas systems. Except where the Secretary of the Military Department has certified that the systems are exempt due to security reasons or privatization is uneconomical, the Military Services shall privatize those types of utility systems at every Active and Reserve Component installation, within the United States and overseas, that is not designated for closure under a base closure law. Since upgrades are normally completed within 5 years after a privatization award is made, most privatized systems should reach a readiness level of at least C-2 prior to 2010. Services must program sufficient funds to support privatization contracts.

5.3. General Guidance. The Department of Defense occupies over 620,000 buildings and structures worth $600 billion comprising more than 400 installations on 25 million acres in the United States and spends over $2.5 billion per year on facility energy consumption. The Department of Defense is the largest single energy consumer in the Nation representing 78 percent of the Federal sector, and a significant (and sometimes the largest) local energy user in many metropolitan areas. Conserving energy and investing in energy reduction measures makes good business sense and allows limited resources to be applied to readiness and modernization. The Department shall make great strides in energy efficiency and consumption reduction in order to meet the Departmental vision of providing reliable and cost effective utility services to the warfighter. Dramatic fluctuations in the cost of energy significantly impact already constrained operating budgets, providing even greater incentives to conserve and seek ways to lower energy consumption.

5.3.1. Governing Statutes and Executive Orders. It is DoD policy to satisfy all goals and policies established by references (c), (d), and (g), and 42 U.S.C. 8251 ((reference (r)). References (c) and (d) require a reduction in emissions and improvement in energy management, and task the Department of Defense to provide leadership to promote energy efficiency, water conservation, the use of renewable energy, and to help foster markets for emerging technologies. The E.O. goals specifically address greenhouse gas emissions, energy efficiency, renewable energy, petroleum use in facilities, source energy consumption, and water usage. The energy reduction goals of reference (d) were enacted into law for the Department of Defense in reference (h), and then superseded by the goals in reference (c). E.O. 13221 (reference (s)) directs Federal Agencies to purchase products that use no more than one watt in their standby mode. Additionally, reference (m) directed Federal Agencies to conserve energy in Federal facilities consistent with the effective discharge of public responsibilities. It is DoD policy to implement all goals and reporting requirements, and shall do so as described in subparagraph 5.3.4.2 below.

5.3.2. Policy Development and Implementation. DoD policy initiatives shall be coordinated through an OSD-led inter-service working group forum.

5.3.3. Management and Administration. Energy management on DoD installations focuses on improving efficiency, eliminating waste, and enhancing the quality of life while meeting mission requirements. Accomplishing these objectives shall reduce costs and ensure that the program goals are achieved. The DoD energy program for facilities is decentralized with the DoD Component headquarters providing guidance and funding, and regional commands or military installation managing site-specific energy and water conservation programs. Funding of energy projects is multi-faceted, using a combination of Federal appropriations and private funds. Installations are responsible for maintaining awareness, developing and implementing energy projects, ensuring that new construction uses sustainable design principles, and meeting energy goals. The energy management infrastructure is composed of the following:

5.3.3.1. Agency Energy Team. The IPB has been designated as the DoD Agency Energy Team. The membership of the IPB contains the cross-section of DoD senior leadership necessary to make decisions needed to remove obstacles hindering compliance with the energy program. The utilities privatization working group and the energy working group provide

programmatic logistical and technical support to the IPB. Members of these working groups shall include representatives from the Army, the Navy, the Air Force, the Office of the DUSD(I&E)(IRM), and energy program managers for the Defense Agencies. Additionally, Integrated Product Teams may be created as required to work specific issues with appropriate participation from the DoD Components.

5.3.3.2. Interagency Working Groups. Representatives from the DoD Components shall be assigned to participate in interagency working groups in support of the IEMTF as required. Established interagency working group include, but are not limited to, renewable energy, sustainable design, ESPC, and energy efficient products.

5.3.4. Goals.

5.3.4.1. General. The Department of Defense shall strive to modernize infrastructure, increase utility and energy conservation and demand reduction, and improve energy flexibility, thereby saving taxpayer dollars and reducing emissions that contribute to air pollution and global climate change.

5.3.4.2. Program Goals. Specific program goals that correspond with the most current legislation and executive orders shall be published through the Office of the DUSD (I&E) policy memorandums when required.

6. INFORMATION REQUIREMENTS

The Defense Utility Energy Reporting System (DUERS) referred to in subparagraph 5.1.2 has been assigned Report Control Symbol DD—AT&L (M) 1313. The reporting requirements referenced in subparagraph 5.1.3 have been assigned Report Control Symbol DD—AT&L (A) 1529. These reporting requirements have been assigned according to DoD 8910.1-M (reference (t)).

7. EFFECTIVE DATE

This Instruction is effective immediately.

Kenneth J. Krieg

Enclosures – 1
E1. References, continued

E1. ENCLOSURE 1

REFERENCES, continued

(e) DoD Directive 5126.46, "Defense Energy Information System (DEIS)," December 2, 1987
(f) Section 8251 of title 42, United States Code
(g) Section 6361 of title 42, United States Code
(h) Public Law 107-107, National Defense Authorization Act for Fiscal Year (FY) 2002, December 28, 2001
(i) Whole Building Design Guide[1]
(j) Section 434 of title 10 of the Code of Federal Regulations, current edition
(k) Unified Facilities Criteria (UFC 3-400-01), "Design: Energy Conservation," of 5 July 2002[2]
(l) Office of the Assistant Secretary of Defense for Logistics Memorandum, "Energy Conservation Investment Program Guidance," March 17, 1993
(m) DoD Directive 5160.54, "Critical Asset Assurance Program (CAAP)," January 20, 1998
(n) Department of Defense Energy Manager's Handbook of 25 August 2005[3]
(o) Presidential Memorandum, "Energy Conservation at Federal Facilities," May 3, 2001
(p) Deputy Secretary of Defense Memorandum, "Revised Guidance for the Utilities Privatization Program," October 9, 2002
(q) Under Secretary of Defense Memorandum, "Supplemental Guidance for the Utilities Privatization Program," November 2, 2005
(r) Section 8251 of title 42, United States Code
(s) Executive Order 13221, "Energy Efficient Standby Power Devices," July 31, 2001
(t) DoD 8910.1-M, "DoD Procedures for Management of Information Requirements," June 30, 1998

[1] The Whole Building Design Guide is a DoD-sponsored, web-based application that may be found at www.wbdg.org
[2] Unified Facility Criteria may be found at http://65.204.17.188//report/doc_ufc.html
[3] DoD Energy Manager's Handbook is available at http://www.acq.osd.mil/ie/irm/Energy/Energy.htm