



DEPARTMENT OF THE NAVY
COMMANDER NAVY REGION SOUTHEAST
BOX 102, NAVAL AIR STATION
JACKSONVILLE, FLORIDA 32212-0102

CNRSEINST 4101.1

N4
AUG 26 2009

COMMANDER, NAVY REGION SOUTHEAST INSTRUCTION 4101.1

Subj: NAVY REGION SOUTHEAST ENERGY MANAGEMENT PROGRAM

Ref: (a) Energy Policy Act (EPACT) 2005
(b) Executive Order 13423
(c) Energy Independence and Security Act 2007
(d) OPNAVINST 4100.5D
(e) Assistant Secretary of the Navy (ASN) for Installations and Environment memo of 14 Nov 2005
(f) Navy Energy Business Plan
(g) Navy Energy Website - <https://energy.navy.mil>
(h) Commander, Navy Region Southeast Energy Website - <https://cnicgateway.cnic.navy.mil/Regions/SET/N4/N44/Pages/Energy.aspx>

Encl: (1) Best Energy Management Practices
(2) Building Energy Monitor Program
(3) Energy Management Policy
(4) Water Management Policy
(5) Region Energy Awards Program
(6) FEMP Energy-Efficient, Water Conserving & Low Standby Power Product Types

1. Purpose. To establish Energy Management Program (EMP) policy, objectives, and responsibilities within Commander, Navy Region Southeast (CNRSE).

2. Background.

a. References (a) and (b) set energy, water, renewable energy, greenhouse gas emissions, and sustainability goals for Federal agencies. To some extent, the goals of reference (a) are superseded by reference (b).

b. Reference (b) further requires that contracts entered into after 24 January 07 for contractor operation of government owned facilities or vehicles require the contractor to comply with the provisions of the Executive Order with respect to such facilities or vehicles to the same extent as the agency would be

required to comply if the agency operated the facilities or vehicles. Similarly, all agreements, permits, leases, and licenses between an agency and a tenant or concessionaire entered into after 24 January 07 must require the tenant or concessionaire to take actions under their contract to facilitate the agency's compliance with the Executive Order.

c. To overcome the challenges of the current energy crisis and to meet mandated federal energy conservation goals, we each need to be responsible for our use of costly energy and water resources. An effective EMP is integral to reducing energy (utility) usage, water consumption, vehicle energy consumption and increase the use of renewable energy. Reference (c) codifies energy reduction goals set in Executive Order 13423. References (d), (e), and (f) establish Navy policy, guidance, and goals.

d. References (g) and (h) are the Navy and CNRSE energy websites. They provide metrics, data, case studies, reports, plans and other information on the Navy and CNRSE energy programs.

e. CNRSE EMP focuses on three pillars:

(1) Pillar 1: Instill a culture of conservation. It is imperative we conserve our resources. The greatest energy savings are achieved when every individual military member, dependent, civilian, and contractor understands and participates in energy management. Energy reduction through energy awareness is only effective as long as personnel are cognizant of their own energy usage behavior and how that affects overall resource usage.

(2) Pillar 2: Invest in technology. Reliance on petroleum based energy technology is escalating in costs and exceeding our resources, impacting the environment, and increasing our vulnerability to mission interruption. We must identify areas of vulnerability where commercial power grid disruptions can leave an installation without power at a critical junction in military operations. Where possible, this vulnerability can be decreased by the use of renewable energy and higher efficiency technology. Technology investment is critical in meeting the goals in references (a) through (e).

(3) Pillar 3: Influence operations to execute our missions at the lowest possible energy usage and cost. Operations must be reviewed for alternatives in how and when energy is used. Securing equipment when not needed and delaying high energy use activities outside "peak" usage hours have significant impacts on reducing usage and cost respectively. Both activities also relieve the pressure on the local utilities systems. I look to Commanding Officers and Mission Commanders to optimize the energy efficiency of their operations without jeopardizing mission readiness.

3. Objectives. The objectives of the CNRSE Energy Management Program are:

a. Meet or exceed the requirements and goals in references (a) through (h) which includes the following major milestones:

(1) Reduce the energy consumption and cost of DON Shore Commands by 3%/yr and 30% by 2015, relative to 2003.

(2) Reduce water consumption 2%/yr or 16% by 2015, relative to 2007.

(3) Increase renewable energy use to 25% of electricity consumption by 2025.

(4) 15% of facilities meet the Federal Leadership in High Performance and Sustainable Buildings MOU by 2015.

b. Change the energy culture of personnel and organizations occupying Region facilities, reducing CNRSE's energy and water consumption by modification of individual and workspace practices and habits.

c. Identify, recognize, and reward Region personnel to provide incentive for a more effective Energy Program with focus at the lowest possible level.

4. Roles and Responsibilities. Personnel occupying Region facilities shall take all practical measures to reduce energy waste and use energy efficiently in their work and living spaces. To achieve energy efficiency goals, the following shall be done:

a. Energy Council. Commander, Navy Region Southeast shall chair the Energy Council with the Executive Director as his assistant. The Council is comprised of Area Coordinators, Navy Activity Commanders, and other members by invitation of the Chairman. N4 will coordinate and deliver briefs. The Council shall meet on a monthly basis as scheduled by the Chairman.

The intent of the Energy Council is to provide executive level decisions and command support of CNRSE energy goals. The Council shall establish, execute, and review energy policy and actions required to meet Region energy goals. Area Coordinators and Navy Activity Commanders shall endorse and execute energy policy and actions to maximize energy efficiency. N4 shall appoint a full-time, non-voting member to the Energy Council to provide recommendations and guidance on energy efficiency issues brought before the Energy Council. Typically, this person is the N4 Energy Manager.

b. Installation Energy Conservation Board. Installations shall assemble an Energy Conservation Board (ECB). The ECB will, at minimum, meet on a quarterly basis. The board will provide oversight and policy direction to the installation energy management program in support of the Region's energy strategy, ensure the activity is in compliance with CNRSE energy policies including best practices in enclosure (1) and is making acceptable progress toward Navy energy goals.

The Installation Commanding Officer shall chair the ECB. The board shall be comprised of the Installation's Energy Manger, Resource Efficiency Manager, and senior representatives from the installation's tenant commands. In addition to these members the board shall include senior representatives from:

- Public Works Department
- Administrative Office
- Financial Management
- Public Affairs Office
- Security Department
- Exchange and Commissary
- Supply Department
- MWR Department
- Housing Department

c. Building Energy Monitors (BEM). Every facility, whether occupied or not, shall have at least one BEM assigned. The Area Coordinator shall ensure all facilities within their Area of Responsibility (AOR), as defined in reference (f), have BEMs assigned. BEMs shall receive annual BEM training from their respective station Energy Team. BEMs shall follow duties listed in enclosure (2).

d. Individual responsibility. All personnel occupying Region facilities and government quarters shall:

(1) Become aware of personal energy usage, focusing on ways to use energy more efficiently while performing official work or while residing in government quarters. Enclosures (3) and (4) provide general policy guidance. Waivers to these policies may be granted by the Area Coordinators or Navy Activity Commanders.

(2) Make recommendations to the BEM and/or the Region Energy Team, where necessary, to improve building energy and water efficiency.

(3) Assist others and promote energy awareness to ensure work areas are as energy efficient as possible.

e. CNRSE/N4 Energy Team. The Energy Team shall assist Region personnel to produce innovative, sustainable, and significant energy/water conservation efforts. The CNRSE/N4 Energy Team shall:

(1) Develop, maintain, and expand an effective Energy Awareness program changing the energy culture of the personnel occupying Region facilities and occupants of government housing within the Region. The Region Energy Awareness program shall create and distribute effective energy training and awareness material to support needed cultural change, as well as updating Region energy instructions and energy and water policies and plans.

(2) Make energy consumption data available to personnel occupying Region facilities to enable them to use power and water more efficiently.

(3) Manage the Energy Award system recognizing and rewarding the Region's best energy performers.

(4) Prepare and manage the execution of a renewable energy plan for the Region in order to meet goals listed in references (a) through (f).

5. Implementation.

a. Training. All personnel shall be required to complete annual energy conservation training.

b. Recognition. A Command Energy Award program shall be established by the ECB to identify, recognize, and award those individuals, work groups, offices, organizations, and activities that produce innovative, creative, cost-effective, sustainable, and significant energy/water conservation efforts. Each Navy Activity Command should institute an Energy Award program for excellence in energy conservation. Enclosure (5) provides a framework for a recognition program.

c. Building design. Every effort shall be made to plan, design, construct, and maintain facilities to high standards of energy conservation. Sustainable or "green" facilities marginally increase the initial cost of a project while significantly reducing the lifetime operating expense of the facility. Sustainable facility design and maintenance pays for itself over the life of a building. Facility planners/designers shall:

(1) Design to Leadership in Energy and Environmental Design (LEED) Silver level. Applicable Military Construction (MILCON) projects, special projects, and all major renovations shall meet LEED Silver requirements per reference (d) unless authorized in writing by CNRSE.

(2) Use Federal Energy Management Program (FEMP) energy and water Best Business Practices in the planning, design, construction, and maintenance of Region facilities. Planning and design agents shall submit energy checklists as part of their project review process to the N4 Energy Manager.

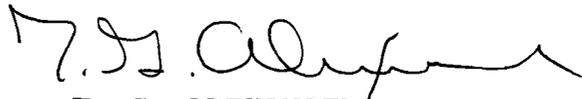
d. Alternate Fueled Vehicles (AFV). Each Navy Activity Commander within the Region shall abide by N4's plan to reduce

petroleum consumption by increased use of AFVs. N4 shall produce an execution plan in support of goals listed in references (a) through (f).

e. "Power Saver" features. All devices and products used in Region facilities shall utilize "power saver" features. Commands shall purchase Energy Star or energy efficient equipment to the maximum extent feasible. Enclosure (6) provides a listing of product types considered by the Federal Energy Management Program as energy efficient or water conserving. All energy efficiency features shall be activated on all devices used in Region facilities. Additionally, the execution of all facilities sustainment will include the procurement of materials identified as leading energy solutions as identified by the CNRSE Energy Team. (One year transition plan from date of publication).

6. Action. All personnel occupying Region facilities shall immediately comply with this instruction and take continuing action upon receipt of this instruction.

7. Guidance and Clarification. Questions regarding this instruction should be addressed to the N4 Energy Manager's Office at (904) 542-2875 or the Assistant Regional Engineer at (904) 542-1670.


T. G. ALEXANDER

Distribution:
All SE Installations

BEST ENERGY MANAGEMENT PRACTICES

1. General Energy Management Requirements. The following general requirements and guidelines will be uniformly implemented and enforced:

a. The energy efficient operation of buildings, which costs little, can save as much energy as expensive energy projects. Reducing energy costs frees up scarce dollars for more important uses. Accordingly, CNRSE personnel will carry out the following basic energy management measures to minimize energy and water costs:

(1) Installations will participate in utility demand reductions when emergency curtailment conditions are called. Utility curtailments or reduction events may be called at short notice to cease or reduce use of electricity, gas, water, or sewer.

(2) Secure lighting, air conditioning (AC), office equipment and other equipment to the greatest degree practical after working hours, on holidays, and on weekends. Do not operate central AC systems and large blocks of lights for the watch section or personnel who may be working after hours. If the complex implements shortened work weeks, ensure that buildings are secured as fully as possible at the end of the last work day to maximize energy cost savings.

(3) Turn off all lights in individual offices and spaces whenever the occupant leaves the area for any period longer than five minutes. This will not impact lamp life due to newer electronic ballasts with soft starts. Turn off exhaust fans and lights in unoccupied restrooms. Secure machinery and equipment when they are not in use.

(4) Turn off lights and office equipment in classrooms, conference rooms, and other common use areas whenever they are unoccupied.

(5) Turn off lights and computer equipment and set back the heating or cooling temperature in bachelor quarters (BQ) rooms whenever the room is unoccupied.

(6) Encourage others to take the initiative to turn off

lights and equipment when not needed.

(7) Ensure outside lights are never on during the day. Report problems to the Public Works.

(8) Report broken or inaccurate lighting, heating and AC controls to Public Works as potential energy problems. Do not be indifferent to malfunctioning heating, AC, and lighting controls.

(9) Secure interior lights whenever natural lighting provides adequate illumination. Appropriate foot-candles is in a range of 75-100. Illumination in excess of 100 foot-candles is only prudent for activities that require fine motor skills or frequent review of blueprint type drawings.

(10) Turn off all or part of the overhead industrial lighting in hangars, warehouses, shops, and similar facilities as operations and lighting conditions permit. These lights are rarely all required during the day. Use task lighting for specific lighting requirements on the work floor.

(11) Secure exterior doors and windows when heating or cooling systems are in operation.

(12) Report all leaks, including steam, natural gas, water, sewer, and compressed air to Public Works. Running toilets and similar minor problems can cost thousands of dollars a month.

b. Installations will provide at least quarterly training to Building Energy Monitors (BEMs) on the general requirements above. BEMs will in turn train military, civilian, and contractor personnel working in these spaces on basic energy management practices. Training is to be done in conjunction with required occupant annual training.

c. Installations will further comply with the specific energy management requirements on the following pages.

2. Common Performance Level Standards (CPLS). CPLS have been established by Commander Navy Installations Command (CNIC) to show the expected mission and operational impacts of shortfalls in utilities (UT) funding. CNIC may set certain CPLS conditions to help reduce UT requirements to fit available funding and may prescribe actions to be taken by all CNIC commands to meet these standards. Prescribed actions typically include shortening heating and cooling seasons and setting minimum and maximum set

points for cooling and heating. CPLS definitions are provided below:

a. CPLS 1. Utility is available to meet all mission requirements. Commodity availability has no negative impact on mission, quality of life, or routine station operations. Energy and water efficiency and awareness are used, and no forced reduction measures are required. Other services are available to meet all mission requirements.

b. CPLS 2. Utility is available to substantially meet mission requirements with minor difficulty. Utilities funding status or weather conditions compel building occupants and supported tenants to make minor operational adjustments to meet mission requirements in accordance with health and safety regulations. Minimal forced reduction measures include (but are not limited to):

(1) Turning on of heating and AC systems delayed no more than two weeks.

(2) Operation of climate control systems is reduced to lower energy consumption. Goal is to reach average temperatures that have minimum impact on warfighter support: less than 70 degrees in winter and higher than 76 degrees in the summer.

(3) Five percent or less reduction required for electrical service delivery facilities without direct support function to the warfighter (such as ball field lighting or decorative lighting).

(4) Five percent or less reduction required for steam service delivery facilities without direct support function to the warfighter (for example, warehouses and gymnasiums).

(5) Five percent or less reduction required in water use for facilities without direct support function to the warfighter (for example, irrigation and car washes).

c. CPLS 3. Utility is available to marginally meet mission requirements with major difficulty. Utilities funding status or weather conditions compel building occupants and supported tenants to make minor operational adjustments to meet mission requirements in accordance with health and safety regulations. Forced reduction measures include (but are not limited to):

(1) Turning on of heating and AC systems delayed no more than four weeks.

(2) Operation of climate control systems is reduced to lower energy consumption. The goal is to reach average temperatures that impact warfighter support, but do not prevent mission accomplishment: lower than 68 degrees in winter and higher than 76 degrees in summer.

(3) Six percent to ten percent reduction required for electrical service delivery facilities without direct support function to the warfighter (such as ball field lighting or decorative lighting).

(4) Six percent to ten percent reduction required for steam service delivery facilities without direct support function to the warfighter (for example, warehouses and gymnasiums).

(5) Six percent to ten percent reduction required in water use for facilities without direct support function to the warfighter (for example, irrigation and car washes).

d. CPLS 4. Utility is not available to marginally meet mission requirements as a result of funding shortfalls or weather and climate conditions even after significant mission adjustments have been made. While meeting bare minimum health and safety regulations, building occupants and supported tenants will experience significant hardships that include:

(1) Turning on of heating and AC systems delayed more than four weeks.

(2) Operation of climate control systems reduced to prevent equipment failure or breakdown, regardless of impact on warfighter support. May achieve average temperatures less than 66 degrees in winter, and greater than 76 degrees in summer.

(3) Greater than ten percent reduction in all utilities service to all facilities without direct warfighter support function.

(4) Imposed two or more brief rolling blackouts of utilities services to reduce usage.

3. Energy Awareness

a. Activities will establish and sustain an active Energy Awareness Program. This program will include, at a minimum, the following elements:

(1) Command Involvement. Installation Commanding Officers (ICOs) must be aware of, and be personally involved in the Energy Management Program. They will take a leadership role in the program, head up the energy conservation, and integrate energy efficiency into all aspects of installation operations. The activity Energy Management Team will provide at least quarterly energy briefings to the Energy Conservation Board.

(2) Training. Installations will maintain an active Energy Management Team, including an effective network of BEMs. The team will meet at least quarterly to discuss metrics, technology, conservation measures, and feedback on progress toward meeting its energy goals. Monitors and other key members of the team will be trained in the most effective ways to manage energy in their facilities, key components to check in building systems, and new programs and ideas.

(3) Awareness Activities. Installations will conduct energy awareness activities throughout the year and during Energy Awareness Month (October) and Earth Day (April). Energy awareness is not intended to be a once-a-year event, but should be integral to daily operations. Awareness activities may include an active energy suggestion and awards program, articles in installation publications and newsletters. In addition, activities may include e-mails and notices on subjects of concern, visits to schools, energy fairs and conferences, feedback to the command on energy goals and progress, and similar activities.

4. Awards. Installations will participate in federal, state, regional and CNRSE Energy Awards Programs and will conduct their own recognition programs as appropriate. The following are among the major energy awards programs available:

a. Presidential Award for Leadership in Federal Energy Management. The Department of Energy's (DOE) Presidential Award is the most prestigious energy award for federal energy managers and programs. Only five or six awards are made each year for all federal agencies. Criteria and nomination procedures for the award are provided annually as part of the Navy's annual energy reporting process. Installations may initiate their own nominations, or the Navy may choose to nominate installation programs for this award based on their Annual Energy Reports.

b. Federal Energy and Water Management (FEMP) Awards. These awards provide high-level recognition for individuals, groups, and commands for their contributions to federal energy and water management efforts. DOE criteria and nomination procedures are

provided to installations along with the presidential criteria. Installations may initiate their own nominations, or the Navy may nominate installation programs based on their Annual Energy Reports. The Navy may elevate particularly strong FEMP nominations for presidential consideration, while less competitive presidential nominations may be submitted as FEMP nominations.

c. Installations are encouraged to make appropriate military and civilian awards and provide other forms of recognition to personnel who have made significant contributions to the CNRSE Energy Program.

5. Lighting - Best Energy Management Practices (BEMPs). CNRSE facilities will be equipped with the most efficient lighting systems practical and will have the proper lighting controls to enable building occupants to operate buildings as efficiently as possible. Accordingly, the following operation and maintenance (O&M) requirements are set:

a. Prohibitions. All prohibitions, unless otherwise stated, will have a NLT implementation date of 1 AUG 2010.

(1) Incandescent and halogen light bulbs are prohibited in CNRSE facilities and sustainment supplies shelf-stock facilities except where there is no alternative product available, such as a projector lamp. Incandescent light bulbs will be replaced by compact fluorescent lamps in all interior and exterior lighting fixtures, table and floor lamps, floodlights, fire alarm boxes, and other fixtures. Replacement of lights will either be done in conjunction with energy upgrade project or at the time the light lamp burns out. At that time, the entire fixture is to be upgraded to include fixture, ballast and lamps.

(2) T12-type fluorescent light fixtures are prohibited from installation in all installation facilities. Any remaining T12 fixtures will be upgraded to T8 or T5 type, with electronic ballasts, as soon as prudently possible. Lamp replacements for T8 systems will be only T8 products, as re-installing T12 tubes in the upgraded fixtures will shorten the life of the ballasts and lamps.

(3) Exterior lights left on in the daytime and interior lights left on in unoccupied spaces are prohibited. Exceptions must be authorized in writing by the ICO and exterior signage must indicate this authorization. Signage will read, "Night-Time Lighting Authorized by STATION NAME." The Installation PWD UEM

Commodity Manager will maintain exception authorizations.

(4) Decorative lighting is prohibited in CNRSE facilities, except as specifically authorized by the Public Works Officer (PWO). Exceptions must be authorized in writing by the Installation PWO and the PWD UEM Commodity Manager will maintain exception authorizations. The BEM will be responsible for localized signage and marking to indicate exception approval. Decorative lighting includes exterior floodlights, down lights, up lights, and other purely architectural or display lighting. Where authorized, decorative lighting will be the most efficient type available and will be operated the minimum hours possible.

b. Lighting Controls

(1) Lighting controls will not be by-passed, removed, or defeated for any reason. If the control type, schedule, or mode of operation is unsuited for a particular application, the information must be reported to the Energy Manager (EM) or Resource Efficiency Manager (REM) for correction.

(2) Offices, classrooms, conference rooms, break rooms, restrooms, stairwells, and other spaces with sporadic usage will be equipped with motion sensors. All rooms with motion sensors will also be equipped with light switches. Motion sensors are to be set at less than 5-minutes and installed to ensure that motion outside of the room does not turn the lighting system on.

(3) Switches or other controls will be installed in mechanical rooms, industrial work centers, and similar locations in lieu of motion sensors. Occupants of these areas are to be instructed to turn the lights off when the room or work center is vacated.

(4) Hangars, warehouses, and industrial facilities will be equipped with lighting controls appropriate to the building. Controls may dim or turn off the lights when there is sufficient ambient light, especially when hangar doors are open or there are skylights. Lighting in these facilities is to be used when needed and turned off or dimmed when it is not. Day-lighting in warehouses and hangars is to be incorporated into design and during major roof renovation.

(5) Exterior lights that must remain on all night will be equipped with photocells controls. The photocells will be the most sensitive type available to shorten lighting run time.

(6) Only photocell controlled street and parking lot lighting is authorized. Parking lot lights will instant on/off capability, and should be dimmed or turned off consistent with traffic patterns, security concerns, and other conditions.

(7) Janitorial work will be done during regular working hours to eliminate excessive lighting of facilities at night. Where cleaning crews must work at night, they will be instructed to light only the immediate area where they are working, turning lights off as they leave. Exceptions are required in writing and must be approved by the PWO and maintained by the PWD UEM Commodity Manager.

(8) Supplementary task lighting will be used to provide more light where it is needed, rather than adding more general lighting. Task lighting will be at least as efficient as compact fluorescent types. Cubicle lighting and other task lights will be secured when the area is vacated for any time. Task lighting is prohibited when general lighting is in use. Exceptions are to be managed by the BEM.

(9) Soda and juice vending machines will be de-lamped except where light is provided by light-emitting diode (LED) lamps. Soda and juice vending machines with lighting and compressor cycling controls may be lighted. Any machine lit by LED is to be labeled, "LED Lighting."

(10) Stairwell lighting will be T5, T8, or compact fluorescent type, meet all design and safety criteria, and be controlled by motion sensors.

(11) If lighting is excess to requirements, consider de-lamping alternate fixtures or removing two tubes from four lamp fixtures. Ballasts for the tubes that are removed should also be disconnected. Standard labels are to be placed on the exterior of the fixture that specifies the number of lamps authorized if the BEM decides that lamps for a fixture are to be reduced below the number designed for the fixture. Required labels are to read, "X Lamps Only for this Fixture."

c. Maintenance

(1) Lamps will be re-lamped in groups (by room, area or building) and records should be kept of what was re-lamped and when. The decision to relamp a room will initiate the replacement of fixtures, ballasts and lamps to the more energy efficient requirements herein. This action must be coordinated through the PWD FMS by the BEM. PWD FMSs are still responsible

for monitoring funding requirements for Sustainment (ST) funding in support of this effort. As lamps go out in a room and the foot-candles falls below 50 then it is prudent to take action if previous projects have not already replaced the fixtures. FMSs and BEMs are to also be aware of energy projects that are scheduled to address lighting in their respective buildings and coordinate with BOS contract requirements with respect to relamping.

6. Heating, Ventilation and Air Conditioning

a. Heating

(1) Working Hours Only Policy. Space heating in CNRSE facilities is authorized during normal working hours only, and only during the heating season. Twenty four hour heating in BQs is authorized for occupied spaces during the heating season. Signage is to clearly identify and communicate building heating and cooling hours if something other than 'normal' working hours exists. Normal is some range of 8-12 hours per day and includes only one shift. Multiple shift buildings require signage stating hours of operation and temperature settings. Information is to be posted at entryways inside of the buildings. BEM has the responsibility for execution.

(2) Heating Season

(a) CNRSE installations will normally set their own heating seasons based on CNIC guidance, prescribed CPLS level, UT funding availability, weather forecasts, mission and personnel concerns. CNRSE may provide additional guidance or call for prescriptive measures to be followed during the season. As it may take up to two weeks to turn on the heat for all facilities, BQs, child care centers, and other critical facilities will be turned on first.

(b) Installations will similarly set their own heating season end dates, with critical facilities to be turned off last. In securing from heating season, hot water circulating pumps, heat exchangers, and other purely heating equipment will be secured.

(c) For facilities served by central steam systems or internal steam boilers, installations will provide alternative, more energy-efficient means of generating hot water so that the steam or boilers may be secured. Large boilers or central steam will not be used to provide domestic hot water outside of the heating season.

(d) Steam lines will be secured or laid up to the extent practical at the end of the heating season.

(3) Temperatures. CNRSE facilities will maintain heating temperatures as prescribed by the CPLS condition in force, or by CNRSE direction.

- Daytime heating is to be no higher than 70°F in spaces authorized for heating, and no higher than 55 degrees in warehouses and similar facilities.

The PWO may authorize exceptions to temperature requirements on a case-by-case basis.

(4) Electric space heating is prohibited. If building temperatures cannot be maintained as prescribed then the BEM may allow space heating until temperatures are once again maintained. Building occupants are not authorized to possess space heaters. BEMs will maintain and keep secured all approved portable heating devices.

(5) New or replacement space heaters, boilers, and furnaces will be Energy Star listed or qualify as a FEMP recommended product.

(6) Redundant or back-up boilers will not be operated "just in case" except as authorized by the PWO.

(7) Exterior steam distribution systems and steam systems in buildings will be maintained to minimize losses in facilities heated by steam. All steam leaks will be repaired, and bare steam piping, including valves will be insulated. Ensure condensate pumps are working properly. In no case will condensate be dumped as an alternative to repairing the pumps. Steam traps should be checked for proper operation at least once a year. Defective traps will be replaced or repaired as necessary.

b. Ventilation and Air Conditioning

(1) Working Hours Only Policy.

(a) Energy Management Systems (EMS), Direct Digital Controls (DDC), and other controls will be set and monitored to reflect actual operating hours and temperature requirements.

(b) After hours cooling for the purpose of "night flushing" or pre-cooling buildings using cool, night time air is

permissible as authorized by the Installation PWO and requires BEM oversight. Humidity must be lower than 50% at the time of flushing.

(2) Cooling Season

(a) CNRSE installations will normally set their own cooling seasons on the same basis as the heating season. CNRSE may occasionally provide additional guidance or call for prescriptive measures to be followed during the season. Cooling for BQs, child care centers, and other critical facilities will be turned on first.

(b) Installations will similarly set their own cooling season end dates, with critical facilities turned off last. In securing from cooling season, chilled water circulating pumps and other purely cooling equipment will be secured.

(3) Temperatures. Region Southeast is classified as a "hot, humid" climate per Interim Technical Guidance ITG-FY05-02, NAVFAC Humid Areas Design Criteria. This guidance indicates that indoor humidity in areas designated hot and humid climates shall design and ensure a 76°F temperature is maintained at 50% or higher relative humidity. The guidance is in line with best industry practices per American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 55, Thermal Environmental Conditions for Human Occupancy. This information does not specifically align with CNIC CPLS levels and it is believed that failure to maintain at least daytime temperatures in this design range will subsequently lead to mold growth and subsequent health-safety issues. The following temperature guidance has therefore been established:

- Daytime cooling is to be $\geq 76^{\circ}\text{F}$.
- After hours cooling is to be $83^{\circ}\text{F} - 85^{\circ}\text{F}$. at $\geq 60\%$ relative humidity or $80-82^{\circ}\text{F}$ at $\geq 50\%$ relative humidity but less than 60% relative humidity. Finally, the after hours temperatures are not to be set at less than 85°F during the cooling season.

(4) Buildings that are cooled with air conditioning are not to be mechanically ventilated without cooling (manifests moisture and/or mold problems).

(5) AC systems that support data centers, flight simulators, and other critical equipment will be set at a temperature in the highest third of the temperature range

prescribed by the equipment manufacturer. New technology will be implemented to the maximum extent possible to reduce full-room cooling requirements in these areas.

(6) Equipment rooms with particular temperature or humidity (or both) requirements will be addressed separate from the rest of the building. In other words, the entire building will not be operated at a temperature lower than otherwise would be authorized because one area requires it.

(7) Natural ventilation (operable windows and vents) in air conditioned buildings is not to be used during the summer months. Fans are authorized whenever needed regardless of the season. Mechanical ventilation (without heating or cooling) is authorized to meet health and safety codes, regardless of the season, but is under the control of the BEM for execution and authorization of the Installation PWO. Ceiling fans are authorized in common areas such as lunch rooms, break rooms, and conference rooms. Office ceiling fans are prohibited.

(8) Window ACs and air-to-air heat pumps are prohibited except where they are the lowest life cycle cost alternative, and are Energy Star listed or FEMP recommended products. If a window unit is in place it must be Energy Star rated NLT 1 AUG 2010.

(9) AC boundaries will be maintained. Doors and windows are not to be propped open in conditioned spaces. Non-handicapped occupants of buildings are prohibited from using handicap electron door devices as increased and unnecessary use of these door devices prolongs indoor air flow out of the respective building.

(10) Blinds, shades, awnings, solar shields, tinted glass, heat reflective glass, or plastic film on windows and glass doors should be installed where solar heat gain is not desired. All east and west facing windows are to have tinting or heat reflective treatments at the time of construction.

(11) Chilled water systems and controls will be checked frequently to ensure efficient operation. Leaking valves and fittings will be repaired, all lines will be insulated, cooling tower water will be properly treated, cooling tower media will be kept clean, and the systems will generally be operated and maintained at optimum efficiency.

(12) AC ducts will be checked frequently to ensure they are properly sealed and insulated and are clean and mold free.

Air filters will be replaced at least quarterly. Variable air volume (VAV) boxes and controls and air cooled condensers will also be checked and balanced as needed.

(13) Problems with AC systems that affect their energy efficiency and that are beyond the technical, manpower, or funding ability of O&M personnel to correct will be reported to the EM or REM. The EM or REM will work with O&M personnel to develop and implement cost effective means to repair, improve, or replace the equipment as an energy cost saving measure.

(14) Supply and return air and chilled water temperatures will be monitored to avoid "low delta T syndrome," a situation where the temperature of the air or chilled water returning from conditioned spaces is only slightly warmer than the supply temperatures. These conditions may occur when the AC equipment is oversized, or when hot and cold air inside the space is mixed before they are returned to the AC system. This condition must be avoided for the AC system to operate efficiently, and for the building to be properly cooled.

(15) Where variable frequency drives (VFDs) are installed on chilled water pumps, they will be properly controlled by system pressure, temperature, and other factors, and are not manually set.

(16) Also, where VFDs are installed on chilled water pumps, ensure that equipment being cooled by the chilled water system has two way and not three way valves. Three way valves allow chilled water to by-pass equipment where it is not needed and defeat the purpose of the VFDs, which is to reduce pumping energy when cooling requirements are reduced. When buying computer room AC units or other equipment that will use chilled water, ensure the equipment is equipped with two way valves.

(17) When one chiller, circulating pump, or other piece of equipment is sufficient to meet a building's cooling load, do not operate a second piece of equipment "just in case" unless the load is mission critical.

(18) Buildings that are exceptionally energy intensive typically have complex AC systems are to have quadrennial re-commissioning.

(19) Ensure that all new facilities are properly commissioned before they are accepted.

(20) Buildings with several stand-alone AC systems will

be evaluated for the feasibility of tying the systems together to save energy and provide more redundancy. Similarly, consider tying several nearby buildings together with a chilled water loop to meet their combined cooling loads more efficiently.

(21) Because refrigerant 134a (tetrafluoroethane) is a "greenhouse gas" any leaks are to be promptly corrected and reported to installation environmental compliance staff. R-134a refrigerants removed from AC or refrigeration systems will be recycled or disposed of as directed by CNRSE environmental compliance staff.

(22) Economizers will be properly maintained and kept operational, a major problem in a salt sea air environment, to greatly improve the efficiency of AC systems.

7. Office Equipment and Appliances

a. Office Equipment

(1) All new and replacement office equipment, whether owned or leased, will be Energy Star listed and the Energy Star features will be activated. These requirements specifically apply to office equipment provided under Navy Marine Corps Intranet (NMCI) and any other federal contracts entered into after 24 Jan 2007.

(2) Computer central processing units (CPUs), monitors, dedicated printers, and speakers in CNRSE work spaces will be "shut down", not switched off, at the close of business and when staff leave the work station for any significant period.

(3) "Sleep mode" will be activated on all office equipment, including CPUs, monitors, copiers, printers, and other office equipment.

(4) Turn off common copiers and printers at the close of business unless there is a bona fide, operational necessity to keep them on.

(5) Turn off power to the small transformers attached to office equipment when not needed. These transformers continue to use one to five watts of power even when the equipment is turned off. All small transformers/power strips are to be installed at or above desk level within offices. This installation will provide quick and convenient access to the used to turn them off as prescribed above, as well as provide visual inspection to the BEM.

(6) Leave personal computer speakers, scanners, and other ancillary equipment off except when actually needed.

(7) Fax machines may be left on twenty four hours a day, but users should determine whether continuous operation is cost effective for the office. If leaving a fax machine on is not mission essential and adds little value, it should be turned off.

(8) Office equipment will be secured to the greatest degree possible over weekends, holidays, leave periods, and other periods when they will not be needed. All supervisors will designate a representative in their respective area to act as the energy monitor in support of the code/work centers equipment and to support the BEM.

b. Appliances. The following energy requirements apply to all appliances, whether leased or owned, in all facilities aboard CNRSE installations, including BQs and Morale, Recreation, and Welfare (MWR) facilities.

(1) Refrigerators. Refrigerators are authorized in CNRSE facilities as follows:

(a) All refrigerators must be Energy Star listed or be FEMP recommended products.

(b) Refrigerators must be reasonably sized for the application.

(c) One refrigerator is authorized for each BQ living space.

(d) Refrigerators are not authorized in offices or cubical shared spaces. One full-size refrigerator is authorized per 50 occupants or two half-size refrigerators per 50 occupants. Refrigerators are to be collocated in logical groupings in break rooms or coffee mess areas. NO EXCEPTIONS and NO WAIVERS.

(e) Unauthorized refrigerators, refrigerators that are not Energy Star listed (or FEMP recommended products), and refrigerators with worn or missing seals or poorly fitting doors will be removed from CNRSE facilities and recycled or disposed of properly. Refrigerators that are still usable will be disposed of through the Defense Reutilization Marketing Office. There is no grandfather clause on this requirement. All non-Energy Star rated refrigerators are to be disposed of

accordingly NLT 1 AUG 10. BEMs will ensure requirement is executed.

(f) Walk-in refrigerators and freezers will be operated at temperatures as set by medical or other authority. Thermo-strip door curtains will be installed in walk-in freezers and refrigerators where doors must be open for extended periods.

(g) Empty and unused refrigerators and freezers will be properly secured. Refrigerators and freezers will not be operated only because they are available, without a bona fide mission requirement. BEMs will secure excess refrigerators above identified occupancy requirement.

(2) Washers and Dryers. Washers and dryers are authorized for CNRSE BQs, fleet support, other MWR facilities and other facilities as needed. The following energy requirements apply whether these appliances are owned or leased:

(a) Washing machines will meet or exceed Energy Star standards, which consider both "energy factor" (annual cubic feet of laundry per annual energy use) and "water factor," or the water used per wash cycle per cubic foot of washer capacity. The most efficient washer will have a high energy factor and a low water factor. A life cycle cost analysis should be conducted to select the machine that offers the greatest life cycle cost savings.

(b) Dryers will meet or exceed Energy Star standards.

(c) Leased washers and dryers that are not Energy Star listed will be replaced with units that satisfy this standard when the lease expires. Owned units will be replaced as soon as funding becomes available. The replacement of inefficient washers and dryers offers excellent cost savings and will normally qualify for financing as an energy project.

(3) Home Electronics. Televisions and other home electronic devices may be procured or leased for CNRSE facilities such as BQ common areas. All devices will be Energy Star designated or listed on the FEMP recommended products website, unless there is no listing for the products. TVs are prohibited in individual offices with the exception of Commanding Officers, Command level Operations Officers and Command PAOs.

(4) Other Appliances. Ice machines, dishwashers, and

other appliances procured or leased for CNRSE facilities will be Energy Star designated or listed on the FEMP recommended products website, unless there is no listing for the products. Ice machines are not allowed to exceed one device per 100 occupants.

8. Data Centers and Other Energy Intensive Facilities. Data centers, simulator facilities, and industrial facilities use a large part of an installation's total energy. For example, at one naval installation with about 1,000 energy consuming structures, three buildings use more than 20 percent of the total electricity for the installation.

a. Discussion. Energy intensive buildings typically have specialized equipment drawing great amounts of power, heavy AC loads, sensitive computer equipment, round-the-clock operations, high reliability and redundancy needs, and other requirements that drive up energy use and that do not lend themselves to standard energy management practices. These buildings require the EM or REM to have a sophisticated understanding of the building's systems, operations, and processes to tailor energy use to actual requirements. Energy intensive facilities are a special focus area of the CNRSE Energy Management Program and must be addressed through a combination of technical and management measures, as discussed here.

b. Stakeholder Team Approach. It is vital to take a team approach to an energy intensive building. All the stakeholders in the building need to be identified and included on the team. In some cases, the building may have to be approached in a formal problem solving process, such as a Lean Six Sigma (LSS) project. In other cases, a more informal approach may suffice. The PWO or Deputy PWO may need to be personally involved in the process because the tenant may be unwilling to make any changes to operations or processes, even though the installation believes energy use and costs are excessive. Stakeholders typically include the following:

- PWO or Deputy (Team Leader)
- EM/REM (Deputy Leader or Facilitator)
- Facilities Manager or Tenant Liaison
- Representatives of Tenants
- Equipment Technical Representatives (if applicable)

- Maintenance Foreman or Contractor
- Utilities Representative (if applicable)
- EMS/DDC Engineer (if applicable)

(1) Suggested Process Steps. The following process steps have been successfully applied in attacking energy use in energy intensive buildings at CNRSE installations. These steps are similar to the LSS "Process for Process Improvement," also known as "D-M-A-I-C," for Define, Measure, Analyze, Improve, and Control. The similarity between these approaches reinforces the idea that LSS may be an ideal way to approach energy use in complex, critical facilities where energy costs are high.

(a) State (Define) Objective. The PWO should help the team develop an objective statement. The objective could be to cut energy costs and consumption by 10 percent, to reduce electrical demand a certain amount, to identify and implement all cost effective and practical energy measures, or similar statements.

(b) Data Analysis (Measure). All utilities services to the building should be metered and the data analyzed. Electrical data should include time-of-use load curves as well as cost and consumption data. Steam, gas, chilled water, water, and sewer usage and costs should also be determined. If EMS/DDC data are available, trend logs for major equipment, temperatures, schedules, and other data should be analyzed as well. Analysis of the available data will help the team focus resources on the areas of greatest concern. For example, a complex building may have high electricity, chilled water, and steam costs, while water and sewer costs may be negligible. This step is more limited in scope than the LSS "measure" step, as it is recommended that the data be analyzed before the team enters the building.

(c) Building Surveys (Measure). The building should be surveyed to identify the equipment, operations, controls, and processes that may be contributing to excessive energy costs and consumption. Specifically:

1. The team should follow the use of the utilities of concern within the building to see how they are used. The team should examine equipment and building systems in mechanical rooms and throughout the building and evaluate whether it is operating properly and in accord with the design concept for the building.

2. The team should review equipment operating schedules, controls and control sequences, operating paradigms, O&M practices, flow rates, temperatures, and any other measurable and observable parameters, and members of the team should compare this information with their understanding of the building's intended design and mission requirements.

Note: it is almost universally true that the mission, equipment, and operating requirements of energy intensive buildings have changed greatly since the building was designed, yet often the AC systems and other installed equipment have changed little. The team should consider the building's true, current needs and try to align the building's systems with the needs, beginning first with simple methods of control and system adjustments and then system modifications if necessary.

3. The team should identify all observed equipment, control, and facility deficiencies; O&M practices, and other factors that may contribute to high energy usage. For example, in one building with a calculated and observed cooling load of 200 tons, two 400 ton chillers were found on line at low loads, "just in case" something happened to the first chiller.

(d) Develop Energy Conservation Measures (Analyze). The stakeholders should analyze their observations and findings from the building surveys to develop potential Energy Conservation Measures (ECMs). They should ensure the proposed ECMs are technically feasible and verify that they are life cycle cost effective. ECMs might range from:

1. No cost actions with immediate savings, such as turning off the un-needed second chiller and its associated chilled water pumps and training building occupants and O&M personnel on the most efficient ways to operate the building.

2. Fast payback projects, such as resetting control sequences, installing or resetting variable frequency drives on chilled water pumps, and replacing three-way chilled water valves in computer room AC units with two-way valves.

3. Capital projects such as replacing steam absorption chillers with electric centrifugal chillers, lighting retrofits, or replacing the uninterruptible power system.

(e) Seek Stakeholder "Buy-in" (Improve). The team should seek "buy in" from all stakeholders, including the PWO, all building tenants and, in some cases, higher authority. It is possible that an ECM that is technically feasible and

economically attractive may not be approved by all stakeholders for valid reasons. In such cases, the team should look for the best alternative solutions that are acceptable to all stakeholders.

(f) Implement Approved ECMS (Control). The team should work together to implement all approved ECMS. Some members of the team may be involved in the process for extended periods, to help with implementation, provide training, monitor the building's performance, perform measurement and verification tasks, respond to problems, and take other actions as necessary to ensure the full implementation and successful performance of all approved ECMS.

c. Typical Findings. The following are among the energy wastes often found in data centers and other energy intensive buildings:

(1) Needless Redundancy. Redundant chillers, boilers, circulating pumps, computer room air conditioning (CRAC) units, and other equipment are often found on line when they are clearly not required. Data center operators frequently operate all CRAC units in the area even though half of the units are intended as backups, while O&M personnel often run backup chillers, boilers, and pumps "just in case" something happens after hours. Building occupants, O&M personnel, and the command that pays the utility bill should agree on the equipment that is to be operated and under what conditions to provide the needed reliability at the least cost.

(2) Poor Night-time Shutdown. Simulator facilities typically have a limited shutdown at night and a more complete shutdown on weekends, but rarely reduce demand below 200 to 300 kilowatts (kW). The reason usually offered is that the simulator equipment is so unreliable, operators cannot be sure it will turn on again in the morning without problems. This problem has been reduced with newer equipment. Equipment reliability problems should be addressed as such, running equipment constantly so it will work when it is needed is rarely cost effective.

(3) "Low Delta-T Syndrome". Energy intensive buildings typically have large AC systems and heavy cooling loads. In data centers, particularly, operators often mistakenly attempt to cool the entire space, mixing hot air with cool air, so that the air returning to the heat exchanger is only slightly warmer than the supply air, it has a "low delta-T." A "low delta-T" tricks the heat exchanger into "thinking" that the space does not need

cooling, causing the operator to lower the thermostat, turn on more CRAC units, and otherwise waste energy in trying to cool the computer room. Data center managers and operators, particularly, need to be trained in basic AC principles so that they understand how to cool the spaces at optimum cost.

(4) Controls By Passed. Building operators frequently by pass or remove controls to keep the building operating despite serious equipment or controls problems, and because the installation may not have the manning or money to fix the problems. Building occupants may not be aware that the equipment is being operated in a "jury rigged" manner as long as they are able to function. Operating a building without proper controls nearly always wastes energy dollars. Problems with building systems or controls need to be identified and addressed as sustainment items or as ECMS. Installation EMS or REMS can help O&M personnel restore systems to proper operation.

(5) Poor Temperature Control. Energy intensive buildings are often over cooled out of concern for equipment, whether the temperatures are actually required or not.

(6) EMS/DDC Controls not Fully Used. Installations sometimes fail to use EMS/DDC controls to maintain authorized schedules or set points or to identify possible energy wastes. The full capability of EMS/DDC systems should be used to hold down energy costs.

(7) Air Conditioning Systems Mis-Matched to Requirements. Many buildings have multiple AC units, many of which are probably oversized. Tying them together or replacing them with a properly sized, more efficient system may offer substantial savings and provide more reliable AC.

(8) Other Oversized or Unnecessary Equipment. In many cases, missions and building uses have changed so much that the building's boilers, AC systems, 400 Hertz (Hz) motor generator (M-G) sets, air compressors, and other equipment are grossly oversized for current needs, or may no longer be needed at all. For example, the requirement for 400 Hz power in many training facilities has largely disappeared, yet large M-G sets are still found operating along with back up M-Gsets-because personnel are accustomed to their use. Similarly, a large boiler that used to supply heat and hot water to a large industrial complex now operates inefficiently at low load to supply hot water to a handful of staff.

d. Data Center BEMPs. The Navy and the NMCI system operator

have identified the following general BEMPs for data centers, many of which apply to other energy intensive buildings as well. These BEMPs are listed below

- (1) Reduce computer load, if possible.
- (2) Reduce cooling load.
- (3) Create and maintain hot and cold alleys.
- (4) Eliminate mixing of air in the data center.
- (5) Eliminate mixing of air in the false floor.
- (6) Eliminate air flow restrictions in the false floor.
- (7) Eliminate any mixing of air within racks.
- (8) Match CRAC units with cooling load.
- (9) Turn off CRAC units strategically.
- (10) Adjust controls for best energy efficiency.

9. Building Envelope. Envelope related energy deficiencies will normally be addressed in the energy efficient design of new facilities and major renovation projects, or in financed energy projects. CNRSE installations will also carry out the following building envelope BEMPs:

a. Identify facilities having insufficient or no insulation for upgrade as part of future facilities or energy projects where it will be cost effective.

b. Identify facilities suitable for installation of white, reflective "cool roofs", or for installation of solar integrated roofing systems as part of future roof repair projects.

c. Promptly report and correct envelope problems that prevent the building from being operated efficiently, for example, a door to an air conditioned space that does not close properly will be reported and corrected immediately.

d. Strictly maintain the integrity of AC and heating boundaries. Doors to conditioned spaces will never be kept open for convenience or to indicate the space is "open for business." Similarly, doors and windows will never be opened in an attempt to augment the AC system: this practice is extremely wasteful.

e. Keep hangar and industrial doors closed as much as possible during the heating season. Install switches to cut off heating in hangars and industrial facilities when the hangar or other large doors are open.

f. Windows will be kept operable to provide natural ventilation whenever possible, rather than relying on mechanical ventilation or AC.

g. If skylights are installed, secure interior lights whenever natural light is available.

10. Motors, Shop Equipment and Air Compressors

a. Motors.

(1) All motors will be premium efficiency type except where life cycle cost analysis shows they are not cost effective, for example, for a motor with low run time.

(2) All motors will be properly sized for the requirement. Larger motors will not be substituted for smaller motors simply because they are available or in the belief that a bigger motor is better.

(3) Motor belt tension and alignment will be checked when they are installed and periodically after. Alignment of the motor shaft, coupling, and the driven shaft of pumps will also be checked. Proper lubrication of motor and shaft bearings will be assured.

(4) V-belts on motors will be notched belts. Ganged web belts should replace individual multiple belts.

(5) Motors will be equipped with variable frequency or variable speed drives except where they are not cost effective over their life cycle.

b. Shop Equipment

(1) All new and replacement shop equipment will comply with current Energy Star standards or will be FEMP recommended products, per references (g) and (h). Non-Energy Star equipment drawn from the Defense Reutilization and Marketing Office, brought from home, or otherwise obtained are prohibited in CNRSE facilities.

(2) Shop equipment will be operated only as needed and

will be secured when not needed and at the close of business.

c. Air Compressors

(1) Air compressors will be secured after hours and will be operated only at the pressure and flow rate required. Required pressures and flow rates are often much less than is believed.

(2) Air compressors will be properly sized for actual, current needs. In most cases, a 15- or 25-horsepower (Hp) compressor is all that is needed to supply shop tools or even air hoists. Bigger is not better. For assistance in determining the proper size compressor, contact the EM or REM.

(3) If an air compressor is cycling too frequently, the system should be checked for leaks and other unnecessary demands. Often, the problem will be found to be inadequate air storage which can easily be added to meet demand events with a minimum of compressor run time.

(4) Air compressors will not be run (except for pneumatic control compressors) overnight. Compressor systems will pressurize in seconds when they are turned on at the beginning of the work day.

(5) Compressed air flexible hoses are wasteful. If a work station frequently needs air, run compressed air piping to the work station instead of long lengths of hose.

(6) Do not use compressed air to blow down equipment or shop spaces. Vacuums are much cleaner and more efficient. If equipment must be blown clean, use an engineered "needle gun" to reduce the amount of air needed, and also to limit noise.

11. Water Heating

a. New or replacement water heaters and boilers will be Energy Star listed and will have Energy Factor ratings of 80 percent or greater, or Annual Fuel Utilization Efficiency ratings of 95 percent or greater, as appropriate to the unit.

b. Domestic hot water (DHW) heaters and boilers will be separate from the building's heating system so that steam heat exchangers and heating boilers can be secured after the heating season. DHW units will be properly sized for actual needs.

c. DHW heaters and boilers will be gas fired except where they are not life cycle cost effective, or where natural gas is not available. DHW heaters remote from natural gas systems may be electric or propane fired.

d. Solar water heating systems are an important and cost effective way to reduce energy costs. Solar systems should be evaluated for all large scale water heating applications, including swimming pools, BQs, dining facilities, and large administrative facilities. EMS and REMS can assist in developing an Energy Conservation Investment Program, or financed energy projects to implement these renewable energy projects.

e. Heat pump water heaters should be considered for locations where they can help remove heat from an area, such as an interior utility room.

f. Instantaneous water heaters should be considered in areas with sporadic demand for hot water to avoid long runs of hot water pipe or running a DHW circulating pump.

g. Hot water pipes will be insulated, especially where recirculating pumps are in use. Insulating blankets will be installed on older hot water storage tanks.

h. Water may also be heated or pre-heated by recovering heat from large waste heat sources, including fuel cells and microturbines. Heat recovered from these sources is considered "renewable" and contributes to CNRSEs efforts to increase its use of renewable energy. Recovering this heat is also usually critical to the cost effectiveness of these projects. This heat is best suited for heating swimming pools, large DHW systems, large high temperature hot water loops, and similar uses.

i. In conformance with state and association plumbing codes nation-wide, DHW temperatures at the point of use will be no higher than 120" F. DHW may be stored at temperatures up to 160" F as necessary to prevent growth of Legionella bacteria, but high temperature DHW must be mixed with cold water before the point of use to prevent scalding.

j. In buildings where a DHW circulating pump is used, a timer should be installed to deactivate the pump during periods when it is not in use.

k. Water temperatures for laundry facilities, galleys and other specific uses will comply with applicable health and safety codes.

BUILDING ENERGY MONITOR PROGRAM

1. Purpose. To have trained energy personnel in each Region facility to facilitate the reduction/elimination of energy and water waste.

2. Background. The BEM is a collateral duty as assigned by his/her supervisor or Command, and acts in cooperation and coordination with the Region Energy Team to increase energy and water efficiency.

3. Duties.

a. Identify yourself to your Navy Activity Command, Area Coordinator, and/or tenants in the facility for which you are a designated BEM.

b. Identify yourself to the CNRSE/N4 Energy Team and provide contact information; including building number, work phone, and e-mail address.

c. Attend at a minimum quarterly BEM training.

d. Assist the N4 in data calls regarding energy issues for your assigned building(s).

e. Communicate energy issues to the N4 Energy Team.

f. Encourage other building occupants to follow energy policies.

g. Post energy awareness materials and instructions in conspicuous locations in your assigned building(s).

h. Conduct monthly energy audits to assess energy efficiency issues and improve energy awareness in your assigned building(s).

i. If you have been relieved of BEM duties, communicate this to the CNRSE/N4 Energy Team along with the name and contact information of the BEM that relieved you.

ENERGY MANAGEMENT POLICY

1. Scope. This policy is provided to personnel occupying Region facilities and government housing within Navy Region Southeast as a basic checklist of things to do to reduce energy waste. It is not all-inclusive, but provided as a list of actions required, as a minimum, by all tenants and residents of Region facilities and government housing within Navy Region Southeast. Waivers to this policy may be obtained from the Navy Activity Commanders.

2. Action.

a. A Building Energy Monitor shall be identified for each building. Building occupants are required to support Building Energy Monitor enforcement and promulgation of the energy policy.

b. AC thermostats shall be set to maintain an ambient room temperature of 76°F during normal working hours. For AC units without thermostats, mount a thermometer and set the unit's cooling setting to a maximum of 76°F space cooling.

c. AC thermostats shall be set back to 83°F-85°F on weekends, holidays, and after hours.

d. Building occupants shall operate ceiling circulation fans vice AC when possible. Ceiling fans are authorized in common areas.

e. AC perimeter windows and doors shall be kept closed whenever a building's AC is operating.

f. Unauthorized personnel shall not tamper with air diffusers and register or reset temperature settings on thermostats.

g. For domestic hot water systems under 160 gallons storage capacity, the temperature shall be set to 115°F to minimize energy consumption. For domestic hot water systems over 160 gallons storage capacity, the temperature shall be set to 160°F to deter the growth of harmful microorganisms.

h. During unoccupied hours, turn off lighting system, office equipment, and computers. Where possible, use power

strips to cut off power to electronics that draw power even when "off" (AKA a "vampire" draw). For example: personal computers,

DVD players, microwaves, coffee makers, clock radios, etc. NOTE: It is now authorized to turn off NMCI computers at the end of the workday.

i. Secure outdoor lighting during daylight hours and encourage others to turn off lights as needed.

j. Replace damaged or burnt out lamps with energy efficient lamps.

k. Ensure lighting for exterior signage is turned off at the start of the workday.

l. For lighting in common areas, coordinate with Public Works Department to install auto-off power switches with occupancy sensors to reduce energy consumption. If not equipped, assign personnel responsibility to ensure implementation in that area.

m. All mission critical office equipment left on at night shall be set for "sleep" mode, if possible, to minimize energy used at night. All EnergyStar rated equipment shall have the energy savings mode enabled and active.

n. Consolidate or remove underutilized appliances in kitchen or kitchenette areas.

o. Kitchen appliances; including but not limited to refrigerators, coffee makers, microwaves, and toasters; shall not be permitted in personal work spaces.

p. Portable heaters and their possession are prohibited in personal work spaces. Fans are allowed only if building temperature cannot be maintained in the acceptable range.

q. Energy Star or energy efficient equipment shall be purchased to the maximum extent possible.

r. Only identified equipment per Federal Energy Management Program (FEMP) list as described in enclosure (6) is authorized for purchase.

WATER MANAGEMENT POLICY

1. Purpose. To reduce or eliminate waste in Region facilities or government housing and to meet the two percent per year reduction mandated in Executive Order 13423.

2. Action.

a. At a minimum, all occupants of Region facilities or government housing shall comply with the Federal Energy Management Program (FEMP) Best Management Practices (BMP) for Water Management set forth in enclosure (1).

b. In addition to the FEMP BMP of Water Management, the following actions, though not all-inclusive, are required.

(1) Report malfunctioning plumbing fixtures; such as defective toilet flush valves, leaking faucets/hose bibs, and leaking shower heads; as soon as possible to the Building Energy Monitor or Building Facility Manager.

(2) Irrigation of landscape is to be minimized and managed locally.

(3) Ensure irrigation systems deliver only enough water to irrigate the foliage and do not produce run-off on the surrounding hardscapes (concrete sidewalks, roadways, parking lots) or puddling of standing water.

(4) Terminate, reduce, or refrain from irrigating during rainy weather/season.

(5) Utilize xeriscaping where possible.

(6) Using a water hose to clean debris from floors, sidewalks, or parking lot areas is prohibited.

REGION ENERGY AWARDS PROGRAM

1. Purpose. Recognize and provide an incentive to individuals, small groups, and activities occupying Region facilities.

2. Background. An effective Energy Program involves the active participation of all facility tenants. This program provides the means to give recognition and incentives and to encourage further energy efficiency efforts by individuals, small groups, and activities occupying Region facilities.

3. Policy.

a. Nominations for the Region Energy Awards may be initiated by anyone occupying Region facilities. Generally, the higher the rank of the endorser, the more points assigned, as this shows greater command support for the nominee. The better the details provided in the nomination, the greater the points assigned, as this narrative will determine how sustainable the actions of the nominee will prove over time (i.e., turning off a light saves energy but is not sustainable as the next person may leave the light on when he/she leaves.) The Region shall use this program as an objective way to rank nominations and compare potential awardees for Region recognition.

b. Region Energy Awards shall be limited to non-monetary recognition; such as certificates, plaques, or banners; and shall be determined by the Energy Council (on a quarterly and annual basis. The council may choose to present as many Region Energy Awards as deemed appropriate based on the energy savings performance of the nominees. The recipient of the Annual Region Energy Award is not required to win any of the quarterly Region Energy Awards. This allows the Council to consider those nominated in the 4th quarter for either a quarterly and/or an annual Energy Award.

c. Deadline for Region Energy Awards shall be within one month after the end of the quarter and fiscal year respectively. Nominations shall be delivered to the Assistant Regional Engineer (ARE) Office. All nominations shall be reviewed by an Energy Council subcommittee. Incomplete or inadequate nominations shall be returned to the originator. The subcommittee shall deliver all complete nominations to the COUNCIL for review and selection of the awardees.

d. The Energy Council shall notify the awardees of their recognition and a presentation shall be made to recognize their achievements and announce the awardees in an article published.

e. Funding for the Region Energy Awards shall be arranged by the Region Financial Program Office (CRNSE, N8) and shall be contingent upon sufficient funds.

f. Installation Commanding Officers can further develop an Award and Recognition Program for energy and water conservation at their respective location.

	Max Points
Rank and Title of Endorsing Person: <ul style="list-style-type: none"> • 2 points for co-worker (no endorsement) • 4 points for first line supervisor • 6 points for secondary head • 8 points for Command • 10 points for Flag Rank 	10
Energy Savings Percentage: (Based on a percentage of the building/Activity power or water consumption) <ul style="list-style-type: none"> • 15 points for a 1% to 2% reduction in kilowatt hours (KWH) or KGAL • 30 points for 3% or greater reduction in KWH or KGAL • Points not given for demolished or BRAC'd facility 	30
Description of Energy or Water Actions: <ul style="list-style-type: none"> • 10 points for each energy initiative met 	30
Sustainability of Energy Savings: <ul style="list-style-type: none"> • 10 points if savings last longer than the award period without further interaction • 20 points if actions are directly transportable to other facilities and shows innovation 	20
Energy Council Board or Energy Team Endorsement: <ul style="list-style-type: none"> • 0 points for NO endorsement by either a voting member of the COUNCIL or an Energy Team member • 5 points for an Energy Team member's endorsement • 10 points for a voting member of the COUNCIL's endorsement 	10
TOTAL POINTS POSSIBLE:	100

Date of Nomination: _____

Building/Activity: _____

Nominee Name: _____

Rank and Title of Nominee: _____

Nominator Name: _____

Rank and Title of Nominator: _____

Annual Energy Savings by Nominee (kilowatt hours-KWH): _____

Action Taken by Nominee that saved energy (description):

Sustainability of Energy Savings as a result of the actions taken:

ENERGY COUNCIL VOTING MEMBER
PRINTED NAME, ACTIVITY, AND RANK

VOTING MEMBER
SIGNATURE

ENERGY TEAM MEMBER
PRINTED NAME, ACTIVITY, AND RANK

ENERGY TEAM MEMBER
SIGNATURE

Federal Energy Management Program Energy-Efficient, Water Conserving & Low Standby Power Product Types

Lighting:

Compact Fluorescent Lamps¹
Residential Light Fixtures¹
LED Lighting¹
Fluorescent Lamps²
Fluorescent Ballasts²
Fluorescent Luminaires²
Downlight Luminaires²
Industrial Luminaires²
Decorative Light Strings¹
Ceiling Fans¹

Commercial & Industrial Equipment:

Commercial (Unitary) Air Conditioners¹
Commercial Air-Source Heat Pumps¹
Geothermal Heat Pumps¹
Air-Cooled Electric Chillers²
Water-Cooled Electric Chillers²
Commercial Boilers²
Electric Motors²

Food Service Equipment:

Commercial Solid Door Refrigerators & Freezers¹
Commercial Ovens¹
Commercial Griddles¹
Commercial Fryers¹
Commercial Steam Cookers¹
Commercial Hot Food Holding Cabinets¹
Commercial (Air-Cooled) Ice Machines¹
Commercial Water-Cooled Ice Machines²
Commercial Dishwashers¹
Pre-Rinse Spray Valves²
Refrigerated Beverage Vending Machines¹

Office Equipment:

Desktop Computers^{1, 4}
Notebook (Laptop) Computers^{1, 4}
Computer Monitors^{1, 4}
Enterprise Servers¹
Copiers^{1, 4}
Fax Machines^{1, 4}
Printers^{1, 4}
Scanners^{1, 4}
All-in-One (Multifunction) Devices^{1, 4}
Digital Duplicators¹
Docking Stations⁴
Mailing Machines¹
External Power Adapters¹
Bottled Water Coolers¹

Home Electronics:

Televisions (TV)^{1, 4}
Video Cassette Recorders (VCR)^{1, 4}
Digital Video Display (DVD) Players^{1, 4}
Combination (TV/VCR/DVD) Units^{1, 4}
Home (Consumer) Audio^{1, 4}
Cordless Telephones¹
Answering Machines¹
Combination Telephone/Answering Machines¹
Battery Charging Systems¹

Appliances:

Refrigerators¹
Freezers¹
Residential Dishwashers¹
Clothes Washers¹
Room Air Conditioners¹
Dehumidifiers¹
Room Air Cleaners¹
Microwave Ovens⁴

Residential Equipment:

Central Air Conditioners¹
Air-Source Heat Pumps¹
Ground-Source Heat Pumps¹
Gas Furnaces¹
Residential Boilers¹
Heat Pump Water Heaters¹
Electric Water Heaters²
High-Efficiency Gas Storage Water Heaters¹
Whole-Home Gas Tankless Water Heaters¹
Gas Condensing Water Heaters¹
Solar Water Heaters¹
Ventilation Fans¹
Programmable Thermostats¹

Plumbing:

Faucets^{2, 3}
Showerheads²
Urinals²
High Efficiency Toilets³

Building Envelope:

Residential Windows, Doors & Skylights¹
Roof Products¹

Notes: 1 = ENERGY STAR-qualified, 2 = FEMP-designated, 3 = WaterSense-labeled, 4 = Low Standby Power

Federal procurement requirements apply to all ENERGY STAR-qualified, WaterSense-labeled and FEMP-designated products. FEMP *Purchasing Specifications for Energy-Efficient Products* are available for all FEMP-designated products; and also for some, but not all, ENERGY STAR-qualified and WaterSense-labeled products. For more information, visit FEMP's Web site at <http://www.eere.energy.gov/femp/procurement/>, the ENERGY STAR Web site at <http://www.energystar.gov> or WaterSense Web site at <http://www.epa.gov/watersense>.

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 Commercial Ovens¹
 Commercial Griddles¹
 Commercial Fryers¹
 Commercial Steam Cookers¹
 Commercial Hot Food Holding Cabinets¹
 Commercial (Air-Cooled) Ice Machines²
 Commercial Water-Cooled Ice Machines¹
 Commercial Dishwashers¹

Food Service Equipment (Cont.):

Pre-Rinse Spray Valves²
 Refrigerated Beverage Vending Machines¹

Office Equipment:

Desktop Computers^{1, 4}
 Notebook (Laptop) Computers^{1, 4} Computer
 Monitors^{1, 4}
 Enterprise Servers¹ Copiers^{1, 4}
 Fax Machines^{1, 4}
 Printers^{1, 4}
 Scanners^{1, 4}
 All-in-One (Multifunction) Devices^{1, 4}
 Digital Duplicators¹
 Docking Stations⁴
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 External Power Adapters¹
 Bottled Water Coolers¹

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[Combination \(TV/VCR/DVD\) Units](#)^{1, 4}
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Continued on pg. 2

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Federal Energy Management Program Energy-Efficient, Water Conserving & Low Standby Power Product Types (Cont.)

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Freezers¹
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Clothes Washers¹
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Dehumidifiers¹
[Room Air Cleaners](#)¹
Microwave Ovens⁴

Residential Equipment:

Central Air Conditioners¹
Air-Source Heat Pumps¹
Ground-Source Heat Pumps¹
Gas Furnaces¹
Residential Boilers¹
Heat Pump Water Heaters¹
[Electric Water Heaters](#)²

Residential Equipment (Cont.):

High-Efficiency Gas Storage Water Heaters¹
Whole-Home Gas Tankless Water Heaters¹
Gas Condensing Water Heaters¹
[Solar Water Heaters](#)¹
[Ventilation Fans](#)¹
[Programmable Thermostats](#)¹

Plumbing:

[Faucets](#)^{3,2}
[Showerheads](#)²
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Building Envelope:

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