DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON JAPAN
UNIT 45006
APO AREA PACIFIC 96343-5006

REPLY TO
ATTENTION OF:

COMMAND POLICY
200

13 AUG 2015

IMJN-PWE

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: U.S. Army Garrison (USAG) Japan Energy and Water Conservation Policy

1. REFERENCES:

a. Energy Policy Act (EPAct) of 2005.

b. Energy Independence Security Act (EISA) of 2007.

c. Executive Order (EO) 13693, Planning for Federal Sustainability in the Next Decade, 19 Mar 15.

d. Installation Management Command (IMCOM) Pacific Region Energy and Water Management Policy Guidance, 4 Mar 09.

e. Army Regulation 420-1, Army Facilities Management, 12 Feb 08, Rapid Action Revision (RAR), 24 Aug 12.

f. Memorandum, Assistant Secretary of the Army (Installation, Energy and Environment), 23 Jan 13, subject: Installations, Energy, and Environmental Fiscal Year (FY) 2013 Budget Guidance (Annex A).

2. PURPOSE. To incorporate the energy and water conservation goals established by EO 13693, EPAct 2005 and EISA 2007 into the existing installation management structure.

3. APPLICABILITY.

a. This policy applies to all military personnel, civilian employees, Master Labor Contract employees, Indirect Hire Agreement personnel, tenant organizations, and contractors working on USAG Japan installations for five consecutive days or more.

b. Dissemination of this policy will be through e-mail, Rising Sun, Command Channel, USAG Japan SharePoint Portal (https://home.army.mil/sites/pcr/usagj/DPW/SitePages/Home.aspx), and USAG Japan web page (http://www.usagj.jp.pac.army.mil/organization/pw/environmental.aspx).

4. ENERGY AND WATER CONSERVATION POLICY.

a. USAG Japan strives to be a leader in environmental, energy and natural resources stewardship. USAG Japan will develop and manage programs and plans necessary to meet its responsibility to conserve resources, enhance environmental sustainability and protect human health.

b. Leaders at every level are required to implement five major initiatives to include eliminating waste in existing facilities, increasing energy efficiency in new construction and renovations, reducing dependence on fossil fuels, conserving water resources, and improving energy security. Find the most cost effective financing alternatives to fund energy conservation and efficiency measures to include Sustainment, Repair, and Modernization (SRM), Military Construction (MILCON), and alternative-financed programs with third party financing.

c. Each Senior Commander will hold Unit Commanders, Directors, tenants, and head of activities accountable for energy use in the facilities they occupy.

d. Each Unit Commander, Director, and tenant will appoint in writing one Unit Energy Conservation Officer (UECO) for their respective unit and one Building Energy Monitor (BEM) for each building, or portion of each building, the unit occupies. UECOs will ensure energy conservation requirements listed in USARJ OPORD 06-154 are implemented and executed.

e. Heating/Cooling criteria:

(1) An intermittent heating season will be implemented. Daytime heating will begin when the outside air heat index is 68° F (20° C) or lower between the hours of 0500 to 2200 for three consecutive days. Nighttime heating is applicable to quarters only and will begin when the outside air heat index is 55° F (13° C) or below during the hours of 2200 to 0500 for three consecutive days.

(2) Heating season temperatures in occupied facilities will be maintained at 68° F (20° C) during working hours and heating setback temperatures during unoccupied times shall be set at 55° F (13° C).

(3) Daytime heating will end when the outside air heat index is greater than 68° F (20° C) between 0500 and 2200 for three consecutive days. Nighttime heating will end when the outside air heat index is greater than 55° F (13° C) between 2200 and 0500 for three consecutive days.

(4) An intermittent cooling season will be implemented. Daytime cooling will begin when the outdoor air heat index is 78° F (25° C) or greater between the hours of 0500 to 2200 for three consecutive days to counter high temperatures and relative humidity. Nighttime cooling will begin when the outside air heat index is 74° F (23° C) or greater during the hours of 2200 to 0500 for three consecutive days.

(5) Cooling season temperatures for occupied working and living spaces shall be maintained at 78° F (25° C). Cooling set-up temperatures during unoccupied times shall be set at 85° F (29° C).

(6) Daytime cooling will end when the outside air heat index is less than 78° F (25° C) between 0500 and 2200 for three consecutive days. Nighttime cooling will end when the outside air heat index is less than 74° F (23° C) between 0500 and 2200 for three consecutive days.

(7) For unoccupied facilities, Heating, Ventilation, and Air Conditioning (HVAC) systems must not be set to comfort temperature levels but set to maximize energy savings and also avoid damage to the facility; setback temperatures to no less than 85° F (29° C) for air conditioning and 55° F (13° C) for heating.

(8) Reduce use of Air Conditioning (A/C) systems and maximize use of fans. Also, maximize use of natural ventilation by opening windows, where feasible, and dress appropriately to maximize individual comfort.

(9) Requests for exception to the cooling or heating season must be revalidated annually and submitted to the installation commander or delegated authority for approval. A copy of the request and the granting authorities' decision must also be provided to the USAG Japan Energy Manager.

(10) Use of personal cooling or heating devices must have supervisor written approval and can only be used when the area is occupied.

(11) A No Heating/No Cooling season will be implemented twice a year which will allow the Directorate of Public Works (DPW) to perform the necessary preventive maintenance, checks, and services required on HVAC systems throughout the USAG Japan installations prior to the heating/cooling period. Facility/building managers must ensure that occupants maximize the use of appropriate clothing and if necessary the use of natural ventilation by opening windows and common area entrances. The priority of HVAC service is to be provided to those facilities without natural ventilation capability such as the schools, Medical Department Activity (MEDDAC), Exchange, Camp Zama Community Club, Public Health Command, and Child, Youth and School Services, etc.

5. COMMITMENT. USAG Japan is committed to providing safe, secure, compliant, and cost-effective energy and water services to Soldiers, Families, Civilians, and contractors on our installations while meeting or exceeding the various Federal energy goals and mandates by:

a. Reducing total facility energy intensity by 3% per year thru FY15, and an additional 2.5% per year thru FY25 relative to FY15 baseline.

b. Increasing percentage of electricity coming from renewable sources.

c. Reducing total potable water intensity by 2% per year thru FY25.

d. Installing electrical, natural gas, water, and steam meters and reporting systems not later than the end of FY18.

e. Conducting energy and water audits for 25% of facilities annually.

6. The point of contact is Energy Manager, DPW at 263-3131.

7. This command policy supersedes USAG Japan Command Policy 200, 5 Dec 13.

8. This command policy will expire when superseded or rescinded.

WILLIAM B. JOHNSON
COL, AR
Commanding

Encl
Energy Management Best Practices

DISTRIBUTION:
A, C, D

Annex A

Energy Management Best Practices and Other Initiatives

Many low cost/no cost energy and water reduction measures can contribute greatly to saving energy and reducing budgets. Installations are expected to implement these measures, subject to availability of funds, as rapidly as possible.

Intent:
The purpose of this culture change initiative regarding *energy stewardship* is to enhance the Army's ability to project and sustain power to accomplish its current and future missions. The end-state goals are to:

1. Create a stewardship mindset throughout the Army so that members view energy as a critical enabler, especially in austere environments.
2. Have members consistently engage in behaviors to use energy resources wisely to enhance performance in executing current missions.
3. Empower members to creatively use and leverage energy resources, in conjunction with materiel resources, to increase capability to conduct operations, while also building a capacity to adapt to future demands.
4. Have members create and share best practices for energy stewardship.
5. Transfer members' energy stewardship mindset to their personal lives, positively affecting both installation and off-post energy stewardship.

This energy stewardship culture will provide members (Military, Civilians, and Family) with the mindset and skills necessary to use energy more efficiently and effectively, thus contributing to increased performance in accomplishing Army missions. More important, a culture of energy stewardship enhances the Army's ability to project power and to operate in austere environments in response to unforeseen contingencies. Energy stewardship should include the following:

- **Command-level Garrison Energy Steering Committee (GESC):** Garrison Commander and Command/leadership of major tenants get briefed on energy program/projects and secure feedback from garrison energy managers on a quarterly basis.

- **Building Energy Monitor (BEM) Program:** Installations will organize an active BEM program to push the level of accountability down to building occupants.

- **Army Housing (Unaccompanied Personnel Housing and Family Housing):**
  a. Reduce use of A/C systems and maximize use of fans.
  b. Use only A/C units in occupied room(s) where occupants have multiple A/C units.
  c. Avoid using appliances (dishwashers, washers & dryers) during peak demand periods.
  d. Set thermostats for refrigerators at 38-40 °F and freezers at 27-29 °F.
  e. Wash clothes in cold or warm water, not hot water.

Encl

- **HVAC Equipment:**

a. When buildings are unoccupied, use setback temperatures on all heating, ventilation and air conditioning equipment, including window air conditioners. Setback temperatures to no less than 85°F in summer and 55°F in winter. If automated controls are not installed, activate procedures for manual adjustment of all heating and cooling equipment at the end of the every work day and for any periods an area is unoccupied during work hours (such as locker rooms, lunch and break rooms).

b. Reduce use of A/C systems and maximize use of fans.

c. Use only A/C units in occupied room(s) where building occupants have multiple A/C units.

d. Adjust thermostats to 78°F in cooling mode and 65°F in heating mode.

e. Shutdown A/C systems earlier in the afternoon and turn-on A/C systems later in the morning

f. Maximize use of natural ventilation by opening windows, where feasible, and dress appropriately to maximize individual comfort.

- **Filters:** Replace the filters and check the tension on fan drive belts where installed every 30 days during the heating season — normally November through March, but varies based on climatic region — and the same during the air conditioning season — July through September based on climatic region. For non-heating and non-cooling months, replace and check every 90 days as a minimum.

- **Boiler and Chillers:**

a. Reset chilled water temperature. Between 40% and 80% load savings range from ½ to ¾ percent per degree increased in temperature. Increase chilled water temperatures to max limits that provide output air temperatures at 78 °F.

b. For chillers at <80% load install VSD to achieve savings of 2% to 3%.

c. Ensure refrigerants are properly charged. A low charge increases head pressure and energy.

d. Reduce condenser water temperature. Each degree lower will save approximately 1.5% in energy.

e. Reduce chiller unit operations where there are multiple units.

f. Keep boilers adjusted to manufacturers' specifications. This can reduce fuel consumption by 3-5% per boiler.

- **Water Heaters:** Set water heaters to no more than 120°F temperature. Install booster heaters for kitchen areas rather than raise storage tanks to 180°F. Add insulation blankets to water heaters.

- **Steam traps:** Implement an effective steam trap maintenance program. This can reduce a boiler's fuel use by 10% to 20%.

- **Compressed Air systems:** Repair air leaks immediately. This can reduce compressed air system energy use by 30% or more.

- **Programmable thermostats:** Install programmable thermostats. They can offer effective and quick returns on investment. They adjust temperatures during non-occupied hours, reducing energy costs. The increases in temperature during the cooling season and decreases in temperature during the heating season can result in significantly reduced energy use. The energy savings can be approximated at 1% per degree of setback for every 8 hours that a building is at a reset (non-occupied) temperature.

- **Low-level Electrical Controls:** Install time clocks and photocells to control exhaust fans, exterior lights or lights in areas where ambient lighting through windows is adequate for purpose.

- **Outdoor Lighting:** Turn off all outside lights during the day. Guardhouses, access points, gas stations, maintenance areas and storage areas are common locations where outside lighting is left on during daylight hours. Consider delamping every other streetlight and installing LED lighting. Minimize night security and parking lighting in unoccupied spaces such as motor pools, storage yards, etc. Shut off street, parking and other security lighting (at least every other light) after 0100, where possible, consistent with safety and security requirements.

- **Indoor Lighting:**

a. Turn off interior lights in all unoccupied area, even when one intends to return immediately. If funds are available, install occupancy sensors in hallways and common areas. Until occupancy sensors are installed, have procedures to turn off light switches or circuit breakers. Sometimes circuit breakers are the only way to turn off lights, as is the case in many maintenance and dining facilities. Occupancy sensors in rest rooms and conference rooms can save 10-50% of lighting energy depending on area traffic.

b. Turn off all unnecessary lights (interior & exterior) at home, office spaces, classrooms, and conference rooms when not in use, especially at the end of the work day and during weekends.

c. Remove all incandescent lights from the installation. Prohibit lamps and fixtures that have incandescent lights from offices, maintenance areas, boiler rooms and closets.

d. Replace all incandescent bulbs with energy-efficient compact florescent, florescent, LED or Energy Star-rated luminars.

e. Remove all incandescent lights from supply inventories (SSSC and self-help stores) and prohibit the purchase of incandescent replacement bulbs by units on the installation.

f. Maximize use of task and daylighting as much as possible and turn off all other lighting. Delamp every other light in hallways.

- **Replace T12s with T8 or T5 lamps w/electronic ballasts or LEDs:** The T8 or T5 lamps with electronic ballasts are more efficient than the standard T12 lamps with standard ballasts. In addition, the quality of lighting may be improved due to the higher CRIs (Color Rendition Index) of the T5/T8s as compared to the standard T12s. Also, the white LEDs replacements are becoming very economical, they last for 100,000

hours so your replacement cost and labor needs to be considered, they require no ballast, and they work in cold weather outside.

- **Exit Lights:** Replace all exit lighting with LED lighting fixtures.

- **Replace incandescent bulbs with CFLs:** Compact fluorescent lamps (CFLs) are very efficient when compared to the standard incandescent bulb. CFLs use about one-third to one-fourth the wattage of incandescent bulbs to produce an equivalent amount of light. In addition, CFLs can have a rated life as high as 10,000 hours, as opposed to 750-1,000 hours for most incandescents.

- **Vending Machines:** Subject to approved contract modifications, delamp vending machines whether they are inside or outside. Seek changes to the agreements with vending machine owners to avoid providing utilities without requirement to pay a utility charge. De-lamping vending machines can reduce each machine's energy consumption up to 20%, or 2.5 kWh/day/machine. Replace older vending machines with machines that are Energy Star. Energy Star vending machines will be about 40% more energy efficient than the ones they replace. Consider the addition of VendingMisers, an energy control option for vending machines. It may save up to 40% of the electricity needed to run the machine.

- **Wiring and Switching:** Rewire all indoor lighting that is on 24/7, except LED exit fixtures required by code, to be on either switches or motion sensors. If there is a security or safety issue, motion sensor control meets the requirement.

- **Rewinding Motors:** Replace all motors and pumps with high-efficiency Energy Star equipment every time a replacement is required. Prohibit rewinding or replacing with the same efficiency. Do not yield to the arguments that it is more convenient or less costly to rewind or replace with in-kind capability as the extra energy used by the less-efficient motors will pay the difference usually in less than three years. Energy savings are generally 3-5% per motor.

- **Motors:** All motors and pumps that have automatic controls should be operated in the auto mode and not in the manual mode that causes them to run 24/7. Very few systems require 24/7 operation, and a review of the requirement can reduce the operating hours of many pumps and motors. Disable systems such as hot water circulating pumps than run 24/7 in facilities where the hot water is not required immediately at the faucet. Consider timing controls for the pumps motors during high-use or high-demand times, such as early mornings and/or late afternoons, which allows the motors or pumps to be off during non-occupied or low-use times.

- **Doors and Windows:** Doors and windows between conditioned spaces and non-conditioned spaces should not be rigged to stay open. Remove all door stops from exterior and vestibule doors to prevent them from being open portals during the heating and cooling season. Active management of doors and windows that control conditioned spaces is critical to reducing energy waste especially in maintenance areas with heating

and/or air conditioning. Heating and cooling of vestibules (entry areas) should be eliminated except to prevent freezing of pipes in those areas. Thermostats for heating of vestibules should be set at no higher than 45°F and, in most cases, can be set at 40°F where the weather stripping is properly installed for entry doors. Air conditioning of vestibules should be shut off.

- **Weather Stripping:** Install or replace all weather stripping on every entry way where a gap or light is visible. Calk all joints, window frames, door jambs and any penetrations from the outside of the building. Infiltration around windows and doors is one of the main causes of wasted energy in conditioned spaces.

- **Computers and Monitors**: Turn off all computers and monitors at the end of every work day, on weekends and holidays. Set them to energy saving sleep mode to activate automatically when not in use during the work day. If the equipment is Energy Star rated as required by statute and regulation, then it has a sleep mode. If the sleep mode is activated after 20 minutes of inactivity, then the equipment is not required to be turned off during the work day. Otherwise, equipment without an energy saving sleep mode will be turned off when not actively in use during the day. When available, use laptop computers (preferably on battery power when possible) – they consume 90% less energy than standard computers. Purchase of equipment that does not meet Energy Star or FEMP designation is not authorized. Computers use 400-900 kWh/year if left on continuously, depending on the age and peripherals.

- **Office Equipment:** Scanners, copy machines, faxes, printers and other such equipment must be programmed with sleep modes to activate automatically when not in use. Equipment is required to be Energy Star rated and have a sleep mode. Purchase of equipment that does not meet Energy Star or FEMP designation is not authorized. Scanners, copy machines, printers and other such equipment must be turned off at the end of every work day, on weekends and holidays. If possible, do not make photocopies or print documents, conduct all business electronically. Reduce the number of printers serving a work area; use only one designated printer and copier in a work area.

- **Personal Equipment:** Eliminate and remove all extra refrigerators, microwaves, coffee pots and other appliances that service only one or two persons. Permit only the quantity of appliances needed for the number of personnel. Remove non-Energy Star appliances from the workplace by requiring all appliances to bear the Energy Star label. Remove non-complying appliances from the facility so that they do not simply move to another office. Prohibit personally owned appliances in the workplace. Turn off or unplug all office/home appliances when not in use for extended periods of time.

- **Analyze utility rate structure and track billing history:** To control utility costs, it is necessary to fully understand how the demand and energy charges are calculated and how they affect facility operating costs. Also, in order to save energy, it helps to understand how a building has performed in the past. Track and graph utility use for at least the previous 12 months. Commercial software programs designed to do the

tracking and graphing are readily available, or develop your own with spreadsheets. At a minimum, track monthly demand, energy use and dollar amounts. This will enable you to quantify savings due to energy management improvements and can even help you spot billing errors.

- **Work with the Utility Representative:** The utility representative can be a valuable asset in controlling energy costs. Deregulation has placed pressure on utilities to keep their customers, especially larger facilities, from thinking about switching to other suppliers or generation alternatives. This means that most utilities want to do all that they can for their customers. Here are some questions to ask the representative: How do my rates (schedules) work? How can I get copies of them? Am I on the best possible rate (schedule)? If not, how can I get on it? What are my rate options (for both demand and consumption)? Does my demand rate include a ratchet charge? What is the demand period? Do you offer any incentives or rebates for equipment replacement? Can you help me reduce my utility costs?

- **Building closures:** Shut buildings down completely during weekends. Consider use of compressed work schedules (four 10-hour days) and/or encourage people to telework from home 2-3 days per week so that some facilities can be 100% shut down every Friday/Saturday/Sunday and take advantage of temperature setbacks to 55°F.

- **Operating hours:** Shift missions, training, and operations from peak hours to off peak hours; for example, simulator training at night.

- **Space utilization:** Perform space utilization surveys and consolidate as much as possible. Mothball resulting empty space and facilities.

- **Government Vehicles:** Stop idling government vehicles when unattended or waiting for more than 30 seconds. Commanders should set this as a vehicle violation with a warning and then a consequence for second and follow-on violations.

Additional References
FEMP O&M :
http://www1.eere.energy.gov/femp/program/operations_maintenance.html
O&M Best Practices Guide:
http://www.eere.energy.gov/femp/pdfs/omguide_complete.pdf
DOE/EERE FEMP: http://www.eere.energy.gov/femp