You do not need lots of money to make a big difference. Fifteen (15) low–cost or no-cost energy conservation measures

by Don Juhasz

Not long ago, in a meeting with the senior leadership of the Office of the Assistant Chief of Staff for Installation Management and the Installation Management Command about energy security, I was asked what installations could do right now to make a difference in energy consumption. I responded that, off the top of my head, I could state 15 ways to reduce energy caused by wasteful behaviors and practices.

I wrote down the 15 and realized that I had many more. However, for this article, I will concentrate on these first 15. I will address additional opportunities when I receive a report that an installation has implemented all of these.

The first 15

1. **Computers and monitors** should be **turned off** every day when not actively in use (Army Regulation 420-1, chapter 22). 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 any 20 minutes of inactivity, then the equipment is not required to be turned off when not in active use.

However, few computers or monitors are enabled for the sleep mode even though they have the capability. Our computer support personnel disable most, as there are not any consequences for doing so. Disabling energy reducing capabilities in any equipment is paramount to waste and abuse of Army resources.

2. **Stop idling government vehicles** when unattended or waiting for more than 30 seconds. Installation commanders should add this as a violation that is ticketable with a warning and then a consequence for second and follow-on violations.

3. **Turn off** all **interior lights** in any and every unoccupied area, even when one intends to return immediately. If funds are available, install occupancy sensors in hallways, common areas and individual offices. 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 mess facilities.

4. For scanners, copy machines, faxes, printers and other **office equipment**, program the **sleep modes** to **activate automatically** when not actively in use. All of this equipment is required to be Energy Star rated and have a sleep mode by the Energy Policy Act of 2005, Energy Independence and Security Act of 2007 and AR 420-1. Purchase of equipment that does not meet Energy Star requirements should have a consequence to the manager and agent who authorized it.

5. Use **setback temperatures** on all **heating, ventilation and air conditioning equipment**, including window air conditioners. 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) . Required setback temperatures are found in AR 420-1, chapter 22.

6. **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 because of lack of attention, education and consequences. Vending machines should be delamped whether they are inside or outside. Seek changes to the contracts with vending machine owners paying a utility charge for connecting to government-supplied energy.

7. **Doors and windows** between conditioned spaces and non-conditioned spaces are not to be propped or left open. **Active management** of doors and windows that control conditioned spaces is critical to reducing energy waste.

In addition, 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 degrees and, in most cases, can be set at 40 degrees where the weather stripping is properly installed for entry doors. Air conditioning of vestibules should be shut off.

8. 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 domestic 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.

9. **Remove** all **incandescent lights** from the installation. Prohibit lamps and fixtures that have incandescent lights from offices, maintenance areas, boiler rooms and janitor closets. Require existing incandescent bulbs to be replaced with compact florescent, florescent, LED or Energy Star-rated laminars. Remove all incandescent lights from supply inventories and prohibit the purchase of incandescent replacement bulbs.

10. **Eliminate** and remove all **extra refrigerators, microwaves, coffeepots** and other **appliances** that service only one or two persons except as permitted by AR 420-1, chapter 22. 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 by Sept. 30th, or provide another date this year after which compliance is mandatory. Remove non-complying appliances, cut off their cords and remove them from the installation so that they do not find a home in another office. Prohibit personally owned appliances in the workplace, and provide a date by which they must be removed.

11. **Replace** all **exit lighting** with LED lighting fixtures.

12. **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, including propped doors and open windows, is one of the main causes of wasted energy in conditioned spaces.

13. **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.

14. **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.

15. **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 as the extra energy used by the less-efficient motors will pay the difference usually in less than five years and, usually, in less than three years.

Inexpensive ways to save

The first 10 recommendations can be accomplished with no additional costs other than behavioral changes and the involvement of installation command and management at all levels and among all tenants. No entity, manager or person is exempt from application of these 10 no-cost efforts.

The last five require an investment that in most cases is recovered in less than two years and in nearly every case in less than five years. Reduction in energy consumption of 15-20 percent is easily reachable by the application of these recommendations and, at some installations, as much as 30 percent is reasonable when the setback temperatures are applied to all HVAC systems.

However, command involvement makes or breaks the potential energy reductions by endorsing and enforcing programs that reward those who make an effort and provide consequences to those who do not comply.

Energy managers need to create a program of auditing — walking through facilities with a check list — and providing commanders and managers with reports of building-by-building, facility-by-facility compliance. Competitions and time-off awards for those found in compliance, and reporting in the installation newspaper the building numbers and organizations that are not complying can be the difference in an installation accomplishing its energy reduction goals.

All these efforts go a long ways in making our country and our Army energy secure.