



Unit Energy Manager Program

HANDBOOK FOR UNIT ENERGY MANAGERS





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Unit Energy Manager:

Thank you for helping the Marine Corps manage valuable energy and water resources on our bases and stations. These resources are essential in supporting our fellow Marines as we prepare and train for operations abroad. Our ability to provide energy and water is impacted by the reality of reduced budgets, and requires every Marine to become involved to better manage these vital resources. As the Unit Energy Manager (UEM), you will play a key role in the implementation and success of your unit's energy program and in laying the foundation for an Energy Ethos – the shared vision that the efficient use of energy resources is a critical component of mission readiness – throughout the Marine Corps.

In addition to this handbook, Marine Corps Installations Command (MCICOM) Facility and Operations Energy (GF-1) has created several resources to support you in your efforts. These materials will aid you in educating and communicating with Marines in your unit. You will also undergo a training curriculum run by your Installation Energy Manager (IEM) to ensure a thorough knowledge of installation energy. Your training and these materials are designed to enhance energy efficiency and awareness efforts and to help you more effectively train and communicate with members of your unit.

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UEM Program Overview



Marine Corps Unit Energy Managers (UEMs) will serve as a battalion or squadron's point of contact on energy and water management. This position is the foundation of developing an Energy Ethos — the shared vision that the efficient use of energy resources is a critical component of mission readiness — across the Marine Corps. UEMs will promote and reinforce this ethos by acting as the liaison between Installation Energy Managers (IEMs), Installation Commanders, and the tenant units in encouraging efficient energy and water use by Marines, civilian Marines, contractors, and their families. The program is managed by Marine Corps Installations Command (MCICOM) Facility Operations and Energy (GF-1).

MISSION

The UEM Program mission is to establish a culture of energy efficiency — the Energy Ethos — across our bases and stations, provide Operational Commanders with greater visibility of energy resources, and create a touch point with Installation Commanders and IEMs regarding energy use within each tenant unit.

GOAL

The program goal, driven by the 2014 Utility Demand Reduction (UDR) Guidance, is to **reduce utility execution costs 10 percent by 2020**, against a 2013 baseline.

OBJECTIVES

The objectives of the program, as it pertains to the Unit Energy Manager role, are as follows:



- **Objective #1:** Foster a culture of conservation across installations by educating fellow Marines on energy and water use reduction and monitoring their progress in implementing best practices
- **Objective #2:** Provide Operational Commanders with greater visibility of resources in order to understand how the unit consumes energy and water, and reinforce the installation's energy priorities
- **Objective #3:** Create a touch point between Installation Commands and your fellow Marines regarding energy use to promote a reduction in energy demand

RESPONSIBILITIES

The responsibilities of the UEM are as follows:

- Communicate installation energy goals and objectives to Marines within your unit
- Promote and increase awareness on the usage and cost of energy
- Educate fellow Marines on energy and water efficient behaviors
- Serve as the point of contact for energy issues, questions, or problems within your unit
- Identify potential energy-saving opportunities or efficiency projects in facility operations
- Perform regular facility energy walkthroughs
- Assist IEMs, as needed, to gather facility-specific data

BENEFITS

Acting as a UEM comes with several unique benefits to the Marines selected to fill this role.

Benefits of becoming a UEM include:

- The opportunity to develop expertise in the growing field of energy efficiency and sustainability, while adopting best practices for personal energy savings
- Recognition opportunities based on excellent performance (through updates to your billet description, extracurricular activities on your fitness reports, etc.)
- Increased knowledge of business, audits, management, communications, and planning
- Exposure to leadership by reporting energy data, sharing best practices, and discussing unit efforts and competitions
- Experience as a unit leader, developing vital leadership skills, and gaining credibility among your counterparts

2 » Training to be a Successful UEM



MCB Camp Pendleton Pilot Program UEMs from left to right: HM3 Joshua Nelson (Assistant UEM 1st Med Bn), HM1 Michael Ortiguero (UEM 1st Med Bn), Sgt Christien Stevenson (UEM MWSS-372), Cpl Stephen Brothers (Assistant UEM MWSS-372)



As designated UEMs, you may have little experience with energy management or program leadership. Recognizing this fact, we developed a strong support structure designed to train you for success. This will consist of regular meetings and trainings facilitated by IEMs and others in the Marine Corps energy management community.

INITIAL TRAINING

Training 1: Kickoff Meeting

An in-person meet-and-greet for you and your fellow UEMs to get acquainted, review your role's purpose and the expectations associated with it, exchange contact information, discuss programmatic plans, distribute collateral materials, and schedule the next few trainings. You will also be introduced to the Marine Corps *Installations Energy Strategy* and basic communication and reporting procedures.

Training 2: Introduction to Installation Energy

This training covers an overview of Marine Corps energy and water goals, basics of electricity generation, transmission and distribution, how electricity is consumed on an installation, energy-efficient technologies, and fuel and water consumption and conservation.

Training 3: Installation Overview

The purpose of this meeting is for the IEM to introduce you to the practicalities of energy and water use on base, and put your training into context. This session will help you understand how theoretical knowledge from your training applies to the day-to-day operations of the installation. IEMs will perform in-person walkthroughs of your base's facilities, focusing on no-cost and low-cost energy solutions that succeed largely based on behavior modification (e.g., closing windows and doors, turning off lights, recognizing and reducing energy waste) to achieve USMC energy goals for reduced energy usage intensity and utility execution costs.

Training 4: Energy Ethos and Behavior Change

This training will explain the purpose and importance of the Energy Ethos, give an overview of human behavior and how it affects energy consumption, provide strategies for energy conservation on a Marine Corps installation, and review UEM program tools and materials and how to use them.

Training 5: UEM Program Planning

The purpose of this meeting is to review the information learned up until this point and begin the planning process for your installation's Energy Ethos program. In developing a strategy to spread the Energy Ethos on your installation, you should take into account the behaviors you are seeking to change, data gathering requirements, timeline planning and execution, and participation opportunities for fellow Marines. This session should lead to an executable plan and provide you with the opportunity to discuss or ask questions about any of the material covered.

UEM ENERGY AWARENESS COURSE

As a newly-assigned UEM, you will be required to complete the UEM Energy Awareness course. This self-paced, online course is available at <https://www3.mcieast.usmc.mil/uem/> and is accessible from usmc.mil addresses only. The course provides an overview of the Marine Corps *Installations Energy Strategy*, vision, and mission; delivers high-level energy concepts, definitions, and examples of relevant energy and water management practices; outlines the major energy systems on an installation; and provides a comprehensive Energy Management Checklist.

ADDITIONAL TRAINING

As a UEM, you will receive additional training on new or existing energy topics and will also have the opportunity to collaborate with other UEMs. Discussion topics for this additional training may include:

- Descriptions of building operating equipment to include HVAC, lighting, building envelope, etc.
- Updates on Marine Corps-wide Energy efforts or *Installations Energy Strategy*
- Updates on energy consumption levels and metering
- Facility walkthrough or audit results
- Seasonal changes or weather-related considerations
- Success stories in specific buildings, or on other installations
- Discussion of UEM concerns or issues
- Sharing of best practices among the UEMs in attendance
- Communications training or suggestions to foster awareness
- Review of data reporting procedures
- Behavior change information
- Renewable energy sources and benefits

REFERENCE DOCUMENTS

USMC EXPEDITIONARY ENERGY STRATEGY

The Marine Corps' energy vision is laid out in the USMC *Expeditionary Energy Strategy and Implementation Plan*. This "Bases to Battlefield" approach promotes the establishment of an Energy Ethos that equates efficient use of vital resources to enhanced mission readiness on installations and operational effectiveness in combat. The strategy can be found at: <http://go.usa.gov/6Zdk>.

USMC INSTALLATIONS ENERGY STRATEGY

MCICOM developed the Marine Corps *Installations Energy Strategy* to outline the major Lines of Operation (LoOs) related to installation energy: Energy Ethos, Energy Information, Energy Efficiency, Renewable Energy and Alternative Fuels, and Energy Security. The complete *Installations Energy Strategy* can be found at: <http://go.usa.gov/6Zw3>.

DEPARTMENT OF THE NAVY BUILDING ENERGY MONITOR GUIDE

The Department of the Navy has created a variety of support materials for use and reference on installations. The *Building Energy Monitor Guide* provides an overview of opportunities for reducing energy and water waste that can be tailored for effectiveness in UEM-monitored facilities. The guide can be found at: <http://bit.ly/12Hx5qz>.

UTILITY DEMAND REDUCTION (UDR) GUIDANCE

MCICOM GF-1 has instituted UDR Guidance requiring that installations cut utility execution costs 10 percent by 2020 against a 2013 baseline. This guidance is an important reference regarding Marine Corps Installations energy policy and is a driving force behind the UEM Program.

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Evaluation Factors



MCICOM GF-1 will provide a set of important evaluation metrics to help assess the success of the UEM Program.

As a UEM, you will report directly to your operational chain of command, but IEMs will be the most knowledgeable about your work and will, therefore, be a vital resource while performing your duties as a UEM.

MCICOM GF-1 will provide both you and your IEM with a set of important evaluation metrics to help assess the success of the program. One important metric will be measuring energy and water use where technology permits, but there are many other factors to consider. The following are some examples of measures that may be used to evaluate the progress of the UEM Program.

BUILDING WALKTHROUGHS

- Were building walkthroughs conducted? How often?
- Were walkthrough checklists completed and provided to the IEM? How thorough were they?
- Were suggestions for improved efficiency and technology made?
- Did any repairs or activities result from these facility walkthroughs?

DISSEMINATION OF MATERIALS

- Were posters or tip sheets distributed to the unit?
- How were the materials distributed (handouts, bulletin boards, etc.)?
- Did you create any additional materials unique to your unit or installation's facilities?

EVENTS

- Were any energy awareness events held? How many?
- What kinds of events were held, and what types of activities were included?
- How many and what rank of Marines attended the events? Was leadership involved?

PUBLIC AFFAIRS ENGAGEMENT

- Were meetings held with your IEM regarding Public Affairs support of the energy program?
- Were any suggestions made to increase awareness and education through public affairs?
- Did your ideas or suggestions result in any media stories, social media posts, etc.?

FEEDBACK TO UNIT

- Were fellow Marines, unit leadership, and your IEM provided with energy and water use status updates? If so, how often?
- Was metered data shared with your unit?
- Were success stories shared with your unit?

POTENTIAL PROJECT IDENTIFICATION

- Were any energy concerns or vulnerabilities reported? Did these reports have merit?
- Did these reports lead to any repairs?
- Were new building or operational efficiency plans or procedures suggested?

METRICS AND EVALUATION

Data reporting and continuous evaluation are cornerstones of the UEM Program. Data will be collected on a quarterly basis to measure program success and influence Marines. Some examples of qualitative and quantitative data that will be used are:

- Energy use data measured by meters
- Utility expenditures measured by installation utility bills
- Scoresheets measuring UEM success against the items on pp. 8 and 9

The evaluation metrics listed above will be collected by UEMs, IEMs, and PAOs.

As the UEM Program matures, so will the sophistication of energy and water metering technologies, allowing a more precise way to evaluate success. In the meantime, it is vital that UEMs closely track all efforts taken.

AWARDS AND RECOGNITION

As reductions in energy and water use become evident through effective UEM efforts, successes will be recognized. Awards and recognition will be handed out through the UEM Program to reward the achievements of those Marines and units who establish best practices, spearhead unique efforts, save significant energy and water, or greatly exceed expectations. There may be a variety of award programs instituted by IEMs, such as a “UEM of the Month” (or Quarter) Award.

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Facility Energy



As a UEM, you will be required to conduct periodic walkthroughs of facilities used by your unit. The UEM training will provide you with a thorough explanation of the basic energy and water elements of your installation and individual unit facilities. Ultimately, you will be able to identify actions affecting five major building systems: the building envelope, HVAC, lighting, plug loads/electrical, and water. The following provides an advanced overview of several key aspects of facility energy and highlights some of the main factors that you will be asked to look for during your assessments.

LIGHTING

- Is task lighting (desk lamps, standing lamps, table lamps, etc.) used instead of large overhead fixtures? If not, is there an opportunity to do so?
- Are Marines taking advantage of natural daylight from windows when available?
- Have incandescent light bulbs been replaced with Compact Fluorescent Light bulbs (CFLs) or Light-Emitting Diodes (LEDs)?
- Are Marines turning off the lights when they leave their rooms and common spaces? Are there empty spaces that frequently have lights left on?

WATER

- Are Marines encouraged to adopt water saving habits like only running washing machines with full loads?
- Have any leaks to pipes, faucets, showerheads, or other water fixtures been reported? If not, is there a potential to do so?
- Are Marines regularly wasting water? Have these habits and activities been addressed or reported?
- Are lawns and gardens being watered only when necessary?

ELECTRONICS AND APPLIANCES

- Are computers shut down when not in use (if policy allows)?
- Are computer monitors turned off when Marines are not at their desks for extended periods of time?
- Are power strips utilized and turned off to manage electricity usage?
- Are there any appliances plugged in when not in use, especially any extra, unused items (refrigerators, coffee makers, printers, etc.)?
- Are televisions, game systems, or other large entertainment systems plugged in when not in use?

HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

- Are heaters or AC units turned down or turned off when Marines leave their room or workplace?
- Are thermostats set to recommended temperatures considering local humidity levels?
- Do furniture or appliances block any vents?
- Do heating or air conditioning vents appear to be clean?
- Do maintenance or facilities staff regularly replace HVAC filters?
- Are window blinds used to assist in naturally cooling or heating a space (closed to prevent overheating in summer, or opened to allow for solar heating in winter)?
- Are windows and doors properly sealed and closed to avoid loss of heated or cooled air? Are any habitually left open?

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Online Resources



These websites offer information regarding Marine and Navy energy, other Armed Services installation energy, and Department of Energy and Environmental Protection Agency initiatives. Please browse these websites for resources on managing an energy program, understanding energy's role on military installations, and guiding others on energy and water saving behaviors.

ARMED SERVICES WEBSITES

Marine Corps Installations Command (MCICOM) Facility Operations and Energy (GF-1)

Outlines the role of energy on Marine Corps installations, offers the latest news and policy statements, and explains what Marines can do to help save energy
<http://www.mccom.marines.mil/Units/GFFacilities/GF1Energy.aspx>

Marine Corps Expeditionary Energy Office (E2O)

Explains energy on the battlefield, shares latest news, and highlights efforts such as the Experimental Forward Operating Base (ExFOB)
<http://www.hqmc.marines.mil/e2o/E2OHome.aspx>

Navy Energy

Shows how the Navy is developing energy, environmental, and climate change initiatives to increase use of alternative energy and enhance energy security

<http://greenfleet.dodlive.mil/energy/>

Deputy Assistant Secretary of the Navy, Energy

Offers an overview of Navy energy efforts and links to many valuable resources

<http://www.secnav.navy.mil/eie/Pages/Energy.aspx>

Department of the Navy Web-based Energy Training

Contains interactive Web-based training for energy monitors

https://navyenergy.navfac.navy.mil/training/awareness%20_training/energy_awareness_training.htm

Air Force Energy Office (SAF/IE)

Shares materials from the "I Am Air Force Energy" program and the Air Force's strategic energy plan

<http://www.safie.hq.af.mil/energy/>

Air Force Civil Engineer Center (AFCEC), Energy Directorate

Identifies, evaluates, and helps implement technologies and funding strategies to reduce Air Force energy consumption and costs to meet federal energy goals

<http://www.afcec.af.mil/energy/index.asp>

Army Energy Program

Provides information and links regarding the strategic energy security goals of the

Army's Energy Security and Implementation Strategy

<http://army-energy.hqda.pentagon.mil>

Army Office of Energy Initiatives (OEI)

Provides information on resources offered by OEI, which partners with Army installations to install large-scale renewable energy projects

<http://www.asaie.army.mil/Public/ES/oei/>

Assistant Secretary of Defense, Operational Energy Plans and Programs

Gives a comprehensive overview of DoD-wide energy challenges, efforts, strategies, and policies

<http://energy.defense.gov/>

Deputy Under Secretary of Defense, Installations and Environment

Goes into more detail about energy on DoD installations, offers information on funding strategies and existing renewable energy projects, and showcases energy awards given to installations

<http://www.acq.osd.mil/ie/energy/index.shtml>

U.S. DEPARTMENT OF ENERGY WEBSITES

Department of Energy (DoE)

Offers an overview of the DoE's efforts across the United States

<http://www.energy.gov/>

Energy Efficiency & Renewable Energy (EERE)

Focuses on efficiency and renewables and describes competitions, successes,

manufacturing initiatives, etc.

Also shares important information about energy-saving homes and buildings, and renewable electricity generation

<http://www.eere.energy.gov/>

Energy Saver

Collects energy tips, articles, and guidance on energy savings to include lighting, heating and cooling, building envelopes, seasonal instructions, and more.

This resource is a valuable link to share with those who are being taught how to save energy and money through efficient habits

<http://energy.gov/energysaver/>

Federal Energy Management Program (FEMP)

Focuses on energy used in federal facilities, with an eye for changing the behaviors of entire organizations to increase efficiency. The site includes educational materials, laws and regulations, and training modules

<http://www1.eere.energy.gov/femp/index.html>

Buildings Energy Data Book

Includes statistics on residential, commercial, and federal building energy consumption as well as statistics related to construction and building technologies

<http://buildingsdatabook.eren.doe.gov/>

OTHER AGENCY AND ORGANIZATION WEBSITES

U.S. Energy Information Administration

Provides independent statistics and analysis of the status of energy — fossil fuels, renewables, utilities, and more — across the United States

<http://www.eia.gov/>

Environmental Protection Agency (EPA)

Shares important information related to initiatives such as the Clean Power Plan and national water issues, with additional focus on how energy use impacts the environment

<http://www.epa.gov/>

ENERGY STAR — Buildings and Plants

Features tools to build energy management programs, improve building performance, earn recognition for energy efforts, and learn more about ENERGY STAR products and how they can be used

http://www.energystar.gov/buildings/home?c=business.bus_index

American Council for an Energy-Efficient Economy

Shares extensive information about energy policy, energy efficiency in buildings, and opportunities for behavior change

<http://www.aceee.org/>

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Energy FAQs



With an increasing focus on installation energy, many people may have questions about Marine Corps energy and efficiency efforts. Below are some broad responses to frequently asked questions.

WHY IS ENERGY IMPORTANT TO MARINE CORPS INSTALLATIONS?

Installations are where Marines live, eat, sleep, and most importantly, train for their missions. These installations consume a large amount of energy, resulting in high utility costs to the Marine Corps. Paying attention to this energy — what it can do, how it supports the mission, how much is used — is vital to properly managing resources and ensuring resiliency and mission effectiveness.

WHO OVERSEES INSTALLATION ENERGY?

Marine Corps Installations Command (MCICOM) Facility Operations and Energy (GF-1) plans, develops, implements, manages, analyzes, and evaluates both ongoing and new facilities and installation management programs related to a broad range of facility operations. MCICOM GF-1 provides materials and guidance to IEMs, Regional Energy Advisors, and you as your unit's UEM.

WHY IS THE MARINE CORPS FOCUSED ON INSTALLATION ENERGY NOW?

The Marine Corps has identified energy as a top priority and challenged Marines to be more combat effective by changing the way they use energy and water. MCICOM GF-1 has created the Energy Ethos campaign to increase end-user awareness and implement a “Bases to Battlefield” strategy to change behavior throughout the Corps. This effort calls for the active involvement of Marines and Corps-wide chains of command in order to build a commitment to resource efficiency on all Marine Corps installations. Success in this effort will lead to enhanced mission effectiveness, increased energy security, and reduced cost to the Marine Corps.

WHAT ARE THE MARINE CORPS' INSTALLATION ENERGY GOALS?

MCICOM GF-1 has outlined four goals to achieve by 2020:

- ✓ Reduce energy intensity by 37.5 percent vs. 2003 baseline
- ✓ Reduce water intensity by 26 percent vs. 2007 baseline
- ✓ Produce at least 50 percent of energy requirements from alternative sources
- ✓ Reduce utility execution costs by 10 against a 2013 baseline through behavior change

WHAT CAN I DO TO HELP SAVE ENERGY?

Marines are known for using only what they need, and energy is no exception. Small things that individual Marines do across installations will have a broad effect over time. Turning off lights when exiting a room, powering down all electronics and computers when not in use, taking shorter showers, and only running loads of laundry and dishes when machines are full are small things that every Marine can do to help lower energy use and utility bills. Keep an eye out for a series of tips called “5 Ways to Save” for more ideas.



The UEM Program will continue to grow and progress as new technology is installed, smart metering expands, leadership involvement increases, more Marines become aware of their utility use, and efficiency overhauls are made. As a UEM, you will become uniquely familiar with these matters as Marine Corps Energy grows and changes, and will be looked to as a central resource.

You will be vital in helping to establish a successful energy program across the Marine Corps. Leadership is driving to reduce overall energy and water use, and while technical efforts are essential, behavior change is critical at the end-user level. **You have the power** to help drive the Energy Ethos on individual installations and across the Corps.



MARINE CORPS BASE CAMP LEJEUNE, N.C. — (From left to right) Col. Daniel Lecce, Commanding Officer for Marine Corps Base Camp Lejeune; Navy Capt. Craig Fulton, the Director for Installations and Environment, MCB Camp Lejeune; Kay Lantrip, Vice President and the Project Executive with URS Corporation and Navy Ensign David Dreyer, the Project Manager with the Officer In Charge of Construction, Marine Corps Installations East, perform the groundbreaking ceremony at the future sight of photo-voltaic panels that will provide energy to new barracks aboard Camp Johnson.

For more information about Marine Corps Installation Energy, visit
<http://www.mccom.marines.mil/Units/GFFacilities/GF1Energy.aspx>



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