BY ORDER OF THE COMMANDER
HILL AIR FORCE BASE

HILL AIR FORCE BASE INSTRUCTION
90-1700

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Special Management

ENERGY MANAGEMENT

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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(Harry Briesmaster III)

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HILLAFBI90-1700 is implemented at the installation level the requirements established by Department of the Air Force Instruction (DAFI) 90-1701 *Installation Energy and water Management* as modified by AFI 90-1702 19 February 2019. This instruction prescribes energy conservation goals and requirements for all organizations at Hill Air Force Base, Utah Test and Training Range, and Little Mountain Test Annex. It establishes the methodology to conserve energy resources in vehicles, equipment, operations and facilities. All organizations and tenants shall comply with this instruction and perform specific tasks, as required, to eliminate waste and conserve energy resources. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Forms 847 from the field through the appropriate functional chain of command. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See DAFI 33-360, Publications and Forms Management, Table 1.1 for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System.

SUMMARY OF CHANGES

This revision includes updates to federal guidance with the revocation of Executive Order (EO) 13834 *and 13693*. It also brings current organizational office symbols, certifying officials and updates the glossary of references, abbreviations and acronyms.

1. Introduction. Hill Air Force Base (Hill AFB) consumes significant amounts of energy in support of the national defense policy. Restrictive budgets and potential pollution of the environment requires Hill AFB to establish policies for the responsible management, control, metering and use of energy resources. Energy is defined as any usable power, including but not limited to, coal, petroleum products, steam, electricity, natural gas, propane, military operational fuels and propellants, alternative fuels and renewable energy including, but not limited to, synthetic and biomass-derived fuels, solar, wind, geothermal, and nuclear.

1.1. As the Department of Defense's (DoD) largest energy consumer, the Air Force is taking a leadership role in developing Energy Strategies, Visions, and Programs to reduce energy consumption across all mission areas. The Air Force is the renewable energy leader in the federal government and seeks to expand its renewable energy portfolio through public-private partnership.

1.1.1. The Air Force's Energy Plan is to "Improve Resiliency, Optimize Demand, and Assure Supply." The Air Force's priority is to make informed decisions and take appropriate actions to ensure it continues to achieve critical missions to fly, fight and win – airpower anytime, anywhere. By developing a robust, resilient, and ready energy posture, the Air Force will enable its warfighters; expand its operational effectiveness in air, space, and cyberspace; and provide mission assurance through energy assurance.

2. Goals. Department of the Air Force Instruction (DAFI) 90-1701, *Installation Energy and Water Management*, is the governing policy within the Air Force regarding energy. The Energy Policy Act (EPAct) of 2005 (Public Law 109-058) established federal energy goals. In addition, DoD Instruction 4170.11, *Installation Energy Management*, establishes policy and provides guidance for installation energy managers. Hill AFB will develop and implement programs with the intent of reducing energy consumption by a minimum of 2.5 percent and water consumption by 2% per year, based on fiscal year 2015 energy consumption (MBtu) per-gross-square-foot area of buildings **(T-0)**.

3. Responsibilities and Authorities. The following responsibilities and authorities are established:

3.1. Energy Program Manager/Organization Energy Manager.

3.1.1. The Hill AFB Energy Program Manager is assigned by the 75 Civil Engineer Group Director (75 CEG/CL) and is responsible for the oversight and advocacy of the base energy program. The Energy Program Manager will monitor energy use trends and patterns and track progress toward meeting established goals **(T-3)**. The Energy Program Manager will also identify opportunities to reduce energy use and coordinate implementation plans with the affected organizations **(T-3)**. The Energy Program Manager provides advice and assistance to organizations at Hill AFB.

3.1.2. Each organization at the wing/wing equivalent level will assign additional duties to at least one individual to be an organization energy manager **(T-2)**. Individuals assigned will monitor energy use within their organization, coordinate facility energy audits and meet with Hill AFB energy program manager annually to receive guidance and technical advice on the base energy program **(T-3)**.

3.2. Energy Management Steering Group (EMSG) is held quarterly as part of the Mission Partners Operational Review (MPOR).

3.2.1. The EMSG will meet quarterly to review progress in meeting energy reduction goals, and discuss opportunities that will result in reductions in energy use **(T-3)**.

3.2.2. The EMSG is chaired by the 75 ABW Commander (75 ABW/CC) or Vice Commander (75 ABW/CV) and consists of MPOR representatives.

3.2.3. The Hill AFB Energy Program Manager will act as the executive secretary and prepares the briefing slides for the EMSG meeting **(T-3)**. The information in the slides will be presented to the steering group **(T-3)**. All organizations are encouraged to participate and present best practices and lessons learned.

4. Requirements. To eliminate waste and conserve energy resources, Hill AFB will apply the following practices and principles **(T-2)**:

4.1. All organizations will utilize life cycle cost analysis to determine the most efficient and cost-effective applications of new construction, retrofitting existing facilities, equipment purchase and installation, and industrial processes **(T-2)**. Computer software such as Basic Life Cycle Cost (BLCC) and A Simplified Energy Analysis Method (ASEAM) are acceptable tools to model efficiency and project energy use. Records created using these methods will be maintained and disposed of in accordance with AFI 33-322.

4.1.1. EISA 2007 requires that all new appliances in the workplace shall be Energy Star qualified or Federal Energy Management Program (FEMP) designated **(T-1)**. Any existing authorized appliances not meeting the Energy Star or FEMP requirement, but meeting other requirements described herein, are approved until requiring replacement. All Purchasing/Contracting agents shall ensure compliance in accordance with FAR 23.203.

4.2. The Hill AFB Energy Program Manager will increase energy efficiency through capital investment and improved operations. The Energy Program Manager will annually prioritize and submit energy improvement projects that qualify for special funding under the Energy Resilience and Conservation Investment Program (ERCIP) to the Office of Energy Assurance (OEA), Air Force Installation Maintenance and Support Center (AFIMSC), and the Air Force Civil Engineering Center (AFCEC) **(T-3)**. Projects are submitted by the Energy Program Manager via the OEA storefront (**https://www.safie.hq.af.mil/Programs/Energy/OEA/**) for review and approval.

4.3. The Hill AFB Energy Program Manager will initiate energy conservation projects utilizing private sector funding when it is in the best interest of the Air Force **(T-2)**. Projects are submitted by the Energy Program Manager via the OEA storefront (**https://www.safie.hq.af.mil/Programs/Energy/OEA/**) for review and approval.

4.4. The Hill AFB Energy Program Manager will pursue opportunities to obtain utility company rebates or project financing when it is in the best interest of the Air Force **(T-3)**.

4.5. The Hill AFB Energy Program Manager will use public/social media, such as base newspaper, Conserve Watts (Hill Energy Management) Facebook page, posters and handouts to disseminate information on energy awareness and encourage all organizations to adopt practical energy conservation measures in daily business practices **(T-3)**.

4.6. Hill AFB will recognize National Energy Awareness Month each October **(T-2)**. Energy Awareness Month activities will support the Air Force Energy Plan to reduce energy demand, increase energy supply, and change culture **(T-2)**. The Hill AFB Energy Program Manager will provide summaries of the installations awareness programs to AFMC for inclusion in their summary report due to SAF/IEE by August 31st of each year **(T-2)**.

5. Facility Energy Conservation Policy.

5.1. An overall policy on facility energy must include certain restrictions and guidance **(T-3)**. Individual situations that appear to need special consideration will be presented to the EMSG **(T-3)**.

5.1.1. In a continuing effort to offer efficient use of energy dollars, facility HVAC systems must be monitored and controlled by the centrally managed base-wide EMCS, located in Bldg 593 **(T-2)**. This centralized monitoring/controlling will provide a means during our critical heating/cooling seasons to maintain occupied and unoccupied temperature control IAW **Table 1** below. It also gives the Base Energy Program Manager a central system to authorize system-wide load shedding capabilities during critical electrical distribution/transmission events.

5.1.1.1. Critical air conditioning, heating and humidity requirements in specialized and industrial facilities such as but not limited to medical, laboratories, computer, food service, equipment calibration and ICBM storage facilities are exempt from the temperature restrictions contained in this instruction. Temperature controls in these facilities will be set in accordance with process control and mission requirements **(T-2)**.

5.1.2. Privately owned air conditioners and space heaters are prohibited. Government owned, individually operated air conditioners and space heaters are prohibited except as authorized in writing by 75th Civil Engineer Group Director (75 CEG/CL). Individuals may obtain authorization by completing an AF Form 1768, *Staff Summary Sheet*, (e-SSS) with routing coordination/approval from the individual's facility manager, supervisor, organizations occupational safety manager and Fire Protection Flight (775 CES/CEF). For a sample of the e-SSS including wording and routing please contact the Energy Office. It is not the intent of this instruction to make anyone's work center/office uncomfortable only to be smarter with our energy resources. Personal preference will not be sufficient justification for approval. Each organization shall monitor the use of government owned air conditioners and space heaters and ensure compliance with base policy. In addition to written authorization, employees must be in full compliance with the following conditions: **(T-1)**.

5.1.2.1. Approved space heaters shall be:

5.1.2.1.1. UL Listed **(T-1)**.

5.1.2.1.2. Thermostatically controlled and equipped with a safety tip-over switch **(T-1)**.

5.1.2.1.3. Enclosed heat coils **(T-1)**.

5.1.2.1.4. Attended at all times **(T-1)**.

5.1.2.1.5. Unplug heater when not in use **(T-1)**.

5.1.2.1.6. Heater shall not be used with surge protectors, power strips or extension cords **(T-1)**.

5.1.2.1.7. Heater shall not be plugged into system/modular furniture **(T-1)**.

5.1.2.1.8. Heater shall be located 36" away from all combustible material **(T-1)**.

5.1.2.1.9. Violations of above stipulations will void authorization **(T-1)**.

5.1.3. Base organizations are encouraged to provide consolidated break areas for employees and must consider energy consumption and conservation where possible **(T-3)**. If it is determined that an inadequate number of electrical circuits exist to support required appliances, the 75 CES will assess and provide additional circuits/outlets if the facilities interior electrical infrastructure will support **(T-3)**.

5.1.4. Privately owned personal appliances including but not limited to: microwaves, refrigerators, hotplates, and coffee pots are discouraged, particularly in buildings with designated break areas furnished with the same appliances. It is not the intent of this instruction to make anyone's work center/office uncomfortable - only to be smarter with our energy resources.

5.1.4.1. Each organization shall monitor the use of personal appliances and ensure compliance with base policy **(T-3)**. If personal appliances causes circuit breakers to trip repeatedly, they should be removed from service.

5.1.5. Government owned charging stations are for the sole purpose of charging government owned electric vehicles and plug-in hybrid vehicles. Privately owned electric and plug-in hybrid vehicles are prohibited from using government vehicle charging stations or general purpose power outlets.

5.1.6. During fall and spring the 75 CES will closely monitor weather patterns and turn the HVAC systems off or on according to the guidelines stated below. These guidelines are to be used only for planning purposes. Actual dates will depend on many factors to include climate data, facility priority and work crew availability. 75 CES/CL can override these guidelines with the understanding that energy conservation will be impacted.

5.1.6.1. Fall. During late September, October, and November, 75 CES will monitor weather conditions and turn off air-conditioning systems and activate heating systems according to the following weather conditions:

5.1.6.1.1. Air-cooling systems off. This will typically occur after 3 consecutive days where the high temperature is below 70 degrees. Historically this occurs around 15 September.

5.1.6.1.2. Heat Systems on. This will typically occur after 3 consecutive days where the low temperature is 45 degrees or if the daily high only reaches 45 degrees. Historically this temperature is around 15 October.

5.1.6.2. Spring. During March, April and May 75 CES will monitor weather conditions and turn off heating systems and activate cooling systems according to the following weather conditions.

5.1.6.2.1. Heat Systems Off. This will typically occur after 3 consecutive days where the low temperature is above 45 degrees. Historically this occurs around 12 April.

5.1.6.2.2. Air-cooling systems on. This will occur after 3 consecutive days where the high temperature is above 80 degrees. Historically this occurs around 1 June.

5.1.7. Heating and cooling systems will be operated to take maximum advantage of outside make-up air. The Civil Engineer Group will delay the start-up of central heating plants and cooling systems, and will shut them down early to the extent practical.

5.1.8. Temperature set points in facilities at Hill AFB, Utah Test and Training Range and Little Mountain Test Annex will be maintained in accordance with the guidelines in UFC 3-410-01 reflected in **Table 1**, for additional information reference UFC 3-410-01 which can be found at **https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc** **(T-3)**.

5.1.9. The lighting levels specified in per UFC 3-530-01 Chapter 3 reflected in **Table 2** represent the range for Hill AFB work areas. It should be understood that these levels are guidelines established by UFC 3-530-01 Interior and Exterior Lighting Systems and Controls and represent mandated horizontal lighting levels within the occupied space. For vertical lighting levels, more specific design guidance, horizontal illuminance uniformity ratios, and allowed fixtures/lighting types reference UFC 3-530-01 which can be found at **https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc**.

6. Equipment Energy Conservation Policy.

6.1. Installed equipment will be operated only as necessary to meet mission requirements **(T-3)**. To the extent practical, so as not to interfere with product output, large high demand equipment will be operated during off peak hours **(T-3)**. Hill typically experiences peak electrical demand between the hours of 1100-1400 Monday through Thursday.

6.2. All installed equipment will be turned off when not in use **(T-3)**. Equipment that is not practical to power down or turn off such as electronic or computer equipment will be operated as required.

7. Facility Inspections.

7.1. The organization energy manager and/or building manager will conduct quarterly energy inspections in conjunction with required facility walk-throughs of each facility assigned **(T-3)**. These are simple building walkthroughs that building managers can perform to document obvious energy deficiencies such as leaking faucets, lighting being left on in unoccupied areas…etc. At the completion of the facility energy inspection, all deficiencies will be noted and reviewed by the building manager and organization energy manager **(T-3)**. Deficiencies identified during the inspection will be corrected as funding becomes available **(T-3)**.

7.2. The Hill AFB Energy Program Manager along with individual organization energy managers will conduct random inspections of facilities **(T-3)**. No-notice inspections will be made to ensure compliance with energy conservation policies **(T-3)**.

8. Energy Reporting.

8.1. The Hill AFB Energy Program Manager will report energy consumption and costs to Air Force Sustainment Center (AFSC) and Air Force Materiel Command (AFMC) by means of NexGen IT **(T-2)**. Utility information will include reportable energy use/cost, and square footage **(T-2)**. Information will be transmitted by the 45th day following the reporting month **(T-2)**.

JENISE M. CARROLL, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoDI 4170.11, *Installation Energy Management*, 11 December 2009, incorporating Change 2 31 August 2018

Energy *Independence and Security Act*, 4 January 2007

AFPD 90-17, *Energy and Water Management*, 21 May 2020

DAFI 90-1701, *Installation Energy and Water Management*, 17 December 2020

Executive Order (E.O.) 13693, *Planning for Federal Sustainability in the Next Decade*, 25 March 2015

UFC 3-530-01, *Interior and Exterior Lighting Systems and Controls*

DAFI 33-360, *Publications and Forms Management*, 1 December 2015

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AF Form 1768, *Staff Summary Sheet.*

Abbreviations and Acronyms

ABW/CC—Air Base Wing Commander

ABW/CV—Air Base Wing Vice Commander

AFCEC—Air Force Civil Engineer Center

AFIMSC—Air Force Installation and Mission Support Center

AFMC—Air Force Materiel Command

AFSC—Air Force Sustainment Center

ASEAM—A Simplified Energy Analysis Method

BLCC—Basic Life Cycle Cost

CEG/CL—Civil Engineer Group Director

CEG/CEF—Fire Protection Flight

CES/CL—Civil Engineer Squadron Director

DoD—Department of Defense

EMCS—Energy Management and Control System

EMSG—Energy Management Steering Group

ERCIP—Energy Resilience Conservation Investment Program

FEMP—Federal Energy Management Program

Hill AFB—Air Force Base

IES—Illuminating Engineering Society

MOPR—Mission Partners Operational Review

OEA—Office of Energy Assurance