

DEPARTMENT OF THE NAVY
NAVAL AIR STATION, WHIDBEY ISLAND
OAK HARBOR, WASHINGTON 98278-5000

NASWHIDBEYINST 4100.11A
N46:Nn
15 Nov 1999

NASWHIDBEY INSTRUCTION 4100.11A

Subj: ENERGY CONSERVATION PROGRAM

Ref: (a) OPNAVINST 4100.5D
(b) CINCPACFLTINST 4100.1C
(c) Navy Energy Manager's Energizing Guide
(d) Energy Policy Act of 1992
(e) Executive Order 12902

Encl: (1) Energy Management Plan
(2) CDO Energy Conservation Report

1. Purpose. To outline an energy conservation program, identify the people involved in the conservation program, and assign specific duties and responsibilities. This instruction has been substantially revised and should be reviewed in its entirety.

2. Cancellation. NASWHIDBEYINST 4100.11

3. Scope. This instruction applies to all Naval Air Station (NAS) Whidbey Island departments and tenant commands including remote sites at Outlying Field, Coupeville, Washington, and Boardman bombing range in Boardman, Oregon.

4. Background. The conservation of energy continues to be an important national goal that is strongly supported by the Navy. Reference (a) provides policy, guidance, and technical expertise for the Navy's Energy Conservation Program. Reference (b) establishes a formal Energy Management Program for adoption throughout the Pacific Fleet and Naval Air Stations. Enclosure (1) is NAS Whidbey Island's formal plan to meet these energy conservation goals.

5. Organization. Energy conservation is achieved through an effective blend of technical and energy awareness programs. Energy awareness is an "all hands" evolution requiring the full support of the chain of command. The focus of the awareness program is more efficient use of facilities. This is achieved when building occupants are aware of and actively participate in the Energy Management Plan designed to minimize energy consumption in their buildings.

a. The Energy Conservation Program will be implemented by the NAS Whidbey Island Energy Management Steering Committee (EMSC) functioning as an advisory rather than a corporate decision-making body. The EMSC provides a forum whereby ideas are proposed, evaluated, and distributed to activities and departments. The EMSC consists of the following personnel:

(1) Executive Officer, NAS Whidbey Island, Energy Management Steering Committee Chairman

(2) Public Works Officer

(3) NAS Energy Manager

(4) Supply Officer

(5) Aviation Facilities Officers from COMPATRECWING TEN and COMVAQWINGPAC

(6) AIMD Officer

(7) MWR Director

(8) Exchange and Commissary Managers

(9) Housing Director

b. The Energy Management Team (EMT) will provide technical expertise and consumption data to increase awareness and efficiency of existing facilities and utility systems. The EMT consists of the following personnel:

(1) NAS Energy Manager (NAS N46E)

(2) NAS Energy Engineer (NAS N46232)

(3) Building Energy Monitors (BEMs)

6. Duties of the Energy Management Team

a. NAS Energy Manager. The Energy Manager, under the direction of the Public Works Officer (PWO) and with guidance and command support from the EMSC, will coordinate and direct all administrative, review, and awareness implementation actions of the Energy Conservation Program. The Energy Manager's responsibilities will include the following:

(1) Develop a strategy for achieving energy reduction goals outlined in reference (a) and maintain the Energy Management Plan that includes performance-oriented goals for the command.

(2) Perform facilities inspections to identify energy conservation opportunities.

(3) Evaluate energy conservation requirements, compile all energy-related statistical data for progress reporting and planning purposes.

(4) Schedule and conduct bi-monthly meetings of the EMSC and EMT.

(5) Advise the Commanding Officer, PWO, and tenant activities on all matters concerning energy conservation and awareness.

(6) Direct and implement an ongoing energy awareness program that communicates the energy conservation message in a variety of different ways.

(7) Provide training for both the EMSC and EMT.

(8) Provide feedback to the EMSC on station and tenant progress toward meeting energy conservation goals.

(9) Maintain the energy conservation hotline (257-1464.)

(10) Coordinate/assist the efforts of the BEMs.

(11) Collect enclosure (2) from POOW and inform appropriate Department Heads of any "hits."

b. NAS Energy Engineer. The Energy Engineer (NAS N46232) is the technical point of contact for the energy program. Working in conjunction with the Energy Manager, the Energy Engineer will implement the technical program and provide support to the energy awareness program. The energy engineer's responsibilities include:

(1) Technical subject matter expert for energy conservation issues.

(2) Develop and manage energy conservation projects.

(3) Coordinate and perform energy audits as well as facilities inspections to identify conservation opportunities.

(4) Initiate and manage contracted energy studies and surveys.

(5) Expand and validate the metering program.

(6) Manage the development of an energy accounting database for metered data.

(7) Attend scheduled EMT meetings.

c. Building Energy Monitor (BEM). All Station departments, squadrons, and tenant activities shall appoint a collateral duty BEM per reference (c). Appointments shall be made in writing and forwarded to the NAS Energy Manager. BEM responsibilities include:

(1) Implement energy conservation efforts in the activity, squadron, or department including data collection, distribution of energy conservation posters and other media throughout his/her building(s).

(2) Design and maintain an energy conservation bulletin board in a highly visible area within his/her building(s).

(3) Active participation in the annual Energy Conservation Week.

(4) Attend EMT meetings and energy conservation training workshops.

(5) Submit to the NAS Energy Manager energy conservation problems with proposed solutions and other ideas for improvement.

7. Other Duties

a. Department Heads

(1) Assign BEM in writing to NAS Energy Manager. Ensure continuity of BEM position when incumbent BEMs change duty stations.

(2) Ensure that BEMs are given adequate time to perform their additional duties including attending bi-monthly EMT meetings, maintenance of energy conservation bulletin board, participation in annual Energy Conservation Week and attending energy conservation training.

(3) Ensure that energy savings initiatives generated by EMSC are implemented and supported.

(4) Ensure working level personnel understand procedures for reporting steam leaks, broken light bulbs, equipment problems and other energy inefficiencies using work requests or trouble desk (257-3358.)

(5) React to discrepancies reported on enclosure (2).

b. Command Duty Officer (CDO)

(1) Use enclosure (2) to check for after-hours energy waste during daily check of the station, paying specific attention to:

(a) Unnecessary hangar bay lighting.

(b) Unnecessary admin space lighting.

(c) Steam line leaks.

(d) Unnecessary water usage.

(2) Submit enclosure (2) to POOW during morning turnover for collection by the NAS Energy Manager.

c. Security Department

(1) Check for after-hours energy waste during patrolling of the station, paying specific attention to:

- (a) Unnecessary hangar bay lighting.
- (b) Unnecessary admin space lighting.
- (c) Steam line leaks.
- (d) Unnecessary water usage.

(2) Report findings daily to NAS Energy Manager (N46E).

d. All Hands

(1) Use lighting, power and equipment only as needed to safely accomplish tasks.

(2) Understand procedures for reporting steam leaks, broken light bulbs, equipment problems and other energy inefficiencies using work requests or trouble desk (257-3358).

(3) Continuously be on the lookout for opportunities to conserve energy in your workspace.

(4) Report obvious energy abuses via Energy Hotline (257-1464).

/s/
L. G. SALTER

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Lists A(less 1,2), B(less 3,4,7),
C, D and E

ENERGY MANAGEMENT PLAN

1.0 INTRODUCTION

1.1 Objective. This Energy Management Plan (EMP) has been prepared with the objective of promoting energy conservation, minimizing utility costs, and supporting the objectives of references (a), (d) and (e). The goal of the Naval Air Station Whidbey Island EMP is to promote conservation of energy, reduce the rate of growth of energy demand, and save money. This plan serves as NAS Whidbey Island's commitment to a balanced approach to utility technology and personnel initiative to achieve a quality energy future that is secure, efficient, and environmentally sound.

1.1.1 Promoting Energy Conservation. The need for and principles of energy conservation must be widely disseminated throughout the air station. This shall be facilitated by the posting of energy conservation materials, training personnel, and organizing events to raise conservation awareness. Articles that promote conservation and detail program accomplishments will be published in the CROSSWIND, the station newspaper, to instill an awareness of the impact that energy usage has upon the mission of the command.

1.1.2 Minimizing Energy Cost and Demand. All personnel in the course of their normal work will promote efforts to reduce excessive or needless use of energy. This includes limiting the use of machinery to the task at hand, properly maintaining equipment and initiating corrective maintenance when required, securing lights and equipment when work spaces are not occupied, reporting leaks, high space temperatures, and other wasteful energy practices, and submitting energy saving proposals. Supervisory personnel shall develop concepts of applying cost and resource effective principles to the use of energy within their areas of responsibility.

2.0 ENERGY PLAN GOALS

2.1 Goals. The Navy's energy management goals have been established by references (a), (d) and (e). Conservation goals (listed below) are measured from the 1985 Baseline (1 October 1984 through 30 September 1985). All mandated reductions in consumption from the baseline will be achieved through good energy resource management together with the development and implementation of specific actions by the EMSC and EMT.

2.1.1 Existing Buildings. Reduce energy consumption per thousand square feet (KSF) by 30 percent by 30 September 2005 (FY-05) compared to baseline (FY-85).

2.1.2 New Buildings. Reduce the estimated annual energy consumption per gross square foot by one percent per year, achieving an eleven percent reduction for buildings designed in

FY-98 compared with buildings designed in FY-87. Ensure the design and construction of all facilities comply with the energy performance standards set forth in 10 CFR, Part 435 and Chapter 8 of NAVFACMIL Handbook 1190.

2.1.3 All Shore Activities. Support the following overall Navy goals to the maximum extent whenever cost effective and practical:

a. By 2005, obtain 10 percent of total Navy shore facility energy from coal, solid fuels, and renewable energy resources.

b. Improve the gross energy efficiency of industrial facilities by 20 percent by the year 2005, when compared to FY-90.

c. Comply with the requirements of Executive Order 12902 for water conservation and implement water conservation measures.

d. In accordance with the Federal Energy Policy Act (EPA) and reference (a), incorporate Alternate Fueled Vehicles (AFVs) into the transportation system, implement employee awareness programs, and encourage ride sharing to help reduce the consumption of petroleum fuels.

2.2 NAS Whidbey Goals. Naval Air Station Whidbey Island will initiate those programs necessary to accomplish the general Navy-wide goals as stated above and will strive to surpass those requirements through innovative projects and energy awareness program efforts. These efforts will include:

a. Improve equipment reliability and energy efficiency by implementing a proactive preventive and corrective maintenance program.

b. Continuously improve the physical condition of the utility infrastructure.

c. Implement an effective energy accounting system.

d. Implement an aggressive energy awareness program, instilling in each employee the importance of individual conservation efforts.

e. Evaluate and implement (when cost-effective):

(1) Alternate Fuel Vehicle Program

(2) Partnerships with community, local authority (e.g., Department of Energy, Department of Transportation, Island Transit), utility companies, and/or other Pacific Northwest military facilities to reduce operating costs.

f. Enter into Demand Side Management (DSM) with Puget Sound Energy and pursue Energy Savings Performance Contracts (ESPCs) with approved energy contractors.

g. Optimize opportunities for purchasing natural gas and electricity from the spot market vice energy brokers. (Spot market purchasing means buying utilities directly from the manufacturer at prevailing market commodities prices.)

3.0 ENERGY PLAN ELEMENTS

3.1 Energy Accounting. Energy accounting is the tracking of energy consumption and all associated costs. This information is used to identify savings potential, plan an energy reduction strategy, prioritize conservation projects, and monitor the progress of energy management activities. Energy accounting reports are valuable for budgeting purposes and for facility operations assessment. The result is greater awareness of the effects of operations and maintenance modifications and installation of energy conservation measures on energy consumption.

3.2 Preliminary Site Assessment. The Preliminary Site Assessment (PSA) is a walk-through of a facility by the Energy Manager and/or Energy Engineer. The Assessment Report shall include facility use and occupancy data, type of construction, age and size of the facility, current energy consumption and potential energy projects. Recommendations based on total project cost and savings will generate the simple payback formula that will prioritize projects. Some are low cost and can be implemented immediately others are more costly and will require additional engineering analysis to determine cost effectiveness and potential for alternative funding sources.

3.3 Operation and Maintenance. The Operations and Maintenance staff of the Base Operating Support Contractor (BOSC) will be provided with the tools, training, and personnel required to maintain the energy savings generated by energy projects. Cost-effective maintenance activities will be supported by the Command, required and documented by the BOSC. This may include a contract requirement for a preventive maintenance program that can be reviewed and updated as necessary to incorporate current technologies and practices.

3.4 Energy Project Implementation. Energy projects identified in the PSA are assessed to determine detailed cost and savings information. Implementation strategy will include:

- a. Implementation of low cost/no cost projects.
- b. Identification of opportunities for utility and private venture involvement such as Demand Side Management and Energy Savings Performance Contracting.

c. Preparation of project documentation packages--completed design/DD1391 and cost analysis that provide a simple payback of less than seven years.

3.5 Monitoring. Monitoring can identify where problems exist and can be used to optimize operations. All conservation projects must be monitored to track effectiveness of those projects. Historical consumption data before the measure is installed, and consistent review of energy consumption following any maintenance, repair, and/or retrofit will determine whether equipment is operating properly and is actually reducing consumption. As part of the Energy Conservation Program, the following will be accomplished by the Energy Manager, Energy Engineer, or designated BEM, as appropriate:

- a. Validate existing meters.
- b. Expand the number of meters to ensure major consumers are metered.
- c. Maintain database of meter readings for tracking consumption and provide information to consumers.
- d. Maintain run time logs for equipment and systems if not practical to install metering devices.
- e. Determine occupancy and building use patterns.

4.0 ENERGY MANAGEMENT PLAN. This document will provide guidance in the pursuit of energy-efficient operations for the next five years. The command has established a goal of 50 percent of all savings be used for additional energy projects or for facility maintenance to further improve efficiency.

YEARS 1 AND 2 (2000-2001)

GOAL: To save 10 percent of total energy costs for the station for FY 2000 and an additional 5 percent for FY 2001 based on FY 1999 energy consumption.

PLAN OF ACTION:

- a. Determine how, when, and where energy is consumed by metering or other means. Develop metering plan for areas served by each meter. Determine additional metering requirements based on identifying end-user conservation responsibility. Inspect and recalibrate faulty meters and define energy-saving opportunities.
- b. Conduct building profiles and energy audits, establishing high-use or "A" buildings and average or "B" buildings. Audit/inspect all facilities on a random "walk-through," focused audit, or scheduled (minimum biannual) basis.
- c. Maintain energy consumption records and use this data to establish feasible energy conservation goals.

d. Tune all energy consuming systems to peak efficiency and follow a maintenance schedule to maintain system efficiency. Operate systems only when needed to accomplish mission.

e. Implement no-cost/low-cost energy opportunities. (See Attachment 1.)

f. Reduce the Station's energy footprint by demolishing energy inefficient buildings and maximizing use of more energy efficient buildings.

COST TO IMPLEMENT: 25 percent of the expected annual savings.

COST TO MAINTAIN: 10 percent of the expected annual savings.

YEARS 3 TO 5 (2002-2004)

GOAL: To save 15-40 percent of total energy costs for the station based on FY 1999 energy consumption.

PLAN OF ACTION:

- a. Plan and perform energy conservation projects with return on investment of less than four years.
- b. Purchase energy-efficient equipment.
- c. Revise operations to optimize energy use.
- d. Determine how energy availability and price changes will affect the mission of the air station.
- e. Examine the indirect energy use of facilities and equipment.
- f. Include renewable resources in design, construction, and renovation plans.

COST TO IMPLEMENT: 50-400 percent of expected annual savings.

COST TO MAINTAIN: 15-30 percent of expected annual savings.

Typical No-Cost/Low-Cost Activities

Typical activities that are found in many no cost or low cost programs include:

- ◆ Eliminate simultaneous heating and cooling.
- ◆ Implement preventive maintenance programs.
- ◆ Educate users about energy conservation.
- ◆ Check and calibrate thermostats.
- ◆ Install locking covers over thermostats.
- ◆ Implement temperature setbacks during non-working hours.
- ◆ Tune boilers and HVAC equipment.
- ◆ Lubricate motors and pumps and replace belts.
- ◆ Change filters.
- ◆ Turn off equipment when not in use.
- ◆ Insulate water and steam pipes.
- ◆ Start a steam trap maintenance program.
- ◆ Clean cooling and heating coils.
- ◆ Reduce ventilation where possible.
- ◆ Weather-strip and caulk openings.
- ◆ Replace cracked or broken glass.
- ◆ Eliminate ventilation during unoccupied hours.
- ◆ Reduce water temperature and steam pressure where possible.
- ◆ Replace lamps as needed with higher efficiency models.
- ◆ Install time clocks and occupancy sensors where possible.
- ◆ Repair leaking faucets and steam lines.
- ◆ Use light-colored paints and de-lamp where possible to lower lighting costs.
- ◆ Review and revise work schedules, if possible.
- ◆ Shut off exhaust fans when not in use.

Low to Substantial Cost Activities

- ◆ Clean lamps and lenses for light fixtures, wash painted surfaces to provide reflective light, and keep windows clean to enhance natural light.
- ◆ Replace defective lamps, ballast, and/or starters.
- ◆ Install separate switches whenever practical for security lights, spot lighting, and lights near windows.
- ◆ Install photoelectric controls on external lights and occupancy sensors whenever practical.
- ◆ Whenever possible, replace incandescent with fluorescent.
- ◆ Replace incandescent exit signs with fluorescent or LED.
- ◆ Check and calibrate thermostats.
- ◆ Provide digital outside thermostats to control ventilation equipment and dampers.
- ◆ Check interior spaces for proper zoning and placement of thermostats, particularly retrofitted office spaces.
- ◆ Check and properly set mechanical and digital clock thermostats to correct time of day and for building use and occupancy.
- ◆ Install window screens to allow for natural ventilation.
- ◆ Install passive exhaust units in attic areas, with blanks for securing during cold weather.
- ◆ Install timers on exhaust fans.
- ◆ Clean or replace filters, clean and repair leaks in ductwork.
- ◆ Remove heating and/or air conditioning units from foyers, passageways, and stairways.
- ◆ Calibrate control and measurement equipment, repair all leaks, and insure automatic valves function efficiently.
- ◆ Execute aggressive steam trap inspection and maintenance program.
- ◆ Provide residential air conditioning units and/or space heaters to spaces with special heating/cooling requirements so that the rest of a building on a central system can be secured when not normally occupied.
- ◆ Install ceiling fans, shade south-facing walls with trees and/or shrubbery, and paint south and west walls a light color.
- ◆ Check and repair all compressed air system equipment and replace air filters on compressors.
- ◆ Incorporate load limiters on motor-driven equipment.
- ◆ Replace old motors with new, more efficient units and install variable speed drives whenever possible.
- ◆ Caulk and weather-strip all windows and doors.
- ◆ Ensure positive closure for all windows and doors.
- ◆ Provide double glazed windows.
- ◆ Insulate walls and ceilings.
- ◆ Provide plastic curtains at loading dock entries.

NAS CDO Energy Conservation Report

Please note buildings/locations with after-hours energy saving potential in the following areas:

- Unused hangar bay lighting (beyond emergency/night lighting)

Hangar _____
Hangar _____
Hangar _____

- Unnecessary lighting of Admin buildings

Building _____
Building _____
Building _____
Building _____

- Steam Line Leaks

Location/Building _____

- Unnecessary Water Usage

Location/Building _____

- Other Energy Abuses/Wastes Noted

Date:

CDO: