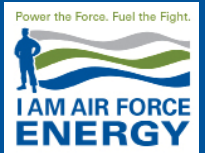




ENERGY CAMPAIGN PLAN

FISCAL YEAR 2013



CAMPAIGN GOALS AND OBJECTIVES

“I AM AIR FORCE ENERGY”

Air Combat Command plays a vital role in protecting our nation's security interests and maintaining Global Vigilance, Global Reach, and Global Power. Energy is a key enabler of our mission to Fly, Fight, and Win. Simultaneously, energy is a risk factor, which is increasingly becoming more global and complex.

“Energy enables every mission across our global Air Force as we try to fly, fight and win in air, space, and cyberspace. It powers our aircraft, it supports our installations, and no matter what your job is or where you are in the world, energy is enabling what Airmen are doing.”

Hon. Michael Donley, Secretary of the Air Force

The cornerstone for our progress in FY 2012 was our Airmen's commitment to “making energy a consideration in all we do.” Building upon this, we look to develop an energy posture that is resilient, robust, and ready. The 2012-2016 U.S. Air Force Energy Strategic Plan lays out four strategic priorities to achieve this posture:

1. Reduce Demand
2. Assure Supply
3. Improve Resiliency
4. Foster an Energy Aware Culture



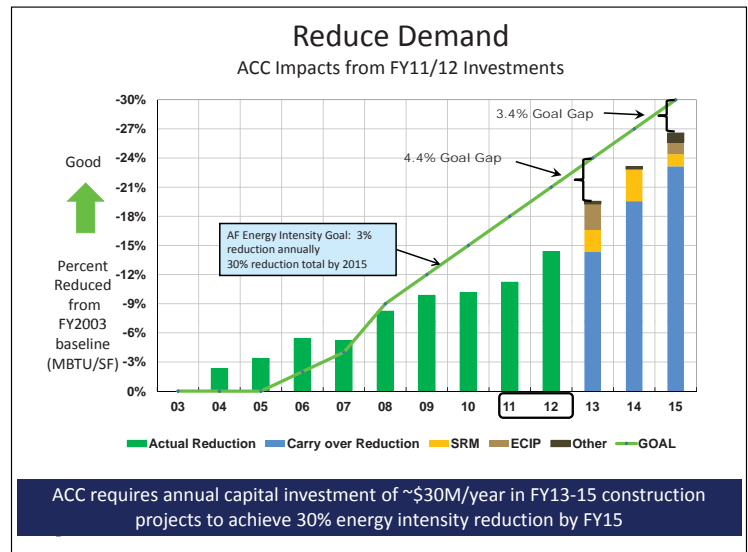
1. REDUCE DEMAND

FACILITY ENERGY CONSERVATION

With the cost of energy continuing to rise and budgets becoming more constrained, we are looking to “Reduce Demand” through operational and logistical efficiencies, as well as new technologies as a way to improve our energy security posture without impacting mission effectiveness. By integrating demand-side energy efficiency and fuel optimization measures, ACC can stabilize and reduce operational and infrastructure energy demand while enhancing our mission and range.

The goals and objectives are to reduce demand by targeting aviation fuel, expeditionary fuel, tactical and non-tactical ground fuels, and installation energy, as well as to adopt energy efficiency technologies.

Comply with the Air Force Energy Strategic Plan to minimize overall energy costs and consumption by establishing installation policies to promote energy conservation, utilities cost control, renewable energy initiatives, as well as encouraging an energy aware culture. Comply with the ACC FM specific guidance to reduce utility costs by 2% annually and maximize contribution towards Air Force goals to reduce energy consumption by 3% and water consumption 2% annually.



Incorporate sustainable design practices into construction and renovation projects and achieve Air Force sustainable goals for High Performance Sustainable Buildings.

We must invest a minimum combined AF/ACC funding of \$30 million/year in each of FY12 through FY14 to achieve the Air Force energy intensity reduction goal of 30% by FY15. ACC has established capital investment projects, which require Wing support to construct the \$27.1-million, FY12 program and to award the \$24-million FY13 program.

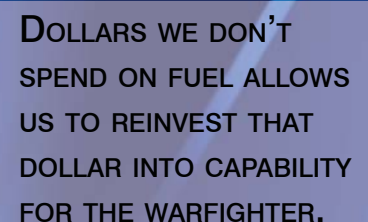
Energy conservation opportunities will be identified by accomplishing Facility Energy Audits on 10.4-million square feet at an investment of \$5.2 million for FY13. Additionally, the Air Force is deploying Advanced Meter Reader Systems (AMRS) in FY13 through FY14, which will allow bases to monitor and manage individual facility energy usage.

AVIATION OPERATIONS

The current fiscal economy has made training a precious resource for today's warfighter. Every flying hour for ACC's operational units are a scarce commodity and cannot be wasted. The need to execute every flying hour towards training and readiness is under constant scrutiny. The CAF must justify every hour of flight, so it is extremely important to make every hour count. Disciplined planning and execution of specific mission tasks, and meeting required operational or training objectives is key. Commanders must emphasize that every drop of fuel counts towards training the warfighter and create a culture which looks for the most efficient way to achieve those objectives.

The following are actions aviators should take to *make every drop of fuel count*:

- o Review annual ACC/A3TB fuel efficiency message and update guidance, as necessary.
- o Encourage units to consider additional methods to increase training and fuel efficiency, and to identify best practices for dissemination to the wider Combat Air Force.
- o Focus flying units on fuel efficiency, while still training as they would fight.
- o Implement Headquarters Air Force Flight Standards Agency (HQ AFFSA) "Fuel Efficiency Guidance" message, ACC/A3TV's Fuel Optimization/Conservation Special Interest Item (SII), and ACC/A3TB's fuel conservation messages in relation to Flying Hour Programs (FHP) and training hours.
- o Emphasize accurate mission planning that accounts for required ramp and recovery fuel.
- o Emphasize optimized flight plans and routing to include accounting for distances, climb/descent profiles, and power settings.
- o Use ground power units when practical.
- o Establish and implement local engines start time standards.
- o Establish engine operation policy during "Maintenance RED-BALL." Shut down engines as practical based on estimated time of repair to save the fuel.
- o Minimize aircraft weight through optimizing fuel loads.
 - o Since Air Force fuel requirements outlined in AFI 11-202 V3 and MAJCOM directives provide an adequate safety margin, do not add fuel beyond what is needed to conduct the mission.
 - o Mitigate excess fuel being carried, which increases the overall fuel consumption rates, causing detrimental effect on both aircraft range and performance.
 - o Reduce weight by removing non-mission-essential equipment.
- o Establish communication and flight following procedures to ensure timely notification of mission changes or cancellations to avoid unnecessary or unproductive flight time.
- o Maintain an aft Center-of-Gravity (CG) configuration. By loading and managing fuel/cargo in a manner that maintains or shifts the aircraft to a more aft CG, the aerodynamic principle referred to as "tail loading" decreases, which leads to a reduction in lift requirements at any given airspeed. Due to less lift being needed, induced drag also decreases and a lower power setting can be achieved, thereby reducing fuel consumption.



**DOLLARS WE DON'T
SPEND ON FUEL ALLOWS
US TO REINVEST THAT
DOLLAR INTO CAPABILITY
FOR THE WARFIGHTER.**

- o Consider using a block altitude and flying a mach hold cruise climb profile.
- o Fly an optimized descent profile. Since fuel consumption increases at lower altitudes, initiate an en route descent at a point that uses minimum power settings while maneuvering the aircraft into the approach and landing environment.
- o Taxi on the minimum number of engines required for safe ground operations.
- o Consider delaying starting all engines until prior to taking the active runway for takeoff.
- o Plan all long-distance missions at long-range cruise.
- o Build flight schedules based on mission requirements; however, when training objectives for a specific mission are accomplished, air crew must end the sortie and land.
- o Fly optimal altitudes and airspeeds when transiting to and from training areas to increase fuel efficiencies.



ACC is now utilizing a productivity metric to track fuel effectiveness. The metric is total effective Ready Aircrew Program (RAP) hours divided by gallons. Total effective RAP hours are defined as effective RAP hours plus simulator hours. A non-effective sortie is defined as a sortie that must be reflown for RAP training. This metric highlights non-effective fuel from both non-effective training sorties and operational tasking that take training hours/fuel away from the unit. This metric does not include operational sorties at this time.

GROUND VEHICLES & EQUIPMENT ENERGY INITIATIVES

Ground vehicles represent one of the largest light duty vehicle fleets in the world. Our charter is to minimize fuels usage by complying with Executive Orders and AFI mandates. Battery Electric Vehicles (BEV) and Plug-In Hybrid Electric Vehicles (PHEV) are aggressively being considered for insertion and operation on DoD installations.

SAF/IE continues to evaluate DoD-wide cost-benefits and operational advantages of plug-in electric vehicles (PEVs) compared to conventional powered non-tactical fleets.

ACC has recently introduced an enhanced automated tool called the Automotive Information Module (AIM 2), which is designed to enhance/upgrade current on-base fuel station infrastructure on DoD installations. AIM 2 technology uses radio frequency to record vehicle data that is analyzed to aid users and leadership in identifying improvements of vehicle operations, driving habits, maintenance, fuel consumption, conservation, utilization, idle time management, budget forecasting, right-sizing, and overall fleet health. Phase I install consisted of 2,020 vehicles and fuel pump equipment installations at 3 Beta Test Sites (Tyndall AFB and Joint Bases Charleston and McGuire-D-L). We are now in Phase II, which will complete installation on approximately 28K remaining vehicles.

EVERY GALLON OF FUEL OR WATT OF ELECTRICITY WE ELIMINATE FROM OUR DAY TO DAY OPERATIONS IS ONE LESS THAT IS NEEDED TO RECOVER IN THE EVENT OF A DISRUPTION.

2. ASSURE SUPPLY

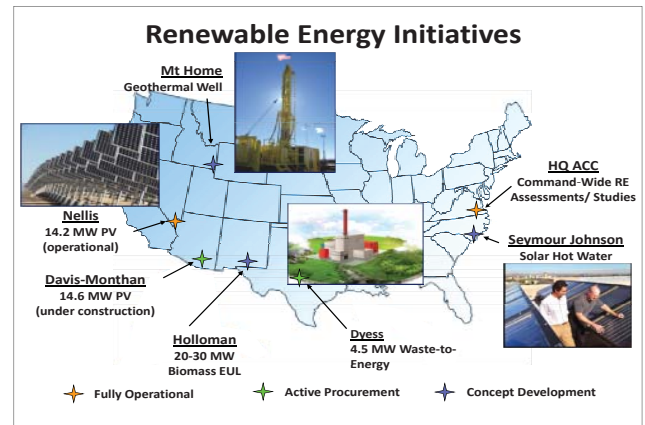
An adequate supply of energy enables mission accomplishment. Optimizing utility contracts, adding renewable sources of energy, and procuring alternative fueled vehicles and supporting infrastructure are all ways to assure the supply of energy.

To ensure that adequate energy supplies are available and contract capacity is sufficient to support the mission, contractual requirements must be closely monitored during installation's annual utility contract reviews.

To meet the goal of increased supply of electricity from renewable sources, opportunity assessments of ACC installations were conducted between 2010 and 2012. The opportunities identified formed the basis of a long-term

renewable energy development strategy with an objective to increase renewable energy as a percentage of our total electric energy consumed and achieve a 7.5% reduction by FY13 and 25% reduction by 2025. These opportunities are limited by economic viability, so not every installation is equally capable of contributing to the goal. The initiatives are primarily executed as renewable energy Enhanced Use Lease arrangements and Power Purchase Agreements.

Our vehicle community technologies coincide with Presidential Memorandums mandating all new light duty vehicles be alternative fueled vehicles (i.e., hybrid, electric, natural gas or flex-fuel) by December 2015. In order to forecast future procurement of lower green-house gas emitting vehicles, Air Force vehicle managers identify and report alternative fueled locations in close proximity to military installations annually. Additionally, military installations, in coordination with MAJCOM staff, are encouraged to improve the development of current infrastructure for alternative fuel pumps and electric charging stations, where applicable.



3. IMPROVE RESILIENCY

INFRASTRUCTURE/ENERGY SECURITY & MISSION ASSURANCE

To maintain freedom of operations, Air Combat Command will continue to “Improve Resiliency,” ensuring that we have the ability to recover from energy interruptions and sustain the mission. Energy supplies are at risk to existing and increasing global competition, which threaten both the availability and price of energy. Energy supplies, storage facilities, and delivery systems are also vulnerable to natural disasters, physical attacks, and cyber-attacks. It is essential for ACC to have the oversight, programs, and tools in place to systematically consider these risks, as well as contingency recovery plans for potential short- and long-term energy disruptions.

VEHICLE FLEET-ON-DEMAND SERVICES

Our Vehicle Managers work hand-in-hand with General Services Administration and other agencies to ensure vehicle operators are able to acquire alternative fuel.

INDUSTRIAL CONTROL SYSTEMS

Ensure Industrial Control Systems (ICS) are properly reviewed and processed, through the Information Assurance Program, to meet the requirements of Engineering Technical Letter 11-1. Modern ICSs are widely available as low cost Internet Protocol devices, which increase the possibility of cyber security vulnerabilities and incidents. Base ICSs can include aircraft hydrant fueling, electrical power distribution, water/wastewater, as well as airfield lighting, fire alarm, facility cooling/heating, and generator systems. Implement ICS risk assessment visit recommendations.

MICRO GRIDS

Provide enough sectionalizing and loop-feed capability in electrical distribution systems to serve critical loads and provide redundant feeds to mitigate the effects of any failure. Use a conventional Micro Grid, which is an island or feeder that can stand alone when utility power is lost and is easy to manually separate from the grid. The Micro Grid should consist of a group of buildings that can be supplied by portable generators in parallel at a single location.

A BALANCED ENERGY STRATEGY ENABLES OUR WARFIGHTERS, EXPANDS OPERATIONAL EFFECTIVENESS AND ENHANCES NATIONAL SECURITY BY ENSURING THE AIR FORCE HAS THE RESOURCES TO PROVIDE OUR NATION’S GLOBAL VIGILANCE, REACH AND POWER.

UTILITY PRIVATIZATION (UP)

Privatization of on-base utility distribution infrastructure can offer improved resiliency by funding system upgrades and increasing quality, reliability, and resources through ownership of a regulated utility company or qualified third party entity. UP initiatives are underway in FY13 for Shaw gas, Creech sewer, Davis Monthan electric, Dyess electric, Holloman electric, Langley electric, Moody electric and gas, Beale gas and Seymour Johnson electric. Ensure that requirements for energy security/mission assurance (bench stock, spares, manpower and other resources needed for electrical power outages, as well as technical training) are incorporated into UP source selection documents.

4. FOSTER ENERGY AWARE CULTURE

This year's Energy Awareness theme "*I Am Air Force Energy*" encourages everyone to take personal responsibility for energy conservation. Turn words into Action and turn action into Results!

LEADERSHIP MESSAGES

Continue to use quarterly Energy Management Steering Group meetings to coordinate all energy matters within the Wing.

- o Develop, implement, and sustain an Energy Awareness Program that includes an "Energy Proclamation" of energy conservation goals and techniques and that relates energy conservation to operational readiness.
- o Comply with the Air Force Energy Strategic Plan to minimize overall energy costs and consumption by establishing installation policies to promote an energy conservation culture. Comply with ACC's goals to annually reduce utility costs by 2%, energy consumption by 3%, and water consumption by 2%.
- o Emphasize the importance of fuel efficiencies and how they will mesh with training requirements to all ACC Wings. Implement measures to standardize fuel savings initiatives, such as weight reductions, routing optimizations, optimized use of simulators, limited afterburner use, and minimal engine-use taxi operations.
- o Incorporate fleet management policies to integrate alternative fueled vehicles into the pooled vehicle fleet through buy and lease requirements. Direct leadership involvement through Logistics Integrated Management System reporting and advanced technologies will continue to minimize overall energy costs and consumption.

PUBLIC AWARENESS INITIATIVES

- o Leaders are encouraged to promulgate Energy Awareness Policies and Proclamations. Provide general Energy Awareness training at Commander's calls and other events, and provide individualized Facility Manager Training. Incorporate proclamations, PC pop-up messages, marquee messages, and base newspaper articles or other forms of mass communication.
- o Air Force pilots will attend an annual IRC to review current "hot topic" aviation events, refresh knowledge of instrument flight restrictions/capabilities, and practice procedures necessary for efficient flight operations throughout U.S. and International airspace. Among the multitude of topics covered during this six-hour course are calculations required for appropriate take off, cruise, and descent. This review also includes discussions on required fuel reserves in varying environmental conditions.
- o Commanders are encouraged to establish energy conservation competition programs. An "NRG Dog Fight" between units that compares BTUs per square foot of buildings, or utility cost per person, helps personalize conservation. Commanders can also benchmark against last year's average energy usage and display the results on base entry marquees. This friendly competition helps all Airmen, military personnel, civilians, and contractors alike to remember to "make energy a consideration in all we do." The Advanced Meter Reader System (AMRS) has tools for mock billing to compare energy conservation efforts amongst squadrons or individual facilities.

TRAINING & EDUCATION

- o Emphasize energy conservation in aviation operations, vehicles, fuels, and facilities during Commander's calls.
- o Teach and test fuel efficiency management during periodic Instrument Refresher Course training.
- o Grade knowledge of AFI 11-MDS fuel efficient practices during periodic air crew evaluations.
- o Provide energy conservation and management training to Facility Managers on a recurring basis.
- o Additional Resources:
 - o AF Civil Engineer at <http://www.youtube.com/afcivilengineer>
 - o Energy Action Month at <http://www.youtube.com/watch?v=BWSsbYSYXZw>
 - o SAF/PA energy videos <http://www.af.mil/energyinitiatives/index.asp>
 - o Air Force Civil Engineer Virtual Learning Center Energy Courses located at https://afcesa.csd.disa.mil/kc/main/kc_frame.asp?blnWhatsNew=True
 - Civil Engineer Energy Courses (Energy Conservation For Building Managers)
 - Air Force Energy Courses (Air Force Energy Awareness Course)

OCTOBER ENERGY ACTION MONTH ACTIVITIES

Energy Managers are provided several items to use during Energy Action Month, including pop-up displays, brochures, articles, videos, and Department of Energy materials. Refer to the October 2012 Energy Action Month's After Action Report for ideas from all ACC installations.

EXPEDITIONARY OPERATIONAL ENERGY INITIATIVES

According to the Basic Expeditionary Airfield Resources (BEAR) Global Manager, HQ ACC/A4, "It's every BEAR Program site's responsibility to minimize fuel usage and comply with Exec orders, AFI, and local policy. Additionally, all users of BEAR assets maximize use of alternative fuels and fuel saving procedures when and where available."

We strive to manage facility energy at Forward Operating Bases and long-term locations as we do at our CONUS installations, within the confines of expeditionary operations. CENTCOM and AFCENT are providing energy leadership for the warfighter. The focus for our facility energy program is at those bases where AFCENT is BOS-I (GCC bases + Manas), including Al Udeid, Ali Al Salem, Al Dhafra, Thumrait, and Manas Transit Center.

As of December 2012, AFCENT facility energy strategies have realized savings of more than \$2.8 million and 400,000 gallons of fuel. Fuel consumption reporting has improved and reduction project efforts are increasing at our installations. Our facility energy use continues on a downward trend from baseline of 2010. Current and near-term initiatives include:

- o Increased involvement from the operations community to implement potential energy efficiency processes into aviation.
- o Drafting a Metering Plan for implementation in FY 13 with the goal of using the data to conduct level II energy audits and implement increased energy reduction strategies with support from the SAF/IE Energy Analysis Task Force.
- o Educate deployed populations on energy conservation procedures.
- o Coordinate with CENTCOM to include energy conservation into master planning.
- o Include energy conservation into on base contracts.
- o Replace diesel powered light carts, and facility lighting with solar powered LED lights.

- o Retrofit high intensity discharge lighting (HID) with lower wattage HID's and induction lights.
- o Enhance tracking of fuel usage and energy consumption data at BOS-I locations.
- o Centralize facilities and powering down spot generation.
- o Fuel efficient descents (FEDs) inbound to AI Udeid.
- o Fuel tankering for cost avoidance; tanker cheap fuel to expensive forward installations
- o Reduced engine taxi.
- o Heat shower water with solar energy.
- o Large scale light replacement; replace HID lights with induction fixtures.

AFCENT has had much success from a facilities focus. We are now working a target shift to aviation efficiencies while continuing to push proven technologies and streamlining processes within facilities in line with CENTCOM's goal to improve energy efficiency across the AOR.

FY 2013 CAMPAIGN EXECUTION

- o Track aviation and vehicle fuel consumption and facility energy consumption in accordance with applicable Federal mandates, such as the Energy Policy Act of 2005, Energy Independence and Security Act of 2007, and Executive Orders 13423 and 13514.
- o Using activities, Wings and HQ will monitor fuel consumption to determine effectiveness of the program.
- o Track installation facility energy use monthly through the Air Force Energy Reporting System (AFERS).
- o Report success through established Base-to-Command briefings.
- o Provide input for the Annual Energy Management Report to Congress, outlining fiscal year efforts and accomplishments in facility energy conservation.
- o Recognize personal and organizational accomplishments in energy, water, and fuel conservation.
- o Nominate individuals and groups for the annual Air Force Energy Conservation Awards, as well as the Federal Energy Management Program Energy & Water Efficiency Awards. Provide data on Energy Action Month successes for the annual After Action Report, so good ideas and activities can be leveraged across ACC and the Air Force.

Reducing demand, increasing supply, and fostering an energy aware culture are critical to allow the Air Force greater resiliency to pursue our mission and secure the future of this Nation. The theme "I Am Air Force Energy" speaks not only to the progress that our Airmen have made, but also how we all can make a difference in helping the Air Force become more energy secure. Remember, *YOU* are Air Force Energy. Through efforts both big and small, your innovation is key to our ability to achieve our mission and maintain an assured energy advantage in air, space, and cyberspace.

LEARN MORE



I AM AIR FORCE ENERGY