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MEMORANDUM FOR: DISTRIBUTION C
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FROM: SAF/OS
1670 Air Force Pentagon
Washington, DC 20330-1670

SUBJECT: Air Force Energy Program Policy Memorandum

Releasability: There are no releasability restrictions on this publication.

This is an Air Force Policy Memorandum immediately implementing the Air Force's energy policy. Compliance with this Memorandum is mandatory. To the extent its directions are inconsistent with other Air Force publications, the information herein prevails, in accordance with AFI 33-360, *Publications and Forms Management*.

The Air Force Energy Program Policy Memorandum (AFEPPM) attached is approved for dissemination. The Policy Memorandum is an overview of the Air Force energy policy and will be codified in forthcoming Air Force Policy Documents and Instructions.

The Under Secretary of the Air Force is designated the Air Force Senior Energy Official and is responsible for managing the Air Force Energy Program. In the absence of the Under Secretary, these duties have been delegated to the Assistant Secretary of the Air Force for Installations, Environment, and Logistics (SAF/IE). Any questions concerning the Air Force Energy Program or the Policy Memorandum should be addressed to SAF/IEE at 703-697-9297 or DSN 227-9297.

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The directions of this memorandum become void after 30 days have elapsed from the date of this memorandum, or upon release of an AF publication incorporating the policy, whichever is earlier.

Michael B. Donley

Attachment:

1. Air Force Energy Program Policy Memorandum

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Attachment 1

Air Force Energy Program Policy Memorandum

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- References:
- (a) Air Force Policy Directive (AFPD) 23-3, "Energy Management," September 7, 1993.
 - (b) Energy Policy Act of 2005 (EPAAct of 2005) (Public Law 109-058), August 8, 2005.
 - (c) Executive Order (EO) 13423, "Strengthening Federal Environmental, Energy, and Transportation Management," January 24, 2007.
 - (d) Air Force Aviation Fuel Conservation Memorandum, 21 September 2006.
 - (e) Secretary of the Air Force Memorandum, "Executive Order (EO) 13423, Strengthening Federal Environmental, Energy, and Transportation Management," September 18, 2007.
 - (f) Department of Defense Instruction (DoDI) 4170.11, "Installation Energy Management," November 22, 2005.
 - (g) DoDI 4170.10, "Energy Management Policy," August 8, 1991.
 - (h) Energy Independence and Security Act of 2007 (Public Law 110-140) December 19, 2007.
 - (i) Secretary of the Air Force Memorandum, "Clarification of Roles, Responsibilities, and Authorities Following the Departure of the Undersecretary of the Air Force," September 4, 2007.
 - (j) Office of the Under Secretary of Defense Memorandum, "Implementing Executive Order 13423," December 21, 2007.
 - (k) Office of the Under Secretary of Defense Memorandum, "Energy Savings Performance Contracts and Utility Energy Service Contracts" January 24, 2008.

1. Purpose.

This Policy Memorandum disseminates information for the Air Force energy management strategy, goals, objectives and metrics, including organizational relationships and existing responsibilities. The information contained in this memorandum will be codified in revised Air Force Policy Documents and Instructions.

2. Background.

The Air Force Energy Strategy supports the creation of a National Energy Strategy. The Air Force Energy Vision and Strategy furthers an energy future that is secure, efficient, and environmentally sound. Implementation requirements for the Major Commands (MAJCOMs), Field Operating Agencies (FOAs), Direct Reporting Units (DRUs) and installations are identified.

- 2.1. **Directive Guidance.** Air Force Policy Directive (AFPD) 23-3, “Energy Management” is the governing policy within the Air Force regarding energy. The EPA Act of 2005 (Public Law 109-058) (reference [b] above) and Executive Order (EO) 13423, “Strengthening Federal Environmental, Energy, and Transportation Management” (reference [c] above) established Federal energy goals through fiscal year (FY) 2015. Additional energy use and reduction goals have been established by other public laws, such as fiscal year defense authorization acts.
- 2.2. **Energy Definition.** For the purposes of this procedural memorandum, energy is defined by reference (a), AFPD 23-3, as “any usable power, such as coal, petroleum products, steam, electricity, natural gas, and propane, and including military operational fuels and propellants, whether purchased, generated, or produced by the Department of Defense, but excluding nuclear energy used in ship propulsion.” The definition is expanded to include nuclear, alternative fuels and renewable energy, including, but not limited to synthetic fuels, solar, wind, geothermal, and biomass.
- 2.3. **Energy Situational Awareness.** In FY 2007, the Air Force total energy costs exceeded \$6.9 billion—\$1.1 billion for facility energy; \$5.6 billion for aviation fuel; and \$229 million for ground fuel. Aviation fuel accounted for approximately 81 percent of the total Air Force energy costs. America imports roughly 58 percent of its petroleum products—projections indicate that America will continue to import an increasing percentage of its energy supplies going forward. This increased demand for imports, coupled with dwindling resources and the instability in the Arabian Gulf region and industrial expansion worldwide, makes it clear that the need for an effective energy strategy is just as important now as it was during the oil crises of the 1970s. While great strides in energy conservation have been made in past years, a renewed commitment to energy conservation and energy efficiency is needed to reduce the growing dependency on foreign petroleum products. The Air Force must manage energy resources to ensure that energy reduction goals are met or exceeded.
- 2.4. **Energy Security.** Improving energy security drives the goals and objectives of the Air Force Energy Strategy. Energy security includes physical security of infrastructure and supply, and continuity of operations. All aspects of energy security must be addressed to develop and implement comprehensive plans and strategies to enable the Air Force to respond to any energy security threat. Each working group of the Energy Senior Focus Group is reviewing energy security and threats within their group’s scope and is developing energy security strategies to counteract possible threats.
- 2.5. **Energy Reporting.** The Air Force will collect energy information required by the Department of Defense (DoD) and other government organizations to track progress against energy goals in the EPA Act of 2005, Energy Independence and Security Act of

2007, EO 13423 (reference [h] above), and other policies. The Air Force will support the Defense Utility Energy Reporting System (DUERS) and other data collection systems to report progress against established goals.

2.6. Financial. Funding is a key factor in the implementation of the Air Force Energy Strategy. The Air Force continues to face financial pressures due to current operations, budget, and force reductions, while still maintaining a high readiness. The Secretary of the Air Force directed in his Memorandum regarding EO 13423, dated September 18, 2007, that Headquarters Air Force and MAJCOM staffs should plan, program, and budget to achieve compliance with EO 13423. The Air Force's challenge is to use available energy funding wisely and search for opportunities to implement innovative financing options in support of energy goals and objectives. Air Force energy initiatives should have, as a key program deliverable, reduction of overall operating cost.

2.7. Support of Air Force Environmental Goals. Energy and the environment are invariably linked by the utilization of limited natural resources to produce energy and the by-products that are created through energy use. The Air Force is identifying alternative sources of energy to reduce the impact of energy use on the environment, is developing long-term objectives to achieve zero waste, and is pledging support to achieve DoD and Air Force environmental goals.

2.7.1. Green Procurement. Green procurement is the acquisition of environmentally preferable products and services in accordance with Federally-mandated 'green' procurement preference programs. The purpose of green procurement is to enhance and sustain mission readiness, reduce resource consumption, and reduce waste generation. Green procurement supports Air Force mission capability.

2.7.2. Greenhouse Gases (GHG). Greenhouse gas emissions include, but are not limited to, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride.

The Air Force is evaluating and developing protocols that will allow it to identify, quantify, and manage greenhouse gas emissions as well as potential carbon offsets. These will include point and mobile sources as well as direct and indirect emissions resulting from Air Force operations.

The Air Force Energy Strategy supports GHG emission management and reduction from improved energy efficiency and conservation with concomitant reduction in fossil fuel use in operations and base operating support. Sustained increases in the percentage of renewable and alternative energy sources will also reduce overall Air Force GHG emissions.

2.8. DoD Energy Security Strategic Plan. The DoD Energy Security Strategic Plan is currently under development and is anticipated to be issued within the year. It is the intent of the Air Force to abide by the DoD guidance outlined in this or other higher level energy plans.

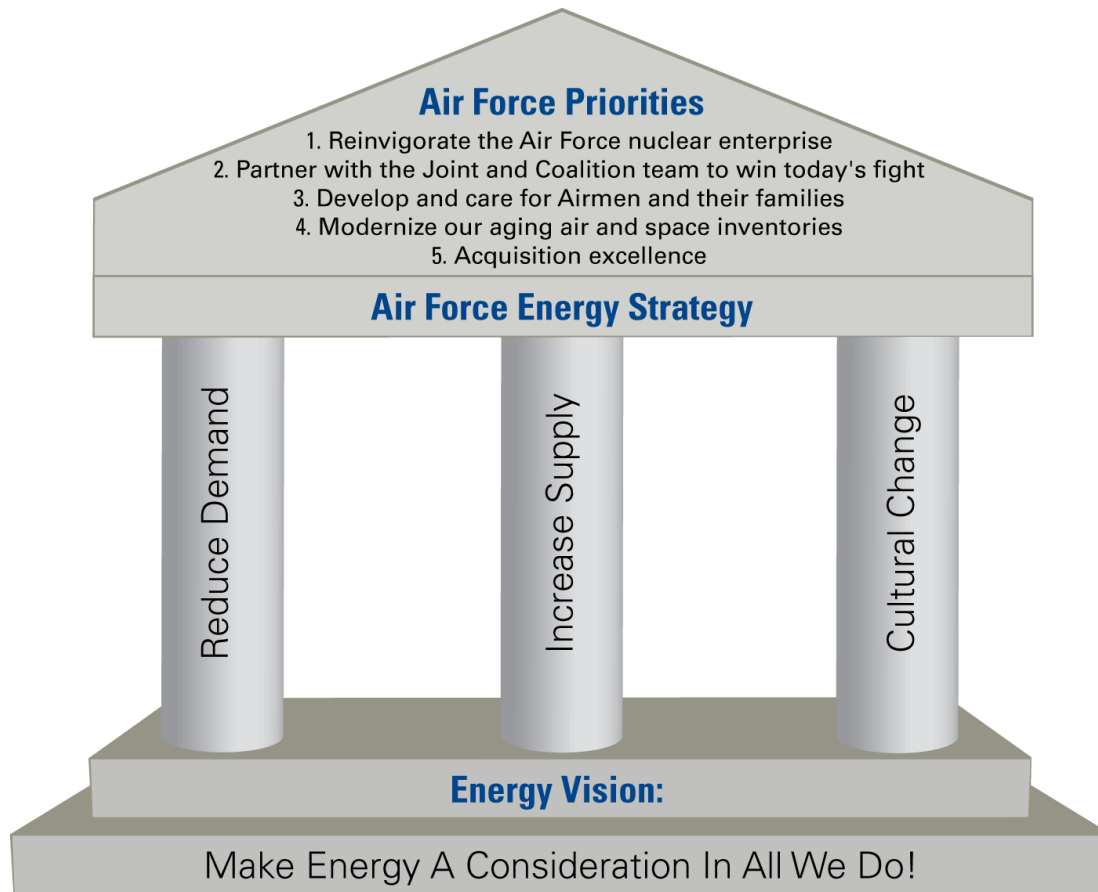
2.9. Energy Tools. The Air Force has multiple tools at its disposal to accomplish the goals and objectives outlined in the Energy Strategic Plan. The Air Force will use all of the

financial tools at its disposal to include the use of Energy Savings Performance Contracts and Utilities Energy Service Contracts (reference [k] above). Each tool is to be evaluated for each application to ensure it provides the best return on investment for the Air Force.

3. Air Force Energy Strategic Plan

- 3.1. Purpose.** The Air Force Energy Strategic Plan is a component of and supports Air Force priorities, which are: 1. reinvigorate the Air Force nuclear enterprise; 2. partner with the joint and coalition team to win today's fight; 3. develop and care for airmen and their families; 4. modernize our aging air and space inventories; and 5. acquisition excellence. The Air Force will meet or exceed all Federal goals established through public law or EO. The Air Force Energy Strategic Plan is structured to achieve the goals mandated by all public laws and EOs governing the Air Force, including, but not limited to the EPAct of 2005 (Public Law 109-058) and EO 13423, as well as the mandates of the President and the Office of the Secretary of Defense (OSD).
- 3.2. Vision.** The overarching vision of the Air Force Energy Initiative is "Make Energy a Consideration in All We Do." The Air Force uses energy awareness to keep all personnel focused on energy conservation and efficiency to reduce energy costs. It is only by involving everyone in the Air Force at all levels that the Air Force energy goals will be met. The Air Force Energy Strategy is outlined in Figure 1.

Figure 1. Air Force Energy Strategy



3.3. Strategy. The Air Force's Energy Strategy addresses all aspects of operations. This strategy balances demand-side energy efficiency measures with a long-term commitment to supply-side alternative energy sources. Executing the strategy will increase energy security and reduce costs. The following are the three components of the strategy:

3.3.1. Reduce Demand: Increase our energy efficiency through conservation and decreased usage, and increase individual awareness of the need to reduce our energy consumption.

3.3.2. Increase Supply: By researching, testing, and certifying new technologies, including renewable, alternative, and traditional energy sources, the Air Force can assist in creating new domestic supply sources.

3.3.3. Culture Change: The Air Force must create a culture where all Airmen make energy a consideration in everything they do, every day.

3.4. Goals, Objectives, and Metrics. The Air Force Energy Strategy supports the Air Force priorities and provides links to the energy goals established by the EPOA of 2005, Energy Independence and Security Act of 2007, December 19, 2007, EO 13423, and Air Force Aviation Fuel Conservation Memorandum issued September 21, 2006 (reference [d] above). Under each strategic pillar are specific energy goals and

objectives the Air Force will achieve. Figure 2, on the next page, illustrates these goals, objectives, and metrics. Section 5 outlines each organization and identifies their responsibility in implementing the strategy to achieve the Air Force's energy goals.

Figure 2. Air Force Energy Strategic Plan Goals, Objectives, and Metrics

Air Force Energy Strategic Plan		
Goals		
Reduce Demand	Increase Supply	Culture Change
Implementing Goals		
• Reduce Aviation fuel-use/hour operation by 10% (from a 2005 baseline) by 2015 • Implement pilot fuel efficiency measures in all standardization/evaluation flights by 2010 • Incorporate pilot fuel efficiency elements in the UPT training syllabus by 2011 • Reduce motor vehicle fleet petroleum fuel use by 2% per annum • Reduce installation energy intensity by 3% per annum	• Increase non-petroleum-based fuel use by 10% per annum in the motor vehicle fleet • Increase facility renewable energy at annual targets, 5% by FY10, 7.5% by FY13, 25% by FY25 - 50% of increase must come from new renewable sources • By 2016 be prepared to cost competitively acquire 50% of the Air Force's domestic aviation fuel requirement via an alternative fuel blend in which the alternative component is derived from domestic sources produced in a manner that is greener than fuels produced from conventional petroleum	• Provide energy leadership through the Energy Management Steering Groups • Train all personnel in energy awareness by 2010 • Implement an energy curriculum at the Academy and the Air University by 2010 • Communicate energy awareness at all installations during Energy Awareness Month each October
Objectives		
■ Increase Conservation ■ Improve Efficiency ■ Enhance Energy Security	■ Increase Alternative Fuels ■ Increase Renewables ■ Utilize Public Private Partnership ■ Enhance Energy Security	■ Leadership ■ Training ■ Education ■ Communication
Implementing Objectives		
• Fly Efficiently • Develop efficient aircraft technology • Improve jet engine performance • Develop fuel efficient equipment • Improve current infrastructure • Design new buildings that are 30% better than ASHRAE standards • Procure energy efficient products and vehicles • Optimize utility procurement • Evaluate lifecycle costs • Refine the Air Force's critical asset list • Conduct energy audits • Implement Air Force Metering Plan by 2012 and meet annual milestones	• Develop renewable resources on base • Procure commercially produced alternative/renewable energy • Test and certify all aircraft and systems against 50/50 alternative fuel blend by 2011 • Increase the number of flexible fuel systems • Identify/develop privately financed/operated energy production on Air Bases • Field the Critical Asset Prioritization Methodology (CAPM) tool • Manage costs	• Provide energy leadership throughout the Air Force • Provide energy awareness training to each uniform and civilian member of the Air Force • Develop energy curriculum for Air Force Academy, Air University, and other schools • Communicate Air Force energy successes and lessons learned • Identify/develop privately financed energy sources on underutilized land
Metrics		
■ Barrels of aviation fuel consumed per flight hour ■ Average amount of energy consumed per building sq. ft. ■ Average miles per gallon (MPG) of non-tactical ground vehicles	■ Percent alternative/renewable fuel used for aviation fuel requirements ■ Percent alternative/renewable fuels used for installation energy requirements ■ Percent alternative/renewable fuel used for non-tactical ground vehicle requirements	■ Energy audit score measuring compliance with Air Force energy policies and strategies ■ Percentage of personnel contacted with energy awareness media ■ Percentage of personnel trained in the Air Force energy curriculum ■ Survey score results measuring awareness of Air Force energy policy and strategies ■ Total number of Air Force personnel certified as Energy Master Black belts

Reduce Demand

3.4.1.1. Overarching Goal. The Air Force is committed to reducing aviation, ground fuel, and installation energy demand. The goals and objectives developed to reduce demand cover each of these areas and provide the framework for each executing organization to issue specific implementing guidance.

3.4.1.2. Implementation Goals

- Reduce aviation fuel-use/hour operation by 10% (from a 2005 base line) by 2015.
- Implement pilot fuel efficiency measures in all standardization/evaluation flights by 2010.
- Incorporate pilot fuel efficiency elements in the Undergraduate Pilot Training (UPT) training syllabus by 2011.
- Reduce motor vehicle fleet petroleum fuel use by 2 percent per annum
- Reduce installation energy intensity¹ by 3 percent per annum.

3.4.1.3. Overarching Objectives

- Increase conservation
- Improve efficiency
- Enhance energy security.

3.4.1.4. Implementation Objectives

- Fly efficiently
- Develop efficient aircraft technology
- Improve jet engine performance
- Develop fuel efficient equipment
- Improve current infrastructure
- Design new buildings that are 30 percent better than American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE) standards
- Procure energy efficient products and vehicles
- Optimize utility procurement
- Evaluate lifecycle costs
- Refine the Air Force's critical asset list
- Conduct energy audits
- Implement Air Force Metering Plan by 2012 and meet annual milestones.

3.4.1.5. Metrics

- Barrels of aviation fuel consumed per flight hour
- Average amount of energy consumed per building square foot
- Average miles per gallon (MPG) of non-tactical ground vehicles.

¹ Energy intensity is defined as the total amount of utility energy used to operate an installation. This includes but not limited to electricity, natural gas, propane, heating oil, and coal. Reducing energy intensity will reduce costs, Greenhouse Gases, and reduce the nations dependence on foreign oil.

3.4.2. Increase Supply

3.4.2.1. Overarching Goal. The Air Force is committed to increasing the amount of energy supplies available to become more energy independent. Energy independence reduces the amount of energy required from foreign sources and where possible, the Air Force will use renewable or green energy to reduce greenhouse gas emissions. The goals and objectives to increase supply target the three areas of aviation fuel, ground fuels, and installation energy.

3.4.2.2. Implementation Goals

- Increase non-petroleum-based fuel use by 10 percent per annum in the motor vehicle fleet
- Increase facility renewable energy use at annual targets of 5 percent by FY10, 7.5 percent by FY13, and 25 percent by FY25 – 50 percent of the increase must come from new renewable sources
- By 2016, be prepared to cost competitively acquire 50 percent of the Air Force's domestic aviation fuel requirement via an alternative fuel blend in which the alternative component is derived from domestic sources produced in a manner that is greener than fuels produced from conventional petroleum

3.4.2.3. Overarching Objectives

- Increase alternative fuels
- Increase renewable energy
- Utilize Public-Private Partnerships
- Enhance energy security.

3.4.2.4. Implementation Objectives

- Develop renewable energy resources on base
- Procure commercially produced alternative/renewable energy
- Test and certify aircraft fleet/systems on 50/50 alternative fuel blend by 2011
- Increase the number of flexible fuel systems
- Identify/develop privately financed/operated energy production on Air Bases
- Field the Critical Asset Prioritization Methodology (CAPM) tool
- Manage costs.

3.4.2.5. Metrics

- Percentage of alternative/renewable fuel used for aviation fuel requirements
- Percentage of alternative/renewable fuels used for installation energy requirements
- Percentage of alternative/renewable fuel used for non-tactical ground vehicle requirements.

3.4.3. Culture Change.

3.4.3.1. Overarching Goal. Changing the Air Force culture is critical to achieving the Air Force's Vision to "Make Energy a Consideration in All We Do." As the culture changes and the Air Force increases its energy awareness, new ideas and methodologies for operating more efficiently will emerge as each Airman considers the energy impact in their day-to-day duties.

3.4.3.2. Implementation Goals

- Provide energy leadership through Energy Management Steering Groups
- Train all personnel in energy awareness by 2010
- Implement an energy curriculum in the Academy and the Air University by 2010
- Communicate energy awareness at all installations during Energy Awareness Month each October.

3.4.3.3. Overarching Objectives

- Leadership
- Training
- Education
- Communication.

3.4.3.4. Implementation Objectives

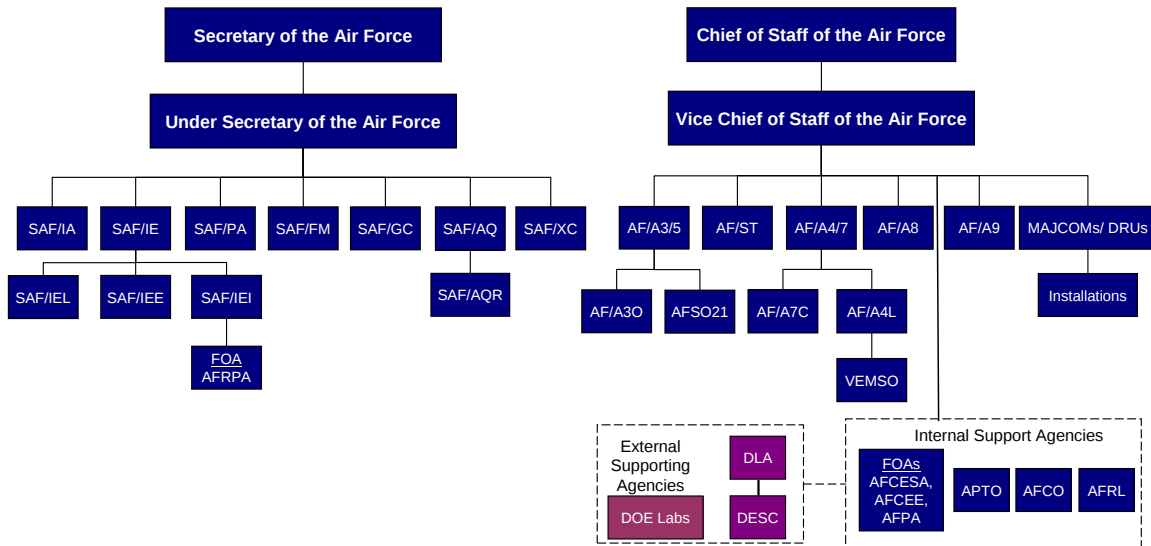
- Provide energy leadership throughout the Air Force
- Provide energy awareness training to each uniformed and civilian member of the Air Force
- Develop energy curriculum for Air Force Academy, Air University, and other schools
- Communicate Air Force energy successes and lessons learned
- Identify/develop privately financed energy sources on underutilized land.

3.4.3.5. Metrics

- Energy audit score measuring compliance with Air Force energy policies and strategies
- Percentage of personnel contacted with energy awareness media
- Percentage of Air Force personnel trained in the energy curriculum
- Survey score results measuring awareness of Air Force energy policy and strategies
- Total number of Air Force personnel certified as Energy Master Black Belts.

4. **Roles and Responsibilities.** Air Force organizations with responsibilities in the Air Force Energy Strategy are detailed in Figure 3.

Figure 3. Air Force Organizations with Energy Responsibilities



- 4.1. **Under Secretary of the Air Force (SAF/US).** Provide overall program management, establish goals and policies, and provide general guidelines. The SAF/US serves as the Senior Energy Official within the Air Force and co-chairs the Energy Senior Focus Group (SFG) with the Vice-Chief of Staff for the Air Force (AF/CV), unless otherwise directed by the Secretary of the Air Force.
- 4.2. **Assistant Secretary of the Air Force for Installations Environment and Logistics (SAF/IE).** SAF/IE will serve as the Office of Primary Responsibility for the Secretariat supporting the Under Secretary's role as the Senior Energy Official and overseeing program implementation at the Major Commands.² SAF/IE is a member of the International Working Group and the Strategic Communication Integration Advisory Group.
- SAF/IE leads Air Force international outreach programs coordinating all aspects of bilateral and multilateral opportunities (i.e. aviation operations, facilities, and vehicles) in coordination with the office of Secretary of Air Force International Affairs (SAF/IA) and the Political Military Advisor.
- 4.3. **Deputy Assistant Secretary of the Air Force for Energy, Environment, Safety, and Occupational Health (SAF/IEE).** Provide overall management of the Air Force Energy Strategy, responsible for developing, reviewing, and coordinating Air Force

² The SAF/IE serves as the Senior Energy Official within the Air Force, as designated by the Secretary of the Air Force Memorandum, "Clarification of Roles, Responsibilities, and Authorities Following the Departure of the Undersecretary of the Air Force," September 4, 2007, (reference [i]).

energy planning from a policy standpoint. SAF/IEE serves as the Executive Secretary of the Energy SFG.

4.3.1. SAF/IEE is responsible for all Air Force energy reporting against the energy goals stated in the EPOA of 2005, EO 13423, and the Air Force Energy Strategic Plan. SAF/IEE will issue guidance detailing the energy data that should be measured and will initiate regular data calls to monitor Air Force progress against these goals.

4.3.2. The Air Force uses the Department of Energy (DOE) Awards Program to recognize its people and organizations for their accomplishments in the energy conservation area. SAF/IEE issues a nomination call each year following release of DOE nomination criteria.

4.4. Assistant Secretary of the Air Force for Acquisition (SAF/AQ). Provide overall management of the Air Force acquisition and technology. SAF/AQ chairs the Acquisition and Technology Working Group and supports the Aviation Operations Working Group.

4.4.1. Deputy Assistant Secretary of the Air Force for Science, Technology, and Engineering (SAF/AQR). Provide policy and technological support to SAF/AQ on new energy technology and equipment modernization to reduce energy consumption.

4.5. Assistant Secretary of the Air Force, Financial Management and Comptroller (SAF/FM). Provide representation to the Energy SFG. SAF/FM chairs the Innovative Financing Advisory Working Group and is a member of the Provide Infrastructure Working Group and the Aviation Operations Working Group.

4.6. Director of Public Affairs, Office of the Secretary of the Air Force (SAF/PA). Provide representation to the Energy SFG. Provide strategic communication counsel for the Air Force Energy Strategy.

4.6.1. Integrated Plans and Strategy Division (SAF/PAX). SAF/PAX chairs the Strategic Communication Integration Advisory Group.

4.7. Office of the General Counsel of the Air Force (SAF/GC). Provide legal counsel for the Air Force Energy Strategy.

4.8. Office of Warfighting Integration and Chief Integration Officer (SAF/XC). Develop information management and information technology policies, guidance, architectures, and standards to maintain and implement the Air Force's enterprise-level information architecture.

4.9. Deputy Under Secretary of the Air Force, International Affairs (SAF/IA). SAF/IA chairs the International Working Group. Develops and implements policy and guidance for the direction, global integration, and supervision of Air Force international programs and activities. This includes, but is not limited to, foreign military sales; foreign military training; cooperative research, development, and acquisition agreements; personnel exchanges; and disclosure of classified and controlled information.

- 4.10. Air Force Deputy Chief of Staff, Manpower and Personnel (AF/A1).** AF/A1 chairs the Culture Change Working Group.
- 4.11. Air Force Deputy Chief of Staff, Operations, Plans, and Requirements (AF/A3/5).** Provide representation to the Energy SFG. AF/A3/5 chairs the Aviation Operations Working Group.
- 4.11.1. Air Force Office Director of Operations (AF/A3O).** AF/A3O chairs the Critical Infrastructure Program Advisory Working Group.
- 4.12. Air Force Deputy Chief of Staff, Logistics, Installations and Mission Support (AF/A4/7).** Provide representation to the Energy SFG. AF/A4/7 is a member of the Acquisition and Technology Working Group and the Innovative Financing Advisory Working Group.
- 4.12.1. Air Force Office of the Civil Engineer (AF/A7C).** Serve as the facility energy adviser to the Secretary of the Air Force through SAF/IEI. AF/A7C will chair the Provide Infrastructure Working Group.
- 4.12.2. Air Force Office of Logistics Readiness (AF/A4L).** Coordinate all fuels matters in the Air Force and provide fuel planning and management support to the Secretary of the Air Force and the Air Force Chief of Staff. Responsible for cradle-to-grave maintenance and management of the Air Force vehicle and vehicular equipment fleet and all associated environmental matters. AF/A4L is a member of the Provide Infrastructure and Aviation Operations Working Groups.
- 4.13. Air Force Deputy Chief of Staff for Strategic Plans and Programs (AF/A8).** Provide representation to the Energy SFG. AF/A8 is a member of the Provide Infrastructure Working Group, the Aviation Operations Working Group, and the Innovative Financing Advisory Working Group.
- 4.14. Air Force Deputy Chief of Staff for Analyses, Assessments, and Lessons Learned (AF/A9).** Serves as a principal advisor to the Energy SFG.
- 4.15. Air Force Chief Scientist (AF/ST).** Provides assessments on a wide range of scientific and technical issues affecting the Air Force mission.
- 4.16. Major Commands (MAJCOMs), Field Operating Agencies (FOAs), and Direct Reporting Units (DRUs).** Responsible for policy execution and compliance, and for developing plans that are specifically applicable to their organizations to support or supplement Air Force goals and strategies. Also responsible for executing programs for their organizations, which includes programming funding to support the various energy mandates, evaluating energy usage of subordinate units within their organizations, providing inputs required by HQ USAF for annual reports, and nominating their most successful units for energy awards. These organizations will develop and maintain a MAJCOM-level Energy Management Steering Group (EMSG), chaired by the Commander or Vice-Commander as directed by the Secretary of the Air Force Memorandum, "EO13423, Strengthening Federal Environmental, Energy, and Transportation Management," September 18, 2007.

4.16.1. Energy Awareness Month. MAJCOMs shall review each of their installation's Energy Awareness Month programs, and provide a report of all installations' programs to SAF/IE by August 31st of each year.

4.17. Installations. Each installation is responsible for developing plans to support or supplement their MAJCOM energy management programs in accordance with current AFD 23-3. This may include supporting, goals/strategies, executing those plans, measuring and evaluating their base energy usage, providing inputs required by their MAJCOM for annual reports, and nominating their most successful people and units for energy awards. Installations will also be responsible for developing and maintaining an installation-level EMSG that will be chaired by the Commander or Vice Commander, as directed by the Secretary of the Air Force Memorandum, "EO13423, Strengthening Federal Environmental, Energy, and Transportation Management," September 18, 2007.

4.17.1. Energy Security. Each base EMSG is required to determine the installation's vulnerability to energy interruptions as directed by AFD 23-3. The EMSG should assure the base's existing plans, covered in AFI 10-211, *Civil Engineer Contingency Response Planning*; AFI 10-2501, *Air Force Emergency Management Program Planning and Operations – Full Spectrum Threat Response (FSTR)* Plan 10-2, and AFI 32-2001 *Fire Protection Operations and Fire Prevention Program*, cover these vulnerabilities. Each base EMSG should annually review all plans to ensure a description of actions to be taken to minimize potential impacts in response to a serious interruption of energy supply that may occur at the local, state, or national level. The plans must address vulnerabilities of Air Force missions and facilities due to natural disasters, major system failures, energy supply constraint disputes, and terrorist sabotage. These plans should identify types of energy critical to base operation, energy suppliers, alternative sources, and procedures for obtaining emergency supply. The assessment includes an indication of the extent of the delay that can be allowed for critical programs and operations as well as points at which the primary base mission can no longer be accomplished. Control and feedback mechanisms for managing an energy emergency situation should be summarized in these plans. Base requirements should be coordinated with the local utilities and community disaster plans.

4.17.2. Energy Awareness Month. Installations shall recognize October as Energy Awareness Month, as decreed by President Bush in 1991. For Energy Awareness Month, each Installation EMSG should plan, develop, and promote programs to reduce energy demand, increase energy supply, and change culture throughout the upcoming Fiscal Year. Installations should consider using the processes, procedures, and lessons learned from the annual Earth Day programs as a guide for their Energy Awareness Month initiatives. Installations will provide summaries of their energy programs to their MAJCOMs for inclusion in the MAJCOM's summary report due to SAF/IE by August 31st of each year.

4.18. Support Organizations

- 4.18.1. Air Force Research Laboratory (AFRL).** AFRL's mission is leading the discovery, development, and integration of affordable warfighting technologies for America's aerospace forces.
- 4.18.2. Air Force Civil Engineer Support Agency (AFCESA).** AFCESA is a field operating agency that reports to the Office of the Civil Engineer of the Air Force. AFCESA provides the best tools, practices, and professional support to maximize Air Force civil engineer capabilities in base and contingency operations. It is also home to the Air Force Facility Energy Center (AFFEC), which provides oversight and support for the facility energy program to minimize consumption and costs. The AFFEC provides engineering, management, and legal expert support for energy and water reduction initiatives, renewable energy development, commodity acquisition, capital programs, utility privatization, and reporting.
- 4.18.3. Air Force Real Property Agency (AFRPA).** AFRPA is a field operating agency of the Deputy Assistant Secretary of the Air Force for Installations (SAF/IEI) and will advise on use of Air Force real property for energy initiatives.
- 4.18.4. Advanced Power Technology Office (APTO).** APTO is a staff agency at the Warner Robins Air Logistics Command. Their mission is to lead and manage the identification, assessment, transition, and integration of advanced power, alternative-energy, and fuel technologies into the Air Force's inventory: ground vehicles, support equipment, basic expeditionary airfield resources, and fuel-cell equipment/applications.
- 4.18.5. Air Force Petroleum Agency (AFPA).** AFPA, a field operating agency reporting to the Director, Logistics Readiness, Office of the Deputy Chief of Staff for Logistics, Installations, and Mission Support, HQ USAF. AFPA provides a full range of technical and professional services related to fuels, propellants, chemicals, lubricants, gases, and cryogenics for all aerospace vehicles, systems, and equipment.
- 4.18.6. Air Force Center for Engineering and the Environment (AFCEE).** Provides Air Force leaders with the comprehensive expertise and professional services necessary to protect, preserve, restore, develop, and sustain the nation's environmental and installation resources.
- 4.18.7. Alternative Fuel Certification Office (AFCO).** Execute and manage all aspects of the alternative fuel certification process across all USAF platforms (including all aircraft, future weapon systems, appropriate ground support equipment, and fuel delivery systems) in support SECAF "Assured Fuels" initiative to decrease US dependence on foreign oil.
- 4.18.8. Air Force Vehicle and Equipment Management Support Office (VEMSO).** VEMSO is an innovative office designed to promote the testing and acquisition of commercially available vehicles and equipment.

4.18.9. Air Force Smart Operations (AFSO). AFSO is responsible for the Air Force Smart Operations for the Twenty-first Century Program (AFSO21). The AFSO21 vision is to fundamentally change the culture of the Air Force so that all Airmen understand their individual role in improving their daily processes and eliminating things that do not add value to the mission. Energy is one of the five desired effects of the AFSO21 strategy and HQ USAF, MAJCOMs, and installations shall utilize AFSO21 process improvement concepts wherever possible.

4.18.10. Defense Energy Support Center (DESC). DESC is a field level activity of the Defense Logistics Agency (DLA). DESC's mission is to provide the DoD and other government agencies with comprehensive energy solutions in the most effective and economical manner possible. DESC is a member of the Acquisition and Technology Working Group.

4.18.11. Department of Energy (DOE) Laboratories. DOE laboratories and technology centers house world-class facilities where more than 30,000 scientists and engineers perform cutting-edge research.

5. Energy Management Structure

5.1. Energy Management Steering Group. Under AFPD 23-3, each level of command (HQ USAF, MAJCOM or equivalent, and installation) will establish an Energy Management Steering Group (EMSG).

5.1.1. Scope. The EMSG is the focal point for energy-related matters at that organizational level (HQ USAF, MAJCOM, or installation).

5.1.2. Goals. The goal of the EMSG is to coordinate all energy matters within the applicable level of command.

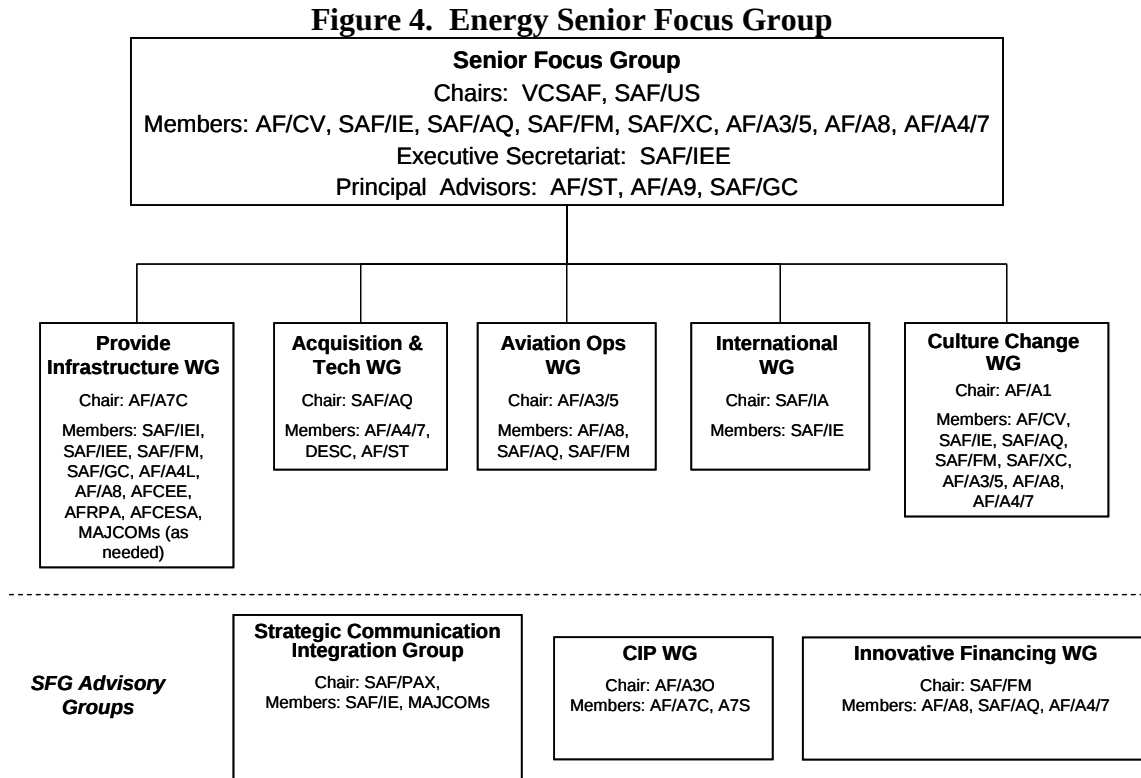
5.1.3. Objectives. The objective of the EMSG is to achieve the goals outlined in Section 3.4 of this memorandum.

5.1.4. Authority. Air Force Policy Directive (AFPD) 23-3, "Energy Management," September 7, 1993.

5.1.5. Program Reviews. Each EMSG shall provide quarterly updates and activity reports to the MAJCOM, and all MAJCOM EMSGs shall report quarterly to the HQ USAF EMSG Executive Secretary.

5.1.6. Membership. Membership and leadership of the EMSG is at the discretion of the MAJCOM/installation commander, but shall include, at a minimum, representatives from all major energy managing activities, including civil engineering, public affairs, transportation operations, budget, aircraft maintenance and operations, logistics, and fuels management. The EMSG provides a forum for coordinating energy activities and for conducting the Air Force Energy Strategy. EMSGs at MAJCOMs and installations should be chaired by the Commander or Vice Commander.

- 5.2. Energy Senior Focus Group.** The Energy SFG serves as the EMSG within the Headquarters Air Force (HAF) and is shown in Figure 4.



- 5.2.1. Scope.** The Energy SFG's scope extends to all energy use and conservation issues within the Air Force, including seeking alternative energy opportunities. This includes energy use at all Air Force installations, within ground transportation and support equipment/systems, aviation fuel use, and associated science and technology opportunities. The SFG does not replace normal staffing activities on energy issues within the HQ USAF. However, it is expected that HQ USAF offices with responsibility for energy issues will keep the Energy SFG informed of ongoing activities and programs.
- 5.2.2. Goals.** The goals of the SFG mirror the goals of the Energy Strategic Plan listed in Section 3.4.
- 5.2.3. Objectives.** The objectives of the SFG mirror the objectives of the Energy Strategic Plan listed in Section 3.4.
- 5.2.4. Authority.** The Energy SFG has the authority to task HQ USAF and MAJCOM offices to accomplish special studies, report status and metrics on initiatives and programs, and serve as the single voice on energy related matters both internally and externally to the Air Force.

5.2.5. Program Reviews. The Energy SFG conducts periodic reviews of the Air Force Energy Strategy progress. These reviews may be reported to both internal and external audiences.

5.2.6. Meetings. The Energy SFG will meet as often as the Chair(s) deem appropriate, but no less than quarterly. The Executive Secretary will publish meeting summaries and make them available to the entire Air Force.

5.2.7. Membership.

5.2.7.1. The Energy SFG shall be co-chaired by SAF/US as the Air Force Senior Energy Official and the Vice-Chief of Staff of the Air Force (AF/CV) and will include senior members from the following HQ USAF offices: SAF/IE, SAF/AQ, SAF/FM, SAF/XC, AF/A3/5, AF/A4/7, and AF/A8. SAF/IEE shall serve as the Executive Secretary of the Energy SFG and principal advisors include AF/ST and AF/A9. The Executive Secretary or Chairs of the SFG may name additional members as deemed necessary.

5.2.7.2. Other offices within the Air Force, including but not limited to SAF/FM, SAF/GC, SAF/PA, SAF/LL, AFMC/AFRL, AFRPA, APTO, AFCESA, AFPA, AFCEE, and VEMSO shall serve as advisory members of the Energy SFG. Additionally, the Energy SFG may seek advice and counsel from other organizations, academia, and external subject matter experts.

5.2.7.3. The Energy SFG may charter working groups to provide emphasis on specific issues, as required. Working groups that have been established are presented in Figure 4, above, and are discussed in greater detail in the following sections.

5.3. SFG Working Groups. The following working groups and advisory groups will be established under the SFG to assist in meeting the intent of DoD and federal energy policy and guidance. These groups are detailed in the Appendices.

5.3.1. Provide Infrastructure Working Group. The Provide Infrastructure Working Group is a component of the Air Force Energy SFG. It focuses on facilities, infrastructure, ground fuels, and ground vehicles.

5.3.2. Acquisition and Technology Working Group. The Acquisition and Technology Working Group is a component of the Air Force Energy SFG. It focuses on developing energy options to increase warfighting capability by enabling secure and reliable energy alternatives, increasing energy efficiency, and reducing life cycle costs in acquisition. Certification of synthetic fuel in aircraft and equipment is one of the major initiatives of this group.

5.3.3. Aviation Operations Working Group. The Aviation Operations Working Group is a component of the Air Force Energy SFG. It focuses on all flying, planning, and training programs.

5.3.4. International Working Group. The International Working Group is a component of the Air Force Energy SFG. It focuses on establishing international energy dialogs with our allies and coalition partners.

- 5.3.5. **Culture Change Working Group.** The Culture Change Working Group is a component of the Air Force Energy SFG. It focuses on the implementation of programs and communication messages that will promote culture change within all levels to the Air Force to make energy a consideration in all we do.
- 5.3.6. **Strategic Communication Integration Advisory Working Group.** The Strategic Communication Integration Work Group is an advisor to the SFG and focuses on developing energy communication themes and messages that are consistent with national, DoD, and Air Force priorities.
- 5.3.7. **Critical Infrastructure Program (CIP) Advisory Working Group.** The CIP Working Group is an advisor to the SFG and focuses on the identification and analysis of Air Force critical assets and infrastructure dependencies—to include critical energy infrastructure—and determines the impact on Air Force and Combatant Command mission execution if critical assets are lost or degraded.
- 5.3.8. **Innovative Financing Advisory Working Group.** The Innovative Financing Working Group is an advisor to the SFG and focuses on developing energy financing options, to include public-private partnerships.

Appendices

Appendix A. Provide Infrastructure Working Group.

A-1. Scope. Provide policy, resources, advocacy, and oversight of infrastructure energy programs to include facilities, infrastructure, ground fuels, and ground vehicles to ensure the Air Force meets or exceeds the EPOA of 2005, EO13423 and other federal and DoD energy management mandates, reduces life cycle operating costs, and ensures energy security.

A-2. Goals.

- Reduce energy intensity by 3 percent per annum
- Reduce water use by 2 percent per annum
- Increase renewable energy at annual targets (3 percent by FY07, 5 percent by FY10, 7.5 percent by FY13, 25 percent by 2025 of total electrical use)
- Reduce vehicle petroleum product consumption by 2 percent per annum through 2015
- Increase the use of vehicle non-petroleum-based (alternative/renewable) fuels by 10 percent per annum through 2015
- Replace 30 percent of the light duty vehicle fleet with Low Speed Vehicles (LSVs) by 2012
- Ensure 75 percent of acquisitions and leases of light duty covered vehicles are alternative fuel capable
- Maximize use of plug in hybrid vehicles, when available.

A-3. Objectives.

- Modernize the facility energy information management system to enhance performance measurement and analysis
- Build and maintain a requirements-driven energy program through the FYDP that optimizes all available funding avenues
- Develop a program to provide sustainable facilities which exceed industry energy intensity and water conservation standards
- Develop on-base renewable energy resources where life-cycle cost-effective
- Assess Air Force utility service contracts to ensure most favorable rates and terms and to take best advantage of available rebates and incentives
- Employ strategies for strategic purchasing of utility services that are sensitive to market prices
- Submit alternative fuel infrastructure requirements to DLA and ensure maximum use of existing alternative fuel facilities. Procure alternate fuel vehicles while modernizing the fleet by converting 30% to low-speed vehicles
- Develop a program to right-size the fleet through a series of vehicle validation reviews while creating a baseline for each functional community to follow as a model for requirements

- Enhance energy education and training for energy professionals and others involved in service delivery.

Appendix B. Acquisition and Technology Working Group.

B-1. Scope. Develop energy options to increase warfighting capability by enabling secure and reliable energy alternatives, increasing energy efficiency, and reducing life cycle costs in acquisition.

B-2. Goals.

- Reduce demand with a 20 percent increase in lift to drag ratio
- Reduce demand by lowering installed specific fuel consumption 25 percent
- Increase supply by utilizing alternative fuels to meet 50 percent of Air Force CONUS consumption by 2016
- Certify entire Air Force fleet to use synthetic fuel blend by early 2011
- By 2016, be prepared to cost competitively acquire 50% of the Air Force's domestic aviation fuel requirement via an alternative fuel blend in which the alternative component is derived from domestic sources produced in a manner that is greener than fuels produced from conventional petroleum.

B-3. Objectives.

B-3.1. Alternative fuels.

- Flight test F-T and JP8 blend
- Certify entire Air Force aircraft fleet on F-T and JP8 blend by 2011
- Evaluate biofuels for CO² reduction in accordance with the Energy Independence and Security Act of 2007 (reference [h])
- Evaluate pure synthetic fuels in accordance with the Energy Independence and Security Act of 2007
- Evaluate infrastructure and vehicles and ground support equipment.

B-3.2. Aircraft technology.

- Blended wing/body to increase lift to drag ratio and reduce structural weight; material compatibility with alternative fuels.

B-3.3. Efficient/adaptive engines.

- Reduce installed specific fuel consumption
- Increase thrust/weight
- Improve thermal management of engines and aircraft.

B-3.4. Advanced design systems.

- Design energy conversion systems to be fuel-flexible
- Proactive with energy suppliers for timely deployment of new technology.

B-3.5. Focus on energy-related initiatives.

- Basic research in fuel-flexible energy conversion
- Evaluation of alternative fuel blends for weapons systems
- Develop fuel efficient engines for mobility, strike and ISR missions
- Pursue energy efficient aircraft structures.

B-3.6. Acquire energy efficient weapon systems.

- Develop pilot acquisition strategy for LRS to include fully-burdened cost of fuel.

B-3.7. Alternative fuel.

- In order to support the primary goal of being prepared to cost competitively acquire 50% of the Air Force's domestic aviation fuel requirement via an alternative fuel blend in which the alternative component is derived from domestic sources produced in a manner that is greener than fuels produced from conventional petroleum by 2016. By 2011, the Air Force will have certified the entire inventory of aircraft, vehicles, ground support equipment, and fuels logistics infrastructure for operations with a 50/50 synthetic fuel blend
- To execute the fleet certification process, an Alternative Fuels Certification Office (AFCO) located within the Aeronautical Systems Center (ASC) at Wright-Patterson AFB has been chartered to staff and manage elements associated with timelines, budget and certification requirements
- Since the intent is to initially use a standard 50/50 synthetic iso-paraffinic/JP8 blend for all certification testing, under Executive Agency charter, the Defense Energy Support Center (DESC) will capitalize the 50/50 blend, which will be named as SJ8 (synthetic jet [JP] 8 product code)
- A collaborative effort will be maintained with the Federal Aviation Administration and the commercial aviation industry through the Commercial Aviation Alternative Fuels Initiative (CAAFI) to define a synthetic fuels standard specification by FY09.

Appendix C. Aviation Operations Working Group.

C-1. Scope. Ensure aviation operational effectiveness by validating all mission and training requirements, migrating flying training to Aircrew Training Devices when practical, and developing a fuel conservation culture within the aviation operations community.

C-2. Goals.

- Ensure the Air Force maintains the ability to conduct effective operations as required to protect the United States and secure its vital interests by:
 - Eliminating training for capabilities no longer required
 - Determining type/number of events that can be moved from live-fly to simulators
 - Achieve overarching cultural change down to the Aircraft Commander and Crew Chief to conserve fuel (Top-to-Bottom) with accountability.

C-3. Objectives.

- Revalidate training (effectiveness and efficiency) to support Combatant Command capability requirements
- Establish process for periodic mission and training revalidation
- Identify events that could be trained in Aircrew Training Devices and establish policy that enables aircrew to use simulators vs. live-fly
- Develop business case for future and continuing Air Crew Training Device investments
- Ensure leadership's energy priorities are communicated throughout the Air Force
- Educate, evaluate, and create incentives for fuel conservation during air operations.

Appendix D. International Working Group.

D-1. Scope. The International Working Group is a component of the Air Force Energy SFG. It focuses on establishing international energy dialogs with our allies and coalition partners.

D-2. Goals.

- Achieve interoperability as use of alternative fuels increases
- Gain access to global technology and best practices
- Address common energy concerns cooperatively.

D-3. Objectives.

D-3.1. Short Term.

- Work with coalition partners to certify aircraft to use JP-8 fuel containing up to 50% blend of synthetic component
- Identify cooperative opportunities in energy technologies, alternative fuels, and demand reduction practices
- Make energy a component of existing international forums
- Strengthen existing energy security relationships
- Explore and understand methods to identify and inventory Green House Gas (GHG) emissions from aviation and ground operations
- Share best practices for efficient fuel usage in operations
- Utilize best practices to facilitate harmonious shift in the current energy culture
- Share information on the use of renewable energies to power air bases/air stations.

D-3.2. Mid Term.

- Expand engagement to include other countries not already certified to use JP-8 fuel containing up to 50% blend of synthetic component
- Cooperative development of fuel cell based power systems for use in military related applications
- Cooperative development of lightweight materials for use in aviation and ground equipment
- Cooperative development, evaluation, and certification of promising bio-fuels for determining technical suitability, environmental compliance, and sustainability

- Identify, inventory, understand, and potentially reduce the lifecycle GHG emissions impact from aviation and ground operations, while continuing to perform defense missions potentially using a common set of tools and protocols
- Incorporate bilateral and multilateral Distributed Mission Operations into US-international exercises
- Engage partners in cooperative R&D for energy technologies and alternative fuels not specifically mentioned above

D-3.3. Long Term.

- Solidify an interoperable framework of partner countries that use alternative fuels, focus on demand reduction, and manage greenhouse gas emissions
- Ensure continued interoperability as more alternative fuel options are introduced
- Collaborate efforts to use renewable energy power during coalition operations and exercises
- Continue fundamental research cooperation with foreign universities and governments

Appendix E. Culture Change Working Group.

E-1. Scope. The Culture Change Working Group is a component of the Air Force Energy SFG. It focuses on the implementation of programs and communication messages that will promote culture change within all levels to the Air Force to make energy a consideration in all we do.

E-2. Goals.

- Provide energy leadership through the Energy Management Steer Groups
- Train all personnel in energy awareness by 2010
- Implement Academy and Air University energy curriculums by 2010
- Energy awareness month – October.

E-3. Objectives.

- Provide energy leadership throughout the Air Force
- Provide energy awareness training to each uniform and civilian member of the Air Force
- Develop energy curriculum for Air Force Academy and schools
- Communicate Air Force energy successes and lessons learned
- Identify/develop privately financed energy sources on underutilized land.

Appendix F. Strategic Communication Integration Advisory Working Group.

F-1 Scope. The Strategic Communication Integration Work Group is an advisor to the SFG and focuses on developing energy communication themes and messages that are consistent with national, DoD, and Air Force priorities.

F-2. Goal.

- Synchronize and integrate communications to increase awareness and understanding of the Air Force Energy Strategy

F-3. Objectives.

- Publish and distribute an Air Force Energy Strategy Communication Plan
- Measure and track internal and external audience awareness, understanding, and support of the Air Force energy strategy through internal and external sources.
- Track and evaluate communication engagements for consistency of message.

Appendix G. Critical Infrastructure Program (CIP) Advisory Working Group

G-1. Scope. The purpose of the Air Force CIP is to assure our ability to execute our missions and capabilities that are essential to planning, mobilizing, deploying, executing, and sustaining military operations on a global basis.

G-2. Goals.

- Identify Air Force assets and infrastructure dependencies critical to execution of our missions, capabilities, and core functions
- Assess critical assets to determine vulnerabilities and risk of loss (assessments on discrete critical assets are conducted by the Air Force CIP office [AF/A3O-AH] during an integrated Vulnerability Assessment/CIP Assessment with the Air Force Security Forces Center)
- Prioritize critical assets to support management of risk and to apply scarce resources
- Remediate risks through a risk management process
- Coordinate with existing programs for protection of critical assets in order to leverage existing process where possible.

G-3. Objectives.

- Publish AFI 10-24, *Critical Infrastructure Program*, which will provide guidance to Air Force MAJCOMs on the execution of their CIP programs
- Partner/assist with Assistant Secretary of Defense for Homeland Defense & Americas' Security Affairs (ASD(HD&ASA)) and Joint Staff (J34 AT/FP Division) in a Central Analytical Capability, an effort designed to characterize the infrastructure outside the installation fence-lines. This effort shall assist in determining what supporting infrastructure (energy, Petroleum Oil and Lubricants (POL), water, etc) is critical in directly supporting critical assets residing on military installations
- Field the Critical Asset Prioritization Methodology (CAPM) tool by Spring 2008. This CAPM tool will allow A3O-AH to prioritize Air Force critical assets according to six metrics. This allows leadership to utilize its limited funding to remediate the most important critical assets at highest risk of being degraded or lost
- Refine the Air Force critical asset list to capture the critical supporting infrastructure between host and tenants on installations
- Establish programmatic funding for AF CIP in FY10-15 POM
- Commence official critical asset risk assessments with the Air Force Security Forces Center in April 2008.

- Build remediation recommendations that provide commander's options to remediate their risk of loss of their critical assets (for the critical supporting energy infrastructure, including new tactics, techniques, procedures, protection measures, implementation of redundancy capabilities, etc).

Appendix H. Innovative Financing Advisory Working Group

H-1. Scope. Explore, identify, and analyze best financing approaches to support the Air Force Energy Strategy. Provide financial analytical support to the Air Force Energy Senior Focus Group and its working groups.

H-2. Goals.

- Review/assess potential energy financial initiatives, recommend implementation of those that are economically sound
- Provide cost, economic, and financial analytical support to SFG and working groups
- Partner with DLA financial managers on economics of fuel pricing.

H-3. Objectives.

- Explore other methods of funding for energy initiatives
- Review economic and cost models developed for energy
- Explore best practices from government and private sectors for energy purchases
- Engage OSD to ensure DoD financial regulations pertaining to energy are revised as laws and policies change, and develop requisite Air Force policies
- Interact with and gain Congressional support for energy legislative initiatives/proposals with financial impact
- Develop financial incentives for installations that save energy through supply/demand initiatives.