

USACE Energy and OMA/SRM Support to IMCOM Installations

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Energy Requirements

- **Implementation requirements of Energy Policy ACT (EPAAct) 2005, Energy Independence and Security (EISA) 2007 and Executive Order (EO) 13423.**
- **Facilities: Reduction in energy intensity of 3% a year or 30% by the end of fiscal year 2015**
- **New construction/major renovation comply with the 2006 Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (MOU)**



Energy Requirements

- Renewable Energy: ensure that at least half of renewable energy comes from new renewable sources (these new sources can be non-electric)
- Of the total electrical energy consumed during any fiscal year, the following amounts shall be renewable energy: 2007 – 2009 minimum 3 %, 2010 – 2012 minimum 5 %, 2013 and beyond minimum 7.5 %
- Water: reduce water consumption by 2% annually through fiscal year 2015.
- Water Heaters: solar hot water heaters provide at least 30 percent of hot water demand in new or substantially modified federal buildings.

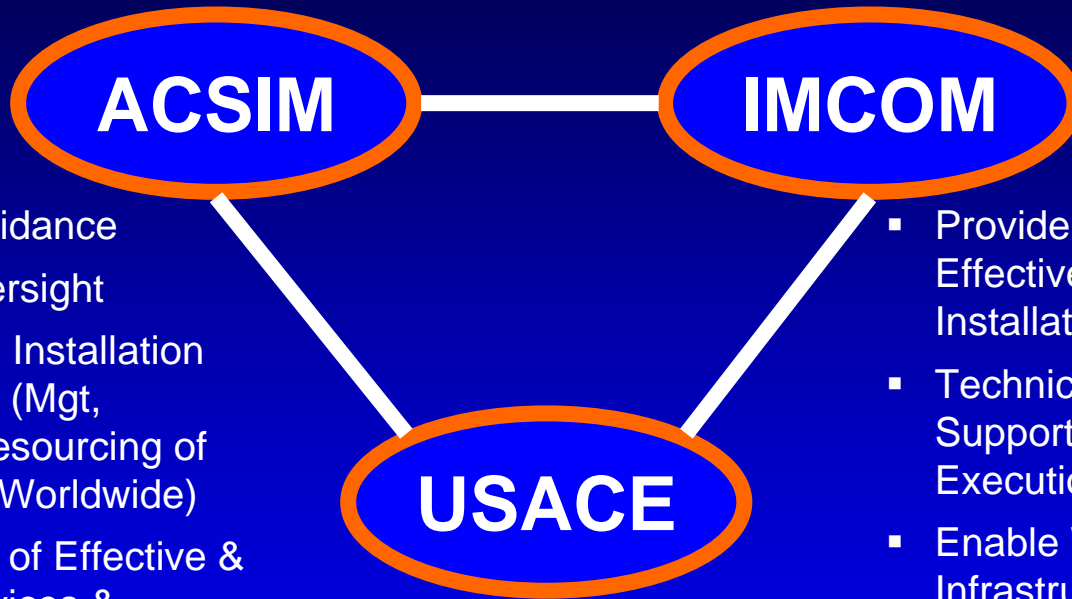


Energy Requirements

- Buildings to be designed to 30% below American Society of Heating, Refrigeration and AC Engineers (ASHRAE) 90.1 or International Energy Conservation Code if Life Cycle Cost-Effective.
- Energy/electric metering in federal buildings by 2012
- Energy Star and Federal Energy Management Program (FEMP) products
- Requires premium efficient motors and equipment
- Fossil Fuel: gradually eliminate usage by 2030



ACSIM/IMCOM/USACE Army Installation Management Team = Unity of Effort



- Vision & Policy Guidance
- Senior Leader Oversight
- Program Mgt of All Installation Mgt Mission Areas (Mgt, Programming & Resourcing of Army Installations Worldwide)
- Ensure Availability of Effective & Efficient Base Services & Facilities

- Military Construction
- Installation, Energy & Envir Spt
- Real Estate Services
- Engineering & Construction (E&C) Technical Guidance and Assistance
- Research & Development
- Contingency Opns Spt & Disaster Response

- Provide Equitable, Efficient & Effective Management of Installations Worldwide
- Technical Guidance, & Support Mission Readiness & Execution
- Enable Well-Being, Improve Infrastructure, & Preserve Environment



ISCoP Installation Support Branch

USACE Installation Energy Support Program

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Energy Conservation/ Renewable Program

Harry Goradia, (202)761-0291

— Energy Conservation Strategy

— Legislative/EO/Regulation
Compliance

— IMCOM/OACSIM Energy Liaison

— Renewable Energy Security
Projects
Energy Acquisition Strategy
(USACE ECIP/EEAP/EUSC/
ESPC/EUL)

— Interagency Activities
DOE, EPA, GSA, DoD

— Senior Energy Council (SEC)
Coordination

Commercial Utilities Program Implementation

Dewey McLean, (202)761-7578

— Utilities Services Acquisition &
Sale Contracts Support

— Utility Tariff & Rate Intervention
Support

— Utilities/Regulatory Liaison

— Market Intelligence Surveys

— IMCOM/OACSIM Utilities Liaison

— Micro Grid/Metering

Commercial Utilities Program Policy and Guidance

Rafael Zayas, (202)761-7575

— AR 420-41 Development

— Army Utilities Acquisition and Sale
Handbook Development

— Utilities Acquisition and Sale
Strategy

— CUP Oversight - ACUPOM
Application Development

— CUP Training Development

— CUP Website

— CUP IMCOM/OACSIM Liaison

— CUP (LMI) Projects TCOR

— CUP COE/USACE Coordination

— Defense Acquisition Regulations
(DAR) Utilities Committee, Etc.....



Current Programs

- EEAP-Energy Engineering Analysis Program
- ECIP-Energy Conservation Investment Program
- ESPC-Energy Savings Performance Contracts
- Utility Metering
- CUP-Commercial Utility Program
- EUL-Enhanced Utility Lease
- SDD-Sustainable Design and Development
- R&D-Research & Development
- MILCON Transformation
- CoS-Centers of Standardization
- Region LNO's/PM-Forwards/Check Book



Environmental Impact of Buildings*

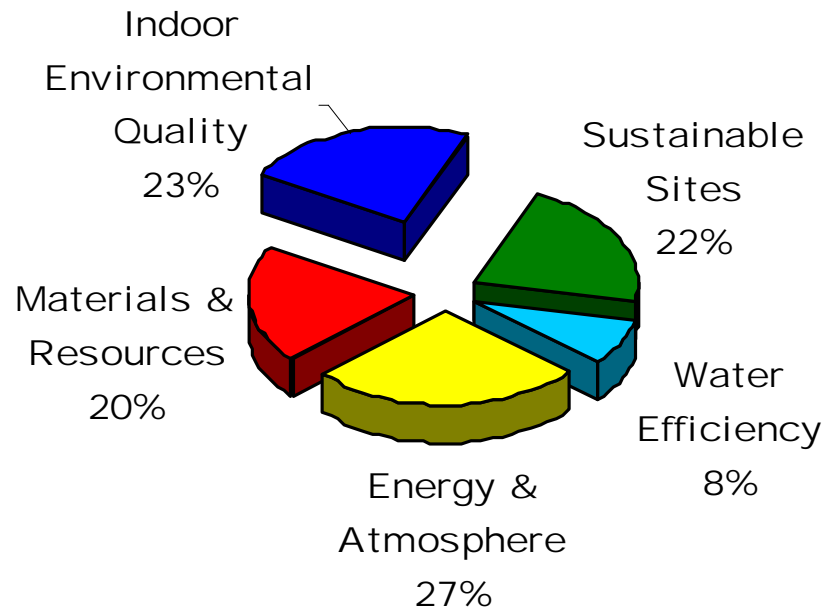
- 65.2% of total U.S. electricity consumption
- > 36% of total U.S. primary energy use
- 30% of total U.S. greenhouse gas emissions
- 136 million tons of construction and demolition waste in the U.S. (approx. 2.8 lbs/person/day)
- 12% of potable water in the U.S.
- 40% (3 billion tons annually) of raw materials use globally

- * Commercial and residential (*Source: USGBC*)



LEED-NC[®] Point Distribution

Five LEED credit categories



DPW / Master Planning Considerations

- Insist on project sustainability!
 - Future Development Plan
 - Installation Design Standards / Installation Design Guide
 - Installation emphasis on LEED /Sustainability goals (Consider regional indicators)
 - A/E contract requirements – set LEED target goals and capture rationale for credits earned
 - Build network of local vendors for sustainable materials & services
 - Borrow good ideas and try them!



New Construction- Military Transformation

- Currently using Energy Budget approach developed by ERDC, DOE, ASHRAE partnership to address EPACT compliance.
- Need to develop Energy Budgets to incorporate EISA 2007 requirements.
- Discussing energy requirements for OCONUS facilities.



SRM Energy Conservation

- Many projects are funded above the 25% of the building value. These building should be brought into compliance with the requirements for new construction.
- USACE can support SRM program through respective Centers of Standardization (COS's), ERDC-CERL and Huntsville Center to enhance future projects with energy conservation features through design efforts or preparation of enhanced Request for Proposals (RFP) content.



Energy Check-lists for SRM Projects

- ERDC-CERL (USACE lab) is developing energy check-lists for SRM Projects.
 - Phase 1: Barracks, Administrative buildings, TEMF, COF, DFAC's, Army Reserve and CDC.
 - Phase 2: Warehouses, Safety Facilities, Hangars, Flight and Vehicle Simulators, Gyms, Hospitals, and Clinics.
- Each check-list will include a brief description of the building with its energy consuming systems and appliances, and requirements and specs to the building elements and systems to be replaced or repaired.



Tiger Teams for Installation Energy Enhancement

- **USACE is orchestrating tiger teams to address installation-wide energy enhancement opportunities.**
- **First such team is formed for Fort Bliss. Participants are ACSIM, IMCOM, ASAI&E, ERDC-CERL, Fort Worth District, HQUSACE.**



SRM Center of Expertise

- Preliminary discussions have been held with IMCOM for creation of Center of Expertise for SRM projects. The center can be repository of knowledge and clearing house for information for SRM projects.
- It can develop retrofit concepts for major renovation projects, e.g., VOLAR Barracks, Starship Barracks, TEMF, Dining Facilities and demonstrate these concepts.
- It can act as catalyst for technology transfer.
- It can assist in implementing requirements of Energy Policy ACT (EPAAct) 2005, Energy Independence and Security (EISA) 2007 and Executive Order (EO) 13423.



WBDG Website

WBDG: Sustainable - Microsoft Internet Explorer

Address: <http://www.wbdg.org/design/sustainable.php>

Home / About / Contact / Site Map / Search:

WBDG

WHOLE BUILDING DESIGN GUIDE

- Design Guidance
 - Building Types
 - Space Types
 - Design Objectives
 - Products & Systems
- Project Management
 - Delivery Teams
 - Planning & Development
 - Delivery & Controls
- Mandates / References
 - Federal Mandates
 - Publications
 - Case Studies
 - Participating Agencies
 - Industry Organizations
 - Related Links
- Tools
- News, Events & Training

Sustainable

by the WBDG Sustainable Committee

Design Objectives Index > **Sustainable** >

- Optimize Site Potential
- Minimize Energy Consumption
- Protect and Conserve Water
- Use Environmentally Preferable Products
- Enhance Indoor Environmental Quality (IEQ)
- Optimize Operational and Maintenance Practices

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Building construction and operation have an enormous direct and indirect impact on the environment, as illustrated in the figure below. As economy and population continue to expand, designers and builders face a unique challenge to meet demands for new and renovated facilities that are [accessible](#), [secure](#), [healthy](#), and [productive](#) while minimizing their impact on the environment.

Environmental Impact of Buildings

Percentage of U.S. nationwide, annual impact

Category	Percentage
Energy Use	42%
Atmospheric Emissions	40%
Raw Materials	30%
Solid Waste	25%
Water Use	24%
Water Effluents	20%
Land Use	15%
Other Releases	12%

(Sources: Worldwatch Institute and U.S. EPA)

Recent answers to this challenge call for an [integrated, synergistic approach](#) that considers all phases of the facility life cycle. This "sustainable" approach supports an increased commitment to environmental stewardship and conservation, and results in an optimal balance of [cost](#), environmental, societal, and human benefits while meeting the mission and [function](#) of the intended facility or infrastructure.

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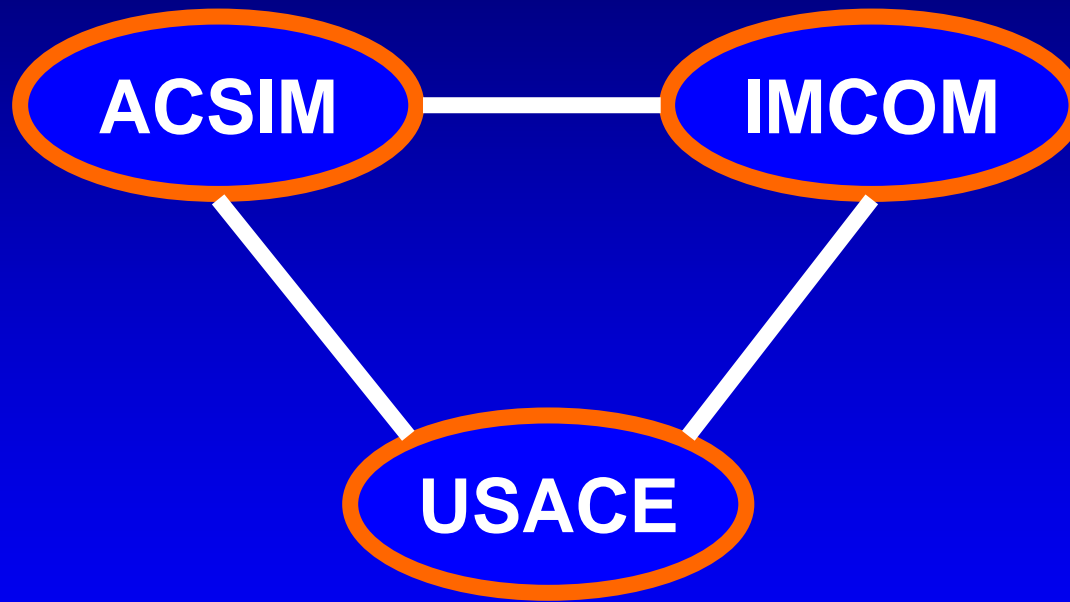
<http://www.wbdg.org/design/sustainable.php>

Potential Collaborative Efforts

- Develop practical holistic concepts for low energy installations, integrating new construction and SRM projects, central plants and utility modernization projects, ECIP and other renewable energy projects (HQUSACE, ERDC in collaboration with IMCOM, ACSIM, DOE, ASHRAE and IEA).
- Develop a centrally-funded Renewable Energy Reachback Tech Clearinghouse for access to a range of materials about renewable energy and conservation options, including location suitability studies, design guidance for selecting, sizing and linking technologies into energy delivery framework energy storage options, ROI information.



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Questions?



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