

USACE Energy Support to IMCOM Installations

E. Trent Spencer, P.E.
Acting Chief, Installation Support CoP
Chief, Installation Support Branch
HQ, US Army Corps of Engineers
202-761-7570



US Army Corps
of Engineers

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*)



Energy Requirements

- **Energy Policy Act (EPAAct) – 2005**
- **Energy Independence and Security Act (EISA) – 2007**
- **Executive Order (EO) 13423**



Energy Requirements

- **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)**
- **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 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.
- **Fossil Fuel:** gradually eliminate usage by 2030
- **Water Heaters:** solar hot water heaters provide at least 30 percent of hot water demand in new or substantially modified federal buildings.



Energy Requirements

- **Energy/electric metering in federal buildings by 2012**
- **Energy Star and Federal Energy Management Program (FEMP) products**
- **Requires premium efficient motors and equipment as replacement of existing motors**



Current Army Programs

- **MCA- Military Construction Army**
- **CoS-Centers of Standardization**
- **EEAP-Energy Engineering Analysis Program**
- **ECIP-Energy Conservation Investment Program**
- **ESPC-Energy Savings Performance Contracts**
- **UM-Utility Metering**
- **UP-Utility Privatization**
- **CUP-Commercial Utility Program**
- **EUL-Enhanced Utility Lease**
- **SDD-Sustainable Design and Development**
- **LEED-Leadership in Energy and Environmental Design**
- **R&D-Research & Development**



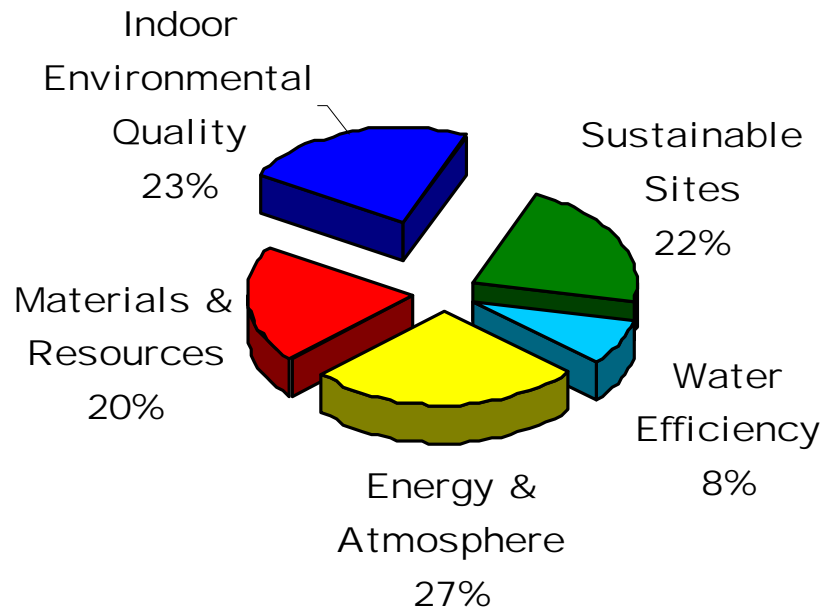
Tiger Teams for Installation Energy Enhancement

- The Army 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.



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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!

