



The Parker Ranch installation in Hawaii

GreenGov Symposium

October 2010

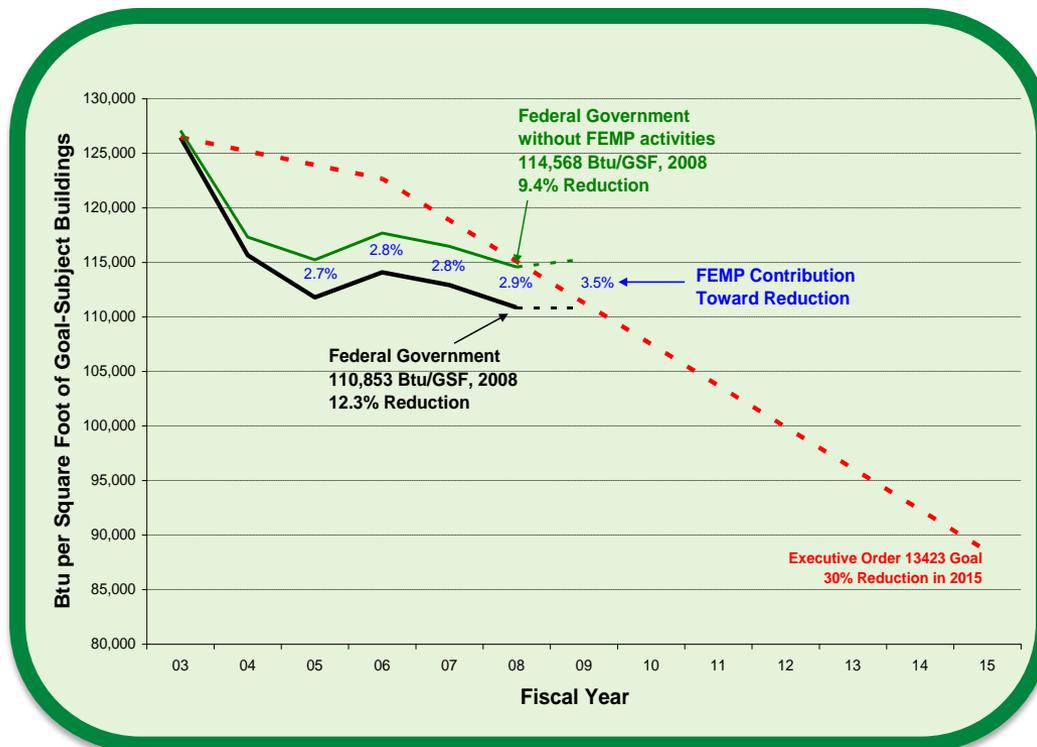
Richard Kidd

Program Manager
Federal Energy Management Program
Office of Energy Efficiency & Renewable Energy



MISSION: FEMP facilitates the Federal Government's implementation of sound, cost-effective energy management & investment practices to enhance the nation's energy security & environmental stewardship

FEMP ***Saves*** Federal Energy: 50+ Trillion BTU or almost 25% of ALL Federal Improvement



FEMP is a service, not a research organization

FEMP has strategic reach into ALL Federal Agencies

FEMP activity is demand driven, based on:

- Total USG investment levels in energy efficiency/renewables
- Actions of other agencies

FEMP expands impact of USG investments:

- **Reduces** transaction costs & time to deployment
- **Accelerated** U.S. Government adoption of EERE technologies

Federal Energy Management Program

Program Manager

Project Transaction Services

- Identification of alternative financing options
- Alternative finance training
- Baseline audits
- Project facilitation
- Project evaluation & selection
- Full project live-cycle support
- Commissioning
- Measurement & verification

Applied Technology Services

- Vehicle fleet management
- Sustainable design
- Greenhouse gas reduction
- Renewable energy
- Water conservation
- Laboratory & data center design
- Operations and maintenance best practices
- Metering
- Efficient products & emerging technologies
- Intra-EERE coordination

Decision Support Services

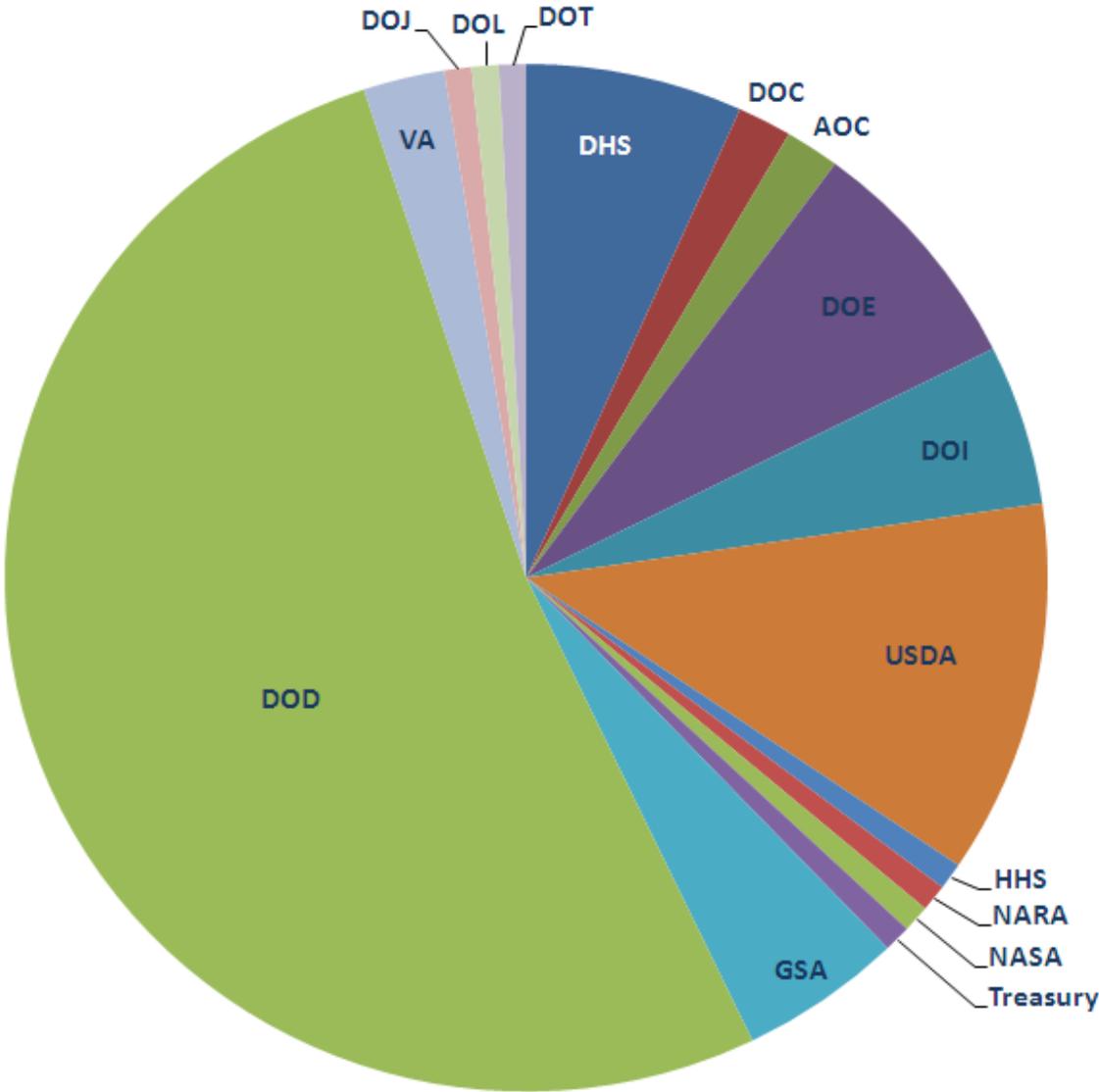
- Interagency coordination
- Memoranda of understanding
- Rulemaking & regulations
- Strategic planning
- Annual reporting
- Energy awareness & public engagement
- Budget planning, analysis, & reporting
- Customer service management & planning
- Collection & dissemination of “lessons learned”



Period of Technical Assistance Performance: 8/09 - 9/10



ARRA Technical Assistance Report Final Report Submittal: 9/10



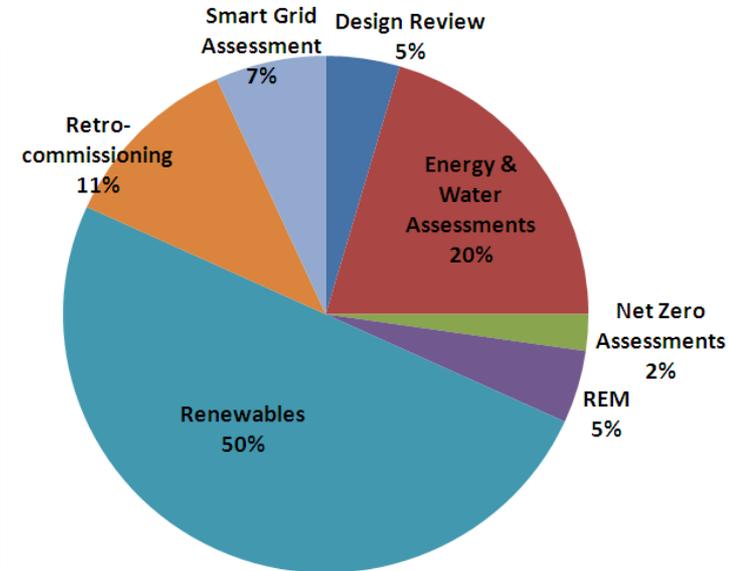
Total Number of Projects:
119

Total Funding:
\$13,378,237

Potential Alternative Financing Projects:
50%

Proposals Cover Many Types of Technical Assistance:

- Energy Audit Training
- Feasibility Studies
- Renewable Energy Technology Installation
- Energy & Water Assessments
- Evaluation of Generation Technologies
- Development of Strategic Energy Plans
- Technical Assistance for Technology Demonstration Projects



Proposals Include a Wide Variety of Technologies:

- Solar Power
- Steam Technology
- Biomass Energy
- Waste Energy
- Smart Grid
- Wind Energy
- Heat Pumps



Agency: NPS

Location: Alcatraz Island,
California

Service Provider: NREL



Roof of old cellblock: possible PV installation location

Assessment of Off-Grid PV and Battery System for Alcatraz Island

- NREL assisted NPS Alcatraz Island with deployment of a PV & battery system to displace the use of diesel fuel that powers the island. The PV & battery system is expected to reduce GHG emissions by 64%.
- Alcatraz currently plans to install 307 kW of PV arrays on the Cell House & another building, two 2000 Amp Hour battery strings connected in parallel, & a 200kW inverter
- NREL assisted in reviewing proposals for a design build contract that was awarded in early May 2010.
- The design phase is scheduled to be complete in February 2011, after which construction will begin.

Recovery Act Project Example: Forest Service Biomass

Agency: Department of the Agriculture, Forest Service

Location: Over 100 sites nationwide

Service Provider: NETL

Funding: \$ 600,000

NETL has completed 48 site characterizations, collecting information on:

- Site energy use
- Proximity to potential biomass users
- Grid interfaces
- Transportation

Next Steps:

- **Complete** project write ups
- **Review & prioritize** projects
- **Advertise** projects & select developers (ESCOs). 10 to 20 new ESPCs are expected.
- **Offer** additional training & technical assistance.



Possible biomass plant location,
Shadow Mt. Village, Arizona



Waste wood biomass from fire mitigation thinnings

Recovery Act Project Example: Solar PV at Ft. Detrick

Agency: U.S. Army

Location: Ft. Detrick

Project Type: Small Scale Renewables

Service Provider: LBNL

Funding: \$ 55,000

Leveraging Amount: \$ 25 Million



20-acre capped landfill area: Potential PV location

Project Description:

Based on FEMP's technical assistance via LBNL with additional technical assistance provided by NREL, Ft. Detrick is currently planning a 5MW solar array, which is estimated to cost \$25 to \$30M and would be financed through a Power Purchase Agreement.

Recovery Act Project Example: DOD NORTHCOM

Agency: U.S. DOD NORTHCOM

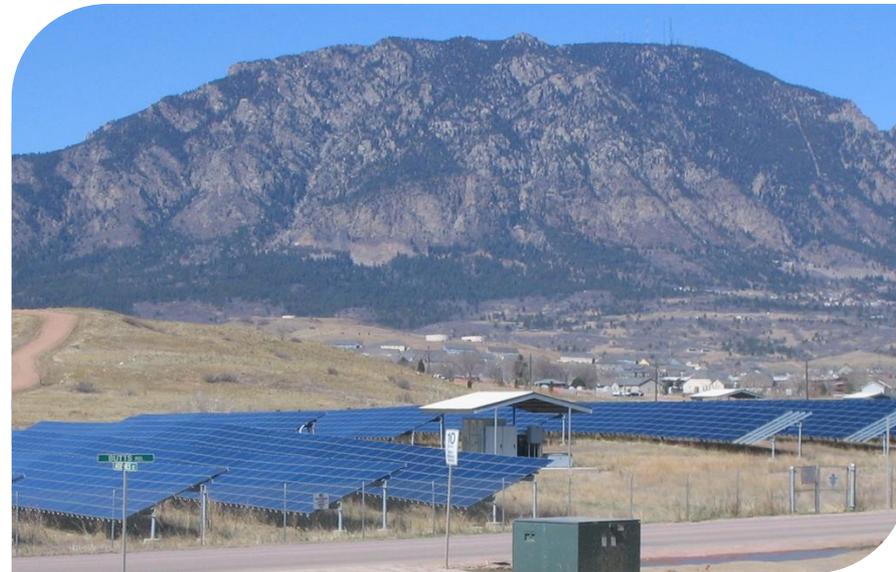
Location: Fort Carson

Project Included:

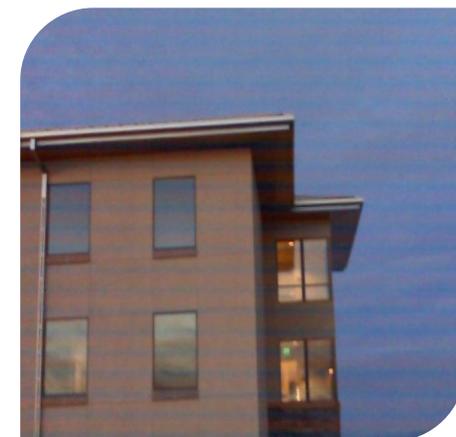
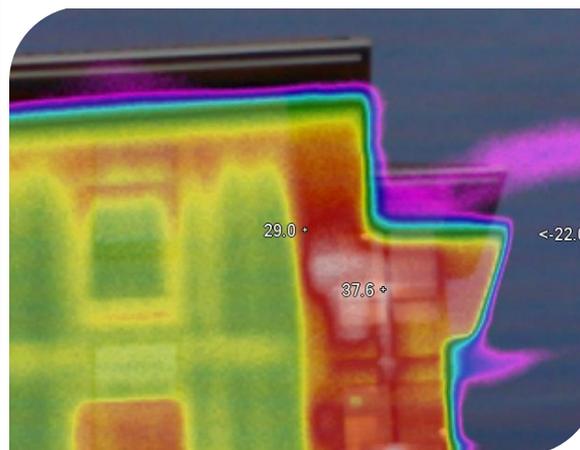
- **Design** of a micro-grid to support critical loads at Fort Carson
- **Evaluation** of renewable energy generation opportunities
- **Analysis** of electric vehicle energy storage to support renewable energy integration into the micro-grid.

As a result of the FEMP TA project, Fort Carson was selected to participate in DOD's Smart Power Infrastructure Demonstration for Energy Reliability and Security (SPIDERS)

- Design developed by FEMP will be installed at Fort Carson in FY12
- Will become DOD's first microgrid with large scale renewable generation and vehicle-to-grid capabilities



Thermal Image



Visible light image

Recovery Act Project Example: Smart Ambient Lighting

Agency: General Services Administration

Location: Federal Building at 450 Golden Gate

Service Provider: LBNL

Funding: \$ 70,500

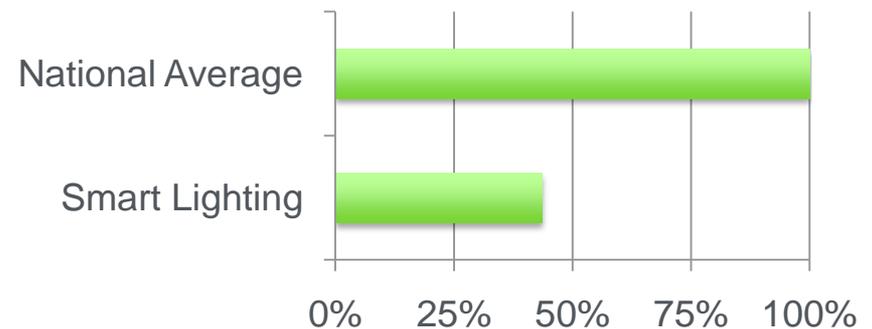
Leveraged Amount: \$ 4 Million

Project Results:

- Smart lighting study showed 55% energy savings compared to the national average
- GSA received \$400K from DOE's Commercial Building Partnership program to evaluate smart lighting retrofits in 10 additional buildings
- FEMP's investment was leveraged 70:1 by GSA's \$4M investment



% Lighting Energy Use



- **Follow** an integrated & whole-system design approach
- **Gain** strong upper management support
- **Enlist** an Energy Champion
- **Focus on Performance** Baseline/benchmark energy use
- **Identify & leverage** available resources
 - Public benefit funds
 - Alternative financing
 - FEMP website
- **Develop** partnerships
- **Monitor** performance & adjust accordingly

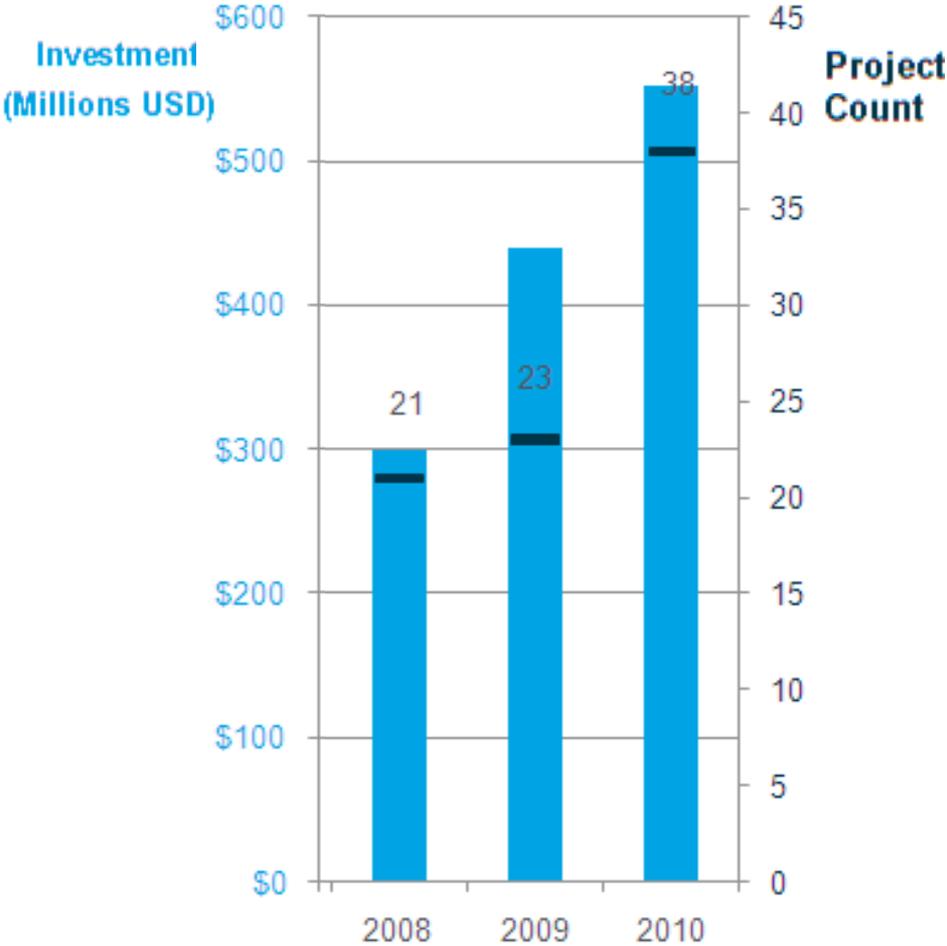
Alternative Financing Mechanisms:

- Energy Savings Performance Contracting (ESPC)
- Utility Energy Services Contracts (UESC)
- Power Purchase Agreements (PPA)
- Energy Incentive Programs (Demand Response & Load Management Programs)

Function: FEMP facilitates the use of alternative finance mechanisms across the Federal Government, specifically by:

- Identifying alternative financing opportunities
- Providing alternative finance training
- Conducting/assisting in baseline audits
- Providing project facilitation
- Assisting in project evaluation & selection
- Providing full project life-cycle support
- Collecting & disseminating “lessons learned”

Alternative Financing Projects



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