

# Charting a Course to Energy Independence

Providence, RI  
August 9-12, 2009





# FY 2009 ARRA

## *Technical Assistance Initiative*

Richard Kidd  
Federal Energy Management Program  
U.S. Department of Energy



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

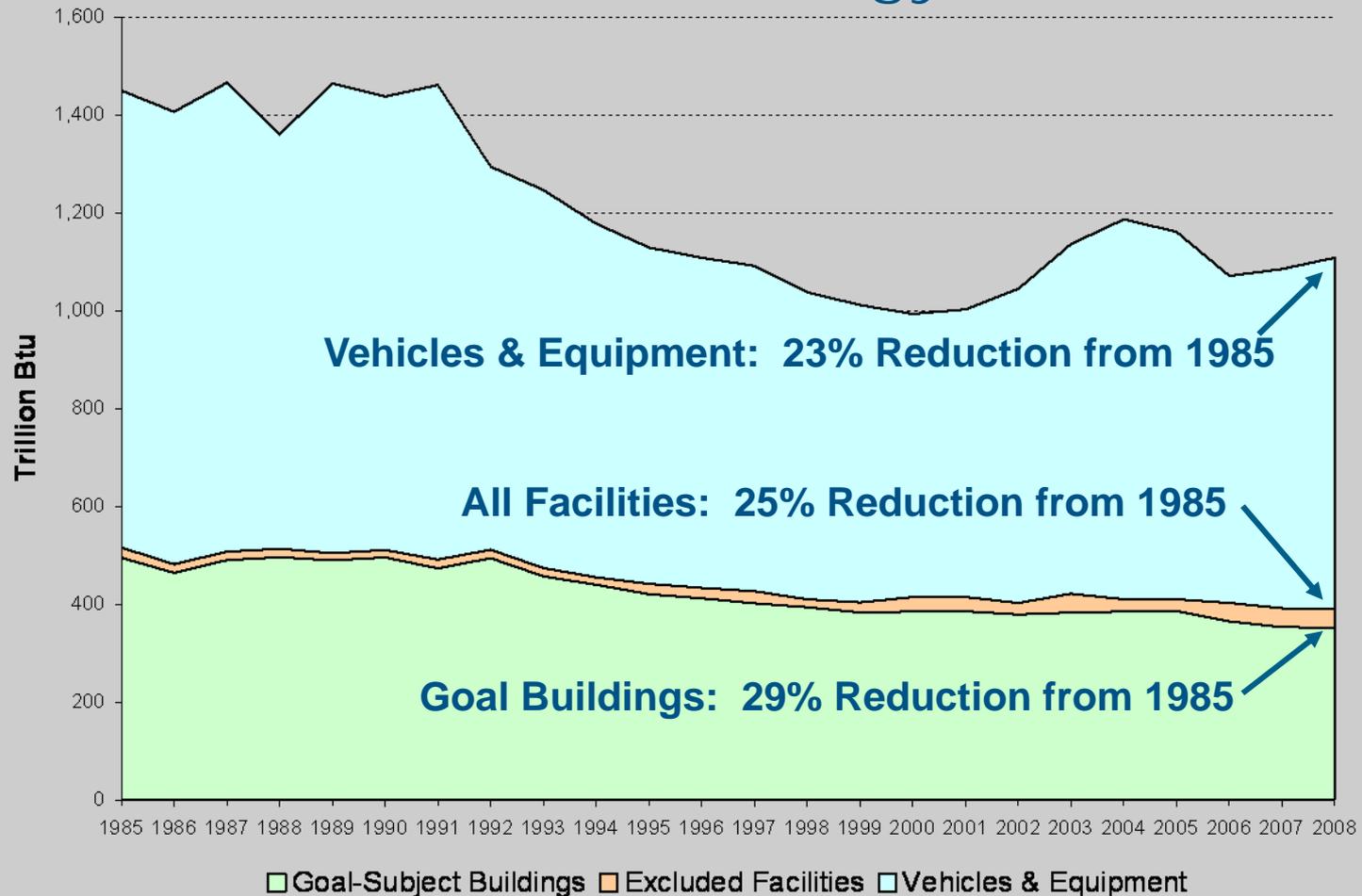


The Federal Energy Management Program  
Program Manager - Richard Kidd





## U.S. Government Energy Use Since 1985





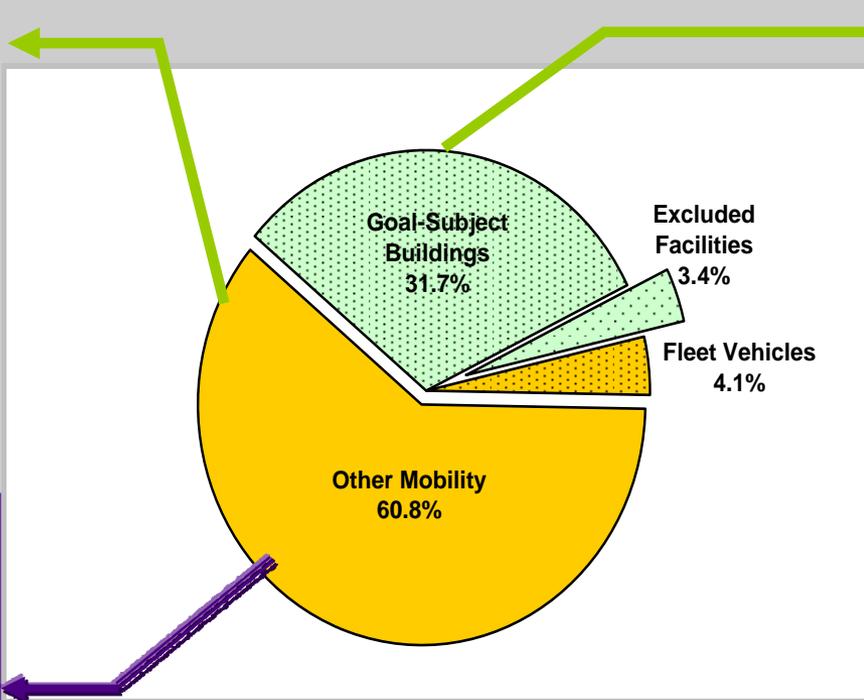
## U.S. Federal Energy Use

**Building Energy Usage by Type:**

- 50% Electricity
- 34% Natural Gas
- 7% Fuel Oil
- 5% Coal
- 4% Other

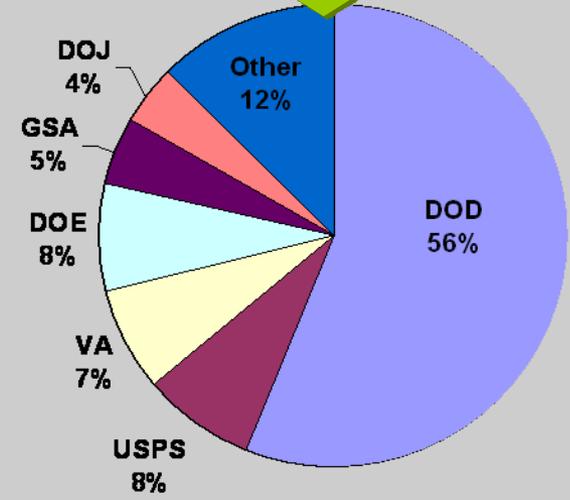
**Mobility Energy Usage by Type:**

- 70% Jet Fuel
- 14% Navy Special
- 7% Diesel
- 7% Auto Gas
- 2% Other



**Facility Energy Usage by agency**

Total: 389 trillion Btu

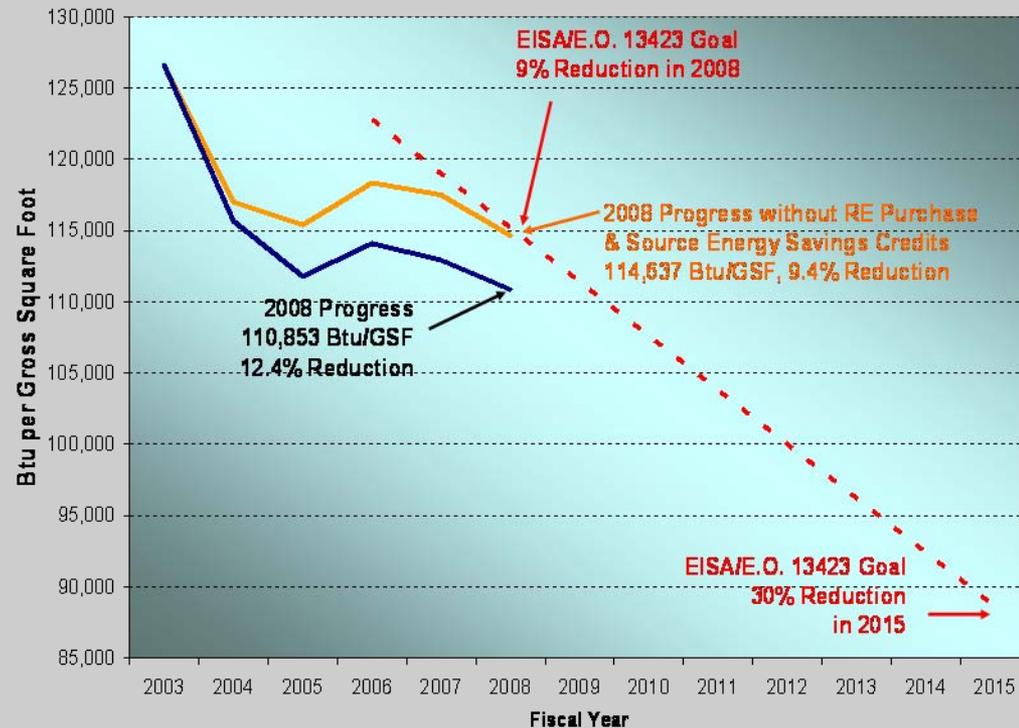


The Federal Government operates over 500,000 facilities (3 billion sq ft) & consumes 1.6% of the nation's total energy use, or \$24.5 billion in annual energy costs



## More Investment Required to Meet Goals

- Despite significant progress by agencies in certain areas, FY 2008 findings indicate that for the Federal Government as a whole, the *rate of progress is decreasing & obtainment of long-term goals may be in jeopardy.*
- While exceeding AFV purchase requirements & **increasing use of alternate fuel**, the Federal Government as a whole, is *not achieving its fundamental goal of petroleum reduction.*





## Federal Facility Performance Under EPACT & E.O. 13423 - FY 2008

Goal/Requirement	FY 2008 Federal Performance (Preliminary)
EO 13423/EISA: Reduce energy intensity (Btu/sq.ft.) by 9 percent compared to 2003; 30 percent reduction required in 2015.	19 of 22 covered agencies exceeded the goal. The government decreased energy use per square foot by 12.4% in FY 2008 relative to FY 2003. (9.4% without additional credits)
EPACT/EO 13423: Use renewable electric energy equivalent to a least 3 percent of total electricity use; at least half of which must come from sources developed after January 1, 1999.	16 of 22 agencies met the goal. The government purchased or produced renewable energy in FY 2008 equivalent to 3.4% of electricity use.
E.O. 13423: Reduce water consumption intensity (Gal/sq.ft.) relative to 2007 baseline, by 2 percent annually; 16 percent by the end of fiscal year 2015.	18 of 22 agencies met the goal. The government reduced water use per square foot by 2.9% in FY 2008 compare to FY 2007.



## FY 2009 Technical Assistance Funding Source: ARRA

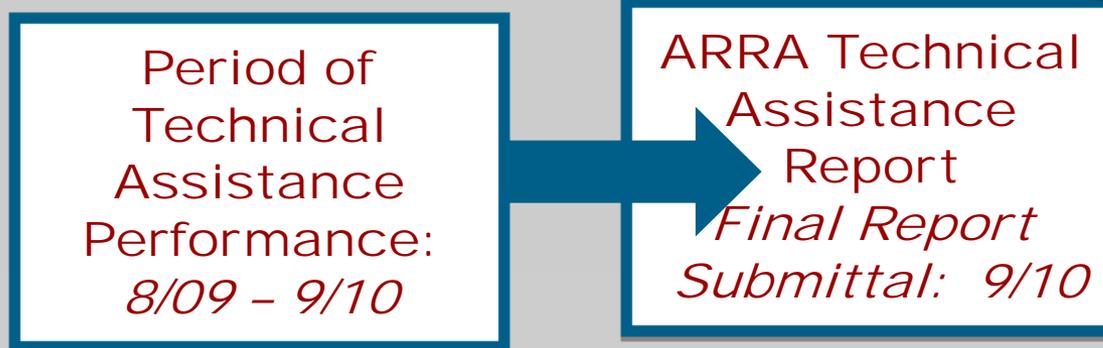
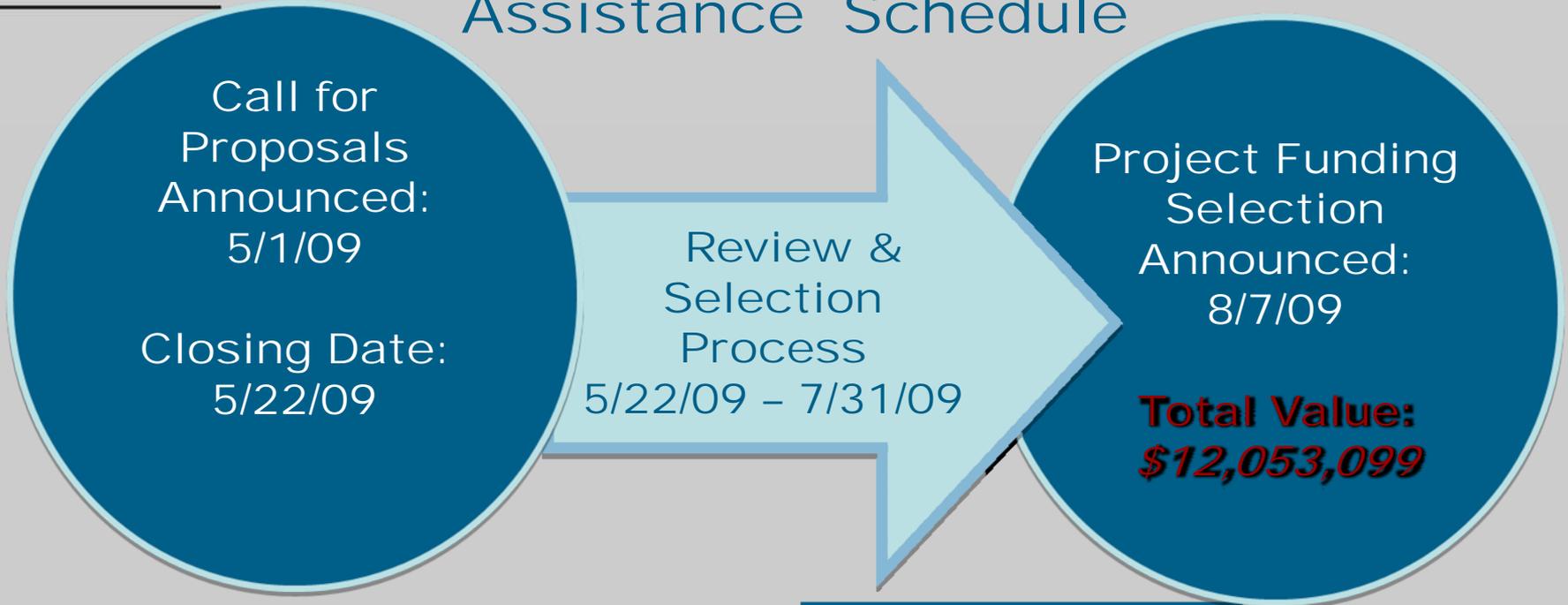


Selection Criteria

- ☑ Financial & technical merit
- ☑ Agency support & project implementation plan
- ☑ Replicability potential
- ☑ Project description



## FY 2009 ARRA Technical Assistance Schedule





## DOE National Laboratory Expertise



- Strategic planning & analysis
- Energy design & site planning & analysis
- LEED-certified & high-performance building design & construction
- ESPCs
- Distributed control systems
- PV systems
- Energy storage & distribution
- AVFs, electric & plug-in hybrid, etc.



- Wind & geothermal power
- ESPC projects
- UESC projects
- LEED projects
- AFV testing
- Vehicle fleet transformation & migration to GSA ownership
- Fleet MIS & FAST



- Project management
- M&O
- Utility incentives & public benefits
- Renewable procurement & PPAs
- FEMP emerging technology matrix
- New construction
- High-technology buildings
- Lighting, roofs, windows, appliances, etc.



- Identification & assessment of biomass & alternative methane resources
- Development of acquisition agreements with resource owners
- Coordination with utility companies & RTOs



## DOE National Laboratory Expertise



**National Renewable Energy Laboratory**  
*Innovation for Our Energy Future*

- Building energy strategies & applications
- ESPC projects
- UESC projects
- PPA projects
- Renewable energy
- Net zero, integrated energy, sustainability strategies & assistance
- Transportation solutions



- Energy performance optimization
- Building energy systems
- Energy resource assessments
- Sensors/controls
- ESPC projects
- UESC projects
- Geothermal heat pumps
- DES
- Solar
- Energy efficient industrial processes
- Fleet management



**Pacific Northwest**  
NATIONAL LABORATORY

- Building energy codes
- Appliance & equipment standards
- Energy simulation modeling
- Diagnostics & controls
- Installation O&M strategies
- Resource assessments
- Technology performance evaluations
- Plug-in hybrids



**Sandia**  
National  
Laboratories

- Renewable energy & DES integration & control
- Facility & infrastructure systems & control optimization
- Sustainable design & LEED for new construction & existing building



## Range of FY 2009 ARRA Technical Support

### 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**



# FY 2009 ARRA

## Technical Assistance Funding

*Allocation by Military Service*

Agency	Submitted Proposals	Accepted Proposals	Value
<b>Defense Wide</b>	<b>11</b>	<b>5</b>	<b>\$ 2,799,000</b>
<b>Army</b>	<b>65</b>	<b>25</b>	<b>\$ 2,264,000</b>
<b>Navy</b>	<b>18</b>	<b>5</b>	<b>\$ 628,000</b>
<b>Marine Corps</b>	<b>21</b>	<b>7</b>	<b>\$ 441,000</b>
<b>Air Force</b>	<b>42</b>	<b>14</b>	<b>\$ 1,482,599</b>
Total	157	56	\$ 7,614,599





# FY 2009 ARRA Technical Assistance Funding *Allocation by Agency*

Agency	Submitted Proposals	Accepted Proposals	Value
<b>Department of Energy</b>	<b>29</b>	<b>9</b>	<b>\$ 948,000</b>
<b>Department of the Interior</b>	<b>16</b>	<b>5</b>	<b>\$ 470,000</b>
<b>Department of Veterans Affairs</b>	<b>7</b>	<b>3</b>	<b>\$ 210,000</b>
<b>General Services Administration</b>	<b>15</b>	<b>5</b>	<b>\$ 626,000</b>





# FY 2009 ARRA

## Technical Assistance Funding

*Allocation by Agency*

Agency	Submitted Proposals	Accepted Proposals	Value
Department of Homeland Security	11	8	\$ 749,000
Department of Justice	4	1	\$ 80,000
Department of Transportation	4	1	\$ 100,000





# FY 2009 ARRA Technical Assistance Funding *Allocation by Agency*

Agency	Submitted Proposals	Accepted Proposals	Value
Department of Agriculture	38	9	\$ 668,000
Department of Health & Human Services	3	1	\$ 150,000
Department of the Treasury	2	1	\$ 146,000





# FY 2009 ARRA

## Technical Assistance Funding

*Allocation by Agency*

Agency	Submitted Proposals	Accepted Proposals	Value
Department of Labor	1	1	\$ 91,000
Department of Commerce	3	1	\$ 30,000
National Archives & Records Administration	1	1	\$ 115,000
Architect of the Capitol	2	2	\$ 55,000





# Integrated Design Approach

## Implementation Plan of Tiger Team Recommendations Fort Bliss, TX

- Explore viable options for meeting renewable energy goals
- Assist negotiations with contractors for applying ECMs to new construction projects
- Support development of integrated renewable power & energy portfolio
- Assist in alternative fuel vehicle fleet planning
- Develop advanced building control & metering best practices

Funding: \$675,000

## Beyond the Inventory - Greenhouse Gas Reductions in the Greater Yellowstone Ecosystem

- Includes 6 National Forests, 2 National Parks & 2 Wildlife Refuges
- Offer energy efficiency & renewable energy training for GHG reduction
- Assess and analyze fleets
- Evaluate and compile unit action plans and recommendations for identifying an ecosystem-wide GHG goal
- Create a strategically prioritized collective implementation plan
- Provide technical support to facilitate implementation plan
- Develop long-term methodology to monitor and track environmental and economic savings

Funding: \$250,000

## PACOM Recovery Act Support

- Address diverse energy challenges facing the services.
- Work with Hawaii to accomplish the State's 70% clean energy goal by 2030.
- Conduct comprehensive renewable energy assessments
- Conduct energy manager training & development
- Explore feasibility of SmartGrid & Islanding Circuitry
- Analyze data center energy efficiency
- Demonstrate liquid desiccant solar ventilation air conditioning

Funding: \$ 3,200,000



## FEMP WEBSITE LINKS TO RESOURCES

Topical Area	Web Link
Water Efficiency	<a href="http://www1.eere.energy.gov/femp/water/">http://www1.eere.energy.gov/femp/water/</a>
New Technology Applications	<a href="http://www1.eere.energy.gov/femp/new_technology/">http://www1.eere.energy.gov/femp/new_technology/</a>
Project Financing, Facilitation, & Training:	<a href="http://www1.eere.energy.gov/femp/financing/mechanisms.html">http://www1.eere.energy.gov/femp/financing/mechanisms.html</a> <a href="http://www1.eere.energy.gov/femp/news/events.html">http://www1.eere.energy.gov/femp/news/events.html</a>
Advanced Metering	<a href="http://www1.eere.energy.gov/femp/pdfs/mbpg.pdf">http://www1.eere.energy.gov/femp/pdfs/mbpg.pdf</a>
Energy and Water Use Reduction Reporting	<a href="http://www1.eere.energy.gov/femp/pdfs/water_guidance.pdf">http://www1.eere.energy.gov/femp/pdfs/water_guidance.pdf</a>
Outreach and “How To” Information Tools	<a href="http://www1.eere.energy.gov/femp/services/outreach.html">http://www1.eere.energy.gov/femp/services/outreach.html</a>
Sustainable Design Support to Implement “Guiding Principles” for Federal Facilities	<a href="http://www1.eere.energy.gov/femp/controlledaccess/sustainable_eo13423.html">http://www1.eere.energy.gov/femp/controlledaccess/sustainable_eo13423.html</a>
Utility Management Tools	<a href="http://www1.eere.energy.gov/femp/pdfs/uesc_enabling_documents09.pdf">http://www1.eere.energy.gov/femp/pdfs/uesc_enabling_documents09.pdf</a>
Life Cycle Cost Analysis	<a href="http://www1.eere.energy.gov/femp/program/lifecycle.html">http://www1.eere.energy.gov/femp/program/lifecycle.html</a>
Renewable Power Procurement Tools	<a href="http://www1.eere.energy.gov/femp/renewable_energy/renewable_purchasepower.html">http://www1.eere.energy.gov/femp/renewable_energy/renewable_purchasepower.html</a>
Alternative Fuel & Motor Vehicle Acquisition Guidance	<a href="http://www1.eere.energy.gov/femp/about/fleet_mgmt.html">http://www1.eere.energy.gov/femp/about/fleet_mgmt.html</a>
Distributed Power Planning Support	<a href="http://www1.eere.energy.gov/femp/der/">http://www1.eere.energy.gov/femp/der/</a> <a href="http://eetd.lbl.gov/ea/ems/der.html">http://eetd.lbl.gov/ea/ems/der.html</a>



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