

Introduction to Federal Renewable Energy Goals and FEMP Services

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



The Parker Ranch installation in Hawaii

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- FEMP organizational structure
- Federal renewable energy goals
 - Energy Policy Act of 2005
 - Executive Order 13423
 - Energy Independence and Security Act of 2007
 - Executive Order 13514
- FEMP services
- Contacts and other resources



- FEMP = Federal Energy Management Program
- UESC = Utility Energy Services Contract
- ESPC = Energy Savings Performance Contract
- PPA = Power Purchase Agreement
- RPS = Renewable Portfolio Standard
- REC = Renewable Energy Certificate
- RE = Renewable Energy
- EE = Energy Efficiency
- EO = Executive Order
- GHG = Greenhouse Gas
- SWH = Solar Water Heating
- TA = Technical Assistance



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

Project Transaction Services

Facilitate the use of alternative finance mechanisms

- ESPC, UESC, PPA
- State and federal incentive programs

Applied Technology Services

Provide technical support services enabling agencies to meet their RE and other goals

Decision Support Services

Energy outreach, guidance, training, and education to embrace energy efficiency and renewable energy

- Reporting and guidance for energy legislation and regulations
- Education and training
- Outreach and communication
- Budget and planning



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Program Manager

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Services**

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**Decision
Support
Services**

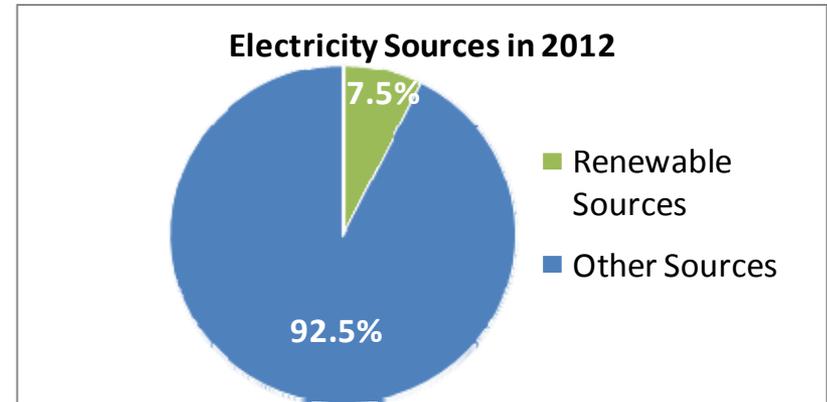
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Renewable Requirements

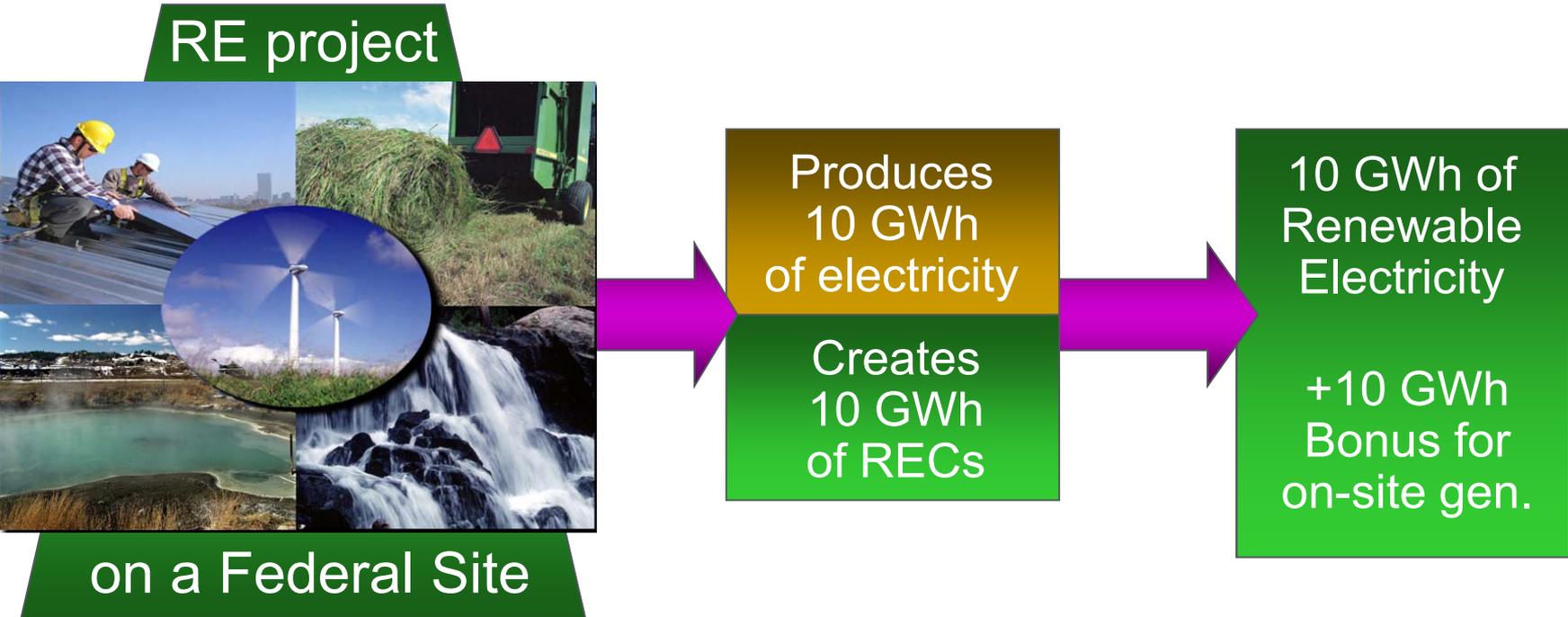
- Renewable energy goals:
 - 3% of electric energy by FY2007
 - 5% of electric energy by FY2010
 - 7.5% of electric energy by FY2013 and beyond
- Your agency may have additional renewable requirements
 - Example DOD and BLM
- Must be a separate purchase (renewables that are part of the system mix or that are used to meet state RPS requirements do not count towards the goal)



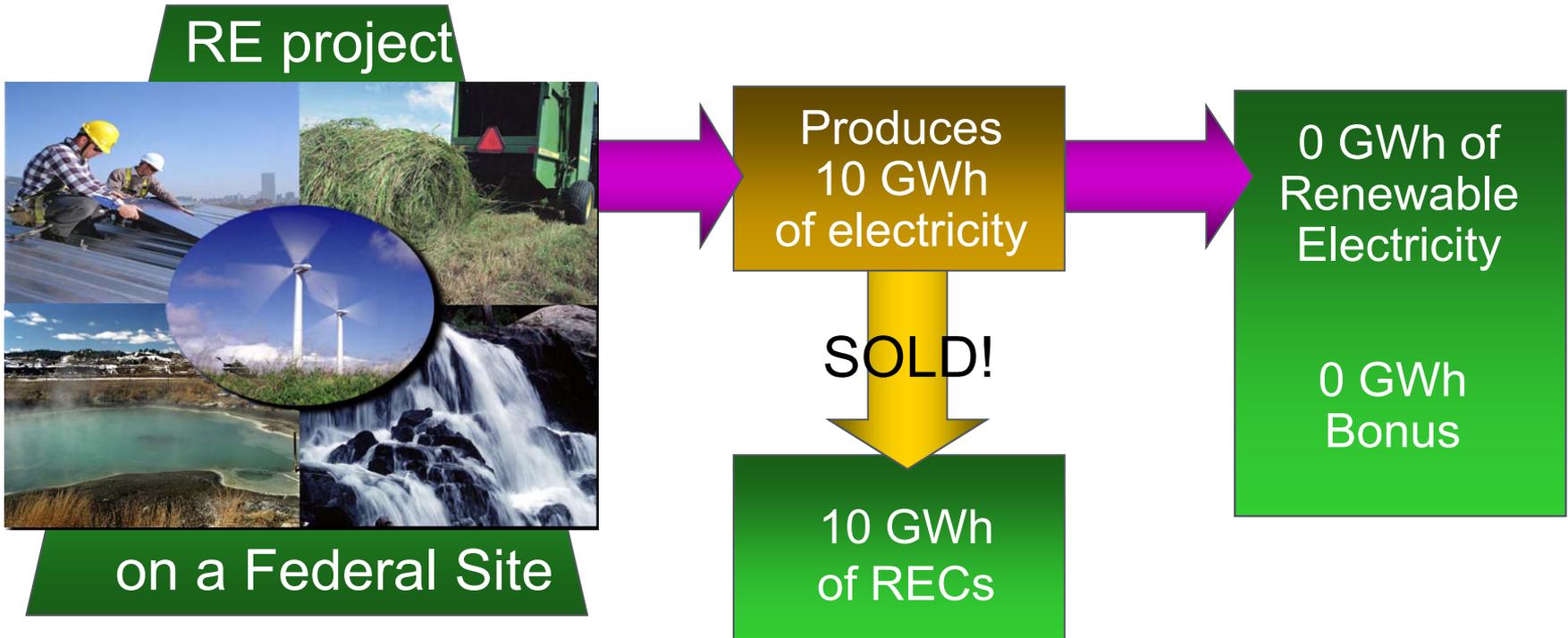
- “Renewable energy” is **electric energy** generated from:
 - Solar, wind, biomass, landfill gas, ocean, geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.
 - Hydrokinetic (run of the river) also qualifies, per RE Guidance
 - Detailed biomass definition in EPAAct 2005, Section 203
- Bonus Provision
 - Double credit if **produced** on Federal or Indian land and **used** by Federal agency
 - Biomass generation on Federal or Indian land qualifies even if fuel supply comes from other locations
 - For electric projects only (non-electric projects do not receive bonus)
 - For “New” projects only (placed in service after 1/1/1999)

- **“Used”** - Renewable energy certificates (RECs) must be retained for an on-site project to count towards RE goal and receive the on-site bonus
 - If RECs are sold, then replacement RECs must be purchased in order to get credit towards the goal (REC swap option, described in Renewable Guidance Section 3.2.2)
 - Good option for solar and other projects with “high value” RECs
 - “REC swap” allowed at agency level
 - ♦ Calculated automatically by FEMP if an agency reports enough RECs to “swap” for RE projects that did not retain RECs
 - Projects completed before 1/28/08 final publication of FEMP guidance are exempt from the REC retention requirement until Sept. 30, 2011
- Renewable Guidance document (covers EO13423 also):
http://www1.eere.energy.gov/femp/pdfs/epact05_fedrenewenergyguid.pdf
 - Section 4 describes when RE can be used for EE goals and the planned phase out for use of RE purchases towards EE goal by FY2012

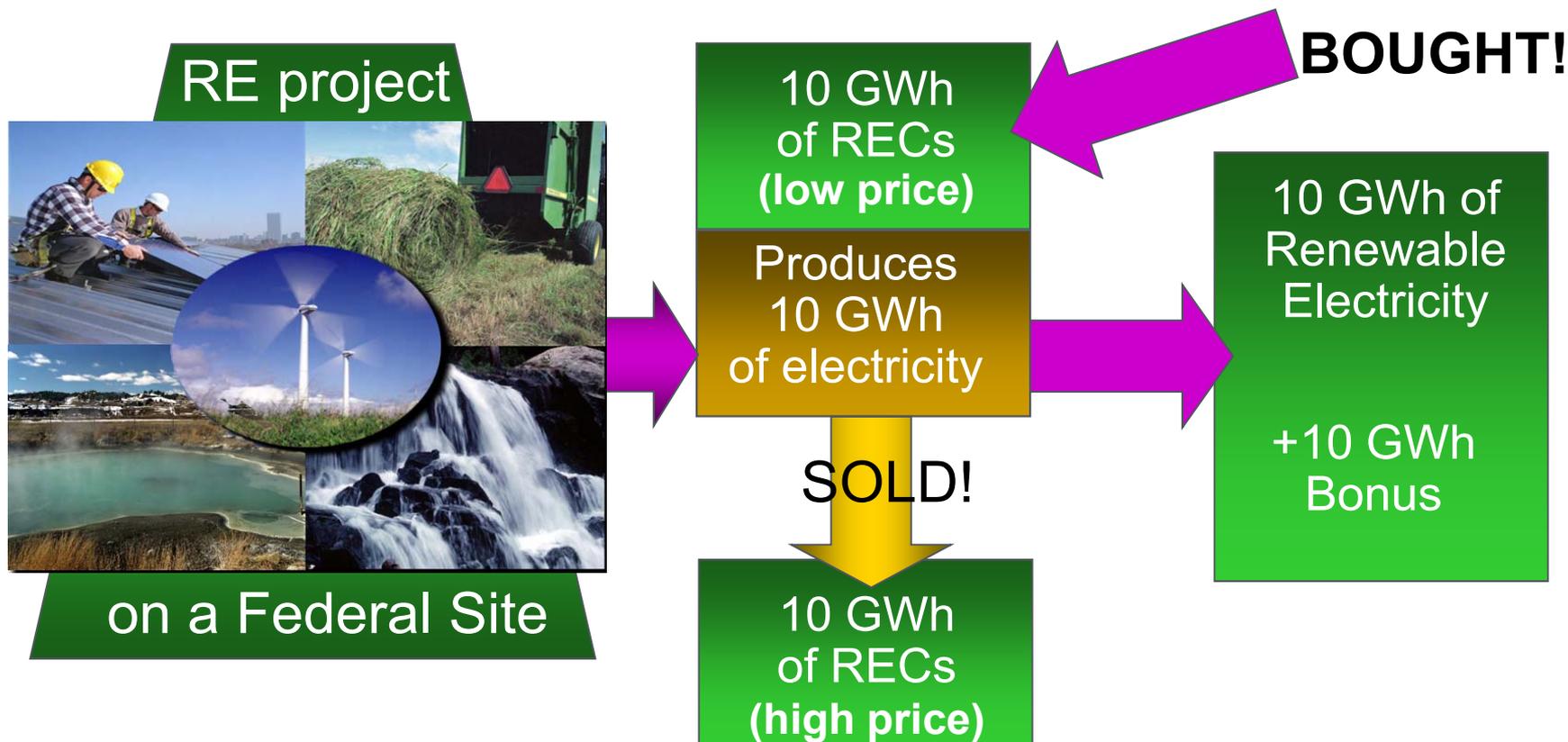
Case 1: On-site project and RECs retained (ie. renewables are “used”)



Case 2: On-site project and RECs sold to improve project economics. This case does not count towards federal RE goal.



Case 3: On-Site Project with “REC swap”, so project counts towards the RE goal (“used”)



- At least half of RE required under EPAAct05 must come from “*new*” renewable sources
- “New” = placed into service after January 1, 1999*
 - Refurbished, rebuilt or modified significantly (>80% or original costs) counts as “New”
- Encourages on-site projects
- Non-electric energy (thermal, mechanical, daylighting) count towards the EO13423 “New” requirement
 - Thermal includes solar water heating, solar ventilation pre-heat, ground source heat pumps, biomass heating/cooling, ocean or geothermal thermal
 - Mechanical include pumps driven by wind or qualifying hydro

** EO13423 revokes EO13123 requirement that all renewables used to meet federal goals must be installed after 1/1/1990*

- ‘New’ *electric and non-electric* capacity counts towards EO13423 goal
- ‘New’ *electric* capacity counts towards both EO13423 and EPAAct05 goals
- ‘New’ *non-electric* capacity **does not** count towards the EPAAct05 goal

Possible options for meeting EPAAct and EO 13423 FY2010 RE goals

	One possible option		Another possible option	
EPAAct 5% of electricity from renewables by FY2010	5 %	electric	5 %	electric
EO 13423 $\frac{1}{2}$ of renewable energy must be “new”	2½ %	$\frac{1}{2}$ of above electric is “new”	0 %	“new” electric
	0 %	“new” thermal, mech., day lighting	2½ %	“new” thermal, mech., day lighting
EPAAct and EO FY2010 goals met	Yes		Yes	
Total RE produced	5 %		7½ %	

- Section 523: 30% hot water demand in new/renovated Federal buildings met with solar hot water equipment, provided life-cycle cost-effective (LCC)
 - Life-Cycle Cost-Effective: Savings Investment Ratio (SIR) >1
 - 10 CFR 436 specifies LCC methodology
 - Utilize Building Life-Cycle Cost (BLCC) program
 - ♦ http://www1.eere.energy.gov/femp/information/download_blcc.html
 - ♦ NIST specifies fuel escalation rate, discount and inflation rates on an annual basis
 - EISA Section 441 allows analysis period of up to 40 years (instead of 25 years) as applicable
- Section 433: Fossil fuel-generated energy use in Federal buildings reduced by: 55% in 2010, 65% in 2015, 80% in 2020, 90% in 2025, 100% in 2030
 - Compared to similar building in 2003

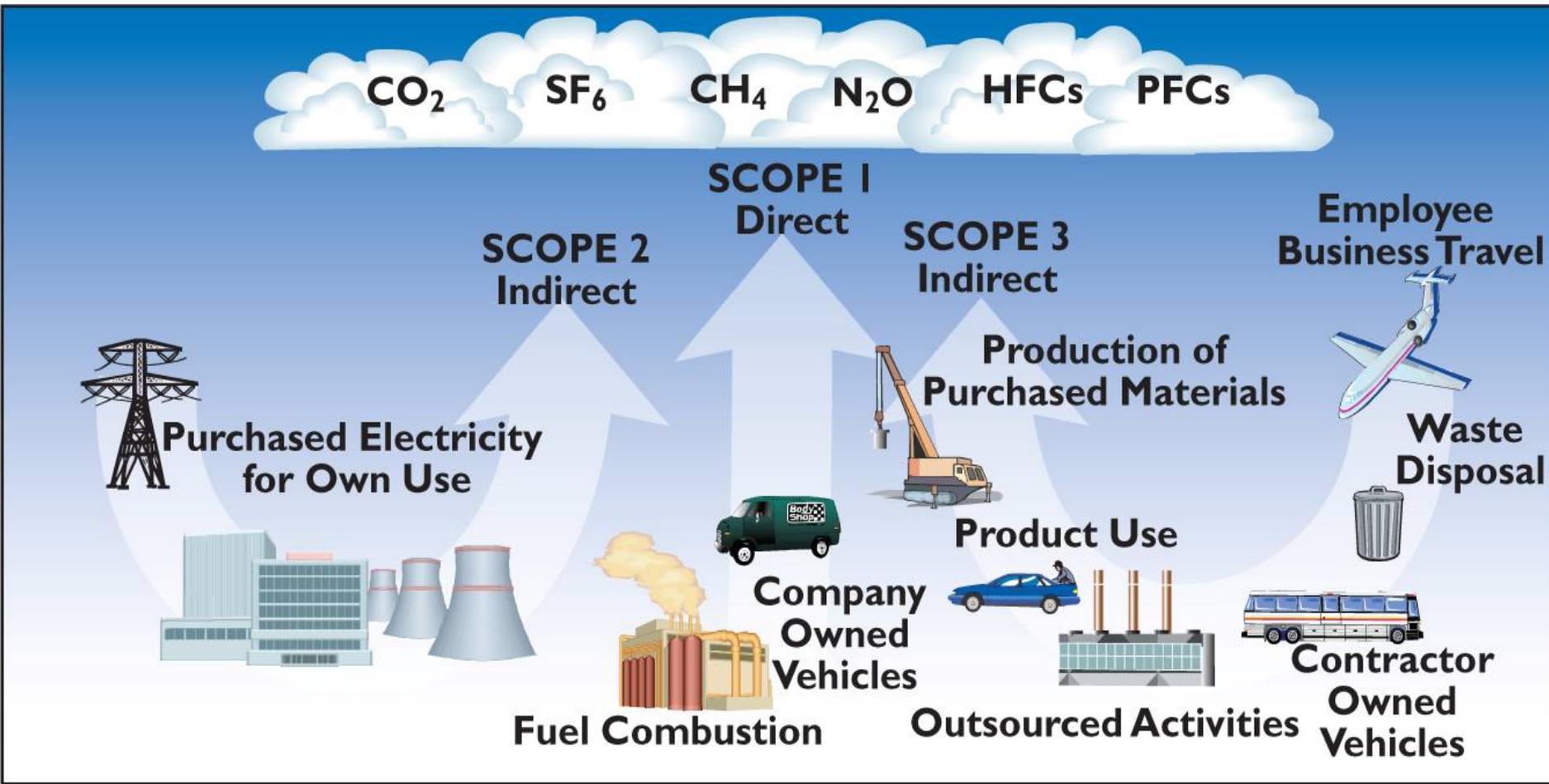


- EO13514 information available at:
<http://www1.eere.energy.gov/femp/regulations/eo13514.html>
<http://www1.eere.energy.gov/femp/program/greenhousegases.html>
http://www.fedcenter.gov/Bookmarks/index.cfm?id=13641&pge_prg_id=27111&pge_id=3605
- EO13423 is *not* revoked by EO13514
- Each agency establish Scope 1 & 2 greenhouse gas (GHG) goals within 90 days (Section 2a) and Scope 3 GHG goal within 240 days (Section 2b)
 - Consider reductions associated with increasing agency use of RE and implementing RE generation projects on agency property
- Advance regional and local integrated planning by aligning Federal policies to increase the effectiveness of local planning for energy choices such as locally generated renewable energy (Section 2f)

- High performance sustainable buildings (Section 2g)
 - All new Federal buildings entering planning process in 2020 and thereafter are designed to achieve zero-net-energy by 2030
 - All new construction, major renovation, or repair and alteration of Federal buildings complies with the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings (“Guiding Principles”)
 - At least 15% of existing buildings & building leases (above 5,000 gross feet²) meet Guiding Principles by FY2015, with annual progress toward 100% conformance

- **Scope 1:** direct GHG emissions from sources that are owned or controlled by the Federal agency
 - Boilers, furnaces, emergency generators, vehicles
 - Chemical production in owned or controlled process equipment
- **Scope 2:** direct GHG emissions resulting from the generation of electricity, heat, or steam purchased by a Federal agency
 - Physically occur at the facility where electricity is generated
 - GHG emissions vary by location and resource
 - Solar and wind have zero emissions.
 - Emissions study required for biomass due to varying resource types
- **Scope 3:** GHG emissions from sources not owned or directly controlled by a Federal agency but related to agency activities such as vendor supply chains, delivery services, employee travel and commuting

GHG Accounting Scopes



E-Grid Regions and CO₂ Equivalent Emission (lbs/MWh) – Non Baseload

Table with emission factors: <http://cfpub.epa.gov/egridweb/ghg.cfm>

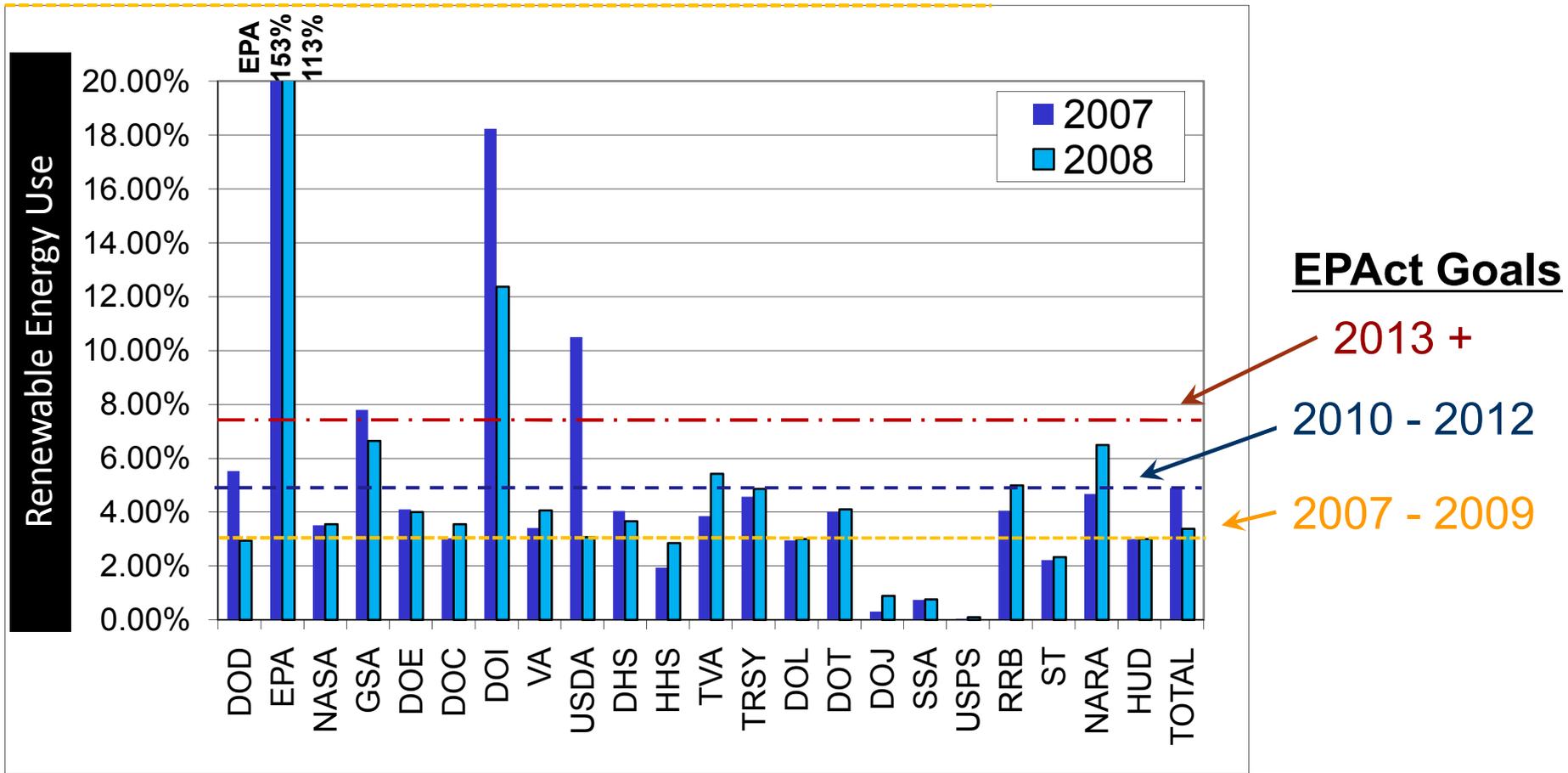


Federal Renewable Goal Summary

Source of Requirement	Produce, Use, or Both	Level...	Applies to...
EPA Act 2005 Federal Use Goal	Use, Electric	3% FY07-09 5% FY10-12 7.5% FY13 and beyond	All Agencies
Executive Order 13423	Use, All RE	½ of EPA Act Federal Goal from “New” Sources	All Agencies
DoD National Defense Reauthorization Act of 2007	Produce or Use, All RE	25% of electricity by 2025	DoD
EPA Act 2005 BLM Production Goal	Produce, Electric	10,000 MW by 2015	BLM
EISA 2007 SWH Requirement	Use, Solar Water Heating	30% of hot water needs in all new buildings or major renovations	All Agencies

- Install RE projects on-site
 - Emphasized in new EO13514
 - Reminder: must purchase replacement RECs if project RECs are sold
 - Use appropriations or alternative financing (PPA, UESC, ESPC)
- Purchase RECs, renewable power in a competitive electricity market or through local utility
 - Must meet RE guidance renewable definition
 - Must include RE & non-energy attributes (GHG, other emissions/attributes)
 - RECs from non-electric renewables count towards EO13423 “New” req’t
 - Vintage and third party verification requirements (Renewable Guidance Sections 3.3.4 and 3.35)

Where we are currently...





FEMP Renewable Services

- Information
 - Web site
 - Resource maps
- Project assistance
 - Renewable screenings
 - Call for projects
 - Financing support
- Purchasing renewable power
- Training and outreach



<http://www1.eere.energy.gov/femp/>

U.S. DEPARTMENT OF **ENERGY** | Energy Efficiency & Renewable Energy

Federal Energy Management Program

[About the Program](#) | [Program Areas](#) | [Laws & Regulations](#) | [Information Resources](#) | [Financing Mechanisms](#) | [Technologies](#) | [Services](#)

Edward R. Roybal Campus
CENTER FOR DISEASE CONTROL - ATLANTA, GEORGIA

The Department of Energy's Federal Energy Management Program's (FEMP) mission is to facilitate the Federal Government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.

Federal Energy Management Resources

FEMP provides assistance through project transaction services, applied technology services, and decision support services. These service areas help Federal agencies:

- Meet Energy Goals and Regulatory Requirements
- Purchase Energy-Efficient Products
- Manage Energy-Efficient and Alternative-Fuel Vehicle Fleets
- Cultivate Change to Embrace Energy Efficiency and Renewable Energy
- Design, Operate, and Maintain High-Performance Buildings
- Deploy Renewable Energy Technologies
- Finance and Contract Assistance for Energy Projects
- Get Answers to Questions in the EERE Information Center

[Printable Version](#)

Highlights

Commissioning for Federal Facilities Online Training Now Available
Sept. 10, 2009 - Commissioning for Federal Facilities online training covers processes to resolve operating issues, improve comfort, optimize energy use, and identify retrofits.

NEWS

- Executive Order Signed on Federal Environmental, Energy, and Economic Performance
- Presidential Proclamation: National Energy Awareness Month 2009

EVENTS

- Introduction to ESPC Webinar
- Industry Day: Fueling Federal Fleets - An Alternative Fuel Industry Forum

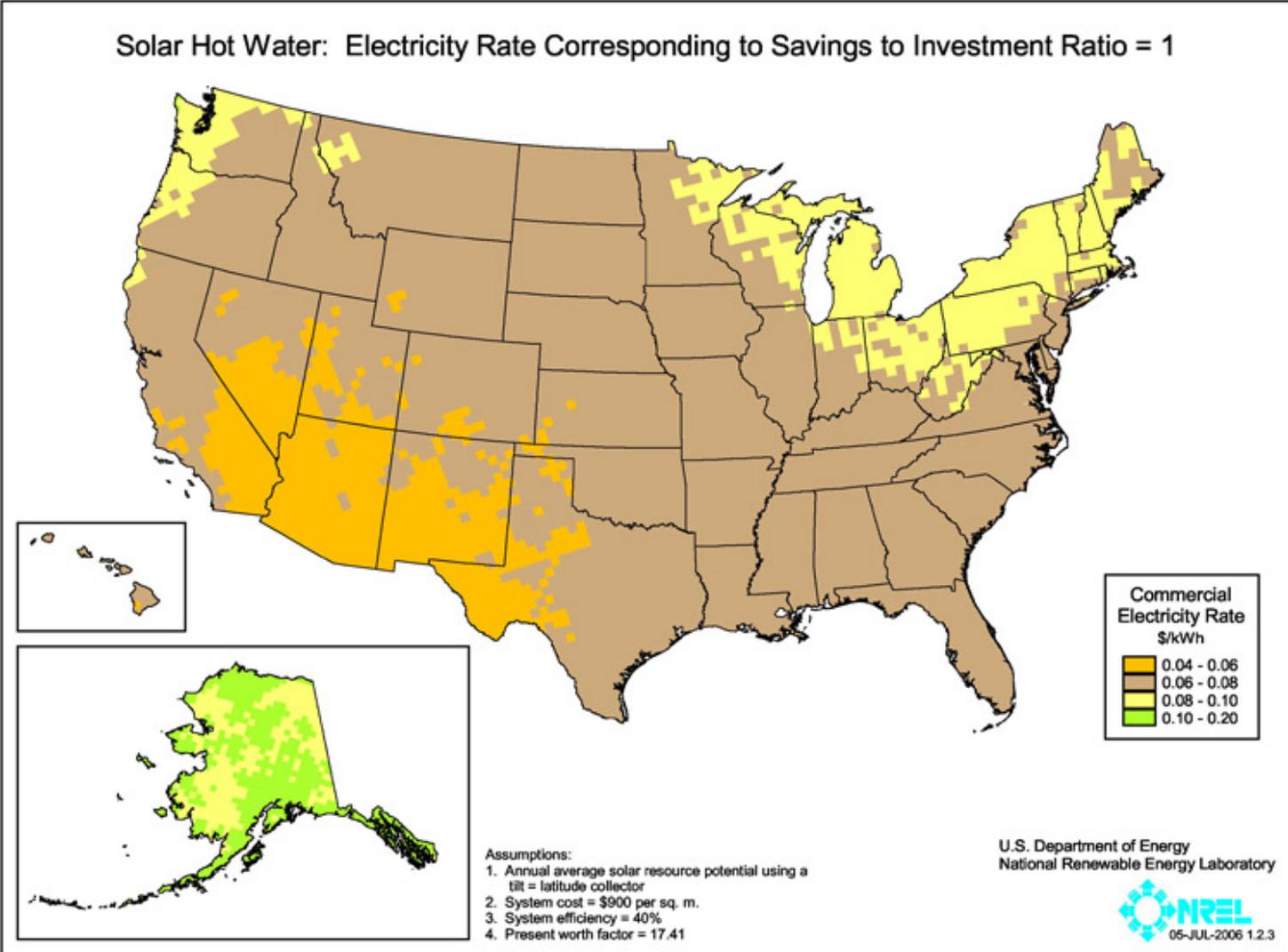
FEATURES

- October is Energy Awareness Month
- DOE Enhances Management of ESPCs
- Cool Roof Resource Guide for Federal Agencies
- Doing Business with the Federal Government

http://www1.eere.energy.gov/femp/technologies/renewable_energy.html

The screenshot shows the FEMP website interface. At the top, there are navigation tabs: "About the Program", "Program Areas", "Laws & Regulations", "Information Resources", and "Financing". Below these is a large green header for "Technologies". A left sidebar contains a menu with "Energy-Efficient Products", "New Technologies", "Renewable Energy" (highlighted), and "Distributed Energy". Under "Renewable Energy", there are links for "Federal Requirements", "Renewable Resources & Technologies", "Project Planning", "Resource Maps & Screening Tools", "Purchasing Renewable Power", "Case Studies", "Working Group", and "Contacts". The main content area features a "Renewable Energy" section with a sub-header "Renewable Energy" and text: "Renewable energy leveraged from natural, renewable energy, Federal agencies increase national se...". Below this, it states "The Energy Policy Act of 2005 requires the fo..." followed by a bulleted list: "• No less than 3% in fiscal years 2007-2009", "• No less than 5% in fiscal years 2010-2012", and "• No less than 7.5% in fiscal year 2013 and thereafter". Further down, it says "FEMP provides technical assistance and resou..." followed by another bulleted list: "• **Federal Requirements**: Current Federal..." and "• **Renewable Resources and Technolog...**". To the right of the main content is a vertical sidebar with several icons and text boxes: "Meet Energy Goals and Regulatory Requirements" (with a Capitol building icon), "Design, Operate, and Maintain High-Performance Buildings" (with a building icon), "Deploy Renewable Energy Technologies" (with a wind turbine icon, circled in green), "Finance and Contract Assistance for Energy Projects" (with a solar panel icon), and "Get Answers to Questions in the EERE Information Center" (with a telephone icon). A green arrow points from the circled link to the "Deploy Renewable Energy Technologies" text in the main content area.

http://www1.eere.energy.gov/femp/technologies/renewable_resourcemap.html



Provided for free using
limited FEMP funding

Or

Through agency-funded Work for
Others (WFO) if insufficient FEMP
funding or if in-depth assistance desired

- FEMP conducts renewable screening for every ESPC project using Renewable Energy Optimization (REO), Solar Advisor Model (SAM) and/or other tools
 - http://www1.eere.energy.gov/femp/financing/espcs_techplanning.html
 - New DOE ESPC contract emphasizes renewable energy and advanced efficiency technologies
 - FEMP assists Federal agencies in identifying and deploying these technologies.
 - Coordinate with Federal Financing Specialist (FFS) to provide data required for screening
 - http://www1.eere.energy.gov/femp/docs/re_screening_for_espcs.doc
 - Results can be used to ensure that certain renewable projects are evaluated for inclusion in ESCO proposals
- Similar screening for UESC projects
- Screening using TA funding and through Call for Projects

http://www1.eere.energy.gov/femp/services/pa_callforprojects.html

- Opportunity for federal agencies to request FEMP technical assistance that is provided through the DOE national laboratories and contractors
 - Assistance only, no funds for equipment
- Call for Projects issued on a periodic basis. FY2010 Call for Projects will be issued later this year
 - Renewable screening will be a priority
- Call for Project contacts:
 - Shawn Herrera
202-586-1511
shawn.herrera@ee.doe.gov
 - Melinda Latimer
303-275-4820
melinda.latimer@go.doe.gov

- Renewable screening
 - Use Renewable Energy Optimization (REO) or other tool
- Detailed feasibility studies
 - Economics
 - Engineering
 - Financing options (ESPC, UESC, PPA)
- Procurement specifications
- Contracting language
- Proposal evaluation
- Acceptance inspection
- Long term monitoring

Note: National Laboratory support geared towards activities that do not compete with the private sector

<http://www1.eere.energy.gov/femp/financing/mechanisms.html>

- Support from project conception through completion
 - ESPC: Well established process. Support provided through Project Facilitators, Federal Financing Specialist (FFS) and National Laboratory Core Team
 - FFS contacts at:
http://www1.eere.energy.gov/femp/financing/espcs_financingspecialists.html
 - UESC: Process varies depending on utility partner
 - PPA: Typically partner with Defense Energy Support Center or Western Area Power Administration
 - Market research assistance
 - ♦ Applicable incentives and/or solar REC market
 - ♦ Possible utility tariff/competitive electric supply impacts, standby charges
 - ♦ Interconnection and net metering policies/requirements
 - Assistance with other requirements such as land use agreement (lease, easement, license, other)
 - Assistance with National Environmental Policy Act (NEPA) compliance issues
 - Solicitation and bid evaluation

- Options
 - Renewable Energy Certificates (RECs)
 - Defense Energy Support Center (DESC)
 - General Services Administration (GSA)
 - Western Area Power Administration (Western)
 - Renewable power in a competitive electricity market
 - Utility green pricing programs
- Services
 - Evaluate options
 - Contract or RFP assistance
- Green Power Network is a very helpful resource
<http://apps3.eere.energy.gov/greenpower/index.shtml>

- Workshops and webinars
 - Networking facilitation
 - Renewable Energy Working Group
 - Federal Utility Partnership Working Group (FUPWG)
 - Next meeting is Nov. 18-19 in Ontario, CA
 - Annual GovEnergy training workshop and trade show
 - GovEnergy 2010 is August 15-18 in Dallas, TX
 - Events & training calendar:
<http://www1.eere.energy.gov/femp/news/events.html>
- http://www1.eere.energy.gov/femp/news/events_detail.html?event_id=3963

- Federal Energy Management Program (FEMP) home page:
<http://www1.eere.energy.gov/femp/>
- FEMP Renewable home page:
http://www1.eere.energy.gov/femp/technologies/renewable_energy.html
- Renewable contacts
http://www1.eere.energy.gov/femp/technologies/renewable_contacts.html
- Other FEMP contacts (including Customer Service Representative)
<http://www1.eere.energy.gov/femp/about/contacts.html>
- Events & training calendar
<http://www1.eere.energy.gov/femp/news/events.html>
- Database of State Incentives for Renewables and Efficiency
<http://www.dsireusa.org/>
- Green Power Network: <http://apps3.eere.energy.gov/greenpower/>

Thank You