



**Renewable Energy Markets**  
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**September 24, 2012**

Federal Energy Management  
Program - Renewable  
**FEMP** Energy

Federal Energy Management Program

- A significant market
- Federal rules
- Sophisticated buyers
- Resources

- Incentives (State, Utility, Federal; [www.dsireusa.org](http://www.dsireusa.org))
- Economics: Project Cost; Utility Cost Savings; Payback
- Renewable Energy Certificates (RECs): ownership options, EPC Act 2005 and EO13423 requirements and guidance Authorities

We can do anything that is not prohibited by law.

Private Lawyer



Being a government of prescribed powers, we can only do that which is authorized by law.

Government Lawyer

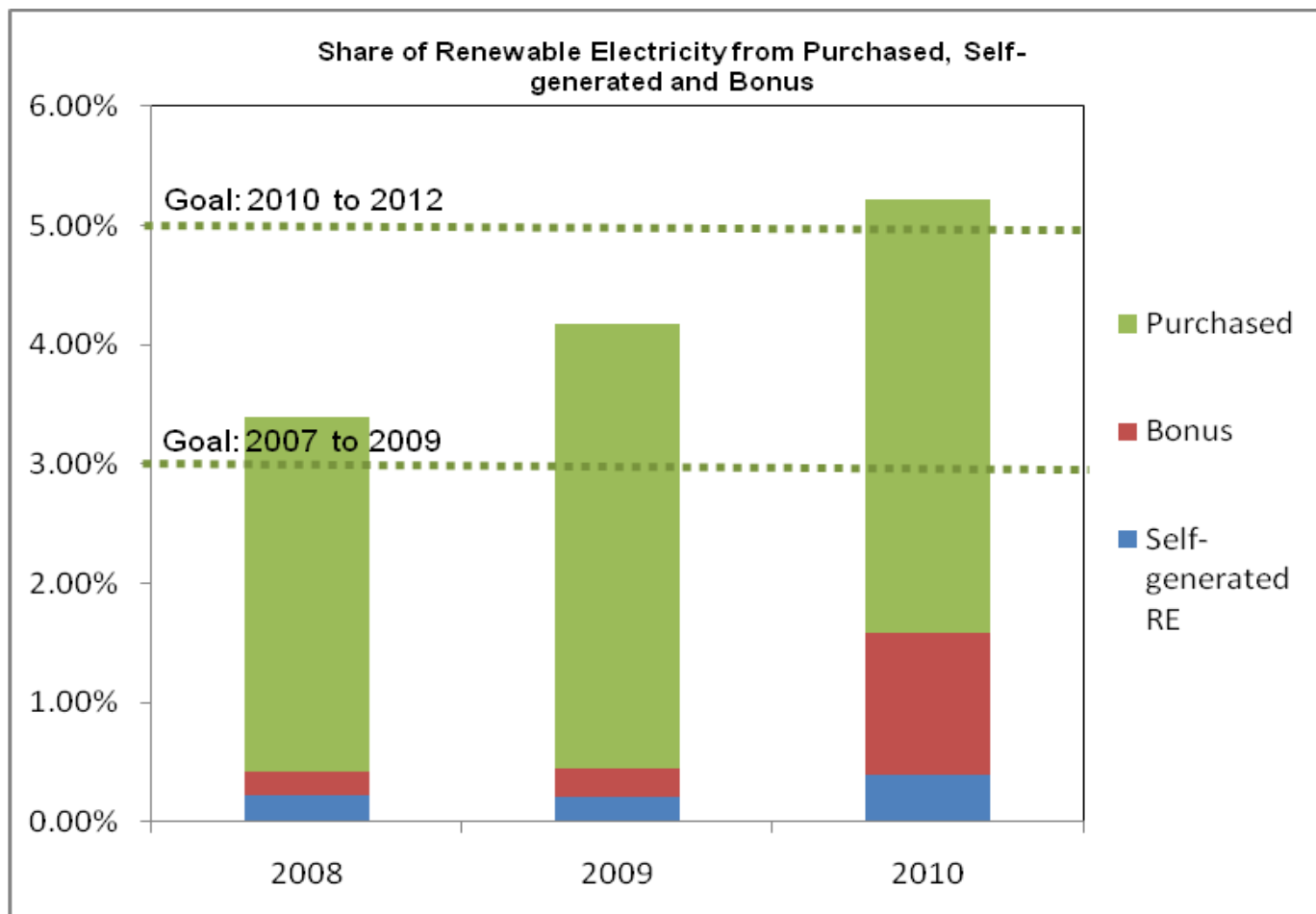
# Federal Renewable Energy Requirements

Source of Requirement	Produce, Use, or Both	Level...	Applies to...
EPAct 2005 Federal Use Goal	Use, Electric	3% FY07-09 5% FY10-12 7.5% FY13...	All Agencies
Executive Order 13423	Use, All RE	½ of EPAct Federal Goal from “New” Sources	All Agencies
DoD National Defense Reauthorization Act of 2010	Produce or Use, All RE thermal or electric	25% of facility energy by 2025 (now facility electricity )	DoD
EISA 2007 SWH Requirement	Use, Solar Water Heating	30% of hot water needs in new buildings/major renovations	All Agencies

# Federal Requirements Where RE Contributes

Source of Requirement	Produce, Use, or Both	Level...	Applies to...
EISA Sustainable Design Standards	Use, All RE	All new buildings, major renovations	All Agencies
EISA Fossil Fuel Reductions	Use, All RE	All new buildings, major renovations	All Agencies
EO13514 Section 9	Use, All RE	Individual GHG agency goals	All Agencies

# Status of Federal Renewable Electricity Consumption



# Acceptable Technologies/Fuels for RECs or Renewable Energy

Technology/Fuel	EPA Act 7.5% Goal (Electric Only)	GHG Reductions (Electric & Non-Electric)	DoD Goal (Electric & Non-Electric)
Solar	Yes	Yes	Electric & Non-Electric
Wind	Yes	Yes	Yes
Biomass	Yes	Yes, Separate Reporting	Electric & Non-Electric
MSW	Yes	Yes, Biomass Portion Only	Yes
Geothermal	Yes	Yes	Yes
Hydropower	Incremental and Hydrokinetic Only	Yes, Incremental Includes new generation at existing dams	Yes, Incremental
Ocean/Tidal	Yes	Yes	Yes
Ground Source Heat Pumps	*	Yes, Conservation Measure	Yes
Solar Thermal	*	Yes	Yes

\* Non-electric renewable energy can be used to meet the requirement that ½ of renewable energy come from sources placed in service after 1999

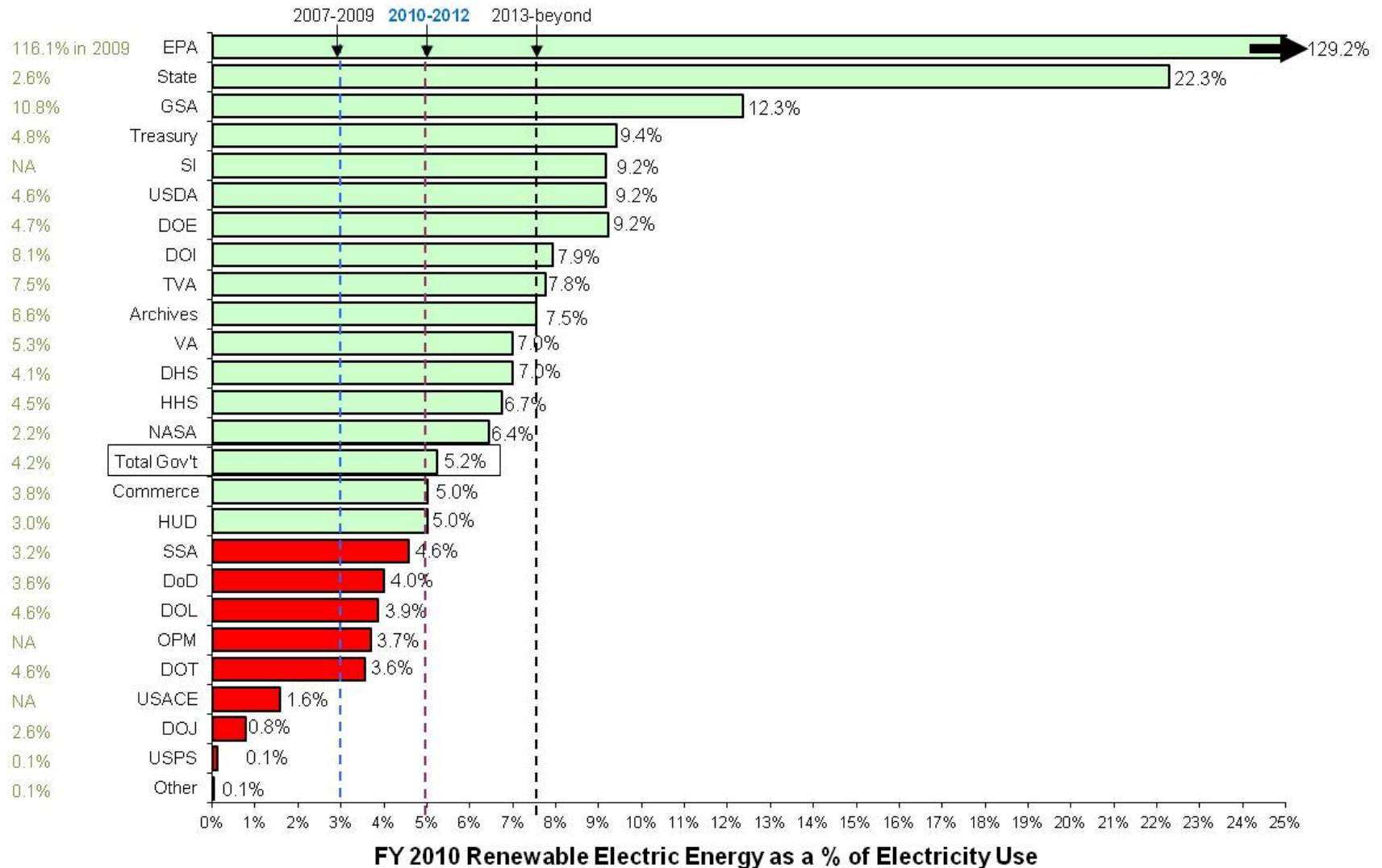
- EPAAct 2005: 5% of Federal facility electricity use this year is required to be from renewable energy, and 7.5% from 2013 forward.
- 10 USC 2911: By 2025 DoD will produce or procure 25% of its facility electricity use from renewable energy.
- EO13514: Agencies established GHG reduction targets and must report on their progress every year.
- RECs are attractive because:
  - Low Upfront costs
  - Easy to Site, Because They Don't Need a Site
  - Easy to Purchase in Flexible Quantities
- Agencies are Held Accountable – They Are Rated and Scored Every Year



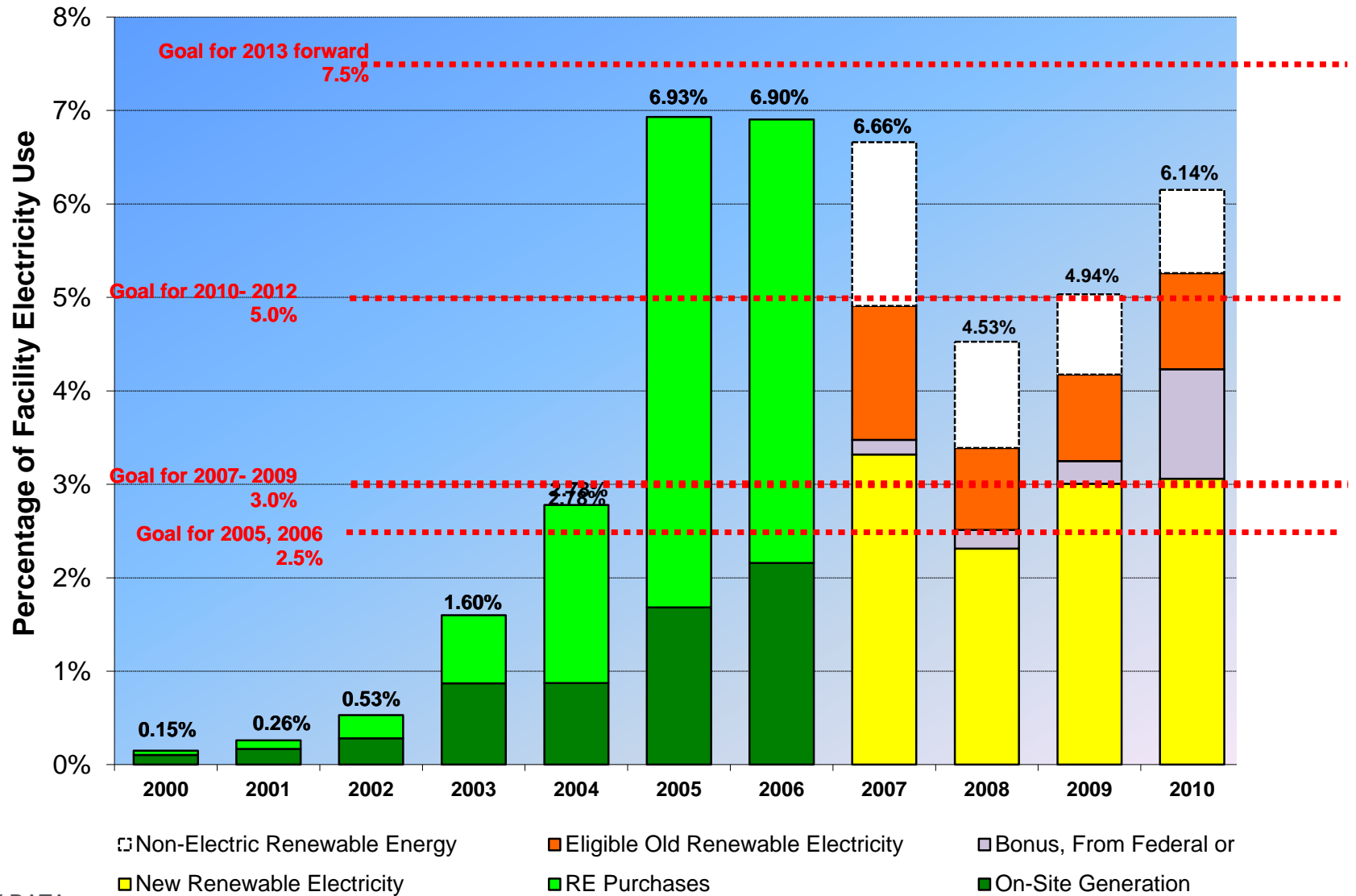
- Vast Majority Bought Through Competitive Solicitations:
  - General Services Administration
  - Defense Logistics Agency, Energy
  - Western Area Power Administration
- Announced Through FedBiz Opps, Federal Procurement Sites
- Some Purchased as Part of Package Involving Third Party Development and Financing of Renewable Energy Projects

- Rarely if Ever Sold Directly – Governed by Regulations on Disposal of Government Property
- Federal Customer May Avoid Ownership of RECs, But Negotiate to Recognize Value in Agreements for 3<sup>rd</sup> Party Construction and Ownership on Federal Sites
- High Value RECs Sold by a Developer to Reduce the Cost of a System Can be Replaced by REC Purchases:
  - Allows agency to claim bonus for renewable energy development on Federal or Indian land despite giving up RECs for on-site project
  - Allows agency to count an on-site renewable energy system as an energy conservation measure for meeting energy intensity goals, despite giving up RECs from on-site project

# Federal Facilities: Progress Toward Renewable Energy Goal



# Comprehensive Renewable Energy Use FY 2000 through FY 2010

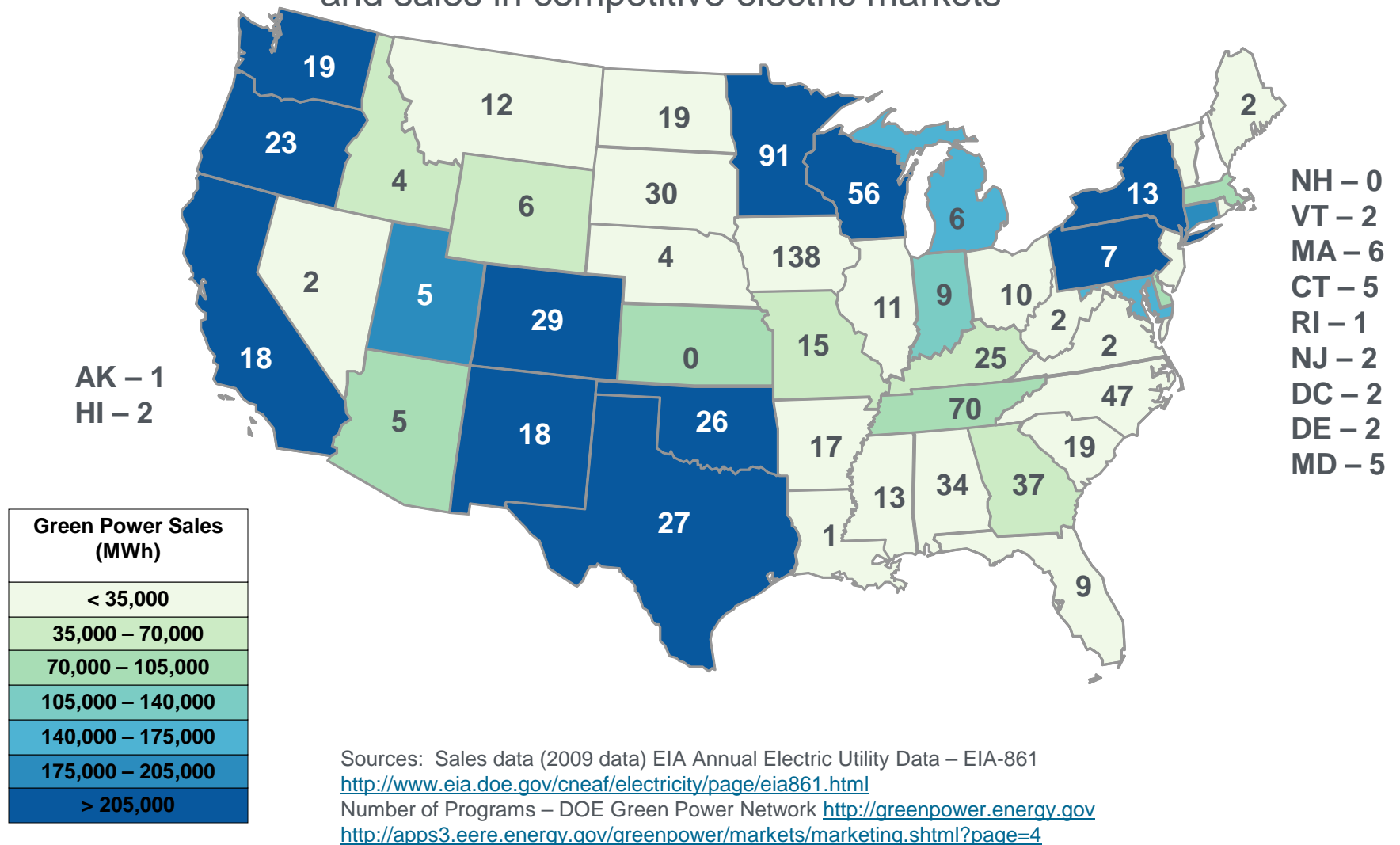


PRELIMINARY DATA

- On-site renewable energy project
  - On-site renewable energy project owned by ***Federal agency***, implemented using appropriations
- On-site renewable energy project
  - Implemented through energy savings performance contracts (ESPCs) or utility energy service contracts (UESCs)
- On-site renewable power purchase agreement (PPA)
  - On-site renewable energy project owned by a ***private entity*** with the electricity purchased by the Federal agency
- **Purchasing renewable power in a competitive electricity market**
- **Buying renewable power through a utility green pricing program**
- **Buying renewable energy certificates (RECs)**

# Renewable Power Sales and Number of Programs by State

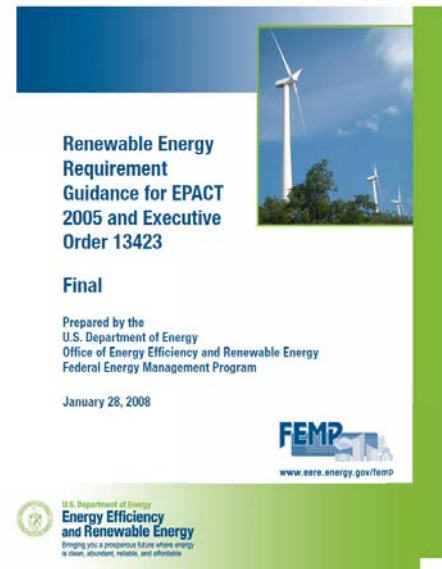
Sales and program figures include both utility green pricing programs and sales in competitive electric markets



Sources: Sales data (2009 data) EIA Annual Electric Utility Data – EIA-861 <http://www.eia.doe.gov/cneaf/electricity/page/eia861.html>  
 Number of Programs – DOE Green Power Network <http://greenpower.energy.gov>  
<http://apps3.eere.energy.gov/greenpower/markets/marketing.shtml?page=4>

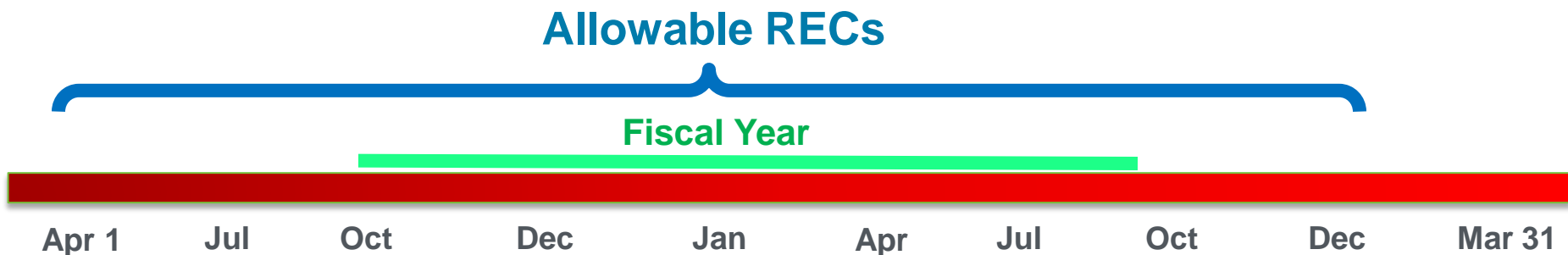
- Questions to determine the best option for your Federal site:
  - Is your facility in a state with a competitive electricity market?
  - Are there known renewable power products?
  - Could you save money with a long-term renewable contract or could you stabilize volatile electricity prices?
  - Does your site already have an electricity contract with an alternative supplier?
    - If so, when does it expire? It may be possible to modify an existing contract to include renewables.
    - If not, what are GSA and/or DLA Energy RFP plans for the state?

- Desired amount of renewables
  - Percentage
  - Designate certain accounts to be 100% renewable
- Type of renewables desired
  - At a minimum, ensure that the EAct 2005 renewable definition is met
- Contract length
- Renewable plant online date
  - “New” = Placed into service after January 1, 1999, per E.O. 13423 requirement
- Verification and audit requirements to ensure you get what you paid for and that there is no “double counting”
  - Renewables being used to meet a state renewable portfolio standard (RPS) do not count towards Federal goals
  - More information is available in the FEMP Renewable Guidance (Section 3.3.5: Page 12)
    - [www.femp.energy.gov/pdfs/epact05\\_fedrenewenergyguid.pdf](http://www.femp.energy.gov/pdfs/epact05_fedrenewenergyguid.pdf)





- Renewable Guidance, Section 3.3.4 “Vintage” Requirements:
  - Vintage refers to the date (month/year) when the RECs were generated (not to be confused with New vs. Old).
  - Allows RECs from 6 months before the contract year and 3 months after the contract year.
  - Fiscal Year 2011: RECs are allowable from April 1, 2010, (6 months prior to the beginning of FY 2011) to December 31, 2011, (3 months after the end of FY 2011).
  - RECs from April through September can count toward the current or future fiscal year (providing flexibility if exact requirement is not known at time of purchase).



- Defense Logistics Agency (DLA) Energy
  - Formerly Defense Energy Support Center (DESC)
- General Services Administration (GSA)
- Western Area Power Administration (Western)

*\*\*Note that competitive acquisition rules apply.*

- DLA Energy issues periodic REC RFPs throughout the year for both civilian and DOD sites.
- No fee.
- Federal agency pays the selected REC provider.
- Federal agency must provide funding mechanism prior to award (line of accounting, credit card, etc.).
- DLA Energy will not make an award unless the customer agrees with the prices received.
- Contacts:
  - Andrea Kincaid: 703-767-8669, [andrea.kincaid@dla.mil](mailto:andrea.kincaid@dla.mil)
  - Cindy Ralph: 703-767-8566, [cynthia.ralph@dla.mil](mailto:cynthia.ralph@dla.mil)

- GSA issues periodic REC RFPs, typically Spring through end of fiscal year.
- Can include renewable energy requirements in electricity procurement (as either bundled renewable power or RECs).
- No fee.
- Federal agency pays the selected REC provider.
- GSA will not make an award unless the customer agrees with the prices received.
- MOA or fund certification.
- Contact:
  - Ken Shutika: 202-260-9713, [ken.shutika@gsa.gov](mailto:ken.shutika@gsa.gov)

- Conducted through Western's Federal Renewable Resources for Federal Agencies (RRFA) Program.
- Annual REC procurement.
- Statement of intent (usually due in May).
  - Good faith non-binding agreement.
  - Authorizes Western to seek RECs on the Federal agency's behalf.
  - REC specifications.
- Interagency agreement:
  - Commitment of funding availability for the current year.
  - Every effort made to secure future appropriations.
  - Agreements follow Economy Act requirements, including a determination and finding (D&F).
- Federal agency pays the selected REC provider.
- Nominal \$300 annual fee for contract administration.
  - FEMP funding has historically covered procurement costs.
- Contact:
  - Randy Manion : 720-962-7423, [manion@wapa.gov](mailto:manion@wapa.gov)

- Current national, voluntary market REC price for any renewable technology is less than 0.1¢/kWh (\$1/MWh).
- REC prices depend on renewable resource type, location, and renewable project online date.
  - Federal agencies must use **50% “new”** renewables to meet the Federal renewable energy goal.
    - New is defined as placed into service after January 1, 1999.
    - Old RECs (from any renewable plant that was placed into service before January 1, 1999) are significantly cheaper than new RECs.
- Difficult to predict future REC prices due to uncertain policy landscape.

- RECs and renewable power purchases can be used to offset Scope 2 greenhouse gas (GHG) emissions.
  - Use eGRID non-baseload GHG emission rates to determine GHG benefit (see <http://cfpub.epa.gov/egridweb/ghg.cfm>).
  - Emissions factors are listed in the *Federal GHG Accounting and Reporting Guidance Technical Support Document (TSD)* (Table D-8).
    - [http://www.whitehouse.gov/sites/default/files/microsites/ceq/technical\\_support\\_document\\_1.pdf](http://www.whitehouse.gov/sites/default/files/microsites/ceq/technical_support_document_1.pdf)
  - Both location and renewable resource type are important.
  - Separate line in the annual sustainability data reporting spreadsheet for each renewable resource type and location (ZIP Code).
  - Biomass:
    - Considered GHG neutral except for methane and nitrous oxide.
    - CO<sub>2</sub> emissions are tracked but not included in GHG targets.
    - Emission rates vary depending on biomass type.
    - Check *Federal GHG Accounting & Reporting Guidance TSD* (Tables D-4 and D-5) for appropriate emission rates.

- Feds are a big purchaser of pure RECs (2.4 million MWh in FY11, estimated value of \$2.4 to \$5M), and RECs bundled with electricity.
- Feds protect integrity of REC markets with strict requirements for owning RECs to back up renewable energy and GHG claims.
- Feds becoming a source of RECs and green energy as we host more 3<sup>rd</sup> party generating plants, and those plants comply with high standards for what constitutes a REC and who owns it.



- Federal Energy Management Program (FEMP)  
[www.femp.energy.gov](http://www.femp.energy.gov)
- FEMP Renewable Energy  
[www.femp.energy.gov/technologies/renewable\\_energy.html](http://www.femp.energy.gov/technologies/renewable_energy.html)
- Renewable Energy Requirement Guidance for EPO Act 2005 and E.O. 13423  
[www.femp.energy.gov/pdfs/epact05\\_fedrenewenergyguid.pdf](http://www.femp.energy.gov/pdfs/epact05_fedrenewenergyguid.pdf)
- FEMP Renewable Energy Contacts  
[www.femp.energy.gov/technologies/renewable\\_contacts.html](http://www.femp.energy.gov/technologies/renewable_contacts.html)
- FEMP Purchasing Renewable Power  
[www.femp.energy.gov/technologies/renewable\\_purchasingpower.html](http://www.femp.energy.gov/technologies/renewable_purchasingpower.html)
- FEMP Power Purchase Agreements  
[www.femp.energy.gov/financing/power\\_purchase\\_agreements.html](http://www.femp.energy.gov/financing/power_purchase_agreements.html)  
*(Includes a link to Alternative Financing Options on-demand webinar)*
- FEMP Training Database  
[www.femp.energy.gov/training](http://www.femp.energy.gov/training)

- Green Power Network  
<http://apps3.eere.energy.gov/greenpower/>
- Guide to Purchasing Green Power  
[www.femp.energy.gov/pdfs/purchase\\_green\\_power.pdf](http://www.femp.energy.gov/pdfs/purchase_green_power.pdf)
- DLA Energy  
<http://www.desc.dla.mil/DCM/DCMPPage.asp?pageid=589>
- GSA Energy and Water Conservation Overview  
[www.gsa.gov/portal/content/104491](http://www.gsa.gov/portal/content/104491)
- Western Renewable Resources for Federal Agencies  
[www.wapa.gov/powerm/pmtags.htm](http://www.wapa.gov/powerm/pmtags.htm)  
(See program brochure at bottom of website.)
- EPA Green Power Partnership  
[www.epa.gov/greenpower/](http://www.epa.gov/greenpower/)

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[http://www1.eere.energy.gov/femp/technologies/renewable\\_energy.html](http://www1.eere.energy.gov/femp/technologies/renewable_energy.html)