



# Federal Renewable Energy Requirements and Options for Meeting Them

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Conference**  
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David McAndrew  
FEMP



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

- ✍ **Federal Renewable Requirements**
- ✍ **Federal Renewable Contracting Options**
- ✍ **FEMP Renewable Services**

## Federal Renewable Requirements



## Energy Policy Act (EPAct) of 2005

- ✍ Federal renewable energy **use** goals:
  - ✍ 3% of electric energy by FY2007
  - ✍ 5% of electric energy by FY2010
  - ✍ 7.5% of electric energy by FY2013 and beyond
  - ✍ Double credit if **produced** on federal or indian land and **used** by federal agency
- ✍ Renewable energy" is **electric energy** from:
  - Solar
  - Wind
  - Biomass
  - Ocean
  - Geothermal
  - MSW
  - "New" hydroelectric generation

## Renewable Guidance

- ✍ FEMP Renewable Guidance:  
[http://www1.eere.energy.gov/femp/pdfs/epact05\\_fedrenewenergyguid.pdf](http://www1.eere.energy.gov/femp/pdfs/epact05_fedrenewenergyguid.pdf)
  - ✍ Section 4 describes when RE can be used for EE goals and the phase out of using REC purchases to meet EE goals
  - ✍ **"Used"** - Renewable energy certificates (RECs) must be retained for project to count towards RE goal
  - ✍ If RECs are sold, then replacement RECs may be purchased
    - ✍ "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

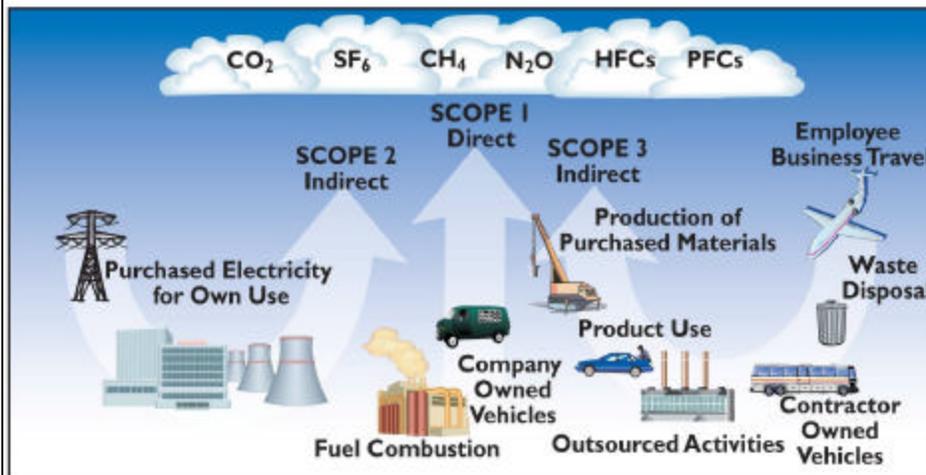
- ✍ Half of RE required under EPO Act05 must come from “**new**” sources
  - ✍ Placed into service after January 1, 1999
  - ✍ Refurbished, rebuilt or modified >80% of capital cost
  
- ✍ Non-electric energy counts toward “New” requirement includes:
  - ✍ Solar water heating
  - ✍ Solar ventilation pre-heat
  - ✍ Ground source heat pumps,
  - ✍ Biomass heating/cooling,
  - ✍ Ocean thermal exchange
  - ✍ Mechanical pumps driven by wind or hydro

- ✍ **Section 433:** Reduce Fossil Energy use in new federal buildings reduced (ASHRE 2003 baseline) by:
  - 55% in 2010
  - 65% in 2015,
  - 80% in 2020,
  - 90% in 2025.
  - 100% in 2030
  
- ✍ **Section 441:** Increased LCC analysis period to 40 years from 25 years as applicable
  
- ✍ **Section 523:** Requires 30% of hot water to be met with solar energy in new/renovated buildings

## Other Requirements

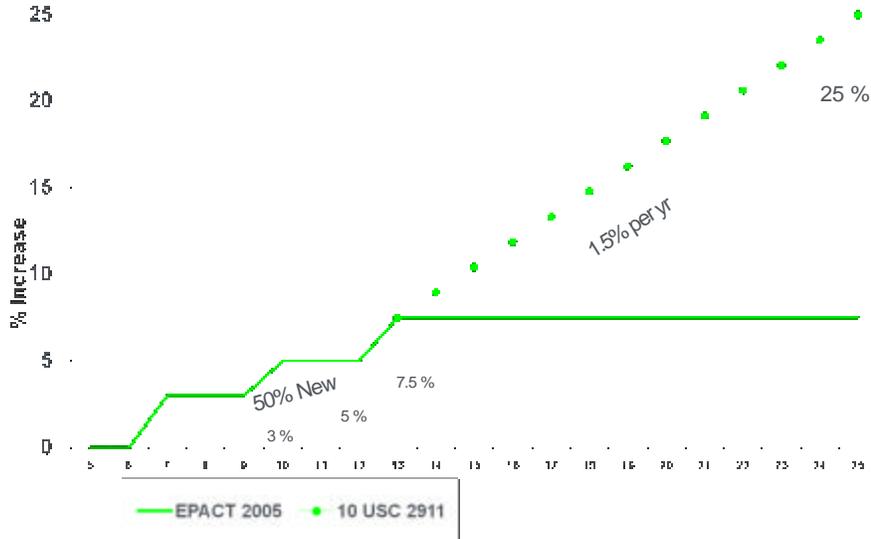
- ✍ National Defense Authorization Act 07-08 (10 USC 2911)
  - ✍ At least 25% of the energy consumed at DoD facilities should come from renewable resources by 2025
  - ✍ DOD installations should produce or procure electric energy from RE sources when it is consistent with the energy performance plans and goals of the Department
- ✍ EO 13514, agencies among other things must :
  - ✍ Conduct comprehensive GHG inventory
  - ✍ Establish GHG reduction targets (scope 1&2)

## GHG Accounting

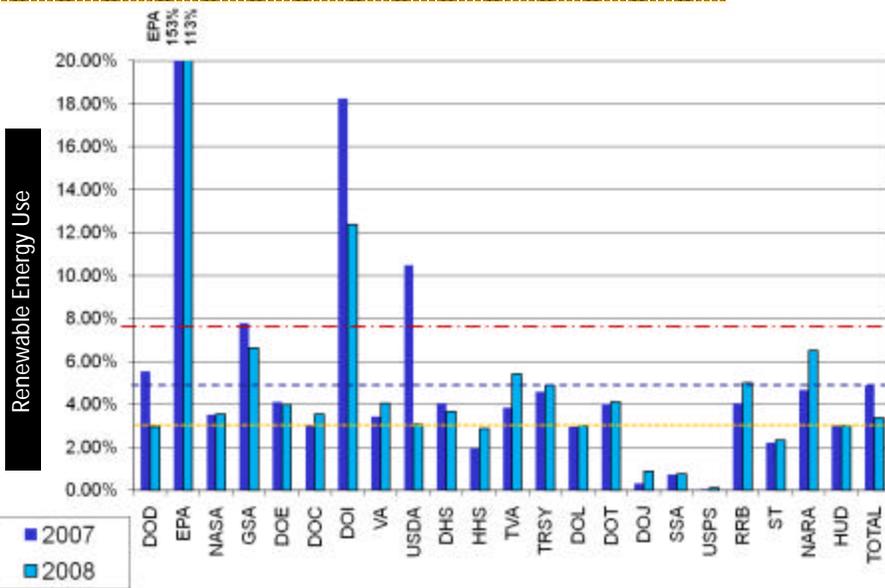


Could lead to EERE projects competing on a GHG saved per \$ invested basis

# DOD Renewable Power Goal



# Where are We?





## Federal Renewable Contracting Options



## Federal Renewable Options

- ✍ Energy Savings Performance Contracts (ESPC)
- ✍ Utility Energy Service Contracts (UESC)
- ✍ Power Purchase Agreements (PPA)
- ✍ Enhanced Use Lease (EUL)
- ✍ Renewable Power Procurement



- ✍ Contract between federal agency & energy service company (ESCO)
- ✍ ESCO typically finances project implementation guarantying a specified level of cost savings
- ✍ Agency pays ESCO over the term of the contract at a rate which cannot exceed the related savings
- ✍ New DOE IDIQ contracts awarded by FEMP and Army Corp.
- ✍ Typically bundle RE with EE, although stand-alone RE projects do occur
- ✍ FEMP conducts renewable screening for every new ESPC project



### Pros

- ✍ Established project implementation process
- ✍ 25 year contract length - fits well with higher renewable energy paybacks
- ✍ O&M can be included as part of contract
- ✍ Excess electricity/thermal energy sale allowed (EISA provision)

### Cons

- ✍ Complex contracting vehicle
- ✍ Not easy to incorporate tax incentives
  - ✍ ESCO/financier must own equipment for tax incentive eligibility
- ✍ Site O&M increases the performance risk
- ✍ Federal site may be at risk if project does not perform well



## ESPC Example

### USCG Baltimore, Maryland Landfill Gas



- ✍ Boiler Conversion to LFG Cogeneration Plant
  - 4 MW Electricity
  - 8,000 lb/hr Steam
- ✍ 15 year contract length
- ✍ Project Investment : \$15.0 million
- ✍ Annual Savings: \$2.5 million
- ✍ Offsets 18,000,000 kWh/yr and 71,000 decatherms/yr of Natural Gas
- ✍ Operational: April 2009



## Utility Energy Service Contracts (UESCs)

- ✍ Contracts that allow local utilities to provide comprehensive EERE services to the federal customers they serve
- ✍ May use third party financing and/or appropriations
- ✍ Typically bundle RE with EE, although stand-alone projects do occur
- ✍ Contract options –
  - ✍ GSA areawide contract (AWC),
  - ✍ Basic ordering agreement (BOA),
  - ✍ Site specific contract
- ✍ Contract term 10 to 25 years, policies varies by agency
- ✍ Federal Utility Partnership Working Group,
  - ✍ Next meeting hosted by National Grid April 14-15 Brooklyn, NY

### Pros

- ✍ Flexible contracting vehicle
- ✍ Renewable assessments available from FEMP
- ✍ Utilities are now eligible for renewable investment tax credit (utility must own renewable plant)
- ✍ Working with utility may facilitate resolution of interconnection and tariff/standby charge issues
- ✍ Utilities are interested in a wide range of project sizes (large and small)
- ✍ Existing relationship

### Cons

- ✍ Not all utilities offer UESCs
- ✍ Agency may bare risk of performance
- ✍ Utility may have limited renewable experience, may be uncomfortable with renewable projects

### Marine Corps Logistics Base Barstow Wind Project



- ✍ 1.5 MW wind turbine
- ✍ \$4.6 million cost financed by Southern California Edison
  - ✍ \$6.1M total, minus \$1.5M rebate
- ✍ \$515k annual savings
- ✍ 15 year term

- ✍ Private entity installs, owns, operates and maintains renewable equipment behind the customer's meter
- ✍ Site purchases energy through power purchase agreement
- ✍ Site access agreement also required – lease, easement, license, other
- ✍ The developer may also require additional agreement for the sale of the RECs
- ✍ Long term contracting authority is key
- ✍ FAR Part 41 authority is only 10 years (not long enough)
- ✍ 10 USC 2922A – provides DOD 30 year authority Sec. Def. approval required, applicability to non-geothermal projects is disputed
- ✍ WAPA has authority for 30 year contracts inside its service territory
- ✍ DESC and WAPA both offer contracting support

### Pros

- ✍ Designed specifically for renewable projects
- ✍ Minimal risk to government
  - ✍ Agency only pays for what is produced
  - ✍ Power usually priced at or below current rates
  - ✍ Provides long term stability in energy costs and budgets
- ✍ RE developer eligible for tax incentives, accelerated depreciation
- ✍ No agency up-front capital required

### Cons

- ✍ Will not be wide spread until agencies get clear long term contracting authority at the site level
- ✍ Requires multiple agreements and both real estate and energy staffs

### Fort Carson PV Project in CO

- ✘ 2 MW, 3200 MWh in first year (~2% of Ft. Carson's load)
- ✘ Fixed, non-escalating energy rate
- ✘ 17-year contract, with 3 year option (utilizing Western)
- ✘ No cost 20 year lease (using 10 USC 2667 lease authority)
- ✘ RECs sold to Xcel Energy (20 year contract)
- ✘ Ground-mounted, fixed system covering 12 acre former landfill
- ✘ First Solar thin film, 25 year warranty
- ✘ Came on-line December 2007



### UESC

- ✘ David McAndrew, DOE HQ/FEMP  
**David.McAndrew@ee.doe.gov, 202-586-7722**
- ✘ Karen Thomas, National Renewable Energy Laboratory (NREL)  
**Karen.Thomas@nrel.gov, 202-488-2223**

### ESPC

- ✘ Bill Raup, DOE HQ/FEMP  
**william.raup@ee.doe.gov, 202-586-2214**
- ✘ Doug Dahle, NREL  
**douglas.dahle@nrel.gov, 303-384-7513**

### PPA

- ✘ Tracy Logan DOE HQ/FEMP  
**tracy.logan@ee.doe.gov, 202-586-4788**
- ✘ Chandra Shah, NREL  
**chandra.shah@nrel.gov, 303-384-7557**

- ✍ Only certain agencies have an EUL authority
- ✍ EUL is a real estate agreement
- ✍ Generally used for large projects where power will be exported
- ✍ Focus is on under-utilized land
- ✍ Agency may receive cash payment or in-kind consideration ( i.e. renewable power, renewable equipment)
- ✍ Typically power exported to grid does not count toward agency's RE goals

### NASA Kennedy Space Center/FP&L

- Partnership between NASA Kennedy Space Center and Florida Power & Light
- EUL signed June 2008
- Phase 1 involves 60 acres, potential phase 2 for additional 40 acres
- 10 MW FPL-owned PV project
  - Construction started, estimated completion date 3/10
  - Output feeds into FPL transmission system
  - Substation expansion required
- In-Kind Consideration - 990 kW NASA-owned PV
  - FPL construction, O&M
  - Output feeds into NASA -owned distribution system
- 130 mph wind standard



FPL Transmission System

- ✍ **Utility Green Pricing Programs**
  - ✍ Good option for smaller sites or to show support
  - ✍ Can be expensive for large customers
  - ✍ There are some good programs (Austin, Excell, BPA)
- ✍ **Competitive Electricity Market**
  - ✍ Many markets permit only one supplier per meter
  - ✍ Agencies need retail service, renewable developers want to sell energy under long term contracts
    - ✍ I want a hamburger not a cow
  - ✍ Offers are often are just brown power greened with RECs
- ✍ **Renewable Energy Certificates (REC)**
  - ✍ Historically primary method for meeting RE goals
  - ✍ Have been very low cost option
  - ✍ Can be purchased anywhere
  - ✍ Seen as a transition until other methods can be used

- ✍ **Defense Energy Support Center (DESC)**
  - ✍ John Nelson (703) 767-8523, john.nelson@dla.mil
  - ✍ Andrea Kincaid (703) 767-8669, andrea.kincaid@dla.mil
- ✍ **General Services Administration (GSA)**
  - ✍ Ken Shutika (202) 260-9713, ken.shutika@gsa.gov
- ✍ **Western Area Power Administration (Western)**
  - ✍ Randy Manion (720) 962-7423, manion@wapa.gov
  - ✍ Chandra Shah (303) 384-7557, chandra\_shah@nrel.gov
- ✍ **Bonneville Power Administration (Bonneville) - option for sites with a power allocation (ex. Fairchild AFB, DOE Richland)**
  - ✍ Debra Malin (503) 230-5701, djmalin@bpa.gov



## FEMP Renewable Services



## Direct Technical Assistance

- ✍ Renewable screening
  - ✍ Use Renewable Energy Optimization (REO) or other tool
- ✍ Detailed feasibility studies
  - ✍ Economics
  - ✍ Engineering
  - ✍ Financing options (ESPC, UESC, PPA)
- ✍ Procurement specifications
- ✍ RFP review
- ✍ Proposal evaluation
- ✍ Acceptance inspection

- ✍ ESPC: Well established process for comprehensive support
  - ✍ Federal Financing Specialist (FFS)
  - ✍ FEMP Qualified Project Facilitators Required for FEMP ESPCs available to support other ESPCs
  - ✍ National Laboratory Core Team
- ✍ UESC: Support tailored to customers needs
  - ✍ Advise and consultation (helping you get “unstuck”)
  - ✍ Review of technical proposal
  - ✍ Full project facilitation and Lab Core Team support
- ✍ PPA: Support tailored to customer’s needs
  - ✍ 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 land use agreement (lease, easement, license, other)
  - ✍ Solicitation and bid evaluation review

- ✍ Workshops
  - ✍ ESPC
  - ✍ UESC (April 13, Brooklyn before FUPWG meeting)
  - ✍ Renewable Projects
- ✍ Webinars
  - ✍ Intro to Project Financing
  - ✍ Intro ESPC and UESC
  - ✍ Energy 101
  - ✍ First Thursdays (topics change)
    - ✍ Introduction to Executive Order 13514, February 4, 2010
- ✍ On Demand
  - ✍ Introduction to Renewable Energy Technologies
  - ✍ GovEnergy 2008 Laws and Regulations Track
  - ✍ [Http://www1.eere.energy.gov/femp/services/training.html](http://www1.eere.energy.gov/femp/services/training.html)
- ✍ FEMP Events & Training Calendar  
<http://www1.eere.energy.gov/femp/news/events.html>



DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy

## Information Resources

- ✂ 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](http://www1.eere.energy.gov/femp/technologies/renewable_energy.html)
- ✂ Renewable contacts  
[http://www1.eere.energy.gov/femp/technologies/renewable\\_contacts.html](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>
- ✂ Renewable Guidebook (update coming this spring)  
[http://www1.eere.energy.gov/femp/renewable\\_energy/renewable\\_powerresources.html](http://www1.eere.energy.gov/femp/renewable_energy/renewable_powerresources.html)
- ✂ Database of State Incentives for Renewables and Efficiency  
<http://www.dsireusa.org/>
- ✂ Green Power Network:  
<http://apps3.eere.energy.gov/greenpower/>



**GovEnergy**  
www.govenergy.gov

**Save the Date!**

**August 15-18, 2010**  
**Dallas Convention Center ★ Dallas, TX**



## *Questions?*

**David McAndrew**

Federal Energy Management Program

(202) 586-7722

*David.McAndrew@ee.doe.gov*