

Financing Renewable Energy Projects

U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy



GreenGov

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Washington, DC

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Federal Energy Management Program



- Partnering with your local Utility
 - UESCs
 - Rebates and Incentives
- PPAs
- EULs
- FEMP Renewable Project Support



- What utilities are willing to offer varies greatly
- There are currently **BILLIONS** in rebates, incentives and other free services available
- Federal agencies have legislative authority to accept goods and services offered by utilities
- **Before** you install on-site generation talk to your utility



Contact Your Utility Early!

➤ Possible Issues

- Interconnection issues
- Interconnection studies
- Standby charges
- System upgrades
- Ownership restrictions

➤ Possible Solutions

- Local knowledge of how systems perform
- Rebates and incentives
- Project financing
- Renewable Energy Certificate purchase



Utility Energy Services Contracts

- Allow federal customers to contract directly for comprehensive energy services with local utility company
- May use appropriations or utility may provide financing
- RE typically bundled with EE, although stand-alone projects do occur
- Contract options –
 - GSA areawide contract (AWC),
 - Site specific contract
- Contract term 10 to 25 years, policies varies by agency

42 USC 2856

Utility Incentive Programs

1. Agencies are **authorized and encouraged** to participate in programs to increase energy efficiency and for water conservation or the management of electricity demand conducted by gas, water, or electric utilities and generally available to customers of such utilities.
2. Each agency may **accept financial incentive, goods, or services** generally available from any such utility, to increase energy efficiency or to conserve water or manage electricity demand.
3. Each agency is encouraged to **enter into negotiations** with electric, water, and gas utilities to design cost-effective demand management and conservation incentive programs to address the **unique needs of facilities** utilized by each agency.
4. If an agency satisfies the criteria which generally apply to other customers of a utility incentive program, such **agency may not be denied collection of rebates** or other incentives.

➤ DOD Authority 10 USC 2913, similar but different

➤ Pros

- Flexible contracting vehicle
- **May facilitate resolution of interconnection issues**
- Utilities are interested in a wide range of project sizes
- **Existing relationship**
- Utilities are now eligible for renewable investment tax credit (utility must own renewable plant)

➤ Cons

- Not all utilities offer UESCs
- **Agency may bare risk of performance**
- Utility may have limited renewable experience renewable projects



Marine Corps Logistics Base Barstow Wind Project

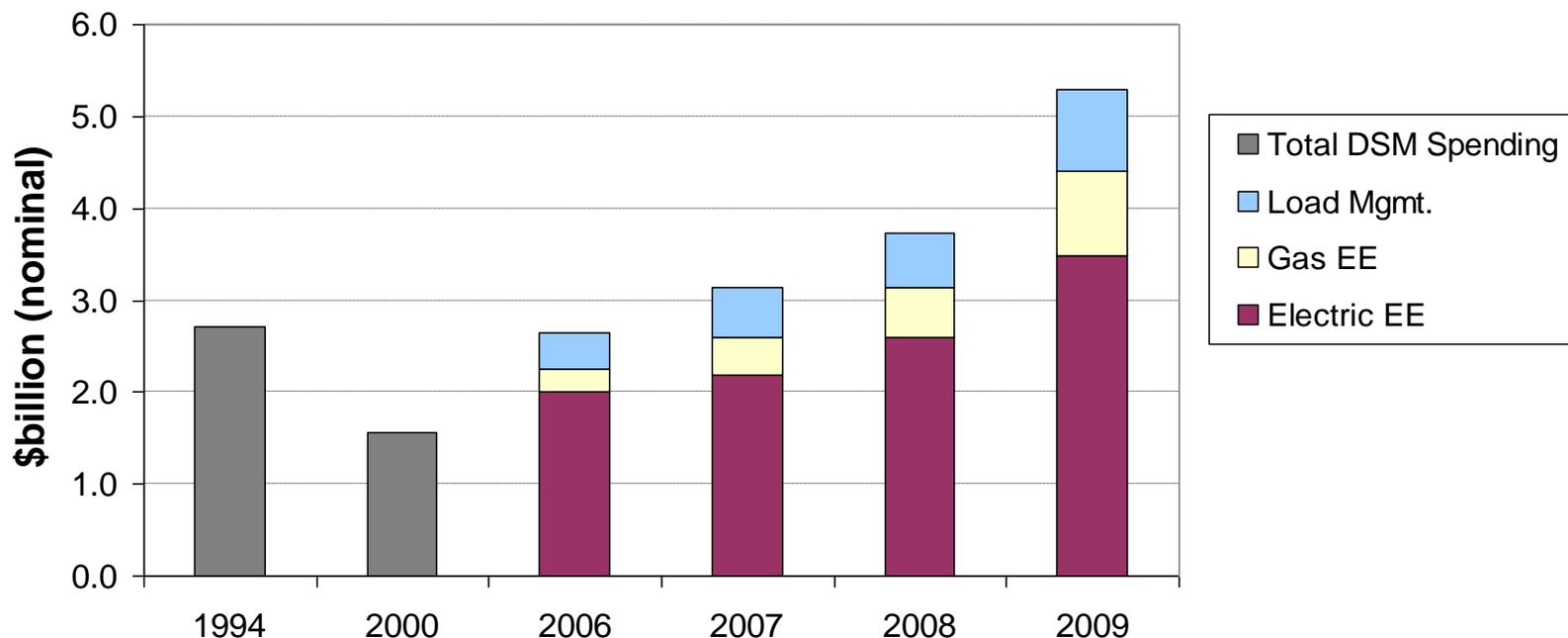


- 1.5 MW wind turbine
- \$4.6 million cost financed by Southern California Edison
 - \$6.1M total, minus \$1.5M rebate
- \$515k annual savings
- 15 year term



Rebates and Incentives

Rebate and Incentive Budgets Have Been Steadily Rising

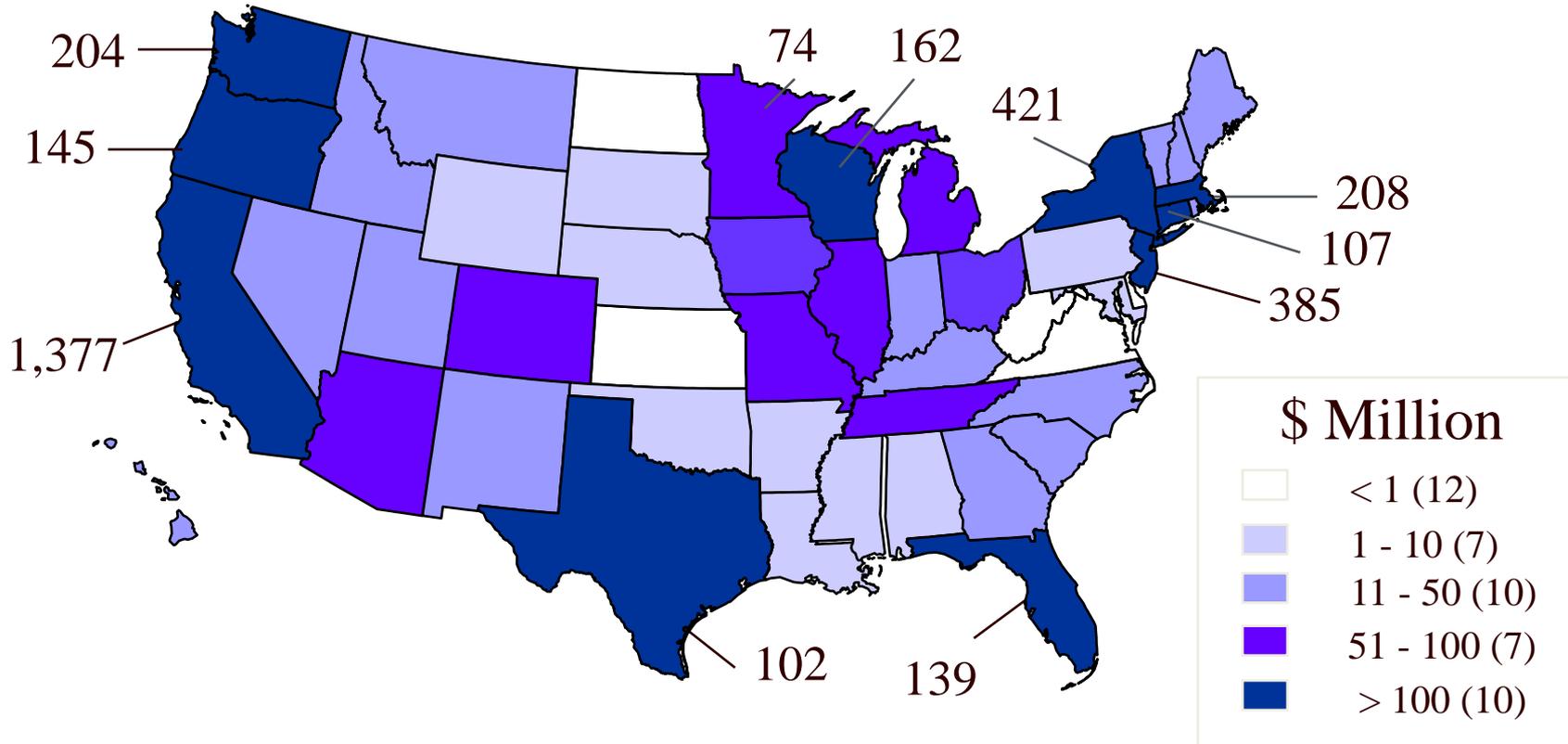


Sources/Notes: 1994 and 2000 data are from EIA and represent actual spending on DSM (EE plus load management). 2006-2009 data are from Consortium for Energy Efficiency and represent approved budgets.

- Spending on Electric and Gas EE has been rising 15-20% per year for the past 3 years
- 2009 EE budgets were \$4.4B (electric + gas) plus another \$0.88B for load mgmt.
- CA utilities account for ~32% of total U.S. EE spending
- Does not include renewable energy incentives add +/- \$1 Billion



Energy Efficiency 2009 Budget: Utility Sector



- In 2009 ~45 state PUCs directed utilities and/or public benefit administrators to invest in energy efficiency
- U.S. Electric and Gas utility budget for energy efficiency was ~\$4.4B in 2009 + \$1Bil DR and +\$1Bil RE.



Power Purchase Agreements

- A developer installs, owns, operates and maintains equipment behind meter
- Typically requires three agreements
 - Power Purchase Agreement
 - Site access agreement
 - REC Sale Agreement
- Long term contracting authority is key
 - FAR Part 41 authority is only 10 years (not long enough)
 - 10 USC 2922A – DOD 30 year authority Sec. Def. approval required, applicability disputed
 - WAPA has authority for 30 year contracts inside service territory



Pros

- Desinged 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
- 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



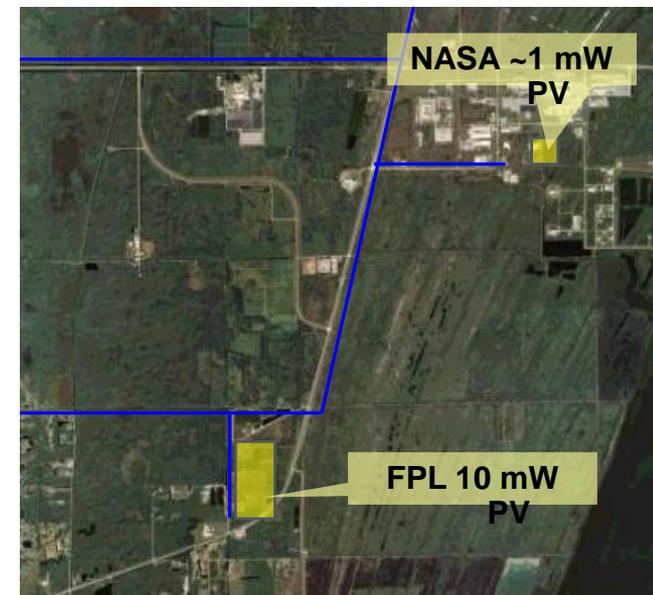


Enhanced Use Lease

- 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 (not excess)
- 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



FEMP Renewable Services

UESC

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- Renewable screening
 - Use Renewable Energy Optimization (REO) or other tool

- Detailed feasibility studies
 - Economics
 - Engineering
 - Financing options

- Procurement specifications
- RFP review
- Proposal evaluation
- Acceptance inspection



- **ESPC:** Established process, comprehensive support
 - Federal Financing Specialist (FFS)
 - Qualified Project Facilitators, Required for FEMP 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/Utility tariff analysis
 - Solicitation and bid evaluation review
 - Assistance with land use agreement



➤ Workshops

- ESPC
- UESC
- Renewable Projects

➤ Webinars

- Intro to Project Financing
- Intro ESPC and UESC
- Energy 101
- First Thursdays (topics change)

➤ On Demand

- Introduction to Renewable Energy Technologies

[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>



- FEMP home page:

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

- Renewable Guidebook:

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/>



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