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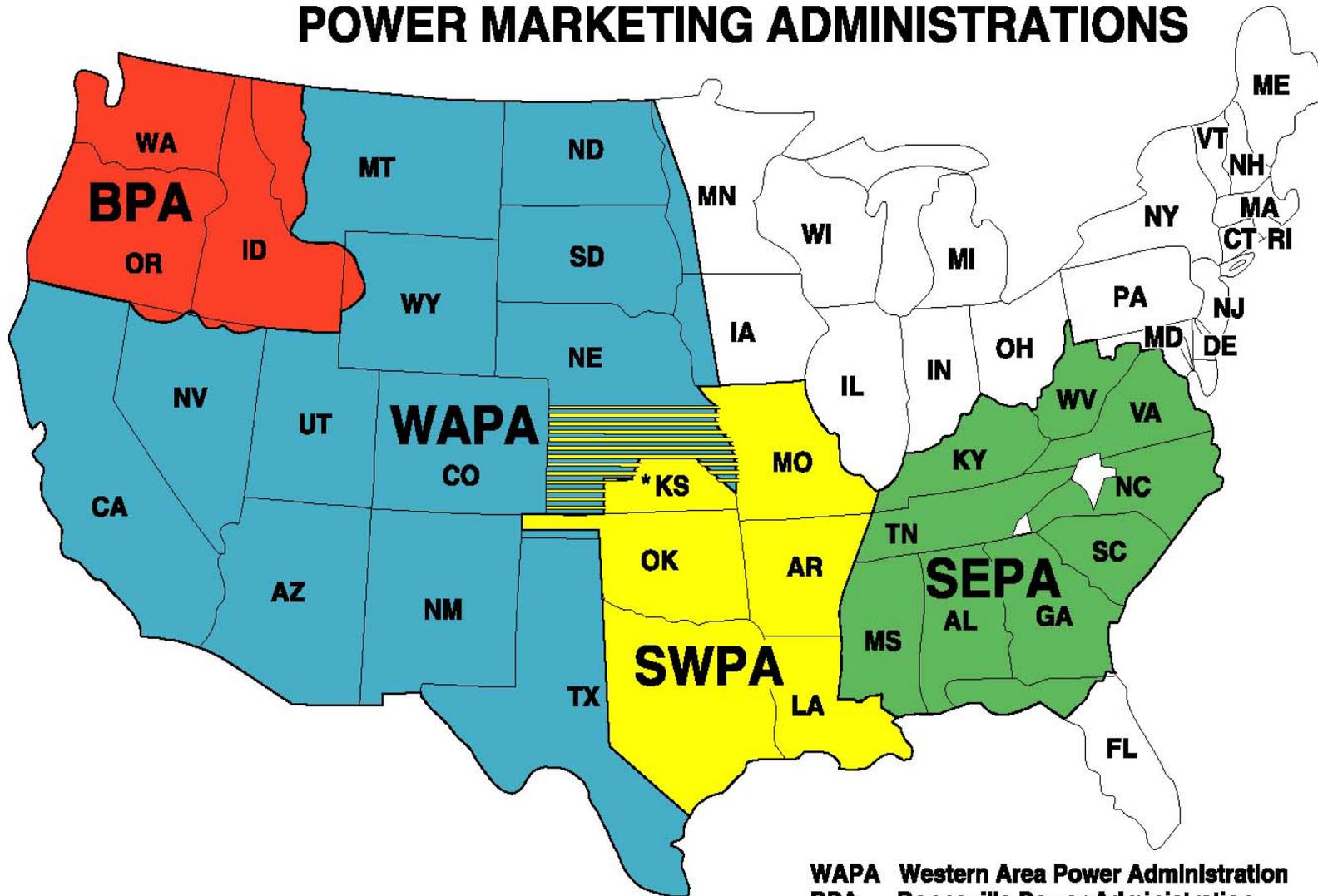
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How Western Facilitated Renewable Energy Generation Projects on Federal Sites

POWER MARKETING ADMINISTRATIONS

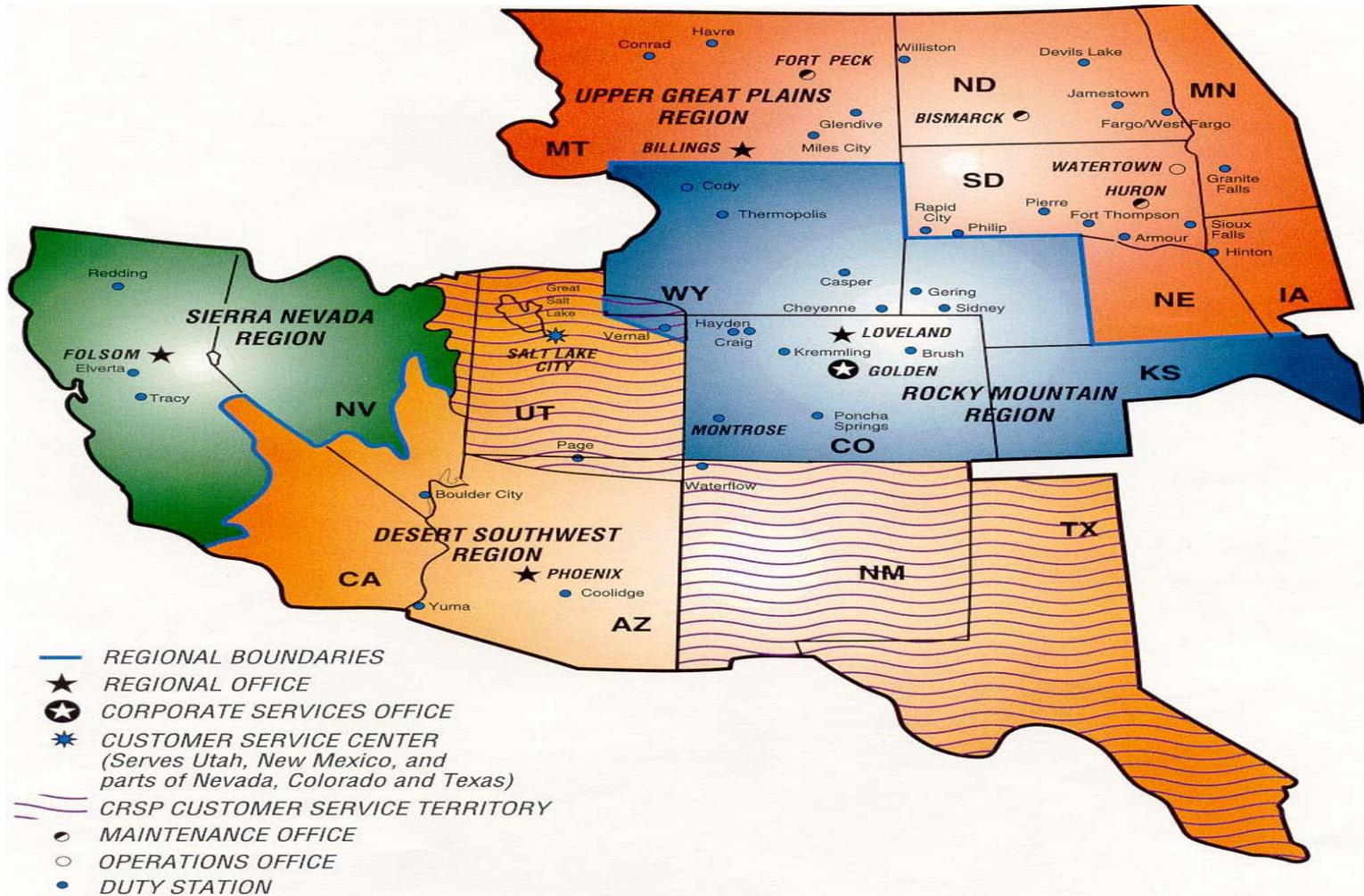


WAPA Western Area Power Administration
BPA Bonneville Power Administration
SEPA Southeastern Power Administration
SWPA Southwestern Power Administration 3/99

* Note: Both Western and Southwestern market power in Kansas.

GovEnergy 2010

Western Area Power Administration



How Western Facilitated Renewable Energy Generation Projects on Federal Sites

Agenda

- Authority
- Project Economics
- Involved Parties and Responsibilities
- Contracts Needed
- Important Purchase Power Contract Provisions
- Cost for Western's Contract Development and Administration
- Renewable Energy Credit (REC)
- Miscellaneous Issues and Lessons Learned from the Two Projects
- Fort Carson Solar Photovoltaic (PV) Project
- DOE Golden Field Office and National Renewable Energy Laboratory Site PV Project

Authority

- Western's Power Marketing Authority to contract long term for power arrangements
- Economy Act, 31 U.S.C. 1535

Project Economics

Federal Agency

- Federal Agency negotiates an advantageous long-term purchase power price. Cost considerations:
 - Cost / kWh over the term of the contract
 - Cost of REC if included in the purchase (i.e., a higher price/kWh)
 - Western's price to negotiate/purchase and administer the Purchase Power Agreement (PPA) contract if using Western
 - Any other related costs
- ❑ Compare above to the forecasted cost of energy and RECs over the term of the PPA to determine cost benefit

Project Economics

Vendor

- Project costs including materials, services, construction, installation, maintenance, metering, financing, administrative, legal, etc.
 - Rebates and tax incentives considered in the overall project cost analysis
 - Vendor develops its own cost / kWh over the term of the contract
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- Negotiates a long-term power sales price
 - Negotiates a long-term REC sales price either with the Federal agency or a third party

The sum of the last two should net a profit

Involved Parties and Responsibilities

- Federal agency
 - Federal agency selects a vendor via an Opportunity Announcement (OA), a Request for Interest (RFI) or a Request for Proposals (RFP)
 - Federal agency performs economic analyses to determine long term economics
- Federal site owner or manager
 - Authorizes Federal agency to locate the renewable project on Federal property and develops site lease with the vendor. May involve:
 - Department of Army Sites – Army Corps of Engineers
 - General Services Administration (GSA) if site is owned by GSA
- Vendor
 - Owns, operates, manages and maintains the project
 - Determines economics and obtains financing for the project
- Federal agency's local utility provider
 - Authorizes Federal agency to develop the renewable project within its territory
 - May authorize arrangements for metering, energy flowing onto grid, etc.

Involved Parties and Responsibilities

(continued)

- Western Area Power Administration
 - Uses its authority to purchase power from the renewable project for the Federal agency
- Renewable Energy Credit purchaser
 - Purchases the project's RECs to meet the state's renewable energy standards (RPS)
- Financier
 - Pays for the project
 - Provides rate of return to investors
 - May claim tax credit and/or accelerated depreciation

Multiple parties – indicate a complex project

Contracts Needed

- **Western and Federal Agency**
 - Statement of Intent (SI) to initiate the process
 - Interagency Agreement (IA) to purchase power (and REC, if applicable) through Western on a pass-through cost basis
- **Western and Vendor**
 - Contract for Western to purchase the power for the Federal agency (may or may not include REC)
- **Federal Agency and Vendor**
 - Site lease/license/easement (may include environmental assessment) and may involve other Federal agencies (Army Corps of Engineers, GSA, etc.)
- **Federal Agency and Local Utility**
 - Coordinate and receive approval for the project from the local utility serving the Federal agency (usually, can be done under their existing contract for firm electric service)
- **Vendor and REC Purchaser**, if applicable
- **Vendor and Financier**

Important Purchase Power Contract Provisions

- Term
 - Generally, needs to be long term to enable project financing. The longer term may also provide the financial benefit to the government
 - Initial term 20 years with renewal options
- Payment to vendor
 - Federal agency pays the vendor directly for the power purchase
 - Eliminates Western as the middleman, reducing administrative costs
- Failure to perform
 - Holds the vendor accountable for its obligations (example: if the generation fails during the term of the contract)
 - Holds the Federal agency accountable for its obligations (example: payment [contingent on appropriations], site lease, etc.)

Important Purchase Power Contract Provisions (continued)

- Off ramp provisions
 - If the project cannot go forward
 - Examples:
 - Vendor is unable to obtain a site lease with the Federal government
 - Vendor is unable to obtain an interconnection agreement with the local utility
 - Vendor cannot obtain financing
- Federal agency's cost for the power
 - Fixed kWh rate over the term of the contract, or escalating rate
 - Early termination penalties
 - Provisions that could transfer project ownership to the Federal agency
 - Provisions that would increase cost during the life of the contract if market conditions change

Important Purchase Power Contract Provisions (continued)

- Proprietary Information
 - May require protection of contract information
 - FOIA
- Metering and Communications
 - Required by local utility, REC purchaser, and Western
 - Provisions vary depending on requirements

Federal Agency's Cost for Western's Contract Development and Administration

- Western contracts for the Federal agency on a pass-through cost basis
- Federal agency pays Western to develop contracts (one-time cost)
- Federal agency pays Western a nominal annual fee for contract administration (or a one-time fee to cover the long-term administrative costs)
 - Extraordinary contract administration would incur additional cost (example: performance issues with the vendor)
- Some contract costs may be funded by DOE's Federal Energy Management Program (FEMP)

Renewable Energy Credit

Who can claim the RECs?

- Vendor, as the generation-owner, owns the RECs
 - Can sell them on the market
 - Can sell them to the Federal agency as part of the purchase (obviously, each kWh will cost more)
- For the Federal agency's renewable energy goals under EPA Act 2005/EO 13423
 - Cannot claim the RECs if they are not included in the purchase
 - For credit toward goal, purchase replacement RECs

Miscellaneous Issues and Lessons Learned from the Projects

- Non-Disclosure Agreement (NDA) from Vendor
 - Western and the Federal agency may be asked to sign an NDA. We have not done so
- Metering and Communications
 - Coordinating, installing and implementing have proven to be more complicated and difficult than expected
 - In most cases, Western requires real-time data. Takes coordination among the vendor, Western and the local utility

Fort Carson Solar Photovoltaic (PV) Project

- PPA between Western and Carson Solar I executed in 2007
- In lieu of Interagency Agreement, used the support energy provision of Ft. Carson's firm electric service (FES) contract with Western
- Supply and Price:
 - 2 MW ground-mounted solar PV array
 - Monthly delivery schedule by kWh (exhibit to the contracts)
 - Price is equivalent to what Ft Carson pays today for power; fixed rate through the term of the contract
 - Ft Carson receives energy only; Carson Solar I sold REC to Xcel Energy
- Term: Through Ft. Carson's FES contract expiration date September 30, 2024. Can extend if FES contract is extended



DOE Golden Field Office (GFO) and National Renewable Energy Laboratory Site PV Project

- PPA between Western and the SunEdison
- Intraagency agreement between Western and DOE GFO to sell the power purchase to DOE GFO
- Supply and Price:
 - 750-900 kW ground-mounted solar PV array
 - Monthly delivery schedule by kWh (exhibit to the contracts)
 - Price is competitive to what DOE GFO paid for power at the time the contract was signed
 - DOE GFO receives energy only; SunEdison sold REC to another entity
- Term: Twenty years with the option to extend
- Three other solar PPA projects have been accomplished since the initial one in 2007

Mesa Top Photovoltaic Array



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