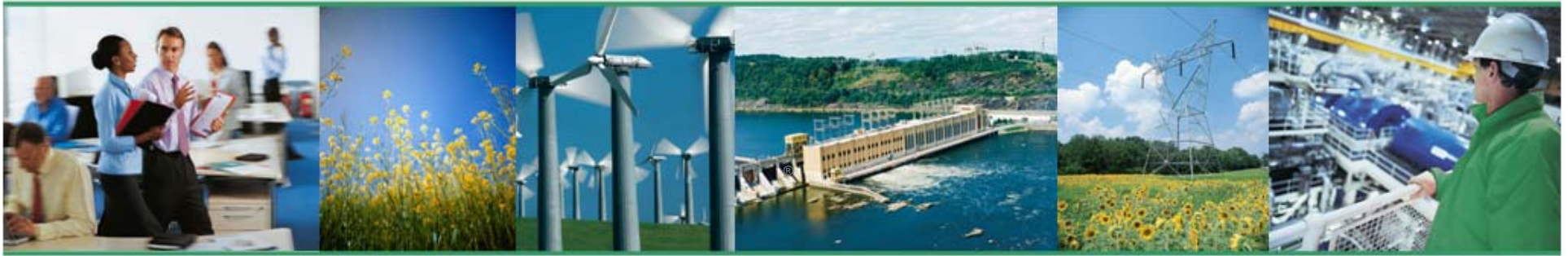




Constellation Energy



**Federal Bureau of Prisons
Federal Correctional Complex
Petersburg, VA**

**Executive Briefing
February 3, 2009**

Prepared by: Jack Menninger

The way energy **works**.™

Case Study: FCC Petersburg

- Located in Hopewell, Virginia
- 36 Buildings – 1,015,300 square feet
- Scope – Medium Security Compound, Low Security Compound, Camp Compound and various other buildings “outside the fence” including the Central Utility Plant



Project Overview

- Customer – Federal Bureau of Prisons at Petersburg, VA (Federal Correctional Complex Petersburg)
- Contract Vehicle – DOE Mid-Atlantic Super ESPC
- 12 Energy Conservation Measures
- Many renewable & innovative ECMs including:
 - Biomass Boiler
 - 18kW PV Solar System
 - Geothermal Heat Pumps
 - Electric Patrol Vehicles
 - Ozone Laundry System
 - Advanced Metering
- Operational Support – Constellation will employ a technician to support biomass system, PV system, GSHP system, and automated controls

Major Benefits to Customer

- Energy Goals – compliance with Executive Orders and legislation
 - 15% reduction in facility’s energy consumption;
 - 25% reduction in water consumption;
 - use of renewable energy systems; and
 - use of alternative financing
- Improved Conditions – better lighting, plumbing, HVAC, etc., will improve inmate comfort
- Capital Improvements – total infrastructure upgrades over \$10.6 million with first-year cost savings of \$ 1.4 million. Savings guaranteed and measured annually
- Operational Support – Constellation will employ a technician to support biomass system, PV system, GSHP system, and automated controls

Biomass Boiler

ECM Overview

- 350 HP biomass steam boiler
- 11,000 lbs./hr. capability
- Connects to central energy plant
- Operated by FBOP with technical support from Constellation



Fuel Procurement

- Constellation responsible for locating, ordering and paying for fuel
- 6,800 tons per year with annual target cost of \$153K

Biomass Boiler – Goal Impact

FEMP Guidance

- Entitled to be scored against FBOP's goals on a kWh equivalent basis
- 14,300,000 kWh equivalent of renewable of renewable energy
- 70% of the site's electric energy usage



Solar PV

ECM Overview

- 18 kW
- Install 100 crystalline panels on the roof of the new biomass boiler plant
- Serves the new building

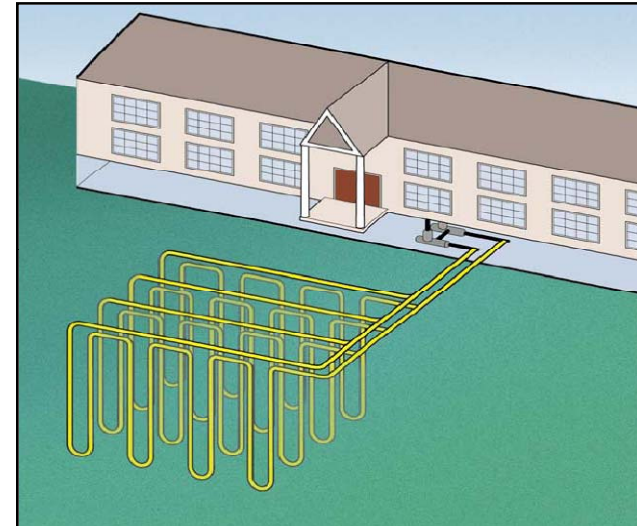
Crystal/Polycrystalline Cells



Ground Source Heat Pump

ECM Overview

- Install 15 tons (3 units) of GSHP for Gym/Theatre at the Low Security Complex
- Use renewable energy for heating and cooling instead of fossil fuel heating and cooling systems



Operations, Maintenance, Repair & Replacement

Responsibility shared between FBOP and Constellation

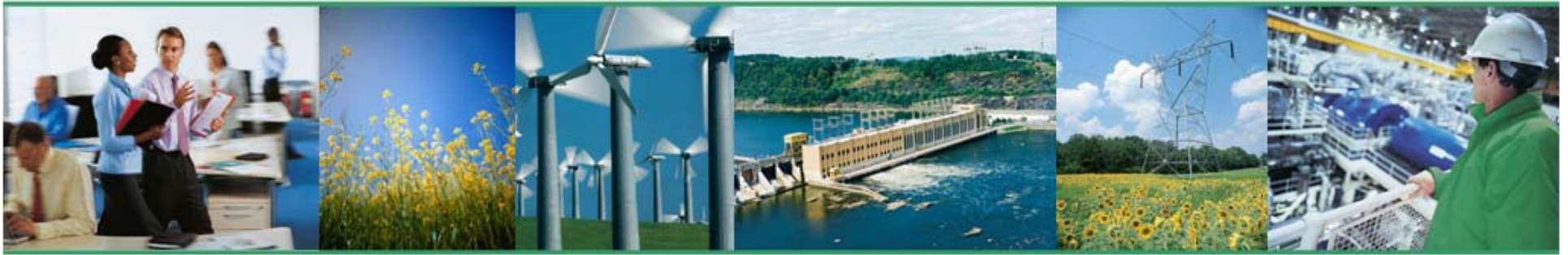
- FBOP: daily operations, maintains/repairs ECMs that are similar to existing equipment
- Constellation: maintains/repairs ECMs that are dissimilar to existing equipment
- Constellation will employ a full-time, on-site service technician for life of contract to support government in operation of the biomass, PV, GHP and controls systems

Critical Success Factors

- Selecting the “Right” Contracting Vehicle
 - Energy Savings Performance Contract
 - Utility Energy Savings Contract
 - Purchased Power Agreement
 - Enhanced Use Lease
 - Ground Lease
 - Resource Lease (i.e. oil and gas lease)
 - Shared Revenue Arrangement
- Keeping a “Practical, Strategic” Perspective
 - Don’t “lock in” too early in terms of contract type / term
 - Don’t try to force fit a technology-driven solution (“I want solar!”)
 - Focus on opportunities for multiple, complementary initiatives
 - *Customize a “facility renewable solution” based on your strategic and facility strengths*



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Q&A

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GSA Sacramento



- 95,000 square feet roof space utilized
- 10 year contract
- Build, Own, Operate 468kW roof mounted PV system
- REC \$12,000/year/estimated
- Rebates \$1,401,732

