

DOE's Biomass Super ESPC Program

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TOPICS

- Overview of Super ESPC Program
- Overview of BAMF Contract
- BAMF Resources & Technologies
- Example LFG Project
- Project Stakeholders

Federal Sector

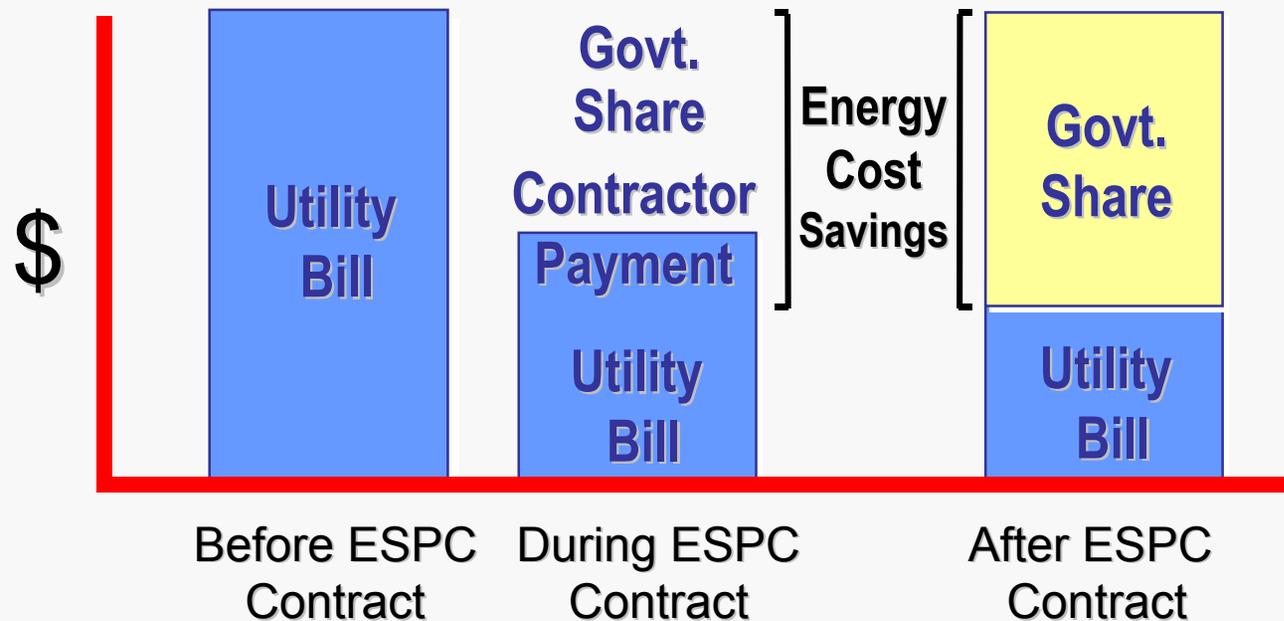
- Nations largest energy consumer
- Number of buildings – 500,000
- Annual Dollars \$10 billion in energy consumption



Federal Energy Management Program (FEMP) Objectives

- ◆ Reduce building energy use 35% by 2010
- ◆ Reduce greenhouse gas emissions 30% below 1990 levels by 2010
- ◆ Demonstrate energy technology (showcases)
- ◆ Use innovative financing & contract mechanisms

Energy Savings Performance Contract (ESPC)



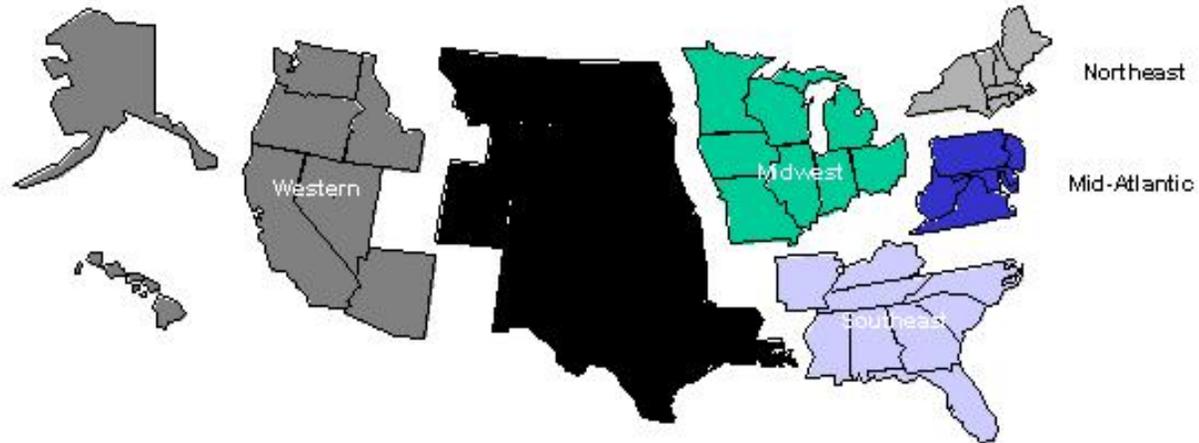
Key Elements of Super ESPC's

- ◆ No capital appropriations required
- ◆ Energy savings guarantee by ESCO insures system performance
- ◆ Streamlined contract process
- ◆ Approximately \$1 billion in capital improvements



Types of DOE Super ESPC's

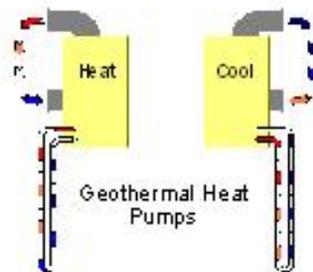
Super ESPC Regions



Technology-Specific Super ESPC



Solar and Photovoltaics



Geothermal Heat Pumps



Biomass

BAMF Tech Specific Super ESPC

Assist Federal Facilities in acquiring energy management services to reduce energy consumption and/or energy costs (including related operations and maintenance costs) by using a biomass or alternate methane fuel and to implement other energy conservation measures (ECMs).

BAMF Tech Specific Super ESPC

Basic Features

- ❖ Involve a BAMF Resource
- ❖ Federal Facility
- ❖ One of selected ESCO's
- ❖ Anywhere worldwide
- ❖ Contract & technical support by NETL

BAMF Legislative Drivers

- EO-13123, "Greening the Government Through Efficient Energy Management," requires Federal agencies to reduce energy use in Federal buildings by 35% from 1985 levels by 2010.
- EO-13134, "Developing and Promoting Biobased Products and Bioenergy," seeks to stimulate the creation and early adoption of technologies needed to make bioenergy cost-competitive in large markets.

BAMF Resources

Biomass fuels include: dedicated energy crops and trees, agricultural food and feed crop residues, aquatic plants, wood and wood residues, animal wastes, and other waste materials.

Alternate methane fuels include landfill methane, wastewater treatment digester gas and coalbed methane.

BAMF Contractors

ESCO's Awarded IDIQ Contracts

- Constellation Energy Source
- DTE Biomass Energy, Inc.
- Energy Systems Group
- Exelon Services Federal Group
- Trigen Development Corporation

BAMF Resource Assessments

Software programs that match information on large federal facilities with specific BAMF resources:

- Landfills (within 15 miles)
- Wastewater treatment plants (within 15 miles)
- Wood waste from 10 or more sources (within 50 miles)

BAMF Technologies

Landfill Gas

Industry Profile

- ❖ Current projects – 330 w/ 520 MW
- ❖ Potential Sites - 500
- ❖ BAMF Matches – 117
- ❖ Customary Uses – heat, power, & vehicle fuel



BAMF Technologies

Biomass

Industry Profile

- ❖ Installed - 7,800 MW
- ❖ Locations – 350
- ❖ US Renewable - 48%
- ❖ BAMF Matches - 751



BAMF Technologies

Industry Profile

- ❖ Potential Sites – 1,741 w/ over 3M Gal/day flow
- ❖ BAMF Matches – 87
- ❖ Customary Uses – heat and power

Wastewater Treatment Digester Gas



BAMF Technologies

Industry Profile

- ❖ Coalbed – 17 projects selling 43 bcf/yr
- ❖ Coal Mines captured 14 bcf in 1990
36 bcf in 2000
- ❖ Uses – heat, power, and sale to gas grid

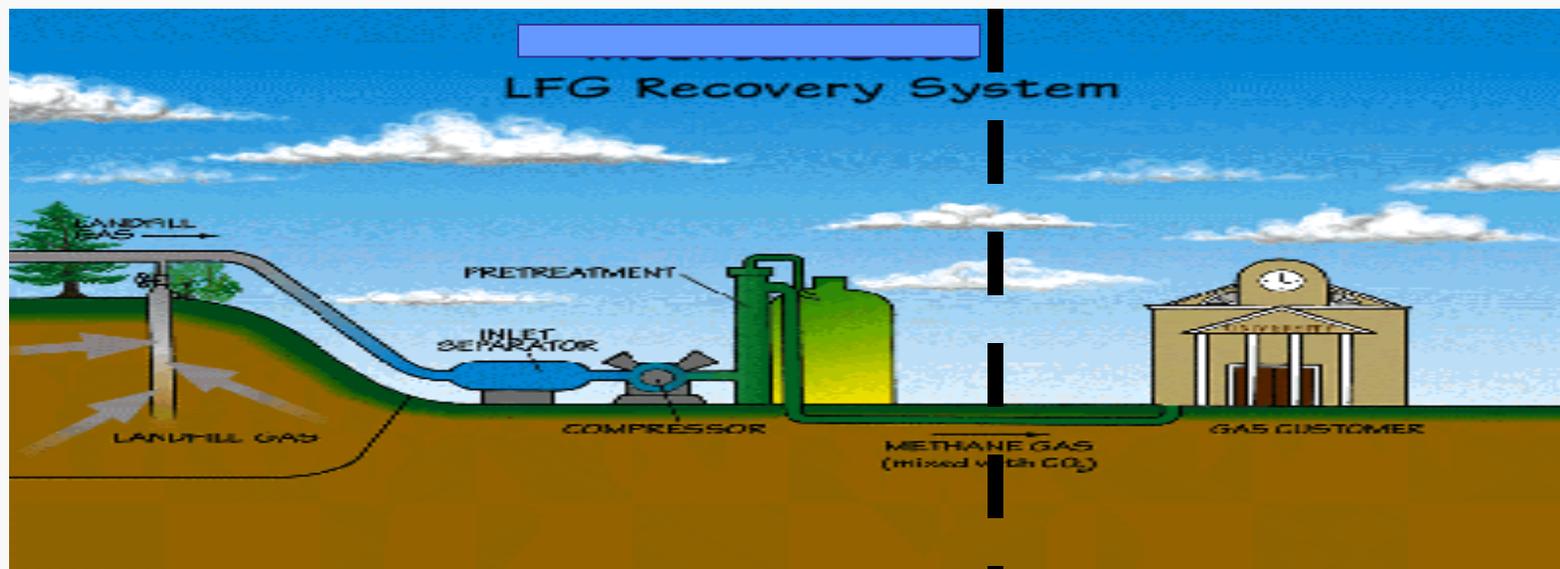
Coalbed Methane Gas



LFG Project Example

Non-Federal Property

Federal Property



LFG Project Example

Major Contracts

1. BAMF Delivery Order (ESCO & Agency)
 - Covers new equipment on federal property
 - On-going energy commodity (elect., heat, gas, etc.)
2. EPC Contract (ESCO & Subcontractors)
3. Fuel Supply Agreement (ESCO & Landfill Owner)
4. Pipeline Right of Way (ESCO & Property Owners)

LFG Project Example

Financing

ESCO Alternative Financing

Secures EPC

Super ESPC Financing

Long term commodity



Non-Federal Property

Federal Property

LFG Project Example

Major Benefits of Arrangement

1. Streamlined contracting & financing
 - Equipment on federal property
 - On-going energy commodity (elect., heat, gas, etc.)
2. Long term sales contract with federal agency
3. Expands customer base to include large facilities

(Project economics better than producing electricity on site and selling to the grid)

Stakeholders

- Federal Agencies

Worldwide

- ESCO's



Stakeholders

Resource Supply

- ❖ Landfill Owners
- ❖ Waste Water Treatment Plants
- ❖ Woodwaste – lumber mills
furniture makers
- ❖ Agriculture – crop waste
animal waste

Stakeholders

Work with one of five ESCO's

Engineering & Construction

Subcontract:

Feasibility study

Construction

Design

Engineering

O&M



Stakeholders

Manufacturers & Vendors

- Equipment
- O&M



Summary

- Program designed to expand industry to federal market
- Projects will involve broad group of stakeholders
- Contact us for more details

