



# Landfill Gas Co-Generation Project



Assistant Commandant for  
Engineering and Logistics (CG-4)



**GovEnergy**  
[www.govenergy.gov](http://www.govenergy.gov)



# For More Information

- Would you like to know more about this session?
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# Outline:

- Overview of BAMF Project
- Overview of Agreement with City
- Project Benefits
- Project Contingencies
- Project Team Members
- Federal Energy Goals and Benefits

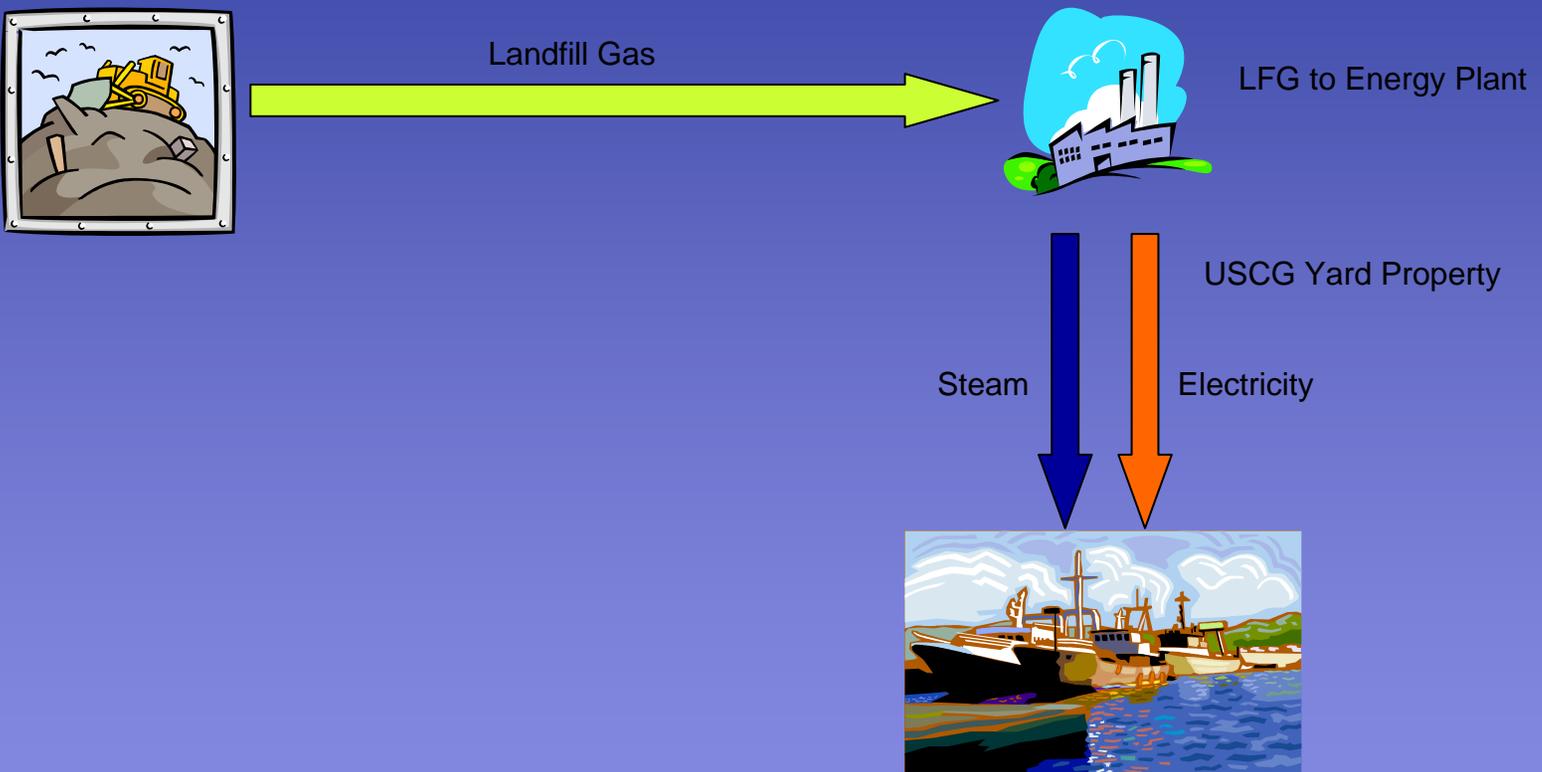


# Project Overview:

- The City of Baltimore's Quarantine Road Landfill is located within 1 mile from the CG Yard. The LFG will provide enough energy via a cogeneration plant to power the entire Yard for over 17 years.
- The generation of renewable energy at the CG Yard would satisfy the federal goal for the entire Dept of Homeland Security.



# BAMF Overview:





# Aerial View of the Site





# BAMF Overview

- LFG Collected & Transported to USCG
  - Recovery & Processing System at LF
  - Pipeline from LF to USCG
- Four generators located in Bldg. 48
  - 4.6 MW output
  - 13,000 lb/hr of 85 psig steam
  - Interconnected w/ utility
  - Designed for 98% up-time

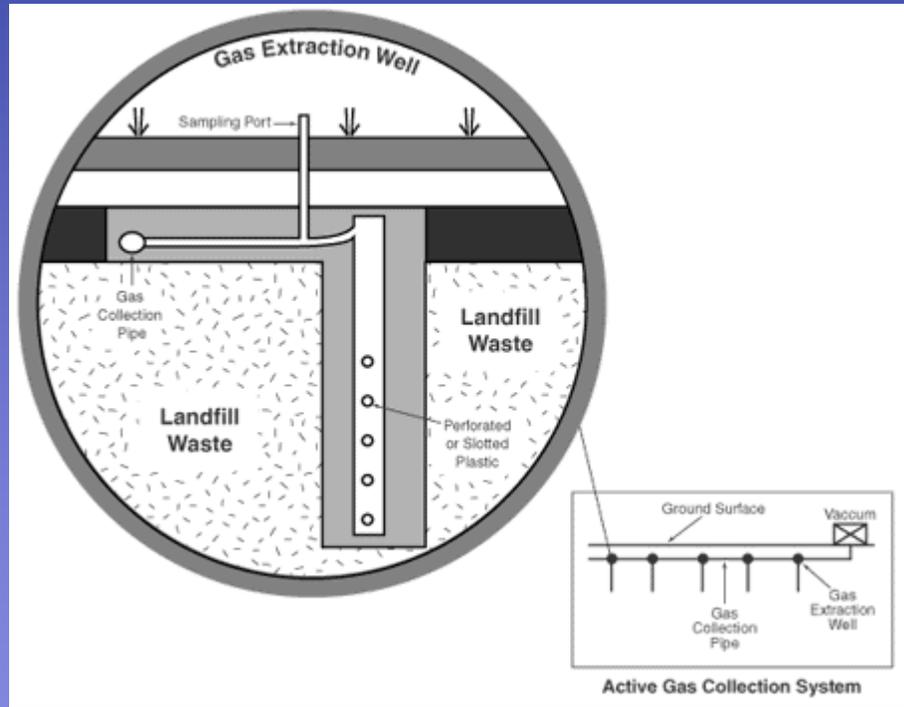


# Collection Well





# Gas Extraction Well





# Pumping Station





# BAMF Contract Structure

- USCG receives LFG Rights from City of Baltimore
- ESPC Contractor finances and builds the energy plant and delivery systems at no cost to the Coast Guard.
- USCG receives electricity & steam from new energy plant.
- USCG uses the energy savings to pay for plant and collection system over the contract term (estimated at 15 years).
- At the end of the contract, USCG owns the processing system and power plant.



# ESPC Steps

- ESCO submitted an Initial Proposal to the CG Yard at no cost or obligation.
- Issue limited NOI to proceed.
- Complete test well samples to validate viability of the landfill gas for the project.



# ESPC Steps

- Define and limit Detailed Engineering Study which will include the design of the co-gen plant, collection and delivery system.
- Negotiate final Delivery Order.



# Agreement with the City of Baltimore

- Although the City of Baltimore has received several unsolicited proposals from outside industry, they prefer to deal directly with the Coast Guard in support of Homeland Security via an intergovernmental agreement.
- A MOU has been signed.



# City Agreement, cont'd.

- The annual savings to the CG in energy costs will exceed \$2M annually and enable the Coast Guard to pay the City for the LFG, while also paying for the infrastructure needed to deliver and process the gas into electricity and steam.



# Project Benefits

- Reduced vulnerability to off-site power interruptions with improved energy security, constant reliable fuel source (LFG) and on-site power & steam production
- Long term price stability
- Annual avoided utility cost of over \$2M
- City revenue increase annually through the term
- Reduced boiler plant emissions and avoidance of methane gas into the environment



# Project Contingencies

- The CG Yard will be automatically connected to the local utility in case of disruption to the LFG plant and for maintenance or needed shut-downs to the LFG plant.
- A buy-out clause is included in the Agreement with the City and the BAMF contract in case the CG Yard is closed before the contract term.
- The BAMF contract is supported by DOE and will be closely reviewed to ensure the government receives a fair price for the project.



# BAMF Project Team

- Department of Homeland Security
- City of Baltimore
- Coast Guard Yard
- Coast Guard Energy Manager
- Department of Energy
- Ameresco Federal Solutions



# Federal Energy Goals

- The Energy Bill requires that 3% of electricity consumption by the Federal Government be renewable from FY2007 – FY2009; 5% from FY2010 – FY2012 and 7.5% in FY2013 and thereafter.



# Acronyms defined:

- BAMF: Biomass/Alternative Methane Fuel
- ESPC: Energy Savings Performance Contract (financed w/ energy savings)
- LFG: Landfill Gas
- BAMF Contract: An ESPC contract using Biomass/Alternative Methane Fuel



# Coast Guard Press

Navy Times - Coast Guard cuts deal for Baltimore's landfill gas - Microsoft Internet Explorer provided by United States Coast G

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Address http://www.navytimes.com/story.php?f=1-292925-2362372.php

News

Congress | Special Reports | Frontline Photos | November 16, 2008

**Coast Guard cuts deal for Baltimore's landfill gas**

By [Patricia Kime](#)  
*Staff writer*

Officials at the Curtis Bay Shipyard, Md., signed an agreement Nov. 1 with Baltimore to purchase the city's waste methane gas and use it to power and heat the yard.

The gas, generated naturally at the city's landfill as part of the solid-waste decay process, will be processed through a "cogeneration" plant at the yard to produce electricity and steam.

The contract is likely to save the yard \$2 million a year in electricity and natural gas costs, a Coast Guard official said.

"The electricity will power all our office buildings plus the shipyard's machine shops," said Rick Eschenbach, Curtis Bay's chief of maintenance and operations.

"In the winter, the methane gas will give us a payload of 35,000 pounds per hour of steam, which we'll use to heat the facility."

Under the \$11 million deal, the Coast Guard will build the infrastructure needed for the plant at the Coast Guard yard, including the cogeneration facility and a pipeline to the landfill, roughly a mile away.

The city will construct the \$2 million gas collection system at the landfill, which will be reimbursed by the service.

Once the plant is operational, the Coast Guard will pay the city \$200,000 a year for the methane.

Construction is expected to begin next summer and be completed by spring 2008, Eschenbach said.

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**Richard Eschenbach**  
August 7



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