Bostonia Partners



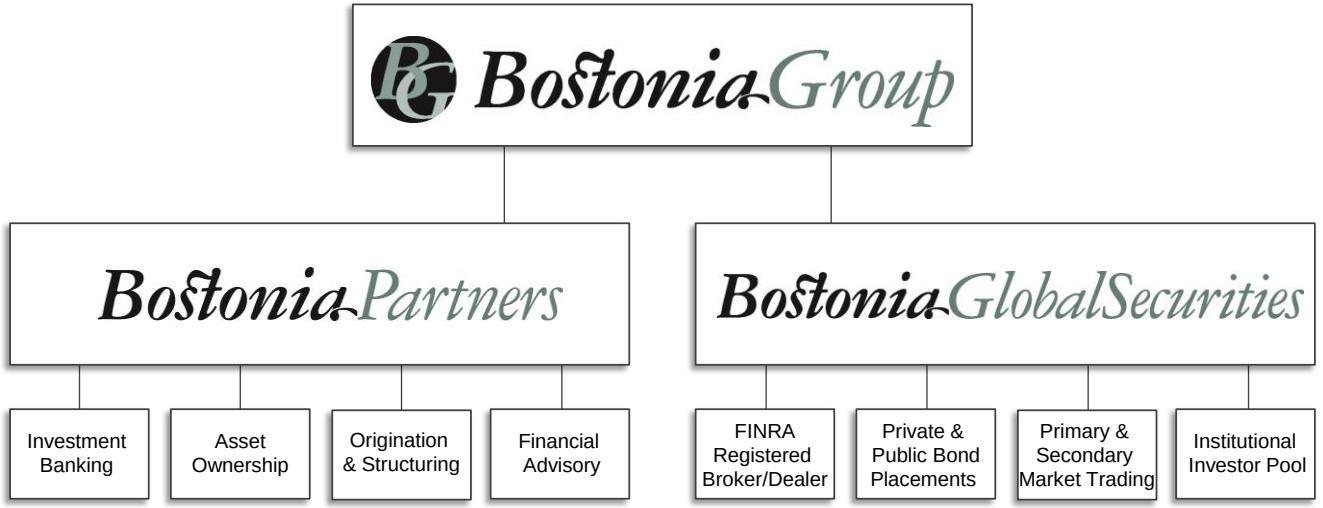
Public Private Partnerships (P3) and Financing Models

Energy & Microgrids Workshop
June 3, 2015

Peter Y. Flynn, Executive Vice President
Bostonia Partners

Bostonia Overview

- **Bostonia Group** (Bostonia) has completed over $10 billion of transactions in energy, real estate, and contract finance since 1998 including $7.5 billion in Federal infrastructure projects.
- **Bostonia Partners**, the investment banking arm of Bostonia Group, specializes in financing federal, corporate, and institutional energy and real estate projects.
- **Bostonia Global Securities**, the broker/dealer arm of Bostonia Group, provides direct access to institutional investors through daily activity in the capital markets.



Agenda

- Benefits of Public Private Partnerships for energy projects for Federal agencies
- Federal government financing and contracting options for energy
- Case Studies
- Conclusions

Benefits of P3

- Investment Costs are spread over the lifetime of the asset
- For energy projects, tax incentives greatly reduce costs of capital
- Strong track record of on-time/on-budget delivery
- Certain risks may be transferred to the private sector (O&M, construction, ownership)
- Federal government agency is able to focus on the mission
- Lower cost of infrastructure by reduced construction costs and life-cycle costs
- Utilized to encourage strong customer service approach by private sector

Federal Contract Vehicles

Utility Energy Services Contracts (UESCs) – MYCA

- Contract between local utility and the federal agency for purpose of implementing cost-saving energy efficiency and distributed generation improvements
- The utility finances the upfront cost of purchasing and installing new equipment, and the federal agency repays the utility over the life of the contract from the cost savings from the project
- Net cost to the federal agency is minimal and the agency saves time and resources by using the one-stop shopping provided by the utility
- 10 years for DoD – 10 U.S.C. § 2913; greater than 10 years for civilian agencies under 40 U.S.C. § 501(b)(1)(B)
- Types – GSA Area Wide UESC, Basic Ordering Agreement and Site Specific

Energy Savings and Performance Contracts (ESPCs) – MYCA

- Similar to UESC, except the ESCO delivers the energy services to the Federal agency and savings are guaranteed by the ESCO.
- M&V assures the agency that savings have been met before payment is made to ESCO
- Up to 25 years – 42 U.S.C. § 8256, § 8287/ 10 U.S.C. § 2913
- Types – DOE, ACOE, GSA Schedule 84, ENABLE, Site Specific and IAA

Federal Contract Vehicles

Power Purchase Agreements (PPAs) – MYCA

- Contract between supplier of power and the federal agency
- 10 years – FAR Part 41
- Up to 30 years – 10 U.S.C. § 2922a (DoD only)

Enhanced Use Lease (EUL) – MYCA

- A vehicle for using underutilized federal assets (e.g. land) for purposes of enabling a new project to develop and provide additional revenue stream to the federal agency
- Law requires the lessee to pay, in cash or in-kind, consideration in an amount that is not less than the fair market value of the lease interest.
- Categories of in-kind consideration that may be accepted in lieu of cash include utility services, construction of new facilities, restoration (including environmental), acquisition, alteration, and other services
- Up to 75 years with approval – U.S.C. § 2667

Federal Contract Vehicles

Energy Service Agreements (ESAs)

- Contract between supplier of services and the federal agency
- Two types – if embedded inside another MYCA vehicle, e.g., ESPC, then MYCA. If stand alone award, e.g., GSA Schedule 84, SIN 246-53, then subject to annual appropriations and non-renewal risk (non-MYCA)
- Tenor – up to 25 years if MYCA and if non-MYCA, usually 5 years
- Non-MYCA more expensive and requires due diligence which includes essential use review

Utility Privatization (UP) – MYCA

- A vehicle for allowing DOD to sell their inside the fence utility infrastructure to the private sector and outsource utility services, including equipment retrofits and operations and maintenance services for up to 50 years.
- Additional utility services not identified in the original contract can be added on to by modification and financed for a tenor up to the remaining term of the UP contract, e.g., new or upgraded transmission lines

Financing and Contracting Options - Microgrids

	PPA	UESC / ESPC	EUL
Utilization	• Secure fixed, long term pricing • Inside-the-fence power generation	• Demand reduction • May include distriubted generation storage • 3rd party asset ownership through ESAs	• Authority can be effective when installation has underutilized land
Term	• 15-20+ years, (up to 30 years - 10 USC 2922a)	• Up to 25 year terms • UESC terms limited in DoD	• Up to 75 year lease period
Key Considerations	• PPA pricing typically required to be higher than 'brown' power • Taxable entity required to own the project in order to utilize tax incentives • Easement, site license, lease or EUL	• Microgrid components may be 'subsidized' by energy efficiency • UESC, utility may provide projects on a streamlined basis. • With ESA - opportunity to buy the project at end of term at FMV, or extend agreement.	• Long development timelines • In-kind consideration a requirement of EULs and benefit the installation • Need a PPA in addition to Lease but could be with a third party

GSA / FDA White Oak Research Facility, MD – Case Study

Project Overview

- $207 million ESPC, Public-Private Partnership to construct heat and power central utility plant and islanded microgrid for the 3.9 million square foot, $1.5 billion FDA office and lab compound
- The project features a 26MW combined heat and power plant (expansion capability up to 55MW) that reliably produces electricity for the critical lab needs of FDA and uses waste heat to produce building heating and cooling
- In addition, the project includes upgrades to the heating, ventilation, and air conditioning systems, improvements to lighting—including the latest LED technology—and building envelope modifications

Financing Overview

- The majority of the project was financed utilizing a $207+ million securitization of the cash flow structure from energy cost savings derived from energy conservation measures implemented at the campus
- The utilization of the PPP and ESPC estimated to create more than $25 million in savings in the first year of operation through energy savings and avoided operations and maintenance costs, and approximately $200 million in government savings over 20 years (per Public Service Comparator analysis)
- The project co-exists with utility through a third-party agreement with Pepco to operate in parallel and participate in demand response events

White Sands Missile Range, NM – Case Study

Project Overview

- $18 million ESPC for US Army in White Sands, New Mexico – largest military installation in the US
- ESPC includes 4.5 MW Solar PV array (ground mount and carport) and an Energy Management Control System
- Solar array will produce 10.4 million kWh and contribute approximately 10% of total energy consumption at the installation
- Project will create total cost savings of approximately $44 million over the 25-year contract term based on escalation of electricity rates
- Siemens Government Technologies selected to construct and operate the system

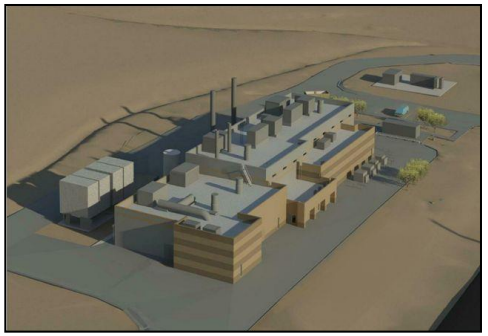
Financing Overview

- Unlike a traditional ESPC, private ownership of the energy assets allowed the project to monetize federal tax credits
- Long-term Energy Services Agreement (ESA) allows Government to acquire solar power without upfront capital or a buy down of project capital cost
- Title to non-solar ECMs will vest with the Government at acceptance
- Government will pay same utility rate it currently pays and will own the RECs

Twentynine Palms – Case Study

Project Overview

- Marine Corp's largest training facility - last stop for critical training for troops headed to the Middle East
- Project consists of 2 cogeneration facilities, solar, battery storage and controls
- With addition of new cogeneration facility, 29 Palms can generate 90% of it's own power
- Allows the base to operate efficiently, save taxpayers dollars and operate off-grid in an emergency



Funding Overview

- The project has been funded utilizing appropriated dollars as well as third party financing
- 7.2 MW Cogeneration facility and 1 MW solar facility through ESPC
- 1 MW solar facility through a PPA (2922A)
- 9.2MW Cogeneration facility through MILCON
- 1 MW battery storage and microgrid control system through ESTCP
- 7.3 MW solar facilities through MILCON, ECIP, etc.

Hill Air Force Base, UT – Case Study

Project Overview

•$5 million ESPC financing at Hill AFB - 1st DOE Biomass Super Project

•Main parties include DOE, Ameresco, Bostonia, Hill Air Force base, Davis County Landfill, Utah Power utility

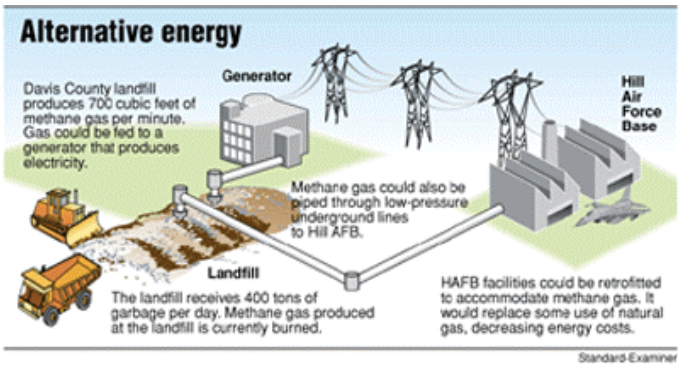
•Large electrical demand and steam load at Hill AFB; large waste disposal in place and daily disposal rate at Davis County Landfill

•Biomass and Alternative Methane Project included : 1.2 MW IC engines, 20 year contract, 2 mile pipeline, conventional ECM's in other buildings

•Reduction of 5,000 tons of greenhouse gases, 5.5 tons of Nitrogen Oxide, 4.8 tons of Carbon Monoxide, 19 tons of Sulfur Dioxide

Financing Overview

- Structured as securitization for ECMs, including biomass and alternative methane fuel energy savings project that generates electricity for the Government to sell to utility for credit
- Total cost savings of $16+ million over the 20-year contract
- Overall simple payback under 10 years
- No Capital investment required by Hill AFB



Bostonia Partners

Funding Challenges for Microgrids/Energy Security

- Budget constraints
- Current third party financing models constrained by grid pricing
- Currently, no mechanism to value energy security/surety
    - Many benefits: environmental, reliability, avoided losses
- Difficult to monetize ancillary services (demand response, frequency regulation)
- Lack of integrated policies at state and local level (exceptions CT, NY, MA, MD)
- Technology risk
- Solution:
    - Current – use an all-of-the-above approach to funding
    - Short term – UESC/ESPC
    - Long-term - value and procure energy security/surety benefits



Contact Information

Peter Y. Flynn
Executive Vice President
617-226-8103 Direct
617-437-0150 Main
pflynn@bostonia.com

BostoniaGroup

One Exeter Plaza,
699 Boylston St., 7th Floor
Boston, MA 02116

www.bostonia.com