Project Financing – Session 7

Fort Campbell Kentucky
5MW AC Solar Array
Energy Exchange Conference

Sharon Gresham
USACE PPA Program Manager
as of 10 August 2016
Agenda

- Third Party Financing Program Comparisons
- Third Party Financing Approval Process
- Project Overview
- Fort Campbell Location & Background
- PPA Project Risk Factors
- Mission/Security Compatibility
- Economics
- Real Estate/Project Site
- Regulatory and Legal
- Integration
- Environmental
- Acquisition
- Project Milestones
- Summary
# Energy Division Third Party Financing Program Comparisons

<table>
<thead>
<tr>
<th>Program Highlights</th>
<th>Utility Energy Service Contracts (UESC)</th>
<th>Energy Savings Performance Contract (ESPC)</th>
<th>Power Purchase Agreements (PPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Legislative Authority</strong></td>
<td>All Federal Agencies</td>
<td>DoD Only</td>
<td>DoD Only</td>
</tr>
<tr>
<td><strong>Contract Period of Performance</strong></td>
<td>25 maximum</td>
<td>25 maximum</td>
<td>30 maximum</td>
</tr>
<tr>
<td><strong>Ownership</strong></td>
<td>Government</td>
<td>Government</td>
<td>Government</td>
</tr>
<tr>
<td><strong>Financing</strong></td>
<td>Utility provider can finance all, some or none of the project.</td>
<td>Contractor must finance project</td>
<td>Contractor finances the project and novates to SPE</td>
</tr>
<tr>
<td><strong>Outgrants</strong></td>
<td>Not required</td>
<td>Not required</td>
<td>Lease and/or easements required</td>
</tr>
<tr>
<td><strong>Acquisition Strategy</strong></td>
<td>Full &amp; Open Competition with local utility companies</td>
<td>MATOC IDIQ</td>
<td>Full &amp; Open/MATOC IDIQ</td>
</tr>
<tr>
<td><strong>Estimated timeline to award</strong></td>
<td>14-18 months</td>
<td>14-18 months</td>
<td>18-36 months (dependent on project complexity)</td>
</tr>
<tr>
<td><strong>Payment</strong></td>
<td>Paid from utility account</td>
<td>Paid out of utility account</td>
<td>Paid from the utility account per the negotiated utility &amp; escalation rate</td>
</tr>
<tr>
<td><strong>Operation &amp; Maintenance</strong></td>
<td>Not included in contract but can be negotiated into the contract</td>
<td>ESCO must include in proposal but Garrison must opt out in writing</td>
<td>Included in all contracts</td>
</tr>
<tr>
<td><strong>Measurement &amp; Verification</strong> (energy savings)</td>
<td>Can be negotiated into the contract (QA check)</td>
<td>Included</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Performance Assurance</strong> (equipment)</td>
<td>Included</td>
<td>N/A</td>
<td>Perform a true-up on the utility bills</td>
</tr>
</tbody>
</table>
## Third Party Financing

### Project Approval Process Flow

<table>
<thead>
<tr>
<th>Phase 1:</th>
<th>Phase 2:</th>
<th>Phase 3:</th>
<th>Phase 4:</th>
<th>Phase 5:</th>
<th>Closure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility Provider selection</td>
<td>Project Validation</td>
<td>Project Assessment</td>
<td>Investment Grade Audit</td>
<td>Implementation</td>
<td>Performance Period</td>
</tr>
<tr>
<td>PPA</td>
<td>14 – 18 months (typical)</td>
<td>12-24 Months</td>
<td>25 years (typical)</td>
<td>Up to 1 yr (typ.)</td>
<td></td>
</tr>
<tr>
<td>OEL/Installation Funding (QUTM)</td>
<td></td>
<td></td>
<td>6-12 Months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UESC</td>
<td>14 – 18 months (typical)</td>
<td>12-24 Months</td>
<td>23-24 years (typical)</td>
<td>Up to 30 dy (typ.)</td>
<td></td>
</tr>
<tr>
<td>ESPC</td>
<td>14 – 18 months (typical)</td>
<td>12-24 Months</td>
<td>23-24 years (typical)</td>
<td>Up to 30 dy (typ.)</td>
<td></td>
</tr>
</tbody>
</table>
Project Overview

**WHO**

Army, Pennyrile Rural Electric Cooperative Corp. (UESC) and BithEnergy (PPA)

**WHAT**

- Army purchasing 1.9MW renewable power through a 10 year Utility Energy Services Contract (UESC)
- Army will purchase 3.1MW renewable power through a 27 year Renewable Energy Service Agreement (RESA)
- RESA includes a lease for 25 acres issued through 10 USC 2667
- BithEnergy will finance and own the solar PV assets

**WHEN**

- Awarded UESC contract on 30 Dec 2015 to Pennyrile Rural Electric Cooperative Corp for 1.9MW Solar PV; COD in Sept 2015
- Awarded RESA contract on 6 Jul 2016 to BithEnergy for 3.1MW Solar PV; projected COD in Dec 2016

**WHERE**

5MW Solar PV located on Fort Campbell, Kentucky

**WHY**

Value Proposition:
- Promoting energy security by enhancing surety, supply and sustainability
- This project contributes:
  - 0.085% NDAA Goal
  - 0.17% EPAct Goal
  - 0.50% toward 1 GW Goal

**HOW MUCH**

First year PPA price of electricity not to exceed $.0811/kWh (FY2016$, delivered)
Fort Campbell Location and Background

Project Location: Fort Campbell, KY
Fort Campbell Mission: FORSCOM

Regulatory Environment:
- Regulated
- Third-party power purchase agreements (PPAs) are permitted on the installation

Energy:
- Peak Demand – 66 MW
- Average Demand – 31.6 MW
- Annual Consumption – 236,626 MWh
- FY12 average blended electricity rate: $0.0837/kWh
- FY12 total energy bill was $26.2M

Utilities: Tennessee Valley Authority (TVA) is the primary supplier of electricity to Fort Campbell. The commodity cost is a blending of demand plus energy, resulting in almost a 50/50 split between the two.

Energy Security:
- 2 completely redundant feeds ensure Fort Campbell is supplied with up to 66 MW at any time
- This project will relieve stress on the system, keeping FTC from exceeding its demand limits

TVA has reviewed the project and determined that no "interconnect letter" is required.
PPA Project Risk Factors

- Mission/Security Compatibility
- Economics
- Real Estate
- Regulatory & Legal
- Off-Take
- Integration
- Environmental
- Acquisition
Mission/Security Compatibility

- Project supported by the installation
- Project site was coordinated with G2/G3 for clearance
- Minimum requirements to be incorporated:
  - Cyber Security – Industrial Controls and management in accordance with NERC CIP Requirements and National NIST SP 800-82
  - Country of Origin Concerns - Incorporate DFAR 252-225-7017, -7018; 252.209-7001, - 7002; and all applicable flow-down clauses from FAR 52.212-5(e) in Addendum A
Economics

- The Installation in conjunction with Pennyrile Rural Electric Cooperative Corporation applied and was awarded a $3.1M Energy Efficiency/Renewable Energy grant from the State of Kentucky to build a 5MW Solar Array utilizing a UESC plus this PPA project.

- Procurement will be through:
  - a 10-year Utility Energy Service Contract (UESC) with Pennyrile. Pennyrile utilized the $3.1M grant to pay for the entire Solar Array interconnection infrastructure and a 1.9MW solar array awarded December 2014 and operational April 2016 and
  - a 27 year Power Purchase Agreement (PPA) for a 3.1MW AC executed through the PPA MATOC Small Business Solar Pool not to exceed the same tariff as is being paid for conventional electricity.

- Estimated private capital investment for the 5MW project is approximately $9 M.

- The installation applied and was approved to receive an $800K grant from the Department of Energy which will be awarded to the selected developer at award to pay down the capital investment for the project.

- Business Case Analysis (BCA) Results:
  - The 3.1 MW AC Project is expected to provide the Army an NPV of cost avoidance of $2.1 million over the term.
  - The RESA price is a fixed contract price of $.0811 that escalates at 2.2% versus the forecasted 3.8% annual rate for the TVA tariff costs.
  - The Army will receive full Fair Market Rental Value for the land through a discrete utility bill credit.
Real Estate

- Fort Campbell has identified a 30-acre parcel for use for a solar PV project.
  - Site location is a capped-landfill.
  - Fort Campbell’s Real Property Planning Board reviewed and approved the site for solar energy use
  - There are no constraints that limits the planned solar array size

- Army will enter into a 27-year Lease with the solar array developer

- Army will completed the necessary National Environmental Protection Act (NEPA) documentation.

- Glint/glare analysis was completed on 10 July 2014 and the site is located 2 miles from Campbell Army Airfield.
Solar PV Project Site

Phase 1
1.9MW UESC

Phase 2
3.1MW PPA
25 acres

Lat/Lon Closest to Airport:
LATITUDE: 36.646
LONGITUDE: -87.474
Kentucky is a regulated state with Tennessee Valley Authority (TVA) having the sole right to sell electricity to customers within their service territory.

- Power generation is allowed on federal installations through third party financing.
- Fort Campbell purchases electricity from TVA under a Direct Service Power Rate Schedule through MICC.
Integration

- **Transmission:** Electricity transmitted from Solar Site to Market Garden substation via new 12.47 kV line (funded/installed by Pennyrile Rural Electric Cooperative Corp (PRECC) under UESC)

- **Interconnection:** Made at the 12.47 kV switchgear installed by PRECC under the UESC

- **Future energy security:** Routing the power to the existing substation on Market Garden provides the possibility for a future micro-grid being developed to support mission critical loads.
Environmental

- A Record of Environmental Consideration (REC) was completed and tiered off of Fort Campbell EA "Standard Practices for Construction Projects in the Cantonment Area", dated 03 May 2004

- The site is a capped landfill and has been approved for the installation of the Solar Array project by the Kentucky Department for Environmental Protection Division of Waste Management 11 March 2014

- Fort Campbell has Completed a Phase I Environmental Site Assessment (ASTM E1527-05) in accordance with AR 200-1
Acquisition

- **Renewable Energy Service Agreement (RESA):**
  Fort Campbell will enter into a 27 year RESA with a developer selected through a competitive solicitation using the Huntsville Center Corps of Engineers’ Power Purchase Agreement (PPA) Multiple Award Task Order Contract (MATOC).

- **Lease:**
  - The lease has been discussed and agreed upon by HQ USACE Real Estate and BithEnergy.
  - No easement will be required.

- **Technical Terms & Conditions:**
  Will include Defense Federal Acquisition Regulation Supplement (DFARS), country of origin, NIST 800-2, FERC, NERC requirements
QUESTIONS