

# FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

November 2-3, 2016  
Bellevue, WA

## *Strategies for Implementing Renewable Projects with Utilities* US Fish & Wildlife Service (Patuxent Refuge) UESC Photovoltaic Project

Hosted by:



# Constellation Background

- Constellation is an Energy Service Company (ESCO) and Exelon Company (a utility holding group).
- On March 23, 2016, Exelon merged with Pepco Holdings, Inc., which owned PEPCO, a regulated T&D electric utility and Pepco Energy Services.
- Pepco Energy Services became part of Constellation ESCO.
- The US Fish & Wildlife Service (USFWS) Utility Energy Service Contract (UESC) project was done through PEPCO and Pepco Energy Services, mostly prior to the merger.



# USFWS Background

- USFWS mission is to “. . . to conserve, protect, and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.”
- USFWS is part of the US Department of the Interior.
- Very strong environmental protection and natural resource conservation focus.



# USFWS Patuxent Research Refuge

- Located near Laurel, MD, only National Wildlife Refuge in the United States established to support wildlife research.
- Over 12,800 acres divided into three tracts.
- Research, wildlife viewing, environmental and hunting activities.
- Total of 75 buildings most of which are well below 5,000 sq ft. with diverse uses such as laboratories, offices, warming huts, and residential facilities (for visiting researchers).



# USFWS Patuxent Visitors Center



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# Patuxent Visitors Center Overview

- 38,000 square feet, features an interpretive museum, classroom, and offices.
- Located at 10901 Scarlet Tanager Loop, Laurel, MD, and open six days a week 9:00am to 4:30pm
- Often accommodates school and other large visitor groups of 50+ people at a time.
- USFWS aiming for Visitors Center to be Net Zero.
- Prior (HVAC, mechanical) UESC project completed by Pepco Energy.

# USFWS Solicitation

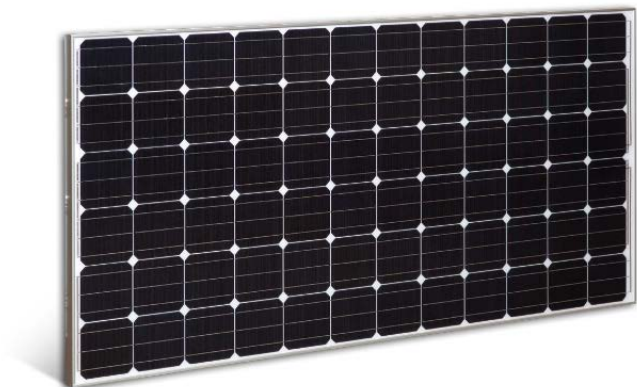
- USFWS utilized UESC Areawide contracting vehicle to facilitate fast, efficient, and productive photovoltaic installation.
- ESCO performed a Preliminary Assessment, results helped USFWS develop project solicitation -- determined rooftop and carport installations would maximize solar capacity.
- Solicitation documents cited: Executive Order 13514 “Federal Leadership in Environmental Energy, and Economic Performance,” and the Presidential Memorandum released on December 5, 2013, “Federal Leadership on Energy Management”
- PV array needed to have adequate payback, but environmental benefits of solar installation very important to agency.
- New ENERGY STAR qualified roof an additional energy conservation measures (ECM).

# Pepco Energy (now Constellation) Response

- PEPCO was the utility prime contractor on the project, Pepco Energy Services was PEPCO's facilitator for the UESC
- ESCO was required and did submit two separate proposals: Technical Qualifications and Pricing.
- Development of response required multiple site visits by ESCO's engineering, construction, and M&V personnel as well solar developer and roofing subcontractors.
- ESCO response included 179.3 kW (DC) on rooftop, 71.3 kW (DC) on parking canopy, and ENERGY STAR qualified roof (note: installing new roof at time of solar installation is a great idea), and EV charging station.
- ESCO submitted response in February 2015 to USFWS Contracting Office located in Hadley, MA.
- USFWS awarded project to PEPCO in March 2015.



# Equipment



**Suniva 330W DC (330-72-4-100-B)  
Modules , 16.53% efficiency**



**EcoFoot2 ballasted racking**



**Solectria 15.5kW, 19 kW, and  
27 kW AC inverters (PVI 23TL, PVI  
28TL, and PVI 36TL)**



**Charge Point (CT4000)  
Standard EV charging station**

# Project Economics

- This was a small project (243 kW, as built), under \$1.5M.
- ESCO offered to facilitate project financing, but USFWS wanted to use only appropriated funds.
- Maryland Solar Renewable Energy Credits (SRECs) could have been sold (ESCO recommended sale of 10-year, pre-paid strip), but USFWS wanted to keep SRECs to further the agency's environmental mission.
- Tax advantages of a solar project not available to government agency.
  - NO Investment Tax Credit (ITC, 30% of total cost of project) and
  - NO bonus depreciation (about 10% of project cost)
- With no monetization of tax benefits or sale of SRECs, payback for project is 19 years.

# Rooftop Array



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# Solar Carport with EV Chargers



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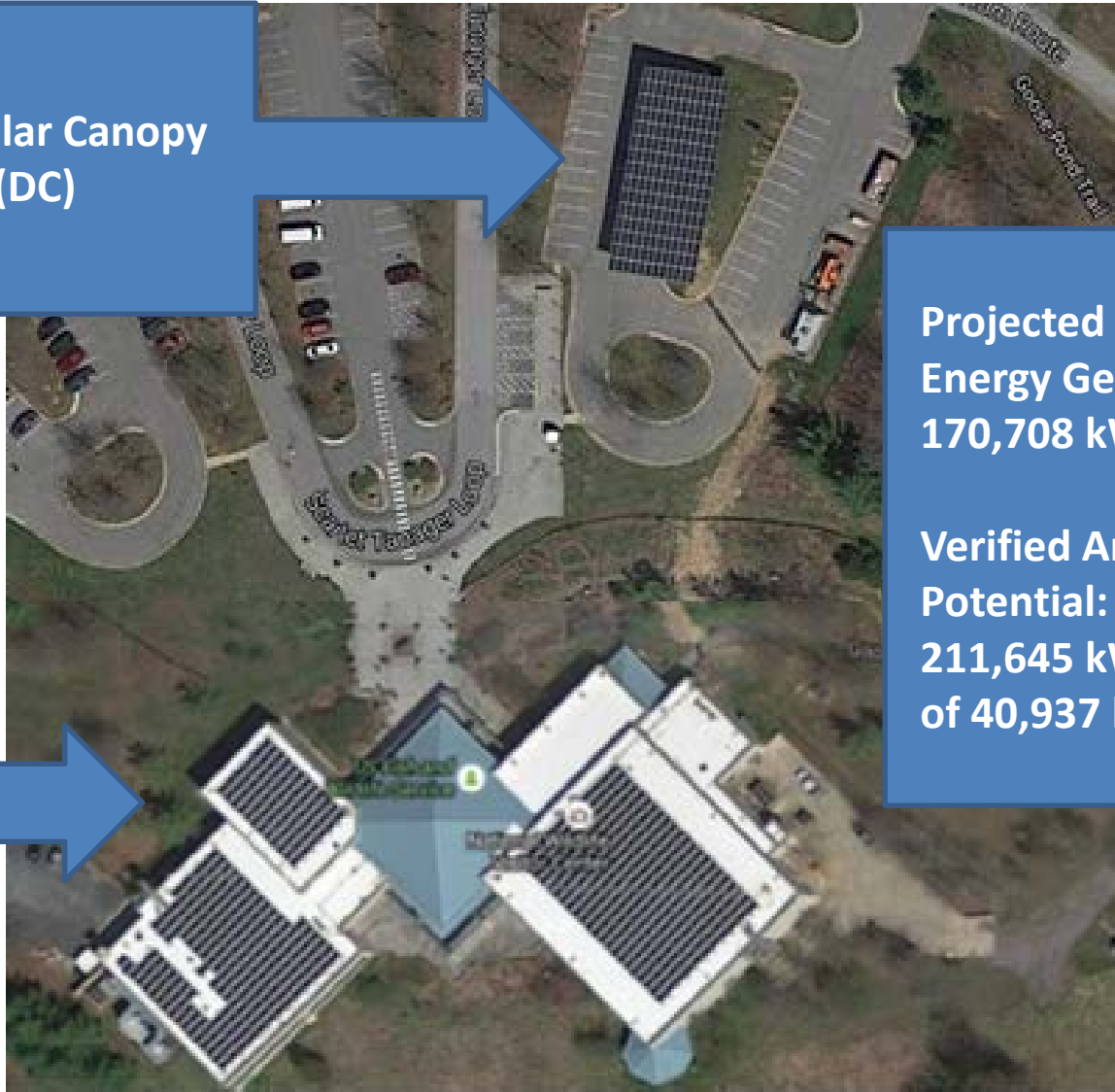
# Total Project

Parking Lot Solar Canopy  
71 kW (DC)

Rooftop  
172 kW (DC)

Projected Annual  
Energy Generation:  
170,708 kWh

Verified Annual  
Potential:  
211,645 kWh (excess  
of 40,937 kWh)



# Important Considerations

- USFWS Patuxent photovoltaic project a tremendous success, allowed agency to fulfill renewable goals.
- UESCs can facilitate fast results
- Solar (and all renewable) installations relatively easy from a payback and cash flow perspective with appropriated funds.
- This kind of project CANNOT be a model for larger photovoltaic installations on federal facilities -- tax benefits cannot be monetized when government owns the system, paybacks too long!
- Power Purchase Agreements (PPAs) a MUST in federal marketplace to monetize tax benefits (ITC and bonus/MACRS depreciation) and pass on affordable renewable energy to agencies.
- Government agencies and ESCOs alike need embedded PPA in Energy Savings Performance Contracts (ESPCs) and Utility Energy Service Contracts (UESCs).

# Contact Information

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