

City of Bowie

Photovoltaic Systems (PV) Information
4 sites- Total of 58.5kW

Matt Reno, Project Manager
Department of Community
Services

Operational Systems

- Park Maintenance Facility- 3106 Mitchellville Road
 - 8 kW system (string inverter system)
 - Installed spring 2008
- Prince George's County Genealogical Society- 12219 Tulip Grove Drive
 - 3.6 kW system (string inverter system)
 - Installed spring 2011 (via ARRA)

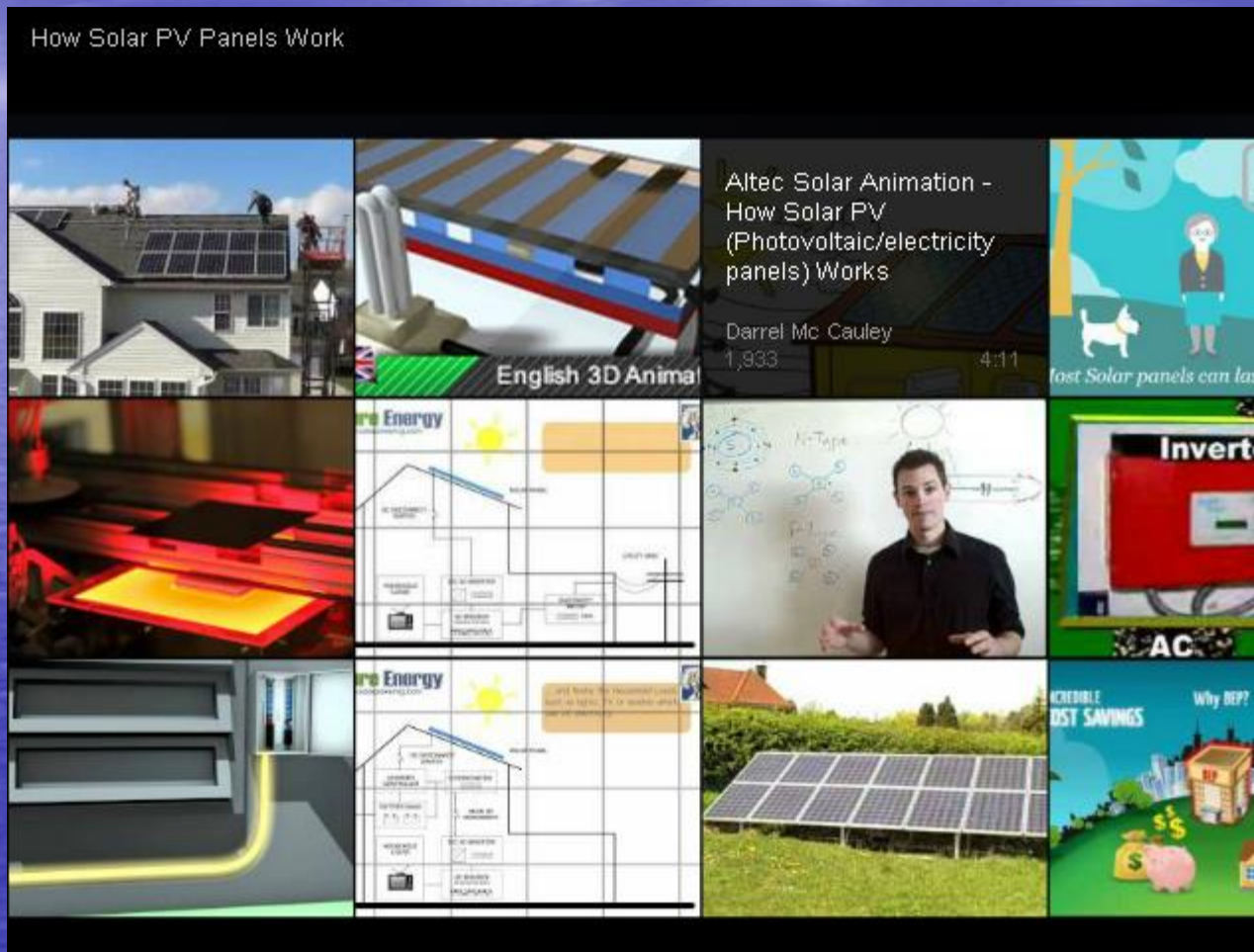
Operational Systems (cont.)

- National Capital Radio & Television Museum- 2608 Mitchellville Road
 - 8.8 kW system (microinverter system)
 - Installed summer 2011 (via ARRA funds)
- Park Maintenance Facility- 3106 Mitchellville Road
 - 6.8 kW system (microinverter system)
 - Installed summer 2012 (via ARRA funds)

Operational Systems (cont.)

- Park Maintenance Facility- 3106 Mitchellville Road
 - 16 kW system (microinverter system)
 - Installed summer 2013
- Bowie Senior Center- 4900 health Center Drive
 - 15.25 kW system (microinverter system)
 - Installed January 2014

How PV Works



System Types

- String inverter system
 - Uses one main inverter to convert DC current to AC current
 - Pro- Less costly; Con- if shading blocks any one panel the entire string will shut down.



System Types (Cont.)

- Microinverter system
 - Uses individual microinverters at each panel
 - Pro- Shading of one panel only shuts down the affected panel;
Con- more mostly (@20%)



Installation Photos



Installation Photos



System Photos



System Details (Table)

		City of Bowie PV Systems							
		Genealogy Library	Radio T.V.Museum	Park Maintenance Facility	Park Maintenance Facility (2013 Expansion)	Bowie Senior Center			
	Operational Year	2011	2011	2008 & 2012	2013	2014			
5	System Size (kW)	3.63	8.82	14.88	16	15.25			
6	Solar Panel Installation Costs:	\$19,890.00	\$47,400.00	\$54,631.00	\$40,000.00	\$49,983.00			
7	Federal Incentive	\$19,890.00	\$47,400.00	\$25,299.00	\$0.00	\$0.00			
8	MD State Incentive								
9	Local Incentives								
10	Net Cost								
11	System generates (kWh):								
12	Annual Benefit:								
13	Electricity Savings @ \$.08/kWh								
14	SREC Rate (Based on Market)								
15	SREC's Generated								
16	SREC Benefit								
17	Total Annual Benefit								
18	Payback period (yrs.) on initial								
19	Year 1 Return of Investment (%)								
20									
21									
22	These cell do not populate as 100%, since Federal Incentive installation cost								

What is an SREC?

In SREC states, the Renewable Portfolio Standard (RPS) requires electricity suppliers to secure a portion of their electricity from solar generators. The SREC program provides a means for Solar Renewable Energy Certificates (SRECs) to be created for every megawatt-hour of solar electricity created.

1 SREC = 1,000 kWh of solar electricity = 1 MWh of solar electricity

10 kW solar capacity = ~12 SRECs per year

The SREC is sold separately from the electricity and represents the "solar" aspect of the electricity that was produced. The value of an SREC is determined by the market subject to supply and demand constraints. SRECs can be sold to electricity suppliers needing to meet their solar RPS requirement. The market is typically capped by a fine or solar alternative compliance payment (SACP) paid by any electricity suppliers for every SREC they fall short of the requirement. The sale of SRECs is intended to promote the growth of distributed solar by shortening the time it takes to earn a return on the investment.

Once the installation of a solar system is complete, the system must then be certified by the state(s) in which it is eligible to sell SRECs and then must create an account with the tracking platform used by that state. Once registered, every month, the tracking platform will issue SRECs based on the generation of your system. In some states, estimated generation is used for systems under 10kW, while all other systems are required to submit generation on a monthly basis. One SREC is created for every 1000kWh of electricity created.

PV Performance

- Genealogy Library

- Facility open @30 hours per month
- Annual Electricity Consumption

- Pre-PV System
 - 5,331kW
- Post-PV System
 - 19kW
- 99% decrease in electricity consumption

- Radio & T.V. Museum

- Facility open @60 hours per month
- Annual Electricity Consumption

- Pre-PV System
 - 22,603kW
- Post-PV System
 - 15,150kW
- 32% decrease in electricity consumption

PV Performance

- Park Maintenance Facility
 - Facility open @160 hours per month
 - Annual Electricity Consumption
 - Pre-PV System
 - 147,533 kW
 - Post-PV System
 - 127,831 kW
 - 13.35% decrease in electricity consumption

PV Performance

- Park Maintenance Facility
- Radio & T.V. Museum

Monthly Energy Production Report for Bowie Park Maintenance Facility

Enphase Energy maximizes your solar energy production and keeps you informed about your system. Your monthly energy report shows how your system performed and how much you contributed to offsetting the global carbon footprint.

For more details on these production results, please visit your [Enphase® system](#).

Week	Peak Power	Energy Produced
01/01/2014 - 01/07/2014	14.9 kW	223 kWh
01/08/2014 - 01/14/2014	13.6 kW	301 kWh
01/15/2014 - 01/21/2014	14.9 kW	430 kWh
01/22/2014 - 01/28/2014	14.2 kW	210 kWh
01/29/2014 - 01/31/2014	15.8 kW	248 kWh
January 2014 Total:		1.41 MWh
Previous Month Total:		1.30 MWh
Year to Date:		1.41 MWh

Your **Carbon Offset** for this month: 2,153 lbs

You have offset the equivalent of: **25 Trees**



Monthly Energy Production Report for Bowie Radio Museum

Enphase Energy maximizes your solar energy production and keeps you informed about your system. Your monthly energy report shows how your system performed and how much you contributed to offsetting the global carbon footprint.

For more details on these production results, please visit your [Enphase® system](#).

Week	Peak Power	Energy Produced
01/01/2014 - 01/07/2014	7.65 kW	124 kWh
01/08/2014 - 01/14/2014	7.87 kW	137 kWh
01/15/2014 - 01/21/2014	7.66 kW	191 kWh
01/22/2014 - 01/28/2014	7.77 kW	131 kWh
01/29/2014 - 01/31/2014	8.00 kW	120 kWh
January 2014 Total:		704 kWh
Previous Month Total:		616 kWh
Year to Date:		704 kWh

Your **Carbon Offset** for this month: 1,073 lbs

You have offset the equivalent of: **12 Trees**



PV Performance

- Park Maintenance Facility
 - Facility open @160 hours per month
 - Annual Electricity Consumption
 - Pre-PV System
 - 147,533 kW
 - Post-PV System
 - 127,831 kW
 - 13.35% decrease in electricity consumption