



# SUSTAINABILITY PERFORMANCE

## At A Glance Second Quarter 2017

*April 1, 2017 - June 30, 2017*

AMERICAN MUNICIPAL POWER, INC.

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Included below is AMP's 2017 Q2 "At a Glance" sustainability report. The quarterly update is intended to measure and compare the progress of sustainability metrics while also highlighting accomplishments in the quarter. If you have any questions or would like additional information, please contact Erin Miller, director of energy policy and sustainability, at 614.540.1111 or emiller@amppartners.org.

## AMP SOLAR UPDATE



*Pictured from left to right are Steve Dupee, AMP Board of Trustees chair, Pam Sullivan, AMP executive vice president of power supply and generation operations, Matthew Handel, NextEra Energy Resources vice president and Brian O'Connell, City of Bowling Green utilities director at the April 27 Bowling Green Solar Facility dedication event.*

The dedication ceremony for the Bowling Green (OH) Solar Facility was held on April 27. The 20 MW facility, the largest solar installation in the state of Ohio, went into commercial operation in January 2017.

A ribbon cutting was held in May for the Front Royal, Virginia (VA) Solar Facility (2.5 MW) which went into commercial operation on May 8, 2017. The Marshallville (OH), Solar Facility (700 kW) and the Prospect (OH), Solar Facility (250 kW) went into commercial operation

on March 3, 2017. These projects are part of the larger AMP Solar Phase II project. The total now on line is 23.45 MW.

Site	COD	DC kW	AC kW	Qty of Panels
Bowling Green	1/24/17	28,703	20,000	85,680
Front Royal	5/8/17	3,527	2,500	11,378
Marshallville	3/3/17	1,013	700	3,267
Prospect	3/3/17	362	250	1,080

In the spring of 2016, AMP executed a solar power purchase agreement with DG AMP Solar, LLC a wholly owned subsidiary of NextEra Energy Resources, for the development, construction and operation of up to 80 MW or more of new solar electric generation facilities. Additional sites are under development in Ohio, Michigan and Delaware.

These solar facilities provide peaking resources and lower transmission costs for participating members.

## ENVIRONMENT

emissions in short tons (AFEC, gas and diesel turbines and Prairie State)

*April 1, 2017 - June 30, 2017*

**CO2 emissions:** 873,692

**SO2 emissions:** 462.9

**NOx emissions:** 211.4

**PM emissions:** 27.9

**CO emissions:** 19.6

**VOC emissions:** 9.81

## ENERGY EFFICIENCY & ECOSMART CHOICE REC SALES

*April 1, 2017 - June 30, 2017*

**Efficiency Smart - Cumulative Savings**

**2014-2017:** 75,183 MWh **2017 Q2:** 4,381 MWh

**EcoSmart Choice REC Sales:** 10,648 MWh

## AMP HEADQUARTERS RECYCLING

*April 1, 2017 - June 30, 2017*

**Recycled glass, plastic, metals, paper and cardboard  
(in lbs):** 23,024

## AMP RENEWABLE ENERGY PRODUCTION: EMISSIONS AVOIDANCE

	Q2 2017 MWh	CO2 emissions avoided (Tons)*	SO2 emissions avoided (Tons)*	NOx emissions avoided (Tons)*	Total emissions avoided (Tons)
Front Royal Solar	806	400	0.53	0.30	401
Bowling Green Solar	13,289	6,591	8.77	4.98	6,605
Marshalville Solar	367	182	0.24	0.14	182
Prospect Solar	151	75	0.10	0.06	75
Belleville Hydro (JV5)	71,896	35,660	47.45	26.96	35,735
Greenup Hydro	49,671	24,637	32.78	18.63	24,688
Meldahl Hydro	116,579	57,823	76.94	43.72	57,944
Cannelton Hydro	97,283	48,252	64.21	36.48	48,353
Willow Island Hydro	62,940	31,218	41.54	23.60	31,283
AMP Wind Farm (JV6)	3,573	1,772	2.36	1.34	1,776
Napoleon Solar	1,505	746	0.99	0.56	748
Landfill Gas ***	93,899	626,590	61.97	35.21	626,687
Blue Creek Wind	38,600	19,146	25.48	14.48	19,186
EcoSmart Choice	10,648	5,281	7.03	3.99	5,292
Efficiency Smart	4,381	2,173	2.89	1.64	2,178
Carbon Offset** Forestation Projects	467 acres	122			122
					<b>861,255</b>

\*<http://www.pjm.com/~media/library/reports-notices/special-reports/20170317-2016-emissions-report.ashx>

\*\*USEPA estimates 1.043 tons of CO2 is sequestered annually by one acre of average US forest.

\*\*\* Includes direct emissions reduced from methane (CO2e) and avoided emissions from CO2. <https://www.epa.gov/lmop/landfill-gas-energy-benefits-calculator>

## GREEN BOND FINANCED HYDRO PROJECTS – Q2 2017 REPORT

	Meldahl	Combined Hydro (Cannelton, Willow Island, Smithland)*
Net Renewable Capacity (MW)	108.8	131.8
Net Renewable Generation (MWh)	123,309	160,223
Capacity Factor (%)	52.5%	56.3%
<b>Emissions Avoidance</b>		
CO2 (GHG) emissions avoided (Tons)	61,161	79,471
SO2 emissions avoided (Tons)	81.38	105.75
NOx emissions avoided (Tons)	46.24	60.08

2016 PJM Market Power Emissions Rate[1]	
CO2 (GHG) emissions Factor (lbs/MWh)	992
SO2 emissions Factor (lbs/MWh)	1.32
NOx emissions Factor (lbs/MWh)	0.75

2016 PJM Market Power Fuel Breakdown [2]	
Coal	44.90%
Oil	7.08%
Natural Gas	43.86%
Nuclear	1.03%
Renewables/Other	3.13%
Totals	100.00%

\*Smithland Hydro is expected to be fully online in summer 2017.

[1] [PJM 2012-2016 CO2, SO2 and NOx Emissions Rates Report March 17, 2017](http://www.pjm.com/~media/library/reports-notices/special-reports/20170317-2016-emissions-report.ashx) (<http://www.pjm.com/~media/library/reports-notices/special-reports/20170317-2016-emissions-report.ashx>)

[2] [PJM State of the Market Report, 2016 Table 3-6](http://www.monitoringanalytics.com/reports/pjm_state_of_the_market/2016/2016-som-pjm-sec3.pdf) ([http://www.monitoringanalytics.com/reports/pjm\\_state\\_of\\_the\\_market/2016/2016-som-pjm-sec3.pdf](http://www.monitoringanalytics.com/reports/pjm_state_of_the_market/2016/2016-som-pjm-sec3.pdf))



*Pictured are Harry Phillips (left), AMP director of marketing/member relations, and Dennis Clapp, Napoleon's electric distribution superintendent, teaching the students about the AMP Wind Farm.*

## **NAPOLEON STUDENTS VISIT WIND FARM, SOLAR SITE**

Napoleon Area Schools fourth grade classes went on a field trip to Bowling Green to tour the AMP Wind Farm and the Bowling Green solar installation on May 17. The class also toured the Napoleon substation, and watched a bucket truck and climbing demonstration.

## **AMP HYDRO UPDATE – SMITHLAND**

The Smithland Hydroelectric Plant achieved a major milestone this quarter as Units 1 and 2 were successfully synchronized to the electric grid for the first time. Unit commissioning and testing continued to assure the equipment was installed and adjusted properly and that it will function safely, properly and reliably under continuous operation. Full commercial operation is expected to take place in the summer.

## **ECOSMART CHOICE**

Nine member communities purchased 10,648 megawatt hours (MWh) of renewable energy in the second quarter through AMP's EcoSmart Choice program. There are 153 commercial/industrial customers and 606 residential customers enrolled in the program.

Improvements were made to the program, including development of new marketing materials (template bill insert and postcard) as well as streamlined reporting forms to simplify participation.

The program is designed to offer a green pricing option for individuals and companies who are interested in purchasing up to 100 percent renewable energy through the purchase of renewable energy certificates (RECs).

## **EFFICIENCY SMART**

At the end of the second quarter 2017, actual savings achieved under the third Efficiency Smart contract stood at 6,281 MWh. There are 21 member communities participating in the Efficiency Smart program.

Net revenue from the sale of Efficiency Smart capacity savings for the DY2016-2017PJM were approximately \$164,758 (or approximately \$41,190/quarter).



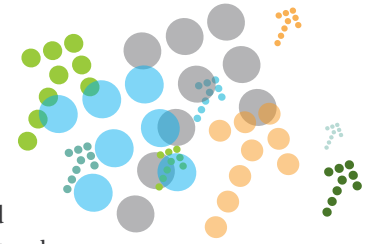
## FOCUS FORWARD

The Focus Forward Advisory Council (FFAC) met on May 12 to discuss the important national trends reshaping the electric industry. The FFAC brainstormed nine emerging trends and related topic areas to further examine, identify the needs of members and develop tools to educate, inform and assist them. The topic areas are:

- DER rate designs and interconnections
- Customer-led energy storage
- Grants, incentives and funding announcements
- Demand response
- Electric vehicles
- AMI/Smart Grid
- Solar (rooftop and community)
- Microgrids

The FFAC represents a cross section of municipal officials from 14 systems in four states, rate consultants and AMP staff. They are scheduled to meet again July 11 and September 27 at the AMP / OMEA Annual Conference where they will launch additional member tools such as model council resolutions, installation applications and interconnection agreement templates.

In addition, AMP's Focus Forward Member Toolkit was updated and made available on the Member Extranet section of the AMP website under "Focus Forward". Updates are minor and include grammatical and visual tweaks, and updated links.



## POWER GENERATION

in net MWh

April 1, 2017 - June 30, 2017

**AMP Wind Farm (JV6):** 3,573

**AMP Fremont Energy Center (AFEC):\*\*** 689,503

**Belleville Hydro (JV5):** 71,896

**Greenup Hydro:\*\*** 49,671

**Meldahl Hydro:** 116,579

**Cannelton Hydro:** 97,283

**Willow Island Hydro:** 62,940

**Prairie State Generating Co. (PSGC) (delivered to participants):\*** 724,300

**Distributed Generation:** 2,559

**Landfill Gas:** 93,899

**Blue Creek Wind:\*** 38,600

**Napoleon Solar:** 1,505

**Bowling Green Solar:** 13,289

**Marshallville Solar:** 367

**Front Royal Solar:** 806

**Prospect Solar:** 151

\* AMP's share    \*\* Total plant

## HEALTH & SAFETY

April 1, 2017 - June 30, 2017

**Employee Work Related Fatalities:**  
0

**Recordable Incidents or Accidents:**  
0

**Lost Work Day Incidents:**  
0

## COMMUNITY

April 1, 2017 - June 30, 2017

**AMP Employee Charitable Giving:** \$4,736

