



SUSTAINABILITY PERFORMANCE

At A Glance First Quarter 2017

AMERICAN MUNICIPAL POWER, INC.

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Included below is AMP's 2017 Q1 "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 – BOWLING GREEN

The 20 megawatt (MW) Bowling Green Solar Facility achieved commercial operation in January 2017. The installation is the largest solar installation in the state of Ohio. NextEra Energy Resources and its contractor, Blattner Energy, began construction at the site in July 2016.

The Bowling Green Solar Facility is made up of 85,680 modules, 20-1 MW inverters and 10-34.5 kV transformers. The site also uses a tracker system that rotates the solar panels to help in maximizing production. A substation was also built on the site that increases the voltage from 34.5 kV to 69 kV to be transmitted on a newly built 1.75 mile, 69 kV line that ties back into the City of Bowling Green's electric system. Twenty-two participating AMP members are receiving energy from the project.

The Bowling Green Solar Facility is part of the larger AMP Solar Phase II project. In the spring of 2016, AMP executed a solar power purchase agreement with DG AMP Solar, 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. Solar installations in Virginia, and Marshallville and Prospect, Ohio, also went into commercial operation in early 2017. Additional sites are under development in Ohio, Michigan and Delaware.

AMI PROGRAM GAINS MOMENTUM

Three AMP members have selected AMP's advanced metering program and have deployments underway, while several others are in the final stages of contract execution. AMP's AMI program provides an alternative for members considering advanced metering infrastructure (AMI) deployments as replacement for their existing manual, handheld or drive-by metering system.

AMP's program allows for lower meter and communication equipment costs through bulk purchasing and sharing of the IT infrastructure.

AMP has a goal of serving over 200,000 meters by the end of 2018.

For additional information about AMP's AMI program, please contact Jared Price, assistant vice president of IT and chief technology officer, at jprice@amppartners.org or 614.540.1069; or Brannon Kelley, chief information officer, at 614.540.0879 or bkelly@amppartners.org.

ECOSMART CHOICE

Nine member communities purchased more than 8,656 megawatt hours (MWh) of green power in the first quarter through AMP's EcoSmart Choice program. There are 153 commercial/in-

continued on Page 3

ENVIRONMENT

emissions in short tons (AFEC and Prairie State)

Jan, 1, 2017 – March 31, 2017

CO2 emissions: 1,011,343

SO2 emissions: 501.64

NOx emissions: 243.9

PM emissions: 30.8

CO emissions: 34.1

VOC emissions: 9.4

ENERGY EFFICIENCY & ECOSMART CHOICE REC SALES

Jan, 1, 2017 – March 31, 2017

Efficiency Smart Percent of 2014-2016

Target: 149 percent

Efficiency Smart - Cumulative Savings

2014-2017: 47,147 MWh

EcoSmart Choice REC Sales: 8,656 MWh

AMP HEADQUARTERS RECYCLING

Jan, 1, 2017 – March 31, 2017

AMP HQ Recycled Glass, Plastic & Metals

(in lbs): 8,751

AMP HQ Recycled paper and cardboard

(in lbs): 5,688

AMP RENEWABLE ENERGY PRODUCTION: EMISSIONS AVOIDANCE

	Q1 2017 MWh	CO2 emissions avoided (Tons)*	SO2 emissions avoided (Tons)*	NOx emissions avoided (Tons)*	Total emissions avoided (Tons)
Bowling Green Solar	5755	2855	3.80	2.16	2,861
Marshalville Solar	87	43	0.06	0.03	43
Prospect Solar	36	18	0.02	0.01	18
Belleville Hydro (JV5)	65,187	32,333	43.02	24.45	32,400
Greenup Hydro	29,811	14,786	19.68	11.18	14,817
Meldahl Hydro	104,099	51,633	68.71	39.04	51,741
Cannelton Hydro	74,229	36,818	48.99	27.84	36,894
Willow Island Hydro	55,573	27,564	36.68	20.84	27,622
AMP Wind Farm (JV6)	3,959	1964	2.61	1.48	1968
Napoleon Solar	940	466	0.62	0.35	467
Landfill Gas ***	96,569	644,407	63.74	36.21	644,507
Blue Creek Wind	45,983	22,808	30.35	17.24	22,855
EcoSmart Choice	8,656	4,293	5.71	3.25	4,302
Efficiency Smart	1,900	942	1.25	0.71	944
Carbon Offset** Forestation Projects	467 acres	122			122
					841,561

*<http://www.pjm.com/~media/library/reports-notice/special-reports/20170317-2016-emissions-report.ashx> (CO2 emissions factor – lbs/MWh: 992; SO2 emissions factor – lbs/MWh: 1.32; NOx emissions factor (lbs/MWh) – 0.75)

**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 – Q1 2017 REPORT

	Meldahl	Combined Hydro (Cannelton, Willow Island, Smithland)
Net Renewable Capacity (MW)	89.2	131.8
Net Renewable Generation (MWh)	104,099	129,802
Capacity Factor (%)	54.10%	45.60%
Emissions Avoidance		
CO2 (GHG) emissions avoided (Tons)	51,633	64,382
SO2 emissions avoided (Tons)	68.71	85.67
NOx emissions avoided (Tons)	39.04	48.68

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 come online in 2017.

[1] [PJM 2012-2016 CO2, SO2 and NOx Emissions Rates Report March 17, 2017](#)

[2] [PJM State of the Market Report, 2016 Table 3-6](#)

continued from Page 1

dustrial customers and 592 residential customers enrolled in the program.

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).

Projected savings from projects are in the pipeline (projects with a greater than 50 percent probability of completion by the end of 2017) stood at 14,561 MWh which would result in a year-end savings of 15,333 MWh or 47 percent of the three-year target.

There are approximately 35 member communities participating in the Efficiency Smart program.

EFFICIENCY SMART

At the end of the first quarter 2017, actual savings achieved under the second Efficiency Smart contract stood at 1,900 MWh, 2.35 percent of the three-year target goal of 32,910 MWh.

POWER GENERATION

in net MWh

Jan, 1, 2017 – March 31, 2017

AMP Wind Farm (JV6): 3,959

AMP Fremont Energy Center (AFEC): 792,650

Belleville Hydro (JV5): 65,187

Greenup Hydro: 29,811

Meldahl Hydro: 104,099

Cannelton Hydro: 74,229

Willow Island Hydro: 55,573

Solar Phase Two: 5,878

Prairie State Generating Co. (PSGC) (delivered to participants): 779,255

Distributed Generation: 55

Landfill Gas*: 96,569

Blue Creek Wind: 45,983

Napoleon Solar: 940

*Note: Prior sustainability reports incorrectly underreported landfill gas generation by approximately 12,000 MWh/quarter

HEALTH & SAFETY

Jan, 1, 2017 – March 31, 2017

Employee Work Related Fatalities:
0

Recordable Incidents or Accidents:
0

Lost Work Day Incidents:
0

COMMUNITY

Jan, 1, 2017 – March 31, 2017

AMP Employee Charitable Giving: \$5,671

