



# SUSTAINABILITY PERFORMANCE

## At A Glance Third Quarter 2017

*July 1, 2017 — Sept. 30, 2017*

AMERICAN MUNICIPAL POWER, INC.

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Included below is American Municipal Power's (AMP) 2017 third quarter (Q3) "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 HYDRO UPDATE – SMITHLAND



The third and final unit of the Smithland Hydroelectric Plant began commercial operation on Aug. 31, 2017. The facility is now officially under the care, custody and control of AMP operations and is supplying power to 79 participating AMP member communities in five states. The 76 megawatt (MW) run-of-the-river facility is located near Smithland, Kentucky.

This important asset is part of AMP's commitment to further diversify its power supply portfolio by developing sustainable generating resources. This facility will provide long-term value and reliability to its participating members.

Smithland is the final hydro project to come online as part of AMP's recent hydro development efforts. Combined, AMP developed four projects with a total of 11 units, to bring more than 300 MW of new hydropower into its portfolio. The projects represent the largest deployment of new run-of-the-river hydro in the nation.

### ENVIRONMENT

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

*July 1, 2017 — Sept. 30, 2017*

**CO2 emissions:** 1,099,794

**SO2 emissions:** 621

**NOx emissions:** 312.5

**PM emissions:** 18.5

**CO emissions:** 37.3

**VOC emissions:** 15.7

### ENERGY EFFICIENCY AND ECOSMART CHOICE REC SALES

*July 1, 2017 — Sept. 30, 2017*

**Efficiency Smart Cumulative Savings**

**2014-2017:** 77,689 MWh **2017 Q3:** 3,095 MWh

**EcoSmart Choice REC Sales:** 12,107 MWh

### AMP HEADQUARTERS RECYCLING

*July 1, 2017 — Sept. 30, 2017*

**Recycled glass, plastic, metals, paper and cardboard**  
13,557 lbs.

## AMP RENEWABLE ENERGY PRODUCTION: EMISSIONS AVOIDANCE

	Q3 2017 MWh	CO2 emissions avoided (Tons)*	SO2 emissions avoided (Tons)*	NOx emissions avoided (Tons)*	Total emissions avoided (Tons)
Front Royal Solar	1,346	668	0.89	0.50	669
Bowling Green Solar	13,537	6,714	8.93	5.08	6,728
Marshalville Solar	381	189	0.25	0.14	189
Prospect Solar	126	62	0.08	0.05	63
Belleville Hydro (JV5)	64,837	32,159	42.79	24.31	32,226
Smithland Hydro	57,239	28,391	37.78	21.46	28,450
Greenup Hydro	89,337	44,311	58.96	33.50	44,404
Meldahl Hydro	134,678	66,800	88.89	50.50	66,940
Cannelton Hydro	143,440	71,146	94.67	53.79	71,295
Willow Island Hydro	52,338	25,960	34.54	19.63	26,014
AMP Wind Farm (JV6)	1,393	691	0.92	0.52	692
Napoleon Solar	1,602	795	1.06	0.60	796
Landfill Gas **	93,611	624,668	61.78	35.10	624,765
Blue Creek Wind	15,974	7,923	10.54	5.99	7,940
EcoSmart Choice	12,107	6,005	7.99	4.54	6,018
Efficiency Smart	3,095	1,535	2.04	1.16	1,538
Carbon Offset*** Forestation Projects	467 acres	122			122
					<b>918,848</b>

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

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

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

## GREEN BOND FINANCED HYDRO PROJECTS – Q3 2017 REPORT

	Meldahl	Combined Hydro (Cannelton, Willow Island, Smithland)
Net Renewable Capacity (MW)	108.8	178.3
Net Renewable Generation (MWh)	134,678	253,017
Capacity Factor (%)	57.30	65.70
<b>Emissions Avoidance</b>		
CO2 (GHG) emissions avoided (Tons)	66,800	125,496
SO2 emissions avoided (Tons)	88.89	166.99
NOx emissions avoided (Tons)	50.50	94.88

2016 PJM Market Power Emissions Rate <sup>[1]</sup>	
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 <sup>[2]</sup>	
Coal	44.90%
Oil	7.08%
Natural Gas	43.86%
Nuclear	1.03%
Renewables/Other	3.13%
Totals	100.00%

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

<sup>[2]</sup> [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 Jeff Brediger, Orrville Utilities director and AMP Board vice chair, giving a behind-the-scenes tour of Orrville's power plant to a group of seventh and ninth grade science teachers from five AMP member communities: Arcadia, Brewster, Delta, Hudson and Orrville. AMP supports the Ohio Energy Project who sponsored the event and also provided educators with lesson plans, curriculum and a kit of equipment to teach about electricity in their classrooms.*

## **RENEWABLE ENERGY RESOURCE CERTIFICATIONS**

On Sept. 4, 2017, the Public Utilities Commission of Ohio (PUCO) certified the Smithland hydroelectric plant as an Ohio Renewable Energy Resource Generating Facility—less than a week after the facility began commercial operations of its third and final unit. In Ohio, a generating facility must be certified as a renewable energy resource by the PUCO in order to generate and sell renewable energy certificates (RECs). Those RECs can then be sold to entities that are required to meet Ohio's Renewable Portfolio Standards.

Smithland joins other AMP hydroelectric plants that have been certified to generate RECs in Ohio and other states, including Virginia, Pennsylvania, Maryland, Illinois and the District of Columbia.

## **LANDFILL GAS UPDATE**

On July 13, 2017, Georgetown officials hosted a ribbon cutting ceremony at the Brown County Landfill to celebrate the commercial operation of a 4 MW landfill generation project built by Energy Developments, Inc. AMP will purchase all of the output from the plant under a 5-year power purchase agreement on behalf of Georgetown, Ohio; Williamstown, Kentucky; and Yellow Springs, Ohio.

## **AMP/OMEA ANNUAL CONFERENCE**

More than 400 representatives from member communities, AMP staff and municipal electric partners attended the 2017 AMP/OMEA Conference held in Columbus Sept. 25-28, 2017. Featured speakers included Delia Patterson, acting senior vice president of advocacy and communications and general counsel of the American Public Power Association; Amy Myers Jaffe, executive director at the University of California and a leading expert on global energy policy; and Dr. Dale Meyerrose, president of MeyerRose Group, LLC, and a preeminent information technology and cybersecurity strategist. Conference sessions provided attendees the opportunity to learn about AMP projects, industry trends, technological changes and state and federal legislation.



## ECOSMART CHOICE

Nine member communities purchased 12,107 megawatt hours (MWh) of renewable energy in the third quarter through AMP's EcoSmart Choice program. There are 180 commercial/industrial customers and 707 residential customers enrolled in the program (up from 153 commercial/industrial and 606 residential in Q2).

The Columbus Division of Power has made a concerted effort to educate customers about the program as part of their Smart Columbus initiative. This has resulted in over 100 customer sign-ups.

The EcoSmart Choice 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 third quarter 2017, actual savings achieved under the third Efficiency Smart contract stood at 9,367 MWh. There are 21 member communities participating in the Efficiency Smart program.

Net revenue from the sale of Efficiency Smart capacity savings for the delivery year 2016-2017 in PJM were approximately \$164,758 (or approximately \$41,190/quarter).

In the third quarter of 2017, Efficiency Smart worked with two large retail store chains to implement lighting upgrades at stores in multiple AMP communities. The projects took place in Galion, Bowling Green, St. Marys and Hamilton, and included replacing metal halide and fluorescent lighting technology with LED technology. The projects will yield an estimated 183 MWh in cumulative annual energy savings.

## FOCUS FORWARD

The Focus Forward Advisory Council (FFAC) identified new ways to improve the dissemination of information to members at its meetings on July 11, 2017 and Sept. 27, 2017. The goal of the FFAC is to educate and inform members about industry trends and assist with preparations for further integration of Distributed Energy Resources (DER).

The FFAC established four new initiatives to improve communications and provide relevant information to AMP's members.

### 1. *Additional DER resources*

AMP staff, with guidance of the FFAC members, are finalizing interconnection council resolution, application and agreement templates using the information presented in the Focus Forward Toolkit: Preparing for a Distributed Resource Future. We expect the templates to be finalized this fall.

### 2. *Electric vehicles brief*

In response to members' increased interest in EV's, AMP compiled a comprehensive EV briefing document that is downloadable from the AMP Member Extranet. Information includes: the amount of power EVs use; the different types of vehicles and supply equipment; operational considerations; locations of public charging stations; and a sample of incentives/rebates offered by utilities and municipalities.

### 3. *Host or promote educational webinars and events*

The AMP Finance and Account Subcommittee hosted 28 participants, from 22 member communities in three states for a webinar about DER and rate designs on Aug. 2, 2017. John Courtney, PE, owner of Courtney & Associates, provided an overview of behind-the-meter generation and discussed policy and factors to consider when designing rates.

Staff attended the Smart Electric Power Alliance's Grid Evolution Summit July 25-27, 2017, in Washington D.C., addressing integration of DER and reported back to the membership key take-a-ways from the event.

The APPA's Public Power Forward Webinar series was promoted to the AMP membership. Three APPA webinars were held this quarter:

- "The Future of Rate Design," held Aug. 15, 2017, featured industry rate trends and how to move toward stable rate structures to accurately recover costs from all customers.



- “Community Solar Success Stories,” held Sept. 7, 2017, experts shared experiences, insights and predictions for the future of community solar.
- “Charging Ahead with Electric Vehicles,” held Sept. 26, 2017, focused on new developments and advances in EVs and how they are impacting the utility industry.

#### 4. Reorganize the Focus Forward web page on the AMP website

The FFAC focused on several topics, deemed as relevant trends in the industry, to reorganize information on the Focus Forward web page of the AMP website’s Member Extranet. Informational articles, documents, infographics and online case studies are linked under the corresponding trend topics to give members one central repository to find the latest industry trends.

## POWER GENERATION

in net MWh

July 1, 2017 — Sept. 30, 2017

**AMP Wind Farm (JV6):** 1,393

**AMP Fremont Energy Center (AFEC):\*** 694,873

**Belleville Hydro (JV5):** 64,837

**Greenup Hydro:\*** 89,337

**Meldahl Hydro:** 134,678

**Cannelton Hydro:** 143,440

**Willow Island Hydro:** 52,338

**Smithland Hydro:** 57,239

**Prairie State Energy Campus (PSGC) (delivered to participants):\*\*** 728,601

**Distributed Generation:** 13,986

**Landfill Gas:** 93,611

**Blue Creek Wind:\*\*** 15,974

**Napoleon Solar:** 1,602

**Bowling Green Solar:** 13,537

**Marshallville Solar:** 381

**Front Royal Solar:** 1,346

**Prospect Solar:** 126

\* Total plant

\*\* AMP’s share

## HEALTH AND SAFETY

July 1, 2017 — Sept. 30, 2017

**Employee Work Related Fatalities:**

0

**Recordable Incidents or Accidents:**

0

**Lost Work Day Incidents:**

0

## COMMUNITY

July 1, 2017 — Sept. 30, 2017

**AMP Employee Charitable Giving:** \$9,988

