Sustainability Performance

At A Glance
Fourth Quarter 2017

October 1, 2017 — December 31, 2017

AMERICAN MUNICIPAL POWER, INC.
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Included below is American Municipal Power, Inc.’s (AMP) 2017 fourth quarter (Q4) “At a Glance” sustainability report. The quarterly update is intended to measure and compare the progress of sustainability metrics while also highlighting accomplishments. 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.

EMPLOYEE GIVING

Corporate and civic responsibility are a key value that leads AMP’s efforts. Corporate giving is demonstrated throughout the year, and is especially evident during the holiday season. On Nov. 27, 2017, AMP kicked off its holiday donation drive. Headquarters staff donated 105 pounds of non-perishable food products to the Mid-Ohio Food Bank, along with cash donations of $585. The cash contributions to the food bank were matched by other sponsors, bringing total contributions to $1,170. For each dollar donated, the Mid-Ohio Food Bank can provide four meals or distribute $10 worth of groceries to families in need.

Headquarters staff also donated approximately 200 pounds of clothes, toiletries, infant and personal hygiene items to the Columbus Community Shelter Board.

Staff at the Willow Island Hydroelectric Plant donated 60 pounds of food and Belleville staff donated 35 pounds with both donations delivered to the Old Man Rivers Mission in Parkersburg. Smithland Hydroelectric plant personnel donated $120 to Livingston County Helping Hands; staff at the Cannelton Hydroelectric Plant donated $120 to Hancock County Community Action; and staff at the Fremont Energy Center worked with the Marine Corps Reserve supporting Toys for Tots, donating a large bin of new toys.

Prairie State Generating Company (AMP owns 23.26%) partnered with nine local schools and not-for-profits to fulfill the holiday wish lists of 130 children, providing them with toys, clothing and schools supplies.

In addition to the holiday giving initiative, AMP employees donated a total of $5,338.60 to local charities through payroll deduction this quarter.
HYDROELECTRIC PLANTS BENEFIT FROM HIGHER WATER FLOWS IN NOVEMBER
The hydroelectric plants (Belleville, Cannelton, Smithland, Willow Island, Meldahl and Greenup) hit a maximum gross coincidental production level on Nov. 18, 2017, at hour ending 18 with a total production of over 412 MW generated. The result was from higher water flows that arrived in November. Overall the precipitation helped as the Ohio River Basin remains somewhat dry.

ECOSMART CHOICE
Nine member communities purchased 12,009 megawatt hours (MWh) of renewable energy in the fourth quarter through AMP’s EcoSmart Choice program. There are 185 commercial/industrial customers and 734 residential customers enrolled in the program, an increase of 3 percent and 4 percent respectively since the third quarter.

Due to more affordable renewable energy certificates (RECs) available in the market, reduced program costs and projected REC values, the AMP Board of Trustees voted on Nov. 16, 2017, to reduce the EcoSmart Choice program price from $5/MWh to $3/MWh effective Jan. 1, 2018.

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 RECs.
EFFICIENCY SMART
At the end of the 2017 fourth quarter, actual savings achieved under the third Efficiency Smart contract stood at 15,507 MWh. There are 22 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).

Efficiency Smart develops partnerships with community action agencies that administer the Home Energy Assistance Program (HEAP) in its participating communities. Through these partnerships, Efficiency Smart distributes free efficient lightbulbs to residential electric customers who meet the federal HEAP income guidelines. In the fourth quarter of 2017, Efficiency Smart established a partnership with the HEAP administrator in its newest participating community, Montpelier, Ohio. With the addition of the partnership in Montpelier, Efficiency Smart has now established partnerships to serve HEAP customers in 19 out of its 22 communities. As a result of these partnerships, more than 5,300 lightbulbs were distributed in 2017.

FOCUS FORWARD
The Focus Forward Advisory Council met on Nov. 14, 2017, via webinar. The topic was “Battery Storage: Current Market and Potential Values.” Nick Esch and Ted Davidovich from the Smart Electric Power Alliance (SEPA) presented results from SEPA’s 2017 Utility Energy Storage Market Snapshot Report and Don Harrod, Village of Minster, presented the Village’s experience with their solar plus storage project.

The final interconnection agreement, application and council resolution templates were made available on the Member Extranet page under Focus Forward, “Sample Interconnection Agreements and Metering Policies.”

The Focus Forward Advisory Council recommended the creation of the documents to serve as customizable templates for municipal electric systems that are developing or revising their distributed energy resources (DER) program. The three templates are as follows:

- Council Ordinance/Resolution:
  This document gives the electric utility the authority to adopt rates, policies and procedures for distributed generation resources, and enter into agreements with customers to allow interconnection to the electric system.

- Interconnection Application:
  This document is for the owner/operator of the distributed generation resource to complete. Information requested includes general customer information, technical information and installation details.

- Interconnection Agreement:
  This document is an agreement between the municipal utility and the owner/operator of the distributed generation resource specifying equipment and installation standards, owner/operator insurance requirements, metering requirements, initial testing, startup and operation, among other things.
AMP RENEWABLE ENERGY PRODUCTION: EMISSIONS AVOIDANCE

**Includes direct emissions reduced from methane (CO2e) and avoided emissions from CO2.**

**U.S. EPA estimates 1.043 tons of CO2 is sequestered annually by one acre of average U.S. forest.**

GREEN BOND FINANCED HYDRO PROJECTS – Q4 2017 REPORT

<table>
<thead>
<tr>
<th>Project</th>
<th>MWh</th>
<th>CO2 emissions avoided (Tons)*</th>
<th>SO2 emissions avoided (Tons)*</th>
<th>NOx emissions avoided (Tons)*</th>
<th>Total emissions avoided (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front Royal Solar</td>
<td>807</td>
<td>400</td>
<td>0.53</td>
<td>0.30</td>
<td>401</td>
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<tr>
<td>Bowling Green Solar</td>
<td>5,291</td>
<td>2,624</td>
<td>3.49</td>
<td>1.98</td>
<td>2,630</td>
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<td>Marshalville Solar</td>
<td>190</td>
<td>94</td>
<td>0.13</td>
<td>0.07</td>
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<td>Prospect Solar</td>
<td>64</td>
<td>32</td>
<td>0.04</td>
<td>0.02</td>
<td>32</td>
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<tr>
<td>Smithland Hydro</td>
<td>107,250</td>
<td>53,196</td>
<td>70.79</td>
<td>40.22</td>
<td>53,307</td>
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<tr>
<td>Greenup Hydro</td>
<td>88,799</td>
<td>44,044</td>
<td>58.61</td>
<td>33.30</td>
<td>44,136</td>
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<td>Meldahl Hydro</td>
<td>128,789</td>
<td>63,879</td>
<td>85.00</td>
<td>48.30</td>
<td>60,013</td>
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<td>Cannelton Hydro</td>
<td>134,176</td>
<td>66,551</td>
<td>88.56</td>
<td>50.32</td>
<td>66,900</td>
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<td>Willow Island Hydro</td>
<td>59,673</td>
<td>29,598</td>
<td>39.38</td>
<td>22.38</td>
<td>29,660</td>
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<td>AMP Wind Farm (JV6)</td>
<td>3,151</td>
<td>1,563</td>
<td>2.08</td>
<td>1.18</td>
<td>1,566</td>
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<tr>
<td>Napoleon Solar</td>
<td>859</td>
<td>426</td>
<td>0.57</td>
<td>0.32</td>
<td>427</td>
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<tr>
<td>Landfill Gas**</td>
<td>98,241</td>
<td>655,564</td>
<td>64.84</td>
<td>36.84</td>
<td>655,666</td>
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<tr>
<td>Blue Creek Wind</td>
<td>40,544</td>
<td>20,110</td>
<td>26.76</td>
<td>15.20</td>
<td>20,152</td>
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<td>EcoSmart Choice</td>
<td>12,009</td>
<td>5,956</td>
<td>7.93</td>
<td>4.50</td>
<td>5,969</td>
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<td>Efficiency Smart</td>
<td>6,187</td>
<td>3,069</td>
<td>4.08</td>
<td>2.32</td>
<td>3,075</td>
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<td>Carbon Offset*** Forestation Projects</td>
<td>467 acres</td>
<td>122</td>
<td>122</td>
<td>122</td>
<td>983,945</td>
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</tbody>
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** Includes direct emissions reduced from methane (CO2e) and avoided emissions from CO2.**

*** U.S. EPA estimates 1.043 tons of CO2 is sequestered annually by one acre of average U.S. forest.

2016 PJM Market Power Emissions Rate[^1]

<table>
<thead>
<tr>
<th>Metric</th>
<th>Factor (lbs/MWh)</th>
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<tbody>
<tr>
<td>CO2 (GHG)</td>
<td>992</td>
</tr>
<tr>
<td>SO2</td>
<td>1.32</td>
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<tr>
<td>NOx</td>
<td>0.75</td>
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</table>


<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Coal</td>
<td>44.90%</td>
</tr>
<tr>
<td>Oil</td>
<td>7.08%</td>
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<tr>
<td>Natural Gas</td>
<td>43.86%</td>
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<tr>
<td>Nuclear</td>
<td>1.03%</td>
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<tr>
<td>Renewables/Other</td>
<td>3.13%</td>
</tr>
<tr>
<td>Totals</td>
<td>100.00%</td>
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</table>

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

**POWER GENERATION**

*in net MWh*

**AMP Wind Farm (JV6):** 3,151

**AMP Fremont Energy Center (AFEC):** * 933,065

**Belleville Hydro (JV5):** 72,440

**Greenup Hydro:** * 88,799

**Meldahl Hydro:** 128,789

**Cannelton Hydro:** 134,176

**Willow Island Hydro:** 59,673

**Smithland Hydro:** 107,250

**Prairie State Energy Campus (PSGC) (delivered to participants):** ** 805,373

**Distributed Generation:** 614

**Landfill Gas:** 98,241

**Blue Creek Wind:** ** 40,544

**Napoleon Solar:** 859

**Bowling Green Solar:** 5,291

**Marshallville Solar:** 190

**Front Royal Solar:** 807

**Prospect Solar:** 64

* Total plant  ** AMP’s share

**HEALTH AND SAFETY**

**Employee Work Related Fatalities:** 0

**Recordable Incidents or Accidents:** 1

**Lost Work Day Incidents:** 0

**COMMUNITY**

**AMP Employee Charitable Giving:** $6,748.60

**ENVIRONMENT**

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

**CO2 emissions:** 1,083,991.16

**SO2 emissions:** 592.54

**NOx emissions:** 267.26

**PM emissions:** 23.10

**CO emissions:** 15.02

**VOC emissions:** 8.68

**ENERGY EFFICIENCY AND ECOSMART CHOICE**

**REC SALES**

**Efficiency Smart Cumulative Savings**


**EcoSmart Choice REC Sales:** 12,009 MWh

**AMP HEADQUARTERS RECYCLING**

**Recycled glass, plastic, metals, paper and cardboard**

13,193 lbs.