Sustainability Performance

At A Glance
Fourth Quarter 2019

Oct. 1, 2019 — Dec. 31, 2019

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ccluded below is American Municipal Power, Inc.’s (AMP) 2019 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.

AMP GIVES BACK TO THE COMMUNITY

In October, AMP held a Spooky Cuisine Bake-Off charity event raising $718 for the Alzheimer’s Association, Central Ohio Chapter.

AMP MEMBER COMMUNITIES NAMED SMART ENERGY PROVIDERS

The cities of Bowling Green and Westerville received the Smart Energy Provider (SEP) designation by the American Public Power Association (APPA) during the association’s annual Customer Connections Conference held in New Orleans, Oct. 28-30. Only 67 communities nationwide were awarded the designation.

SEP designation is given to utilities that demonstrate commitment to and proficiency in energy efficiency, distributed generation and environmental initiatives that support a goal of providing low-cost, quality, safe and reliable electric service. It recognizes public power utilities for demonstrating leading practices in four key disciplines: smart energy program structure, energy efficiency and distributed energy programs, environmental and sustainability initiatives, and the customer experience. The designation is valid for two years from Dec. 1, 2019 to Nov. 30, 2021.

EFFICIENT USE OF ENERGY

To encourage energy efficiency during the Holiday Season and the coming winter, AMP created the 12 Days of Energy Efficiency Tips graphics series for social media channels. Combined, the graphics reached more than 5,400 individuals and garnered more than 145 engagements. In addition, energy efficiency tips were provided to AMP’s members through its weekly newsletter, Update.
BREWSTER AND PIQUA CELEBRATE SOLAR SITE DEDICATIONS

AMP member communities Brewster and Piqua celebrated solar site dedication ceremonies for the launch of their solar generation facilities. The facilities are both part of AMP’s Solar Phase II project, through a power purchase agreement with DG AMP Solar, a wholly owned subsidiary of NextEra Energy Resources, for the development, construction and operation of new solar electric generation facilities.

These two new facilities bring the total capacity of generation from the Solar Phase II project to 49.45 MW.

BREWSTER SOLAR ENERGY CENTER

A ribbon cutting ceremony was held for the Brewster Solar Energy Center on Tuesday, Oct. 8, celebrating the completion of the 1.875 MW (AC) project.

The project has more than 2,200 panels, 15 inverters, a capacity factor of approximately 17 percent and covers nearly 12 acres.

PIQUA MANIER SOLAR ENERGY CENTER

A ribbon cutting ceremony was held for the Piqua Manier Solar Energy Center on Thursday, Oct. 10, celebrating the completion of the 12.625 MW (AC) project.

The project has nearly 50,000 panels, 281 inverters and covers nearly 83 acres.

ECOSMART CHOICE

Nine member communities purchased 28,995 megawatt hours (MWh) of renewable energy in the fourth quarter through AMP’s EcoSmart Choice program.

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 and retirement of renewable energy certificates.
EFFICIENCY SMART
The City of Painesville joined the Efficiency Smart program and became the first to select the High Performance, Demand Focus program. This new offering features a higher summer peak savings goal in addition to an energy reduction goal. Reducing both electric usage and peaks lowers costs for the City of Painesville and its electric customers.

The third Efficiency Smart contract reported a savings of 48,667 MWh (net) at the end of the fourth quarter. There are currently 31 communities participating in the Efficiency Smart program.

Ambassador of Energy Efficiency Awards were presented to the following organizations that completed energy efficiency projects resulting in significant energy savings for a participating community:

- Edgerton School District, Edgerton: Edgerton Local Schools worked with Efficiency Smart on a lighting project at its building on East River Street that houses its junior/senior and elementary schools. The district installed more than 3,500 LEDs, including high-bay and low-bay fixtures, T-LEDs, LED lightbulbs and parking lot lights. They are expected to save the district 226,900 kilowatt-hours (kWh) of energy annually.

- United Tool & Machine, Lakeview: United Tool & Machine worked with Efficiency Smart on an energy efficiency project to help offset the electric costs associated with its recent expansion. The company replaced its existing T12 fluorescent lights with energy-efficient LED high-and-low-bay lights. The total number of light fixtures were reduced from more than 90 T12s to 40 LEDs, due to an optimized lighting design and the increased lumens of the LEDs. New LEDs have improved the lighting for United Tool & Machine’s employees and are expected to save the company 39,400 kWh of energy annually.

- Brown County, Georgetown: The county completed LED upgrades at its courthouse, jail, administrative offices and the Child Support Enforcement Agency, and Jobs and Family Services buildings. In addition, a heat pump was installed at the courthouse. The county is expected to save 143,800 kilowatt-hours (kWh) of energy annually.

- Tenneco, Napoleon: Tenneco has worked with Efficiency Smart on several energy efficiency upgrades. Most recently, the manufacturer worked with Efficiency Smart to install high-and-low bay LEDs throughout its offices and plant, along with a new air compressor system. As a result of all of its projects, Tenneco is expected to save 1,941,300 kilowatt-hours (kWh) of energy annually.
FOCUS FORWARD

A Focus Forward Advisory Council Webinar was held on Nov. 19 to discuss regulatory proceedings affecting distributed energy resources.

During the webinar, Gerit Hull, AMP deputy general counsel for regulatory affairs, discussed:

- The regulatory reach of the Federal Energy Regulatory Commission (FERC) and regional transmission organization/independent system operators with regard to behind the meter distributed energy resources (energy storage, solar, etc.);
- The Public Utility Regulatory Policies Act (PURPA) and impacts to distributed generation interconnection requests and proposed reforms; and
- AMP’s Focus Forward Member Toolkit, designed to assist members to prepare for energy resources located on their distribution systems.

Participants also voted on priorities for Focus Forward in 2020.

Throughout the quarter, AMP shared information with members on electric vehicle (EV) funding opportunities, information on public charging station models, and new EV and demand response content from both the Smart Electric Power Alliance and APPA.

LEGISLATIVE AND REGULATORY UPDATES

Congress

In December, Congress passed a spending proposal that would avoid a government shutdown through Sept. 30, 2020. As part of the final compromise package, the bill includes a one year extension of the wind production and investments tax credits, as well as funding increases for agency programs designed to help renewable and advanced energy. Separately, Congress also passed the National Defense Authorization Act which includes a provision to establish a climate security advisory panel.

Climate related issues are moving to the forefront as 2020 gets underway, with House Democrats unveiling two proposals expected to garner hearings in 2020: the Clean Energy Innovation and Deployment Act and a five year infrastructure proposal that includes an emphasis on renewable energy and climate resiliency.

FERC

On Dec. 19, the Federal Energy Regulatory Commission (FERC) issued its long-awaited order on PJM Interconnection, L.L.C.’s (PJM) capacity construct, the reliability pricing model (RPM), which significantly expands the (MOPR) and negatively impacts public power. AMP joined the APPA and others in being largely disappointed in the FERC’s order, as the expanded MOPR will greatly increase prices and harm consumers, with the only beneficiaries being a small group of incumbent merchant generation owners.

Under this order, the MOPR price floor will now apply to all resource types, whether existing or new. The only exemptions are for most currently existing resources and non-gas “merchant” resources built without any payments outside of the PJM-operated markets.

For public power, this means that every new resource built in the future — whether it is a renewable, storage or energy efficiency resource — will run the risk of not clearing the capacity auction, causing public power utilities and their customers to face the risk of paying twice for that resource every year and directly interfering with public power’s fundamental business model.

AMP President/CEO Marc Gerken stated that “it is the ultimate irony that the public power business model has been deemed a subsidy and a threat to competitive markets. Our approach to new resources is closer to a true market than PJM’s Reliability Pricing Model has ever been. This order leaves no question that RPM is nothing more than an administrative construct with prices set in Valley Forge, PA with no enduring features of a competitive market.”

USEPA

On Oct. 8, 2019, AMP submitted comments in support of the proposed United States Environmental Protection Agency (USEPA) Project Emissions Accounting Rule. Mirroring a 2018 guidance document, this new rule provides increased flexibility to owners and operators during the air permitting process for large projects. The rule provides additional flexibility for AMP and our members to undertake projects at generating assets, potentially avoiding the cost and expense of project netting analysis.

On Oct. 21, 2019, AMP submitted comments in support of new rules proposed by USEPA that states are required to follow for issuing water quality certifications for federal projects. These rules limit the scope and timing of the state certification process, and, if finalized, would provide additional certainty to owners and operators of federally-regulated facilities. The rules would provide more certainty for AMP and member hydropower assets during the re-licensing process, and potentially reduce the time it takes to re-license projects.
**AMP RENEWABLE ENERGY PRODUCTION, ENERGY EFFICIENCY: EMISSIONS AVOIDANCE**

<table>
<thead>
<tr>
<th></th>
<th>Q4 2019 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>Belleville Hydro (JV5)</td>
<td>74,002</td>
<td>32,857</td>
<td>23.68</td>
<td>18.13</td>
<td>32,899</td>
</tr>
<tr>
<td>Greenup Hydro</td>
<td>92,435</td>
<td>41,041</td>
<td>29.58</td>
<td>22.65</td>
<td>41,093</td>
</tr>
<tr>
<td>Meldahl Hydro</td>
<td>147,765</td>
<td>65,608</td>
<td>47.28</td>
<td>36.20</td>
<td>65,691</td>
</tr>
<tr>
<td>Cannelton Hydro</td>
<td>125,881</td>
<td>55,891</td>
<td>40.28</td>
<td>30.84</td>
<td>55,962</td>
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<tr>
<td>Willow Island Hydro</td>
<td>64,759</td>
<td>28,753</td>
<td>20.72</td>
<td>15.87</td>
<td>28,790</td>
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<tr>
<td>Smithland Hydro</td>
<td>83,911</td>
<td>37,256</td>
<td>26.85</td>
<td>20.56</td>
<td>37,304</td>
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<tr>
<td>AMP Wind Farm (JV6)</td>
<td>3,324</td>
<td>1476</td>
<td>1.06</td>
<td>0.81</td>
<td>1478</td>
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<tr>
<td>Napoleon Solar</td>
<td>837</td>
<td>372</td>
<td>0.27</td>
<td>0.21</td>
<td>372</td>
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<tr>
<td>Landfill Gas***</td>
<td>91,908</td>
<td>602,642</td>
<td>29.41</td>
<td>22.52</td>
<td>602,694</td>
</tr>
<tr>
<td>Blue Creek Wind</td>
<td>39,883</td>
<td>17,708</td>
<td>12.76</td>
<td>9.77</td>
<td>17,731</td>
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<tr>
<td>EcoSmart Choice</td>
<td>28,995</td>
<td>12,874</td>
<td>9.28</td>
<td>7.10</td>
<td>12,890</td>
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<tr>
<td>Efficiency Smart</td>
<td>9,362</td>
<td>4,157</td>
<td>3.00</td>
<td>2.29</td>
<td>4,162</td>
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<tr>
<td>Solar Phase II</td>
<td>13,853</td>
<td>6,151</td>
<td>4.43</td>
<td>3.39</td>
<td>6,159</td>
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<tr>
<td>Carbon Offset****</td>
<td>467 acres</td>
<td>122</td>
<td></td>
<td></td>
<td>122</td>
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<tr>
<td>Forestation Projects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>907,346</td>
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</table>

  ** AMP’s share of the Greenup Hydro facility is 48.6 percent.
** Includes direct emissions reduced from methane (CO2e) and avoided emissions from CO2. [https://www.epa.gov/lmop/landfill-gas-energy-benefits-calculator](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 U.S. forest.
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**GREEN BOND FINANCED PROJECTS – Q4 2019 REPORT**

<table>
<thead>
<tr>
<th></th>
<th>Meldahl</th>
<th>Combined Hydro (Cannelton, Willow Island, Smithland)</th>
<th>Solar Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Renewable Capacity (MW)</td>
<td>108.8</td>
<td>208</td>
<td>36.8</td>
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<tr>
<td>Net Renewable Generation (MWh)</td>
<td>147,765</td>
<td>274,551</td>
<td>10,446</td>
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<tr>
<td>Capacity Factor (%)</td>
<td>62%</td>
<td>60%</td>
<td>N/R</td>
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<tr>
<td>Emissions Avoidance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2 (GHG) emissions avoided (Tons)</td>
<td>65,608</td>
<td>121,901</td>
<td>4,638</td>
</tr>
<tr>
<td>SO2 emissions avoided (Tons)</td>
<td>47.28</td>
<td>87.86</td>
<td>3.34</td>
</tr>
<tr>
<td>NOx emissions avoided (Tons)</td>
<td>36.20</td>
<td>67.26</td>
<td>N/R</td>
</tr>
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</table>

**2018 PJM Market Power Emissions Rate**

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>CO2 (GHG) emissions Factor (lbs/MWh)</td>
<td>888</td>
</tr>
<tr>
<td>SO2 emissions Factor (lbs/MWh)</td>
<td>0.64</td>
</tr>
<tr>
<td>NOx emissions Factor (lbs/MWh)</td>
<td>0.49</td>
</tr>
</tbody>
</table>

**2018 PJM Market Power Fuel Breakdown**

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Nuclear</td>
<td>34.20%</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>30.60%</td>
</tr>
<tr>
<td>Coal</td>
<td>28.60%</td>
</tr>
<tr>
<td>Wind and Solar</td>
<td>2.80%</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>2.30%</td>
</tr>
<tr>
<td>Other</td>
<td>1.50%</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

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N/R - not required for reporting
POWER GENERATION
in net MWh
Oct. 1, 2019 — Dec. 31, 2019

AMP Wind Farm (JV6): 3,324
AMP Fremont Energy Center (AFEC):* 277,077
Belleville Hydro (JV5): 74,002

Greenup Hydro: 92,435
Meldahl Hydro: 147,765
Cannelton Hydro: 125,881
Willow Island Hydro: 64,759

Smithland Hydro: 83,911
Prairie State Energy Campus (PSEC):** 729,582

Distributed Generation: 1,674
Landfill Gas: 91,908
Blue Creek Wind:** 39,883
Napoleon Solar: 837

Solar Phase II: 13,853

* Total plant  ** AMP’s share

ENERGY EFFICIENCY AND ECOSMART CHOICE
REC SALES
Oct. 1, 2019 — Dec. 31, 2019

Efficiency Smart Cumulative Savings
2014 — 2019: 116,989 MWh  2019 Q4: 9,362 MWh

EcoSmart Choice REC Sales: 28,995 MWh

HEALTH AND SAFETY
Oct. 1, 2019 — Dec. 31, 2019

Employee Work Related Fatalities: 0
Recordable Incidents or Accidents: 1
Lost Work Day Incidents: 0

COMMUNITY
Oct. 1, 2019 — Dec. 31, 2019

AMP Employee Charitable Giving: $4,340
ENVIRONMENT
emissions in short tons (AFEC, AMP share of Prairie State*, gas and diesel turbines)
Oct. 1, 2019 — Dec. 31, 2019

CO2 emissions: 954,807.2
SO2 emissions: 638.4
NOx emissions: 277.6
PM emissions: 25.8
CO emissions: 23.5
Hg emissions (in lbs): 4.05

* Prairie State data not yet certified

HAZARDOUS, UNIVERSAL, OTHER WASTE
Oct. 1, 2019 — Dec. 31, 2019
4,863 lbs. of waste, 6,900 lbs. of trash

TRASH PULLED FROM THE OHIO RIVER
Oct. 1, 2019 — Dec. 31, 2019
15,520 lbs

RECYCLING AND REUSE
Oct. 1, 2019 — Dec. 31, 2019
Recycled glass, plastic, metals, paper and cardboard
76,453 lbs.