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The key to understanding the future
is one word: SUSTAINABILITY

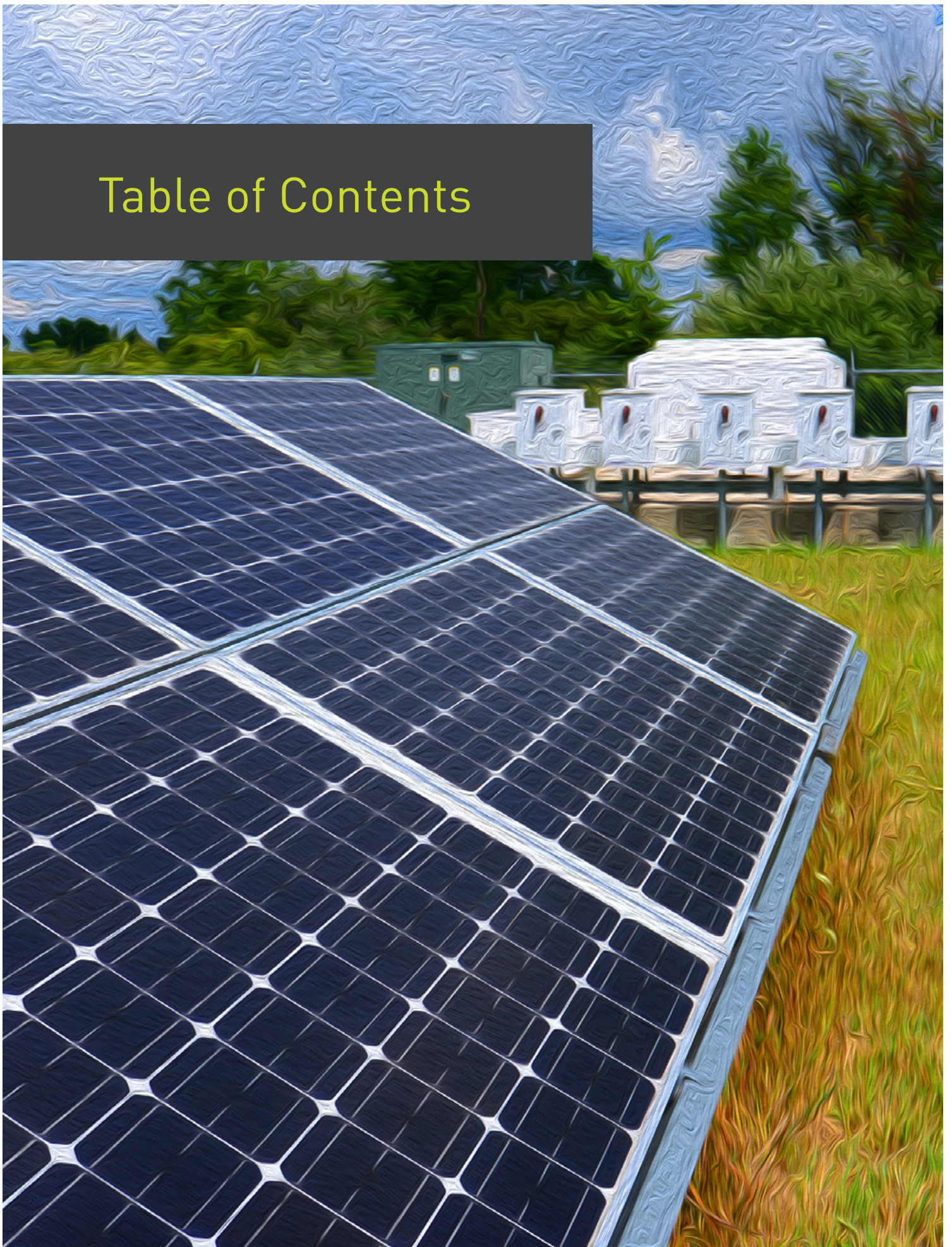
—Patrick Dickson

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AMERICAN MUNICIPAL POWER, INC.

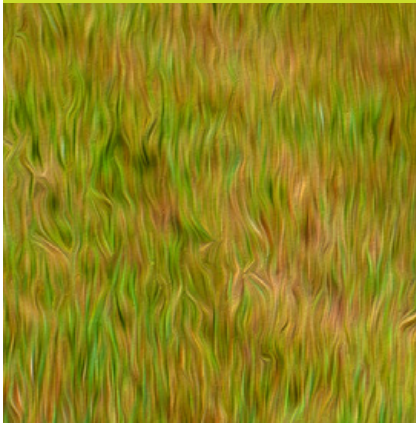
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2019

SUSTAINABILITY
REPORT



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American Municipal Power, Inc. (AMP) had another banner year in sustainability, expanding our members' already robust renewable energy portfolio with the completion of Solar Phase II sites in Brewster and Piqua, Ohio in 2019. AMP works hard to provide a balanced, sustainable power supply portfolio, as well as to reduce our overall emissions profile. The Solar Phase II project has helped to do that, bringing 14 solar sites online in Delaware, Michigan, Ohio and Virginia since 2017.

The Belleville Hydroelectric Plant celebrated 20 years of commercial operation in 2019, as it continued to outperform original feasibility studies. Belleville was the first of AMP's hydroelectric fleet, which now consists of six run-of-the-river hydroelectric facilities along the Ohio River. Hydroelectric generation is the most widely used form of renewable energy in the world today, and our run-of-the-river facilities provide participating members with access to some of the cleanest, most sustainable electric generation in the country.

In keeping with our Sustainability Principles, AMP also established an internal Carbon Leadership Team (CLT), a cross-departmental effort to help the organization and our members prepare for a carbon constrained future. Over the coming years, the CLT will work to provide AMP and its members with the information and education needed to reduce their carbon footprint while still providing industry-leading electric service.

This new team's work pairs nicely with the efforts of the Focus Forward Advisory Council (FFAC), which also did a great deal of good work in 2019. Throughout the year, the FFAC released a number of helpful resources and held five webinars on the topics of rate design, electric vehicle (EV) incentives, advanced metering infrastructure (AMI) and time-of-use rates, planning for EVs and regulatory updates on distributed energy resources.

In recognition of outstanding environmental and industrial operations balanced with industrial demands, SUEZ Water Technologies awarded the AMP Fremont Energy Center (AFEC) with its Return on Environment Award. This award recognizes SUEZ customers for significantly surpassing and improving environmental and industrial operational goals and represents the dedication to environmental responsibility that we strive for as an organization.

In the following pages, you will learn more about AMP's efforts and successes in fulfilling our commitment to our defined Sustainability Principles.



Marc S. Gerken, PE
President/CEO



Jeff Brediger
AMP Board of Trustees Chair
City of Orrville Director of Utilities

Providing a balanced and sustainable power supply portfolio

AMP is committed to providing its members with a variety of power supply options to best satisfy their respective preferences, values and needs. This includes maintaining a balanced portfolio of generation projects, power purchase agreements and a potential project development pipeline that includes cost-effective power supply options. In addition, AMP will ensure that energy efficiency, demand response and distributed energy resource (DER) options are available for members to integrate into their portfolios.

AMP maintains a balanced portfolio of generation projects and power purchase agreements, including coal, natural gas, diesel, hydropower, landfill gas, solar and wind. In 2019, AMP's renewable resources made up approximately 19 percent of its members' power supply needs. Visit the Generation section of the AMP website for additional information.

A few of the many noteworthy items in regards to AMP's power supply portfolio in 2019 are highlighted below.



Hydropower

AMP has one of the largest run-of-the-river developments of hydroelectric generation in the region. The six projects that AMP operates or owns, in whole or in part, on the Ohio River generated 1,827,830 megawatt hours (MWh) of renewable energy in 2019. Additionally, a number of AMP member communities operate their own locally-sited hydroelectric facilities.

Solar

Development of new solar continued as part of the AMP Solar Phase II Project, a partnership between AMP and DG AMP Solar, LLC, a subsidiary of NextEra Energy Resources.

Dedication ceremonies were held for the Brewster Solar Energy Center and Piqua Manier Solar Energy Center in October, celebrating completion of the 1.875 MW and 12.625 MW projects, respectively.

The Solar Phase II Project has a total of 49.45 MW in commercial operation at 14 facilities in AMP member communities. The total commissioned in 2019 was 14.5 MW (see table below). The average capacity factor for all Solar Phase II sites was 18 percent and total generation was 73,710 MWh. Additional sites are in development.

The Solar Phase II Project assists AMP members in reducing capacity and transmission costs, saving \$1.04 million and \$1.3 million, respectively, in 2019.

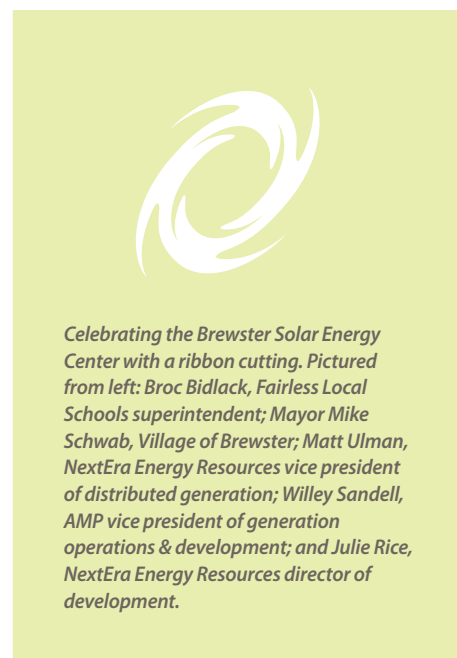
Site	COD	Capacity (MW)	MWh
Brewster	1/1/19	1.875	2,578
Piqua Manier	7/17/19	12.625	9,492

Demand Response

In 2019, peak alert notifications were sent out across eight transmission zones, with the average member seeing 17 alerts throughout the year. In addition to educating customers about load shaving with the Community Energy Savings Day communication toolkit, some AMP member communities scheduled equipment to run during non-peak times based on the peak alerts. Peaking generation units were also used to assist with load shaving in 2019. The combined efforts resulted in 500 MW of reduction, resulting in \$47.5 million in savings.

AMP continued its partnership with CPower Energy Management and worked with 13 members to enroll larger commercial/industrial customers in PJM’s Capacity Market Demand Response Program, for a total of 63.3 MW and program revenue of approximately \$1.3 million.

The City of Painesville joined the Efficiency Smart program and became the first to select the newly developed 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.



Reducing our overall emissions profile

AMP is committed to minimizing pollution, reducing waste and conserving natural resources by designing, constructing, operating and maintaining its facilities in an environmentally sound and responsible manner in compliance with all environmental obligations. AMP also prudently invests in projects to offset GHG emissions from its fossil generation resources.

AMP continues to provide efficient and reliable power while also striving to reduce and mitigate airborne emissions. The following highlights AMP's efforts to reduce its overall emissions profile.



Environmental Compliance

AMP prepared and submitted more than 293 compliance reports and performed more than 206 site inspections of AMP assets, with no violations cited by any regulatory agencies. AMP also optimized environmental monitoring for its diesel peaking fleet, which increased overall unit availability by 81 percent and reduced deviations by 96 percent. Additionally, an environmental management information system was utilized to assist with tracking 547 AMP-owned or -managed assets (units) across 51 sites to ensure compliant operations.



Lauren Etwiler, AMP environmental intern, standing next to an oak tree planted in 2012 in Hellbender Bluff Park. There were 125,800 trees planted over 185 acres in this park.

Carbon Leadership, Mitigation and Offset Projects

In June 2019, AMP President/CEO Marc Gerken convened an internal, cross-departmental, Carbon Leadership Team (CLT) to develop strategies designed to best position AMP and its members for a carbon-constrained world. The CLT has the following tasks either underway or completed:

- Identify risks to and opportunities for AMP and its members from a carbon-constrained future;
- Set a baseline year of 2015 and develop a greenhouse gas (GHG) emission inventory;
- Educate and inform members about the CLT and carbon emissions related to their energy supply;
- Initiate discussions to set a reduction target and identify strategies to meet the target; and
- Develop draft policy statements/positions for consideration.



Using The Greenhouse Gas Protocol: Corporate Accounting and Reporting Standard, the CLT chose an equity share approach for its GHG inventory, covering Scope 1 (direct from power generating assets and fleet vehicles), Scope 2 (indirect from energy used to power its facilities) and limited Scope 3 (power purchases — market or direct power-purchase agreements — made on behalf of its members).

Since the baseline year of 2015, AMP has reduced its GHG emissions from power supply by 12 percent and its GHG intensity by 16 percent.

The CLT used the Financial Stability Board's Final Report of Recommendations of the Task Force on Climate Related Financial Disclosures to help evaluate potential impacts and mitigation strategies for both carbon transition and physical climate. The guidance document also assisted in identifying potential opportunities to AMP and its members.

In addition, AMP continued to monitor its 467 acres of reforestation projects, conducting site visits in July and August, and worked with S2C Pacific LLC, an energy and environmental consulting firm, to engage various stakeholders on carbon management initiatives.





EcoSmart Choice

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

The nine communities participating in the EcoSmart Choice program purchased 101,650 MWh of green power (backed by RECs) through the program in 2019, which offset 43,251 tons of carbon dioxide (CO₂) emissions, 27.95 tons of sulfur dioxide (SO₂) emissions and 22.87 tons of nitrogen oxide (NO_x) emissions.*

Since 2018, the total MWhs reported by enrollees as part of this program have increased by 107 percent.

Participants were awarded sustainability grants totaling \$66,240 for their participation in the EcoSmart Choice Program (for 2018). At the direction of the AMP Board of Trustees, unused program funds were returned to participating members. Sustainability grants are intended to reward EcoSmart Choice participating communities who demonstrate their commitment to sustainability through local projects focused on environmental, economic and community benefits.

**Avoided emissions is derived from the amount of energy conserved multiplied by the PJM market power emissions rate.*

Using less

AMP recognizes the importance of energy efficiency as a strategy for improving system cost effectiveness, customer retention and business development. Reducing electricity demand and usage through innovative conservation efforts and efficiency improvements offered to AMP member communities results in conservation of natural resources and emissions reductions. AMP promotes the “reduce, reuse, recycle” principles of sustainability to its members and employees, and throughout its operations.

AMP provides and facilitates many programs and services to its members in an effort to use less. The following highlights the major accomplishments in this area throughout the past year.



Efficiency Smart

AMP's Efficiency Smart program helps residents, businesses and communities use less energy and save money by providing cost-effective energy efficiency services that provide reliable and verifiable cost savings.

AMP and program partner VEIC continued to adapt the program to help meet members' needs by modifying the High Performance Comprehensive Program to offer both energy and demand savings options.

In 2019, six additional communities signed up for the program, bringing the total to 31 participants.

Ambassador of Energy Efficiency awards were presented to organizations that completed energy efficiency projects resulting in significant energy savings for a participating community. As of Dec. 31, 2019, 39 organizations in 26 AMP member communities have been recognized with the award since its inception in 2013.

In 2019, participants conserved 20,019 MWh from the program. The cumulative net savings of the program (Jan. 1, 2011 – Dec. 31, 2019) are 238,035 MWh, which offset 101,284 tons of CO₂, 65.46 SO₂ and 53.56 tons NO_x emissions.

Visit www.energysmart.org for more information. Data listed for 2019 is preliminary and subject to third-party verification.

EFFICIENCY\$SMART

Key Account Energy Audits

There were two U.S. Department of Energy grant-subsidized energy audits completed in 2019 for members through the Direct Connections Program, with an estimated value of \$35,000.

Energy Efficiency Education

To encourage energy efficiency during the winter season, 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 members through the weekly e-newsletter, *Update*.

**Avoided emissions is derived from the amount of energy conserved multiplied by the PJM market power emissions rate.*

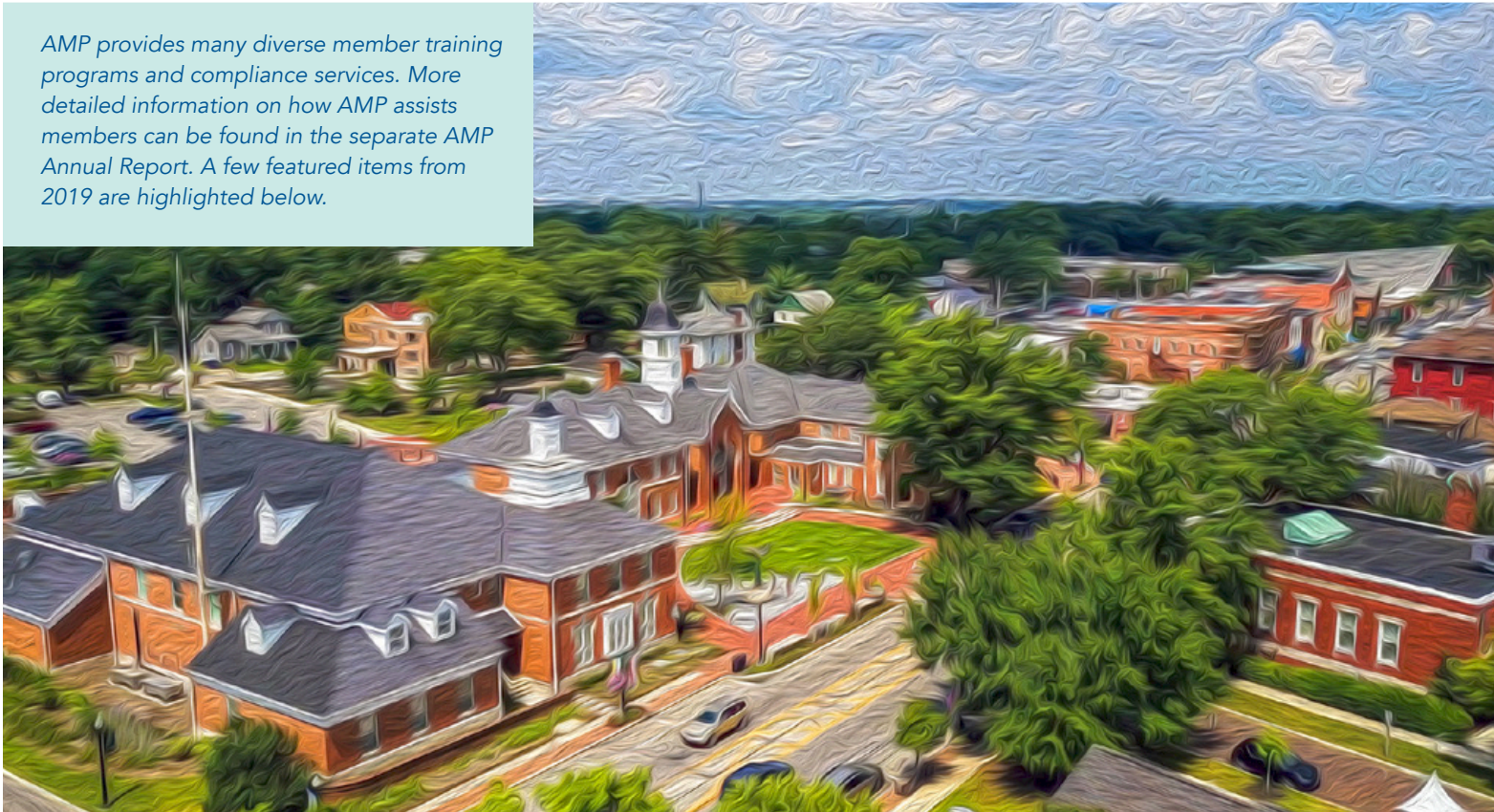


Steven Nyeste, Efficiency Smart senior marketing project manager, participates in a Customer Appreciation Day event in Eldorado.

Assisting member communities

AMP member municipal electric systems are critical components in the success of the communities they serve. Investment of capital – both financial and human – in AMP member communities is essential to ensure a good quality of life and foster economic development and growth. AMP provides ongoing employee training, safety instruction, project engineering and other technical programs to ensure that member communities have access to the most up-to-date information and services in these areas. AMP also collaborates with interested member communities to identify and provide economic development services, energy efficiency opportunities and sustainable development opportunities consistent with local preferences, values and needs. Looking to the future, AMP's member-led Focus Forward Advisory Council strives to inform and prepare members for the evolving electric utility industry.

AMP provides many diverse member training programs and compliance services. More detailed information on how AMP assists members can be found in the separate AMP Annual Report. A few featured items from 2019 are highlighted below.



Smart Energy Provider Program

AMP member communities Bowling Green and Westerville received the Smart Energy Provider (SEP) designation by the American Public Power Association (APPA) during their 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.

AMP actively engaged in the creation of the SEP program through the APPA stakeholder group and has a representative participating on the review panel.



Focus Forward

The member-led Focus Forward Initiative informs members of industry trends, emerging technologies and prepares for further integration of distributed energy resources (DER) onto their systems.

During 2019, five webinars were held covering rate design, electric vehicle (EV) incentives, AMI and time-of-use rates, how to plan for EVs, and regulatory updates on DER. Webinars averaged 20 attendees and were made available for viewing on the AMP's website Member Extranet page. Members were directly assisted with interconnection and rate design of DER, such as roof-top solar (23); and with guidance on EVs (27).

- The Public Power EV Planning Toolkit, funded by APPA's Demonstration of Energy & Efficiency Developments (DEED) program, provides municipal electric utilities a preliminary economic evaluation of electrification efforts associated with their internal fleet vehicles and increased loading on residential distributions system service transformers under various EV charging scenarios;
- An EV-dedicated, members-only page on the AMP website covering information on vehicles, charging infrastructure, charging behaviors, rates, incentives, trends and future considerations; and
- A supplemental *Focus Forward DER Rate Design: Steps and Lessons Learned* guide which provides information to help members design rates that are equitable, ensure cost recovery and fairly compensate customers that have DER.



Smart Electric Power Alliance Vice President Chris Schroeder presents a demonstration of the APPA EV Toolkit at the AMP/OMEA Annual Conference.



Cybersecurity and Advanced Metering Infrastructure

In 2019, AMP developed a new Cybersecurity Pilot program, enrolling five member communities to participate in the first phase of the new service. This initial phase will help inform the development of a Cybersecurity Program that will eventually be made available to all AMP members.

Additionally, the Advanced Metering Infrastructure (AMI) Program continues to grow, adding new member communities and providing an expert AMI solution that is purpose built for the unique needs of municipal utility systems.

Environmental Services to Members

AMP provided members with high quality, cost-effective compliance support and guidance tailored to meet their unique needs. This included assisting members with core services such as compliance program development and implementation, permitting, internal auditing, inspections and reporting. Additionally, AMP tracked regulatory developments at the state and national levels, submitted comments on proposed rules and provided regular updates on these activities.

Green Bonds

On Jan. 8, \$55.2 million in tax-exempt electric prepayment bonds (Green Bonds) were sold as part of the financing plan for the AMP Solar Phase II Project. The financing generated a significant amount of interest in the bond market, as evidenced by the number of high-quality investors who purchased the bonds.

The financing also received two green endorsements. The first came in the form of a favorable Second Party Opinion (SPO) from Sustainalytics, Inc., a Toronto-based independent ESG environmental, social and corporate governance research, rating and analytics firm. The second came in the form of the highest Green Bond Assessment (GBA) that can be issued by Moody's Investors Service. Moody's issued a GB1 or Excellent, rating after reviewing the project assessment criteria submitted by AMP.

Reaching out to stakeholders

AMP engages with stakeholder entities – including (but not limited to) government, business, academia, media and utility organizations – in an effort to ensure that they understand the purpose, role and value of public power, along with AMP’s mission and vision. AMP leverages this outreach to promote AMP and member interests. AMP encourages member communities to identify potential partnership opportunities as well.

AMP continues to foster existing relationships with stakeholders, as well as developing new ones. Several examples of how this was accomplished in 2019 are highlighted below.



2019 AMP/OMEA Annual Conference

More than 365 participants attended the 2019 AMP/OMEA Annual Conference, Sept. 23–25, held at the Hilton Columbus at Easton. During the conference, participants attended panel discussions and presentations on energy market trends including updates on efforts to control transmission costs and incentives available to assist customers with peak shaving and separate power supply agreements. Additional topics included the impact of electric vehicles on residential distribution systems, programs to support AMP members with technology needs and the annual federal legislative update.

Legislative and Regulatory

AMP and the Ohio Municipal Electric Association (OMEA) tracked key pieces of legislation and regulations, and provided updates to members regarding activities by legislators in AMP footprint states, Congress, the Federal Energy Regulatory Commission (FERC), PJM, Midcontinent Independent System Operator, Inc. (MISO), and federal and state environmental protection agencies (EPA), among others.

In 2019, legislative efforts at both federal and state levels were very active. There were 11 calls-to-action mobilizing member grassroots efforts on legislative issues.

At the federal level, AMP continued to raise awareness about rising transmission rates and push for an end to the sequestration of Build America Bonds (BABs) and New Clean Renewable Energy Bonds (New CREBs). Additionally, increased discussions on climate change are setting the table for potential legislation on the issue, and AMP is working to ensure that its interests are properly represented in any legislation. FERC's December 2019 order on PJM's MOPR and the Environmental Protection Agency's (EPA) new ACE Rule will impact the industry for years to come, and AMP has worked to make clear its stance on both issues.

During the 2019 APPA Legislative Rally, more than 45 participants from 25 AMP member communities secured 26 meetings with congressional lawmakers or their staff, and raised concerns about increasing transmission costs, the continued sequestration of BABs and New CREBs, and regulatory overreach by the Federal Communications Commission. Additionally, AMP was a primary sponsor of an APPA resolution in support of controlling transmission costs, and served as co-sponsor on two others that affirmed local control of pole attachments and supported municipal bond modernization, respectively.

At the state level, AMP staff worked to represent the organization's interests on a number of important issues throughout its member footprint. In Ohio, AMP, along with OMEA, worked to bring changes to Ohio's nuclear subsidy legislation, House Bill 6, to mitigate the impact on AMP and member electric systems.

AMP and OMEA members visit the U.S. Capitol during the 2019 APPA Legislative Rally. Pictured from left: Robert Patrick, Wadsworth director of public service and AMP Board of Trustees vice chair; U.S. Rep. Anthony Gonzalez (R-Ohio); Mayor David Handwerk, Orrville; Jeff Brediger, Orrville director of utilities and AMP Board of Trustees chair.





Hydropower Awareness Campaign

AMP has one of the largest run-of-the-river developments of hydroelectric generation in the country. The six projects AMP operates or owns (in whole or in part) along the Ohio River provide more than 400 MW of renewable energy generation. Additionally, a number of AMP member communities operate their own locally-sited hydroelectric facilities.

In 2019, AMP continued to educate stakeholders about the benefits and importance of this long-term, zero-carbon resource.

Per request, on March 19, testimony was provided regarding AMP's hydroelectric facilities to the Ohio House Energy and Natural Resources Subcommittee on Energy Generation as they sought a better understanding of generation as a whole.

National Hydropower Day was celebrated on Aug. 23 in partnership with the National Hydropower Association and over 100 other companies, organizations and individuals who promoted hydropower through social and traditional media. Overall the campaign earned more than 11 million impressions generated on social media and garnered support from members of Congress and numerous government agencies and officials.

Solar in Delaware

U.S. Senator Tom Carper (D-Del.) spent time visiting the Delaware Municipal Electric Corporation (DEMEC) and touring the Smyrna Solar Facility on Jan. 18. DEMEC was joined by the Town of Smyrna (DEMEC member community), AMP and NextEra Energy Resources to provide insight on public power benefits, DEMEC's leadership in advancing renewables in Delaware, and the partnership that facilitated the construction, funding and implementation of the Smyrna Solar project as part of AMP's Solar Phase II Project. The visit ended with a tour of the 14-acre facility and a greater understanding of the environmental benefits brought to Delaware through this project.

Supporting Research and Development

AMP has been a member of the APPA DEED Program since 2003. In 2017, AMP began paying the DEED dues on behalf of its 135 members. AMP encourages its members to participate in the program by providing assistance to utilities in the grant application process. By way of example, AMP member, Bryan Municipal Utilities, utilized the DEED Scholarship Program to train a student on field utility applications of GIS and the City of Westerville Electric Division currently has a DEED grant to research, analyze, test and recommend a turnkey drone program for efficient management of municipal distribution systems.

In addition to DEED, AMP is an active member of the Smart Electric Power Alliance (SEPA) and serves on several of its working groups including energy storage, electric vehicles, community solar and the utility conference planning committee. AMP Board of Trustees member, Chris Monacelli of the City of Westerville serves on SEPA's Utility Advisory Council.

AMP is also an active member of The Energy Authority (TEA). Marc Gerken, past President/CEO of AMP, served as Chairman of the Board. AMP President/CEO Marc Gerken served as TEA Chairman of the Board and Jolene Thompson, AMP executive vice president of member services and external affairs, serves on the TEA Board. AMP participates in TEA's annual Hackathon, an event that brings employees from a variety of TEA clients together as teams to create inventive solutions to impending issues challenging the public power industry.



U.S. Sen. Tom Carper (D-Del.) visits DEMEC. Pictured from left: Gary Stulir, Town of Smyrna town manager and DEMEC Board member; Sen. Tom Carper; Kimberly Schlichting, DEMEC chief operating officer and senior vice president of power supply; Willey Sandell, AMP vice president of generation operations & development.

Leading by example

AMP encourages its officers and employees to lead by example through increased efforts to recycle and conserve energy, both at home and in the workplace. To the extent practicable, AMP uses its headquarters to demonstrate the use of green building principles, distributed energy resources and energy efficient technologies, thus leading by example. AMP assists members as they pursue innovations in the rapidly changing electric utility industry, increase environmental stewardship and meet customer needs. Through AMP's internal Innovation Team and industry group memberships, AMP strives to be informed and engaged as power sector technological advances and trends progress. AMP reports its sustainability and environmental stewardship actions on both a quarterly and an annual basis and, where possible, measures its success in achieving the goals laid out by these Sustainability Principles.

Striving to be public power's leader in wholesale energy supply and value-added Member services, as declared in the AMP vision statement, carries with it the responsibility to help set the standard for sustainability. Key efforts of AMP-specific sustainability for the year are highlighted below.

AMP receives the APPA Safety Award of Excellence at the 2019 APPA Engineering and Operations Technical Conference. Pictured from left: Keith Cutshall, chair of the APPA Safety Committee; Lee Doyle, AMP corporate health and safety manager; and Mike Hyland, APPA senior vice president of Engineering Services.



Corporate Safety

AMP generation facilities placed first for the American Public Power Association's Safety Award of Excellence and continued its strong corporate safety efforts with no lost time accidents and one recordable incident for 2019. In addition, AMP provided new hire safety training and active shooter training for employees.

The Prairie State Generating Company's (PSGC) power plant team was recognized by the Southern Illinois District of the Occupational Safety and Health Administration for receiving the Southern Illinois Occupational Safety and Health (SIOSH) Excellence Award for General Industry. The SIOSH Award is presented annually to compliment a company with exemplary safety and health practices.

Also, for the second year in a row, PSGC Lively Grove Mine received an award for having the best (lowest) incident rate for a Division 1 mine in the state of Illinois. The award is issued annually by the Illinois Department of Natural Resources, Office of Mines and Minerals.

AMP DNA Award

Erin Miller was recognized as the AMP 2019 DNA Award recipient. Miller is the Assistant Vice President of Energy Policy and Sustainability with AMP's member services department and has been with the organization since 2017.

AMP President and CEO, Marc Gerken, initiated the annual award to recognize an employee who advances AMP's vision and mission and exemplifies AMP's core values: cooperation, integrity, innovation, action oriented, effective communication and member focused.



AMP Innovation Team

AMP President/CEO Marc Gerken presented the Innovation 2030 Roadmap during the AMP/OMEA Annual Conference. The roadmap was developed by AMP's internal Innovation Team (I-Team) to identify current trends and technology disruptions, create strategies that could increase and/or maintain member loads, and explore new energy service offerings. Five initial disruptors were explored: decarbonization, decentralization, democratization, digitization and electrification.

AMP Engagement Team

The AMP Engagement Team's (E-Team) mission is to engage AMP employees through programs, activities and resources that support civic responsibility, health and wellness, and uphold AMP's sustainability principles. The E-Team organized more than 30 employee engagement events and activities throughout the year.

AMP Sustainability Initiatives

AMP completed a number of sustainability initiatives within its facilities to conserve natural resources, and in many cases, saved money. Details are broken out below.

Conserving and Protecting Water

- More than 42 tons of trash was removed from the Ohio River at AMP's hydroelectric power plants.
- The irrigation system in place at AMP headquarters was decommissioned in 2019. This reduced AMP's summer water usage from an average of 561 ccf to 202 centum cubic feet (ccf), saving approximately \$3,000 annually. Additionally, by not using the sprinkler system, AMP saves \$1,344 in annual operations and maintenance (O&M) costs.
- Traditionally, annual flowers were planted throughout AMP's property, but in 2019, perennial, native, drought tolerant plants were chosen, saving approximately \$5,000 annually in landscaping costs.

Conserving Energy

- Lighting at AMP's facilities was upgraded from T12 to T8 or LED lighting.
- A new cooling tower valve was installed to better regulate the temperature of cooling loop water, making the chiller more efficient, run less and use less energy.

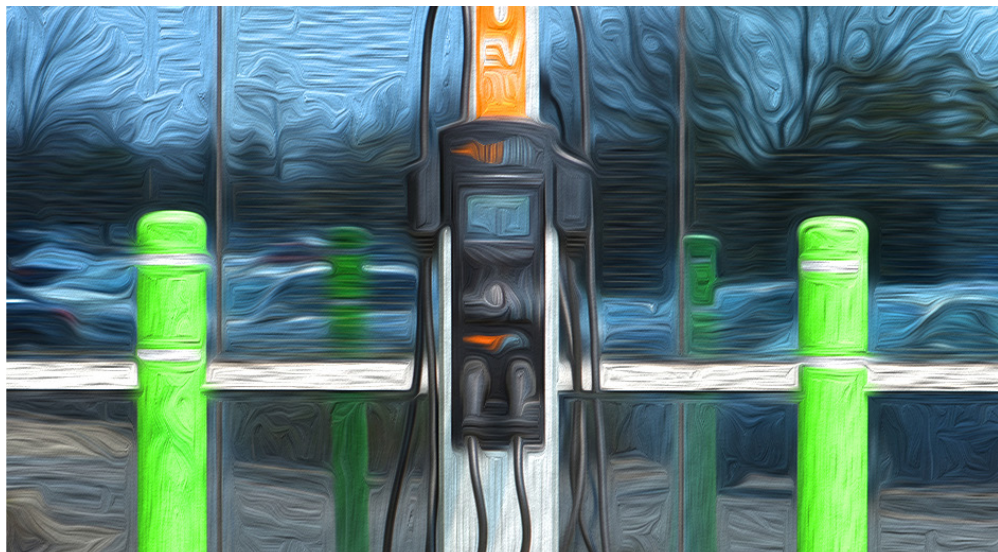
Green Transportation

- The headquarter's Level 2 EV charging station served 112 charging sessions in 2019, dispensing 1,391 kWh and preventing 584 kg of GHG emissions.

Waste Reduction

- More than 5,020 pounds of building materials were repurposed during the training center remodeling project.
- Approximately 66 tons of material was recycled and 63 tons of trash was safely disposed; resulting in a 51 percent diversion rate from AMP facilities.
- In celebration of Earth Day, AMP hosted a secure electronic waste (e-waste) and paper shredding/recycling drive for employees and occupants of adjacent buildings where 3,579 pounds of e-waste (Accurate IT) and 1,000 pounds of paper (Iron Mountain) were disposed of. Additionally, financial contributions and 103 pounds of non-perishable food was collected for the Worthington Resource Pantry.

Mark Rinehart, AMP director of facilities maintenance director (left), and Raymond Brown, AMP facilities maintenance load items into the electronic waste collection truck during AMP's Earth Day efforts in April 2019.



Awards and Recognitions

The AMP Fremont Energy Center received the Return on Environment Award from SUEZ Water Technologies and Solutions. The award recognizes SUEZ customers for significantly surpassing and improving environmental and industrial operational goals while balancing industrial demands. The award demonstrates the dedication to environmental responsibility represented by the partnership between SUEZ, AMP and the NAES Corporation.

In September, the U.S. Department of Energy (DOE), announced that the Prairie State Energy Company has been selected as the site of a \$15 million DOE carbon capture study project.

The project will produce a front-end engineering and design (FEED) study at one of its 800-MW coal-fired power units. The FEED study provides an opportunity to fully understand the costs and operational impacts of such a system.



Utility officials from Wadsworth, Cuyahoga Falls, Orrville and Hudson receive Mutual Aid Commendations at the 2019 AMP/ OMEA Annual Conference for providing assistance to the City of Painesville during an electrical emergency.



Staff Giving and Charitable Efforts

In 2019, AMP employees contributed a total of \$21,178, through the payroll deduction program, to 15 different charities chosen by employees.

AMP supported employee volunteer efforts for the Worthington Resource Pantry. Seven events were held throughout the year with 48 volunteers providing 96 hours of service.

In February, staff contributed \$601 through the company's second annual Charity Chili Cook-off and in October, AMP held a Spooky Cuisine Bake-Off charity event raising \$718. Both events benefitted the Alzheimer's Association, Central Ohio Chapter.

An American Red Cross blood drive event was held at headquarters in Columbus on May 1 and produced 12 productive units of blood.

The annual AMP Holiday Donation Drive resulted in donations to:

- Worthington Resource Pantry
- Mid-Ohio Food Bank
- United Methodist Free Store
- YMCA
- Lubeck Foodbank
- Toys for Tots
- Leadership Sandusky County

Member Awards for Innovation and Sustainability

AMP recognizes efforts of its members to innovate and presents the Innovation and Electric System Sustainability Awards annually. In 2019, Dover Light and Power was recognized for the installation of a new compressor to increase reliability and efficiency of the Dover Power Plant gas turbine; Cleveland Public Power for the Brooklyn Solar Project; and Westerville Electric Division for the Nest Rush Hour Rewards Thermostat Program and for their PowerUp Commercial: Electric Vehicle Supply Equipment Rebate Program.



Support of Public Power

Annually, AMP awards its members for their promotional efforts in marketing, consumer awareness and branding public power. In 2019, AMP recognized several members for their efforts in promoting public power. At its Annual Conference in September, AMP presented Public Power Promotions awards to the Cuyahoga Falls Electric Department for their “Celebrating 130 Years of Public Power” events; and the Westerville Electric Division for their promotional video, “The People Behind the Power.” Receiving honorable mention for advancing awareness of the benefits of public power were Cleveland Public Power, Dover Light & Power, Hamilton Department of Infrastructure, Hudson Public Power, Painesville Municipal Electric, the City of Wadsworth and the Village of Yellow Springs.

Through its Public Power Connections initiative, AMP provides its members with information to help their customers develop a better understanding of the electric industry and the benefits of public power. AMP has developed communication toolkits covering the benefits of public power, Public Power Week, careers in public power and the Community Energy Savings Day program — requesting that customers reduce energy use during times of peak demand.

In addition, AMP is integrally engaged in both the American Public Power Association and the Large Public Power Council.

Awards to Member Communities

In the generation category, safety awards were presented to:

- Bryan Municipal Utilities
- Dover Light & Power
- City of Hamilton Hydroelectric Power Plant

In the transmission/distribution category, safety awards were presented to:

- Bryan Municipal Utilities
- Borough of Ephrata Electric Division
- Village of Haskins Municipal Light and Power
- Kutztown Electric Department
- Minster Electric Department
- Montpelier Municipal Utility
- Napoleon Light & Power
- Oak Harbor Public Power
- Orrville Utilities
- Shelby Division of Electricity and Communications
- St. Clairsville Light and Power
- City of St. Marys Municipal Electric System
- Village of Versailles Utilities
- Village of Wellington Utilities
- Village of Yellow Springs

Safety Commendations were presented to:

- Berlin Electric Utility Department (Md.)
- City of Columbus, Division of Power
- Cuyahoga Falls Electric Department
- Dover Light & Power
- Hudson Public Power
- Orrville Utilities
- City of Wadsworth Electric and Communications
- Westerville Electric Division



AMP President/CEO Marc Gerken (right) presents Dave Filippi, Dover plant superintendent and AMP Board member, with the AMP Innovation and Electric System Sustainability Award for the installation of a new compressor to increase reliability and efficiency of the Dover Power Plant gas turbine.

Mutual Aid Commendations were presented to:

- Bowling Green Municipal Utilities for providing assistance to the Village of Bloomdale and cities of Celina and Lansing
- Village of Bradner for providing assistance to the Village of Bloomdale
- Bryan Municipal Utilities for providing assistance to the cities of Shelby, Coldwater and Celina
- Coldwater Board of Public Affairs for providing assistance to the City of Celina
- Cuyahoga Falls Electric System for providing assistance to the cities of Painesville and Shelby
- Galion Electric Division for providing assistance to the City of Shelby
- Hamilton Department of Electric for providing assistance to the City of Tallahassee
- Hillsdale Board of Public Utilities for providing assistance to the cities of Shelby, Coldwater and Lansing
- Hudson Public Power for providing assistance to the cities of Painesville and Shelby
- Jackson Center Municipal Electric System for providing assistance to the cities of Shelby and Celina
- Lebanon Municipal Electric for providing assistance to the City of Tallahassee
- City of Marshall Electric Department for providing assistance to the City of Coldwater
- Village of Minster Electric Department for providing assistance to the City of Celina
- Village of Monroeville Electric Department for providing assistance to the Village of Milan
- Montpelier Municipal Utilities for providing assistance to the City of Celina
- Napoleon Light & Power for providing assistance to the cities of Shelby and Celina
- Village of New Bremen Utilities for providing assistance to the City of Celina
- Oberlin Municipal Light and Power System for providing assistance to the Village of Plymouth and the City of Shelby
- Orrville Utilities for providing assistance to the cities of Painesville and Shelby
- Paducah Power System for providing assistance to the City of Tallahassee
- Painesville Municipal Electric Division for providing assistance to the Navajo Nation
- Pioneer Light Department for providing assistance to cities of Shelby and Celina
- Piqua Power System for providing assistance to the cities of Tallahassee, Williamstown, Shelby, Tipp City, Celina and the Navajo Nation
- Plymouth Municipal Power for providing assistance to the City of Shelby
- St. Clairsville Light and Power Department for providing assistance to the Village of Woodsfield
- City of St. Marys Municipal Electric System for providing assistance to the City of Celina
- Shelby Division of Electricity and Communications for providing assistance to the Village of Lucas.
- Tipp City Municipal Utilities for providing assistance to the cities of Tallahassee and Shelby
- City of Wadsworth for providing assistance to the cities of Painesville and Shelby, and the Navajo Nation
- Wapakoneta Electric Department for providing assistance to the City of Celina
- Westerville Electric Division for providing assistance to the cities of Tallahassee, Celina, Shelby, Williamstown, and the villages of Shiloh and Prospect



Innovation Awards were presented to:

- Dover Light & Power for the Natural Gas Compressor project.
- Westerville Electric Division for the Nest Rush Hour Rewards program.

Public Power Promotion Awards were presented to:

- Cuyahoga Falls Electric Department for the “Celebrating 130 Years of Public Power” events.
- Westerville Electric Division for the “People Behind the Power” video.

System Improvement Awards were presented to:

- Hamilton Department of Infrastructure for the Ring Bus Installation, Phase 1 and Greenup Plant Modernization projects.
- Minster Electric Department for the Electrical GIS Mapping project.
- Wapakoneta Electric Department for the Pratt Substation project.

Electric System Sustainability Awards were presented to:

- Cleveland Public Power for the Brooklyn Solar project.
- Westerville Electric Division for the PowerUp Commercial EVSE Rebate Program.

AMP Hard Hat Safety Awards were presented to:

- Village of Bradner Board of Public Affairs
- Bryan Municipal Utilities
- Cleveland Public Power
- Clyde Light and Power
- Cuyahoga Falls Electric Department
- Dover Light & Power
- Borough of Ephrata Electric Division
- City of Hamilton Department of Infrastructure
- Village of Haskins Municipal Light and Power
- Hudson Public Power
- Village of Lucas Electric Company
- Montpelier Municipal Utility
- City of Niles Light Department
- Oak Harbor Public Power
- Orrville Utilities
- Painesville Municipal Electric
- Village of Shiloh
- St. Clairsville Light and Power
- Tipp City Municipal Utilities
- Village of Versailles Utilities
- City of Wadsworth Electric and Communications
- Westerville Electric Division

The 15 AMP members below received Reliable Public Power Provider (RP3) designation from the APPA in 2019. To date, 30 members hold the designation.

GOLD

Painesville Municipal Electric

PLATINUM

*City of Columbus, Division of Power
Jackson Center Municipal Electric System
Montpelier Municipal Utility
Napoleon Light & Power
Princeton Electric Plant Board
Tipp City Municipal Utilities
Village of Versailles Utilities
Wapakoneta Electric Department*

DIAMOND

*Cuyahoga Falls Electric Department
Hamilton Department of Infrastructure
Hillsdale Board of Public Utilities
Minster Electric Department
Paducah Power System
Westerville Electric Division*



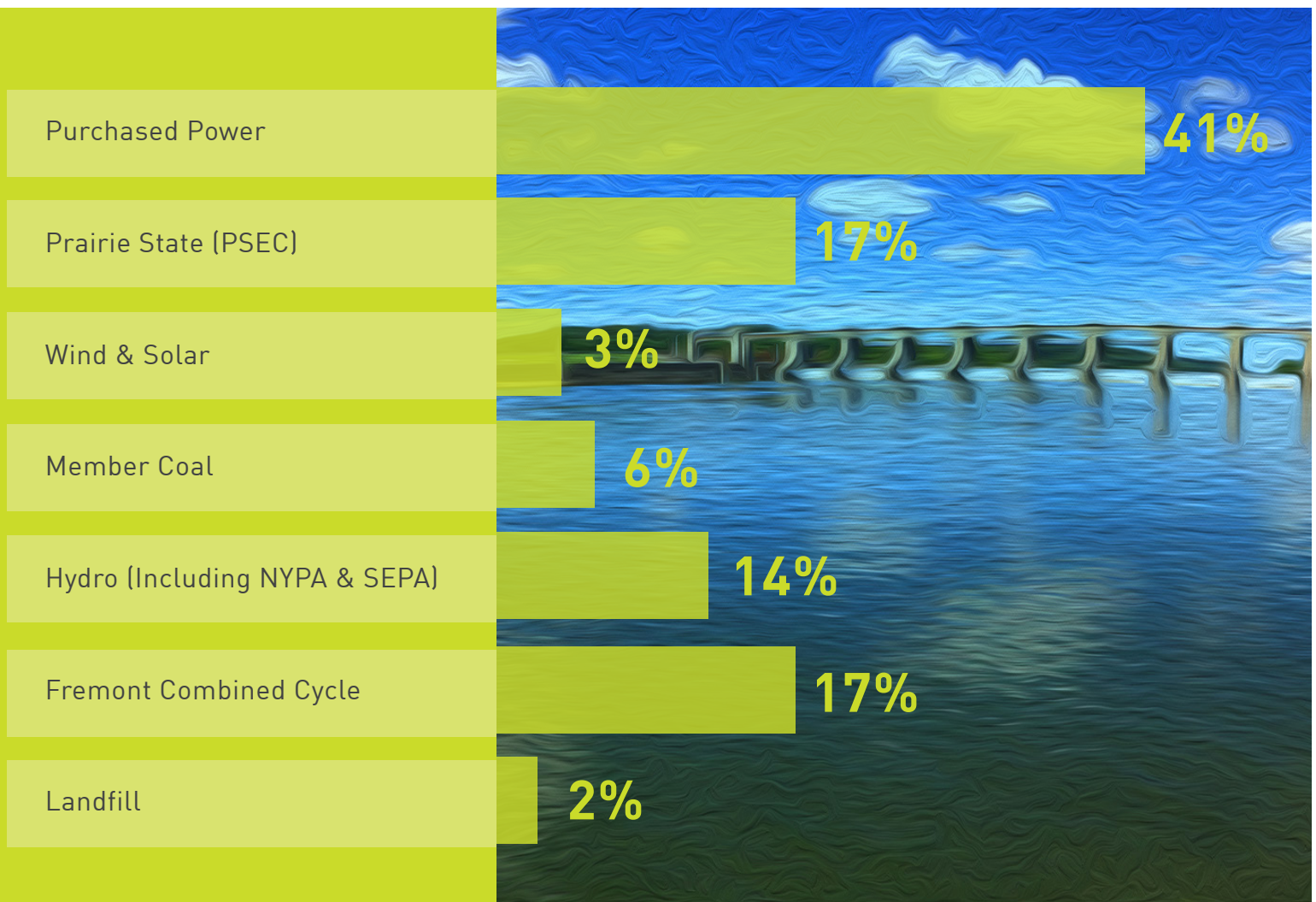
Westerville Electric Division received the AMP Public Power Promotion award for their promotional video, “The People Behind the Power,” at the AMP/OMEA Annual Conference. Pictured from left: Chris Monacelli, Westerville electric utility manager and AMP Board member; Tara Trigg, Westerville electric division business manager; and AMP President/CEO Marc Gerken.

Two AMP members received Smart Energy Provider Program designation from the APPA in 2019.

- Westerville Electric Division
- Bowling Green Municipal Utilities

2019 AMP Member Energy Resource Mix

(17,000,000 MWh)



NOTES:

- The Wind & Solar percentage includes member-owned solar.
- The Hydro percentage includes member-owned hydro, NYPA and SEPA.
- The Member Coal figure includes the participation of AMP members Paducah and Princeton in PSEC through the Kentucky Municipal Power Association.

Sustainability Performance 2015-2019

	2015	2016	2017	2018	2019
AMP Organization and Financial Metrics					
Number of member communities	131	135	135	135	135
Load (in million MWh)	16.5	16.7	16.4	17.2	17.2*
System peak (in MW)	3,378	3,416	3,400	3,478	3,489
Electric revenue (in \$)	\$1,103,886,270	\$1,218,475,675	\$1,203,615,402	\$1,243,722,977	\$1,138,687,466
Service fees (in \$)	\$11,515,575	\$11,501,983	\$10,981,725	\$11,679,120	\$11,439,922
Programs and other revenue (in \$)	\$12,589,167	\$12,513,647	\$14,362,362	\$13,393,319	\$19,907,027
Operating expenses (in \$)	\$1,002,832,762	\$1,028,599,138	\$982,458,119	\$1,045,579,528	\$957,096,466
Net margin (in \$)	\$5,823,840	\$10,247,552	\$3,530,525	\$2,787,334	\$5,270,932
Number of employees (AMP and MESA as of 12/31)	180	156	165	156	175
Power Generation (in net MWh)					
Prairie State Energy Campus (AMP share)	2,592,694	2,461,472	2,514,386	2,657,311	2,792,841
AFEC	3,649,554	2,683,735	3,154,240	4,034,478	3,528,972
Belleville Hydro	258,668	273,205	274,360	226,031	271,433
Distributed Generation (gas, diesel units)	9,498	19,615	17,139	22,803	12,816
AMP Wind Farm	13,086	10,892	12,076	11,214	11,231
Napoleon Solar	5,111	4,888	4,905	3,736	4,409
Greenup Hydro (total plant)	0	235,313	259,398	211,362	257,437
Meldahl Hydro (total plant)	0	366,655	490,875	425,049	482,357
Cannelton Hydro	0	343,202	449,129	354,851	392,271
Willow Island Hydro	0	218,242	230,523	207,698	243,583
Landfill Gas (PPA)	373,821	363,104	382,320	387,750	379,807
Blue Creek Wind (PPA)	138,109	136,861	141,448	126,108	133,947
Smithland Hydro	0	0	164,489	219,454	180,750
Solar Phase II (PPA)	0	0	42,233	57,281	73,710
NYPA/SEPA Hydro (PPA, not Cleveland)	364,465	364,929	389,496	362,434	394,046
Total	7,405,006	7,482,113	8,527,017	9,307,560	9,159,610
<i>Note: Total plant accounted for unless noted as PPA or AMP share</i>					
Efficiency and Other Offsets to Traditional Generation					
Efficiency Smart - cumulative generation savings since 2011 (in MWh)**	159,416	189,950	204,865	218,636	238,035
Cumulative % of 2011-2013 targets	-	-	-	-	-
Cumulative % of 2014-2016 targets	97%	161%	146%	-	-
Cumulative % of 2017-2019 targets	-	-	36%	75%	122%
EcoSmart Choice (green energy sales in MWh)	41,871	48,021	43,420	49,187	101,647
Health and Safety					
Employee work-related fatalities	0	0	0	0	0
Reportable incidents or accidents	1	2	1	0	1
Lost work-day incidents	1	1	0	0	0

* The reported load (in million MWh) for 2019 is an estimate.

** 2017-2019 targets include linear allocations of the Efficiency Smart 2 contract for Hamilton, which ran from February 2015 through March 2018.

	2015	2016	2017	2018	2019
Environment					
Permit violations	0	0	0	0	0
Fines or penalties	0	0	0	0	0
NPDES permit exceedances	0	1 ¹	0	0	0
CO2 emissions (in short tons)	3,967,732	3,798,210	4,068,820	4,732,824	4,706,281
Annual CO2 emission rate (in lbs/MWh)	1,127	1,067	1000	1,058	1,074
SO2 emissions (in short tons)	1,824	2,010	2,178	2,394	2,497
Annual SO2 emission rate (in lbs/MWh)	0.518	0.565	0.535	0.535	0.570
NOx emissions (in short tons)	894	1033	1035	1,171	1,154
Annual NOx emission rate (in lbs/MWh)	0.254	0.290	0.254	0.262	0.263
PM emissions (in short tons)	79	122	100	139	126
Annual PM emission rate (in lbs/MWh)	0.022	0.034	0.025	0.031	0.029
CO emissions (in short tons)	352	146	106	164	121
Annual CO emission rate (in lbs/MWh)	0.100	0.041	0.026	0.04	0.03
VOC emissions (in short tons)	14	29	44	40	20
Annual VOC emission rate (in lbs/MWh)	0.004	0.008	0.011	0.009	0.005
Cooling water usage AFEC (net, in million gallons)	467	540	602	878	827
Cooling water usage AMP share of PSEC (in million gallons)	1,308	1,105	1,107	1,177	1,159
AMP HQ recycling (estimate, in pounds)	19,200	10,410	58,525	70,926	132,824
Forestry carbon projects – cumulative acres of trees planted	210	467	467	467	467
Community					
Number of scholarships awarded	8	8	8	8	8
Value of scholarships awarded	\$16,000	\$16,000	\$20,000	\$20,000	\$20,000
AMP employee charitable giving (payroll deduction in \$)	\$14,213	\$18,396	\$21,863	\$25,129	\$21,178

¹ minor sampling exceedance that has been addressed



Emissions Avoidance 2019 Report

AMP Renewable Energy Production, Energy Efficiency: emissions avoidance	2019 MWh	CO2 emissions avoided (Tons)*	S02 emissions avoided (Tons)*	NOx emissions avoided (Tons)*	Total emissions avoided (Tons)
Belleville Hydro (JV5)	271,433	115,495	74.64	61.07	115,630
Greenup Hydro	257,437	109,539	70.80	57.92	109,668
Meldahl Hydro	482,357	205,243	132.65	108.53	205,484
Cannelton Hydro	392,271	166,911	107.87	88.26	167,107
Willow Island Hydro	243,583	103,645	66.99	54.81	103,766
Smithland Hydro	180,750	76,909	49.71	40.67	77,000
AMP Wind Farm (JV6)	11,231	4,779	3.09	2.53	4784
Napoleon Solar	4,409	1,876	1.21	0.99	1878
Landfill Gas***	379,807	2,483,375	104.45	85.46	2,483,565
Blue Creek Wind	133,947	56,994	36.84	30.14	57,061
EcoSmart Choice	101,647	43,251	27.95	22.87	43,302
Efficiency Smart	238,035	101,284	65.46	53.56	101,403
Solar Phase II	73,710	31,364	20.27	16.58	31,400
Carbon Offset Forestation Projects	467 acres	487**			487
					3,482,489

*<https://www.pjm.com/-/media/library/reports-notices/special-reports/2019/2019-emissions-report.ashx?la=en>

**USEPA estimates 1.043 tons of CO2 is sequestered annually by one acre of average U.S. 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/Solar Projects 2019 Report

	Meldahl	Combined Hydro (Cannelton, Willow Island, Smithland)	Solar Phase II
Net renewable capacity (MW)	108.8	208	36.8
Net renewable generation (MWh)	425,049	782,003	64,218
Capacity factor (%)	45%	43%	N/R
Emissions avoidance ^{[1][2]}			
Annual CO2 (GHG) emissions avoided (Tons)	188,722	347,209	27,325
SO2 emissions avoided (Tons)	136.02	250.24	17.66
NOx emissions avoided (Tons)	104.14	191.59	N/R

*PJM Market Power Emissions Rate [1]	2019
CO2 emissions factor (lbs/MWh)	851
SO2 emissions factor (lbs/MWh)	0.55
NOx emissions factor (lbs/MWh)	0.45

2019 PJM Market Power Fuel Breakdown [2]	2019
Nuclear	33.60%
Natural Gas	36.20%
Coal	23.80%
Wind and Solar	3.20%
Hydroelectric	2.00%
Other	1.20%
Total	100.00%

^[1] PJM 2015-2019 CO2, SO2 and Nox Emissions Rates Report April 9, 2020

^[2] PJM State of the Market Report, 2019 Table 3-50

N/R indicates not required to be reported

Michigan

- Marshall
- Union City
- Coldwater

- Wyandotte
- Clinton
- Hillsdale

Painesville

- Member Baseload Generation
- AMP Owned Distributed Generation
- JV2 Diesel Generation
- JV2 Gas Turbine
- Member Peaking or Back-Up Generation
- Behind the Meter Peaking Generation
- Hydroelectric Generation
- AMP Member Without Generation
- JV6 Wind Farm
- AMP Fremont Energy Center (AFEC)
- Delaware Municipal Electric Corp. (DEMEC members: Newark, New Castle, Middletown, Clayton, Smyrna, Dover, Milford, Lewes and Seaford)
- AMP Napoleon Solar Facility
- AMP Solar Phase II
- Prairie State Energy Campus

Indiana

Ohio

- Pioneer
- Holiday City
- Delta
- Toledo
- Genoa
- Elmore
- Haskins
- Oak Harbor
- Huron
- Cleveland
- Newton Falls
- Niles
- Hubbard
- Montpelier
- Bryan
- Pemberville
- Woodville
- AFEC
- Clyde
- Milan
- Oberlin
- Grafton
- Hudson
- Wellington
- Cuyahoga Falls
- Wadsworth
- Marshallville
- Edgerton
- Napoleon
- Bradner
- Monroeville
- Seville
- Lodi
- Orrville
- Columbiana
- Custar
- Cygnets
- Bloomdale
- Republic
- Greenwich
- Plymouth
- Shiloh
- Lodi
- Orrville
- Brewster
- Beach City
- Deshler
- Carey
- Wharton
- Sycamore
- Shelby
- Lucas
- Ohio City
- Mendon
- Wapakoneta
- Waynesfield
- Galion
- Prospect
- St. Marys
- New Knoxville
- Lakeview
- Dover
- New Bremen
- Jackson Center
- Minster
- Piqua
- Westerville
- Columbus
- St. Clairsville
- Woodsfield
- New Martinsville
- Arcanum
- Tipp City
- South Vienna
- Willow Island Hydroelectric Plant (AMP)
- Belleville Hydroelectric Plant (OMEGA JVS)
- Eldorado
- Lebanon
- Blanchester
- Hamilton
- Batavia
- Georgetown
- Greenup Hydroelectric Plant (Hamilton/AMP)
- Williamstown
- Meldahl Hydroelectric Plant (Hamilton/AMP)
- Berea
- Richlands
- Benham
- Jackson
- Glouster
- St. Clairsville
- New Martinsville
- Woodsfield
- Willow Island Hydroelectric Plant (AMP)
- Belleville Hydroelectric Plant (OMEGA JVS)

Illinois

Prairie State Energy Campus

- Cannelton
- Smithland Hydroelectric Plant (AMP)
- Paducah
- Princeton

- Cannelton Hydroelectric Plant (AMP)

Kentucky

Berea

West Virginia

Richlands



“

You have to go charging ahead, you can't stay behind

—Grace Coddington

”



2019

SUSTAINABILITY
REPORT

American Municipal Power, Inc.
1111 Schrock Road, Suite 100
Columbus, Ohio 43229
614.540.1111
www.amppartners.org

For more information contact:
Holly Karg
Director of Media Relations
and Communications
hkarg@amppartners.org

