



WEST VIRGINIA



OFFICE OF

ENERGY



2019

ANNUAL

REPORT





In 2019 the WV Office of Energy (WVOE) continued to make itself more visible throughout the state, while striving to expand its opportunities and continuing to offer quality programs to its constituents.

WVOE works closely with organizations and agencies throughout West Virginia, providing up-to-date training and continuing education opportunities to various groups, individuals and organizations throughout the multifaceted energy industry.

During the year WVOE connected with our residents and businesses through events and expos, providing informational resources and several educational workshops, educating the public and those within the energy industry. Through these efforts WVOE interacted with thousands of West Virginians to share our services and expertise.





THE WEST VIRGINIA OFFICE OF ENERGY is responsible for the formulation and implementation of fossil, renewable and energy efficiency initiatives designed to advance energy resource development opportunities and provide energy services to businesses, communities and homeowners in West Virginia.

The primary funding source for the office is the U.S. Department of Energy’s State Energy Program. The WV Office of Energy is the only state entity legally eligible to implement State Energy Program projects; therefore; its duties are prohibited from privatization.

Priority areas for the office include buildings and industry; policy, planning and energy security; energy education; transportation; electric power and renewable energy and energy resiliency and emergency response. Our role is to support and promote a variety of energy-related projects; provide education, training and technical assistance; host workshops and conferences, and collaborate with local governments, organizations and agencies.

2019 PARTNERSHIPS



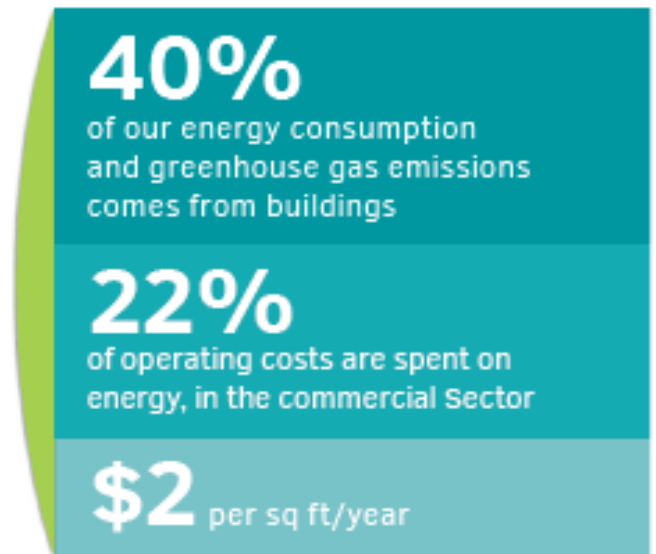
ENERGY BENCHMARKING



In September 2018, WVOE was selected for a \$300,000 U.S. Department of Energy, State Energy Program competitive award: “Energy Performance Benchmarking of State-Owned Buildings,” beginning with public schools. Understanding that you can’t manage what you don’t measure, WVOE partners with WV ASHRAE, WV Department of Education’s Office of School Facilities and WVU Statler School of Engineering. Activity on this project began February 2019.

Nearly 1/3 (300 buildings) of public K-12 schools have been benchmarked in the first year of the project. Utility data and costs from 25 counties have been compiled and average cost per square foot of space calculated. One example: in Kanawha County, a 30,000 sq. ft. elementary school that is 30% less efficient than the average, costing the county \$18,000 more in utility bills.

Benchmarking in public buildings allows accurate comparisons of utility costs, building-to-building. It provides better visibility of performance changes, aging of equipment and maintenance needs, identifying the best opportunities to save the most money.



WHY BENCHMARK?

Manage Energy Costs

Utility payments (electric, gas and water) are the largest non-fixed business expenditure. Merely measuring and gaining awareness of a building’s energy use can lead to a reduction in energy use – benchmarked buildings average 2.4% avoided energy costs. Buildings that benchmark for three straight years save an average of

Market Transformation

Benchmarking has been shown to drive energy efficiency upgrades, increase occupancy rates and property values, as well as provide a lower risk to lenders.



CONNECTING COMMUNITIES — through — ENERGY



The focus of 2019 “Connecting Communities through Energy” conference June 11-12 at Canaan Valley Resort expanded to include energy efficiency, renewables, and alternative fuels, while in the past it only focused on one topic at a time.

The meeting was well-received with nearly 85 participants and received local news coverage.

The conference featured panels on training and technical assistance, and the wind and wood industry in WV. Additionally, it included speakers on the economics of electric vehicles, environmental site development, biomass, and the economics of solar.



THE GOVERNOR'S
ENERGY
summit



embracing
ENERGY
opportunities



October 7-9, 2019
Stonewall Resort
ROANOKE, WEST VIRGINIA

ENERGY summit



The 2019 West Virginia Governor's Energy Summit – Embracing Energy Opportunities, boasted over 200 participants and brought together energy experts on a wide variety of topics. The event featured seventeen sponsors. This year included pre-conference workshops for the first time that garnered immense interest.



Featured speakers and topics included updates from the WVU Energy Institute, National Energy Technology Laboratory, and TechConnect WV. Discussion panels covered Women in Energy, and Resiliency in Energy Security. Along topics included petrochemicals, shale development, solar economics, energy conversion, wind energy, utilities, property rights, benchmarking, and net zero home designs.



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ENERGY EDUCATION

Through a partnership with the WVU Statler School of Engineering Office of Mechanical Engineering, WVOE provide no-cost technical assistance, special projects and / or energy audits to public buildings and eligible West Virginia businesses. Participating graduate and undergraduate engineering students are paired with clients needing help with an energy efficiency or productivity issue. Students receive class credit for a senior or graduate capstone course, as well as 40-60 hours of hands on field experience.

In 2019, 30 audits and 15 special projects were conducted through the program year. Early response to participant surveys show 50% of audit recommendations are being considered for implementation in 2020. Sixty-three engineering students received field experience. Projects identified annual energy savings of over 10,000,000 kWh, 300,000 MMBtu, and annual monetary savings of \$1,750,000.



ENERGY EDUCATION



In 2019, a new relationship with the WV Community and Technical College system provides opportunities to advance energy efficiency workforce training through its established construction management program.

During the year, a Building Performance Institute training center was established, on the Charleston campus of BridgeValley CTC, which will allow for the development and expansion of a state energy efficiency training program. Seminars, workshops and classes provided in 2019 focused on high performance building, benchmarking and other areas of energy efficiency and conservation. Partners, and training have included:

- Home Builders Association of WV Foundation: Home Energy Rating System (HERS), Building Performance Institute (BPI), Train the Trainer the state's commercial energy code
- WV Code Officials Association: Complying with ASHRAE 90.1 - 2010
- WV ASHRAE: Energy Benchmarking in Public Buildings; Understanding ASHRAE 90.1 - 2010
- Energy Efficient WV: Green Realtor Training; Building Science Principles

Success of local efficiency policies and programs is linked to the availability of a strong, capable workforce to carry out the upgrades needed to achieve energy savings and program goals. The policies can create jobs, but the state of the local workforce determines the scale and quality of implementation. Local governments and skills-training providers need to work together to capitalize on efficiency investment as an economic development tool.





TRANSPORTATION

The WV Clean State Program has been active for over 25 years, with a focus on the promotion of reduction of imported petroleum by advancing the use of alternative fuels and vehicles. During 2019, the program was heavily active throughout the state at various events with education booths, workshops and ride and drive demos. In 2019, stakeholders reduced their petroleum consumption by 654,182 gasoline gallon equivalents through the use of electric and hybrid vehicles, propane, biodiesel, and compressed natural gas. From 2018 to 2019, West Virginia saw an increase of 21% in the number of alternative fuel vehicles registered in the state. Currently the state has 125 public and private alternative fuels stations: two of 2 compressed natural gas stations, 34 E85 stations, 235 electric vehicle charging outlets and 14 propane stations.

2019 EVENTS

- WV International Auto Show
- WV EXPO
- WV School Transportation Workshop
- Connecting Communities Conference
- Propane Autogas Technicians Workshop
- WV International Association of Electrical Inspectors
- Sustainable Fleet Conference
- Clean Cities Coordinator Training
- National Drive Electric Week
- Governor’s Energy Summit
- Bridgeport Rotary Club
- Marshall University Earth Day
- WV Solar Congress





ENERGY ICONS



COAL

More than three-fourths of West Virginia's mined coal is shipped out of state, mostly to about two dozen other states, but also to other countries.



NATURAL GAS

West Virginia is the seventh-largest natural gas-producing state in the nation, largely because of shale gas production.



OIL

Recent drilling in the Marcellus Shale in West Virginia has discovered liquid hydrocarbons, including crude oil and natural gas liquids.



WIND

There are almost 700 megawatts of installed wind capacity in West Virginia, and, recently, wind energy contributed slightly more than hydropower to the state's net electricity generation.



HYDRO

West Virginia's largest hydroelectric facility, with more than 100 megawatts of capacity, was built in the 1930s, and the newest, with a capacity of 80 megawatts, began operating in 2001.



SOLAR

There are 8.9 megawatts of net-metered solar in West Virginia with 973 net-metered solar arrays.



BIOMASS

West Virginia is the third most heavily forested state in the nation covering more than 12 million acres of forest land.



GEOTHERMAL

West Virginia University is pursuing local geothermal options to provide heating and cooling to the campus, estimating that geothermal could save up to \$1 million each year in heating and cooling costs.



ENERGY EFFICIENCY

In West Virginia, 430,949 customers are served by ENERGY STAR utility partners and 713 homes have earned the ENERGY STAR. More than 105 million square feet (1,790 buildings) have been benchmarked using EPA's ENERGY STAR Portfolio Manager, and 94 buildings have earned the ENERGY STAR for superior efficiency, including 41 schools, two hospitals, four office buildings, and one industrial plant.



ALTERNATIVE FUELS AND VEHICLES

West Virginia has three compressed natural gas fueling stations, 96 electric vehicle charging stations (219 outlets), 34 ethanol stations with 22 of those offering ethanol blends of E15 and E85, and 14 propane fueling stations.



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