

2010 Annual Development Plan West Virginia Division of Energy

The West Virginia Division of Energy (WVDOE) is required by 5B-2F-2(f) of the *West Virginia Code* to submit an annual report to the Governor and the Joint Committee on Government and Finance. It requires that the report “shall relate to the division’s implementation of the energy policy and the activities of the division during the previous year” on or before the first day of December of each year. This submission addresses activities for the period Jan. 1-Nov. 30, 2010.

The WVDOE consists of two divisions: the Office of Coalfield Community Development (OCCD) and the Energy Efficiency Program (EEP). The WVDOE director serves as chairman of the West Virginia Public Energy Authority (PEA) and administers its daily operation. The activities for the reporting period are addressed by energy source resource area as described in the state energy plan, “West Virginia Energy Opportunities”: fossil fuels, renewable energy and energy efficiency. This report will address each resource area and the activities of WVDOE in supporting these objectives.

American Recovery and Reinvestment Act activities:

The division is administering **\$41.8 million** in American Recovery and Reinvestment Act Funding. Activities under four programs, Energy Assurance, the State Energy Program (SEP), the Energy Efficiency and Conservation Block Grant (EECBG) and Industrial Assessment Centers-Plant Best Practices, were developed and will continue until April 2012.

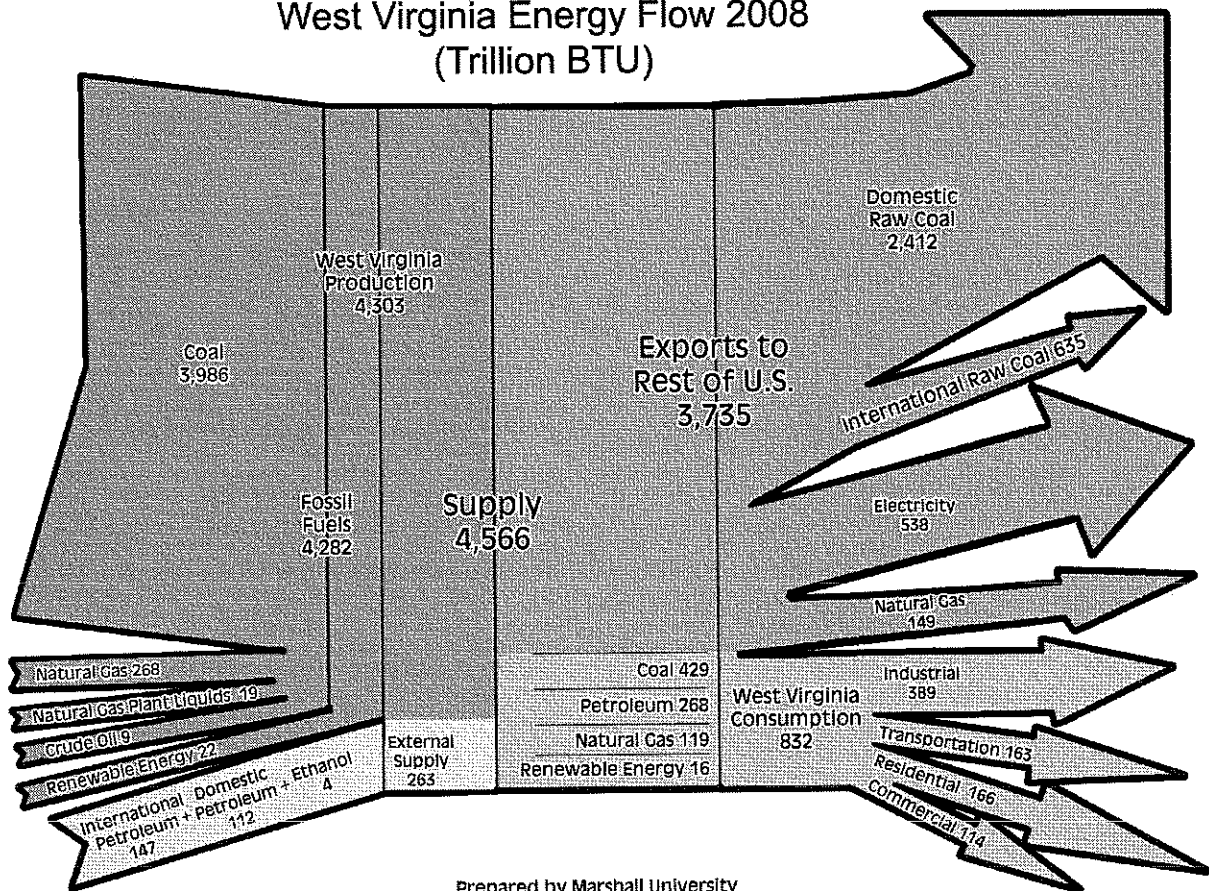
- Energy Assurance/ARRA: **\$366,482** is supporting a review and development of a proposed revision to West Virginia’s Emergency Operations Plan (EOP) energy emergency section (Annex V). WVDOE, in cooperation with the West Virginia Department of Military Affairs and Public Safety (DMAPS) and WVU, is developing a revised plan component, a data tracking system to support the proposed planning component, and will conduct training on energy emergency tools and issues for state and local first responders.
- State Energy Program/ARRA: **\$31 million** is supporting energy efficiency retrofits in state-owned buildings. Retrofits, involving seven state agencies, include lighting, HVAC and window upgrades in 77 buildings totaling nearly 6 million square feet. This program also will result in switching Huttonsville Correctional Center from oil to natural gas, saving \$400,000 in annual heating costs. The program will also result in a geothermal system for a new elementary school in Berkeley County. **\$1 million** is supporting green jobs curricula (wind, solar, building performance and energy code training) in selected community and technical colleges.
- Energy Efficiency and Conservation Block Grant Program: **\$9 million** is currently providing energy efficiency retrofits 127 projects in buildings owned by 91 local governments. WVDOE has contracted West Virginia’s 11 Regional Planning and Development Councils to develop and administer these projects. Activities include installation of insulation, installation of energy efficient lighting, HVAC upgrades, weather sealing and replacement of windows and doors in city halls and county courthouses. Another component of this program is the WVU IAC Technical Assistance Program. The WVU Industrial Assessment Center provided two presentations, a webinar and 22 assessments, including two on-site audits, to assist local governments in identifying energy efficiency measures that could be funded with EECBG monies. A third activity funded through EECBG is the Building Energy Collaborative. The New River Community and Technical College (NRCTC) has facilitated a regional stakeholders meeting to promote awareness of building codes and energy efficiency. Initiatives also include support for ENERGY STAR homes rating system training to Habitat for Humanity - West Virginia affiliates and exploration of the utilization of West Virginia’s low temperature geothermal resources for community and industrial purposes.

- Industrial Assessment Centers-Plant Best Practices: A \$500,000 ARRA award has enabled a multi-state approach to the WV Save Energy Now program to include collaboration with Pennsylvania and Tennessee. First year activities include five energy assessments and industrial grade audits for industries as well as the development of an energy management certification pilot program.

Fossil fuels

- Since its inception, WVDOE has coordinated annual Governor's Energy Summits. The summits, sponsored by the West Virginia Governor's Office, the West Virginia Department of Commerce and the Southern States Energy Board, have gathered energy experts at Stonewall Resort in Roanoke, W.Va. In 2010, the fourth annual event, "Maintaining Energy Leadership," featured presentations including "The Challenges of Electric Generation," "McElroy Mine Methane Emissions Abatement Project," "Infrastructure Investment Opportunities in WV," "Carbon Capture and Sequestration at Mountaineer Plant," "An Environmental Perspective," "West Virginia's Geothermal Opportunity," "FutureGen 2.0: An Oxy-Combustion Coal-Fueled Power Plant with CO₂ Storage," "Industries of the Future – West Virginia," "Constructing a Wind Farm in West Virginia," "Biodiesel in West Virginia," "History of the Spruce Mine Permit" and "West Virginia's Legal Challenge of EPA."
- West Virginia, with substantial quality coal reserves, abundant water, an established energy infrastructure and trained work force, is in a position to capitalize economically on advanced coal technology such as carbon capture and storage (CCS). WVDOE and the West Virginia University National Research Center for Coal and Energy are continuing a multi-agency task force to address fossil energy priorities identified in the state energy plan, "West Virginia Energy Opportunities," with a focus on carbon sequestration. Current year activities included work on identifying the suitability of the CO₂ storage capacity in deep saline aquifers, which represent an enormous potential.
- TransGas Development Systems LLC (TGDS) has received an air permit from the W.Va. Department of Environmental Protection's Division of Air Quality as part of the process to build a \$3 billion coal-to-liquids plant in West Virginia. The company has contracted with gasification technology provider, Uhde, and secured a methanol-to-gasoline technology license from Exxon Mobil. A construction contractor has been selected with construction to start in summer 2011. Projected to be operational by 2013, the plant will be built in Mingo County's new energy park near Gilbert. The construction phase is expected to generate 3,000 jobs. When fully staffed, the facility will employ as many as 200 workers. TGDS estimates the facility will use up to 3 million tons of locally mined coal a year to produce more than 6.5 million barrels of gasoline.
- The Center for Business and Economic Research (CBER) at Marshall University is engaged in several components of legislatively directed activities related to preparation of an energy use database and is continually updating the information. CBER created energy flow charts for the state of West Virginia for the years 2005, 2006, 2007 and 2008 detailing energy production by resource, exports by resource and consumption by sector. **[See chart, West Virginia Energy flow 2008 (Trillion BTU)]** Time series data on the components of the charts are also collected and posted within CBER's website.

West Virginia Energy Flow 2008 (Trillion BTU)



Prepared by Marshall University
under contract to WV Division of Energy

- Coal/biomass to liquids activities include identification of biomass resources and meetings regarding coal blending opportunities. Upon request, WVDOE supports the production of reports on the availability of biomass resources within 50 and 100 miles of a proposed business location.

The Office of Coalfield Community Development activities for the period included:

- The review of approximately 37 permits, consisting of approximately 25 original notifications of requirement to file community impact statements (CIS). The office approved 37 new and updated CIS plans during the period. This number includes amended CIS that were submitted by being notified with an amendment letter that if any changes had been made to the original CIS new pages that contain the updated information must be submitted.
- OCCD approved more than 56 exemptions from requirements to file CIS plans. Most of these exemptions were granted to non-surface mine operations and permits beyond their first renewal period.
- Twenty counties have updated or created their Land Use Master Plans.
- OCCD's contract work with the Brownfield Assistance Centers has been extended to complete Land Use Master Plans for the remaining nine counties.
- MOU with the West Virginia National Guard to evaluate sites for future uses for the guard.
- OCCD has contracted with the Appalachian Hardwood Center to establish a report on the estimated amount of biomass on surface mine sites prior to mining.
- OCCD established a survey of projects on surface mine sites that found 43 projects have produced more than 13,000 jobs on sites post mining.

- OCCD has used the survey above to establish action items for the office.
- OCCD has met with large land owners, securing agreement for OCCD to review maps of their properties for development opportunities.
- OCCD assisted the West Virginia Development Office at biomass and wind trade shows.
- The W.Va. Division of Energy was awarded an ARC grant to assist with six renewable energy projects on surface mine sites. The office has also given a wind testing unit to Marshall University where it will be testing wind on surface mine sites through December of 2011.
- OCCD has hosted several different groups to view surface mine sites for development including biomass companies, solar companies and investment firms.
- OCCD established rules for the office based on legislation.
- The OCCD is developing a written policy regarding the content of future action reports.

Action report summary:

In 2010, the following action items were developed to be used for performance measures in 2011:

- Work with the Corridor G Regional Development Authority as well as the county development authorities of Lincoln, Boone, Logan and Mingo to recruit, expand or create an economic development project that will create direct employment opportunities in that region.
- Work with county development authorities with current mining operations that have large infrastructure and building investments to ensure those resources are protected from destruction post mining.
- Market renewable energy opportunities as well as the ability to sell them into other state's portfolios.
- Work with the W.Va. Department of Environmental Protection to study the Bechtel reserve to see what other development opportunities could be fostered through abandoned mine land monies.

Renewable energy

- On June 30, the West Virginia Public Service Commission issued a ruling that modifies the state's net metering rules and adopts standard interconnection procedures. The state has been praised for several aspects of the ruling, notably for allowing a geographical expansion of net metering on property owned or leased by the customer and within two miles of the customer's service location. Highlights from the rule include:
 - System size limits: 25 kW residential, 500 kW commercial, 2 MW industrial
 - Program enrollment limit: up to 3% of utility peak load
 - Rollover: full monthly rollover at retail with no annual true-up (perpetual rollover)
 - Ability to net meter on TOU rates
 - Ability to aggregate meters within 2 miles of generation
 - Accommodation of third-party owned systems
 - Rules apply to all utilities including municipal utilities and co-ops, although system size caps of 50 kW apply for utilities with less than 30,000 customers
 - No disconnect switch requirements for inverter-based systems less than 25kW

- Reasonable insurance limits (systems up to 50 kW must have general liability insurance of \$100,000; 50 kW – 500 kW must have \$500,000; greater than 500 kW must have \$1,000,000)
 - Two levels of Review: Level 1 – Small Generator Facilities of 25 kW or less, which are inverter-based and certified; Level 2 – Small Generator Facilities of 2 MW or less that do not qualify for Level 1. WVDOE continues to promote the development of renewable energy in West Virginia, working with developers to locate projects including hydroelectric, wood-fired power and wind.
- As of November 2010, 35 West Virginia county school systems power their school buses with biodiesel.
 - The division is collaborating with the W.Va. Geological and Economic Survey and Marshall University on evaluating the potential for geothermal resource development in West Virginia.
 - WVDOE received \$400,000 from the Appalachian Regional Commission for the development of renewable energy projects on surface-mined lands. The program is managed through the WVDOE's relationship with Marshall University's Center for Environmental, Geotechnical and Applied Sciences (CEGAS). Initiative 1 projects include:
 - Lowell Institute for Mineral Resources, University of Arizona, in partnership with Solarmax of Arizona to install and monitor a 4KW solar energy pilot unit on the West Virginia Department of Environmental Protection's Alton surface mine property.
 - Mingo County Redevelopment Authority, Mingo County Board of Education, PIMBY Energy LLC to install a 2.5KW solar energy system on the property of Mingo High School in southeastern Mingo County, W.Va., a former surface mine property, to demonstrate the potential for photovoltaic power systems to convert sunlight directly into electricity on lands left open to sky when reclaimed for economic development.
 - National Mine Land Reclamation Center in partnership with White Technologies, LLC, to plant *Arundo donax*, or giant reed, for evaluation as a potential carbon capture and renewable energy crop on the West Virginia Department of Environmental Protection's Alton surface mine property as a test plot.
 - Lowell Institute for Mineral Resources, University of Arizona, in partnership with Solarmax of Arizona to install and monitor a 6KW solar energy pilot unit on Pardee Ventures LLC former surface mine site.
 - Mingo County Redevelopment Authority, in partnership with the Mingo County 4-H Camp, to plant tree seedlings of various species on approximately 38.5 acres of post-mine land use property for future wood energy use, property being reclaimed as a youth camp and sports complex, using volunteers from various local/regional schools and nonprofit organizations for tree-planting activities.
 - Webster County Economic Development Authority in partnership with Plum Creek Timber Company to plant tree seedlings of various species on a 52-acre tract of land in Webster County near the town of Jerryville. Purpose

of project is to establish tree cover on former surface mine land to improve soil and water conditions, increase terrestrial carbon capture and produce wood for future biomass use.

Initiative 2 includes ongoing Sonic Detection and Ranging (SODAR) wind data collection and analysis.

- The West Virginia Wind Working Group, in cooperation with WVDOE, hosted its annual symposium on wind energy development in West Virginia. More than 60 representatives of the wind energy industry, government, utilities and the environmental community attended the session, which featured presentations including “Pinnacle Project Overview,” “An Update on Wind Energy Research at Marshall University,” “Overcoming Barriers to Wind Development in Appalachian Coal Country,” “Dominion Resources, Inc. Project Financing Market Overview,” “Issues with Interconnecting Wind Generation to the Transmission Grid” and “A Season of Wind Assessment on Surface-Mined Land.”
- A W.Va. Wood Working Group has been formed to explore issues such as wood-fired power plants and wood pellet production facilities.

Energy efficiency

- WVDOE launched E3-WV, a new technical assistance program designed to help small businesses and manufacturers improve their economic, energy and environmental performance. The program will help the state’s businesses adapt and thrive in a new business era focused on energy efficiency and sustainability. Three organizations headquartered at West Virginia University – Industries of the Future-West Virginia (IOF-WV), the DOE-funded Industrial Assessment Center (IAC) and the West Virginia Manufacturing Extension Partnership (WVMEP) – will work together in carrying out the project.
- Supported by WVDOE, student teams with the WVU Projects With Industry program and the Industrial Gas Utilization and Industrial Assessment programs continue to provide process energy analyses to West Virginia industry and manufacturers. Businesses include Diamond Electric Co., Eleanor, WV; Novelis Aluminum, Fairmont, WV; Sen. Frank Deem, Gas Field Electric Generation, and New Vision LLC, Philippi, WV.
- The respective WVDOE-supported Centers for Building Energy Use (CBEU) at WVU and WVUIT have provided energy benchmarking, audits and technical assistance in 2010 to five county school systems. These include Monongalia County Schools, Pleasants County Schools, Pendleton County Schools, Randolph County Schools and Ohio County Schools.
- In 2010, the Center for Building Energy Use (CBEU) program assisted Pendleton County Schools in benchmarking and evaluating two of its schools are eligible for the prestigious ENERGY STAR® Building awards. The CBEU has performed this service since 2007, when it assisted Wyoming County Schools in identifying eight of its 13 schools as ENERGY STAR® Building schools. It also assisted Fairmont State University in certifying Morrow Hall as an ENERGY STAR® Building.
- In its third and final year, the state’s ENERGY STAR sales tax holiday eliminated sales tax on purchases of ENERGY STAR products valued at \$5,000 or less. WVDOE supported this activity through a four-color handout and promotion on its website.
- In October, the W.Va. Public Service Commission approved the implementation of energy efficiency and demand response (EEDR) programs for Appalachian Power Company and Wheeling Power Company, both dba American Electric Power, including, SMART lighting, residential home retrofit, residential low income and the commercial and industrial (C&I) incentive.