

West Virginia Citizens' Energy Plan

For Economic Opportunities and a Sustainable Future



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**Representing West Virginia “Special Interests”:
People Who Want to Breathe Clean Air and Drink Clean Water**

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I. Introduction

For the last 150 years fossil fuels have energized our lives, but global energy needs are depleting these nonrenewable resources at a dramatic pace and there is now clear scientific evidence that the gases produced when these carbon-based fuels are burned are the major cause of global climate change. Antiquated habits, like depending solely on fossil fuels and continuing to pollute the Earth's atmosphere, therefore require a major reevaluation in our thinking and how we live our everyday lives.

Recent occurrences such as increased gasoline prices and observable impacts of climate change have raised the public's awareness of the problems as well as the opportunities related to our energy choices. The time for an official commitment to renewable energy development has come. In an historically coal-dominated state such as West Virginia, changing the trajectory is not easy; it is, however, the only responsible thing to do. Many other states, such as Pennsylvania (another "coal" state) for example, have already embraced renewable energy as an important component of their state energy portfolios to the economic and environmental benefit of every citizen.

West Virginia should not miss out on the opportunity to benefit from the transition to renewable energy that is already underway.

Climate Change. Empirical data show that the earth's temperature is rising. Scientific consensus affirms that this warming is caused by the use of carbon-based fuels such as coal and petroleum. Assessments from the UN's Intergovernmental Panel on Climate Change (IPCC) predict that escalating temperatures, rising sea levels (7 to 23 inches by 2100) and more frequent extreme weather phenomena pose some of the most significant threats faced by humanity. Already, sea level is rising by approximately 2 mm per year.

The worst effects of climate change can be avoided if greenhouse gas emissions are cut sufficiently and quickly enough. This is a significant challenge, requiring the replacement of fossil fuels with renewable energy sources and substantial increases in efficiency and conservation of the energy used in buildings and transportation.

Currently, West Virginia's economy relies heavily on carbon-based fuels and lags behind other states in curbing greenhouse gas emissions. Indeed, West Virginia was dead last, ranked 50th on Forbes magazine's list of America's "greenest" states. As well, according to *Sierra Magazine*, the American Council for an Energy-Efficient Economy listed West Virginia among its five "dirtiest" states. Further, coal is a finite resource: SB 177, which created the West Virginia Division of Energy, says, "Long dependent primarily on mining, this area must plan for a future without coal." Sooner or later, coal must be replaced.

Energy costs. Federal regulation of carbon emissions should be considered a certainty; in 2006 and 2007, seven bills proposing such regulation were introduced in the U.S. Congress. When actually imposed, these regulations will increase the costs of carbon-based energy production at stationary facilities. According to the Electric Power Research Institute, even a moderate carbon tax, in the range of \$20/ton, would add 1.5 to 2.0 cents/kwh to the price of coal-

generated electricity. In view of the impacts of these increased costs, West Virginia would be very unwise not to diversify its energy portfolio.

If the “external”¹ costs of fossil fuels were “internalized,” renewable energy sources would be more competitive in terms of price. In the case of coal, these “external” costs include (but are not limited to) air pollution, water pollution, land degradation, habitat loss, ecosystem disruption, loss of life and health, disruption of coalfield residents’ lives, greenhouse gas emissions and cleanup of abandoned mine sites.

West Virginia is a state rich in natural resources such as coal, oil, natural gas, and timber, and with a history of both inadequate regulatory programs and lax enforcement of regulations that do exist pertaining to extractive industry practices. The West Virginia Environmental Council (WVEC) has fought since its inception for tougher regulations and enforcement, but the “external costs” attributable to poor extractive practices continue to plague this state.

In formulating its energy portfolio, West Virginia must consider these “external” costs.

Dependence on foreign oil: In the opinion of the WVEC, decreasing the United States’ dependence on imported oil is certainly a positive and worthwhile objective. The transportation-related measures proposed in this document will contribute to this goal. Further, the WVEC is optimistic about the potential for plug-in hybrid vehicles (PHEVs) to move us toward this goal as well as that of decreasing greenhouse gas emissions. Here is an excerpt from an editorial on coal-to-liquids that appeared in June 2007 in *The Roanoke Times*: “The National Coal Council, an industry-laden advisory board . . . estimated that a \$211 billion investment [in coal-to-liquids] would be needed over the next 20 years to replace 10 percent of current gasoline usage. “More important, the council found that burning the same amount of coal to produce electricity to power plug-in hybrids would replace twice as much oil without generating nearly as much greenhouse gas.”

Even when the electricity that powers them is derived 100 percent from coal, PHEVs result in fewer greenhouse gas emissions than do comparable gasoline-powered vehicles, which means these vehicles will actually decrease greenhouse gas emissions even if they increase the production of coal-derived electricity. Further, PHEV batteries can feed electricity *back* into the grid at times of peak demand. Net metering, which was passed by the West Virginia Legislature in 2007, provides an incentive for use of these vehicles as energy sources. General Motors expects to begin marketing the Volt, a PHEV, in 2010; others may be on the market sooner.

The West Virginia Environmental Council recommends West Virginia adopt a progressive, responsible energy policy that does our part to help attenuate climate change while conserving energy resources and water. Such a policy will help secure our economy, provide a clean and hopeful future for our children and reduce ecosystem damage. The WVEC supports some aspects of Governor Manchin’s Energy Opportunities Document (available at: <http://www.energywv.org/community/EOD.pdf>), however we strongly disagree with its emphasis on coal—particularly coal-to-liquids technology—and the relatively minor role given to renewables and conservation.

¹ “External” costs are defined as those costs borne by someone other than the individual(s) or group(s) benefiting from the use of a resource.

II. The Goals

The goals of the Citizens' Energy Plan for West Virginia are to 1) reduce greenhouse gas emissions by 2.6 percent annually; 2) promote the development of new, economically sustainable businesses and jobs; 3) reduce the United States' dependence on imported oil; and 4) conserve energy resources and water. The WVEC proposes that these goals be accomplished through the implementation of energy efficiency and conservation measures, and through the diversification of West Virginia's energy portfolio to include renewable energy sources while reducing our over-dependence on fossil fuels in the long term.

III. Elements of a Citizens' Energy Plan for West Virginia

A. Conservation

In general, the WVEC supports energy conservation as the most immediate and effective strategy to reduce energy demand. The WVEC supports smart metering, time-of-day billing, expanding the net metering percentage allowed by utility companies, and other demand-side management practices.

Transportation. In order to encourage conservation of petroleum (and thus decrease both greenhouse gas emissions and dependence on foreign oil), West Virginia's property tax for passenger vehicles should be based on the vehicle's fuel economy rather than its value: the lower the fuel economy, the more the owner would be required to pay. Those who own the most efficient vehicles, such as a plug-in hybrid, would have to pay nothing, while those who own the least efficient vehicles, such as the Hummer, would be required to pay quite a large registration tax. The new tax schedule would apply to all passenger vehicles purchased after the schedule's effective date.

Public transportation. The WVEC supports the recommendations contained in the PEA's "Energy Opportunities Document," (pp. 13-14).

"Recommendations: Recognize that increasing ridership in the state's public transit systems and the use of alternative fuels in those fleets can significantly reduce West Virginia's dependence on imported oil.

Short term goal:

1. Support media campaign to encourage the use of West Virginia's public transit systems
2. Promote the use of biodiesel (B-20) in state's public transit systems

Medium term goal

1. Increase ridership by 20 percent.
2. Increase use of biodiesel to 50 percent of transit fleets
3. Promote hybrid-diesel vehicles

Long term goal:

1. Increase ridership to capacity of system
2. Increase use of biodiesel blends to 100 percent of transit fleets."

The WVEC further recommends that ten percent of funds allocated for highway construction be used to fund mass transit systems, park-and-ride lots, and hiking and biking trails.

Idling reduction initiative. The WVEC supports the recommendations contained in the PEA's "Energy Opportunities Document," (pp. 14-15).

"Recommendations: Promote installation and use of idling reduction equipment and strategies by trucking industry and railroads.

Short term goal: 10 percent by 2010.

Medium term goal: 15 percent by 2020.

Long term goal: 20 percent by 2030."

State vehicles. The West Virginia Legislature should mandate stringent fuel efficiency standards for state-owned vehicles, including a requirement all state vehicles should be hybrids, providing an appropriate hybrid model is available for the intended use. When no hybrid is available, the most fuel-efficient vehicle possible should be selected. This, too, would decrease our dependence on foreign oil.

State Buildings. Under the Energy Independence and Security Act of 2007 which was signed into law on December 19, 2007, new or renovated federal buildings are required to use 55 percent less fossil fuel by 2010 and 100 percent less by 2030; in other words, by 2030 federal buildings must produce at least as much energy as they use.

The North Carolina Legislature recently passed legislation requiring new and renovated state-owned buildings (including universities and community colleges) to be constructed to meet high performance building standards and reduce water consumption. Specifically, major facility projects are to be 30% more energy efficient and major renovations are to 20% more energy efficient than the standard under ASHRAE 90.1 2004. In addition, for new construction, the water systems are to use a minimum of 20% less potable water than required by code, and outdoor potable water or harvested groundwater consumption is to be reduced by a minimum of 50% over that consumed by conventional means. After-construction measurement and verification is required to confirm that these performance goals are met. Lastly, the legislation requires state agencies to implement a variety of energy and water conservation measures such as using LED exit lighting and low flow showerheads in all publicly-owned buildings.

The West Virginia Legislature should study both these measures and pass legislation at least as stringent as that passed by the North Carolina Legislature.²

Building codes. Jurisdictions should be required to adopt ICC building codes; currently this is done on a voluntary basis. Jurisdictions should also have authority to strengthen energy efficiency standards in these codes.

Homes. Federal tax incentives for home energy-efficiency improvements expire at the end of 2007. The West Virginia Legislature should pass similar incentives, so that these improvements continue to be encouraged.

Home energy audits. The Legislature should pass incentives for entrepreneurs to become trained to offer the public professional home energy audits.

² The WVEC supports adoption of LEED standards for new and renovated state buildings.

Energy Star Compliance. The WVEC supports the recommendations outlined in the PEA's Energy Opportunities Document (pp. 17-19).

“Recommendation: Promote ENERGY STAR Program as a residential energy reduction tool.

Short term goals:

1. Reduce energy use in state-owned buildings
2. West Virginia Division of Energy to conduct ENERGY STAR media campaign to promote ENERGY STAR to homeowners and builders through media and workshops.
3. Educate the public on the benefits of energy saving measures and how to implement them.
4. Continue to monitor Leadership in Energy and Environmental Design (LEED) requirements and applicability to public and private buildings.
5. Evaluate incentives program for adoption of LEED standards.
6. Explore energy performance contracts for state buildings

Medium term goal:

1. Adoption of ENERGY STAR product standards by state purchasing units and local jurisdictions.

Long term goal

1. Promote products consistent with the ENERGY STAR Guidelines for Energy Management and National Performance Energy Rating System.”

K-12 School building energy program. The WVEC supports the recommendations outlined in the PEA's Energy Opportunities Document (pp. 16-17).

“Recommendation: Continue WVUIT and WVU support and establish recognition programs for county school programs meeting voluntary energy reduction goals. Encourage participation in the ENERGY STAR Program.

Short term goals:

1. Establish at campuses of WVU Institute of Technology and WVU CEMR a Center for Building Energy Use.
2. Require county and state facility managers to attend energy management training.
3. Determine baseline energy use for county schools and state facilities.
4. Reduction in state school energy use achieved through operation and maintenance measures, lighting upgrades and low-cost measures.
5. Develop as a model for other schools the case histories of existing West Virginia schools that have achieved energy conservation by installation of geothermal HVAC systems and those who have benefited from AEP's Solar Schools program.

Medium term goals:

1. Advance energy efficiency opportunities in county school systems.
2. Develop energy-service company master contract agreements for use by state and county facilities.

Long term goals:

1. Identify funding/financing opportunities for efficiency retrofits.
2. Mandate that state-supported construction meet ENERGY STAR building certification standards for new schools.”

Industry. The WVEC supports the recommendations outlined in the PEA's Energy Opportunities Document (pp. 19-20).

“Recommendation: Maintain a strong interaction with industry on energy efficiency opportunities.

Short term goals:

1. Provide and coordinate IOF-WV services.
2. Support Industrial Gas Utilization Center
3. Continue support for IOF-WV technical assistance activities
4. Provide recognition for industrial energy efficiency accomplishments
5. Provide training for industrial energy managers
6. West Virginia Development Office will market West Virginia as the model location for industrial energy use applications.

Medium term goals:

1. Broaden IOF-WV industry sector collaboratives to include automotive parts manufacturers.
2. Advance state-of-the-art energy systems for use by West Virginia industries through technology-specific workshops.

Long term goal:

1. Advance state-based network for alternative energy solutions to support industry needs.”

County and local governments. Authority has been granted to municipalities, county commissions and other local governments to allow them to enter into energy efficiency agreements with energy services providers. State statutes grant similar authority to state agencies, allowing them to enter into long-term contracts to make energy-saving investments, which can be paid, off using the savings on future energy bills. All these entities should take advantage of this opportunity to reduce energy use at no cost.

B. Renewables

Nearly thirty states have adopted Renewable Portfolio Standards (RPS) that require an increasing amount of electricity to come from renewable generation. A federally mandated RPS appears inevitable.

West Virginia should adopt an RPS. For the near term, the WVEC recommends that West Virginia require electric utilities to generate a minimum of 25 percent of their electricity from renewables by 2025, with intermediate goals of 10 percent by 2015 and 20 percent by 2020. This is below California's requirement of 20 percent by 2017. “Renewable” methods of electricity generation include solar photovoltaic, concentrating solar power (CSP), wind, biomass and hydroelectric.

According to *Engineering News Online*, “a recent independent study on the employment potential of renewable energy in South Africa stated that, if 15% of South Africa's electricity came from renewable resources, 36,400 new direct jobs would be created. It also showed that about 506,000 direct jobs could be created if a portion of the country's energy needs were sourced from renewable energy technologies by 2020.”

Apparently more so than almost any other country (except possibly Japan), Germany is obtaining a significant amount of energy from renewables. According to CNN, 250,000 jobs have been created in renewables in Germany. If that same proportion of the population were

applied to West Virginia, it would translate to about 5500 jobs—which approaches the number employed in surface mining.

According to bloomberg.com, Germany’s plan is to slash greenhouse gas emissions by as much as 36 percent by 2020, and “The costs of energy-conserving measures to consumers and industry of 8 billion euros (\$10.9 billion) will be more than offset by savings worth 13 billion euros.” The basis of Germany’s law is something called “Feed-in tariffs (FIT),” in which small generators of renewable energy are paid a guaranteed price/kwh for the electricity they generate and feed into the grid. In other words, the government specifies the price that power companies must guarantee to pay small generators of renewable energy, and the electricity provider then passes on the cost of that power to customers when setting their overall price per kwh.

A bill has been introduced in the Michigan Legislature to implement a FIT program in that state. If passed, it would be the first such program in the U.S. The WVEC recommends that West Virginia also implement a FIT program.

Concentrating Solar Power. In areas of high sunlight intensity, CSP is a less expensive method of solar electricity generation than are photovoltaic panels. A study should be undertaken immediately to ascertain whether the sunlight intensity in West Virginia is sufficient for CSP to be economically feasible. If so, the WVEC recommends that mountaintop removal sites be used for siting concentrating solar collectors.

Photovoltaics. By one estimate, covering one quarter of the buildings and paved areas in the U.S. with photovoltaic panels would provide sufficient electricity to cover the U.S.’s electricity needs. Our northern neighbor Pennsylvania will, in the near future, be home to the largest solar photovoltaic plant east of the Mississippi, financed and built by a German solar company called EPURON.

West Virginia should adopt the goal of installing 10,000 solar roofs (roofs with solar panels) by 2011. To achieve this goal, West Virginia should establish training and certification programs for solar installers. Further, the West Virginia Legislature should enact tax credits for homeowners and businesses that install solar panels and/or solar water heaters.

At the local level, the WVEC supports the implementation of programs similar to one recently enacted in Berkeley, California. In this program the city pays for installation of solar panels on homes, but homeowners retain ownership and repay the city over 20 years via an annual property assessment. If the home is sold, the liability for the remaining bill, along with the solar panels, go to the new owner. The annual property assessment fee adds up to approximately the same amount normally spent on electricity bills each year. Everyone wins!

Wind. The WVEC supports development of small-scale, homeowner-based wind energy facilities, as well as those community and industrial medium-scale and commercial-scale wind facilities that meet responsible siting and environmental impact regulations and enforcement procedures. Further, the WVEC supports the development of viable wind energy facilities as an alternative in areas threatened by mountaintop removal and other forms of destructive surface mining. The Coal River Mountain wind project is one such example, and the WVEC endorses this project provided it meets responsible siting and environmental impact regulations and enforcement procedures.

The Council also supports regulatory protection for scenic viewsheds that applies uniformly to all commercial development.

Biofuels. The WVEC supports those biofuels, including biodiesel, cellulosic ethanol, and wood waste that, on balance, have positive energy, social, and environmental impacts. Support by WVEC for specific proposals will be based on comprehensive environmental impact assessments, including Cost-Benefit Analyses and Life Cycle Assessment of net energy balance and greenhouse gas emissions.

Hydroelectric power. Construction of dams often necessitates relocation of people living nearby as their property is flooded. Flooding of land destroys terrestrial habitat and results in the production of methane – a very potent greenhouse gas – as organic matter decays in the absence of oxygen. For these reasons, the WVEC opposes construction of new dams for electricity generation.

The WVEC supports the retrofitting of existing dams for hydroelectric generation provided the facilities meet the environmental criteria of the Low Impact Hydropower Institute.

Landfill gas. The WVEC supports the recommendations contained in the PEA’s “Energy Opportunities Document,” (pp. 23-24).

“Recommendation: Make use of landfill gas as an energy source.

Short term goal:

1. Market landfill gas in partnership with landfill operators to local gas users.

Medium term goal:

1. Consider landfill gas as an incentive for locating new industries.
2. Establish database of landfill locations/gas users

Long term goal:

1. Require LFG recovery.”

Chicken litter. Because chicken litter is a very dry material, anaerobic digestion requires the addition of large volumes of water. Efficient digestion also requires amendment with nitrogen. In some cases, feed additives used in poultry production leave hazardous residues after gasification. Both methods would involve considerable expense.

The WVEC therefore recommends chicken litter be composted in production greenhouses where the heat generated would be utilized, and the resulting compost would be a very valuable soil amendment. Alternatively, the composting could take place on site without heat recovery.

Geothermal. The WVEC supports the use of geothermal energy sources wherever such sources can be developed in a manner compatible with sustainable energy production and environmental protection.

C. Fossil fuels

In general, the WVEC opposes new facilities, subsidies, or special treatment for facilities that result in a net increase in greenhouse gas emissions, increased mountaintop removal mining, or other irresponsible mining practices. The WVEC also opposes siting guidelines, tax policies and other regulatory requirements for fossil fuel facilities that are less stringent than the requirements for renewable energy facilities.

Coal. Currently, most of West Virginia's electricity is generated from burning coal, whose extraction, processing and combustion results in the largest environmental impacts of any of the fossil fuels; these include land degradation, air pollution, water pollution and greenhouse gas emissions. The WVEC is strongly opposed to all mountaintop removal mining and other destructive forms of mining. Technology for capturing and storing carbon dioxide is expensive and unproven; such technology is not expected to be available for at least a decade. Expected federal restrictions on carbon emissions will very likely result in an increase in the cost of coal-derived electricity. For these reasons, no new coal-utilizing facilities should be built without carbon capture and storage capability, and existing plants without this technology should be scheduled for closure in an orderly manner as carbon-neutral electricity sources come online. Stringent regulations for carbon sequestration must be developed to assure that adverse impacts can be prevented, and these must be imposed before new coal facilities are permitted.

Natural Gas. Of the carbon-based fuels, natural gas burns most cleanly and is a resource that is abundant in West Virginia. The WVEC supports the use of natural gas as a "transition fuel" and supports incentives for conversion of vehicles to run on compressed natural gas.

Coalbed methane. Since methane is a much more potent greenhouse gas than carbon dioxide, it should never be vented to the atmosphere. Methane is the main component of natural gas, which burns more "cleanly" than any of the other carbon-based fuels. However, the WVEC has serious concerns about the water pollution issues related to coalbed methane recovery.

Coal waste. The WVEC supports the remediation of all coal waste sites in West Virginia. Remediation of coal waste sites is the responsibility of the industry that created them, not the taxpayers. The WVEC does not support the burning of coal waste because of its associated environmental problems.

Enhanced oil recovery. The WVEC recommends the use of CO₂ captured from coal-fired power plants be used rather than water, but only in formations where it can be ascertained that the CO₂ will not leak to the atmosphere.

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