



Clean Energy Wins: A Policy Roadmap For Pennsylvania

Executive Summary March 2014

Pennsylvania began the last decade as a national leader in the implementation of clean energy policies that successfully established markets, encouraged investments, and created jobs. Policies such as the 2004 Alternative Energy Portfolio Standard (AEPS) that spurred development of renewable energy across Pennsylvania, and Act 129 of 2008 that drove significant investment into cost-effective energy efficiency and conservation, were once ahead of their time. Today, Pennsylvania is lagging behind its neighbors on clean energy policy, resulting in missed opportunities for economic development, job losses, unnecessary release of pollution emissions, and higher costs to consumers.

Appendix A of this report outlines the results of a survey sent to clean energy businesses operating in Pennsylvania. Of those that responded, the majority (41 percent) cited uncertain policy at the state level as a barrier to growth and expansion of their business.

The suite of policy recommendations included in this report (informed by national, state and local representatives of the solar, wind, and energy efficiency industries), if deployed, will create the market signals and investment certainty needed to grow Pennsylvania's clean energy economy. This would allow Pennsylvania to realize more of the myriad economic, cost saving, public health, and environmental benefits resulting from clean energy.

Clean Energy Benefits

Job Creation

The Alternative Energy Portfolio Standard (AEPS) Act of 2004 requires electric distribution companies (EDCs) and electric generation suppliers (EGSs) to supply 18 percent of the electricity sold to consumers from renewable and alternative energy resources by 2021 – 2021. Of this 18 percent, 8 percent is from Tier I renewable energy resources¹ such as wind and solar energy. Within the 8 percent Tier I requirement, there is a “solar share” carve-out that requires 0.5 percent solar, or about 6.25 percent of the total Tier I requirement.

The Clean Energy and Job Creation chapter of this report identifies job creation benefits of meeting the remaining requirements of the existing AEPS as well as the additional benefits from enhancing the AEPS Tier I to 20 percent and increasing the solar share to 3 percent. Since the AEPS allows resources located anywhere within the 13-state PJM electricity grid to be eligible for AEPS compliance, Pennsylvania and these other states will share in the job creation benefits of the law.² The figures

¹ Tier I eligible resources include: solar photovoltaic energy, solar thermal, wind power, low-impact hydropower, geothermal energy, biologically derived methane gas (including landfill gas), fuel cells, biomass energy, coal mine methane, black Liquor (Pennsylvania-located, only) and large-scale hydro-power (certain restrictions apply)

² Historic implementation data indicates 67 percent of solar credits and 45 percent of wind credits retired for AEPS Tier I compliance were located in Pennsylvania.

below are conservative because they only account for expected job creation from Pennsylvania-based systems and exclude additional job creation outside of the state that will result from the AEPS. These figures also do not include job creation from other non-wind or solar Tier I resources, or indirect jobs from manufacturing, finance, or real estate.

	Jobs from Pennsylvania-Based Wind Energy		Jobs from Pennsylvania-Based Solar Energy	
	Construction Phase	Operations Phase (FTE per year)	Construction Phase	Operations Phase (FTE per year)
Existing AEPS Tier I Requirements (2013 – 2020)	5,260	197	8,201	83
Additional Jobs from Enhancing AEPS Tier I to 20 percent by 2030 (w/ a 3 percent solar share)	11,000	432	81,000	800
Total	16,260	629	89,201	883
Combined Total By Job Type	Wind and Solar Construction = 105,461		Wind and Solar Operations = 1,512	

Increasing the AEPS is just one way to promote clean energy deployment and resultant job creation. Many of the other policies recommended in this report will grow clean energy and create jobs. The clean energy sector is growing, with the International Energy Agency declaring that renewable energy will edge out natural gas as the second largest source of electricity, after coal, by 2016.³ Non-fossil fuel energy investments also create more jobs per unit of energy than coal and natural gas⁴ and can deliver significant benefits to Pennsylvania’s manufacturing sector. Unfortunately, Pennsylvania⁵ and the federal government⁶ subsidize fossil fuels at levels far greater than renewables, creating barriers

3 Huffington Post “Renewable Energy Growth is Rising Around the World, IEA Says” http://www.huffingtonpost.com/2013/06/26/renewable-energy-growth_n_3504265.html (June 6, 2013).

4 Wei, Max., Patadia, Shana., Kammen, Daniel., “Putting Renewables and Energy Efficiency to Work: How Many Jobs Can the Clean Energy Industry Generate in the US?” Energy Policy 38 pp. 919-931 http://rael.berkeley.edu/sites/default/files/WeiPatadiaKammen_CleanEnergy-Jobs_EPolicy2010.pdf (2010)

5 Simeone, Christina. “Pennsylvania Fossil Fuel Subsidies: An Overview” http://www.pennfuture.org/UserFiles/File/FactSheets/Report_Fossil-FuelSubsidy_201112.pdf (2011).

6 Pfund, Nancy. Healey, Ben. “What Would Jefferson Do?” http://i.bnet.com/blogs/dbl_energy_subsidies_paper.pdf (Sept., 2011).

to realizing the enhanced job creation potential of the growing clean energy sector.

Consumer Benefits

Energy efficiency and conservation are the cheapest, cleanest ways to help meet Pennsylvania’s energy needs. Efficiency and conservation can reduce the need to invest in expensive new electricity generation and transmission infrastructure, reduces the need for additional natural gas supplies, helps avoid the need for distribution utility rate increases, and can avoid pollution that contributes to negative public health and environmental outcomes. Renewable energy and energy efficiency can also lower electricity costs for all consumers by suppressing wholesale energy prices. A recent study by PJM,⁷ the organization that manages the 13-state electricity grid that serves Pennsylvania, found that increasing renewable energy penetration to 20-30 percent of the grid supply would result in electricity production cost savings of \$49.5 to \$70.6 per megawatt hour. PJM also found that as a result of increasing renewable energy penetration on the grid, wholesale electricity prices to consumers would decrease from 4.2 percent to 21.5 percent from business as usual.

Public Health and the Environment

Fossil fuel-based energy production results in negative land, air, and water impacts that are dangerous to human health and harmful to the environment. Clean energy can reduce the fossil fuel air pollution that causes global climate change, mortality and respiratory disease and distress in humans, and acid rain that harms plants and ecosystems. Fossil fuel pollution results in real, monetary costs that impact the economy. These externalized costs are rarely quantified but are nonetheless very real. An example of these costs is the \$3.7 billion in annual public health damages that result from just the particulate matter released from coal-fired power plants.⁸

Policy Recommendations

7 GE Energy Management “PJM Renewable Integration Study PRIS” <http://www.pjm.com/~media/committees-groups/committees/mic/20140303/20140303-pjm-pris-final-project-review.ashx> (Mar. 3, 2014).

8 National Research Council, “Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use” (2010)

Policies can be put in place in order to maximize the job creation, consumer cost savings, public health, environmental, and other benefits of clean energy. The policies identified below were developed by working with national, regional, state, and local clean energy trade associations and organizations as well as clean energy businesses and subject matter experts. As a result, these policy recommendations represent some of the best thinking on how to grow Pennsylvania's clean energy economy. There are many additional and effective policy recommendations that should be considered to increase clean energy in Pennsylvania.

Energy Efficiency Policy

Energy efficiency is the cheapest, cleanest form of energy available to Pennsylvania. The following recommendations are separated into three categories: Utility-based energy efficiency, energy efficiency in buildings, and energy efficiency financing solutions.

UTILITY ENERGY EFFICIENCY

Make improvements to Act 129. Act 129 of 2008 established energy savings requirements that Pennsylvania's electric distribution utilities must meet. The following improvements to Act 129 will result in greater energy efficiency in the Commonwealth.

- Remove the 2 percent (of utility company revenue) budget cap on energy efficiency program spending.
- Extend Act 129's efficiency and conservation requirements to natural gas distribution utilities.
- Broaden Act 129's portfolio of programs e.g. cost effective demand response, multifamily programs, and LED municipal street lighting.

Engage in utility rate reform to promote efficiency. This would ensure that Pennsylvania's electric and natural gas distribution utility business models encourage promotion of efficiency and conservation.

- Align the utility business model with conservation by developing a statewide or pilot program to remove financial disincentives.
- Evaluate current utility tariff rate design across the state and require implementation of rate designs that encourage energy efficiency.

- Establish performance incentives to create financial rewards for utilities that achieve enhanced energy savings goals.

Accurately value energy efficiency in regulatory proceedings. Current regulatory treatment of energy efficiency and conservation undervalues benefits, leading to suboptimal levels of efficiency investments.

- Revise the total resource cost test that determines which energy efficiency measures can be implemented under Act 129 to better reflect societal benefits such as avoided environmental pollution and natural gas and water savings.
- Focus on net energy savings rather than gross savings in order to promote more robust efficiency measures.

ENERGY EFFICIENCY IN BUILDINGS

Improve the Pennsylvania building code adoption process. As a result of 2011 changes to state law, Pennsylvania is not constructing buildings to the most recent (2012) building or energy code standards.

- Develop a feasible, transparent, and publicly inclusive system for evaluating and updating Pennsylvania's building codes, and make improvements to code policy.

Enhance building and energy code compliance. Building and energy codes must be adhered to in order to realize their benefits, making compliance efforts critical.

- Improve code compliance through greater funding, training, compliance tracking, and public education around code benefits.

Increase consumer awareness of energy use and efficiency opportunities. Often, energy efficiency investments will increase as consumers become more aware of their energy usage.

- Promote public availability of energy use information in commercial buildings and during residential property transactions.

FINANCING ENERGY EFFICIENCY

Energy Savings Performance Contracting (ESPC) for government and institutional sectors. ESPCs allow energy and capital improvements to buildings to be financed through long-term energy savings, significantly reducing upfront capital needs.

- Re-establish a state government office tasked with providing education, technical assistance, and facilitation services for energy savings performance contracting.

Property Assessed Clean Energy (PACE) for commercial and industrial property. PACE programs allow energy upgrade costs to be financed through annual property assessments.

- Establish statutory authority for municipalities to voluntarily develop PACE programs that help revitalize commercial and industrial property.

Keystone HELP for residential sector. Keystone HELP is a special financing program for energy efficiency home improvements.

- Continue to support and improve upon the Keystone HELP program by enhancing funding support, and increasing quality assurance and contractor training.

On-Bill Repayment (OBR) for small businesses. OBR allows small businesses to repay the cost of energy efficiency upgrades via their utility bills.

- Require utilities to offer on-bill repayment programs to the small commercial sector to finance energy efficiency upgrades.

Investigation of a Pennsylvania Green Bank. A Green Bank could make low-cost capital and other funding available for clean energy deployment.

- Study the costs and benefits of developing a Green Bank aimed at increasing clean energy deployment.

Solar Energy Policy

Improve the Alternative Energy Portfolio Standard (AEPS).

- Increase the Solar Share to 3 percent by 2030 (also increase Tier I to 20 percent by 2030).
- Create a distributed generation requirement to promote Pennsylvania-based solar installations while minimizing risks to the AEPS law.

Promote long-term contracting to lower solar development costs.

- Require utilities to procure AEPS credits on behalf of all electricity load within their service territory. This will facilitate long-term contracting for AEPS credits, thereby reducing solar energy project financing costs.

Stabilize state solar incentives.

- Develop long-term funding sources for the Pennsylvania Sunshine Solar Program.
- Exempt solar equipment from state sales tax.

Coordinate local solar issues.

- Develop statewide solar working groups focused on streamlining zoning, permitting, and codes, and determining how solar attributes can be incorporated into the real estate Multiple Listing Service (MLS).

Wind Energy Policy

Promote long-term contracting to lower wind development costs.

- Require electric distribution utilities to procure AEPS credits on behalf of all electricity load within their service territory. This would facilitate long-term contracting for AEPS credits, thereby reducing wind energy project financing costs.

Promote cost-effective grid integration.

- Support grid integration of renewable energy through greater state coordination with the regional electricity grid operator (PJM).

Improve the Alternative Energy Portfolio Standard by increasing Tier I to no less than 20 percent by 2030.

Conclusion

Only Pennsylvanians and their policymakers can determine if clean energy should be a priority for the state. Given the benefits of clean energy including its ability to create jobs, promote economic development through growth industries and consumer cost savings, and reduce environmental pollution that negatively impacts public health, prioritizing growth of this sector could be an attractive public policy goal. In order to leverage Pennsylvania's existing clean energy success and to keep the state competitive with its neighbors, policies to promote clean energy will need to be implemented. The policies identified in this report through detailed coordination with clean energy businesses and organizations represent some of the best ways to grow clean energy in Pennsylvania.