



## Is Renewable or Alternative Energy In Our Future?

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It seems like every day we see the cost of energy for our homes, cars, and businesses continue to rise. We're told that we're becoming more and more dependent on foreign sources of energy. In addition, we're led to believe that our current and future demand for energy can't be met by our dwindling supply of natural resources.

Can we really believe all that we are being told regarding energy today and tomorrow? In this writer's opinion, the answer is yes!

The good news is that many people across the world and in our country are looking at ways to eliminate our current and future energy crisis through the use of renewable and/or alternative-energy sources. The state of Iowa currently has more than 600 wind turbines that help supply electric power across the state. Texas and California lead the nation with 2,768 and 2,361 wind farms, respectively. Iowa, Minnesota, and Washington are distant third through fifth in the rankings, each with under 1,000 wind farms. California has a plan for "a million solar roofs" by 2018. Pennsylvania is also leading the way in renewable energy in areas such as wind power and alternative-energy solutions.

### What's Renewable and/or Alternative Energy?

Renewable energy is energy that can be easily replaced or supplied by a nearly never ending source. Examples of renewable-energy resources are solar, wind, hydro (water), and geothermal. Most of these forms of renewable energy will be available as long as the earth and sun exist.

Non-renewable energy is energy that cannot be recreated in a limited amount of time, and that has a limited supply that will eventually run out. Examples of non-renewable energies are fossil fuels such as coal, oil, and gas.

It's important to note there is some debate over the use of the term "alternative energy" when speaking about "renewable-energy." Alternative energy, which includes biomass technologies, has been called "dirty energy" by some. Biomass is where energy can be produced from fossil fuels, as well as municipal waste, and waste coal. Critics say that in reality, renewable-energy resources are not being used to produce most types of alternative energy and that increased pollution and global warming are the end result, causing further harm to our planet.

"It's important that homeowners and businesses are proactive today instead of reactive tomorrow – identifying possible opportunities to save via renewable and/or alternative energy and energy deregulation in their specific state or utility service areas."

— Thomas Gibson, Gibson Consulting Group



### History of Renewable Energy

Using renewable-energy resources is not a new idea. Throughout history people have always relied on the sun to grow food and provide heat and light. The history of human technology documents many discoveries of ways to harness the sun and its byproducts, such as wind and hydrologic cycles. Shown below are some interesting dates in history regarding renewable energy:

- 3200 B.C.E. First recorded use of wind energy through a sail invented by the Egyptians
- 200 B.C.E. Invention of the windmill, in China
- B.C.E. The Greeks use hydropower to turn water wheels that grind wheat into flour
- 1000 A.D. Windmills used in the Middle East
- 1839 The discovery of solar power
- 1881 A generator is connected to a turbine in a flourmill to provide street lighting at Niagara Falls, New York, using direct-current
- 1882 The first hydroelectric plant began operating in Appleton, Wisconsin.
- 1920 Hydroelectric power provides 25 percent of all electrical generation in the country
- 1933 Tennessee Valley Authority established
- 1970s The United States experiences its first energy crisis. Interest in renewable energy escalates
- 2005 The Global Wind Energy Council is formed

### Pennsylvania's Renewable and/or Alternative Energy Solutions

As previously mentioned, Pennsylvania is one of the states leading the way in renewable energy in areas such as wind power; as well as using alterna-

tive-energy solutions. Listed below is a summation of Pennsylvania's renewable and/or alternative-energy initiatives.

#### Sustainable Energy Funds

In December 1996, Pennsylvania's electricity restructuring law was enacted. However it didn't address a clean or renewable-energy fund. Renewable-energy funding programs were created through settlements with each of Pennsylvania's five major electric-distribution companies. Each utility created its own Sustainable Energy Fund to promote the development of renewable energy, energy conservation and efficiency, as well as sustainable-energy businesses. The total money available through the settlement agreements for all utilities was \$85 million.

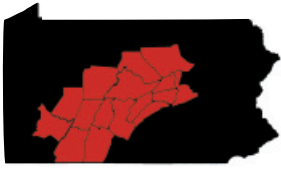
PECO's Fund is the fund that has been the most effective. The PECO Sustainable Development Fund is responsible for developing 129 Megawatts of wind-power projects with additional wind projects that should total 185 Megawatts. Based upon their success, two funds continue to operate and have received additional funding for the future.

#### Alternative Energy Portfolio Standard (AEPS)

Enacted on Nov. 30, 2004, the Alternative Energy Portfolio Standard requires all electric-load-serving companies in Pennsylvania to provide 18 percent of their electricity using alternative-energy sources by the year 2020. This law mandates a certain percentage of power be provided through solar energy.

In addition, demand-side management programs can also be used to meet the AEPS alternative-energy source 18-percent quota. It Continued on next page

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should be noted, a recent study has found that a minimum reduction in electricity used during peak hours through demand-side management programs would reduce energy prices in the mid-Atlantic region by almost \$57 million dollars.

Pennsylvania's AEPS is unique – the first state program that includes the use of waste coal, coalmine methane, and coal gasification.

The AEPS has two categories of energy sources. The first category requires that 8 percent of electricity be generated by Tier 1 energy sources and 10 percent by Tier 2 energy sources within a 15-year period or by the year 2020. Tier 1 alternative-energy sources include; energy derived from solar, wind, small-scale hydro, geothermal, methane gas, fuel cells, biomass, and coal bed methane. Tier 2 alternative-energy sources include; waste coal, distributed generation, large-scale hydro, demand-side management, municipal waste, wood by-products, and integrated coal gasification.

*Energy Independence Strategy (EIS)*

On Feb. 1, 2007, Pennsylvania's Governor presented the \$850-million Energy Independence Strategy for Pennsylvania. According to Rendell, this plan will reduce energy bills for consumers in the state by \$10 billion dollars over the next 10 years, limit Pennsylvania's reliance on foreign fuels, increase clean energy production, and expand energy production and energy technology industries in the state – which will increase employment opportunities.

The EIS will be funded by a systems benefits charge on electric consumers' monthly invoices. Similar charges are currently in place in 15 other states across the country. Pennsylvania's charge is said to be lower than all but two other states. The EIS is expected to save consumers nearly 15 times more than the cost of the fee.

**Renewable and/or Alternative Energy and Energy Deregulation**

As more and more renewable and/or alternative-energy opportunities become available, energy deregulation also continues to progress in many states to "full market price competition" as is mandated by the Energy Policy Act of 2005. The "Standard Market Design" developed by the Federal Energy Regulatory Commission (FERC) continues to provide a set of guidelines for the sale and transmission of electricity across the country and should continue to allow more

alternative-energy suppliers to enter the marketplace in many utility service areas. In addition, renewable and/or alternative-energy opportunities will continue to impact the energy marketplace and should reduce overall energy costs in the future.

Based upon the current schedule, most electric utility service areas in Pennsylvania should be fully deregulated by within the next three to four years. The good news is that many utility companies in Pennsylvania already have plans that have been, or will be approved by the Public Utility Commission to increase their rates gradually over the next few years instead of one large increase at the end of their rate-protection periods. However, double-digit rate increases are still expected for those who choose to stay with their local electric utility company or Provider of Last Resort (POLR). Should energy-market prices drop prior to the expiration of rate-protection programs, opportunities for cost savings through alternative-energy contracts in all service areas could become available in the near future.

It's important that homeowners and businesses are proactive today instead of reactive tomorrow – identifying possible opportunities to save via renewable and/or alternative energy and energy deregulation in their specific state or utility service areas. Knowing what to expect so you can plan effectively is the key to lowering energy costs through renewable and/or alternative energy and energy deregulation.

Cost savings through energy deregulation is still a dream for many of us today. However, we should all realize cost savings through deregulation in the not-too-distant future! Finding better and more efficient ways by which to produce renewable and clean energy will go a long way toward eliminating both our current and future energy crisis! ~PBC

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