

Understanding Pollution: The Wonders of Wind Energy

One of the biggest contributors to pollution worldwide is the need to burn fossil fuels to power our society. Over 70% of electricity in the United States is generated through the burning of fossil fuels, and that accounts for roughly 1/3 of Green House Gas emissions.ⁱ Wouldn't it be amazing if there was another way that we could power our society? Well, in fact there already are several, and one of them is one of the oldest forms of power generation: Wind Energy. People have been saying for years that we need to move to greener forms of energy if we are going to continue to live in a sustainable world, and for years there have been arguments over the value of green energy; including wind energy. Wind energy offers a number of benefits to the environment, is not more expensive than fossil fuels, and is beneficial to the economy.



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The biggest, and most obvious, reason that wind energy is good for the environment is that it creates no pollution. Windmills have been in use since 500 A.D., and they have generated zero pollution since their invention and use.ⁱⁱ That's a 1514 year track record, and wind turbines are basically big wind mills. The other important thing to remember about wind energy is that it is a sustainable form of energy. The only thing necessary, aside from the turbines, is wind. That means, that if the necessary infrastructure is in place, power from wind turbines could last indefinitely. Over the past decade in the United States wind power capabilities have grown by 30%, which is actually more than the average for the rest of the world.ⁱⁱⁱ Other countries aren't

being left behind though. By 2020 Denmark plans to provide 70% of its power needs through renewable energy, and they don't plan on stopping there. They want 100% of their energy needs to be met solely through renewable means like wind power by 2050.^{iv} Also, wind turbines actually act to decrease air pollution by removing carbon dioxide. In fact, one 1-megawatt wind turbine does as much good for air pollution as planting 1 square mile of forests.^v Also, one turbine can generate enough electricity to power 500 homes.^{vi}

One of the most common misconceptions about wind energy is that it is expensive. The opposite is actually true. The Department of Energy estimates the average monthly cost to consumers who use wind energy is \$40 a month.^{vii} To put that into some perspective, the average monthly electric bill in the United States in 2012 was \$107 a month.^{viii} That is over a sixty dollar difference in cost. Wind Energy is so cheap for several reasons. Number one is that there is no fuel cost for the generation of wind power, and the maintenance costs associated with wind energy are very low because of that fact.^{ix} The only real cost associated with wind energy is the construction of the turbines and the infrastructure necessary to get the energy from the turbines to the cities where it is most needed. The best part is that the United States just happens to be a very windy place. It is estimated that if we fully utilized our potential for wind energy we would have enough power for 10x the current electric energy consumption of the whole of the United States.^x



Europe is, in some ways ahead of the game when it comes to wind energy. Today, Denmark meets 43% of all of its energy needs from renewable sources of energy like wind power.^{xi} The best part is that they don't plan on stopping there. Their goal is to provide 100% of all their energy needs through renewable energy by 2050.^{xii} In fact, most of the countries who are producing the most wind energy worldwide are European. They include Germany with 7.9% of electricity generated from wind, Spain with 21%, Portugal with ¼ of all their power generated from wind, and Ireland with just under 18%.^{xiii} Why is Europe so gung-ho on wind power? Well, for one because a recent report by the European Union established that wind power is roughly 1/3 cheaper than gas or coal based energy.^{xiv} Also, and I can't stress this enough, wind power generates *no pollution!*



As mentioned before wind energy is not only beneficial to the environment, and your wallet, but also the economy as a whole. In 2010 alone, over \$10 billion was invested into the U.S. economy by the wind energy sector, and roughly 75000 people were employed for that sector.^{xv} Also during that time over thirty one manufacturing centers devoted to the wind energy sector were opened employing over 20000 people. In addition, it is estimated that if the United States could reach the point where just 20% of our energy came from wind power that an additional \$8 billion would be added to the economy.^{xvi} It is estimated that the U.S. spends roughly \$37.5 billion dollars a year on subsidizing oil to keep the power flowing.^{xvii} Imagine if that money could be kept in country; if the U.S. was not dependent on oil to keep it running.

There is no quick and easy solutions to the many global problems that we face today. Pollution is something that has been added to over centuries, and fossil fuels have been the go to source of energy for almost as long. While it is difficult to fix the problems of centuries, it is not impossible. It simply requires the will to look for solutions. One possible solution for fossil fuel use, and air pollution is wind energy. It would take time and energy to set up the necessary infrastructure to truly make wind energy viable, but the benefits are there for all to see. The problem is that this cannot happen by simple chance or coincidence. It requires action by people. It requires a will to accomplish something that will help not just humanity, but the very earth that we call home.

About the Author



Dominick Principe is a graduate of Rowan University with dual Bachelor Degrees in Elementary Education and Writing Arts. He is a prolific reader who devours any book put before him, and feels that life is one great long book without an end. He fills his hours constantly exploring new information, and seeking to educate himself in the ways of the world. He puts all of that knowledge and his passion for learning to good use teaching English as a second

language to students of all ages. When his nose isn't buried in a book, or in class teaching, then he can generally be found typing away at his computer working on some random piece of writing that he was inspired to do.

ⁱ "Sources." *EPA*. Environmental Protection Agency. Web. 12 Nov. 2014. <<http://www.epa.gov/climatechange/ghgemissions/sources.html>>.

ⁱⁱ "Third Planet Windpower." *Third Planet Windpower*. Web. 12 Nov. 2014. <<http://www.thirdplanetwind.com/energy/history.aspx>>.

ⁱⁱⁱ "Energy.gov." *Advantages and Challenges of Wind Energy*. Office of Energy Efficiency and Renewable Energy. Web. 12 Nov. 2014. <<http://energy.gov/eere/wind/advantages-and-challenges-wind-energy>>.

^{iv} "Denmark Leads the Charge in Renewable Energy | European Elections 2014 | DW.DE | 02.05.2014." *DW.DE*. Web. 15 Nov. 2014. <<http://www.dw.de/denmark-leads-the-charge-in-renewable-energy/a-17603695>>.

^v "Wind Energy Benefits." *Eere.energy.gov/*. U.S. Department of Energy. Web. 12 Nov. 2014. <<http://www1.eere.energy.gov/wind/pdfs/49053.pdf>>.

^{vi} "Interesting Wind Energy Facts | Wind Energy Foundation." *Interesting Wind Energy Facts | Wind Energy Foundation*. Web. 15 Nov. 2014. <<http://www.windenergyfoundation.org/interesting-wind-energy-facts>>.

^{vii} "The Cost of Wind Energy in the U.S." *The Cost of Wind Energy in the U.S.* American Wind Energy Association. Web. 12 Nov. 2014. <<http://www.awea.org/Resources/Content.aspx?ItemNumber=5547>>.

^{viii} "2012 Average Monthly Bill- Residential." *2012 Average Monthly Bill- Residential*. Web. 12 Nov. 2014. <http://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf>.

^{ix} "Energy.gov." *Advantages and Challenges of Wind Energy*. Office of Energy Efficiency and Renewable Energy. Web. 12 Nov. 2014. <<http://energy.gov/eere/wind/advantages-and-challenges-wind-energy>>.

^x "The Cost of Wind Energy in the U.S." *The Cost of Wind Energy in the U.S.* American Wind Energy Association. Web. 12 Nov. 2014. <<http://www.awea.org/Resources/Content.aspx?ItemNumber=5547>>.

^{xi} "Denmark Leads the Charge in Renewable Energy | European Elections 2014 | DW.DE | 02.05.2014." *DW.DE*. Web. 2 Dec. 2014. <<http://www.dw.de/denmark-leads-the-charge-in-renewable-energy/a-17603695>>.

^{xii} "Denmark Leads the Charge in Renewable Energy | European Elections 2014 | DW.DE | 02.05.2014." *DW.DE*. Web. 2 Dec. 2014. <<http://www.dw.de/denmark-leads-the-charge-in-renewable-energy/a-17603695>>.

^{xiii} "Europe Dominates World Wind Power Share, But Trails in Capacity [CHART]." *Mashable*. Web. 2 Dec. 2014. <<http://mashable.com/2014/08/23/wind-power-share/>>.

^{xiv} "Wind Power Is Cheapest Energy, EU Analysis Finds." *The Guardian*. The Guardian. Web. 2 Dec. 2014. <<http://www.theguardian.com/environment/2014/oct/13/wind-power-is-cheapest-energy-unpublished-eu-analysis-finds>>.

^{xv} "Energy.gov." *Advantages and Challenges of Wind Energy*. Office of Energy Efficiency and Renewable Energy. Web. 12 Nov. 2014. <<http://energy.gov/eere/wind/advantages-and-challenges-wind-energy>>.

^{xvi} "Energy.gov." *Advantages and Challenges of Wind Energy*. Office of Energy Efficiency and Renewable Energy. Web. 12 Nov. 2014. <<http://energy.gov/eere/wind/advantages-and-challenges-wind-energy>>.

^{xvii} "Fossil Fuel Subsidies: Overview - Oil Change International." *Oil Change International*. Web. 12 Nov. 2014. <<http://priceofoil.org/fossil-fuel-subsidies/>>.