

Wind energy and hydroelectric energy environmental sciences essay

[Environment](#), [Ecology](#)



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Wind energy is among the universe 's fastest-growing and most normally used beginnings of energy. From this portion, wind energy 's advantages like its low cost and being environmental will be explained in item.

2. 1 Low-cost Energy

Harmonizing to the U. S. Dept. of Energy, clean air current power costs \$ 50 megawatt per hour. That means, tackling air current energy is really inexpensive as compared to the dodo fuels that have skyrocketing prices. To give an illustration, coal energy costs \$ 104 and atomic energy costs \$ 107 megawatt per hr (U. S Department of Energy) . So, air current energy has become low-cost plenty to vie with fossil fuels. If a family used air current power for % 25 of its demands, it would pass merely \$ 5 dolars per month for it and the monetary value is still dropping. (Renewables-Wind Energy) .

Furthermore, wind power has no fuel costs and negligible costs for maintenance. In air current energy, there is no fuel usage like other energy beginnings, it is merely utilizing air current which is ever available and costless. While other energy beginnings needs tons of money to keep, weave energy is really economical. Building a atomic works or a watering dike may necessitate a immense sum of money, but wind farms and air current turbines are inexpensive. Moreover, air current energy has no clean-up costs. So, there are no C revenue enhancement or C cap and trade system which make C emanations more expensive like the other energy sources. To sum up, wind energy is rather low-cost energy beginning with supplying cost benefits.

2. 2 Environmental

One of the best and most valuable advantages of air current energy is that it is wholly pollution free. Compared to the environmental effects of traditional energy beginnings, the environmental effects of air current power are about not existing. Firstly, wind energy does non bring forth waste merchandises that require disposal or gas emanations which contribute to air pollution and planetary climate alteration. Besides of course produced, CO₂ is besides produced when fossil fuels like coal and natural gas are burned to bring forth electricity. However, utilizing air current to bring forth electricity reduces CO₂ emanations. Harmonizing to a study, weave energy saves about 122 million dozens of CO₂ every twelvemonth (Global Wind Energy Council) . As we use more and more of air current energy, less and less fossil fuels will be burnt. This, in consequence, means less pollution. Wind energy besides

does not devour or foul water. While other energy beginnings like hydroelectric energy that needs H₂O to run or atomic energy which drops its waste into H₂O, wind energy brings us healthier seas and lakes. Another environmental benefit of the air current energy is, it uses merely a fraction of the land. So, being land utilizations such as agriculture and grazing can go on unaffected. Wind turbines can be built on farms or spreads, therefore profiting the economic system in rural countries, where most of the best air current sites are found. Farmers and ranchers can go on to work the land because the air current turbines use merely a fraction of the land, " states the National Renewable Energy Laboratory (U. S. Department of Energy, April 2005) . Having said these, it will not be incorrect to state that wind energy provides electricity without harming the environment.

III. HYDROELECTRIC ENERGY

Hydroelectric energy is known for being widely used signifier of renewable energy which uses H₂O to bring forth electrical power. Although it is believed that hydroelectric energy provides benefits, it besides comes with the large disadvantages such as dike failures and relicensing.

3. 1 Dam Failures

Because big conventional dammed-hydro installations hold back big volumes of H₂O, a failure due to hapless building, terrorist act, or other cause can be ruinous to downriver colonies and infrastructure. Also good design and building are not an equal warrant of safety. Dam failures have been some of the largest semisynthetic catastrophes in history. To give an illustration, the Banqiao Dam failure in Southern China straight resulted in the deaths of

26, 000 people, and another 145, 000 from epidemics (Application of the Method of Characteristics to the Dam Break Wave Problem, Chanson, H., 2009) . Millions were left homeless. Besides, the creative activity of a dike in a geologically inappropriate location may do catastrophes such as 1963 catastrophe at Vajont Dam in Italy, where about 2000 people died (The Vajont Dam Disaster, 2006) . In decision, when it comes to failure of a dike, hydroelectric energy can make an uncontrrollable catastrophe.

3. 2 Relicensing Complexity

Every 30 to 50 old ages, private hydroelectric dikes are re-evaluated. In this measure, relicensing is a really complex process. Relicensing was infrequent until 1993, but so The Hydropower Reform Coalition formed to take advantage to reconstruct river ecosystems through the relicensing procedure (Renewables-Hydroelectric Energy) . When doing relicensing, non merely the power coevals of a dike is considered, but besides protection of wildlife, equal renewal to energy conversation and protection of the environmental quality. Taking everything into history, constructing a dike costs you a batch money and clip, but relicensing may be take long plenty to reactivate it.

IV. ADVANTAGES OF WIND ENERGY OVER HYDROELECTRIC ENERGY

After adverting air current energy and hydroelectric energy, it is clip to compare these two most normally used energy beginnings.

4. 1 Cost/Efficiency Rate

First of wholly, both energy beginnings have negligible cost when they are compared to other energy sources. For case, wind energy costs merely \$ 5

dollars for a family every month and hydroelectric energy 's cost of electricity is constant. But when they are compared in electricity produced, we have energy stairs frontward. Most modern turbines installed today are estimated to hold a 20 twelvemonth life during this clip, major constituents have been designed to run 24 hours a twenty-four hours during this clip period. In general, a individual air current turbine will change over about 20 per centum of the energy in air current to electricity. The most efficient production occurs between five and 20 stat mis an hr of air current speed. This means wind energy is more efficient than any other energy beginnings (AWEA) . However, hydroelectric dikes have a burden capacity which means after a point, dam capacity is reached and it can non keep more H₂O to conversation. In short air current energy provides more electrical power with less cost than the hydroelectric energy.

4. 2 Building Procedure

When constructing a new energy beginning, its edifice procedure is an of import factor. A big fraction of land is required to keep a H₂O dike, and it can non be ever found easily. Hydroelectric dikes should be established near H₂O beginnings such as lakes or seas. It besides requires tons of clip to construct it. It takes months or possibly old ages to set up merely one hydroelectric dam. Also its licensing is a procedure which requires some time. On the other manus, air current turbines are so simple to construct and they can be established about anyplace in the universe, it merely needs air current and it needs such a small time. As it is clear from the comparing, there is no uncertainty that the air current energy has no negative effects on

budget and environment, in resistance to the bad effects of hydroelectric energy.