

## **Unrealized Dreams**

There are two unexplored regions in our universe that have captivated people for generations, the ocean and outer space. Authors, screenwriters and directors make a very profitable living playing on our imagination of these unknown worlds. We fantasize about the great adventures and discoveries to be made if only we could venture further into these places, yet very few of us dare to take steps in that direction. We do not have the needed technology in energy production to sustain a community where fossil fuels are impractical. Other idealists envision great cities completely independent and environmentally friendly with a healthy economy and drinkable river water. These dreams can come true. The research, development and implementation of supplementary energy sources are essential to a prosperous future.

Those who are for alternative energy sources argue that burning fossil fuels is extremely toxic and the main cause of global warming. They also argue that the big oil companies no longer care enough about the planet and its people to do anything about the harm they are causing the environment. Their arguments are based in scientific fact as well as social, economic and environmental evidence.

Those who argue against the use of alternative energy sources say that fossil fuels are more cost efficient and still abundant. They also argue that using alternative energy sources will not make global warming disappear. Their arguments are also based in fact, with relations to social, economic and environmental information.

Considering that both sides of this issue have arguments based in fact and evidence, how can we decide which side of the Energy War to stand? To answer this question, we need to rely on our personal morals and beliefs, as well as the knowledge

that we have of this issue. In order to make an intelligent decision about the use of alternative energy sources versus fossil fuels, we must take a look at the factual information that both sides present.

### **Arguments Against Alternative Energy Usage**

The main arguments presented by those who advocate the use of fossil fuels, is that they are less expensive and that the cheapest alternatives are not environmentally friendly. According to Jerry Taylor, author of "*Renewable Energy Is Expensive and Will Not Prevent Pollution*", renewable energy is far more expensive than burning coal or natural gas. Taylor states that "...the cheapest sources of renewable energy... cost almost twice as much on average as gas or coal fired electricity" (Taylor). Later in his article he gives information about biomass fuels, which produce about 7 cents of environmental damage per kilowatt of energy. He shows that some bio-fuels are more of a pollutant than nuclear power, which is at about 4 cents. This article also shows that some biomass fuels are only slightly less toxic than burning coal, which is about 9 cents of environmental damage (Taylor).

Others who argue against utilizing the alternatives of fossil fuels insist that reserves are abundant. In Robert L. Bradley Jr.'s "*World Oil Supplies Are Plentiful*", he states that "...resource economists are...of the opinion that fossil fuels will remain affordable in any reasonably foreseeable future" (Bradley). He says that proven fossil fuel reserves are estimated to be up to 230 years at the current amount of consumption (Bradley). This information leads us to believe that, at least for the foreseeable future, supplies are indeed plentiful.

Yet, there are other arguments against the switch from fossil fuels that might give a consumer a moment of pause. For instance, some types of alternatives such as geothermal, wave, and tidal power, are based on geological location for the availability of their energy. This need for certain natural attributes makes some of these sources unpractical in many areas. From the funding aspect, the possible economic threat that transferring to alternative energy sources poses causes many investors to shy away from such risky ventures. Many large utility companies use the minimum amount of alternatives required of them by law. They seem to believe that if any more of their usage was invested away from fossil fuels, it might bankrupt them. Those who make these arguments are concerned about the immediate social and economic implications of reducing our usage of fossil fuels.

### **Arguments For Alternative Energy Sources**

Those who argue for the introduction of alternatives to the power grid, say that many of these sources are more environmentally friendly than burning fossil fuels. In his article, "*A Proposal for International Funding of Energy Alternatives*", Ross Gelbspan says that global warming is finally sinking in. To prove his point, he states, "At the 1998 World Economic Forum...the CEO's of the world's 1,000 biggest corporations surprised organizers by voting climate change the most critical problem facing humanity" (Gelbspan). An immediate effect on the environment that might come from using bio-fuel is the reduction of such things like cooking oil or grass and yard clippings in our public landfills (Pahl). The environmental ramifications of not making the transfer to

alternative energy sources, is a very sound argument for those who advocate the reduction of fossil fuel usage.

One of the most important concerns of this debate is the impact on the economy. It is believed that many alternative energy sources would become very cheap after the initial investment of research, development and implementation. The usage of the abundant, domestic alternative sources, publicly owned, and operated would eliminate our need to transport, and utilize foreign fossil fuels. If done correctly, some believe that the switch might cause a global economic boom (Gelbspan).

Now, since we have taken a look at the arguments from both sides, it would be an excellent time to educate ourselves on the specific types of alternative energy sources available. Each of the following alternatives has its own scientifically based explanation, as well as some examples of pros and cons associated with that source of energy. Take a few moments to familiarize yourself with the up and coming competitors to fossil fuels.

## **Types of Alternative Energy Sources**

### *Solar Power*

There are two main types of solar energy: solar thermal energy and solar photovoltaic. Solar thermal energy is very popular for small-scale consumers such as homeowners and small businesses. This method uses equipment such as a solar collector or even something as simple as a skylight. Solar photovoltaic energy is a very promising source of energy. It harnesses the power of the most abundant source available to us, the Sun, using photovoltaic cells. Solar Powered cars utilize these cells, and a future fancy is a vast array of these PV cells sent into orbit (Boyle, pg. 125).

Solar energy has many benefits; it is completely clean and environmentally friendly, it is relatively inexpensive to collect, and it is the single most abundant energy source on this planet. The obvious downside is that it is based on the availability and strength of direct sunlight. In many areas, solar energy is one of the most promising alternatives.

### *Wind Power*

Wind energy is one of the oldest forms of power production on the planet. For thousands of years, windmills have been used to provide energy for pumping water or milling grain. Modern wind turbines are being developed to utilize wind strength to its maximum. There have been many successful designs from screened turbines, to cup-type wind machines, to a combination of both (Boyle, pg. 278-9).

Like solar power, wind energy has many benefits; it is extremely clean, fairly inexpensive after the initial installation of the turbine, and plentiful in certain areas and altitudes. It also has its drawbacks as the energy collected is completely based on the strength of the wind. These wind turbines also pose a hazard to flying creatures unable to dodge the blades. Despite these few cons, wind energy is also a promising alternative to fossil fuels.

### *Hydropower*

Probably the most utilized alternative energy source today is hydropower. Since this power supply is actually on the grid and produces a decent amount of energy, many people tend to consider it separately from the other alternative energy sources. This form harnesses the vast power of a flowing river to turn the turbines responsible for capturing the energy (Boyle, pg. 184-6).

Hydropower, was at one point, thought to be completely environmentally friendly. It didn't take long, however, to see major changes in the ecosphere around the dams, such as flooding and depletion in fish populations. Aside from this tragic loss of life, hydropower is completely dependant on the flow of water and availability of rivers. On the other hand, it does not spew any harmful emissions into our environment and it is relatively inexpensive. Due to these pros, hydropower is a widely used alternative energy source around the globe.

### *Biomass*

The use of bio-fuels is as old as man's discovery of fire. For hundreds of thousands of years, burning wood was civilization's main source of heat and energy. Today, it makes up for less than 5% of alternative energy usage. The energy from bio-fuel is obtained by burning biological material, such as hemp seeds and animal waste, to power bio-diesel engines (Pahl).

There is a great supply of fuel for biomass energy in the old cooking oil from restaurants and the yard clippings from citizens. Other bio-fuels are also very abundant and fairly inexpensive. On the con side, however, not all bio-fuels burn clean and some are even more polluting than nuclear power or natural gas. The high pollutant factor that some bio-fuels produce makes this far less likely to be the major alternative being searched for.

### *Geothermal Energy*

The goal of a geothermal plant is to capture and store the energy and heat provided by the core of our planet. The heat is stored within rock found in "high-enthalpy" regions, such as, volcanoes and vents. Superheated dry steam produced in

these areas is also collected and used as a power source. Many wet steam fields also offer great stores of geothermal energy, although the liquid must be turned into steam before it can be utilized. (Boyle, pg. 353)

Compared to other alternatives, such as bio-fuel, geothermal energy is very clean and environmentally friendly. If technologies improve, and research and development is funded, geothermal energy has the potential of becoming renewable. If we developed a way to replenish the reserves of H<sub>2</sub>O in the caverns that produce the hot steam, water and rocks, then we would have an unending power source that would take little effort to keep going. Unfortunately, the supply of this energy source is currently based on the levels of steam pressure and limited in availability beyond the volcanic areas of the planet.

### *Hydrogen and Fuel Cells*

Probably the most promising alternative energy system currently under development, hydrogen and fuel cells are relatively easy to understand. Fuel cells combine hydrogen and oxygen to produce heat and energy that can be stored in a battery. The only emission of this process is the deadly substance, H<sub>2</sub>O (NREL website).

Hydrogen is the simplest and most abundant element in our universe, as such, there are many different ways to create and collect the energy produced by its reactions with other elements. Several great sources of hydrogen are the fuels already utilized today; even the burning of fossil fuels could be used to produce a much cleaner energy source. Unfortunately, this technology is still under development and is currently very expensive. Funding aside, hydrogen and fuel cell technology is among the most promising resources for the future.

### *Wave Power*

There is a vast amount of power within the waves and currents of the ocean.

Capturing the full extent of the wave power produced by the various oceans and seas is proving to be a difficult task. Many nations have begun work on developing a turbine array that could utilize the whole of a wave's energy without damaging the equipment. So far, some companies across the globe have developed small prototypes that can survive the rough open water, but nothing on the massive scale desired (Boyle, pg. 315, 323-5).

Wave power is capable of being a very inexpensive and abundant supply of energy. However, it will take a great deal of funding to bring the technology up to where it would meet the consumption demand of the populace. If the obstacles can be overcome, ocean waves could become one of our greatest sources of power.

### *Tidal Energy*

As with wave energy, tidal energy is based on the massive amount of energy in our planet's oceans and seas. Built across suitable estuaries, tidal barrages capture the energy from the ebb and flow of the tide. The kinetic energy produced by the turn of the turbines is captured and used to run a generator, which produces electricity. Once again, this usage of one of the most powerful forces on our planet, has great potential as an alternative energy source (Boyle, pg. 230-42).

Although the ocean has an unlimited supply of tidal energy, there are limited places where this source could be implemented. Also, the technology needs quite a bit more funding in order to realistically meet the needs of a demanding populace. Even with the location problem, tidal energy could provide power to neighboring communities for miles away.



## **Concerning the Environment**

The biggest concern of advocates for alternative energy is the impact that the burning of fossil fuels has on our environment. Using gas in our cars, oil in our furnaces and coal in our factories caused the acid rain that so terrified my generation as children. That was only the beginning as we have created an enormous hole in our atmosphere, ruined fertile fields beyond repair with the dumping of our toxic waste and have even caused the Earth's climate to change. In his article, "*A Proposal for International Funding of Energy Alternatives*", Ross Gelbspan says that global warming is finally sinking in. To prove his point, he states, "At the 1998 World Economic Forum...the CEO's of the world's 1,000 biggest corporations surprised organizers by voting climate change the most critical problem facing humanity" (Gelbspan).

According to the Union of Concerned Scientists, all of these environmental catastrophes can be attributed to our mass-usage of fossil fuels. The alternatives on the other hand are a completely different ballgame. The only deadly emission from the use of hydrogen and fuel cell technology or geothermal energy is H<sub>2</sub>O. Wind, solar, tide and wave energy sources have no harmful emissions at all. Bio-fuel on the other hand, can and does produce a slightly toxic Co<sub>2</sub> emission that some of us like to call campfire smoke or burning leaves. The differences between fossil fuels and their alternatives are drastic when it comes to the impact that they have on our environment.

## **Concerning the Economy**

The strongest argument that advocates of fossil fuel usage have is that the danger of an economic disaster is too great if we were to switch to other alternatives. They claim that the costs to develop, implement and produce these supplemental energy sources are

phenomenal and that the everyday consumer would be the one to feel the crunch. This is not entirely true, as the average consumer would only see raises in their power bills if the alternatives were implemented into the grid with the current technology. However, a few short years of proper funding to bring the technology up to date and many of these alternative energy sources could out produce our current suppliers of fossil fuel. This would mean lower power bills and less toxic emissions. After the technology for supplemental energy sources has become as advanced as that used to draw oil from the Earth, the only people experiencing a pinch would be the big oil companies. Later in his article Gelbspan says, "...growing numbers of corporate leaders are realizing that the necessary transition to highly efficient and renewable energy sources could trigger an unprecedented worldwide economic boom".

All of the alternative energy sources that are in usage or development today are completely domestic and they are abundant. A person does not have to search far to find an adequate amount of sun, wind, water or hydrogen to produce the energy a large population requires. In her essay, "*Renewable Energy*", Mary H. Cooper quotes Blair Swezey of the Department of Energy's National Renewable Energy Laboratory, "Certain resources are more advantageous in particular regions than in others, but we know that there are enough renewable resources in the United States to more than meet our energy needs several times over." The ease with which these supplements can be found will make them far less expensive than the imported foreign oil and regional coal deposits used by the majority today. Yet again, it is the lack of proper technology that holds back the benefits of alternative energy from our world.

## **The Inferiority Complex**

Fossil fuels are inferior to alternative energy. The usage of oil, coal and even natural gas emit highly toxic chemicals such as mercury and carbon dioxide into our atmosphere in staggering amounts each day. The Environmental Protection Agency's website says that these emissions cause acid rain, climate change and the destruction of habitats. The damage done to the environment makes these sources very unappealing.

The environment is not the only thing that the western world's consumption of fossil fuel destroys. Many mid-eastern societies have been disturbed or even consumed by the demand that our populace has for power. Our nation goes through vast quantities of fossil fuel everyday. This supply has to come from somewhere and as the only domestic sources are sparse and in protected areas, we are left with foreign sources. Our need for fossil fuels has upset many lives and civilizations besides our own, lives that may never recover from their effects.

Aside from the moral dilemma that the use of fossil fuel causes, we are faced with the undeniable fact that the reserves are very limited. To paraphrase Robert L. Bradley Jr., proven fossil fuel reserves are estimated to be up to 230 years at the current amount of consumption. That is the current amount of consumption for the current population. These numbers, however, are constantly climbing and the reserves of oil dwindle, speeding up the hands of the clock. Two centuries may seem like a long period of time, but to a civilization it could mean life or death. If we do not adopt alternatives to this limited resource our grandchildren's children will watch our society fall apart.

On an even more pragmatic note, the limited supplies of oil will eventually diminish to where it will be too expensive to draw from the ground. This problem is

immediate and evidenced by the constant rise of gasoline prices. In his article, *“Alternatives to Oil Must Be Developed”*, Walter Youngquist says, “...oil...is a finite resource...eventually the cost to recover what remains will be beyond the value of the oil.” This obvious problem is unavoidable. Our children will be left to deal with the outcome if other sources of energy are not implemented into our power grid before the oil well runs dry.

### **Impact**

The big oil companies and their associates fear the implementation of alternatives to their fossil fuels. Many of them would lose a lot of money and would no longer hold a virtual monopoly over our world’s power supply. The impact on these poor, unfortunate souls is obvious- they might lose their wealth. For the rest of us on the lower end of the food chain, the impact of the change to alternative fuels would be nothing but beneficial. Implementing alternative energy sources into our communities would eliminate most of the pollution created by our populace today. Instead of producing highly toxic chemicals and pumping them into our air, water and earth, we would have emission-free transportation, non-toxic homes and even environmentally friendly factories. Youngquist makes a powerful statement regarding the implementation of alternative energy sources, he says, “The very act of addressing the crisis would acknowledge that we are living on a finite planet and foster a new ethic of sustainability that would permeate our institutions and policies in ways unimaginable today.” It is evident that supplemental alternative energy sources are friendlier to our environment, our economy and the inhabitants of our mother earth than the extraction of fossil fuels and their constant consumption.

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*Environmental Encyclopedia.* (2003) "Photovoltaic cell" Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. <http://infotrac.galegroup.com/itweb/wadsworth>

*Found on an Opposing View Points website that another instructor recommended. This article is fairly informative with good information on the physics of solar energy as well as information on storage and collection equipment. It is an interesting article, I had not yet found such a nice description of the how and why of Solar Energy.*

*Environmental Encyclopedia.* (2003) "Wind energy." Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. <http://infotrac.galegroup.com/itweb/wadsworth>

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*Environmental Encyclopedia.* (2003) "Biomass fuel." Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. <http://infotrac.galegroup.com/itweb/wadsworth>

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*Found on an Opposing View Points website that another instructor recommended. This article contains wonderful information on energy use around the world, not just the US. I found it very enlightening, even I find myself forgetting that we are not the only intelligent nation out there, in fact we're beginning to slide down the scale at an alarming rate. It was good to remember that we are not the only ones who are researching alternatives and that perhaps someday we will be forced into making changes.*

NREL-National Renewable Energy Laboratory, The. (2006). <http://www.nrel.gov>

*Found by a Google search. This site has scientific information about alternative energies from the horse's mouth. This is quite possibly the greatest resource I have found. They have information about all kinds of energy, the research and development of those types and just about any other news you could possibly want to know about alternatives.*

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Ross, David "Wave Energy is a Promising Energy Source" *Global Resources*. Helen Cothran, Ed. Opposing Viewpoints® Series. Greenhaven Press, 2004. Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006.

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*Found on an Opposing View Points website that another instructor recommended. This article has information about wind energy and its usage, mostly in Europe. I found this article interesting, Sweden has always been famous for chocolate and windmills, but I hadn't realized that so many other European countries were also utilizing wind energy.*

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*Found on an Opposing View Points website that another instructor recommended. This article has very informative facts about the potential of solar energy as well as housing designs and usage ideas. I found this article very interesting, especially the section on house designs and how solar power works with them.*

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*Found on an Opposing View Points website that another instructor recommended. This article has information concerning why we need to find alternatives and the consequences if we don't. I found this article very interesting and the information within quite frustrating as the rest of the world tries to find a solution to a problem that the US seems bent on making worse.*

Youngquist, Walter. "Alternatives to Oil Must Be Developed". *What Energy Sources Should Be Pursued?* Stuart A. Kallen, Ed. At Issue Series. Greenhaven Press, 2005. Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006.

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*Found on an Opposing View Points website that another instructor recommended. This article has information on all types of energy sources as well as the effects of population and the limits of technology. I found this article very interesting and the only one that I've come across to call geothermal energy non-renewable. It seems that if it is an alternative energy that people automatically assume that it is renewable.*

Friends of the Earth Scotland. "Nuclear Power Is Not a Solution to Global Warming". *Global Warming*. James Haley, Ed. Opposing Viewpoints® Series. Greenhaven Press, 2002. Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006.

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*Found on an Opposing View Points website that another instructor recommended. This article has information strongly discouraging the use of Nuclear Power as an alternative to fossil fuels. I found this article informative and convincing, it reminds me of an episode of "The Simpsons" that I saw the other night, it was about a three-eyed fish that Bart caught 15 feet down the river from the Nuclear Plant. The owner of the plant couldn't stomach eating it even though it cost him an election. It's quite a funny episode.*

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*Found on an Opposing View Points website that another instructor recommended. This article states that the world's fossil fuel reserves are abundant. What world is this guy living in? 230 years (more like 100 years) of oil usage left isn't exactly what I'd call abundant. Of course, he is only thinking about HIS generation, who gives a damn about anyone who comes after us? I find this disgusting and although I needed an example of his side of things, I can't believe what I read.*

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*Found on an Opposing View Points website that another instructor recommended. This article has information about some of the possible costs and environmental problems of certain types of alternative energy. I found this article slightly more bearable than the one about oil reserves being plentiful, however, he has a very limited scope and brings up only biomass and wind as the renewable energies.*

Ewing, Rex A. Power with Nature. Colorado: PixyJack Press, LLC, 2003.

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Alternative Energy Institute, Inc. Turning the Corner: Energy Solutions for the 21<sup>st</sup> Century. California: Alternative Energy Institute, Inc, 2001.

*Found in the Molstead Library, Call # - TJ 808.R55. This book is an excellent resource on all the alternative energy sources, including future endeavors. This is probably my most used reference, it has great scientific information that is understandable.*

Boyle, Godfrey, ed. Renewable Energy: Power for a Sustainable Future. New York: Oxford University Press, 1996.

*Found in the Molstead Library, Call # - TJ 808.R42. This book has detailed information about many different alternative energy sources. This is another very well used reference, it also brought up an energy form I hadn't seen yet, Tidal Power.*

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- Flavin, Christopher. "The Use of Wind Power Should Be Increased". Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has information about wind energy and its usage, mostly in Europe. I found this article interesting, Sweden has always been famous for chocolate and windmills, but I hadn't realized that so many other European countries were also utilizing wind energy.*
- Eisenbeis, Gerd. "The Use of Solar Power Should Be Increased". Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has very informative facts about the potential of solar energy as well as housing designs and usage ideas. I found this article very interesting, especially the section on house designs and how solar power works with them.*
- Glebspan, Ross. "A proposal for International Funding of Energy Alternatives." Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has information concerning why we need to find alternatives and the consequences if we don't. I found this article very interesting and the information within quite frustrating as the rest of the world tries to find a solution to a problem that the US seems bent on making worse.*
- Youngquist, Walter. "Alternatives to Oil Must Be Developed". Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has information on all types of energy sources as well as the effects of population and the limits of technology. I found this article very interesting and the only one that I've come across to call geothermal energy non-renewable. It seems that if it is an alternative energy that people automatically assume that it is renewable.*
- Friends of the Earth Scotland. "Nuclear Power Is Not a Solution to Global Warming". Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has information strongly discouraging the use of Nuclear Power as an alternative to fossil fuels. I found this article informative and convincing, it reminds me of an episode of "The Simpsons" that I saw the other night, it was about a three-eyed fish that Bart caught 15 feet down the river from the Nuclear Plant. The owner of the plant couldn't stomach eating it even though it cost him an election. It's quite a funny episode.*
- Bradley Jr., Robert L. "World Oil Supplies Are Plentiful." *Foreign Oil Dependence.*

Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article states that the world's fossil fuel reserves are abundant. What world is this guy living in? 230 years (more like 100 years) of oil usage left isn't exactly what I'd call abundant. Of course, he is only thinking about HIS generation, who gives a damn about anyone who comes after us? I find this disgusting and although I needed an example of his side of things, I can't believe what I read.*

Taylor, Jerry "Renewable Energy Is Expensive and Will Not Prevent Pollution"

Opposing Viewpoints Resource Center. Thomson Gale. 19 March 2006. *Found on an Opposing View Points website that another instructor recommended. This article has information about some of the possible costs and environmental problems of certain types of alternative energy. I found this article slightly more bearable than the one about oil reserves being plentiful, however, he has a very limited scope and brings up only biomass and wind as the renewable energies.*

Ewing, Rex A. Power with Nature. Colorado: PixyJack Press, LLC, 2003.

*Found in the Molstead Library, Call # - TJ 809.4.E95. This book has very detailed information about implementing wind and solar energy into your home or business. I found this book very interesting, I got an excellent idea of how solar and wind energy can be practically used on a small-scale basis.*

Quaschnig, Volker. Understanding Renewable Energy Systems. London: Earthscan, 2005.

*Found in the Molstead Library, Call # - TJ 808.Q37. This book is a very in-depth resource on several sources of renewable energy. This book is excellent and is a very helpful resource.*

Alternative Energy Institute, Inc. Turning the Corner: Energy Solutions for the 21<sup>st</sup> Century. California: Alternative Energy Institute, Inc, 2001.

*Found in the Molstead Library, Call # - TJ 808.R55. This book is an excellent resource on all the alternative energy sources, including future endeavors. This is probably my most used reference; it has great scientific information that is understandable.*

Boyle, Godfrey, ed. Renewable Energy: Power for a Sustainable Future. New York: Oxford University Press, 1996.

*Found in the Molstead Library, Call # - TJ 808.R42. This book has detailed information about many different alternative energy sources. This is another very well used reference; it also brought up an energy form I hadn't seen yet, Tidal Power.*

Union of Concerned Scientists. Clean Energy. Union of Concerned Scientists. 05 May,

2006 <[http://www.ucsusa.org/clean\\_energy/fossil\\_fuels/the-hidden-cost-of-fossil-fuels.html](http://www.ucsusa.org/clean_energy/fossil_fuels/the-hidden-cost-of-fossil-fuels.html)> Found by a google search when looking for the "environmental impact of fossil fuels". Lots of information on the impact that fossil fuels have on our environment. I found it very useful to support why the use of fossil fuels should be diminished.

U.S. Environmental Protection Agency Homepage. U.S. Environmental Protection

Agency. 05 May 2006 <<http://www.epa.gov>> Found by a google search for "epa". Was looking for environmental impact data of fossil fuels. Very educational site, the quick finder took me to information about acid rain, climate change and the clean air and water acts.