

**Submitting to the Wrath of Fossil Fuels:
Are Biofuels Our Holy Grail?**

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OUTLINE

I. Introduction

- A. Using biofuels as an alternate source of energy is a grand idea to gradually wean us away from spending obscene amounts of money to acquire fossil fuels for energy and to help the environment.
- B. The study and production of biofuels are powered by the ideas that it can replace fossil fuels and that biofuels are environmentally friendly. However, the question remains if we in fact have the resources required to move forward into biofuel technology and if biofuels are in fact more environmentally friendly.
- C. Thesis: The tireless efforts to find alternate resources that can generate/harness energy are all commendable, but are biofuels really the answer?

II. Body

- A. Background
 - 1. Pains of petroleum
 - 2. What are biofuels?
- B. Pros.
 - 1. Economic relief
 - 2. Less dependency on fossil fuels helps to limit fossil fuel related tragedies and environmental woes
 - 3. Environmentally friendly
 - a. Lower emissions
 - b. Biodegradable
 - c. Renewable
- C. Cons
 - 1. Takes more energy to make than what biofuels return
 - 2. Lack of land for production

III. Conclusion

- A. Review of main points
- B. Restatement of thesis

Most things that are in popular demand are things the public do not necessarily have to have. People can do without the ridiculous antics and the absolute raunchiness of reality television. The populace doesn't have to constantly hear the latest smash hit songs from Miley Cyrus, Lil Wayne, or Drake every hour as they pollute the airwaves of radio, busy boulevards and neighborhoods. People just may even have a slim chance to survive without the latest touch-screen phone or tablet, despite its phenomenal global "necessity." However, there is one single commodity that will seemingly forever plague our lives and will not go away like the unyielding cockroach, no matter what ingenious efforts we explore. It is our constant emergent need for fossil fuels. The popular demand for fossil fuels is absolutely superior to the popularity of anything and anyone; just don't let Kim Kardashian know that! So, how do we wean ourselves from being the most dependent country of fossil fuels today so that people can be financially able to get in shape by joining a local gym or maybe even afford to take a few vacations here and there to enjoy life while we're here in petro purgatory ("The US Dependency on Fossil Fuels," 2014, p. 1)? What can cure the stresses that the desires for petroleum continue to place on Mother Nature? Fortunately, groundbreaking discoveries with the study and production of biofuels may help us to correct some of these issues. The booming interest in biofuels and the cries for its success are spawned from the ideas of people being less fossil fuel dependent and the notion that biofuels are more environmentally friendly when compared to fossil fuels. However, there are existing studies and arguments that suggest that biofuel production may have faults as well. One argument is that biofuels may take more energy to make than what they yield. Sadly, one other factor that biofuels may be the way to go is that

there may not be enough to produce the resources needed for its production in order for biofuels to make a significant change people are hoping for. Commitment to the study of biofuels and its development just might be the “Holy Grail” that many people are wishing for to help to swiftly steer people away from total fossil fuel dependency. Tireless efforts to find alternate resources that can generate/harness energy are all commendable to the highest degree, but are biofuels really the answer? To get a better picture of the potential future of biofuels, it is important to scrutinize this particular avenue by eventually weighing the pros and cons of biofuel production.

Studies show that there are many hazards that tag along and tarnish the great respect given to fossil fuels, such as environmental hazards. The production of petroleum can “...cause pollution at every stage, from mining and recovery to refining, transporting, and using it as a fuel” (Botkin, p. 11). Most scientists today are seriously concerned about the global warming hazards and suggest that gas emissions are problematical:

The burning of fossil fuels produces heat-trapping gases that are the main cause of the on-going rise in global atmospheric temperatures. Despite a growing list of global warming indicators, underscored by the alarmingly rapid recession of Arctic sea ice, opportunistic oil companies continue to exploit the ever-increasing human need for energy consumption and are constantly on the lookout for untapped oil and gas sources. (“Fossil Fuels,” n.d., p. 1)

Another problem is the potential for oil spills that can severely cripple surrounding ecosystems

and the economy as well, example by the 2010 Deepwater Horizon spill in the Gulf of Mexico or the 1989 Exxon Valdez oil spill in the waters of Alaska (“Fossil Fuels,” n.d., p. 1).

Sadly, the pains don’t stop with the environmental hazards. People feel the costs of the desperate need for energy every time they visit a gas station for a fill-up. The high prices of gasoline viciously place intangible restraints on how people live their own lives. An article on *MineralWebs.com* explains:

The problem with the United States’ dependency on fossil fuels is that there is an increasing amount of competition for those fuels. This is mainly from the developing world. Most of the fastest growing economies in the world are also some of the largest countries in the world in terms of population. In order to meet the demand for a higher standard of living that the people of these countries are going to expect from a booming economy, more and more fossil fuels are going to be required. This is going to send the price soaring since there is a limited amount that can be produced. People in the United States are already concerned about high oil price but in reality the price is going to go much higher. The U.S. economy is going to have to adapt to this increase if it is to remain competitive. (“The US Dependency on Fossil Fuels,” 2014, p. 1).

These economic reasons are great motivators to explore other resource avenues, like biofuels.

Biofuels are renewable energy sources derived from plant or animal material or the waste that they produce. Ethanol, for instance, is a biofuel processed from corn and is a

commonly used biofuel today, present in much of our gasoline. However, biofuels come in a wide variety of “generation.” First generation include those made from sugars, starches or oil. Second generation are derived from non-food crops, such as willow and switch-grass. The third generation are made from algae and other biomass sources. The fourth generation come from engineered plants or biomass (“What Are Biofuels?,” 2009, p. 1).

Having significantly less dependency on fossil fuels can greatly increase the health of the environment. Issues such as contamination of water and air could be lessened:

When coal is mined, chemicals contaminate the water beneath the earth’s surface, or groundwater, with toxins. When burned as fuel, coal releases into the atmosphere ash and particles, as well as gases such as sulfur dioxide and nitrogen dioxide. When these gases react with water vapor, they form sulfuric and nitric acid in the air, and subsequent precipitation falls as acid rain. Because it raises the acidity in lakes, acid rain can kill fish and other aquatic life. It can also devastate vegetation and forests (Rotberg & Gelletly, 2007, p. 73).

Lessening the amount of fossil fuel production seemingly could make many changes for the better by healing the environment. Biofuels are also said to be environmentally friendly. One reason they are considered to be environmentally friendly is they have lower emissions into the air. “Burning biodiesel produces fewer emissions than petroleum-based diesel; it is essentially free of sulfur and aromatics and emits less CO. Additionally, biodiesel is less toxic to the soil” (“Biofuels,” 2010, p. 110). Another environmentally friendly benefit of biofuels is that they are biodegradable. This means that if a catastrophe were to happen (like spillage of biofuels),

nature would absorb it much more easily by breaking it down naturally (“The Advantages of Biofuels Over Fossil Fuels,” 2013, p. 1). One final beneficial aspect of biofuels is that they are renewable resources. Another interesting belief is by using renewable resources, the emission of greenhouse gases are reduced as well as other air emissions (“Renewables and the Impact on Environment,” 2014). There seem to be overwhelming advantages in the use of biofuels.

Despite the seemingly better benefits of biofuels as opposed to fossil fuels, naturally, there are skeptics who have done their own research who disagree with the biofuel phenomenon:

After factoring in the energy needed to grow crops and then convert them into biofuels, Cornell University researcher David Pimental concludes that the numbers just don't add up. His 2005 study found that producing ethanol from corn required 29 percent more energy than the end product itself is capable of generating. He found similarly troubling numbers in making biodiesel from soybeans. ‘There is just no energy benefit to using plant biomass for liquid fuel,’ Pimental says. (“The Pros and Cons of Biofuel,” n.d., p. 1).

Another wrench that has been thrown into the gears is the notion that we just don't have the land to support what it will actually take to support to production of biofuels. “Replacing only five percent of the nation's diesel consumption with biodiesel would require diverting approximately 60 percent of today's soy crops to biodiesel production,’ says Matthew Brown, an energy consultant and former energy program director at the National Conference of State

Legislatures” (“The Pros and Cons of Biofuel,” n.d., p. 1). Using the land to support energy production at the cost of losing food production may not prove to be a viable choice.

It’s obvious that the world’s scientists are busy trying to resolve our resource issues and the problems that engulf them. The study and production of biofuels seemingly has benefitted our crave for energy by finding ways to lessen the financial strain fossil fuels have on the public, as well as improving our environment with renewable, biodegradable resources that help to heal nature by emitting less harmful gases. However, other studies show that biofuels aren’t as “friendly” as they may seem. The skeptics illustrate that we still have a long row to hoe. The report that biofuels do not yield the energy it takes to create is extremely troubling; furthermore, the study that we lack the land needed to provide the resources to appease our desire for energy is also a concern. Again, the tireless efforts to find alternate resources that can generate/harness energy are all commendable, but are biofuels really the answer? Ultimately, we need to point the finger at ourselves. Our need for energy climbs daily, and we are simply being supplied with what we demand. Finding a happy medium where we can sacrifice some luxuries and lessen our energy consumption would be a spectacular feat on its own. Maybe sacrifice is the key needed to unlocking our elusive “Holy Grail.”

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