Biomass Energy

By Arthur Faire

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Outline

Introduction

A. Curbing climate change is a must for America. Americans need to incorporate more biofuels into their daily lifestyle. Combustible petroleum is a real threat to the world; therefore, actions must be taken to find other sources of energy for our daily use. Eliminating the release of greenhouse gases into the atmosphere is of utmost importance in protecting the future of our children's grandchildren.

B. Biomass has everlasting life as long as there are people on earth. Basically, all forms of waste material have some form of usage. Even though biomass burning creates carbon dioxide, it is still less polluting than petroleum-based fuels.

C. Thesis: America must rely on alternative fuels, such as ethanol and methane, to remain a viable and practical world superpower. America should not be dependent on imports of oil from foreign countries. The United States is the only world superpower. We should not be dependent on third world countries for oil to support our country. We are too advanced, and too educated, to not have our own source and supply of energy within the United States.

II. Body

A. Background

1. Biomass is characterized as all living materials in a specific area. Biomass measures are determined by dry land or the amount of water by volume.

2. When expended as an origin of energy or fuel, biomass is wastes taken from agricultural crops and wood, which are renewable organic materials.

B. Pros

1. Developing homegrown alternative fuels resources will help stabilize fuel prices.
2. Alternative fuels are domestically produced and provide economic development, energy security, diversification, and price stability.
3. Renewable fuels are the cure for America's addiction to oil.

C. Cons

1. America spends more than $300 billion a year on foreign oil.
2. America's energy dependence is a sign of military weakness.
3. High oil prices take money away from consumers' pockets.

III. Conclusion

A. Review of all main points

B. Thesis: America must rely on alternative fuels, such as ethanol and methane, to remain a viable and practical world superpower. America should not be dependent on imports of oil from foreign countries to support our country. The United States is the only world superpower. We are too advanced, and too educated, to not have our own source and supply of energy within the United States.

The United States can curb climate change by utilizing clean burning alternative fuels, such as ethanol. We must become less dependent on petroleum-based fuels. They are a huge polluter of greenhouse gas. Greenhouse gas contributes to climate change by holding heat in the atmosphere. Through the use of biofuel, we can cut down on the amount of pollutants that vehicles are emitting into the air. The cost to purchase biofuel is close to a dollar less per gallon than it costs to purchase petroleum based fuel. In 2011, American households saved more than $1,200 by utilizing biofuel. Studies have proven that carbon dioxide has been reduced by up to 50% by using ethanol. Some people have reported that the use of biofuel is depleting the rain forests. The truth is that rain forest destruction has declined since biofuel has been in use. By 2030, nearly 80 billion biofuels can be produced by the United States. Through the use of waste materials that are environmentally friendly, the production of biofuel is possible (Dinneen, 2013). America must rely on other forms of biofuels such as biomass and algae to remain viable. Our country should not be depending on foreign countries for oil. The United States is the only world superpower. The people of our country are too advanced, and too educated, to not have our own source and supply of energy within our country.

Biomass is characterized as all living materials in a specific area. Biomass measures are determined by dry land or the amount of water by volume. When expended as an origin of energy or fuel, biomass is wastes taken from agricultural crops and wood, which are renewable organic materials (“Biomass,” n.d.).

In their reference book article “Biotechnology: Changing Life Through Science,” authors K. Lerner and B. Lerner explained how biofuels use the energy in living organisms to power automobiles and to provide energy for a number of other uses. They also inform the reader

that liquid biofuels include two alcohol fuels, ethanol and biodiesel, and explain how vegetable oil can produce both fuels. The authors also state that by utilizing organic products, biofuel sources can regenerate relatively quickly. During the late 1800s, biofuel was used to fuel lamps. The Clean Air Act of 1990 set limits on the amount of pollution that vehicles could release. Car manufactures introduced flexible-fuel vehicles, which ran on a blend of alcohol and gasoline. The authors also remind us that biofuels can help the environment by using waste materials that will eventually fill landfills, if not used. Using more biofuels will help reduce America's dependence on foreign oil. Biomass can produce biofuels, and there are many different ways the United States can use biomass for energy. Biofuels have an advantage: organic materials produce biofuels, and their sources can grow back relatively quickly. Biofuels are a cleaner alternative than fossil fuels (Carolan, 2010).

According to Waltz, the author of the article "Scum Artists," an effort was made in the study of algae as fuel in 1978 in Colorado at the National Renewable Energy Lab. Because biofuel is easy to make, it attracts a lot of people. Through the use of lipids, pond scum stores its energy. Lipids can be used to create alternative fuels, such as ethanol, biodiesel, and jet fuel. Developers would rather use pond scum to produce biofuel because it produces a lot more fuel than biomass. Pond scum can be grown in a variety of areas, including salt water, without competing with food crops. Algae can remove carbon dioxide from industrial emissions and place it into its pond; plants can only receive carbon dioxide through the air. Due to the increased fuel price, in 2006, businesses took to algae like a fish to water. With the potential to produce algae for use in biofuel and to become independent on foreign oil, biofuel is a must for America (Waltz, 2009, p. 19).

America is committed to using large quantities of clean burning biofuel; therefore, the Renewable Fuel Standards (RFS) should remain in place. Since implementation of the RFS policy in 2005, United States' foreign oil dependency has decreased by 40 percent due to the use of biofuels. By utilizing biofuels, America's economic security is secure. Through biofuel research, more than 365,000 jobs were created in rural communities in 29 states. In 2012, more than $81 billion was contributed to the American economy by the American ethanol industry. Ethanol reduces greenhouse gas emission by almost 60 percent, due to clean-burning biofuels. American motorists saved more than $1,200 a year because ethanol is cheaper than gasoline (Dinneen, 2013). Ten percent of the fuel used for transportation in the United States must come from vegetable feed stocks as mandated by the Environmental Protection Agency. Not only does the transportation picture consist of blended gasoline, we need liquid fuel as well. The United States needs middle distillates to operate ships, trains, airplanes, and trucks; therefore, we need diesel and jet fuel. Through the use of electricity, fuel needs can be reduced in trains, cars, and trucks, but liquid fuel is needed to operate aircraft (Masia, 2014, pp. 22-23).

Establishments that generate large amounts of food waste, such as college cafeterias, hospitals, and supermarkets are required by state laws to separate and recycle their food scraps. The laws in New York, Massachusetts, and Connecticut went into effect more than two years ago. In 2009, the residents and businesses were required to separate and recycle food waste in San Francisco. In 2020, a similar law will take effect in Vermont. The citizens of Rhode Island are being proactive; they are not waiting for a law to force them to recycle their food waste. Last year, in Providence, the culinary art school at Johnson & Wales University decided

to lease a digester, naming it Chewy. Chewy is a big silver box used by the students to dump leftover food waste. In less than 24 hours, Chewy can convert waste food into fertilizer. Chewy will eventually pay for itself because the University will not have to utilize the state's landfill as often. Establishments that generate up to four thousand pounds of organic waste in a week will be required to recycle in 2016 if a digesting facility is less than 15 miles away (Leubsdorf, 2014, p. A3).

America's addiction to foreign oil costs $821 million per day. With the amount of money being spent on foreign oil each year, America could provide a yearly stipend of $1,000 to every citizen. Every year, America spends over $300 billion on foreign oil. Foreign countries receive billions of dollars each month from America for oil. The majority of these countries are very unstable, and a lot of the countries harbor terrorists. In the United States, we produce three times less crude oil than we use. Transportation consumes roughly 71 percent of the U.S. crude oil. In 2010, the United States consumed more than 14 million barrels per day on transportation during the second quarter. According to the Energy Information Agency, petroleum-based fuel used for transportation accounts for 94 percent of the energy use. Dependence upon energy is not about using dimmer light bulbs or not turning up the thermostat; it's about transportation (Clark, 2010, p. 28).

Big oil companies do not want ethanol sold; therefore, they refuse to invest in the ethanol infrastructure that allows it to be sold. They also do not want consumers to have a choice of biofuels because they do not make biofuels. Therefore, they cannot profit from biofuels. Big oil companies do not want to release the stranglehold on our fuel supply because they will lose money. They are in the business to make money, not lose money (Dinneen, 2013).

One thing that is vital to America's economic health is the movement of personnel and goods at an affordable cost. America will always remember the long gas lines and the spiraling fuel costs during the 1970's oil shock. America realized that its success depended on affordable oil. In the United States, recession is jump-started by instability when fuel prices spiral out of control. The days of cheap oil is over, due to the ongoing tension in the Middle East and rising global demand. Oil is the main source for moving people and goods in the United States. America becomes unstable when oil prices rise, and the alternatives are limited. Oil accounts for 95 percent of the movement of United States' goods and personnel. The United States imports half of its oil from unstable regions in the world. Oil prices are driven by political unrest and turmoil in the rich oil regions of the world (Andersen, 2012, p.20).

Biofuel does have drawbacks. With mass cultivation and genetically modified strains, the effects of algae are unknown. Growing algae over thousands of square miles with the potential to release into the wind have some wondering about the environmental impact. Technical problems are possible by growing algae for biofuels. Different types of organisms can get into the mix if algae are grown in the open sunlight. Algae can produce waste in the form of oxygen and can poison themselves if grown in enclosed bioreactors, and bioreactors are very expensive. Harvesting and extracting algae is very expensive, but with a major technology breakthrough, the price can be affordable (Goffman, 2010, p.21).

In conclusion, biomass can dramatically change the United States in a number of ways. All living organisms on Earth's surface create a large amount of biomass. Biomass is always available, unlike coal, natural gas, and petroleum which take many years to form. Biomass products, such as wood, agricultural crops or wastes, and municipal wastes, can be burned and

processed into biofuels. Biofuel was used to fuel lamps in the late 1800s. It was also used to operate the Model T car in the 1900s. Lipids can be used to create the alternative fuels, such as biodiesel and jet fuel that America needs. The American ethanol industry contributed more than $81 billion to the American economy in 2012. As many as 365,000 jobs were created in rural communities through biofuel research. Because biofuel is cheaper than gasoline, American motorists saved more than $1,200 a year (Dinneen, 2013). America spends more than $821 million a day and $300 billion a year on foreign oil (Clark, 2010). If the United States uses biomass and biofuels, we would no longer have to rely on foreign countries for oil, fuel prices would eventually decrease, and there would be more money in our pockets.

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