

Economic Sustainability: Comparing the Economics of Fossil Fuels and Alternative
Energies in Central New York
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Oil, natural gas, coal and the other finite, non-renewable natural resources are the food that nourishes the industrialized beasts of the Earth. Modern economies cannot function without proper energy provisions. The exploitation of our natural resources will ultimately result in the demise of modern economies, as we know them, unless the proper steps are taken toward a system that can function on alternative energy sources. Environmental Sustainability lies at the heart of this issue. If we don't curb our current consumption and move towards alternatives, we will dramatically influence the ability of posterity to meet their needs. Water, solar, and wind power can rise to the challenge; however, they are not currently in position to shoulder this burden. Additionally, biofuels and biomass¹ projects could potentially replace the roles of today's fossil fuels. To address this mammoth issue, investment in the research and development of alternatives to petroleum et al is not only desirable, but necessary.

The goal of my project is to compare and contrast the current fossil fuel based economy in the Albany-Saratoga area with the same economy running on alternative energy sources. The first phase is to analyze annual energy inputs and expenditures, including transportation costs of fuel into and out of the area, the cost of climate control in homes and businesses, current consumption of gasoline, and the costs of electricity.

The second phase of my project will be to study the newest innovations in alternative energies including wind, water, and solar power, biomass, biofuels, and hydrogen fuel cells. I will research the costs of implementation and the annual costs thereafter.

I will simulate a new alternative energy based economy by using the GIS software, which can map out the geology and topography of the area. With the software, I will be able to find suitable locations for energy facilities. For instance, windmills can be built in flat open areas that receive a steady stream of wind and photovoltaic cells² (solar power) can be built in areas that receive an ample amount of sunlight. The alternative economy will be presented on my poster next to the current economy with a cost-benefit analysis attached. I would also like to include a movie with the documentation of facilities currently operating within the area.

I plan on conducting interviews with officials and politicians who oversee energy facilities in the area to get their angle on the current situation and what they foresee in the future. In addition, I would like to interview some of the representatives from up and coming alternative energy companies such as ZAP³, who are pioneers in the automobile industry, and PlugPower⁴, a company based in the Albany area that deals in fuel –cell technologies.

I am currently working for the Multimedia Presentation Center (ITS), so I am very proficient with poster and movie-making technologies. I am also proficient with the GIS software offered through the geology department.

I am an economics and geology double major and this project will be the roots of my dual senior thesis. I took a class on economic development and sustainability through the economics department, which spurred my interest. In March, I plan on attending a conference in Montreal dealing with environmental sustainability to get a jumpstart on my research.

References

¹ Jarvis, Eric E.; Roessler, Paul G.; Goodman Dunahay, Terri. “Method to Transform Algae, Materials Therefor, and Products Produced Thereby”

<http://www.nrel.gov/technologytransfer/ip/data.php/patent/5661017>

² <http://science.nasa.gov/headlines/y2002/solarcells.htm>

³ Zap specializes in the production and distribution of electric cars, fuel cell cars, hybrid cars, electric bicycles, electric scooters, seascooters <http://www.zapworld.com/>

⁴ <<http://www.plugpower.com/index.cfm?vid=930409&liak=23934329>>