Microbial produced fuels as economically viable renewable fuel source

Health & Medicine

Section/# Feasibility Report Surprisingly enough, there are several different types of microbiological means of creating fuels. Many of these have been understood since the beginning of the 20th century; others have only recently been developed in the past decade or so. As a function of seeking to perform a brief overview of the existing microbiological means of energy production and creating a persuasive argument for furthering the research and funding into alternative fossil fuels, the following analysis will serve as leverage to this end.

Firstly, one of the oldest forms of creating energy via microbiological means is with regard to using different strains of bacteria to produce electricity. This particular practice was engaged as early as the late 1920s by teams of American and German scientists that were interested in the means through which electrical generation via natural and readily available cultures might exist. Not surprisingly, this particular form of electrical generation was extraordinarily inefficient and yielded only a very small amount of electricity as compared to the level of investment that it required to function. Because of this, this particular approach was eventually abandoned and little research has subsequently been performed with respect to it.

More recently, scientists have turned their collective energies towards the creation of gasoline derivatives and/or biodiesel through a process of photosynthesis and algae reproduction. Far and away the most effective form that has thus far been engaged is with regard to the use of fuel cells and cheated/pressure-treated cylinders to create extraordinarily prolific algae that breaks down and releases a biodiesel like byproduct as its waste (El Gendy et al., 2014). The inherent benefit of all of this has to do with the

fact that if this particular process is perfected, the overall energy independence that a particular region or nation Hope to exhibit will be drastically increased. Moreover, as compared to many other forms of the creation of fossil fuels and the development and purification of their derivatives, this particular process does not exhibit any toxic or long-lasting negative impacts (Yang et al., 2014). Although this particular process still exhibits drawbacks, namely the fact that it requires a very high exposure to natural sunlight that is possible only within certain latitudes, further bioengineering and/or nanotechnology could accelerate the process even in northern latitudes.

From the information that is thus far been presented, it is clear and apparent that a great deal more study is required with respect to effecting the technology and protecting the processes that could help to create a higher degree of energy efficiency and environmental protection with respect to the ever-increasing energy needs that are represented within the current environment. As a direct result of this, it is the recommendation and exhortation of this author that government funding be made available so that this research can continue unabated and potential alternative fuel sources can continue to be developed. Although the cost to continue scientific research with respect to these specific spheres would be inherently high, the overall cost of ignoring research and development within these spheres is an order of magnitude greater.

References

El-Gendy, N. h., Deriase, S. F., & Osman, D. I. (2014). The Optimization of Bio-diesel Production from Waste Frying Oil Using Response Surface

Methodology and the Investigation of Correlations for Changes in Basic Properties of Bio-petro-diesel Blends. Energy Sources Part A: Recovery, Utilization & Environmental Effects, 36(5), 457-470. doi: 10. 1080/15567036. 2013. 764360

Yang, S. I., Hsu, T. C., Wu, C. Y., Chen, K. H., Hsu, Y. L., & Li, Y. H. (2014). Application of biomass fast pyrolysis part II: The effects that bio-pyrolysis oil has on the performance of diesel engines. Energy, 66172-180. doi: 10. 1016/j. energy. 2013. 12. 057