

A Sustainable Environment: Our Obligation to Protect God's Gift

by
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Clean Energy: The Next Huge Market

During the past few decades, we have witnessed the creation of several new technical industries that became very large financial markets; for example, the biotech and Internet markets. John Doerr, a well known venture capitalist who directed venture capital funding to some of the top companies in the world including Amazon.com, Compaq, Google and Sun Microsystems, recently predicted that the clean energy market could very well become a \$6 trillion market. This would be an extremely large market when compared to other major markets. If his prediction becomes a reality, the energy market would be about 60 times larger than the biotech or Internet market.

When I read about this comparison, I started to think as to why the energy market could become so much larger than two of the most successful high technology markets of this generation. I thought about the importance of each of these three to our social well being. What has the biotech industry meant to us? The company that probably started this whole field of genomics is Genentech. If this company and others in the field never existed, our quality of life today would probably be similar to what existed, say, 50 years ago when I was a teenager. It really wasn't that bad although the life expectancy may have been a little lower and perhaps people didn't develop some illnesses of today that require the higher tech medications developed as a result of the Genentechs. The main point is that the biotech industry has not been critical to society.

Then I started to think about the Internet and how life was without it. All communication was by telephone or postal mail, the latter being considerably slower than email. All information gathering required one to go to a library or search in your personal set of encyclopedias. All purchasing meant you had to go to one or more stores to purchase a single item. I could go on with the comparisons but the point is that everyone was used to life without the Internet and everyone survived, albeit everything was much slower than today.

Now I am thinking about the energy market including the "green energy" market. How important might this market be to the social well-being of mankind? This really explains why this market could very well become about 60 times greater than the other two mentioned above. If we don't solve the carbon emissions problem within the next several decades, the result could be catastrophic to everyone on this earth. Carbon dioxide concentrations could increase to a level that would cause the average temperature on earth to rise to a level causing rapid melting of the ice caps which, in turn, would increase the ocean water level and thus causing widespread flooding. The increase in

average temperature would also cause many other problems, such as less arable land for agriculture and the faster loss of various species.

In order to mitigate this inevitable problem it is very critical that we, the whole world but the U.S. in particular, develop the new technologies necessary to solve the problem. For example, we must develop renewable energy technologies like solar, wind and solar-thermal. We cannot continue to depend on coal, oil or gas as the quantities are finite and will eventually run out, but also because they contribute to the carbon dioxide emissions that must be avoided. If we must continue to use fossil fuels, then we must develop technologies that sequester, or collect, the carbon dioxide and store it somewhere other than the atmosphere, perhaps underground. With transportation being the biggest contributor to carbon dioxide emissions, we must develop engines that operate on a fuel other than gasoline. The hybrid automobile is not the answer as it is just “less bad”. A plug-in hybrid, one that runs on electricity but uses a small gasoline motor to charge the batteries for long trips, is better but the best technology would be an all-electric automobile operating on rechargeable batteries. However, the charging source for the batteries must be from renewable energy, not a coal-fired power plant. Or we must develop quickly the fuel-cell technology, but again the production of the hydrogen fuel for the fuel cells must be with renewable energy.

We have the wherewithal to meet this challenge, but we need help from Congress. Subsidies must be diverted from non-renewable energy sources to the renewables. Our presidential candidates are talking about it, but will they along with Congress do what is necessary? Hopefully, everyone will get onboard with this new agenda and the U.S. will move in the proper direction next year.

Correction: In last month’s article, I stated that some of the rain forest in Brazil is being cleared to grow more crops. I should have stated that land adjacent to the rain forest is being cleared as the rain forest is not suitable for growing crops for bio-fuels.