

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

by
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Which Country Will Lead the Environmental Technological Revolution?

In 1960, the world's ecological footprint, the land and natural resources needed per capita to provide for each person's basic needs, was about fifty percent of the planet's capacity. In 1980, just twenty years later, the ecological footprint was equal to the earth's capacity. And now, another thirty years later, the footprint is forty percent greater than the capacity to provide for these basic needs. Do you see a pattern? We are in trouble, and someone needs to take the lead to develop and implement the technologies necessary to mitigate this problem. Who is going to take the lead?

There is no question that the U.S. will be, or is, the leader in developing the technology. But what I expect will happen is that other countries will implement the technologies. Do you recall how the U.S. developed the television technology, but Japan, Korea and others are manufacturing all the televisions. You may remember W. Edward Deming who assisted the U.S. army in manufacturing high quality military equipment during WW II. After the war, he helped Japan develop process control methods that led to high quality products and eventually destroying the U.S. electronics manufacturing industry.

Today, the world's largest automobile market is in China and it will continue to grow rapidly. This will require more roads and more fueling stations. But what kind of fueling stations should be built? BMW has already built a hydrogen-fueled automobile but where can you fill up with hydrogen? Tesla, GM-Volt, Nissan-Leaf and others are building battery-operated electric cars, but where do you charge them? China is in an excellent situation to build a new infrastructure for fueling the next generation of automobiles because it needs an infrastructure. The U.S. already had an infrastructure of fueling stations that allows you to drive from any part of the country to any other part and know that you will find a gasoline fueling station along the way. If China has to add fueling stations all over the country, why construct just gas stations. They may as well build battery charging stations or battery change-out stations for these new cars. Within the next ten to fifteen years, China will be way ahead of the U.S. in providing "fuel" for the next generation of automobiles. In the meantime, China is buying oil fields in Argentina, the Caribbean Gulf, and the Canadian tar-sands to become oil independent in the short- and long-term.

Another example is that of providing additional energy, whether it is the U.S. or China. Here in the U.S., there will be an increase in electrical demand because of: 1) more electrical products being sold, 2) increase in LCD and plasma flat-screen TVs that consume much more electricity than the older tube TVs, and 3) charging of battery automobiles. In addition, we will need new power plants to replace the old nuclear and

coal plants that will be shutting down. If the U.S. is going to add new power plants, every effort should be made to add renewable energy like solar, wind and geothermal to reduce carbon dioxide emissions and to meet renewable portfolio standards (RPS) for each state.

In China, however, the increase in demand for electricity is considerably greater than in the U.S. Their economy is growing so fast that there are plans to add a new 500 MW coal-fired power plant every week for the next seven years. And these plants will use dirty coal technology, meaning an increase in carbon dioxide emissions. While these plants are currently being built, I don't believe the country will continue with coal for the next seven years. Again, since China has to build a new infrastructure of power plants, they will do it with renewable energy. I expect that within the next ten years, China will have the world's largest power generation through solar and wind systems. Why build coal-fired power plants when this source of fuel is finite, being diminished rapidly, and a large contributor to greenhouse gas emissions?

In general, the U.S. will slowly improve its automobile fleet by increasing fuel economy and introducing electric cars, and it will slowly improve the generation of electrical power as we switch to renewable energy. China, on the other hand, has an automobile market that is growing rapidly and they may as well introduce the latest technologies, and its demand for electricity is also growing rapidly so they may as well employ the latest and best electrical generation technologies. China should become the new energy technology leader in the world by leapfrogging over the current technology.