RENEWABLE ENERGY

Pros and cons of various energy sources in light of global climate change

by Horace Johns

EDITOR'S NOTE

Is the earth's temperature actually rising? If so, what is causing it — man-made greenhouse emissions (largely generated by the burning of fossil fuels), cyclical climate change unconnected with people's behavior, or both? Remember that there are differing scientific opinions on these questions. Thus, it is difficult to empirically establish absolute proof for one position over the other.

Nevertheless, it would be wise for us to err on the side of caution and do everything humanly and reasonably possible to protect our environment while, at the same time, insuring that we have ample energy supplies to sustain a healthy standard of living.

It's clear that burning fossil fuels increases carbon emissions, but it's also clear that it is still necessary to burn them to produce electricity, operate machinery, and power transportation. It really comes down to striking as wholesome a balance as we can in being environmentally protective as well as providing for the energy needs of the United States.

American Legion Magazine in March 2009 summarized pros and cons of various energy sources.

- **Wind** turbines are clean and affordable. Unfortunately, wind surges can sometimes overwhelm the electrical grids tied to turbine systems. Also, wind farms can negatively impact certain wildlife. Since wind farms necessarily have to be large, they can stir opposition on the grounds that they are unsightly to nearby residential areas.
- **Solar** power can convert sunlight directly into electricity. It is clean, cheap, and plentiful. However, it depends heavily on the availability of sunlight because storage capabilities are limited. It could be difficult for areas of the nation that have too many overcast, rainy days.
- **Nuclear** power comes from heat generated from nuclear fission to convert water to steam and drive a turbine generator to produce electricity. It is clean, dependable, and long-lasting. However, where and how to dispose of nuclear waste and the risks associated with radiation are challenging. Moreover, nuclear reactors are costly and time-consuming to build.
- **Natural gas** provides 22 percent of America's energy consumption as it heats homes and fuels many cars and buses. It is clean, efficient, made within the U.S., and easily available. But we need more terminals to handle natural gas imports, and the level of production hasn't increased significantly since 2000.
- **Hydroelectric** power produces electricity from the flow of water through turbines. It is clean, domestically produced, and can supply many millions of households with electricity. However, it can adversely affect certain species of wildlife, and there are limited remaining water sources to harness.
- **Geothermal** energy uses heat and steam from the earth to generate electricity. It is cheaper than traditional heating and cooling sources, clean, sustainable, and more efficient than oil or gas. But it's costly to install and hard to tap in some areas.
- **Bioenergy** means ethanol and other fuels derived from organic plant matter. According to the Department of Energy, these include "dedicated energy crops and trees, agricultural food and feed crops, agricultural crop wastes and residues, wood wastes and residues, aquatic plants, animal wastes, municipal wastes, and other waste materials." It offers cleaner emissions and contributes to energy independence. However, it uses massive amounts of water, can increase food prices (e.g., converting corn away from the food supply), and depends on government subsidies.
- **Clean coal** releases fewer pollutants into the air by converting coal into gas and removing the sulfur, nitrogen, and soot. The U.S. has one-quarter of the world's coal reserves; thus, coal could help us become more energy independent. However, clean coal technology is not yet perfected and could require five to 10 years of a great deal of research and money before it could be used in a large coal-burning facility.

I wish we could wave a magic wand and become energy independent through clean, renewable sources. But that's wishful thinking. Dependence on coal, gasoline, and oil will remain with us for a long time. The question is: for how long and to what extent? That's up to our will and wisdom.

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