

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

by
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Why We Need Nuclear Power

We continue to read about climate change, its potential impact in the next 20 to 30 years or more, and the primary contributor to this phenomenon – fossil fuels. EPA recently passed new regulations to reduce the emissions from coal power plants because of this concern. So what is the answer?

As many of us have been saying for many years, we need to promote renewable energy sources like solar, wind, geothermal, and hydro. Unfortunately, the incentives to grow these technologies quickly are not being provided. For example, Congress provides an investment tax credit (ITC) and/or a production tax credit (PTC) for wind energy, but just before the ITC or PTC is about to expire, Congress will pass it for only one more year. That does not give the developers any incentive to continue because they don't know what will happen at the end of the following year. Congress should offer these incentives for multiple years at a time.

The only other source of electricity that doesn't emit carbon is nuclear energy. However, there are too many people that are opposed to nuclear energy because of the fear of accidents leading to many deaths. Two examples are Chernobyl (Ukraine) in 1986 and Fukushima (Japan) in 2011. In Chernobyl, only 31 people died as a result of the accident, and there are 64 confirmed deaths as of 2008 due to radiation. It is predicted that the death total could reach 4,000 among those exposed to the greatest radiation from the accident. In Fukushima, 1,607 died as a result of the accident and an additional 1,656 have died due to stress-related illnesses. On the other hand, look what is happening with coal-fired power plants. In 2011, over 300,000 people died from coal power plants in China due to a lack of scrubbers. In the U.S. alone, coal-fired power plant emissions cause about 13,000 premature deaths and 20,000 heart attacks per year – much greater than from nuclear power plants.

Another concern with nuclear power is the issue of dealing with the nuclear waste. Currently it is stored near or at each nuclear power plant rather than at a central storage area for the country. In 1987, Nuclear Waste Policy Act designated a waste facility to be built, and in 2002 funding was approved for that site to be within Yucca Mountain in Nevada. Federal funding ended in 2010 and the site was never completed.

The main problem with nuclear waste is that the fission process for generating power from uranium utilizes only a small portion of the available energy and the rest becomes a radioactive waste. The fusion process, on the other hand, creates considerably less waste and can even use the fission process waste for its feedstock. The concern with fusion, however, is the process can be used for nuclear weapons and countries are discouraging the development of the process for this reason.

The cost of nuclear power as compared to coal-fired power is not much different when taking into consideration the capital, fuel and waste costs. For plants currently under construction, the total cost for a coal-fired plant is estimated at \$95.6 per MWhr while that for nuclear power is \$96.1 per MWhr, not much different. The time to build a nuclear power plant is considerably longer than a coal-fired plant, but the big difference is due to permitting and environmental objections.

We should continue to build and operate nuclear power plants until we can depend more on wind, power and other renewable energies. You may be aware that Germany has decided to discontinue nuclear energy as soon as possible. Why? Because this country is making a concerted effort to utilize renewable energy as much as possible. This past May, renewable energy provided nearly 75% of demand and forced electricity prices to go negative. Renewables currently provide 27% of Germany's electricity demand, and their goal is to reach 80% by 2050, so they won't need nuclear energy. What is really needed here in the U.S. is the development of energy storage technologies that will allow for the continued consumption of these renewable energy technologies even when they are not generating energy. We must have the capability of consuming solar energy at night and wind energy when the wind is not blowing. This will provide us energy with free fuel and little or no emission of carbon dioxide, thus mitigating the climate change problem.