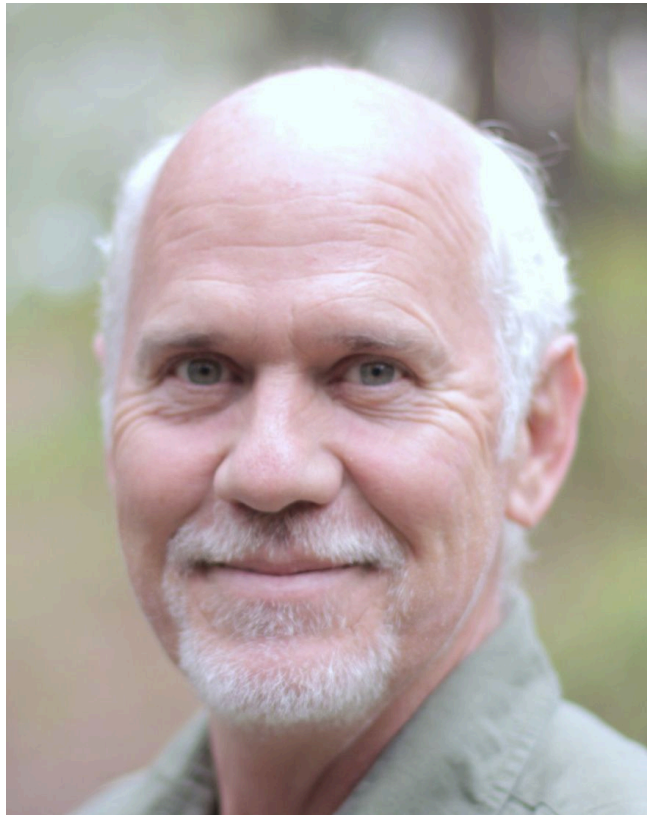

In My View: No energy source is perfect

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It has been interesting to listen to people's thoughts on offshore wind development. As with many other issues, having a lack of facts or accurate information is not an impediment to having an opinion.

There are legitimate concerns about the potential environmental impacts of offshore wind, but no energy source is perfect. Every option we must choose from has flaws and there are tradeoffs for each.

Fossil Fuels

Burning fossil fuels, including coal, oil, and natural gas, is the major source of carbon dioxide emissions which cause global warming. Climate change is costing lives and billions of dollars as we endure intense heat waves, wildfires, and stronger hurricanes. This is why we need cleaner, greener energy alternatives.

Of these three fossil fuels, coal is the most polluting. The United States has been ratcheting back on the use of coal, but China is building more coal fired power plants. They burn more coal than the next 24 countries combined. This underscores the need for global cooperation in phasing out coal as a fuel source.

In addition to the carbon dioxide from burning fossil fuels, there are also environmental impacts from fossil fuel extraction. Coal mines contaminate watersheds. Oil spills foul oceans and rivers. Fracking natural gas pollutes groundwater wells. These are the risks of reliance on fossil fuels.

Nuclear Fission

Some people include nuclear fission on the list of “green” alternatives to fossil fuels. There are no carbon emissions from nuclear power, but is it really green, clean or affordable?

When we consider the radiation that has been released from nuclear power accidents, we should conclude that nuclear power is not clean or green. After 60 years of operating commercial nuclear power plants, there is still no safe place to store spent nuclear fuel rods which will be radioactive for hundreds of years.

Nuclear power plants are also very expensive. The San Francisco Chronicle (8/1/23) reported, “The first American nuclear power reactor to be built from scratch in decades went online last month. The cost of this power plant could discourage utilities from pursuing nuclear power as a path to a carbon free future.”

Despite \$12 billion in federal loan guarantees, this \$31 billion project was seven years late and \$17 billion over budget. Nuclear power has costs that we should find unacceptable.

Solar Power

Solar power is superior to fossil fuels and nuclear power as a truly renewable resource. Every populated area on the planet has sun and could develop solar power. How and where solar energy is developed determines how beneficial and competitive it is as an energy source.

Large scale centralized solar farms require electricity to be transported through transmission lines long distances to customers. The further electricity travels the more is lost through the resistance of the wires.

Many advocates of solar power recommend decentralized small scale solar energy deployment, such as installing solar panels on individual houses, apartments, and businesses. The shortest distance between the source and the consumer is best.

Solar energy is only generated when the sun shines, which is not always when electricity is needed. This requires batteries and other methods of storing power. Manufacturing batteries requires mining rare earth metals that can cause localized environmental degradation.

Hydro Power

I once thought that dams were the perfect power source because they are a renewable source of electricity. After I learned about the impacts of dams on salmon and other fish, I became less enthusiastic about large scale hydroelectric projects, though these are preferable to fossil fuels and nuclear power.

When I worked for an environmental foundation, we considered funding a pumped storage project, which is a method of storing energy from wind or solar projects. Using excess electricity, water is pumped to a higher elevation where it is stored. Then like a dam the water is released through turbines to generate electricity.

This seemed like a nifty notion until I found that a local tribe opposed the project claiming it would flood their sacred ancestral lands. In this way pumped storage has the same impacts as dams. To create a reservoir which makes power, somebody's land must be flooded.

Wind Power

There are ecological impacts from wind. Wind turbine blades kill some birds. However, a strong case can be made that more birds will perish if the planet overheats, and their habitat is destroyed forever.

It is reasonable to note that each offshore wind turbine contains hundreds of gallons of petrochemicals that might spill into the ocean in the event of a turbine failure. However, in areas where offshore wind has been deployed, this is a rare and unlikely occurrence.

Compare this to the catastrophic leaks from oil pipelines. In 2021, 25,000 gallons of crude oil streamed from a pipeline connected to an oil platform off the coast of California. In 2022, nearly 600,000 gallons of oil poured out of the Keystone Pipeline into a creek in Kansas. These disasters will be avoided by phasing out fossil fuels.

Future Fusion

“Fusion powers the sun and scientists have pursued developing fusion on earth for decades.” According to a recent story by Reuters, “Scientists at the Lawrence Livermore National Laboratory have achieved net energy gain in a fusion reaction for the second time since December 2022.”

The scientists focused a laser on a target of fuel and fused two light atoms into a denser one, releasing excess energy. In other words, it produced more energy from fusion than the laser energy used to “ignite” it.

The Energy Department called this “a major scientific breakthrough that will pave the way for advancements in national defense and the future of clean power, which could help curb climate change in the coming decades.” This may be too late to save the planet.

Hard Choices

Sometimes we must pick the least bad option. To make good choices, it is best if everyone is educated and agrees on the same facts. Then collectively we can make informed assessments on what risks are acceptable.

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