

Nuclear power answer to clean energy

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For millions of electricity users in Utah, including me, the time has come to understand that nuclear power is the proper answer to our increasing need for clean energy.

There are several reasons why nuclear power deserves serious consideration, but perhaps the most significant is that it can provide a large amount of base-load power from a small amount of fuel, without polluting the air or emitting greenhouse gases. Solar and wind energy are also clean, but they produce electricity, on average, less than 30 percent of the time. By contrast, U.S. nuclear plants provide power about 90 percent of the time.

Coal is our energy mainstay, but it faces severe environmental challenges. Mercury and nitrogen oxides emissions are two of the biggest issues, and everything possible should be done to protect the environment. Dozens of older coal plants are expected to shut down because installing pollution-control equipment to meet new air-quality regulations would be too expensive.

Emission-free nuclear power is cleaner than either coal or natural gas. Those who maintain that used fuel at nuclear plants is a deal-breaker are wrong. Used fuel is being stored safely, mainly in steel-and-concrete casks. They can remain where they are indefinitely until collection sites for the casks become available.

Building a nuclear plant is an opportunity we cannot afford to squander. Nuclear plant construction provides thousands of jobs and revenue for state and local governments. Our energy security and economic growth depend on it. Although the cost of constructing a large nuclear plant is high, the cost of producing nuclear-generated electricity over a plant's lifetime is less than coal or natural gas, lowering energy costs and providing a big boost for the economy. Nuclear power's edge would be even greater if we decide to go with small modular reactors that could be built for a fraction of the cost of a large nuclear plant.

Small modular reactors similar to those that power the U.S. Navy's nuclear submarines and aircraft carriers have some distinct advantages. They would be built in factories with better quality controls and then shipped by rail to a nuclear site for final assembly. Modules, ranging in size from 25 megawatts to 140 megawatts or more, could be added as the need for more electricity generating capacity arises. They would be air-cooled, so they wouldn't require large amounts of water for cooling purposes. And they can be located beneath the ground for greater security.

Nuclear companies, including Babcock & Wilcox, Westinghouse, General Electric, and General Atomics, are competing for what could be a huge market in the United States and worldwide for small modular reactors. The Tennessee Valley Authority, which operates the second largest group of nuclear plants in the United States and is completing construction of two large reactors, has signed a letter of intent to buy six small modular reactors from Babcock & Wilcox.

Those who claim that nuclear plants, whether big or small, are unsafe ignore nuclear power's extraordinary safety record in the United States. The nuclear industry places the highest priority on safe operations. The fact is, since U.S. nuclear plants began generating electricity more than a half-century ago, no member of the public has ever been killed or injured in a radiation-related accident. That safety record compares favorably with that of every other large industry.

We know that steady improvement in nuclear technology is giving us designs such as the Westinghouse AP1000 that are passively safe -- once a reactor is shut down, heat is removed from the reactor core by gravity-driven water. In other words, no electrical power is needed to bring the reactor to cold shutdown. Ground has been broken for construction of AP1000 reactors in Georgia and South Carolina, and more are planned in the near future.

These new plants are becoming a reality because people recognize the need to pay for capital costs before actual construction begins, thereby making it possible for an electricity company to obtain private financing at more favorable rates. In several states in the Southeast, such payments amount to less than \$5 a month in added electricity rates. Without so-called construction work in progress, new power plants like the AP1000 would be unaffordable.

Yes, I think it's time to build a nuclear plant in Utah, whether a large reactor or a cluster of small modular reactors. If Blue Castle Holdings is successful, it would be a significant contribution to Utah's economy and standard of living while protecting the environment we so much enjoy here.

Kevan Crawford, PhD, is a licensed and professionally active nuclear engineer who supports a balanced mix of energy sources, including nuclear power, for Utah. He lives in Salt Lake City.