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## Why Progressives Should Be More Open to Nuclear Energy

by Andrew C. Klein

The international scientific consensus is clear: The Earth is warming, and humanity's reliance on carbon-based energy sources is a significant factor. Scientists working under the auspices of the United Nations believe that unless global emissions are stabilized by 2030 and cut by at least half by 2050, the Earth's temperature will increase by more than 3 degrees centigrade by the end of this century.

Should this happen, these scientists predict, both the natural world and human society will experience dire consequences, including mass extinctions, severe flooding caused by rising sea levels, and the failure of primary crops. To prevent these predictions from coming to pass, developed countries like the U.S. may need to cut carbon emissions by as much as 80 percent by 2050.

So far, the progressive response to this challenge has focused on increasing our use of renewable sources such as wind, solar, and geothermal energy. A renewable-based energy portfolio is certainly a worthy goal. However, it will probably be a long time—likely decades, not years—before such sources have a realistic prospect of providing the baseload needs of our national economy, let alone meeting the requirements of the entire globe.

In short, we sorely need reliable, non-carbon energy sources as we make the transition to an economy that makes significant use of renewable energy. In light of this need, it is time for progressives to become more open-minded about an energy source that they have tended to eschew or even demonize: nuclear power.

Nuclear has already proved its value as an alternative to greenhouse-gas-emitting energy sources. While there are only 104 nuclear reactors operating across the country, those plants provide about a fifth of all the country's electric

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power—and about 80 percent of all the zero-carbon energy produced in the U.S.

### **Addressing Progressive Concerns**

If the extent of our current reliance on nuclear power comes as a surprise, that may be because the industry has done a good job of avoiding the mishaps that once sullied its reputation. Since the Three Mile Island accident in 1979, U.S. nuclear power plants have experienced no serious incidents, and are generally considered the safest and best-operated nuclear facilities in the world. In fact, the safety culture at U.S. plants is so strong that working at a U.S. nuclear power plant is safer than working in the manufacturing sector.

Along with the safety issue, another factor that has made some progressives slow to seriously consider the merits of nuclear energy is economics. While the cost of nuclear power is often a point of heated debate, the fact is that nuclear plants produce the cheapest electric power on the grid. Currently, nuclear plants generate electricity for around 2 cents per kilowatt-hour in a market where the average cost is more than 10 cents per kilowatt-hour.

But there's a caveat here, and the critics of nuclear energy are quick to point it out: The savings from nuclear energy come once a plant is up and running. The real issue is whether it makes long-term economic sense to incur the enormous expenses of building new plants from scratch. Whether the cost of new plants is competitive remains to be proved, but several utilities have signed contracts to build new nuclear power plants at costs that appear quite reasonable. Time will tell if the final cost of these new plants meets expectations.

Another sticking point is the issue of nuclear waste. Progress toward resolving the issue of

what to do with nuclear fuel after it is used in a reactor is currently on hold. President Obama has called for the formation of a “blue-ribbon panel” to reexamine the options for dealing with this highly radioactive material. Alternatives under consideration include burying the fuel “as is” in stable geologic formations and recycling the still useful parts of the fuel with disposal of the truly non-reusable remaining components. The good news is that once-used nuclear fuel can be stored safely for a long period of time while researchers and politicians look for a better solution.

Some people are concerned that these projects will divert vital funds from renewable-energy projects, but there is no evidence that this would be the case. U.S. utilities have very aggressive plans to increase their use of renewables—electric companies plan to deploy about 145 gigawatts of new wind capacity over the next 10 years.

### **The Challenges for Renewables**

Nuclear projects under serious consideration are predominantly in parts of the country with limited renewable resources, such as in densely populated southeastern states where the air is too languid for wind energy, the sun is too cloud-blocked for current or near-term solar technologies, and a potentially useful biomass sector remains in its infancy. Areas with more economic and accessible renewable resources—such as the wind corridors along the coasts and through the Great Plains—are likely to have the best chance at being successful in deploying renewables at larger scales, breaking the technological ground for others to follow.

Eventually, advances in technology may allow utilities in more states to build practical renewable-energy facilities. Moreover, we must build a 21st-century electricity grid that will enable more

widespread use of renewables and allow widely distributed electricity generated in resource-rich areas to be efficiently transmitted across long distances to parts of the country that need energy.

But these changes will take many decades. In the interim, if we are to arrest the increase in emissions by 2030, as recommended by climate scientists, nuclear power should help provide a path to an emissions-free future.

No one expects that nuclear energy (or any other single technology) can solve all our energy challenges by itself. However, it can clearly help. Just one plant of the type that three U.S. utilities have recently signed contracts to build would displace the burning of about 7 million tons of coal each year.

Most importantly, as the U.S. and other countries increase the use of hybrid and electric vehicles, access to non-emitting electricity will become an essential element in the reduction of greenhouse gases. Renewable energy used in combination with a new generation of nuclear power plants gives us our best opportunity to reduce carbon emissions in a realistic and cost-effective manner.

### **The Global Appetite for Nuclear Energy**

While Americans weigh the important issues associated with nuclear power, the fact is that many other countries have already decided to proceed with the construction of a new generation of nuclear plants. There are 50 new reactors currently under construction in 13 countries around the world. China alone will place 16 new plants into operation by 2020, which would quadruple its nuclear capacity in the next decade or so. Other developing countries are following this example—some 30 countries that do not currently operate commercial nuclear plants are actively considering the construction of nuclear power plants.

Hazards lurk here. Few of these nuclear newcomers—which include nations such as Jordan, the United Arab Emirates, and Indonesia—have the trained personnel and infrastructures in place to implement adequate regulations and controls at their facilities.

Nevertheless, the quest for greater energy independence and a non-carbon source capable of fueling developing economies is spurring these countries to build nuclear power plants. It is in everyone's interest that these projects be carried out in the most responsible manner, with safety set as the highest priority.

Just as America's ability to influence other countries to reduce greenhouse gases depends on our ability to take the necessary steps at home, our ability to work with other countries to assure nuclear safety will depend on how seriously they view our commitment to advanced nuclear energy technologies. America's voice will carry far less weight in developing countries if those nations are building new plants 30 years more advanced than anything in use in the U.S.

If the U.S. technological infrastructure decays to irrelevance, we will have little ability to influence other countries in the development of meaningful safety standards. If U.S. companies are unable to build their advanced technologies in this country, we will have little success in convincing other nations to use our technologies instead of those that may be less safe.

### **Nuclear Energy and Jobs**

In addition, a true nuclear renaissance could bring tens of thousands of new high-technology, manufacturing, and construction jobs to the U.S. Many companies are already preparing for the expected construction of new plants.

More than 10,000 jobs have already been created, and each nuclear plant project will employ around 1,500 people during construction and about 800 during operation.

Beyond these jobs, the Nuclear Energy Institute, an industry trade group, estimates that each new nuclear plant will require approximately 400,000 cubic yards of concrete, 66,000 tons of steel, 44 miles of piping, 300 miles of electric wiring, and 130,000 electrical components. In many parts of the country ravaged by recession, a nuclear plant project would provide a major long-term economic boost.

After nuclear plant construction ceased in the U.S., American firms lost the ability to manufacture many of the key components required for a new nuclear plant. The opportunity to restore this vital component of the industrial base, which would provide the capability to manufacture many other complex components for other applications, is now before us. With so many nuclear power plants planned around the world, American workers can regain a share of this expanding export mar-

ket—but not unless new plants are built in the U.S.

Progressives must consider the role that nuclear energy can and will play in the U.S. and around the world. The “Just Say No” approach to nuclear energy has proven to be counterproductive to our national interests. Today, the world is moving toward an energy future that is cleaner and less reliant on fossil fuels—a future that includes nuclear power. It is time for progressives to assume a leading role in helping to shape that future.

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#### About the Progressive Policy Institute



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