

Nuclear25

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Experts on both sides of the nuclear energy debate collide in Monday's TED Debate

In a TED Debate on Monday, a nuclear energy proponent argued that nuclear is the most reliable energy source and creates the least amount of waste compared to other renewable energy sources. A nuclear energy opponent then argued that the combination of other renewables would match the energy needs of the world on its own, and nuclear energy creates more waste than these other sources.

“The saying is that, with climate, those who know the most are the most worried. With nuclear, those who know the most are the least worried,” said Stewart Brand, an environmentalist and nuclear energy proponent.

Many countries maxed out their renewable energy sources with wind, solar, and hydroelectric energy, said Brand. The United Kingdom recently purchased nuclear energy through the Chunnel from France due to a lack of other renewable energy sources during a “cold spell,” he said.

Stanford University Professor Mark Z. Jacobson, an opponent of nuclear energy, said that data from California's energy use demonstrated that a combination of wind, solar, and hydroelectric energy could match "hour-by-hour" energy needs of the state without supplemental energy sources.

The total energy available from wind alone could power five to 10 times the amount necessary to power the entire world, Jacobson said. Wind also puts out less waste than nuclear energy, he said.

Brand estimated that the waste created from one human lifetime of nuclear energy use would be the size of "one Coke can." In one day, a single, coal-fired energy plant uses 8,000 tons of coal and pumps 19,000 tons of carbon dioxide, slurry, and ash into the air, he said.

In one gigawatt-year, a nuclear energy facility creates 20 tons of waste moved into casks located on the facility, while a coal-fired energy facility pollutes the air with eight million tons of carbon dioxide, Brand said. In addition, fourth-generation reactors are in development that would be able to repurpose the hazardous waste into another source of energy, said Brand.

On its own, the process of developing nuclear power plants puts out more carbon dioxide and air pollutants relative to other renewable energy sources, Jacobson said. This increase in air pollution would cause a rise in pollution-related mortalities, said Jacobson.

The current high-end estimate for pollution-related deaths caused by gasoline is about 15,000 deaths per year, according to Jacobson's visual depictions. If nuclear warfare broke out,

the high-end estimate for pollution-related deaths per year caused by nuclear energy would be almost double that of gasoline, he said.

“There’s absolutely no need for nuclear power,” Jacobson said, and the audience applauded.

In response, Brand said that the assumption of an inevitable nuclear war “is kind of finessing it, a little bit.” Decommissioned warheads from Russia currently make up 10 percent of American energy, he said, and nuclear energy sites have yet to begin breaking down the stockpile of American nuclear weapons.

Audience members were also given a chance to voice their opinions after Brand and Jacobson presented. Rod Beckstrom, an audience member in favor of nuclear energy, said that the “win-win solution” for both Brand and Jacobson would be bipartisan support on carbon emission limits.

“Carbon caps on this planet or die,” he said.

Another audience member in favor of nuclear energy said that nuclear energy is the best option because it is constant. Wind, solar, and hydroelectric energy are useful, but they are dependent on their environments and, thus, are not consistent, he said.

“We’re not going to get enough energy from renewables alone,” said the audience member.

Before Brand and Jacobson presented, the audience began with approximately 75 percent in favor of nuclear energy and 25 percent opposed, the host of the debate said.

In the final count post-debate, the host determined that approximately 65 percent of the audience was in favor of nuclear energy and 35 percent opposed. Therefore, about 10 percent of the audience shifted from supporting nuclear energy to opposing it.

Just before the final count was revealed, Brand unbuttoned his shirt and removed his tie on stage to reveal an undershirt with the radioactive hazard symbol on it. Under the symbol, “Rad.” was printed.

The audience cheered and applauded, and the host said “Shameless, shameless, shameless.”