

Can Alternative Energy Effectively Replace Fossil Fuels?



Advantages / Disadvantages of Alternative Energy (Procon.org, Last Updated: October 5, 2020)
<https://alternativeenergy.procon.org/>

Whether alternative energy sources such as renewable energies biofuels, hydrogen, solar, and geothermal, or the non-renewable nuclear energy can meet energy demands better than finite fossil fuels such as oil and coal remain hotly debated.

Proponents of alternative energy argue that fossil fuels are inefficient, unsustainable, environmentally destructive, and the primary contributor to global climate change. They say renewable energies are a viable and immediately needed alternative to fossil fuel use that could boost the US economy and reduce reliance on foreign energy sources.

Opponents contend that many technological hurdles have to be overcome before alternative energy can replace even a small portion of the power provided by fossil fuels. They say that fossil fuels will last hundreds of years longer, be made increasingly efficient, remain the most economical choice, and that reliance on inefficient alternative energies will hurt the economy.

Alternative Energy

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

Alternative energy consists of renewable energies (solar, wind, hydroelectric, geothermal, and biomass), plus nuclear energy. Renewable energy, according to the National Resources Defense Council (NRDC), is “often referred to as clean energy, [and] comes from natural sources or processes that are constantly replenished. For example, sunlight or wind keep shining and blowing, even if their availability depends on time and weather. Nuclear is not renewable and is not a fossil fuel. According to the Nuclear Energy Institute (NEI), nuclear is an “energy source that has zero emissions, provides electricity around-the-clock and propels our society into the future.”

PRO: Proponents of alternative energy argue that renewable energies and/or nuclear energy are cleaner than fossil fuel energies, they won't run out, and the maintenance requirements are lower. Additionally, alternative energy will save money, has health and environmental benefits, & decreases reliance on foreign energy sources.

CON: Opponents of alternative energy argue that there is a much higher upfront cost, the sun and wind are intermittent sources of energy and we do not yet have storage capabilities, so backup energies will be required, and there are geographic limitations, including environmental factors, that could prevent building big wind or solar farms.

100% Renewable Energy

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

100% renewable energy is a goal shared by at least 160 American cities, 10 counties, and eight states as of Sep. 16, 2020, according to the Sierra Club. As a policy, 100% renewable energy means not using fossil fuel energy or nuclear energy, with a goal for implementation generally between 2035 and 2050.

PRO: Proponents of 100% renewable energy policies argue that it's not about whether to convert to all renewable energies but how, because fossil fuels are not sustainable as fuels or as healthy options for humans or the environment.

CON: Opponents of 100% renewable energy policies argue that natural gas and/or nuclear power are necessary bridge fuels already in use with low carbon outputs that can help lower global temperatures quicker than renewables alone.

Fossil Fuels

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

Fossil fuels are “[c]oal, crude oil, and natural gas are all considered fossil fuels because they were formed from the fossilized, buried remains of plants and animals that lived millions of years ago. Because of their origins, fossil fuels have a high carbon content,” according to the National Resources Defense Council (NRDC). In 2019, fossil fuels accounted for 80% of American energy consumption. The debates about fossil fuels are generally whether to phase them out entirely, continue to use them, or use cleaner versions while transitioning to alternative energies.

PRO: Proponents of fossil fuels argue that renewable energies are not ready for the market and fossil fuel energy is needed to keep affordable power in American homes. Fossil fuels can be collected and burned more cleanly in order to meet climate change goals.

CON: Opponents of fossil fuels argue that maintaining fossil fuel energy hampers energy progress and sets back climate goals unnecessarily. They maintain that the fossil fuel industry is greedy and doesn't want to clean up its act, much less cede the way to alternative energy.

“Clean” Coal

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

Coal is perhaps the dirtiest of all fossil fuels, but it accounted for 11.3% of US energy consumption in 2019, “clean coal” generally refers to carbon capture and storage (CSS), but can also mean wet scrubbers that remove sulfur dioxide, coal washing that removes soil and rock, or even the digitization of coal plants.

PRO: Proponents of clean coal argue that coal is readily available in the US and cheap compared to other energy sources. Coal already provides a lot of jobs, and clean coal technology could boost employment even more. Further, much of the world relies on coal and clean coal technology could lower emissions globally, helping to meet climate goals. Keeping US energy sources on US soil increases national security as well as US energy independence.

CON: Opponents of clean coal argue that there is no such thing. All coal is dirty and nonrenewable, because pollutants like sulfur dioxide and heavy metals linger in coal ash that is stored underground and seeps into ground water around coal plants. This pollution harms communities surrounding the plants, generally people of color. Natural gas has already sounded the death knells of coal and we shouldn’t try to resuscitate the dying industry with unproven technology.

Natural Gas

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

Natural gas is a fossil fuel, increasingly collected via hydraulic fracturing (fracking). Natural gas is the most used fossil fuel in the US, accounting for 32.04% of American energy consumption in 2019. Debates about natural gas center on whether the fossil fuel should be used as a bridge or transition fuel as we phase out coal and oil and phase in alternative energies.

PRO: Proponents of natural gas argue that the fossil fuel is necessary as a practical bridge fuel in the transition to renewable energies because of the intermittency of solar and wind especially. Natural gas is a clean fossil fuel that can remain in use after the demise of coal and oil.

CON: Opponents of natural gas argue that natural gas is a dirty energy that not only does not bridge the transition to renewable energies but hampers the efforts. Climate goals are looming and there is no time for fossil fuels that take time and money away from clean energy.

Natural Gas: Fracturing or “Fracking”

<https://alternativeenergy.procon.org/top-10-pro-con-arguments/>

Fracking (hydraulic fracturing) is a method of extracting natural gas from deep underground via a drilling technique. First, a vertical well is drilled and encased in steel or cement. Then, a horizontal well is drilled in the layer of rock that contains natural gas. After that, fracking fluid is pumped into the well at an extremely high pressure so that it fractures the rock in a way that allows oil and gas to flow through the cracks to the surface. The debate around fracking starts with whether the use of natural gas should end or increase and continues to whether the practice is safe in and of itself.

PRO: Proponents of fracking argue that fracking is safe and has allowed the United States to produce and export much more natural gas, which has increased national security and moved the country toward energy independence.

CON: Opponents of fracking argue that the practice is not safe because it pollutes groundwater, increases greenhouse gases, and causes earthquakes. Further, the country should transition away from natural gas, not increase its use.

