



Clean Energy

backgrounder

Energy Solutions to Fight Global Warming

The vast emissions of carbon dioxide from energy use result from three factors: our inefficient use of energy, our choices about when and how to use energy, and the amount of carbon in the fuels we use. To contain the threat of global warming, we need to reduce each of these.

Increasing Energy Efficiency

Industry, individuals, and government all have roles to play in making energy efficiency the rule rather than the exception. Industry has already provided energy-efficient versions of almost every appliance we use, from light bulbs to refrigerators, from basement boilers to air conditioners. Engineers are building cars that achieve double the mileage per gallon of their conventional counterparts -- and that are as safe and perform as well. Architects can design and build homes that require only half the energy most existing houses need for heating and cooling.

If we insist that government set efficiency standards for buildings, vehicles, and appliances, and if more of us choose to buy the most energy-efficient versions, energy efficiency will become the norm.

Reducing Our Energy Use

Businesses and individuals all make choices about when to use energy and when not to. Every time we leave the light on when we leave a room, or fill a kettle to boil a single cup of water, or drive a car when we could have walked, we are making an environmental choice. Often we have the option to turn the thermostat down or open the window, to share a ride or take the bus. Public policies that adjust fuel prices or invest in public transit can help us make the right choices. But we can also make them on our own.

Changing to Renewable Energy

How we produce energy is as important as how we use it. Using less energy and

Consider ordinary light bulbs that cost \$0.75 each, need replacing after 750 hours, and use 75 watts. Compare them with an efficient compact fluorescent bulb that costs \$20, lasts 10,000 hours, and uses only 18 watts. If electricity costs 8 cents per kilowatt-hour in each case, the total cost to buy and operate the ordinary bulbs for 10,000 hours will be

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more energy-efficient appliances can help reduce carbon dioxide emissions from our energy use, but it won't eliminate them as long as we continue to produce our energy from fossil fuels. Although natural gas contains less carbon and therefore produces less carbon dioxide than coal and oil, it still does emit a significant amount of carbon dioxide when burned.

\$70, whereas the cost to buy and operate a single efficient bulb over the same period will be only \$35 -- a savings of \$35, or 50 percent. That single efficient bulb would also save more than half a ton of carbon dioxide from electricity produced from coal!

To achieve an energy future without serious global warming, we need to turn to clean, renewable sources of energy like the wind, the sun, rivers, and oceans.

These contain no carbon and thus release no carbon dioxide when they are used. Nor do they produce the air pollutants that burning fossil fuels does. And they will never run out. Even using specially grown plants and trees for fuel (called energy crops, or biomass), which does release carbon dioxide into the air, does not contribute to global warming, because energy crops absorb carbon as they grow, creating a closed, sustainable loop.

Already, about 6 percent of all energy consumed in the United States comes from renewable sources. This small amount of renewable energy use saves almost half a billion tons of carbon dioxide emissions a year.

Some people are turning to renewable sources of energy because they make economic sense in particular situations. But government policies are needed to speed this process. Such policies might include

- price adjustments favoring renewable fuels and technologies
- requirements that some percentage of energy used in transportation, electricity, and industry be renewable
- using a small portion of utility revenues to fund new renewable energy development.

Not only would these policies guarantee immediate reductions in carbon dioxide emissions, they would also create markets large enough to help lower renewable energy technology prices even further, leading to widespread use and even greater carbon dioxide savings over time.

The Challenge

Global warming poses a serious threat. But we have many options for limiting it. Industry and government will need to make some of the choices, but what we each choose to do also matters. As the largest contributor of carbon dioxide emissions, we in the United States bear special responsibility for choosing the options that will curb global warming. We also have the economic power and the technical expertise to solve the problems at home and to transfer these solutions overseas, especially to the developing world, where similar problems are starting to grow rapidly.

A recent study, [Energy Innovations: A Prosperous Path to a Clean](#)

Environment, by the Union of Concerned Scientists and four other organizations, shows that policies to fight global warming are also good for the economy. With public policy guidance on moving to renewable energy and energy efficiency, our nation can cut energy costs, increase employment, and protect the environment. If we make the right choices now, the future will be bright for everyone. If we continue on our present path, not only we, but our children, will face the consequences.

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Page Last Revised: 09.04.2003