

# Time to Start Using the Climate Tools We Have

By WIL GREGERSEN March 12, 2018

We can stop climate change. Recent breakthroughs and ongoing innovation have given us the tools we need to fix the problem. We don't have to wait for new discoveries before we start. We can start now, which is good because, at this point in time, we don't have a second to waste.

Too much carbon dioxide in the atmosphere is the primary cause of climate change. To stop climate change, we need to stop adding CO<sub>2</sub> to the atmosphere and start taking it out. With renewable energy and direct-air CO<sub>2</sub> capture, we can do both, and we can do them in ways that save money.

Unlike burning fossil fuels to produce energy, generating energy from renewable sources such as sun, wind, water and the heat in the earth, doesn't create CO<sub>2</sub>. Replacing fossil-fuel energy with renewable energy reduces climate emissions, and the opportunities for reductions are significant.

A 2012 study funded by the U.S. Department of Energy found that the United States could generate 80 percent of its electricity with existing renewable-energy technologies and distribute it around the clock with a modernized electrical grid. Currently, 15 percent of U.S. electricity is renewable. A jump to 80 percent would seriously cut our CO<sub>2</sub> output.

Renewable energy is already less expensive. Energy from wind, solar, hydropower and geothermal is competitive with energy from fossil fuels, and the price of electricity from onshore wind and solar is predicted to drop below the cost of electricity from fossil fuels in about two years, according to a 2018 analysis by the International Renewable Energy Agency.

However, renewable energy can't replace all of our energy. Heavy industry, air travel and maritime transport will still require fossil fuels. Direct-air CO<sub>2</sub> capture will be needed to take back the carbon dioxide we add to the atmosphere from those activities.

Direct-air CO2 capture is a new technology with several companies developing extraction methods, although one company has perfected their technology to a point where it can be used today.

**Global Thermostat** claims that its direct-air capture plants can extract carbon dioxide from the air for \$50-\$60 per ton and sell it for up to \$200 a ton. The plants cost between \$1.5 million and \$2 million for each plant and pay for themselves in about two years, according to the New York company.

Such plants are energy efficient, using waste heat from factories and power plants to run, and they don't require energy to process and transport CO2 because they produce CO2 on site where it's needed. They can also operate using renewable energy.

Direct-air CO2 capture has received a boost from the 2017-18 FUTURE Act. The act offers a \$22 to \$50 tax credit for each ton of CO2 that's taken out of the air and stored away or used in an existing commercial market. The credit would pay from nearly half to almost all of the cost of operating a Global Thermostat plant and make collecting CO2 even cheaper.

CO2 is used to carbonate beverages, make dry ice, speed up plant growth in greenhouses, and in industry. Cheaper CO2 could help Rhode Island businesses that use carbon dioxide, including the Agcore Technologies algae farm and Yacht Club Bottling Works, and local companies that sell CO2 as an industrial gas or dry ice, such as Praxair, Tech Air and the East Bay Ice Co.

Yet, the most important use of CO2 involves new technologies that sequester the carbon in CO2 and keep it out of the atmosphere. Biofertilizers, carbon concrete and carbon plastics use and sequester CO2, and U.S. companies make all three.

Other carbon materials that sequester CO2 are on the verge of appearing, including carbon fiber, which can be used to produce consumer goods, boat hulls and automobile bodies, and building materials that are stronger than steel.

Having the ability to capture carbon dioxide and store it away completes the process that can reduce the amount of CO2 in the atmosphere and make our climate stable again.

The tools for stopping climate change are here. What we need now is a plan to use those tools, and to make that plan, we need an analysis of where we are today and how we can get to where we want to be in the future.

Two resolutions that will study how we can switch to renewable energy and capture CO2 have been submitted by Sen. Jeanine Calkin, D-Warwick. If they pass, Senate committees will start gathering facts.

The outlook for climate change isn't good. We're already being affected by climate change, and the latest climate studies are finding that we've seriously underestimated how bad climate change will become. We have no time to waste, and studying our options is an easy and useful way to start.

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