

Algae a winner in Elon Musk-funded greenhouse gas contest

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Tesla CEO Elon Musk, left, shakes hands with XPRIZE founder and Executive Chairman Peter Diamandis during an XPRIZE presentation event in Los Angeles, May 15, 2019. From algae farming to producing a sort of artificial limestone, ideas for reducing greenhouse gas in the atmosphere are getting a funding boost from famed entrepreneur Musk. The Tesla electric vehicle and SpaceX rocket company developer is bankrolling a \$100 million XPRIZE Carbon Removal competition for the most promising ways to reduce atmospheric carbon dioxide by grabbing the gas right out of the air. Credit: AP

Photo/Marcio Jose Sanchez, File

From algae farming to producing a sort of artificial limestone, ideas for reducing greenhouse gas in the atmosphere are getting a funding boost from famed entrepreneur Elon Musk.

The Tesla electric vehicle and SpaceX rocket company developer is bankrolling [a \\$100 million XPRIZE Carbon Removal competition](#) for the most promising ways to reduce atmospheric carbon dioxide by grabbing the gas right out of the air.

The 15 early-phase "milestone round" winners were announced Friday and each will get \$1 million, a welcome boost for the teams to carry on with and scale up their work.

"What we've said is you haven't given us a million bucks; what you've done is catalyzed investment in this technology," said Mike Kelland, CEO of Planetary Technologies, a milestone winner that seeks to increase the ocean's ability to absorb carbon dioxide by controlling the rising acidity of seawater.

The milestone winners aren't necessarily ahead or favored for the \$80 million in final prize money that will be awarded in three years. Until Dec. 1, 2023, anyone can still jump in the contest, which was announced a year ago, and potentially get a share of that money.

The final winning team or teams will need to show they can remove 1,100 tons (1,000 metric tons) of carbon dioxide from the atmosphere each year, show how much it would cost to remove up to 1.1 million tons (1 million metric tons) per year and show a path to removing billions of tons of carbon dioxide per year.

A third party—neither the participants nor XPRIZE—will independently validate the work submitted for the grand prize to be announced on April 20, 2025.

XPRIZE announced \$5 million in carbon removal project awards to university student teams last fall. The milestone winners announced Friday propose a variety of ways to remove carbon dioxide through artificial means and by helping nature do much of the work herself.

Planetary Technologies isn't looking up into the sky but down in the ocean to reduce atmospheric carbon dioxide. The Dartmouth, Nova Scotia, Canada-based company proposes to use antacids produced from the leftovers of metal mining to make the ocean more able to absorb the greenhouse gas.

"If we kind of ignore the ocean—say we're trying to do this on land, we're trying to store it in the ground—we're just not going to make it," Kelland said. "That's sort of the opinion of a lot of these scientists working in this field."

Durham, North Carolina-based 8 Rivers Capital, sees ocean chemistry as a model to replicate. The winning company seeks to trap atmospheric carbon dioxide in calcium carbonate crystals, similar to how the gas dissolved in the ocean helps form seashells and limestone.

Company spokesperson Adam Goff described the process as "poetic" in a way.

"The calcium cycle is how the earth regulates its CO₂ over millions of years. We're sort of speeding up that natural cycle," Goff said.

Global Algae, based in Santee, California, won with a plan to cultivate algae to help restore rain forests, which capture huge volumes of carbon

dioxide. Algae can be a more efficient and more profitable alternative to the cattle ranching and soy and palm oil crops currently on cleared rain forest land, said Mark Hazlebeck, a principal of the family-owned company.

"We're actually creating more oil and protein while we're reforesting at the same time," Hazlebeck said.

The prize announcement comes as the United Nations Intergovernmental Panel on Climate Change [warns in ever-starker terms of the threat of rising global temperatures](#), including worsening heat, fires, storms and droughts.

"We still need more—more and deeper emissions cuts, and more reliable, validated carbon removal solutions. That's why we launched this prize," said Marcius Extavour, chief scientist and vice president of climate and environment at XPRIZE.

XPRIZE is a technology promotion organization known in part for a contest that encouraged development of a privately funded, reusable spacecraft in 2004. Last year, two teams that showed they could profitably trap carbon dioxide from smokestacks in concrete split a \$15 million XPRIZE award.

"Even if we stopped CO₂ production, that's probably still not enough," XPRIZE founder and executive chairman Peter Diamandis [said in a 2021 chat with Musk posted on the XPRIZE website](#). "We do need mechanisms for extraction of CO₂ from the atmosphere and the oceans that don't exist right now."

The risk of climate disaster could become "dire" if the trend of higher greenhouse gas concentrations continues alongside human population growth and industrialization, Musk replied.

"It's probably an unwise experiment to run," Musk said. "Right now, we've only got one planet. Even if 0.1% chance of disaster, why run that risk? It's crazy."

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