FedEx Helps Establish the Yale Center for Natural Carbon Capture

Addressing carbon emissions for aviation industry and beyond

In March 2021, FedEx announced an ambitious goal to achieve carbon neutral operations globally by 2040. As part of this effort, FedEx pledged $100 million to help establish the Yale Center for Natural Carbon Capture.

FedEx has implemented sustainable aviation solutions for decades, including aircraft modernization and reducing fuel consumption. These efforts have avoided over 13.5 million metric tons of CO_2 emissions since 2012. However, our industry will need new solutions if we are to keep pace with our ambition of reaching carbon neutral operations by 2040. The Center's initial focus will be on helping to offset aviation emissions, with the ultimate goal of developing a portfolio of natural carbon removal strategies that combines both rapid and long-term approaches.

Fostering development of natural carbon solutions

The Center will build on the Earth's biological and geological systems to foster natural carbon sequestration solutions across three categories:

- **Biological —** Strategic conservation and ecosystem-based management of coastal ecosystems, such as marshes and mangroves
- **Geological —** Using weatherable rocks which cover more than two-thirds of the Earth's surface, including the sea floor, as a nearly inexhaustible, long-lasting sink for carbon
- **Industrial —** Removing carbon dioxide from the atmosphere by turning it into fuels, plastics, and building materials

Boosting the amount of carbon that can be stored in Earth's ecosystems through biological solutions like reforestation and regenerative agriculture can provide large and immediate increases in carbon sequestration. Geological carbon capture strategies have the advantage of being effectively permanent. Through mineral weathering, carbon dioxide is transformed into carbonate minerals, which make up rocks such as limestone and marble. Most of the carbon on Earth's surface is contained in these minerals. They don't decay as plants do, representing a nearly inexhaustible, long-lasting sink for carbon. Finally, models of natural processes can be engineered to capture carbon dioxide and convert it into fuels, plastics, and building materials.

"Developing natural solutions for carbon sequestration is an ambitious but realistic strategy... Earth's natural systems are ripe with opportunities, and the Center for Natural Carbon Capture will enable research that transforms these opportunities into real-world, applicable solutions. These natural solutions must be used as part of a portfolio of methods to reduce net greenhouse gas emissions."

Dr. Indy Burke,
Carl W. Knobloch, Jr. Dean of the Yale School of the Environment

Collaborating for our future

The Center's initial target is to help offset greenhouse gas emissions equivalent to current airline emissions – approximately 1Gt per year. The Center will build upon initial successes to address other sectors of the global economy. The Center will publish and share its findings so that businesses, industries, and governments can benefit from work that will accelerate the adoption and implementation of natural carbon capture strategies around the world.