

Use of Wind Turbines to Enhance Carbon Capture

Strategically placed DAC systems in turbine wakes boost CO₂ harvesting rates and economics.

Researchers at Purdue University have proposed a process for enhancing direct-air-capture (DAC) for carbon dioxide harvesting with wind power. This technology enables increased carbon capture rate with improved environmental footprint by optimizing the placement of DAC systems within the wake of wind turbines to target higher carbon dioxide concentrations.

With Purdue's analysis methodology, a DAC facility can be designed around an existing wind farm to increase efficacy while transitioning from fossil fuel dependence. This technology has applications in the green technology space.

Technology Validation: This technology was validated by simulating the air flow profiles and transport of CO₂ around multiple wind turbines.

Advantages:

- Increased carbon capture rate and economic viability for DAC facilities
- Improves business case and environmental effects for transitioning to wind power
- Can be used to improve existing DAC facilities

Applications:

- Renewable Energy
- Carbon Capture
- Green Technology

TRL: 3

Technology ID

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Category

GreenTech/Carbon Management
Energy & Power Systems/Power
Generation

Further information

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Intellectual Property:

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