



FOR IMMEDIATE RELEASE

## University of Illinois Receives \$3.5 Million from the Department of Energy to Advance Air Capture and Storage Study at U. S. Steel's Gary Works

*Study will explore capturing carbon dioxide from the air and storing in concrete*

- University of Illinois will lead the front-end engineering design study at U. S. Steel's Gary Works in Gary, Indiana
- Study will focus on the advancement of a direct air capture and utilization system and is anticipated to aid in developing sustainable approaches to carbon reduction

PITTSBURGH, June 22, 2022 – The United States Department of Energy's National Energy Technology Laboratory (DOE-[NETL](#)) has selected the University of Illinois Urbana-Champaign's Prairie Research Institute (PRI) for an award of \$3,459,554 for research and development to support a front-end engineering design (FEED) study on carbon dioxide (CO<sub>2</sub>) removal technologies. The study will focus on the advancement of a direct air capture and utilization system (DACUS), which can remove 5,000 metric tons per year of CO<sub>2</sub> from ambient air and then permanently mineralize it in concrete products. If built, the designed system would be larger than any existing direct air capture system (DAC).

“We’re excited to bring together a strong team of academic and industry collaborators to accelerate effective, economical carbon capture and use,” said Dr. Kevin OBrien, the project’s principal investigator and leader of PRI’s Illinois Sustainable Technology Center.

The study will launch at U. S. Steel’s Gary Works in Gary, Indiana, using a DAC technology developed by CarbonCapture Inc. The technology will use the plant’s waste heat, energy, and location, so energy and transportation costs can be minimized.

“U. S. Steel is committed to progressing our efforts described in our [Climate Strategy Report](#) to decarbonize and accelerate towards a lower carbon future, but we know that one company’s actions are not enough,” said Rich Fruehauf, Senior Vice President – Chief Strategy & Sustainability Officer at U. S. Steel. “Achieving our goal of net-zero emissions by 2050 is going to take unprecedented innovation and collaboration.”

Once CO<sub>2</sub> emissions are captured from the atmosphere, the liquified gas will be transported to Ozinga ready mix concrete plants utilizing CarbonCure’s CO<sub>2</sub> removal and utilization technologies, which inject the CO<sub>2</sub> directly into the concrete as it is being mixed. When injected, the CO<sub>2</sub> immediately mineralizes and is locked away in the concrete, never to return to the atmosphere.

“Permanent CO<sub>2</sub> storage is a crucial component of carbon removal. As the most recent [Intergovernmental Panel on Climate Change](#) makes clear, the permanent storage of ‘centuries or more’ that carbon mineralization in concrete provides is a critical component of durable carbon removal,” said Robert Niven, Chair and CEO of CarbonCure Technologies. “CarbonCure is excited to contribute to this crucial research to help scale the solutions we need to ensure our climate future.”

“Ozinga’s purpose is to make a positive impact, and embracing innovation in concrete sustainability is key to ensuring a better environment for generations to come,” said Ryan Cialdella, Vice President of Innovation and Market Development at Ozinga. “We believe early collaboration is important to find the best solution for reduction of carbon emissions, and our development and testing of lower embodied CO<sub>2</sub> mix designs has made participating in this important study a great fit.”

“We’re very excited about participating in this groundbreaking study,” said Adrian Corless, CEO of CarbonCapture Inc. “Direct air capture is particularly effective when energy costs can be reduced via the use of waste heat and the captured CO<sub>2</sub> can be permanently stored in concrete. At scale, we think this solution will lead to the removal of massive amounts of CO<sub>2</sub> from the atmosphere.”

This FEED study will also provide data for Visage Energy Corp. to assess the impact on job creation, regional economic impact, and environmental justice issues.

Sargent & Lundy will provide the constructability review and costing of the DAC’s integration within the steel plant. Ecotek Group will design the infrastructure to connect the DAC system and the plant.

In the [project selection announcement](#), the DOE said that the advancement of DAC technology could play a critical role in conjunction with aggressive decarbonization in combatting the climate crisis and achieving the Biden-Harris Administration's goal of net-zero greenhouse gas emissions by 2050.

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### **About U. S. Steel (NYSE: X)**

Founded in 1901, United States Steel Corporation is a leading steel producer. With an unwavering focus on safety, the company's customer-centric Best for All<sup>®</sup> strategy is advancing a more secure, sustainable future for U. S. Steel and its stakeholders. With a renewed emphasis on innovation, U. S. Steel serves the automotive, construction, appliance, energy, containers, and packaging industries with high value-added steel products such as U. S. Steel's proprietary XG3<sup>™</sup> advanced high-strength steel. The company also maintains competitively advantaged iron ore production and has an annual raw steelmaking capability of 22.4 million metric net tons. U. S. Steel is headquartered in Pittsburgh, Pennsylvania, with world-class operations across the United States and in Central Europe. For more information, please visit [www.ussteel.com](http://www.ussteel.com).

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### **About CarbonCapture Inc.**

CarbonCapture is a US-based climate technology company that develops modular direct air capture (DAC) machines that filter carbon dioxide out of the atmosphere. The company also develops large-scale carbon removal projects using its proprietary DAC technologies, generating high-quality carbon removal credits for companies with net zero goals that seek to offset their hard-to-abate emissions. DAC-sourced carbon removal credits are the gold standard in offsets: measurable, verifiable, and permanent.

For more information, please visit [carboncapture.com](http://carboncapture.com)

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[media@carboncapture.com](mailto:media@carboncapture.com)**About CarbonCure Technologies**

CarbonCure Technologies, a fast-growing carbon dioxide removal tech company, is on a mission to annually reduce and remove 500 million metric tons of carbon emissions by 2030—equal to taking 100 million cars off the road each year. CarbonCure's suite of technologies permanently store captured CO<sub>2</sub> in concrete through carbon mineralization and Verra verified CarbonCure's methodology in 2021. With more than 550 systems sold across the global concrete industry, CarbonCure's technologies currently save from the atmosphere thousands of metric tons of CO<sub>2</sub> each month—with exponential growth and impact, year-over-year. CarbonCure's cutting-edge research and innovation have garnered global recognition and prestigious titles, most notably Carbon XPRIZE Grand Prize Winner, 2020 North American Cleantech Company of the Year and Cleantech 100 Hall of Fame Company. CarbonCure's investors include Breakthrough Energy Ventures, Amazon, Microsoft, Carbon Direct, and Mitsubishi Corporation.

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[media@carboncure.com](mailto:media@carboncure.com)**About Ozinga**

Ozinga is a fourth-generation family-owned American business in the construction materials industry. They make a positive impact on individuals, their families and the community for generations by providing concrete, aggregates and cement that help build a better future.

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[kristimunno@ozinga.com](mailto:kristimunno@ozinga.com)**About The Prairie Research Institute**

The University of Illinois' Prairie Research Institute applies scientific expertise in geology, ecology and biodiversity, archaeology, water, weather and climate, pollution prevention, hazardous waste management, and sustainable energy to benefit the people, economy, and environment of Illinois. [www.prairie.illinois.edu/](http://www.prairie.illinois.edu/).

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**About Sargent & Lundy**

Sargent & Lundy is one of the longest-standing full-service architect engineering firms in the world. Founded in 1891, the firm is a global leader in power and energy with expertise in grid modernization, renewable energy, energy storage, nuclear power, fossil fuels and carbon capture. Sargent & Lundy delivers comprehensive project services – from consulting, design and implementation to construction management, commissioning and operations/maintenance – with an emphasis on quality and safety. The firm serves public and private sector clients in the power and energy, gas distribution, industrial and government sectors. For more information, visit [sargentlundy.com](http://sargentlundy.com) and follow us on LinkedIn.

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**About Visage Energy**

Visage Energy for the last three decades has been heavily involved in the energy and industrial sectors and providing advisory services in terms of stakeholder engagement, market analysis and technology commercialization. Visage's industry knowledge has allowed the team to provide guidance with respect to optimal methods to scale up different energy technologies as well as advocate for the deployment of technologies with a multitude of diverse stakeholders. Their clients have included multi-national corporations, investor-owned utilities, state agencies, national laboratories, and small technology developers over the years. Additionally, Visage is focused on assessing the impact of carbon management technologies on job creation, regional economic impact, and environmental justice issues. Visage was designated a Small Disadvantaged Business by the Small Business Administration and is certified by the California Public Utility Commission's (diverse business enterprise) Supplier Clearinghouse. [www.visageenergy.com](http://www.visageenergy.com)

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**About National Energy Technology Laboratory**

NETL is a U.S. Department of Energy national laboratory that drives innovation and delivers technological solutions for an environmentally sustainable and prosperous energy future. Through its world-class scientists, engineers and research facilities, NETL is ensuring affordable, abundant and reliable energy that drives a robust economy and national security, while developing technologies to manage carbon across the full life cycle, enabling environmental sustainability for all Americans, advancing environmental justice and revitalizing the economies of disadvantaged communities. Leveraging the power of workforce inclusivity and diversity, highly skilled innovators at NETL's research laboratories in Albany, Oregon; Morgantown, West Virginia; and Pittsburgh, Pennsylvania conduct a broad range of research activities that support DOE's mission to ensure America's security and prosperity by addressing its energy and environmental challenges through transformative science and technology solutions.