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# AirCapture, OCOchem and partners win $2.93 million U.S. Department of Energy grant to design and engineer a system to use waste steam from fertilizer plant to directly capture $CO_2$ from the air and convert it to a green electro-fuel

*Project aims to remove and repurpose $CO_2$ while creating clean energy jobs*

(Berkeley, CA and Richland, WA – April 25, 2022) – Carbon dioxide ($CO_2$) capture company AirCapture and carbon dioxide conversion company OCOchem, along with other partners, have won a $2.93 million grant from the U.S. Department of Energy to design and engineer an integrated carbon dioxide capture and conversion plant co-located at Nutrien's Kennewick Fertilizer Operations plant in Kennewick, Wash.

AirCapture develops on-site, modular technology that captures $CO_2$ from the air using waste heat from manufacturing plants, enabling customer operations to go carbon neutral and even negative. OCOchem transforms recycled $CO_2$, water and zero-carbon electricity to produce formic acid, a globally traded commodity chemical and emerging electro-fuel.

"As the world continues to face climate change challenges, developing scalable and cost-efficient decarbonization solutions has become increasingly important," said Matt Atwood, Founder and CEO of AirCapture, based in Berkeley, Calif. "Our modular, on-site technology that takes $CO_2$ from the air and puts it directly into our customers' production processes addresses climate challenges while bringing value to our customers and is a perfect fit for this project with Nutrien. We are excited to work with OCOchem and our other partners as we continue to make advancements in this critical space."

Almost every manufacturing plant in the world emits waste heat or $CO_2$ or both, notes Todd Brix, Co-Founder and CEO of OCOchem, based in Richland, Wash. "Every manufacturer that is emitting steam and/or $CO_2$ into the air can, with our collective approach, build facilities to use waste steam to take $CO_2$ out of the air or from their process emissions and use the $CO_2$ to make a valuable platform chemical. We are converting common industrial waste streams into product streams."

The goal is to use both companies' technology to design an integrated carbon capture and conversion plant that uses waste steam from Nutrien's fertilizer facility to extract $CO_2$ from the air and then convert it, with water and electricity, to make formic acid. The formic acid can then be stored, transported, and used directly in many industrial, consumer, transportation, and agricultural industries. Additionally, it can be used to transport green hydrogen safely and cost-effectively in an energy-dense liquid carrier form to a customer site where the hydrogen can be released for industrial use or as a transportation fuel, replacing fossil fuels. Nutrien, one of the world's largest fertilizer manufacturers, has committed to achieve at least a 30 percent reduction in greenhouse gas emissions per ton of Nutrien's products by 2030. The proposed $CO_2$ capture and conversion plant will be instrumental in helping the company meet these aggressive goals.

"This process of using industrial waste steam to capture $CO_2$ from the air and converting it to a usable chemical is an energy, atom, and cost-efficient way for many companies to significantly reduce the carbon intensity of their operations and products," Brix said. "The goal of this engineering study is to establish a technical and economic basis for Nutrien and other manufacturers to use their waste heat to capture and convert $CO_2$ co-located with their existing plants. We hope this technology can then be incorporated into other facilities with waste steam in other industries as well."

Results from the Direct Air Capture and Utilization System (DACUS) design will also be used to quantify how deployment of the proposed technology will increase the number of local clean energy and manufacturing jobs, payroll, and taxes. In addition, the project will assess the impact on members of the local community.

Additional partners participating in the project include the Benton Public Utility District, and the University of Alabama, Sacre-Davey Engineering, and TRI-DEC (Tri-Cities Development Council).

**OCOchem,** based In Richland, Wash., designs, develops, and operates modular electrochemical technology that uses recycled carbon dioxide and water to make green hydrogen energy in the nonflammable liquid hydrogen carrier form of formic acid. The result is a greener, safer and lower cost way of storing and moving distributed hydrogen that can help businesses reduce the carbon intensity and cost of their operations. For more information, go to https://ocochem.com.

**AirCapture LLC**, based in Berkeley, Calif., designs, develops, constructs and operates on-site, modular $CO_2$ capture technologies, located at customer locations, which capture $CO_2$ from ambient air and point-source emissions and put the $CO_2$ directly into customers' production processes. The result is greener, cleaner, lower cost products that can help businesses reduce their carbon footprint. For more information, go to https://www.aircapture.com.

**Nutrien Ltd.**, based in Saskatoon, Saskatchewan, Canada, is one of the world's largest fertilizer manufacturers. It is the largest producer of potash and the third largest producer of nitrogen fertilizer in the world. Nutrien has committed to carbon-neutral global operations by 2050 and has explored direct air capture of carbon as a means of reducing its carbon footprint. For more information go to https://www.nutrien.com.

For further information, please contact:


**AirCapture**
Lisa Esneault
+1 312.208.1228
lisaesneault@aircapture.com

**OCOchem**
Cynthia Flash
+1 425.603.9520
cynthia@flashmediaservices.com


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