

LanzaTech Awarded \$4M from DOE for Low Carbon Jet & Diesel Demonstration Facility

Chicago, IL (December 30th 2016) Carbon recycling company, LanzaTech has been selected by the Department of Energy's Bioenergy Technologies Office (BETO) to receive a \$4M award to design and plan a demonstration-scale facility using industrial off gases to produce 3M gallons/year of low carbon jet and diesel fuels.

The facility will recycle industrial waste gases from steel manufacturing to produce a low cost ethanol intermediate "Lanzanol". Both Lanzanol and cellulosic ethanol will then be converted to jet fuel via the "Alcohol to Jet" (ATJ) process developed by LanzaTech and the Pacific Northwest National Laboratory (PNNL). The ATJ technology was initially developed with DOE funding by PNNL and subsequently scaled-up by LanzaTech to produce 4000 gallons of sustainable jet fuel from Lanzanol and other sources, as well as 600 gallons of diesel fuel, for fuel quality testing, certification and a proving flight with Virgin Atlantic.

LanzaTech is currently building its first commercial ethanol facilities using waste gases, including one in China with China's largest steel company, Shougang, and one in Belgium with the world's largest steel manufacturer, ArcelorMittal. In the DOE funded project, LanzaTech will work with ArcelorMittal to evaluate US opportunities for leveraging this expertise to demonstrate an entirely new pathway to low carbon fuels from industrial wastes that are either flared or underutilized.

"Economics and sustainability are key to realizing the potential of alternative aviation fuels," said Jennifer Holmgren, LanzaTech CEO. "Jet fuel accounts for as much as 40% of an airline's operating costs and the sector has made substantial commitments to reduce their CO₂ emissions by 2025. So fuels must address both of these needs to succeed at commercial scale. Thanks to the Department of Energy, the partners in this project will accelerate the commercial production of low cost, low carbon jet, gasoline and diesel in the United States."

To demonstrate process versatility, ethanol from other waste gas streams will be converted, including cellulosic ethanol produced via fermentation of biomass syngas by Aemetis (Nasdaq: AMTX). Ambitech, an Illinois-based engineering company, will be LanzaTech's engineering partner with additional engineering contributions from Aemetis. Other project partners include PNNL; technology providers Petron Scientech, CRI Catalyst Company, Nexceris and Gardner Denver Nash; Michigan Technological University, who will be evaluating the environmental footprint of the fuels being produced; and Audi, who will support by evaluating diesel and gasoline fuel properties. In addition the project has received support from Airlines for America (A4A) and the Commercial Aviation Alternative Fuels Initiative (CAAFI), an aviation industry consortium focused on the near-term development and commercialization of sustainable alternative jet fuel

for the aviation enterprise.

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Statements of Support:

Suresh Baskaran, Chief Science and Technology Officer for the Energy and Environment Directorate, Pacific Northwest National Laboratory.

"The ability to produce tightly-specified aviation fuel or, alternatively, high-cetane diesel is a unique feature of this technology that will enhance its competitiveness in U.S. as well as global markets."

Eric McAfee, Chairman and CEO of Aemetis

"We look forward to deepening our relationship with LanzaTech and using our cellulosic ethanol produced from California agricultural residues, to power jet planes and diesel trucks in the future."

Steve Csonka, Executive Director of CAAFI

"We are excited to see this demonstration-scale effort moving forward, and laud BETO's selection of LanzaTech and their unique technology for this award. The aviation enterprise remains committed to the use of competitively priced sustainable alternative jet fuel, and we look forward to continuing to work with LanzaTech on several ongoing efforts which we believe can lead to near-term full-scale commercialization."

Professor David Shonnard, Director, Sustainable Futures Institute, Michigan Technological University

"The Michigan Tech Sustainable Futures Institute is excited to continue our relationship with LanzaTech, helping them innovate and develop products that meet environmental goals in addition to technical and economic targets."

Yogendra Sarin, President & CEO at Petron Scientech Inc.

"Petron is pleased and excited to be working with LanzaTech to help bring ATJ technology to commercial demonstration through the application of Petron's Innovative and proprietary Ethylene technology. We believe this partnership will help greatly in the development of sustainable biojet fuels, while contributing to finding solutions to global warming."

About LanzaTech

LanzaTech's carbon recycling technology captures and recycles a broad spectrum of gases for fuel and chemical production. Across the supply chain, LanzaTech promotes a 'carbon smart' circular economy, where both gas providers and end users can be resource efficient by recycling or "sequestering" carbon into new products rather than making them from fossil reserves. Founded in New Zealand, LanzaTech has raised more than US\$200 million from investors including Khosla Ventures, K1W1, Qiming Venture Partners, Malaysian Life Sciences Capital Fund, Petronas, Mitsui, Primetals, China International Capital Corp, Suncor and the New Zealand Superannuation Fund. <http://www.lanzatech.com>

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