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RAPID Manufacturing Institute Announces New Project Selections

National public-private consortium funds research that applies process intensification techniques to promote efficient manufacturing.

NEW YORK CITY — Leaders of the Rapid Advancement in Process Intensification Deployment (RAPID) Manufacturing Institute — a subsidiary of the American Institute of Chemical Engineers (AIChE) and one of the U.S. Department of Energy's (DOE) Manufacturing USA Institutes — have identified five new projects that align with RAPID's research focus areas. The collaborative projects will apply the principles of process intensification and modular processing technologies to improve efficiencies and reduce costs in energy-intensive manufacturing sectors including chemical and commodity processing, oil and gas, renewable bioproducts, and other industries.

Process intensification employs engineering principles to create industrial manufacturing processes that are more resource- and energy-efficient, cleaner, and safer. Modular chemical processing offers opportunities for improved efficiency and productivity, as well as streamlined

operations, by integrating separate manufacturing unit processes into fewer, smaller scale systems that are easier to build and deploy.

The following projects were selected for negotiations:

• Washington State University and GTI will develop a liquid-phase electrochemical reforming process for low-cost, distributed production of hydrogen from ethanol

• The University of Minnesota and RTI International will develop a reactive-absorption process for ammonia synthesis that improves safety, lowers energy intensity, and enables distributed manufacturing

• Cornell University, together with Electrochaea and other partners in the State of New York, will develop an integrated route for carbon-efficient conversion of dairy and food wastes to renewable, pipeline-quality biomethane

• The University of Arizona, together with partners at Aquastill, Chemstations, DWP Energy Solutions, and W.L. Gore, will develop a solar-driven, intensified, membrane-distillation process to efficiently manage the concentrate waste stream from reverse-osmosis plants

• The University of Kansas, together with partners at DuPont Biomaterials and Hills, Inc., will develop a furan-based polymer membrane for energy-efficient separation of hydrogen from mixed gas streams common to production of ammonia, oil and gas.

These proposals are poised to join RAPID's portfolio of 33 ongoing projects.

In announcing the selections, William Grieco, Chief Executive Officer of RAPID, said "RAPID is excited to partner with these organizations to develop more efficient and sustainable processes and to enable distributed manufacturing across several industries."

As one of the DOE-funded Manufacturing USA Institutes, the RAPID Manufacturing Institute is helping to increase U.S. manufacturing competitiveness and promote a robust and sustainable national manufacturing research and development infrastructure. Through its network of collaborators in industry, academic research, and government laboratories, RAPID is leading an effort to apply the approaches of process intensification and modular chemical processing to increase industry's energy efficiency and productivity, and to reduce capital costs.

Details about RAPID and its activities can be found at www.aiche.org/rapid.

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About AIChE

AIChE, founded in 1908, is a professional society of more than 60,000 chemical engineers in 110 countries. Its members work in corporations, universities and government, using their knowledge of chemical processes to develop safe and useful products for the benefit of society. Through its varied programs, AIChE continues to be a focal point for information exchange on the frontiers of chemical engineering research in such areas as energy, sustainability, biological and environmental engineering, nanotechnology, and chemical plant safety and security. More information about AIChE is available at www.aiche.org.

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About RAPID

On December 9, 2016, the U.S. Department of Energy announced the establishment of the tenth Manufacturing USA Institute, the Rapid Advancement in Process Intensification Deployment

(RAPID) Institute. Leveraging $70 million in federal funding and more than $70 million in cost-share commitments from partners, RAPID is focused on developing breakthrough process-related technologies to boost energy productivity and energy efficiency by 20 percent in five years. RAPID will leverage approaches to process intensification and modular process design used in a variety of energy-intensive industries. In the chemical industry alone, these technologies have the potential to save more than $9 billion annually. For further information, visit www.aiche.org/RAPID.

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