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## Built Like a Tank

University of Dayton

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## NEWS

Friday January 9, 2015

## Built Like a Tank

The Research Institute will lead an Ohio-based team tasked with developing affordable composite natural-gas vehicle fuel tanks under the new Institute for Advanced Composites Manufacturing Innovation announced today by President Barack Obama.

Led by the University of Tennessee, Knoxville, the U.S. Department of Energy selected IACMI to become a national not-for-profit institute aimed at creating better composite materials and process technologies for rapid deployment within the automotive, wind turbine and compressed-gas storage industries. IACMI's founding partners in Tennessee (University of Tennessee and Oak Ridge National Laboratory), Ohio (University of Dayton Research Institute), Colorado (National Renewable Energy Laboratory), Indiana (Purdue University), Michigan (Michigan State University) and Kentucky (University of Kentucky) will spearhead research and development within these three focus areas.

The founding partners will work with the Institute's 122-member consortium, comprising leading manufacturers across the supply chain, universities and national laboratories, to step up the development of affordable advanced fiber-reinforced polymer composites that are lighter and stronger than steel, with development taking place from laboratories to production lines. While advanced composites are already used in select industries such as aircraft, military vehicles, satellites and luxury cars, the materials are expensive, require large amounts of energy to manufacture and are difficult to recycle. IACMI's members will work to develop low-cost, high-rate production, energy-efficient manufacturing and recycling processes for composites applications.

The fifth Institute launched under the [National Network for Manufacturing Innovation](#) (NNMI) initiated by Obama, IACMI is supported by a Department of Energy commitment of \$70 million for five years

along with greater cost-match commitments from non-federal resources. The Institute's six partner states and members have committed a total of \$189 million, including the state of Ohio's commitment of \$10 million. Funding for projects will be determined during an annual review process.

IACMI is expected to stimulate significant follow-on investments and create thousands of manufacturing jobs during the next decade, while supporting the DOE's energy efficiency and greenhouse gas reduction goals.

In Ohio, the University of Dayton Research Institute will lead the initiative for the development of compressed-gas storage vessels for the automotive and trucking industry.

"The demand for compressed natural gas as a lower-cost, cleaner-burning alternative to diesel and gasoline fuel for vehicles continues to grow," said Brian Rice, who heads the Research Institute's multi-scale composites and polymers division and will serve as director for the compressed-gas storage initiative. "In order for natural gas fuel to be efficiently and safely used to power vehicles, the transportation industry needs an affordable, lightweight but high-strength compressed-gas fuel tank. Our team will work to design and develop tanks and manufacturing processes that can be mass produced at low cost while minimizing energy use and waste production."

Rice said the research and development through the initiative will target semi-trailer trucks first, followed by commercial box trucks and, eventually, automobiles. He added that Ohio is suited for the compressed-gas storage focus area because of the abundance of natural gas available and produced in the state, which will also allow Ohio to ultimately be a leader in supplying natural gas for the transportation industry.

In addition to developing materials and manufacturing processes, the compressed-gas storage initiative team will also work to develop jobs to meet the workforce created by the initiative, as well as to educate and train workers to fill them. The Research Institute will work with Sinclair Community College on workforce development, Rice said.

"UDRI is grateful to the state of Ohio for its commitment of \$10 million for this initiative, as well as for the support of Ohio industry partners, the National Composite Center, Sinclair Community College, the Ohio Third Frontier, JobsOhio, PolymerOhio and GLWN," Rice said.

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