



Consortium for Advanced Production and Engineering of Gas Turbines

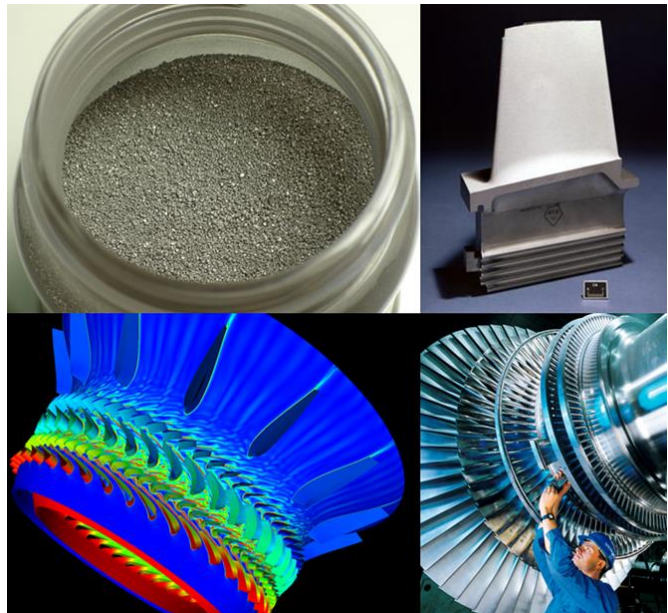
The Consortium for Advanced Production & Engineering (CAPE) roadmap is outlining the necessary steps for developing new industrial materials, testing standards and certification parameters enabling the introduction of new materials into the manufacture of gas turbines and rotating machinery.

Energy Florida and the Gas Turbine Association (GTA) have jointly established the Consortium for Advanced Production and Engineering of Gas Turbines and Rotating Machinery (CAPE). The CAPE's initial focus will be to roadmap and outline standards for new industrial materials, accelerating the

introduction of innovative new materials into the design and manufacturing process for turbines and rotating machinery. This partnership has been made possible through the recent award of an Advanced Manufacturing Technology Consortium (AMTech) planning grant from the U.S. National Institute of Standards and Technology (NIST).

The NIST AMTech Program provides funding to industry-driven consortia that develop advanced technologies to address major technological and related barriers that inhibit the growth of advanced manufacturing in the U.S. and the global competitiveness of U.S. companies.

The gas turbine manufacturing industry is a key area of strength for the U.S. manufacturing sector. However, in order for the American turbine industry to remain globally competitive, a new class of materials must be developed and produced to meet the needs of the next generation of turbine designs. The development and production of these new materials will allow for higher temperatures and greater loads on the core components. Adoption and acceptance of new materials within the gas turbine manufacturing sector requires development of a methodology for standardizing the characterization of materials and standard certification processes.



The CAPE effort is managed by Energy Florida in partnership with the Gas Turbine Association, the national association for the gas turbine manufacturing industry. The CAPE is engaged with a nationwide consortium of partners including the major turbine equipment manufacturers, small and mid-sized suppliers, and technology firms that support the U.S. aerospace industry along with universities and research institutes across the country.

The CAPE materials roadmapping initiative is a collaborative effort among the turbine equipment manufacturing industry and its suppliers, focused on strategies to accelerate the introduction of innovative materials and processes into the design, manufacturing, service and repair stream for turbines and rotating machinery. The CAPE Roadmap will identify technologies and demonstration projects (both competitive and precompetitive), and develop recommendations for federal and industry funding to support these objectives.

A special area of focus is identifying opportunities to accelerate the certification process for new materials and new industrial processes (e.g. additive manufacturing) to be used in the gas turbine manufacturing industry. Other areas of focus beyond additive manufacturing include: advanced materials such as thermal barrier coatings (TBCs), ceramic matrix composites, and new alloys; non-destructive evaluation and inspection techniques; maintenance, repair and overhaul processes; and avenues for technology collaboration across the aviation and power generation turbine communities. By outlining a streamlined certification process for new materials and processes, the CAPE consortium intends to reduce “time to market” for a broad range of innovative new technologies in the turbine industry. This will enable an accelerated design cycle and more rapid integration of new techniques and materials into the commercial marketplace, while ensuring the continuation of the high quality standards and strong safety protocols that the industry is renowned for in its delivery of engineering and operational solutions.

The CAPE project partners welcome new collaborators from across the industry, including manufacturers, suppliers, and academic and research institutions to take part in this collaborative effort to define new standards to support the next generation of turbine engineering and manufacturing processes. Organizations or individuals who are interested in joining this effort should contact the project manager, Tim Franta at: Tim.Franta@EnergyFlorida.org

The CAPE project results will also support advances in other key industrial sectors, including aviation propulsion and aerospace, leading to expanded use of new materials, applications, and processes across a broad swath of the U.S. manufacturing industry and reducing timelines for the development of innovative technologies. It will create a pipeline of solutions for one of America’s core manufacturing strengths: gas turbine and rotating machine technologies.

Contacts and Additional Resources:

For more information regarding the CAPE, please contact: Mike Aller, Executive Director at 321-205-4533 or Michael.Aller@EnergyFlorida.org or Tim Franta, Director of Special Projects at 321-795-8771 or Tim.Franta@EnergyFlorida.org. An overview of the CAPE consortium and initial collaborators is also available at: <http://www.nist.gov/amo/70nanb15h069.cfm>