

Fact Sheet: *Advanced Natural Gas Systems Manufacturing R&D initiative*

Summary: DOE will launch a collaborative effort with industry to evaluate and scope high-impact manufacturing R&D to improve natural gas system efficiency and reduce leaks with the goal of establishing an advanced manufacturing initiative. This will include a formal request for information, public workshops, and technical analysis and will leverage technology development areas already in progress through DOE's Advanced Manufacturing Office, DOE's Office of Fossil Energy, and the Executive Office of the President's Advanced Manufacturing Partnership (AMP 2.0), including advanced sensors, control, modeling and platforms for manufacturing, advanced materials manufacturing and advanced reciprocating engine systems.

The U.S. natural gas system is one of the largest and most complex engineered systems in the world. With 2.5 million miles of pipeline, the natural gas system provides a vital backbone to our economy by reliably providing feedstock and energy to our homes and businesses. It is also one of the highest energy consuming segments of our economy, with approximately 2 Quadrillion BTUs of energy (primarily from natural gas) used to compress, process and transport the nearly 27 Quadrillion BTUs of natural gas. The natural gas system is also a significant source of methane emissions. As a result, technologies to reduce methane emissions from and improve efficiency of the natural gas system have the positive potential to both lower transportation costs and improve the environment.

To address these challenges, the DOE Advanced Manufacturing Office and Office of Fossil Energy will undertake a collaborative effort with industry to identify and address manufacturing-relevant technical challenges to the natural gas system. Solutions to such challenges might include new materials and component technologies for compressor, processing and pipeline systems; advanced sensors, controls, models and platforms for efficiently operating and monitoring the natural gas system; and new approaches to more efficiently drive natural gas compressors. These technical challenges are a direct application of Advanced Manufacturing Office's supported efforts to develop new technologies to enhance the United States' competitive advantage in the manufacturing sector. The Office of Fossil Energy research is aimed at enhancing the resiliency and deliverability of the nation's natural gas delivery infrastructure.

The Advanced Manufacturing Office has a critical role in supporting the Administration's overall manufacturing agenda. This includes focused initiatives in areas such as critical materials (rare-earth materials); power electronics; additive manufacturing and advanced composites. Building on the Administration's Advanced Manufacturing Partnership, the Advanced Manufacturing Office is taking a focused role in supporting sensor-rich smart manufacturing, next generation electric machines, and advanced materials and process research. Application of these efforts to the natural gas system provides an opportunity to substantially increase state-of-the-art in this important energy infrastructure.

As a first step, DOE will hold a technical workshop to bring together leaders from the natural gas industry and equipment manufacturers with technical experts from national laboratories, universities, non-profit research centers, small and large businesses, and other federal agencies. The goal of this workshop will be to identify the most pressing opportunities in the natural gas system and to focus the technical community on the development of relevant solutions to these challenges. Details of the workshop will be posted on the DOE Advanced Manufacturing Office and Office of Fossil Energy websites.