The Gas & Fuels Research Center (GFRC) is a multidisciplinary research center led by Texas A&M University at Qatar involving more than 30 professors from Texas A&M University’s main campus in College Station, Texas, and the university’s Qatar campus. GFRC represents different engineering programs including chemical, petroleum, materials and mechanical.

GFRC has state-of-the-art research facilities both in Doha, Qatar, and College Station that promote the detailed investigation of gas mixtures and complex fluids from the molecular all the way to macroscopic level. In this way, fundamental understanding of the properties of these systems is possible, allowing for optimum design of industrial processes and of improved final products. GFRC also has strong computational background on process synthesis, design, optimization, integration, control, safety, techno-economic assessment, life cycle assessment and sustainability assessment.

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Research

The GFRC’s research activities span a broad spectrum of upstream and downstream systems for gas and fuels. Overall research topics include:

- Experimental measurements and theoretical prediction of natural/shale gas properties
- Natural gas exploration and production
- Hydrogen production and purification
- Development and validation of analysis and design of materials using first-principles computational methods
- Computer-aided simulation of gas processing systems
- Monetization of natural gas pathways
- Reforming and gas-to-liquids technologies
- Modeling produced water management