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Hydrogen Blended Natural Gas Testing in a Compressor Loop

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Abstract

There is current interest in the use of hydrogen to meet the climate change decarbonization goals for energy and transportation. The United States has over 1,790 natural gas compressor stations transporting gas through its pipelines [1]. Using this existing infrastructure to transport hydrogen mixed with natural gas is one option for efficiently transporting and storing hydrogen without having to build new pipelines and associated infrastructure. However, minimal information is known about the operational risks associated with injecting hydrogen into pipelines that have been optimized for natural gas. Gas is pressurized for transport through miles of pipelines at compressor stations located a certain number of miles apart throughout the pipeline. To determine if natural gas pipelines can operate with hydrogen blended natural gas, the compressor stations must be evaluated and tested for compatibility.

This presentation (or poster) will describe the research and development of a DOE and Gas Machinery Research Council (GMRC) funded project to test up to 20% hydrogen blended into a natural gas compressor system. While the testing will not be completed until next year, the research work studying the impact of hydrogen blending on natural gas compressor station components will be presented along with a high-level overview of the design of the compressor system and blending skid.

1. Homeland Infrastructure Foundation-Level Data, Natural Gas Compressor Stations, Data updated August 3, 2020, Accessed October 13, 2022.