

Common RNG Interconnection Skid Development for Utilities

Description: Develop a common engineering design for the RNG interconnection process that could provide utilities and RNG producers significant savings and reduce costs.

Status: The project deliverables, including engineering design package, equipment and instrumentation database, Bill of Materials, and cost estimator have been completed and are being socialized for funders. This product is being considered for sale to non-members on the www.nysearch.org website.

BENEFITS

As the Renewable Natural Gas (RNG) industry grows and decarbonization efforts remain a high priority for LDC's, the demand for interconnecting with existing natural gas infrastructure will continue to increase. The benefit of this project is to provide a standard RNG interconnect skid design that could be incorporated by natural gas utility companies to reduce design efforts and cost as they are approached by RNG companies and biogas producers to inject into their existing systems. Developing a common engineering design could provide gas utilities and RNG producers significant savings and open more opportunities to utilize RNG which may otherwise have been cost-prohibitive.

BACKGROUND

One of the challenges identified by the NYSEARCH consortium has been focused on interconnection from a biogas producer to receive RNG into the utility system. The interconnection process involves evaluating economics (unique tariff scenarios), gas quality management, and customized piping and instrumentation design to meet engineering standards. Currently, many utilities have or are in the process of developing their own interconnect designs. This approach works for some utilities. At the request of NYSEARCH members, avenues were pursued to standardize the RNG interconnection process and reduce cost.

NYSEARCH identified Campos EPC (CEPC) as a leading engineering and construction company in the space of decarbonization and approached them with the RNG interconnection challenges facing utilities today. The completed work of an engineering design database and an initial customizable skid design are the first steps to developing a Common RNG Interconnection Skid for utilities. CEPC developed two standard interconnect skid designs, one open-air and the other enclosed. These designs would leverage a database of various design options such as instrumentation, measurement, regulation, gas quality analysis, and safety measures to allow a plug-and-play approach that utilities can work with to develop an interconnect skid that best fits their needs while minimizing costs.

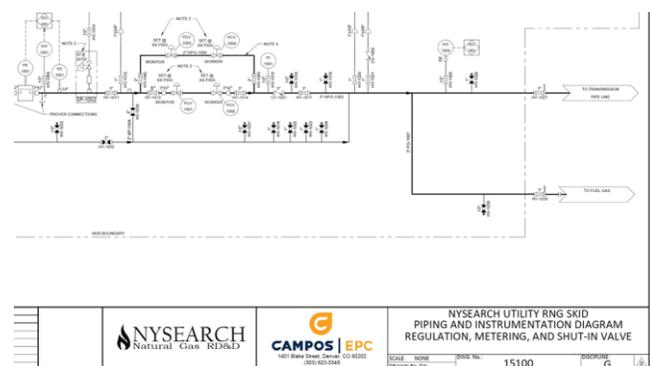


Figure 1. Snapshot of a Piping & Instrumentation Diagram of NYSEARCH RNG Interconnection design

TECHNICAL APPROACH

The objective of this project was to generate a foundational RNG interconnection skid design alongside an equipment & instrumentation database for which utilities can modify the standardized design as they see fit.

With varying needs across different natural gas utilities, the goal of this design was to accommodate many different scenarios that may occur. Thus, the skid was designed to account for a wide range of pressures, flow rates, and temperatures without the need for significantly altering the design.

To gain full understanding of the needs of the several natural gas utilities within the NYSEARCH funder group, Campos EPC (CEPC) sent out a comprehensive survey to these utilities asking about their specific design needs. The questions in this survey were related to equipment preferences, expected gas process conditions, electrical requirements, and structural requirements. Also, several NYSEARCH members who are actively commissioning RNG interconnection points, were interviewed to determine the specific challenges encountered during RNG interconnection. From these discussions, a common RNG interconnection design database was determined as a viable solution to promote consistent implementation processes for LDC's. Due to differing design needs from the utilities, not all items in the survey were able to be accounted for on this skid design.

The engineering drawings and models (see Figure 2) were all created as a NYSEARCH standard, and the equipment and instrumentation database (see Figure 3) was deployed. NYSEARCH funders attended online tutorials to learn how to navigate the

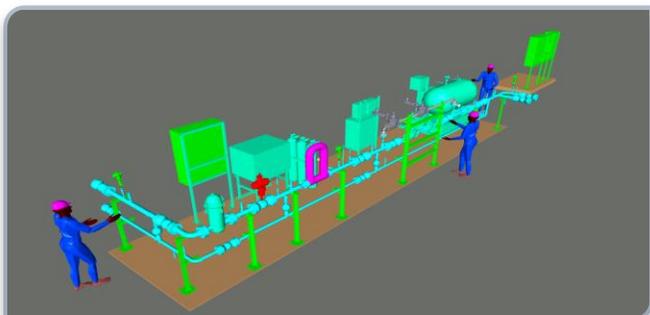


Figure 2. 3D model of open-air skid design

database and leverage the standardized designs to customize the RNG interconnection to utility specific needs and requirements.

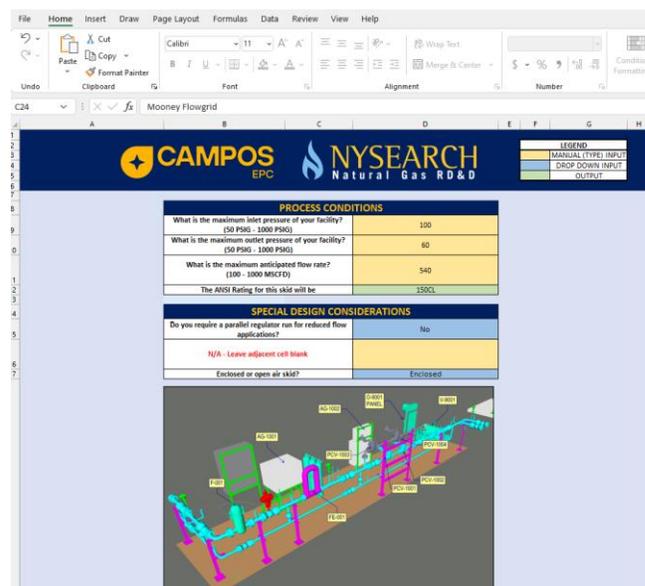


Figure 3. Equipment and instrumentation database developed as an Excel spreadsheet

PROGRAM STATUS

The engineering package with all P&ID's, electrical, structural, Bill of Materials, equipment & instrumentation database, cost estimator has been reviewed, approved, and delivered. Further, online tutorials have been completed with the NYSEARCH funders to train individuals on how to utilize the database in conjunction with the standardized designs.

Highlights

- An industry standard for RNG Interconnection design process to streamline engineering, design, and construction providing significant cost savings.
- NYSEARCH is working to potentially offer the design and database as a product for sale to non-members on the www.nysearch.org website.

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