



Case Study

LNG #32

C50N LNG Liquefier

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Highlights:

- 50,000 GPD LNG Liquefier, opened Q4 2020
- Installed and commissioned in gas rich Marcellus Basin
- Advances the design and implementation of small scale production plant suited to operating in remote areas

Location—Towanda, PA USA

Scope of Project:

- Design to Commissioning of Chart's first C50N Model Liquefier
- Nitrogen Cycle technology

"Chart has been a great partner to both BHE GT&S and Pivotal LNG during the execution of our Towanda LNG project in Pennsylvania. They not only have delivered on their commitments but gone above and beyond to support our EPC during site execution, training and commissioning. BHE GT&S certainly considers Chart as a trusted and valued partner."

Lyle Henry, Director Gas Partnership Business Development at BHE GT&S.

*In November 2020, Berkshire Hathaway Energy Company purchased certain gas transmission and storage assets from Dominion Energy, Inc creating BHE GT&S. In April of 2021, its subsidiaries Niche LNG and Pivotal LNG combined entities to further expand US LNG supply and services.

Application:

The abundant and under-utilized source of shale natural gas in rural Pennsylvania drove the development of a small-scale, compact LNG liquefier plant to serve the growing number of industrial, transportation and marine customers looking to use nearby natural gas in the form of LNG.

Project Background:

With the rising interest in accessing the natural gas reserves in PA for industrial power generation, back up generation and marine fueling, the developers approached Chart with the need for approximately 50,000 gal/day production plant. Part of Chart's core capabilities is small scale LNG plants. Key discussions in the early stages of the project were critical in configuring the plant design and reducing the overall plot size to 300x 300 ft/92 x 92 meters.

System Configuration:

Complete standard plant package which included project engineering and supply of critical equipment manufactured in-house and remaining items sourced from Chart's trusted partners. In-house scope of supply included cold box, compressor skid, expander skid, air coolers, LN₂ storage tank, vaporization skid and associated controls. All inter-connecting piping was shop built and supplied with flanged connections to eliminate on-site cutting, welding, NDE and pressure testing. Chart worked with the owners' EPC contractor to commission the liquefaction process equipment. Site uses natural gas from the well(s) to generate electricity to power the plant.

Significant Accomplishments:

Chart's Nitrogen Cycle technology provided an easy operation solution over mixed refrigerant operating model. The Nitrogen Cycle matched the efficiencies of an MR process on this site's pipeline gas feedstock.

LNG sourced from the plant provided the first truck-to-ship bunkering operations on the Great Lakes. This new fuel source provides shipping companies with a new fuel option to meet the growing marine environmental regulations.

