



Case Study LNG #7

LNG Regasification
Plant as Primary Backup to
Natural Gas Pipeline

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Highlights:

Location — Northeast United States

Scope of Project:

- Engineering and manufacture of turnkey system to store Liquefied Natural Gas (LNG) and supply in gaseous form to a central heating plant
- (3) 18,000 gallon LNG tanks
- (1) Indirect Fired Water Bath (IFWB) Thermax® vaporizer
- (1) Ambient air vaporizer sized to accommodate Boil-off Gas (BOG) from the storage tanks during periods of non-use
- Truck offload station with dual pumps
- Allow for two modes of operation – full manual and full automatic
- Startup, commissioning, and onsite training on system equipment
- Project Completion: October 2016

Application:

University campus – LNG regasification plant to be the primary, stationary backup to natural gas pipeline supply during times of high use, or allows for interruptible pipeline service. Converting from ultra-low sulfur diesel is expected to save the university millions of dollars over the next few years, as well as reducing their carbon footprint.

Project Background:

The University campus had previously used LNG in trailers (as a trial mode change from diesel) during peak season and desired a permanent solution. The LNG supply had to be in place for the start of the 2016/17 heating season. Both fully automatic and manual modes were required. System was required to accommodate flow rates fluctuating between 10,000 and 175,000 standard cubic feet per hour of natural gas.

Significant Accomplishments:

- Chart was able to provide a total turnkey package with U.S. factory built equipment and skid designed for easy installation at site.
- Designed to operate in two modes. Automatic mode puts the equipment into standby/backup mode between November 1st and April 15th – winter heating season. Manual operations, or summer mode, is used for the balance of the year.
- To eliminate the venting of natural gas, Boil-off Gas (BOG) is managed through economizer circuits on each tank. Plant operators monitor the pressure in each tank, utilizing BOG valves as needed. This causes the line pressure in the supply line to drop below the supply pressure and opens valves on the final line pressure regulator to flow gas from the tank(s) to the University Central Heating Plant mixed with the natural gas pipeline supply. The end result is the system does not vent any natural gas to atmosphere throughout the entire year.
- Integrated the controls and screens with remote view and run capability to the existing system.
- Onsite commissioning with operation and safety training in three days.

System Configuration:

LNG facility station includes onsite storage totalling 54,000 gallons gross capacity in vertical cryogenic tanks. Other components in the total system approach – VIP (between vessels & vaporizer), pump offload skid, waterbath vaporizer, and BOG heat exchanger. The multiple manifolds included an LNG CGA connection, both upstream and downstream BOG valving, upstream and downstream water bath valving, and the Final Line Pressure Control with metering skid and vent stack. All components were factory tested and designed for ease of installation. Chart's personnel managed the project installation.



3 tanks, vaporizer, IFWB and manifolds



Final Line Manifold