Temporary LNG at Old Mill Lane:

A safe, reliable solution to meet Aquidneck Island's winter energy needs today

October 2021

ENSURING GAS SUPPLY RELIABILITY ON THE COLDEST DAYS OF THE YEAR

What is LNG?
Liquefied natural gas (LNG) is a critical part of National Grid's ability to provide safe and reliable natural gas to the homes and businesses we serve. On the coldest winter days, when demand is at its peak, LNG can provide up to 40% of the gas supply for National Grid's customers in New England. LNG is the liquid form of the lightest hydrocarbons in natural gas. It's colorless, odorless and non-toxic. LNG vapor is lighter than air, and it's the cleanest fossil fuel available. The combustion of natural gas does not emit soot, dust or fumes. It generates 30% less carbon dioxide than fuel oil with a twofold reduction in nitrogen oxide emissions and almost no environmentally-damaging sulphur dioxide emissions. The basic properties and behavior of LNG make it a desirable fuel option which can be managed safely.

Why is LNG needed on Aquidneck Island now?
Aquidneck Island receives all its gas supply from the Algonquin Gas Transmission (AGT) pipeline. In a comprehensive study published in September 2020, National Grid explained the challenges to continued safe, reliable, and affordable service to customers on Aquidneck Island along with four potential pathways for solutions. We are committed to ensuring customers on Aquidneck Island, and across the Ocean State, have access to the energy they need to heat their homes and keep their businesses running at all times. Likewise, as a clean energy company, we are committed to helping the state address and meet its climate, decarbonization, and emission reduction goals. The best option to address these immediate needs was the temporary installation of a portable liquefied natural gas (LNG) setup at the former propane storage facility at Old Mill Lane in Portsmouth.

Are temporary LNG supplies used elsewhere in the region?
Yes. For decades, LNG has played an important role in providing a safe, reliable source of natural gas for customers in New England, particularly in winter months when demand for natural gas is greatest. Many local distribution companies have used portable LNG for "peak-shaving" to supplement pipeline supply thus shaving the top off the peak demand. This use of LNG helps ensure sufficient capacity during the coldest months of the year, or as a source of gas supply when pipelines are taken out of service for repairs, assessments, or routine maintenance. National Grid has used portable LNG when there are transmission outages and pipeline inspections in Massachusetts at the following locations - Eastham, Chatham and Norwood. Temporary portable LNG will also be used in Massachusetts for winter operations on peak days this winter in Norwood and Cataumet.

How is LNG delivered into the local distribution system?
To help ensure sufficient winter capacity for Aquidneck Island, National Grid installed a temporary portable LNG operation at its former peak-shaving propane storage facility at Old Mill Lane in Portsmouth to help address reliability and supply concerns. This temporary LNG setup serves as an extra source of gas supply at a low cost, for the coldest days of the year or in the event of a pipeline

disruption. The primary function is to provide supplemental gas supply to Aquidneck Island for peak-shaving the pipeline supply when it cannot meet the demand (which can happen on the coldest winter days). When peak-shaving is required to meet the gas demand on Aquidneck Island, LNG stored in portable storage vessels onsite is pumped through a vaporizer which re-gasifies the LNG back into its gaseous state (natural gas). The natural gas is metered and then odorized to meet distribution system odorization requirements. From there, the natural gas is injected into the local distribution system for use by residents and businesses.

National Grid conducts a detailed safety review process before each facility is established to identify, quantify and mitigate risks. The Old Mill Lane facility operates temporarily and is staged seasonally only during winter months. After winter, the facility is fully de-mobilized, and all LNG equipment is removed for the summer season (since the pipeline supply can easily meet demand during the warmer months). A key benefit of the Old Mill Lane facility is the ability to maintain a supply for a short-term period of four to five months, without the need to build additional long-term infrastructure that would exist permanently.

How does LNG arrive on-site and what safety precautions are taken for transport?
The temporary portable LNG operation relies on trucked LNG that can be vaporized and injected into the Company's gas distribution network. It is shipped from an LNG import terminal in Everett, MA.

LNG cargo tank operators and the regional natural gas distribution companies follow the Northeast Gas Association (NGA) LNG Trucking Emergency Response Plan. Emergency support personnel from each LNG cargo tank operating company are trained to respond to incidents throughout the Northeast. Additionally, National Grid requires that all LNG trucking companies contracted to transport LNG have verified acceptable safety records with ISNetworld (a service which collects and verifies contractor information and statistics) and that all drivers complete a suite of LNG awareness and safety training modules. National Grid also conducts independent third-party field audits on LNG transport companies to ensure that applicable policies and safety requirements are being followed.

There are stringent safety regulations that all LNG carriers must follow. LNG truck transportation is regulated by two divisions of the United States Department of Transportation: The Federal Motor Carrier Safety Administration (FMCSA) and the Pipeline and Hazardous Materials Safety Administration (PHMSA). Some state agencies also regulate LNG trucking. The National Fire Protection Agency (NFPA) sets the codes and standards for the handling of LNG, and the American Society of Mechanical Engineers (ASME) sets standards for the design, fabrication, inspection and testing of LNG tankers. LNG is transported in specially designed D.O.T. double-walled MC-338 cryogenic tankers. There are pressure relief valves and emergency shut off devices which are subject to mandatory inspections. LNG motor carriers must be licenced to transport hazardous materials for interstate or intrastate commerce.

What other safety precautions are considered with the portable setup?
All onsite personnel involved in the operation and supervision of LNG portable equipment must be trained on the operation of mobile LNG operations, and qualified in the safe operation of these systems. This includes training on the characteristics and hazards of LNG, the potential hazards involved in operating activities, and how to carry out the emergency procedures that relate to personnel functions, as mandated by federal code regulations under the Department of Transportation's Pipeline and Hazardous Materials Safety Administration (DOT PHMSA), enforced locally by the Rhode Island Division of Public Utilities and Carriers (RIDPUC).

Many additional safeguards are in place to ensure the safe operation of the facility. Some are mandated by federal code (such as vehicle barricades to protect the onsite equipment from road traffic), and others by National Grid's strict process safety program which exceeds regulatory code requirements. National Grid's process safety program implements a formal and systematic risk analysis approach for identifying, quantifying, and mitigating the risks associated with the operation. (This process includes quantitative risk assessment, process hazard analysis, layers of protection analyses, vapor dispersion assessment, and safety integrity level verification.)

Site tours and drills are also scheduled and conducted with the first responders locally at the site. National Grid collaborates closely with local first responder agencies to familiarize first responders with the site layout, equipment and its operation, and associated hazards. Through this collaborative effort, hazard scenarios are assessed to develop emergency response plans. A vapor dispersion assessment provided by National Grid helps establish hazard distances based on various modelled scenarios. First responders incorporate the hazard distance data in the development of their evacuation plans for the extremely remote and unlikely event of an emergency requiring an evacuation process.

What type of security is in place at the site?
Extensive security and safety protocols are in place at Old Mill Lane. There is a contractor security team consisting of fully qualified and trained security officers working under the supervision of National Grid Corporate Security, present on site 24 hours/day, 7 days/week upon mobilization of the LNG equipment. National Grid personnel are onsite 24 hours/day, 7 days/week upon the first LNG delivery. Fencing surrounds the entire site perimeter. There are also comprehensive measures for vehicle and personnel access control and locking vehicle gates and 100% lighting of the area for safe process operation and security.

National Grid recognizes the community concerns and wants residents to be confident that a continuous cycle of systematic review, revision, training, exercising, activations, and evaluations of practices performed is in place. Whether it's implementation of the emergency response plan, extreme weather plan, mutual assistance support, etc., National Grid is constantly evaluating established practices and working to improve response performance. The safety of our customers, our employees, and those residents where we operate is paramount to everything we do at National Grid. All should have the confidence to know that National Grid does everything possible to guard against and plan for any potential emergencies when operating its facilities.