

# RESEARCH. CONSULTING. TRAINING.

BRINGING A GLOBAL PERSPECTIVE TO LNG





# GTI is at the frontline of LNG.

We're your resource to develop cutting-edge technology, technical insight, and training to solve global energy challenges and enable a clean, sustainable future. We're making a lasting impact on a global scale.

# RESEARCH.

GTI leads a slate of research and development (R&D) programs focused on LNG at every phase across the energy value chain—supply, delivery, and end use.

# **GAS PROCESSING**

**Natural gas purification for LNG production.** GTI and Air Liquide Advanced Separations are developing a compact, low-cost, versatile technology to purify natural gas. The technology can achieve pipeline specifications or the much tighter requirements for LNG production. The modular technology is insensitive to orientation or motion, so it is particularly suited for offshore platforms or floating LNG (FLNG) use. >> **Join GTI's Joint Industry Program (JIP) for this technology**.

Removing and recovering sulfur from natural gas. GTI has technology platforms and expertise in midstream cleanup to remove contaminants before the gas is brought to market with advantages in capital cost, operations and maintenance cost, and footprint. A novel sulfur removal process is ready for pilot plant testing that will treat tonnage levels of H<sub>2</sub>S, replacing acid gas removal, sulfur recovery, and tail gas treating processes in one step. >> Become a commercial licensee or host site for a pilot-scale demonstration.

**H<sub>2</sub>S scavenging**. We offer engineering consultancy services, engineering design software, lab and field testing for hydrogen sulfide (H<sub>2</sub>S) scavenging. GTl has developed a computer simulation model that can accurately calculate H<sub>2</sub>S scavenger loading requirements and required pipe diameter and length for direct-injection systems. **>> Use our special engineering design software or leverage GTl's research, consulting and technical services**.

# **SMALL-SCALE LNG**

**Small-scale liquefaction technology.** GTI's patented technology creates LNG from stranded or flared natural gas reserves, landfill gas, wastewater biogas, and digester gas, and enables cost-effective capital pricing while also providing greater conversion efficiency. The LNG can be used in fleets, remote operations, and other specialty natural gas markets. Commercial systems range from 10,000 to over 30,000 U.S. gallons per day. >> **Licensing opportunities available.** 

### TRANSPORTATION FUEL

**Natural gas as a transportation fuel.** Our experts work on several fronts to lower the costs of adoption of alternative fuel vehicles and infrastructure. Technology development is underway to support next-generation LNG and CNG vehicles and engines. We also test, develop, and deploy new components, systems, and fueling stations. We have unique capabilities in alternative energy development, encompassing the integration of natural gas with landfill gas or biogas sources. **>> Contact GTI to discuss your new technology**.

GTI has a host of ongoing projects that are open to the industry for participation and investment.

Outsource all or part of your R&D activity to leverage your technology investment—and choose from a menu of business arrangements.

# 10% >>>>>>> DISCOUNT

LNG18 attendees receive a special 10% discount off any GTI LNG course, publication, technical report, or software.

Use promo code: LNG18

### **ANALYTICAL STUDIES**

LNG equipment failure rate statistical analysis. GTI is performing research funded by the U.S.

Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) to analyze PHMSA's LNG Failure Rate Table, which defines expected LNG equipment failure frequencies. GTI is reviewing failure rate data globally, building an integrated database, applying a Bayesian network methodology to a statistical analysis, and providing recommendations. >> GTI seeks relevant input and data globally.

**LNG equipment and system computational modeling.** GTI is computationally modeling the performance of a wide variety of process equipment and systems used in the natural gas industry, including LNG equipment. GTI works directly for Original Equipment Manufacturers and others. >> Contact GTI to discuss how to better understand your equipment or system performance.

### INTERCHANGEABILITY

**Natural gas interchangeability for distribution networks.** Interchangeability is a common issue for gas distribution systems and end-use equipment where supplies are coming from many different sources of varying qualities. GTI has 75 years of experience in the area of gas quality, interchangeability issues and concerns, constituents that cause corrosion issues and increase risk, and materials characterization and testing. **>> Conduct research, development, and demonstration projects at GTI or in the field, from small-scale to large-scale.** 

# CONSULTING.

We offer customized and confidential knowledge-based services on technical, economic, business, regulatory and safety aspects of the LNG industry.

**Consulting and technical services.** GTI is an independent third party that performs work in confidence for the natural gas industry. Leveraging our unique knowledge, access, proprietary databases, models, and technical services, we provide unique insights, identify opportunities and minimize risk. With a legacy of developing solutions for the energy industry—and state-of-the-art laboratories, test facilities, and equipment—we are also your single source for the performance of both standardized and custom tests. **>> Contact GTI today**.

- Materials integrity and testing
- Interchangeability analysis testing
- Internal corrosion expertise—gas, condensates, and biological corrosion including microbially induced corrosion (MIC)
- Body of knowledge (LNG experts, relevant literature sources available)
- Corrosion modeling, simulation, risk assessment, and management

# TRAINING.

GTI provides a large and growing array of LNG training programs for both the large- and small-scale sector.

**Customized and standardized LNG training programs.** Whether you are an LNG plant operator or supervisor, an engineering project manager, an executive, a regulator, or an attorney, GTI has a training program for you. We provide open enrollment courses (classroom and online), customized company-specific procedures and programs, build skill sets, and accomplish strategic performance objectives. We can also come onsite to your company's facility or LNG terminal to train staff on topics that reflect your specific equipment, procedures, and regulations.

### Topic examples:

- LNG as a Marine Fuel
- Small-Scale Liquefaction
- Properties and Hazards of LNG
- LNG Awareness for the First Responder
- Fundamentals of Baseload LNG
- LNG Terminals and Terminal Operations
- Navigating the LNG Fueling Regulations
- Understanding LNG Peakshaving Plants and Operations
- >> Visit gastechnology.org/LNG18 for full listing



Gas Technology Institute (GTI) is an independent, non-profit research, development and training organization addressing global energy and environmental challenges to enable a secure, abundant, and clean energy future. For 75 years, GTI has been developing technology-based solutions for industry, government, and consumers at every phase of the technology development cycle, from concept to commercialization.

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