

#### GTI

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# SOLVING IMPORTANT ENERGY CHALLENGES AND CREATING VALUE IN THE MARKETPLACE

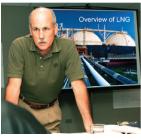
GTI is the leading research, development and training organization addressing energy and environmental challenges to enable a secure, abundant, and affordable energy future. For more than 75 years, we have been providing economic value to the natural gas industry and energy markets by developing technology-based solutions for industry, government, and consumers.



### WHAT WF DO

- **Research and Development.** With a reputation for achieving market results, R&D efforts at GTI are customer-driven initiatives that focus on securing an economic, reliable, and clean energy future.
- Program Management. GTI brings together the right team to support key technology initiatives. Through our collaborative R&D programs, we offer unique opportunities to optimize research funding.
- Technical Services. By leveraging our expertise at our state-of-theart laboratories and test facilities, we offer the capability to perform hundreds of standardized and custom tests.
- Analytical Services. Our knowledge-based services use several models and approaches assessing technical markets, benefits, feasibility, and regulatory implications to understand and address energy challenges.
- Consulting. GTI experts help companies accomplish strategic performance objectives through analysis of existing business and technology issues, developing improvement plans, and providing litigation support.
- Commercialization. Through a variety of business arrangements, GTI provides the expertise and support needed to bring new energy-related technology to market.
- Training. GTI offers training programs in gas distribution and transmission, utilization technology, LNG, and exploration and production. Training options include classroom courses, e-learning, and on-site programs.









**INDUSTRY** 

FEDERAL GOVERNMENT

patents issued

### EXPERTISE THAT ALIGNS WITH THE VALUE CHAIN



# CONVERSION

### **DELIVERY**

### UTILIZATION









#### **Expanding the supply** of clean, abundant, and affordable natural gas and renewable energy

- · Hydraulic fracturing efficiency
- Reservoir characterization
- Well construction and completion
- · Produced water management
- Liquefied natural gas (LNG)
- · Unconventional natural gas and oil
- Hydrogen

#### **Transforming natural** resources into clean fuels. power, and chemicals

- **Gasification process** development
- Integrated biofuels technology R&D
- · Syngas generation and processing
- Natural gas and syngas cleanup and separation technologies
- Subquality gas upgrading
- Carbon management
- · Chemical research services

#### Ensuring a safe and reliable energy delivery infrastructure

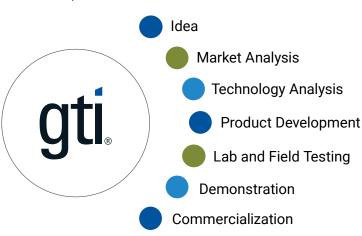
- · Data integrity and risk management
- Infrastructure rehabilitation and improvements
- · Environmental matters, enabling renewable gas, and gas quality
- Smart utility information technology tools
- · Materials and analytical testing
- · Methane emissions, monitoring, mitigation, and reduction

#### Promoting the clean and efficient use of energy resources

- Residential/commercial appliances, equipment, and building systems
- Industrial process heat and steam
- Power generation and combined heat and power
- · Alternative transportation fuels
- · Full-fuel cycle measures of energy use
- Natural gas-solar thermal hybrid equipment
- Renewable natural gas and gas quality

# WORKING WITH OUR CUSTOMERS

For decades, we have been recognized as a valued partner providing research programs that lead to emerging technologies across market sectors and service at every phase of the technology development cycle, from concept to commercialization.





# MAKING AN IMPACT

- Leading Hydraulic Fracturing Test Sites (HFTS) program to enable unconventional gas production with fewer environmental impacts and increased recovery rates
- Invented IH<sup>2®</sup> technology to convert biomass into transportation fuels
- **Managed Clean Fuels Across** Chicago initiative, deploying 400 clean vehicles and 225 alternative fueling stations
- **Developing methodologies for** determining failure mechanisms in pipelines

500+ products 750+ licenses 1,300+ patents