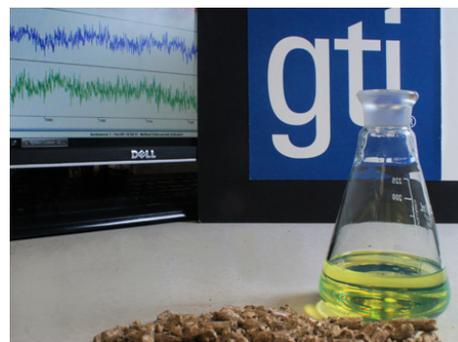


ENERGY SOLUTIONS... DELIVERED

GASIFICATION DEVELOPMENT PARTNER

Working with GTI offers access to specialized facilities and expertise to reduce market and technology risk

Gasification can be a highly efficient, practically pollution-free way to produce power, fuels, and chemicals from readily available resources (such as coal, coke, and biomass), and it has been in use for many years. Before gasification can effectively compete for new uses in the market, the potential economic advantage has to be compelling, and the probability of success must be demonstrated.



Performing **groundbreaking renewable fuels work** to make 'green' gasoline from woody biomass in an integrated biorefinery. GTI teamed with Haldor Topsoe, UPM, Andritz, Phillips 66 with U.S. Department of Energy funding to combine gasification and syngas cleanup steps with a unique improved gasoline synthesis process. The project produced more than 10,000 gallons of 92-octane biogasoline for fleet testing. The renewable fuel has been registered by EPA as an approved motor fuel and offers 74% fewer greenhouse gas emissions than petroleum-based fuel with an estimated production cost of \$2.56 per gallon.

Gas Technology Institute (GTI) works with clients as their development partner for gasification technologies. We help our partners demonstrate technical innovations, new feedstock applications, and better process integration to lower costs and increase reliability. Projects are tailored to meet the needs of each client and each technology development effort. We work on a confidential basis to bring process and technology concepts to maturity, with experts employing specialized testing capabilities from laboratory to large pilot scale.

GTI has been actively involved in gasification research and development for over 60 years, and developed a database for the gasification of fuels from around the world. GTI has extensive experience in the design, construction, and operation of all sorts of gasifier technologies (entrained-flow, fluidized-bed, and moving-bed systems), including six trademarked processes.

GTI partnered with GreatPoint Energy in the **pilot-scale developmental testing** of their bluegas® process.

GTI's **biomass gasification technology** has been developed and commercialized by Andritz-Carbona, and GTI has performed pilot plant tests for them in support of biomass-to-liquids (BTL) process development.

GTI licensed its **U-GAS® coal gasification process** to Synthesis Energy System (SES) and works with SES on testing new feedstock properties and design reviews for new projects.



GTI is advancing a **new entrained-flow coal gasifier technology** for fuels, chemicals, and power generation applications. The compact size and design features of this gasifier acquired from Aerojet Rocketdyne is targeting best-in-class conversion efficiency, capital efficiency, and capacity factor.

While GTI has designed and built test gasification facilities for education and research organizations in the U.S. and Asia, our mission is to mature technology for the marketplace.

GTI applies its gasification capabilities and facilities to develop complete solutions for client needs. GTI is working with project partners to advance gasification and gas processing technologies to convert coal, coke, and biomass into clean, cost-effective energy and chemical products.

GTI has the facilities and the expertise needed to progress gasification technology through the development stages required to meet technical and economic performance objectives.

Laboratories & Facilities

GTI has a broad array of facilities for alternative and renewable energy development. We can host testing at all scales, from bench-top to laboratory to pilot plant.



Pilot-Scale Gasification Campus Flex-Fuel Test Facility (FFTF)

The Henry R. Linden Flex-Fuel Test Facility evaluates gasification processes integrated with downstream syngas clean-up at up to 6 MWth input to facilitate the commercialization of advanced technologies.

Advanced Gasification Test Facility (AGTF)

This five-story facility is integrated with process equipment in the FFTF and houses advanced gasifier, gas processing, and syngas conversion bays to allow feed-to-product integrated process development testing.



Thermochemical Conversion Laboratory

Within these facilities, GTI staff operate specialized equipment to evaluate fossil and renewable feedstocks for gasification, pyrolysis, or hydroconversion performance.

Gas Processing Laboratory

In this lab GTI develops and assesses gas processing technologies (e.g., membranes, solvents, and adsorbents) which can be used to remove contaminants such as sulfur and CO₂.

Analytical Chemistry Laboratory

We also have an accredited analytical chemistry lab on site that provides comprehensive services, including solid fuel and liquid hydrocarbon analyses.



GTI Solutions

Gasification Technologies for Coal and Biomass

GTI continues to be a leader in developing, proving, and implementing gasification technologies and integrated systems for converting coal, biomass, and other solid fuel feedstocks into syngas.

Liquid Fuels from Syngas

GTI has expertise and experience in the conversion of synthesis gas to liquids, such as the Haldor Topsøe TIGAS® process.

Substitute Natural Gas

GTI conducts work on a number of routes, including catalytic gasification, to produce substitute natural gas (SNG) that can meet the pipeline specifications for distribution and use in the current natural gas infrastructure.

Syngas Processing Systems

GTI provides technical and economic process expertise and solutions for comprehensive fuels processing, including a variety of syngas cleanup options, and syngas utilization applications.

Integrated Energy Systems

With expertise and experience in related areas such as combustion, heat transfer, and fuel cells, GTI can assist in developing approaches and packaged products for integrated systems and solutions.

For More Information

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