

Energy Efficiency

Driven by volatile energy prices and environmental considerations, energy efficiency continues to generate significant societal and end user benefits. Over \$3 billion per year is being deployed by electric and natural gas utilities in the United States to help residential, commercial, and industrial consumers save energy and money. Utility energy efficiency programs support initiatives such as energy audits, building weatherization improvements, new appliance and equipment rebates and financing incentives, and new energy efficient technology demonstrations.



KEY ISSUES

Energy efficiency initiatives offer key benefits in North America:

- > **Cost reductions.** Energy-efficient equipment leads to lower energy intensity and consumption, reducing energy costs for businesses and families. Reduced energy costs are a top priority in helping maintain industrial competitiveness.
- > **Environmental and resource conservation.** Energy efficiency reduces fossil-fuel consumption—with the added benefit of reducing greenhouse gas and other ambient air emissions.



GTI SOLUTIONS

GTI applies market knowledge and state-of-the-art technology for the residential, commercial and industrial sectors. We have a long history of working with partners in government, industry, and manufacturing both individually or in collaboration with others to reduce the time and cost of getting new technology to market. GTI acts as a product enabler, helping technologies reach the marketplace at every stage from lab testing through commercial demonstration. Our energy efficiency management services support various stakeholders in planning, implementing, and assessing the benefits of their energy efficiency programs.

Residential

Managing energy costs and convenience have become increasingly important for homeowners. GTI has specialized expertise in residential space conditioning and water heating, with programs and projects that cover traditional equipment such as furnaces, boilers and HVAC systems; water heaters (advanced tank and tankless products); cooking equipment; hearth and outdoor products; and building systems issues for multi-family dwellings (e.g., venting and code issues). GTI is also working to advance emerging residential applications such as micro-CHP systems, fuel cells, gas cooling and solar thermal/natural gas hybrid equipment.



GTI—BRINGING SOLUTIONS TO MARKET

GTI takes on tough energy challenges, turning raw technology into practical solutions that create exceptional value for our customers in the global marketplace. GTI strives to enhance the effectiveness and implementation of these solutions through the integration of several principles and characteristics:

- > **Market-focused.** GTI programs are based on the direct needs of customers and constituents in the market— identifying and addressing both business and technical needs.
- > **Commercialization partner involvement.** Early partnering and deployment strategy development identifies and mitigates potential implementation issues.
- > **Beyond research to practical application.** GTI solutions build from proven science and fundamental research to deliver well-grounded and workable approaches.
- > **Integrated technology solutions.** GTI provides perspective and capabilities that encompass the full range of the fuel cycle from supply, through delivery, to utilization.

Leverage GTI's expertise and facilities to reach your solution faster.

For More Information

William E. Liss
Managing Director,
End Use Solutions Sector
847-768-0753
william.liss@gastechnology.org

Commercial

GTI has played a major role in the development of advanced high-efficiency, low-emission gas-fired equipment for the commercial sector, with a special emphasis on commercial food service equipment, water heating, steam generation and space conditioning. For example, GTI has worked with a spectrum of equipment manufacturers to develop and introduce more efficient fryers, ovens, steamers, charbroilers, griddles, warewashers and other products used in retail and institutional food service environments. Water heating advancements include high-efficiency tank and tankless technologies and high-efficiency boilers. Our space conditioning solutions include natural gas cooling and desiccant dehumidification (which address indoor comfort and air quality).

Industrial

GTI is a proven technology developer that is making significant contributions to the strong market position of natural gas in the industrial sector. Current projects address the process heating needs of industries, including steel, paper, plastics, metal finishing, aluminum, glass, food processing, heat-treating, petroleum, forging and cement.

In the areas of steam and power generation, GTI is addressing the needs of industrial and utility power generation with specialized expertise in onsite power generation and integrated energy systems. One technology of critical importance is the Super Boiler. This integrated system captures heat and water from flue gas and maximizes efficiency in steam and power generation applications. It achieves over 94% higher heating value (HHV) efficiency for industrial boilers.

GTI works with industrial end users, energy utilities and other stakeholders to bring new technology to the industrial sector that improves productivity, increases efficiency and lowers criteria pollutants such as NO_x and carbon dioxide.

Energy Efficiency Programs and Community Planning

GTI is positioned to provide services to support energy efficiency program planning, implementation, monitoring and verification. We work collaboratively with utility companies, regulatory agencies, local/state/federal government, non-government organizations, manufacturers and other stakeholders to help achieve important market transformation objectives.

This includes using a suite of modeling and assessment tools that support building or community planning, analysis and benefits assessment.

Renewable and Sustainable Energy

GTI is active in a range of renewable and sustainable energy developments that complement energy efficiency. Examples include applications with bio-methane (or biogas) sources such as landfills, wastewater treatment plants and other purpose-built digester facilities, biomass gasification and hybrid solar thermal/natural gas products used to produce hot water, steam, and thermally driven cooling.

