



Utilization Technology Development

With natural gas production growing, there is a tremendous opportunity to take advantage of the positive attributes of this clean and abundant resource to dramatically lower greenhouse gas and other emissions, reduce energy and equipment costs, integrate with renewable energy resources, and enhance energy security.

Utilization Technology Development, NFP (UTD) is at the forefront of research, development, and deployment for end-use equipment and appliances. As a not-for-profit corporation led by our 19 utility member companies, we represent over 45 million natural gas customers in the Americas and Europe. UTD directs and sponsors a wide-ranging program to enhance the use, reliability, and efficiency of natural gas appliances and technologies. By taking R&D projects and new technologies from the laboratory to the field, UTD enhances market success via field testing and commercialization.

UTD's collaborative research approach showcases the benefits of using natural gas in residential, commercial, industrial, power generation, and transportation markets as an environmentally-friendly energy source, creating efficient and cost-effective new technologies, and identifying emerging needs and solutions.

Member companies pool and actively direct their own R&D investment resources while also leveraging them with significant supplemental program funding from federal, state and local government sources or other industry stakeholders to benefit utilities, their customers, and the environment.

As markets rapidly evolve, there is an urgent need for ongoing investment in advanced end-use technologies to address opportunities to reduce energy intensity and consumption, achieve significant economic and environmental benefits, leverage more renewable energy, and complement energy efficiency programs.

UTD members combine their interests, expertise, and resources into focused R&D projects that shape our energy future, and contribute to a robust economy and cleaner environment.

Background

▼ UTD was formed based on extensive input from energy utilities and GTI's Public Interest Advisory Committee in the early 2000s. This communication encouraged the development of a mechanism to leverage investments in utilization research, development, and demonstration (RD&D) in order to benefit utilities and their ratepayers.

It became clear that managers at today's energy utilities operate in a difficult business environment. Among the challenges they face are volatile energy prices; environmental regulations; the influence of mergers and acquisitions; the uncertain progress of corporate unbundling and retail competition; and the decoupling of rates. These utilities are often hampered in their struggle by a shortage of end-use technologies and information to enable them to offer end users a compelling value proposition.

Surveys of UTD companies have identified the following needs and opportunities:

- **Better end-use technologies:** Utilities and their customers are looking for new technology and more sophisticated products to lower energy bills, reduce equipment first costs, meet increasingly stringent environmental regulations, address the challenges associated with carbon management, and integrate renewable resources.
- **Residential segments:** New increased-efficiency and lower-emissions gas equipment must be developed to ensure that existing and new homes and multifamily buildings can continue to choose natural gas options (for space and water heating and other applications) which offer the consumer clear benefits.
- **Commercial segments:** Several traditional natural gas product segments, including food service and heating, are being displaced by electric technologies. This can reduce product options for customers and increase their life-cycle cost for energy systems. Increased-efficiency gas equipment can be the answer.
- **Industrial segments:** In today's highly competitive and demanding economy, utilities are willing to work with industrial customers to help them become more efficient and less polluting, thereby staying solvent, even at the expense of utility gas throughput.
- **Transportation segments:** The transportation area is increasingly recognizing the economic benefits of natural gas vehicles (NGVs). Reducing the costs of adopting NGVs and their fueling infrastructure, particularly first-cost entry into the market, is important. Ensuring a variety of NGV engines is important in expanding this market segment.
- **Distributed energy:** Utilities agreed that fuel cells, microturbines, and advanced engines represent a huge opportunity for customers and gas utilities, but important technical and other barriers remain.
- **Integrated cooling and power packages:** Gas cooling continues to attract managerial interest due to its potential to balance gas loads and reduce gas-fired peak electricity loads. The new opportunity may be for a packaged, off-the-shelf system integrating power generation and cooling technology.
- **Information needs:** Specific value is seen in developing quantitative information on the costs and economic benefits to customers of installing advanced gas equipment, as well as ensuring equitable treatment of fuel sources in codes and standards.

Vision

▼ To address these urgent needs, GTI and several leading gas utilities worked together to define and launch Utilization Technology Development, NFP (UTD) in 2004 as a not-for-profit corporation and investor-driven collaborative RD&D program. The UTD program is guided and managed by direct industry involvement and perspective, contributing to a healthy scenario for the gas industry and providing sustained benefits for the gas consumer. It is funded by the utilities and other interested stakeholders.

UTD addresses the market needs identified by its members and provides an opportunity to address the significant gap in product-versus-potential in the marketplace. UTD identifies and advances technologies and best practices for a robust gas product portfolio and provides near-term impact by delivering advanced technologies that offer the consumer lower energy bills, lower first costs, environmental benefits, and other advantages.

UTD coordinates activities with other industry organizations to maximize program value to its investors.

Value to Member Investors

▼ UTD provides members with information, tools, products and software to aid their customers in value-driven gas markets. This includes an understanding of opportunities, an assessment of the implementation barriers, and assistance with the deployment to achieve sustained market impact. Members meet in person twice a year and via teleconference on a regular basis.

Specific energy utility needs addressed include:

- **Identification and assessment** of barriers and relevant technologies for near-term implementation
- **Development of higher energy-efficiency technologies** to broaden the gas product portfolio and reduce environmental impact
- **An industry forum** that enables peer networking and opportunities for shared learning from the varied experiences of other utilities
- **Validation** of performance, operating characteristics, and emissions for developed and emerging technologies
- **Substantial funding leverage** and market impact by collaborating with other gas companies and significant co-funding from public and private funding partners.

UTD provides members with a balanced perspective and portfolio for technology investment providing risk reduction, security, and benefits under a range of scenarios. Achieving the optimal balance within a diverse technology program for the gas industry and its customers is a primary objective of UTD.

Selecting Projects

▼ Individual projects are proposed by various sources including UTD members and research performers. Those proposals are reviewed and prioritized by the UTD members. Projects designated as high priority by one or more members are presented to the entire membership for funding consideration. **Each member controls their own funds and determines what technical efforts to fund and how much to invest in each project.** Once a project receives adequate funding, and the statement of work, cost and timeline are agreed to by the funding members, it is initiated.

Deliverables

▼ The deliverables in the Project Portfolio are based upon the final projects selected, and are finalized through guidance and recommendations of participants, but are expected to include:

- Detailed periodic reports; a final report; and relevant software

- Periodic project-specific teleconference or web-based conferences
- Opportunities for field evaluation and demonstration in service territory
- Opportunities for intellectual property royalty or return, based upon any technology that may result from cofunding applied to the development of these respective systems
- Opportunities to participate in and/or guide the development of proposals for leveraged co-funding from state, local and federal agencies or other RD&D funding sources.

Program Investment

▼ Investment in UTD is offered to gas companies on a per-meter basis. A portion of these funds supports UTD program management and G&A activities. Funding commitment is for an initial one-year period, with annual approval thereafter.

Member dues are set at US\$0.50 per meter per year with a minimum annual dues level of US\$100,000 and a maximum annual dues level of US\$350,000 for an individual company. At their discretion, individual companies can invest and direct additional funds towards projects of specific interest.

Companies with less than 250,000 meters can pool with other gas companies to meet the minimum investment level.

Non-gas utilities and other organizations may be allowed to participate upon approval of UTD's Board of Directors.

Corporate Structure and Governance

▼ UTD is incorporated as "Utilization Technology Development, NFP" (UTD), a 501(c)(6) not-for-profit corporation in the State of Illinois. UTD is governed by a Board of Directors which is comprised of utilities providing the full per-meter charge and meeting the minimum investment level. The Board finalizes and approves the bylaws and provides policy and operating guidance for UTD. Board decisions are based on a one-vote-per-company basis.

Project-level decisions are made by the investing companies for each specific project. Decisions on projects are made on an investment-weighted basis.

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