



Operations Technology Development

Operations Technology Development, NFP (OTD) is at the forefront of research, development, and deployment (RD&D) for energy innovation for the infrastructure and operations that support the delivery of gaseous energy to homes, businesses and other end uses. As a not-for-profit corporation led by forward-thinking utilities serving over 70 million natural gas ratepayers/customers in North America and internationally, OTD sponsors a wide-ranging program to enhance the efficiency, safety, reliability, and affordability of distribution systems, equipment and technologies, while integrating renewable energy. OTD RD&D projects focus on scientific and technical applied research, development, and utility technology testing and demonstrations, and eventually commercialization.

Utilities participating in OTD combine their interests, expertise, and resources into focused RD&D projects that shape energy distribution systems and contribute to an improved environment while continuing to maintain safety at their forefront. Each utility in OTD actively directs its individual RD&D financial resources while leveraging the resources of other utilities in OTD as well as funding from federal, state and local government sources. Through collaboration, utilities share knowledge and insights to efficiently accelerate new technologies, meet decarbonization goals, and enhance safety.

Background and Vision

▼ Natural gas distribution utilities have traditionally placed great importance on the safety and reliability of the operation of the gas distribution network.

Residential, commercial, and industrial customers receive safe, reliable gas service through the focused efforts of the gas company, and through the use of new technologies that enhance field operations.

The development and implementation of new technology for gas industry field operations, whether new tools, equipment, processes, or procedures, has enabled the industry to continuously improve operations.

Additional development and implementation of new technology, processes, and practices can have near term impacts. These impacts further enhance savings while having a positive impact on safety, operating efficiency, resilience, decarbonization goals, and integrity.

OTD's two decades of projects and achievements demonstrate how participating utilities have made sustained, long-term strides in advancing innovations and solutions that benefit their customers, society, and the environment.

Mission and Goals

▼ As established by its Board of Directors, OTD's mission is to "identify, select, fund, and oversee research projects resulting in innovative customer solutions and improved safety, reliability, and efficiency of natural gas systems and goals are to:

- Enhance Safety
- Enable operational excellence
- Minimize environmental impact
- Practice good science

Benefits to Utilities and Customers

▼ OTD's benefits to utilities and customers include:

- **Collective knowledge and experience through a platform** that enables utility staff to share insights and contacts, and form relationships that speed the identification and assessment of technology needs, opportunities, and ways to overcome barriers to implement end use innovations.
- **Enhancing Safety of Existing Technologies and Practices** through testing, literature review, analysis and field demonstrations so that utilities have state-of-the-art technologies and practices to help modernize their existing infrastructure and

incorporate economical new processes that can enhance safety.

- **Development of new products and technologies for utilities, while reducing total product development costs** by enhancing coordinated efforts, consolidating resources for co-funding, and reducing duplicative efforts.
- **Understanding How to Adapt to the Transformative Energy Market** by understanding and forecasting energy trends, integration of alternate energy sources, long and short term system modeling, and gaining earlier insights into upcoming products and technologies.
- **Acceleration of a lower-carbon future and integration of more renewable energy with gas** by advancing the use of alternate fuels, understanding how existing infrastructure can be leveraged in different energy scenarios, and performing testing of pipeline and components to safely incorporate renewable natural gas, hydrogen and other alternative gases derived from renewable energy.
- **Proactively identifying potential risks** by leveraging existing system data, long and short term modelling, and leveraging enhanced technology to identify changes that could impact operations, risk, and grid resilience.
- **Substantial funding and impact leverage** by collaborating with other utilities and achieving significant co-funding from federal and state government agencies, as well as in-kind co-funding from many other partners.
- **Reduction of risk for utility RD&D efforts** by providing a diverse end use gas RD&D portfolio, rather than a utility concentrating its RD&D resources into a few select efforts.
- **Improved identification and coordination of customers as early-adopter field host sites** to assess and validate new technologies.
- **Greater coordination to address other technical barriers to market transformation** by advancing methods of test or rating, and modeling tools, that are necessary for market transformation to adopt new products and technologies.

Project Ideation and Selection

▼ OTD meets in person twice a year and holds periodic virtual meetings throughout the year. Discussions about project proposals and reviews,

and technology development needs and issues are organized in the following areas:

- Safety and System Integrity
- Efficiency of Operations
- Renewable Energy and Alternative Fuels
- Digital Innovations and a Smart Energy Future

Ideas for individual research projects are proposed by the utilities that participate in OTD, researchers, and others. Those project ideas are then reviewed and prioritized by the utilities that participate in OTD. The project ideas that are of higher interest, along with any specific project ideas that a participating utility directs, advance to written proposals for more in-depth consideration.

Each utility controls its own funds and determines how much funding to allocate to proposed projects. A project is initiated once it receives adequate funding, and the statement of work, cost and timeline are agreed upon by the utilities funding the work. **Utilities that participate in OTD can access all the results of OTD's efforts, whether they individually funded them or not.**

Project Scopes and Deliverables

▼ The statement of work for each OTD project contains a scope, schedule, budget, and deliverables. Specific deliverables are unique to the proposal and are finalized through guidance and recommendations of participants. Deliverables may but are not limited to:

- Periodic reports and a final report, summarizing, for example, performance results and technology development status of relevant prototype product or software
- Periodic project-specific virtual meetings
- Opportunities to evaluate and demonstrate nearly-final functional prototypes, or recently-commercialized products, within a utility service territory
- Publication of key results in technical papers or presentations
- Commercialization partner or pathway identification

Funding

▼ OTD is funded via utilities by gas consumers on a per-meter basis of US\$0.50 per meter per year (about 4.2 cents per meter per month) with a minimum annual level of US\$150,000 and a maximum annual level of US\$750,000 for an individual member. A portion of these funds support OTD program management and general and administrative activities. A utility's funding commitment is for an initial one-year period, with annual review thereafter. At their discretion, individual utilities can fund and direct additional resources towards projects of specific interest.

Corporate Structure and Governance

▼ OTD is incorporated as "Operations Technology Development, NFP" as a 501(c)(6) not-for-profit corporation in the State of Illinois. OTD is governed by a Board of Directors which is comprised of designees of utilities that meet the minimum funding level. The Board finalizes and approves OTD's bylaws and provides policy and operating guidance for OTD. Project-level decisions are made by the utilities that funded each specific project on a direct allocation basis.

Contacts

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