



Utilization  
Technology  
Development



As climate change concerns escalate, consumers and companies grapple with high and volatile energy prices, and North America focuses on energy surety and sustainability, UTD's work has become increasingly critical. Since 2004, efforts supported by UTD have successfully addressed these growing issues for the energy industry and consumers.

UTD's objective is to direct the development of economical end-use technologies that are energy efficient, support green house gas reductions, and manage carbon reduction in a cost-effective manner, ensuring a robust economy. UTD strives to take R&D projects from the laboratory to the field, ensuring market success via field testing and commercialization of those technologies.

UTD is a not-for-profit corporation led by its 14 members who serve over 20 million natural gas consumers in 32 states and Canada. Through collaborative research and technology development, UTD member companies pool their resources and leverage available funding with state and federal government agencies. This approach assists in alignment of energy efficiency improvements, green house gas reductions, customer retention, and decoupled rate structures.

As the natural gas industry moves toward decoupling of revenues from gas volumes, regulators and consumer advocates are asking for some assurance that utilities are genuinely supporting energy efficiency. Becoming a UTD member indicates support for energy efficiency via the development and deployment of more efficient end-use equipment.

Technology to enable our energy future



Efficiency

# UTD Technology Highlights

## Analytical Tools

Providing information that impacts business

### Whole House Residential Energy Efficiency Wizard (REEW)

The REEW provides UTD members and their customers with a user friendly Internet server-based tool allowing analysis and easy selection of the latest technologies applicable to residential building energy efficiency measures customized to a specific member service territory.



### Carbon Management Information Center (CMIC)

CMIC serves the gas industry, its customers, and other stakeholders by developing resources and analytical tools that:

- Clearly and fairly evaluate opportunities to improve total energy efficiency, reduce greenhouse gas emissions, and lower energy costs for consumers.
- Provide a clear, concise, and technically-defensible message to policymakers, regulatory authorities, public interest groups and others in reducing the nation's energy consumption and carbon emissions.



### Source Energy and Emissions Analysis Tool

The Carbon Management Information Center (CMIC) user-selectable tool estimates source energy consumption and CO<sub>2</sub> emissions associated with annual site energy consumption by purchased fuel type of baseline and alternative appliances and buildings. (Available online at [www.cmictools.com](http://www.cmictools.com).)

# Carbon Management

## Commercial Successes

Delivering new end-use technologies to the marketplace

### Transport Membrane Condenser (TMC) Technology

An advanced heat recovery system (AHRs), including TMC, was installed and commissioned at Baxter Healthcare, Thousand Oaks, CA in October 2009. The unit is meeting all performance expectations and has increased the existing natural gas boiler efficiency from 80 to 94%—saving customers 15% on their fuel bill and reducing greenhouse emissions by 15%.

Two additional AHRs systems were installed in 2010 at locations in New York and Pennsylvania, and a license agreement was signed with Cannon Boiler Works who has commercialized this technology.



### Equinox Solar-Assisted Heating System

GTI, Rotex Australia and Solar Usage Now (S.U.N) introduced the new Equinox technology into the U.S. marketplace—a thermal storage tank and instantaneous water heater that provides 100% of domestic hot water and space heating needs. The solar ready technology marketed as S.U.N. Equinox Heating Systems® is considered one of the most energy efficient systems for residential and commercial applications.

### Stellar Countertop Steamer

This compact gas-fired countertop steamer for commercial food service offers enhanced cooking rates while providing users with added savings of energy and water consumption. The unit is the first gas-fired boilerless steamer with an ENERGY STAR rating.



### Low-Oil-Volume Fryers

A new commercial foodservice low-oil-volume fryer unit, marketed by Frymaster as Protector® fryers, increases energy efficiency while also extending cooking oil quality and life to provide significant customer savings.

### Reverse-Annulus Single-Ended Radiant Tube (RASERT)

RASERT technology increases productivity, raises thermal efficiency, and decreases NO<sub>x</sub> emissions for industrial heat treating and other indirect heating applications.



### Cummins 8.9L Ultra Low Emissions Engine

This is the first engine certified to the highly stringent California 2010 standards for heavy-duty vehicle engines—achieving emission levels below the 0.2 g NO<sub>x</sub>/hp-hr requirement while also retaining high shaft efficiency.

Affordable

## New Product Pipeline

Developing technologies to provide clean air, lower energy costs and ensuring customer satisfaction



### Solar Assisted Natural Gas Energy Systems

The project team foresees significant efficiency improvements in several applications by combining higher-temperature solar-related technologies with natural-gas-fired equipment. The solar thermal division at SolFocus has successfully branched off into an independent entity identified as B2U Solar.

Progress continues with the installation of solar-thermal collectors using B2U Solar's External Compound Parabolic Concentrator (XCPC) technology at GTI.

### FlexCHP High Efficiency Ultra-Clean Power and Steam Package

Researchers are developing a cost-effective supplemental burner, integrated with a gas-turbine based CHP system that can significantly increase energy efficiency while meeting stringent air-emissions regulations. Lab tests have shown total efficiency of over 85% and NO<sub>x</sub> emissions that are below stringent California emission levels.



#### For more information

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