



Sustaining Membership Program

"The Building Blocks of Natural Gas Research and Development"



PROGRAM OVERVIEW AND BENEFITS

The Sustaining Membership Program (SMP) is a collaborative research and development program managed and performed by Gas Technology Institute (GTI). Founded in 1985, the SMP has a long history of successful technology development to the benefit of the natural gas industry, manufacturers, and the natural gas ratepayer.

Market forces are driving manufacturers, developers, and supporting institutions toward near-term enhancements of well-developed concepts. Global competition and capital resource limitations prevent manufacturers from accepting the risks and costs associated with the development of new and innovative technologies. **The SMP fills this missing mid-term link in the development of natural gas technologies, thus allowing SMP companies to take advantage of new market opportunities and compete effectively in tomorrow's marketplace.** The program strives to develop new and innovative technology concepts that will build and protect natural gas markets and will reduce the cost of transmission, distribution and environmental operations for member companies.

The SMP provides leadership to the natural gas industry through the development of new technologies to address members' needs in the years to come. The objective of the SMP is to build the natural gas technology base for member companies, through the development of new ideas and innovative concepts beyond the near-term horizon. The SMP focus is on cutting-edge technology and its applicability to deliver new products, processes and solutions for the natural gas industry.

SMP projects look to develop new technologies or adapt existing technologies already deployed in other markets to the natural gas industry. It is the intention of the SMP to develop the technology up through "proof of concept," at which point the most promising technologies would be continued through short- to mid-term RD&D programs such as Operations Technology Development (OTD), Utilization Technology Development (UTD) and other RD&D programs. **This forward thinking philosophy establishes the SMP as the "building blocks" of natural gas research and development.**

Members benefit from the SMP in many ways. **The SMP is a member-driven program that allows each participant a voice in the selection of projects, thereby ensuring all members an opportunity to recommend and select projects of value to your organization.** Participants also serve as technical advisors, giving additional opportunity to ensure the selected technical approach and solution provide value to your organization. **SMP members realize significant financial benefits through the cost-sharing nature of this collaborative research program as well as significant leveraging of SMP funds with third-party cofunding (each SMP member's funds are leveraged at a rate approaching 100:1).** This collaborative research approach minimizes member risk from a financial perspective, while increasing the probability of technical success, by tapping into the collective wisdom and experience of all SMP technical advisors.

The SMP concentrates its research activities within three technology development areas:

- Distribution and Pipeline Technology
- Energy Utilization
- Environmental Science and Forensic Chemistry

PROGRAM GOVERNANCE

The SMP is governed by both an executive and technical body. The executive-level steering committee is SIMRAC (Sustaining GTI Member Research Advisory Committee). **SIMRAC provides senior-level guidance and direction on strategic issues such as program guidelines and operating parameters, as well industry input on research drivers such as pending regulations, industry trends and initiatives.**

The governing technical body is the Technical Guidance Committee (TGC). Each SMP member company is encouraged to nominate a representative to the TGC. **Projects are selected and reviewed by the TGC during their semi-annual meetings.** The fall TGC meeting focuses on new project ideas, while the spring TGC meeting reviews progress on all active SMP projects.

Information is transferred to SMP members via the Annual Membership Meeting and the semi-annual project updates. Advisory input is principally achieved through the Technical Guidance Committee meetings and SIMRAC input, as well as from the general membership at the Annual Membership Meeting. The Annual Membership Meeting and the TGC meetings provide members with valuable networking opportunities.

PROGRAM FUNDING

GTI currently collects approximately \$2 million per year from the SMP members. These funds are leveraged with Federal and State funding to provide approximately \$7 million - \$10 million per year in research and development. Additionally, the royalties generated from SMP patents flow back into the SMP, further leveraging the investment dollar.

Membership dues are collected annually before the beginning of the research year from Sustaining Members. The dues formula:

1. Is scaled according to company size based on the number of customers.
2. Ranges from \$25,000 to \$100,000 annually.

<u>Customers (1,000s)</u>	<u>Annual Dues, U.S. \$</u>
Less than 250	25,000
Between 250 and 499	50,000
Between 500 and 749	75,000
750 and over	100,000

The SMP membership term is an initial three-year commitment, automatically renewed annually for an additional one-year term unless canceled in writing by the Sustaining Member 90 days before the end of the term.

ONGOING RESEARCH PROJECTS (SAMPLE LIST)

DISTRIBUTION AND PIPELINE TECHNOLOGY

Cathodic Disbondment Detector
Plastic Pipe Tracing Retrofit
Remote Power Source
RGD X-ray Technology Inspection and Assessment
Electro-Magnetically Activated Plastic Pipeline
Active Marker Technology
Electromagnetic Technologies for Plastic Pipe Locating
Advanced Metering Infrastructure

ENERGY UTILIZATION

Super Boiler
Next Generation Glass Melter Conditioner
Micro-combustion Technology
Hybrid Optimized Tankless (HOT) Water Heater
TCR Waste Heat Recovery
Low-Power Igniter
Optical Gas Quality Sensor

ENVIRONMENTAL SCIENCE & FORENSIC CHEMISTRY

Sediment Management Characteristics Techniques – Adjacent to MGP Sites
Nanotech Applications for the Natural Gas Industry
Use of Stable Isotopes for MGP Age Dating
Comparison of Constituents in Biogas from Wastewater Sludge and Landfills

SUCCESSFULLY COMPLETED SMP PROJECTS (SAMPLE LIST)

Mechanical In-line Valve and Stopper (MIVS)
Low-cost BTU Measurement Instrument
Palm Computing Software Applications
Utility Communications Protocols
Welding Through a Keyhole
Metallic Joint Locator
Smart Cathodic Protection Monitor Technology
Field Applied Coating Technology
Flamespray Coatings

High-Heat Transfer, Low-NO_x, Oxygen-Fuel Combustion System
Reburn Process
Cyclonic Burner Technology
Oscillating-Combustion Technology
Oxygen-Enriched Air Staging (OEAS) Combustion Method
Forced Internal Recirculation
Submerged Combustion
CYCLOMAX[®] Low-NO_x Gas Burner
Compact Vacotin Water Heater
METHANE de-NO_x[®] Reburn Process
Morphysorb[®] Process for Upgrading Subquality Gas
Forced Internal Recirculation (FIR) Burner for Boilers
CASCADE, NGV Gas Blend & BIDSPEC Software
DESICALC & Gas Cooling Guide Software

MGP-REM and PCB-REM Processes

ADDITIONAL INFORMATION

For additional information about GTI's Sustaining Membership Program, please contact:

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