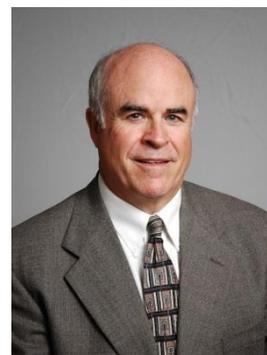


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**Biographical Sketch**

Thomas F. Edgar is Professor of Chemical Engineering at the University of Texas at Austin and Director of the UT Energy Institute. Dr. Edgar received his B.S. degree in chemical engineering from the University of Kansas and a Ph.D. from Princeton University. For the past 40 years, he has concentrated his academic work in process modeling, control, and optimization, with over 200 articles and book chapters. Edgar has co-authored two leading textbooks: *Optimization of Chemical Processes* (McGraw-Hill, 2001) and *Process Dynamics and Control* (Wiley, 2010) and has received major awards from AIChE and ASEE. Dr. Edgar was the 1997 President of AIChE. Tom Edgar is co-founder of the Smart Manufacturing Leadership Coalition (SMLC; <https://smart-process-manufacturing.ucla.edu/>), which developed a research roadmap to address smart, zero-emission, energy-efficient manufacturing. SMLC recently received an \$8 million award from the Energy Efficiency and Renewable Energy program of DOE to develop software for saving energy in two industrial test beds. Another NSF-funded project where Tom is the Co-PI (with Yinlun Huang and others) is to develop a research coordinating network for sustainable manufacturing. This project will develop sustainable manufacturing case studies and disseminate software.

Position Statement

Process control has become increasingly important in the process industries to address improving energy efficiency, rapidly changing economic conditions, and more stringent environmental and safety regulations. Process control and its allied fields of process modeling and optimization are critical in the development of more energy-efficient processes for manufacturing high value-added products and this is closely coupled with sustainability. Tom is the UT PI on a large U.S. DOE demonstration project on smart grids (www.pecanstreet.org) in Austin, TX, which focuses on new automation techniques and big data analytics for managing distributed solar energy generation and energy storage and involves six faculty from EE, ME, and CAEE departments. This smart grid demonstration is particularly notable because it involves data collection from over 300 homes with solar panels and 60 electric vehicles in one neighborhood, the densest concentration of such users in the U.S. Simultaneously, Tom has been PI of a large NSF IGERT grant, which is connected to the Pecan Street effort. The 20 students work in an interdisciplinary research and educational framework to address sustainable grid integration of distributed and renewable energy systems, a crucial priority for greenhouse gas reduction. Edgar believes private-public partnerships Pecan Street and SMLC can push sustainable manufacturing forward, requiring the cooperation of industry, universities, government, and non-government organizations.