

Energy Now and Then



Energy is a pressing issue for society, and chemical engineers are sure to figure prominently in solving our energy problems, just as we have throughout our history. AIChE President Dale Keairns pointed out in his guest editorial in *CEP*'s March issue: "These are indeed exciting times for chemical engineers. We will be part of the interdisciplinary teams tackling

the global energy challenges that result from growing demand for and diminishing reserves of conventional fossil energy resources, increasing energy costs, a focus on energy sustainability, and concern for global warming."

Even though today's energy supplies are still dominated by conventional fossil fuels — oil, natural gas and coal — more and more we hear terms like *nonconventional*, *renewable*, *sustainable*, *solar*, *wind*, and, yes, *nuclear*. To address this wide range of technologies, AIChE's national meetings

are packed with discussions of all types of energy. Well over 25% of the programming at this month's annual meeting is energy-related— dozens of sessions and hundreds of papers, on topics from traditional fossil fuels to alternative energy sources.

This year, *CEP* had two special supplements related to energy. In March, we took a broad look at energy challenges and opportunities, including biofuels, clean coal, solar and wind power, and massive electricity storage for energy from renewable sources.

The Society for Biological Engineering (SBE) special supplement in August focused on biofuels — biobutanol, lignocellulosic biomass, and metabolic engineering of next-generation biofuels.

Fifty years ago (*i.e.*, half of AIChE's lifetime), nuclear energy received much more coverage. The 214-page February 1958 "Special Nuclear Issue" was chock-full of news, technical articles, and more on all things nuclear, including a review of the book "Nuclear Chemical Engineering," by Manson Benedict and Thomas Pigford



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CH279	Bulk Pharmaceutical and Chemical Process Development	8-9
PD359	Practical Welding Technology	8-10
PD401	The Layout of Piping Systems and Process Equipment	9-11
CH032	Flow of Solids in Bins, Hoppers, Chutes and Feeders	10-11
CH033	Pneumatic Conveying of Bulk Solids	12

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that ran under the banner “For Your Nuclear Library,” and advertisements such as the full page promoting Ralph M. Parsons Co.’s “nuclear facilities for radiation research.”

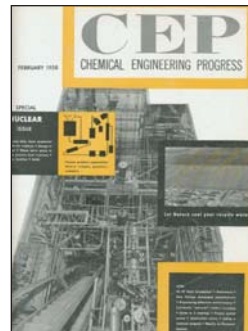
W. Kenneth Davis, Director of Reactor Development at the Atomic Energy Commission and Chairman of AIChE’s Nuclear Division (and later, AIChE’s 1981 President), commented: “Significant as are the nuclear energy problems which chemical engineers have solved, it seems safe to say that even more imposing ones lie ahead waiting to be solved. The largest number of these seem to be related to the development of reactors for production of electric power, the civilian application most likely to have large economic significance in the near future.”

Twenty-five years later, the February 1983 issue featured the article “The Chemistry of Energy in the 80s,” by William F. Kieschnick of the Atlantic Richfield Co. Kieschnick discussed the elasticity of energy supply and demand, explaining that “as the price of crude oil rose in the 70s, industry and commerce and the consumer did something that could have been anticipated from Economics 101:

they discovered ways to use less ... Even if the price of oil were to drop as low as, say \$25/bbl (\$157/m³) from today’s \$30-plus/bbl (\$189-plus/m³), investment in new efficiencies would still pay off.”

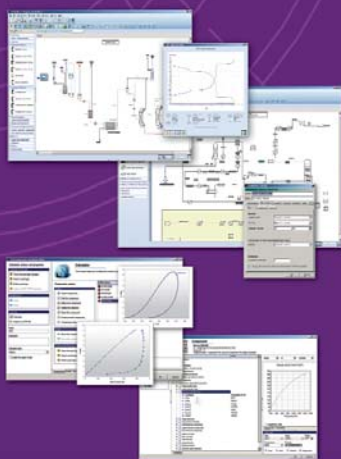
This was shortly after the “syn-fuels” boom of the 1970s had come to a crashing halt — which Kieschnick pointed out was not due entirely to price/demand elasticity. “In our enthusiasm to quickly launch a successful synfuels program ... we tended to overlook the fact that many of the technologies were fundamentally first-generation, in some cases pre-World War II.”

One of the article’s pull-out quotes was perhaps its most interesting statement: “Gasoline demand in the next 10 years will probably be flat or decline as auto manufacturers meet government fuel-economy targets.”



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