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Department of Energy–University Relationships: R. A. Young

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COVER

Synchrotron radiation emitted by 240-mega-electron-volt electrons circulating in Tantalus I, the electron storage ring at the University of Wisconsin-Madison, hitting the tip of a single crystal rod of LaB₆. The sample in the ultrahigh vacuum photoemission chamber is at the focus of an electron energy analyzer. Electrons excited by soft x-rays and vacuum ultraviolet radiation escape through the crystal surface carrying with them valuable information about their energies and momenta inside the crystal. See page 151. [C. G. Olson, Ames Laboratory, U.S. Department of Energy]
Department of Energy–University Relationships

It is important that we utilize and increase research capabilities in energy-related disciplines at universities. Support should be provided to maintain vigorous long-range research programs and thus enable faculty and graduate students to contribute more effectively to the solution of national energy problems. Sustained research support to universities would also ensure a continuing flow of energy research scientists and energy managers as graduate students complete their studies in energy fields.

Universities must also be involved in energy research if they are to function effectively in energy information transfer. This can be accomplished through formal classroom instruction, adult education and continuing education programs, and organized extension programs such as the Department of Agriculture–university Cooperative Extension Service. Current federal programs to promote energy conservation and the use of solar energy are good examples of programs that will require continuing local and regional educational efforts to gain public acceptance and to ensure wise consumer response.

Some question whether we can hope to see significant changes in DOE–university relationships before legislation is developed that specifies university involvement in national energy efforts and the national energy organization is stabilized. The national energy effort has suffered severely because of the continued reorganizations—from the Federal Energy Agency to the Energy Research and Development Administration to the DOE—which have involved changes in leadership, reassignments of individuals, and changes in program emphasis.

The DOE should recognize the serious manpower problems that are developing at the graduate level in energy fields and initiate corrective action now rather than wait for a crisis. Of particular importance is engineering manpower at the doctoral level. Forty-four percent of all Ph.D.'s employed in energy-related fields in 1977 were engineers. Yet between 1972 and 1977, the number of those receiving Ph.D.'s in engineering per year fell 24 percent, from 3476 to 2641. The numbers of U.S. citizens who obtained Ph.D.'s in engineering decreased even more sharply, from 2329 to 1507, a reduction of 35 percent. It should be noted that 42.8 percent of the engineering Ph.D.'s awarded in 1977 in the United States went to noncitizens. Despite increases in the numbers of undergraduate engineering students, not enough students are currently enrolled in graduate engineering programs to produce the Ph.D.'s needed to fill engineering faculty positions and provide leadership in energy-related research. Shortages will become even more critical as major synfuel production efforts are launched and solar research and development activities are increased.

It is in the best interest of our country that the DOE take positive steps now to ensure significant levels of university participation in national energy programs through research, education, and public service activities. It is also critically important that the DOE provide strong leadership to ensure the future availability of manpower essential to our long-range energy efforts.—ROY A. YOUNG, Chancellor, University of Nebraska–Lincoln, Lincoln 68588