

including task lighting, daylight capture, and load-shedding (American Council for an Energy-Efficient Economy and Energy Conservation Coalition, 1986).

#### 4.2.2 The DOE Role

In 1976 the U.S. Department of Energy established a lighting research program at the Lawrence Berkeley Laboratory to accelerate the entry of new energy-efficient lighting technologies into the marketplace. Solid-state ballasts were selected for development, testing, and technology transfer efforts in the first year of the LBL program. LBL's role was to cost-share the development of solid-state ballast prototypes, to test and establish the characteristics of the prototypes, and to identify any technical or economic obstacles to the development of a reliable, efficient, and cost-effective ballast. When the program began, no ballast manufacturers were involved in such development efforts (Verderber, 1988).

A public Request for Proposals (RFP) was issued by LBL to solicit the participation of companies interested in cost-sharing prototype development. None of the major ballast manufacturers responded. However, several small entrepreneurial firms submitted proposals. In 1977 LBL selected two contractors to develop prototypes: IOTA Engineering, and Stevens Electronics. IOTA Engineering developed a low-cost, non-dimmable design and Stevens Electronics developed a sophisticated, high-performance design that was more efficient and could dim fluorescent lamps to 10% of full light output. LBL's testing of the prototypes covered the issues of energy efficiency and failure rates. Energy efficiency was 25% higher than for traditional ballasts. Greater reliability was needed, however, so a second prototype was developed.