outsider companies. While the LBL/DOE program developed, tested, and demonstrated the reliability, safety, and energy efficiency of solid-state ballasts, major ballast manufacturers published many statements concerning the infeasibility of the technology. As a result of the LBL/DOE program, Beatrice Foods, a newcomer to the ballast industry, purchased rights to the new design in 1979. This was a major breakthrough because Beatrice Foods had the funds to impact market shares in the ballast industry, forcing the major manufacturers to reevaluate their rejection of the technology (Lawrence Berkeley Laboratory, 1981).

Today all major U.S. manufacturers offer a solid-state ballast as part of their product line and the ballasts are available from all electrical wholesalers. Without the DOE program, current levels of market penetration by U.S. companies could have been delayed many years or perhaps never have occurred. Introduction of the technology by Japanese firms (which began selling the product in Japan in 1980) and their eventual dominance in the market would be much more likely without the stimulus to U.S. manufacturers provided by the DOE program. Major U.S. manufacturers are not marketing the product aggressively, but they are slowly expanding levels of production and sales (Verderber, 1988).

4.2.3 Market Penetration

In 1980 E Tech of Beatrice Foods introduced the first U.S. manufactured solid-state ballast into the market. Luminoptics had a product on the market in late 1981. In 1982 Luminoptics was purchased by Universal Manufacturing, a major ballast manufacturer with 40% of the ballast market. In 1984 Advance Transformer, the largest U.S. ballast manufacturer, introduced a solid-state ballast to operate a compact fluorescent lamp. By the end of 1984, one