What Is a Success Story?

Success stories consist of a diverse range of projects and activities sponsored by the Office of Conservation and Renewable Energy. Some of the stories are about new, energy-saving technologies or processes that represent major technical achievements but have yet to be commercialized; others are about fully developed products or technologies that are already in the market. Still others are about nonresearch activities or services that promote energy efficiency, including analyses, competitions, and educational activities. Good examples of these can be found among the exciting success stories summarized in this document.

Technical R&D Achievements—Many DOE projects have led to important technical breakthroughs that hold tremendous promise as the bases for future technical achievements in energy efficiency. DOE's ETX-II Program, for example, made several major technological advances that have brought electric vehicles substantially closer to commercial feasibility. Among other features, the program's second-generation electric propulsion system uses a new permanent magnet motor that is lighter and smaller than conventional induction motors. The system incorporates this motor with integrated vehicle and electrical subsystem controllers, an advanced sodium-sulfur battery subsystem, and an integrated motor and transaxle on a common shaft.

Successfully Commercialized Technologies—An impressive number of technologies have become commercial successes. A good example is the heat-flux dew-point hygrometer, which was designed to withstand the high temperatures and corrosive gases present in industrial drying operations. This hygrometer, developed by Trans-Met Engineering with funding from DOE, is now at work saving energy in the textile, food processing, cement, paper, and chemical industries.

Analysis Tools—In addition to energy-saving products and processes, the Office of Conservation and Renewable Energy supports the development of various engineering and design tools that can be used to help save energy. These tools include design manuals, data bases, and simulation models. KIVA-II, for instance, is the latest in a series of multidimensional computer codes that can simulate the complex chemical and thermal processes that occur in an internal combustion engine. KIVA-II was accepted as the industry standard for developing model automotive engines and is in use worldwide.

Competitions—DOE sponsors several competitions to spark interest in energy-efficient technologies. The best known of these is the Methanol Marathon in which engineering students from competing universities convert and race automobiles (Corsicas donated by General Motors) using a fuel mixture consisting of 85% methanol. Student teams from 15 different engineering schools participated in the 1989 competition.

Educational Activities—Many DOE activities are designed to help educate people about how to save energy. Some of these activities are directed at high school and university students; others are intended for professionals already in the field. The Summer Institutes on Energy and Design, for example, provide university faculty with resources to teach architecture students how to design energy-efficient buildings and also provide a forum for information exchange among government researchers, private industry, and the academic community.

These examples indicate the broad range of activities and projects that have become success stories. Despite their diversity, all the stories in this document share two common attributes. First, all were identified by individual DOE program managers or national laboratory researchers as representing the most successful projects to showcase in this document. Second, all are efforts that will ultimately help us grow into a more energy-efficient society.

Technology Transfer Mechanisms

The wide variety of technologies and markets being pursued by DOE to advance energy efficiency and fuel flexibility dictates the need for a similarly wide range of technology transfer mechanisms. These mechanisms reflect the different ways in which new technologies are adopted by our society. The selection of techniques to transfer a particular technology is based on the nature of the research, the comparative risk of the technology, the capabilities and resources of the research partners, and the segment of the economy most likely to benefit. The mix of technology transfer activities undertaken by the Office of Conservation and Renewable Energy is formulated to achieve maximum energy savings.

Licensing Agreements—DOE encourages the development and commercialization of new, energy-saving technologies by licensing DOE inventions and technologies to private companies and individuals. Patent rights are commonly granted for inventions that derive from R&D performed by industry