

## 7. ENERGY SAVINGS AND ENVIRONMENTAL BENEFITS

The technologies supported by the Energy-Related Inventions Program offer a wide array of potential energy and environmental benefits. Some of the technologies deal with the production and distribution of energy — e.g., technologies related to oil drilling, coal mining, electricity transmission, and natural gas distribution. Others are renewable energy technologies — e.g., advances in the design of solar collectors and windmills. The majority of the technologies, however, offer potential improvements in the end-use efficiency of energy, which in turn result in reduced emissions of greenhouse gases and other environmental benefits. Energy-efficient technologies are particularly prominent among the most successful of the inventions supported by the Program.

Despite the requirement that all ERIP-supported technologies offer significant energy-related benefits, none of the previously published impact evaluations of the Energy-Related Inventions Program have assessed the energy impacts of ERIP-supported technologies. These impacts—and their associated environmental benefits—are the subject of this chapter.

### 7.1 THE RANGE OF ERIP TECHNOLOGY BENEFITS

Respondents to the 1993 ERIP evaluation questionnaire were asked to describe the features of their ERIP technologies that represent benefits to users or to the public. The results are summarized in Table 7.1.

**Table 7.1 ERIP Technology Benefits to Users and the Public**

<b>Benefits to Users or Public</b>	<b>Percent of Promising Inventions</b>	<b>Percent of Other Inventions</b>	<b>Percent of All<sup>a</sup> ERIP Inventions</b>
Energy savings	86.9	84.4	85.0
Energy production	32.6	40.2	38.4
Environmental benefits	72.8	75.4	74.8
Other	60.8	73.7	70.6

<sup>a</sup>To calculate each of these percentages, the percent of promising inventions was multiplied by 133/557, the percent of other inventions was multiplied by 424/557, and the two products were added.

Based on our surveying of inventors, 85% of the ERIP technologies save energy, 71% offer environmental benefits, and 38% contribute to the production of energy. In addition, respondents to our survey indicated that 71% of the inventions are associated with "other" benefits. In particular, many of the technologies are seen as offering quality or performance improvements and cost or resource savings.