Since radiant barriers are not a typical insulation product (insulation defined as having some air between layers of nonconducting material), RIMA was not aware of the radiant barrier concept before DOE research began. In their advertisements, private firms acknowledge the role of DOE, FSEC, ORNL, and TVA in radiant barrier research. However, the energy savings claimed in these advertisements sometimes exaggerate the research results. The bottom line is that radiant barriers would not have been commercialized without DOE's role in testing and development (Karnitz, 1988).

The research on radiant barriers is still ongoing. It has been estimated that in dry, hot summer weather, radiant barriers are capable of reflecting around 90% of the heat. Since the barriers are reflective on both sides, they help keep the heat out in summer and the heat in during winter (Levins and Karnitz, 1986; 1987). Two issues requiring further research are: the effectiveness of radiant barriers in cooler climates, and their performance under conditions of greater humidity. Also, there is some debate about the appropriate installation procedure with ORNL preferring horizontal installation on efficiency grounds and RIMA recommending vertical installation. FSEC and ORNL are looking at the problem of dust accumulation on horizontally-installed radiant barriers (Fairey, 1988).

5.3.3 Energy Savings

The potential energy savings from radiant barriers are substantial. Reflective insulation could be used in approximately 22 million homes in the South and may be appropriate elsewhere. Based on research at ORNL, it is estimated that in a typical home in the northern Tennessee Valley, a radiant barrier would reduce annual electric consumption for cooling and heating by 600 kWh and 300 kWh, respectively. At a price of 6¢/kWh this would save