- Photovoltaic Energy Conversion
- Wind Energy Conversion
- Ocean Thermal Energy Conversion
- Extraterrestrial Solar Energy Collection
- Bioconversion to Foods and Fuels

In the U.S.A., intensive R&D efforts are being performed on all the above areas except the solar swimming pool heating systems whose technology has been well developed and has resulted in commercialization.

In Europe, R&D efforts cover all listed areas with less emphasis or none on[32] swimming pool heating systems, wind energy conversion, ocean thermal energy conversion, and extraterrestrial solar energy collection. However, the solar still has been added to the R&D list. A solar still is a simple device which can be used to obtain fresh drinking water by evaporation from salty or polluted water.

For Korea, new R&D efforts may be initiated to cover all the listed areas except, perhaps, swimming pool heating systems, ocean thermal energy conversion, and extraterrestrial solar energy collection. Careful studies are needed for the planning of effective R&D programs including the prioritization of the listed areas and for the appropriation of the proper level of funding according to the program needs.

c) Active Government Role

Some of the solar technologies are in the stage of, or near to, commercialization. For example, the SHACOB (solar heating and cooling of buildings) technologies are in the early stages of commercialization.

The success of the accelerated commercialization, or wide spread use of solar energy, depends strongly on its economics against other alternatives. In order for the economics of the solar systems to be competitive with other options, strong governmental support is needed, initially, to remove or ease economic, institutional, and legal barriers, and to provide financial incentives for the consumers.