3.3. Energy Resources Development and Utilization

Energy sector is the engine that drives the economic development of a country. It is the key input for technological, industrial, social and economic development of a nation. A rising energy demand, in the face of increasing oil price, natural gas and coal together with environmental concerns in terms of greenhouse gas emission and global warming; lack of alternative energy which has brought deforestation, land degradation and food insecurity in Ethiopia; all these have led to the search of a new technological way of energy utilization. There is a general acceptance for the need to diversify energy supply for confronting these challenges by developing advanced, cleaner, more efficient, and cost-effective renewable energy technologies, including superior and cleaner fossil fuel technologies. Thus researches shall focus on the following areas.

- **Solar energy:** solar & wind energy system design and development, solar photovoltaic system development, solar thermal storages, adaptive technology focusing on solar photovoltaic and wind energy
- **Bio energy:** planning of natural resources, biomass gasification; biogas generation from agricultural wastes; biodiesel production and utilization, stability of biodiesel and its blends.
- **Small hydro development:** small hydropower planning, investigations, designs, development, optimization of generation, cost optimization
- **Energy conservation:** conservation of energy in electrical network, energy auditing