

The use of outdated technologies and practices in India's industries results in energy waste. India's buildings are not equipped to manage large energy loads, and air conditioning and other buildings systems are rife with energy losses. The Building Materials and Technology Promotion Council (BMTPC) under the Ministry of Urban, has commissioned a research program on "Energy in Building Materials" which is being executed by Development Alternatives. The country's truck and bus fleets run largely on diesel fuel, and existing reserves of natural gas have not yet been exploited.

There are strong incentives to promote energy efficiency as a cost-effective alternative. With nearly 40 percent of energy lost during the distribution process, immediate opportunities lie in modernizing current generation and delivery systems. Major investment is required in technology upgrading for the efficient generation, transmission and utilization of commercial energy.

Indian government and industries are seeking technologies to improve energy conversion efficiency. Fluidized-bed combustion of India's low-quality coal can reduce SO<sub>2</sub> and NO<sub>x</sub> emissions. Advanced gas turbines are an attractive technology, whose high operating efficiencies, small modular size, and short construction lead times are best suited to private power producers with limited capital.

#### 5.4.2 Renewable Energy

##### *Market Overview and Current Activity*

The Indian government has introduced incentives for the alternative energy sector. These include an accelerated depreciation on machinery, low import duties on equipment and spare parts, free access to technology through imports and tie-ups, and remunerative prices for power channeled through existing power grids. India's Ministry of Non-Conventional Energy Sources (MNES), through the government-owned Indian Renewable Energy Development Agency (IREDA), is financing joint-venture RETs projects.

MNES has proposed to install 42,000 MW of power generation through renewable energy sources by 2007, subject to financial resource mobilization and appropriate technology development and upgrading.

##### *Technology Opportunities*

Some sources of renewable energy under consideration are municipal solid wastes, sewage sludge, wind pumps, energy plantations, solar thermal systems, and distilled wastes. Wind turbines and photovoltaics are now viable sources of energy for the 50 percent of India's vast rural population that currently remains without electricity. In addition, there is a potential of 16,000 MW from agro-waste and rural biomass.