

# **Energy scenario in south Asia and opportunities for REEEP**

**Author : Mahesh C Vipradas**

## **Introduction**

South Asia, with its population of above 1.3 billion, is home for about one fifth of the world's population. The availability of energy, that advance- or at least is compatible with - long term human well being and ecological balance, is a key to sustainable development of this region. This aspect of sustainable energy supply is critical in the context of South Asian region, as it is poised for higher growth. This is evident from the fact that the growth rate in GDP in the South Asian countries is higher (e.g. India 7.6%, Pakistan 7.8%) than world average (3.0%) in 2005. The growth of economy along with population growth in South Asia have resulted in rapid increase in energy consumption well above the world average. Thus the South Asian region faces the 'sustainable development' challenge of meeting the rapidly increasing energy demand as well as conserving the natural resources and protecting the environment.

## **Energy scenario in South Asia**

The South Asian region is witnessing a rapid growth in energy consumption. As per the Energy Information Administration (EIA), primary energy consumption of South Asia increased by nearly 52% from 1993 to 2003. The per capita primary energy consumption for South Asia is about 0.61 toe, which is very low, compared with the world average of 1.68. Similarly the per capita consumption of electrical energy is lower than the world average. The traditional biomass is one of the main energy source in many South Asian Countries like Bhutan, Maldives, Nepal and even in India. Further, the countries in the region, except Bangladesh, are heavily dependent on imports for the commercial fuels like oil and gas.

The total installed power generation capacity in South Asia is about 148,000 MW, dominated by India (82% share) followed by Pakistan (11%). Major component of generation in South Asia is from thermal power plants, mainly because of heavy dependence of India on coal based generation. Bangladesh as well as Pakistan also have major generation coming from thermal power plants. In case of Nepal, Bhutan and Sri Lanka, the generation mix is dominated by hydropower. Out of the above installed power generation capacity, renewable constitute only about 1% of the installed capacity today.

Though the per capita energy consumption is one of the lowest in South Asia, the energy intensity is one of the highest. The energy intensity, measured as total energy use per unit of GDP, in case of South Asia is about 0.65 toe/1000\$ as compared to world average of 0.29.

Another critical issue in this region is of access to energy. Large portion of the population does not have access to commercial energy sources and is dependent on traditional biomass. Similarly, though there has been growth in the installed capacity, large population, about 60%, in the region still does not have access to electricity (Table 1).

**Table 1** Level of electrification in South Asia

	<i>Electrification (%)</i>	<i>Population without electricity (million)</i>
Bangladesh	20.4	104.4
India	43	579
Nepal	15.4	19.5
Pakistan	52.9	65
Sri Lanka	62	7.4
South Asia	41.55296	775.3
<b>World</b>	<b>72.8</b>	<b>1644.5</b>

Source: World Energy Outlook, 2002, IEA

With the economic development and with efforts to provide enhanced access to commercial energy, the energy demand in this region is expected to grow rapidly. The energy demand projections show that the demand for energy in this region would be increasing at about 40-35% for next three decades.

### **Legislative Policy and Regulatory Situation**

Only in case of India there exists specific legislative backup for the renewable energy (the Electricity Act 2003) and energy efficiency (Energy Conservation Act 2001) interventions. Other countries in the south Asian region does not have specific legislation which mandates use of RE and EE . However, almost all the countries have implemented or plans to implement RE and EE programmes. The concerned government ministries/ departments are aware of RE potential and its applications and developed the national programmes accordingly. Some of the countries in the region like Bhutan, Nepal had developed various RE programmes with support from bilateral funding organisations.

Almost all the countries in the region have initiated power sector reforms and established (India, Pakistan, Nepal and Sri Lanka) or are in the process of establishing regulatory bodies (Bhutan), except Maldives.

Thus the South Asian energy scenario is of lowest energy consumption, higher energy intensity and of fast growing demand. The extended use of renewables would address issues of energy demand and energy access since the RE systems offer centralised well as decentralised solutions. The promotion of energy efficient systems would be essential to reduce the energy intensity i.e. efficient use of available energy.

## **Key Challenges and Opportunities for REEEP**

### **Renewable Energy**

There is good awareness at the government level about renewables across the countries in the region. However the policy development is not uniform and different countries are at different levels as far as renewable policies are concerned. This provides an opportunity for REEEP to facilitate this process through the sharing of experiences regarding RE policy development in other regions and countries. India's experience and learning curve of the development and subsequent modification of the RE programme can also be used as the energy requirements and socio-economic conditions are similar in the rest of the south Asian countries. Similarly the countries in the region have already initiated power sector reforms and setting up of regulatory bodies. This also provides opportunity for REEEP to work in this area, which is emerging in the region and would have a long lasting impact through creation of conducive regulatory framework for renewables.

The Socio-economic conditions dictate that the financing models which are developed/adopted considering the local conditions would be successful. There are number of successes stories in development and implementation different financing models within the region. However REEEP can focus on dissemination the learning experience from these models and scaling up opportunities.

REEEP can support, limited number of, commercialisation and targeted awareness creation activities through supporting conferences, especially exhibitions and trade related events in the region.

### **Energy Efficiency**

The high energy intensity in the region indicate scope for improvement in energy efficiency. Except in India, there is no specific policy or legislation for energy efficiency in any of the South Asian Country.

Thus REEEP can focus on

Awareness creation at different levels like industry sectors, associations, policy makers, publication of best practises, development of standards etc.

Development of information modules e.g. sector specific handbooks on energy efficiency

Development of institutional implementation and financing models

Help in creation of policy environment

Energy conservation in buildings is one area which can be specifically focused on as there is little activity in this area while as it there is large scope