

Energy Status and Future Outlook

Sri Lanka and the Maldives

Energy Ministers and Senior Officials of SAARC Countries would be meeting in Colombo over January 28-29, 2009, to discuss prospects for regional cooperation in Energy. This article describes the energy situation in Sri Lanka and the Maldives, and the prospects for cooperation with other SAARC countries

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Sri Lanka

Sri Lanka's economy grew at a relatively rapid rate in the range of 7-8% a year during the last few years and that growth resulted in a correlated growth in the energy demand. The energy consumption intensi-

ty in the economy has been improving over the years and this trend is likely to continue with increased attention paid to energy efficiency and conservation. The island's population of 21.1 million require to be supplied with modern form of energy such as electricity and petroleum, in addition to conventional sources such as biomass. In 2007, the per capita Gross Domestic Product (GDP) in Purchasing Power Parity (PPP) basis was US\$ 4,265.

Energy Resources and Use

Sri Lanka's primary energy supply is dominated by biomass and its contribution was 48% of the total primary energy supply of 10 million tonnes of oil equivalent (toe) in 2007. The other two significant primary sources of energy supply are petroleum and hydropower, which contributed 42.5% and 9.5% respectively. All the petroleum requirements are imported and these imports are rapidly increasing. Therefore the import dependence of supplying the commercial energy needs is



Aerial View of Male - the Capital of Maldives

extremely high.

Sri Lanka has no proven fossil fuel deposits as at present. Sri Lanka's entire energy resource development potential is therefore confined to the presently used indigenous sources such as biomass and hydropower and other renewable energy sources,

and to the prospects from on-going oil and gas exploration efforts. Nuclear energy has been completely excluded in the present energy sector policies and strategies and therefore is unlikely to make any inroads into the energy supplies in the foreseeable future.

It is estimated that the offshore petroleum resources of Sri Lanka can be about 125 million barrels of oil equivalent (boe) in total. But the feasibility of extracting these resources is yet to be established. The country presently sources its petroleum requirements in the form of crude oil and refined products, and operates a 50,000 barrel per day refinery to process crude oil. Petroleum demand grows in the range of 3-5% per year. The burden on the petroleum industry to supply fuel for power generation would remain high for a few more years, until the planned coal-fired power plants come into operation.

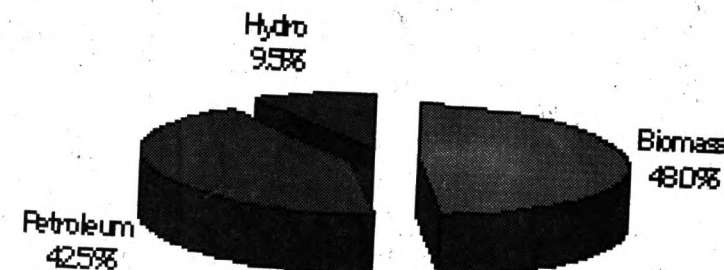
With the estimated total hydropower potential in the country being around 2,000 MW, another 650 MW of hydropower capacity is available for future development. Considering the land area available for energy plantations and other constraints a total technical potential of 1,200 MW of biomass based electricity generation is possible in Sri Lanka, subject to technological, environmental and socio-economic considerations. As for the wind resources in Sri Lanka, a combined total exceeding 24,000

MW of technical potential of wind power is estimated to be available at excellent and good wind resource areas alone. The solar power potential in Sri Lanka is significant with solar insolation varying in the range 4-6 kWh per square meter per day.

Sri Lanka stands out among the South Asian countries in two aspects: the high rate of household electrification achieved (exceeding 80% from the grid, 2% from off-grid services) and the high cost of electricity production. With a declared target of 95% of household electrification to be reached by year 2015, Sri Lanka is moving fast to provide electricity to all households, either by the grid or through off-grid services.

For certain districts, the Government has declared a 100% electrification target. With the new major power plants under construction (Norochcholai and Upper Kotmale), and several other lower-cost power plants being planned, electricity consumers in Sri Lanka should be able to enjoy a competitively-priced electricity supply from year 2011 onwards.

On the renewable energy front, 40% of Sri Lanka's grid electricity supply was provided with hydropower in year 2007, which too is an achievement. One tenth of that hydropower was provided by small (less than 10 MW) power plants built and operated by the private sector, under the standardised power purchase agreements. Sri Lanka has declared her intention to reach a goal of providing 10% of the grid electricity supply from non-conventional sources of energy, which will be achieved through a mix of small hydro, wind, biomass and waste-fired power plants. Attractive tariffs have been declared to encourage



Sri Lanka Primary Energy Mix - 2007

the private sector to build renewable energy projects up to 10 MW. The remaining medium and large hydroelectric projects will be built by the Government using various sources of funding.

Challenges and Growth of Energy Sector

Energy Policy and Strategies of Sri Lanka (2008) clearly identified the interventions required in the energy sector during the next 15 years. Increased attention to supplement energy supply with renewable energy forms with parallel emphasis on energy conservation and management and related research, development and technology transfer are identified as strategies to meet the challenges faced by the energy sector in the country. Further, the ongoing off-shore oil exploration activities in Sri Lanka demand bilateral and regional cooperation to address technical as well as geopolitical issues.

Maldives

Maldives is located in the Indian Ocean and consists of over 1,000 islands with a total land area of 300 square kilometres. Only about 200 islands are inhabited, with another 80 islands with tourist resorts. Maldives is a small country with only a population of 386,000 (2008 estimate). The population in Maldives grew at an estimated rate of 5.6% in 2008. The economy also grew at a rate in the range of 7-8% a year during the last few years. The 2007 per capita GDP of Maldives in PPP basis was US\$ 4,603.

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The energy intensity in the economy is determined by the dominating tourist industry, and during last few years, the energy intensity has been stagnant.

Figure: Aerial View of Male - the Capital of Maldives

Energy Resources and Use 99% of the energy needs of Maldives come from petroleum and only about 1% from biomass. Petroleum requirements are imported and these imports are rapidly increasing. Therefore the import dependence of supplying the country's commercial energy needs is extremely high.

As at present Maldives does not seem to possess any petroleum resources within its territories. The resource development potential of Maldives is confined only to the renewable energy sources such as solar power and wind power. The wind power potential is estimated to be high. It has a good wind power potential from North Thiladhunmathi Atoll to Male Atoll. Even in the other southern atolls, a moderate level of wind power potential is available. Solar power potential is significant with solar insolation varying in the range 4-6 kWh per square meter per day.

Challenges and Growth of Energy Sector

Maldives, as a country importing its entire commercial energy requirement, will have many benefits to reap from better regional energy cooperation and knowledge sharing.

Utilisation of wind and solar energy and energy efficiency will have a significant role to play in the overall energy sector development in Maldives when moving towards a more secure and cost effective energy future.

Prospects of Regional Corporation for Sri Lanka and Maldives

Sri Lanka and Maldives, being importers of all of their fossil fuel requirements can benefit greatly from energy cooperation in the region. Such cooperation will increase the security and economy of procuring the fossil fuel requirements of the two countries. Cooperation, both in terms of hard investment and soft options such as knowledge sharing, will have a significant role to play in the overall energy sector development in the South Asia when moving towards more secure and cost effective energy supplies.

In the electricity sector, Sri Lanka has already embarked on a joint study with India to examine the feasibility of interconnecting the power grids of the two countries. The prospects for mutual benefits through such an interconnection are considered to be high, which will be studied in detail. Indian investments in major power plants too, are being negotiated. In the petroleum sector, Indian Oil Corporation is already operating one third of the country's filling stations.