

Emerging Investment Opportunities in the South Asian Power Sector



SAARC Chamber of
Commerce & Industry

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Conference Highlights

The necessity for energy security has led countries to source supplies from all over the world, effectively creating a single global marketplace. In South Asia, investment in power generation remains unexploited due to issues of regulation and market access. Moreover, the lack of transparent electricity trading mechanisms and underdeveloped energy transmission infrastructure has led to near negligible cross border energy trade.

The conference on "Emerging Investment Opportunities in the South Asia Power Sector" was organized by the SAARC Chamber of Commerce and Industry (SCCI), USAID and the Federation of Indian Chambers of Commerce and Industry (FICCI) in New Delhi, India on March 20-21, 2007.

Conference Objectives

- Discuss recent policy and regulatory initiatives and trends that impact power sector investment and cross-border energy trade in South Asia.
- Showcase recent successes and current opportunities in cross border energy infrastructure investment
- Discuss integrated investments in cross border energy infrastructure, national generation capacity, and energy trading mechanisms
- Showcase donor agency and multilateral international funding institution commitments for developing cross border energy infrastructure projects.

Themes

- Global Investment Trends in the Power Sector
- Regulation and Energy Market Structures in South Asia
- Investment Environment in Current South Asian Energy Market
- The Current South Asian Market Place
- Investments in South Asian Cross Border Electricity Transmission Infrastructure
- South Central Asia Electricity Corridor Initiative
- International Financial Institution and Donor Agency Role in Promoting Energy Security in South Asia

The conference focused on investment opportunities highlighting the emerging market structures in South Asian countries, the developing opportunities for cross border electricity trade and the critical sector regulatory and policy issues that will continue to share the overall economic development of the region. Discussions included country specific scenarios and projects, developing electricity transmission interconnections, energy trading and current donor agency and opportunities for developing cross border energy infrastructure projects. ■



Statements

**Samuel
W. Bodman**
Secretary of Energy
USA

The South Asian region is one of tremendous economic potential. Some nations of this region have seen remarkable economic growth and development in recent decades yet enormous challenges remain. In many cases, badly needed infrastructure advances of all types – with energy being at the forefront – have not kept pace with rapid economic expansion. This region ranks among the lowest in the world in per capita energy consumption and overall electrification rates, with still less than 50% of South Asians not having any access to electricity. In order to increase global access to energy a stable regulatory frameworks, open investment climates, adherence to the rule of law, transparency in decision-making, market-based pricing of energy resources and an open and competitive market for energy trade and investment is needed. All nations must put policies in place that actively encourage and support this involvement on a global scale. ■

**Shri Sushilkumar
Shinde**
The Minister of Power
India

The countries of South Asia share similar conditions and the power sector is no exception. The region needs to augment the supply of power and enhance its distribution to rural areas in the entire region. Moreover, South Asia is a sound destination for investments in the power sector however the level of investments remains unexploited due to lack of market access issues and ambiguous trading regulations. The Government of India is willing to join hands at strengthening SAARC countries and the global world. Regional cooperation can go a long way towards improving access to energy, strengthening security of supply and contributing to sustainable economic growth. This conference is a positive step towards opening new venues of energy and power cooperation among SAARC countries and deepening economic linkages for our better future. ■

Mukhtar Ahmad
Advisor to the
Prime Minister on Energy
Pakistan

Pakistan is trying to create an environment that is conducive to private sector participation in the energy sector. South Asia needs adequate, affordable, and environment-friendly energy supply to meet the needs of the expanding economies. For this purpose, the region needs to implement an integrated energy development plan, accelerate development of indigenous conventional energy resources, promote renewable energy with emphasis on enhancing access to energy in remote and rural areas, exploit potential for cross-border energy transactions and create a conducive environment to mobilize private sector investment. South Asia needs a liberal investment policy to ensure increased investment, which can be achieved through equal treatment to local & foreign investors, opening up all economic sectors to FDI, allowing foreign equity up to 100%, removing requirement of Government permissions, allowing remittance of capital, profits, dividends, royalty, technical & franchise fee and introducing attractive incentive packages. ■

**Dasho Sonam
Tshering**
Director General
Department of Energy
Bhutan

Hydropower resource has brought about immense development benefits all geared towards achieving economic self-reliance and overall socio-economic development. In the Bhutanese context, large hydropower projects have the benefit of economies of scale, as well as large spin-off social benefits such as road access, rural electrification, employment opportunities, hospital, school etc and thus fulfils the national strategy of regional balanced development strategy. The sustained techno-economic cooperation with India where Bhutan's export market lies, is the key success factor. While India benefits from import of clean renewable energy supply to meet part of its demand, Bhutan benefits from revenues earned from export of hydroelectricity. ■

Dr. Kirit Parikh
Member (Energy)
Planning Commission
India

South Asia needs to exploit existing regional synergies and invest huge amounts to augment the power sector if we want to maintain the current growth rate of the region to about 7 percent. The need of the hour is the establishment of a South Asian Energy Center that can serve as a focal point to develop energy grids in the region. Some benefits of regional energy trade are that it can lead to effective utilization of resources, mutual support during contingencies, energy security, improved relations in South Asian and a significant transformation of the South Asian economies. ■

**A.K.M. Zafar
Ullah Khan**

Power Secretary
Government of Bangladesh

Pervaiz A. Khan

CEO
Uch Power
Pakistan

**Habil
Khorakwala**

President
FICCI

**Prof. Priyantha
Wijayatunga**

Public Utilities Commission
Sri Lanka

Waqar Ahmad

Director
SAARC Chamber of
Commerce and Industry

The Bangladeshi power sector inspires to make electricity available for the whole country at a reasonable price as well as provide reliable and quality supply of electricity. For this purpose, the need of the hour is to increase generation capacity to 11,000 MW upto 2020, develop indigenous fuel resources, develop domestic coal for fuel diversity, promote renewable energy, adopt policies and practices to ensure capital flow and reform, restructure and regulate the sector for efficiency. The government has taken steps to create a conducive environment for investments by the private sector through appropriate policies. ■

Currently, there is next to negligible regional cooperation in the field of energy. However, for this purpose, the energy infrastructure in the region needs to be developed as it is critical for growth. It is estimated that a 1% increase in infrastructure stock is associated with a 1% increase in GDP. The annual regional investment needs for electricity infrastructure during 2006 - 2010 amounts to US\$29 billion (out of an aggregate US\$88 billion), approximately 33% including investment from independent power producers. The strained government resources cannot finance capital intensive infrastructure projects. Therefore, active private sector participation becomes essential. The region needs to institutionalize regional energy cooperation through the establishment of a Regional Energy Center. Also, there is a need to create an apex body with representation from public and private sector to act as a coordinator at regional level. ■

The legislative and regulatory framework for the power sector in the region has been undergoing significant evolution and power sector cooperation among the countries can contribute considerably towards balancing the power demand-supply profile and creating value for all. SAARC member countries have shown an interest in regional energy cooperation due to the South Asia energy dialogue between the governments that took place in New Delhi earlier this year in March and also because of the consensus of establishing a SAARC energy center in the region. The deliberations in these two days (of the conference) will bring out new ideas and opportunities for regional energy cooperation. ■

The electricity sector has been going through reforms over the last decade which is quite visible in some countries but not so vigorously pursued in others. Regulators play a key role in shaping the overall power sector policies, which directly impact the energy market environment both in the country as well as cross borders. In many of the South Asian countries separate energy regulation companies have been established. It is the job of the regulators to promote a competitive environment, improve efficiency, safety and service quality, allocate resources optimally and provide consumer protection. ■

The countries of South Asia are faced with the challenge of energy security because of rapidly rising energy demand coupled with increasingly insufficient energy supplies. Energy security in the region can be achieved by diversifying traditional energy supplies, promoting additional foreign investment for energy infrastructure development, improving energy efficiency, reforming and privatizing energy sectors, building cross-border linkages and promoting and expanding regional energy trade and investment. The creation of a South Asian energy market and cooperative development of the available diverse energy sources in the region can help increase the level of energy security in the region and thus can subsequently contribute to achieving a sustained higher economic growth. ■

South Asian Energy Sector OVERVIEW

South Asia is marked by rapid economic and population growth. However, even with an average total growth rate close to 6%, the region has one of the lowest per capita incomes in the world and has intra-regional trade less than 2% of GDP, as compared to 20% for East Asia. However, the region is one of tremendous economic potential though challenges exist. In many cases, badly needed infrastructure advances of all types - with energy being at the forefront - have not kept pace with rapid economic expansion. And throughout the region, extreme poverty persists which is exacerbated by a lack of access to electricity. Despite apparent synergies and opportunities existing for cross border energy cooperation, the energy and power trade in the region is extremely low.

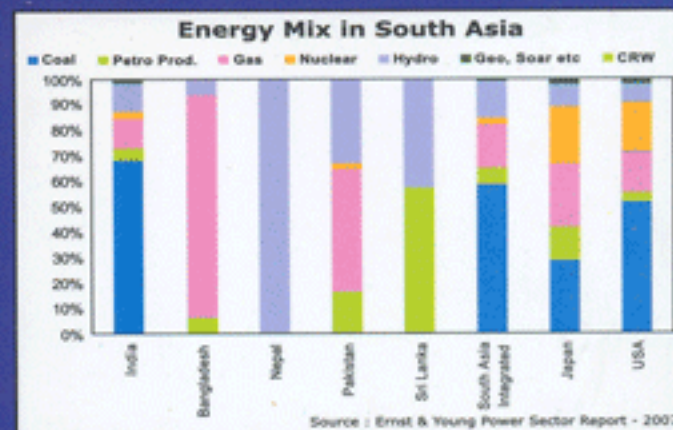
Key Macroeconomic Indicators	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Population-million	137.00	0.769	1,107.00	0.29	25.30	153.96	19.67
GDB- billion US\$*	57.28	0.82	727.75	0.75	7.47	110.02	23.54
Yo Y GDP growth percentage	5.00%	5.80%	8.40%	-2.90%	2.80%	7.8%	6.0%
GDP Per capita- US\$	418.11	1,107.98	723.38	2,601.44	295.36	714.58	1,197.86
Foreign Exchange Reserves - million US\$**	2,825.30	398.60	136,025.72	186.30	1,540.40	10,948.00	2,736.50
Aggregate FDI*** - million US\$	740.00	8.99	5,733.00	9.70	1.90	2,832.00	235.00
Total External Debt - million US\$	20,344.10	593.30	122,722.70	344.80	3,354.20	35,687.20	10,886.50
FDI as percentage of GDP	1%	1%	1%	1%	0%	3%	1%

Source : Asian Development Bank website (Accessed : February 10, 2007)
 *At current market price
 ** Foreign Exchange Reserves including gold
 ***Foreign Direct Investment 1 - Expect to be in excess of US\$ 6 billion in 2007.
 ASEAN : Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, The Philippines, Singapore, Thailand, Vietnam.

SAARC ECONOMIES PRESENT A MIX PICTURE WITH:

- India, Pakistan and Bangladesh being the region's largest economies with 80.03%; 10.99% and 5.72% share of the regional GDP and also the most populated countries of the region.
- India, Pakistan and Sri Lanka are the fastest growing economies in the region with a GDP growth rate of 8.40%, 7.8% and 6.0% followed by Bangladesh with a growth rate of 5.0% respectively.

Coal and petroleum are the predominant sources of energy in the region as shown in the Figure, although there are significant variations within the region. Bangladesh's energy mix, for example, is dominated by natural gas (86 % in 2005), while India relies heavily on coal (55%) and then hydroelectric power (26%) as of 2006. Maldives is overwhelmingly dependent on petroleum (100%), whereas Sri Lanka is dependent on hydroelectric power and petroleum (50% and 46% resp. in 2005). Pakistan is diversified among petroleum (33%), natural gas (30%), and hydroelectric power (33%). The Himalyan countries of Bhutan and Nepal have the highest shares of hydroelectric power in their energy consumption mix at 99% and 92%, respectively, in 2004.



Crude Oil Reserves in South Asia	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Energy Reserves							
Coal - in Million Short Tons							
Recoverable Reserves*	2,700	-	101,803	-	1,00	185,175	-
Consumption	0.77	0.07	475.16	-	0.32	5.21	0.01
Production	0.00	0.06	443.72	-	0.01	3.54	-
Imports - 0.77	0.01	34.44	-	0.31	1.67	-	-
Natural Gas - in Billion Cubic Feet							
Recoverable Reserves*	5,000	-	36,865	-	-	28,000	-
Consumption	463	-	996	-	-	968	-
Imports -	-30	-	-	-	-	-	-
Crude Oil							
Recoverable Reserves - in billion barrels	28	-	5.60	-	-	0.29	-
Consumption - in thousands of bbl/d	91	1.20	2,471.80	7.20	16.00	324.00	80.00
Production - in thousands of bbl/d	4	-	683.50	-	-	42.00	-
Imports - in thousands of bbl/d	87	-	1,788.70	7.20	-	161.70	39.90

Source : Energy Information Administration Website, 2007

Electricity Indicator in South Asia	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Key Electricity Indicators							
Installed Capacity in MW							
Conventional Thermal	4,450	12	96,495	49	19	13,634	1,770
Hydroelectric	230	445	29,570	-	584	6,460	1,185
Nuclear -	-	2,770	-	-	462	-	-
Renewable	-	-	2,600	-	-	-	3
Total	4,680	457	131,435	49	603	20,356	2,958
Net Electricity Generation - in GWh							
Conventional Thermal	17,470	-	502,600	150	4	49,000	4,040
Hydroelectric	1,120	1,880	74,590	-	2,240	26,680	3,280
Nuclear -	-	16,370	-	-	1,810	-	-
Renewable	-	-	5,190	-	-	-	3
Total	18,590	1,880	588,790	150	2,244	77,480	7,323
Population - million	137.00	0.769	1,107.00	0.29	25.30	153.96	19.67
Access to Electricity in percentage	24.9%	5.0%	40.0%	Not Available	15.0%	55.0%	75.0%
Net Electricity Consumption - in GWh							
Transmission and Distribution Losses - in GWh	16,620	Not Available	567,670	140	2,180	74,620	7,170
Net Electricity Consumption Per capita - in KWh	123	Not Available	531	477	86	485	365

Source : Energy Information Administration Website, 2007

- India and Pakistan have the highest installed capacity of 131,435 MW and 20,356 MW respectively and is mainly through thermal power plants. This is followed by hydroelectric energy whereas installed capacity in other sources is negligible.
- The electricity consumption per capita is highest for India and Pakistan followed by Sri Lanka whereas it is relatively low in other SAARC countries.
- Although India is the most populated country in the region only 40% of its population has access to electricity whereas 75% of the Sri Lankan people enjoy electricity facility.