

June, 2002

Energy Forecast Report: Bangladesh¹

Workshop on Model South Asia Energy Forecast Report
Kathmandu, Nepal, 27 June 2002

Trends

Natural gas

Natural gas is currently the only indigenous non-renewable primary energy resource of the country, which is being produced and consumed in significant quantities. Gas, the main source of commercial energy and plays an active role towards economic growth of the country. Natural gas output now accounts for about 70% of the country's commercial energy supply. Current gas in place reserve of the 22 gas fields has been estimated by HCU / NPD at about 28.77 TCF of which 20.44 TCF is considered as initial recoverable wherein, as of June 2001, a total net recoverable reserve is about 16.1 TCF.

Out of the total 22 gas fields so far discovered, currently gas is being produced from 12 (twelve) gas fields operated by the three public and two private sector international companies. During 2000-2001, average daily gas demand is about 1020 million cubic feet per day. Gas production has been increasing sharply over the last decades. Current level of natural gas related liquids production is about 4000 bbl/day.

The major driving force behind the growth of gas production is the power and fertilizer sector. Power sector is the single largest consumer of gas, and at present nearly 90% of the power generated in the country is gas based.

As an agricultural country, use of fertilizer is very important to offset the food grain deficiency. Over the last decade, cultivation of HYV crops has gained popularity and consequently, demand of nitrogenous fertilizer has increased sharply, which is expected to continue.

Gas consumption in major industries like textile, dyeing, paper, pulp, cement etc. and in the commercial sector, including tea gardens is also increasing steadily. With the gradual

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coverage of major growth centers with gas distribution network, use of gas as domestic fuel is increasing manifold.

The production of natural gas in Bangladesh commenced in 1961, when Chhatak Field started production to supply gas to Chhatak Cement Factory. This was followed by similar gas production from Sylhet Field in 1962, supplying Fenchuganj Fertilizer Factory with natural gas. In 1968 Titas Field started production, supplying gas to the Siddhirganj Power Station. During the period from 1961 to 1970, only 67 Bcf of gas were produced, but during the next ten years with an annual production increase of 18% it reached a total of 279 Bcf by 1980. This again increased to 1088 Bcf in the 1980s with an average annual growth of 14%, and further to 2492 Bcf by 1990 with an annual growth of 7%. The total production of natural gas in Bangladesh during the last 40 years is 4.3 Tcf by June 2001.

During 2000-2001 share of gas consumption is power 48%, fertilizer 23% and non-bulk 29% (industrial, commercial & domestic).

Oil Potential

Exploration activities carried out so far could not discover any significant oil deposit. The only oil deposits so far discovered in 1986 at Haripur, which produced a total of about 650,000 bbls of crude oil till 1994. The oil production has been ceased because of reduction of pressure and influx of water in the oil zone. Comprehensive exploration efforts need to be mounted in this field for further extraction of oil. Moreover, efforts are required to be given to exploration of the anticipated liquid Hydrocarbon prospects deeper to the sub-surface high pressure zone, which has not yet been penetrated.

Coal Prospects

Discovery of coal dates back to the late fifties when an exploratory oil well was drilled through coal beds in Bogra. Subsequent explorations resulted in the discovery of the Jamalgonj coal deposit at a depth of about 1000 meter from the ground level and having an estimated reserve of approx. 1053 million tons of coal. In 1984-85 Geological Survey of Bangladesh has located another coal deposit at Khalaspir (Pirgonj) of Rangpur at a shallower depth, with an estimated reserve of 685 million tons of coal.

Besides the above, mineable coal deposit was also discovered in Barapukhuria area of Parbatipur, Dinajpur at a reasonably shallow depth with an estimated reserve of about 389 million tons. Based on this, a project for construction of an underground mine has been undertaken and an annual output of 1 million ton commencing from 2004-2005. The extraction of such indigenous coal deposits may be utilized as an alternative of gas fuel source in the installation of power plants similar to that as have already been considered to construct a coal-based Power Plant of capacity 250 MW at Barapukuria.

A summary of coal deposit in Bangladesh is given below:

Year of Discovery	Location	Depth in Meter	Area Km ²	Coal Deposit in Million Tonnes
1962	Jamalganj	640 ~ 1158	11.66	1053
1985	Barapukuria	118 ~ 509	5.25	389
1989	Khalaspir	257 ~ 483	12.56	685
1995	Dighirpara	328 ~ 407	Not evaluated	
1997	Phulbari	150 ~ 250	5.00	400
Total				2527

Use of Imported Fuels

In 2000-2001, total quantity of petroleum fuels consumed in the country was 3.40 million tonnes.

Total amount of coal imported in 1997-98 was about 1,72,900.00 tonnes and was used mostly for brick burning.

Power

Power Generation Distribution & Consumption

Total installed power plants of the country is about 4230 MW of which 3475 MW is located in the East Zone and 755 MW in the West Zone. Of the total installed power plants, the effective operational capacity is about 4055 MW against the peak demand of about 3459 MW in 2001.

Indigenous energy sources (e.g. natural gas, hydro) are used for the generation of electricity in the East Zone and imported petroleum fuels (e.g. FO, LDO, SKO, HSD) are used to generate electricity in some areas of the West Zone where natural gas supply is not available. In order to minimize the effect of fuel cost on power generation, electricity generated in the East Zone is transferred to the West Zone via East-West Electrical Inter-Connector established in 1982. The transfer capacity of the Inter-Connector has almost reached its limit (450 MW). Gas is already available at Baghabari - Seraganj in the West Zone through Jamua Bridge and there is plan to extend gas network all over the West Zone. Gas power plants have been planned to be built gradually in the West Zone for regional generation balance.

In 2001, total electricity generation was 17021 GWh and fuel mix was as follows: hydro (5.71%), natural gas (87.56%) and petroleum fuels (6.74%).

The consumption of electricity in 2001 in different end-user categories were as follows: domestic (41%), commercial (8%), industrial (44%), irrigation (5%) and others (2%). In order to increase the contribution of electricity in economic growth it is necessary to increase the productive use of electricity.