

Evaluating the Energy (Power) Security in Bangladesh

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Abstract: Using the most recent past data, this study tries to evaluate the energy (power) security situation in Bangladesh. The discussions based on descriptive features suggest that the power sector of the country is not sufficiently secured in line with the ongoing development processes and the inclusive development for a rapidly growing economy. Although the coverage of electricity has been increasing in recent years and it will cover the whole population very soon, but the quality of the electricity supply is not a satisfactory level. The efficient and good quality electric power installation, generation, and distribution processes should be ensured for supplying the uninterrupted electric power. Therefore, the policymakers should find out the way to establish the sustainable sources of electric power supply that would be able to meet the huge demand for infrastructure development as well as universal coverage of electricity.

Keywords: Energy Security, Inclusive Development and Bangladesh

JEL Classification: O13 and Q01.

1 Introduction:

Energy especially power is the major driving force of any country's economy and acts as the most important tool in fostering rapid economic development. In order to ensure the well-being of the nation and sustainable growth of an economy, a secure supply of energy must require. Mainly, after the oil shock in 1973, energy security has always been a major concern in every country all over the world. According to the International Energy Agency (IEA), energy security refers to an uninterrupted supply of energy with even distribution from available sources at a reasonable price. In a broad sense, the energy security for a country is established when energy is easily accessible, affordable and supplied from a readily available source at a stable tariff without any political and economic disruption.

The long-term energy security mainly focuses on regular investments to supply energy in accordance with economic activities and environmental demands. On the other hand, short-term energy security indicates the efficiency of the energy system to support the sudden changes in the supply-demand situation. A secure supply of energy mainly relies on diversification in power generation, infrastructure development, and a stable price level. On the contrary, the dependence on concentrated power suppliers, lack of expertise and an unstable political situation (both internal and external) can disrupt the energy security of a country.

2 Background:

Energy security facilitates the development of a country by fostering the production. A 1% increase in GDP growth is associated with a 1.4% growth in demand for electricity in a typical developing country and

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hence for a 5-6% annual GDP growth is implied with demands for an around 7-8% growth in electricity supply². For promoting the food security of a country by facilitating agricultural production, energy security is essential. Without an uninterrupted supply of power or gas, the optimal level of the country's industrial production is not possible. Investment (local or foreign) in a country readily depends on the available energy infrastructures that ultimately enhance the overall growth activities. The short-term, as well as long-term energy insecurity in Bangladesh has a negative impact on overall economic developments that slow down the GDP growth as a whole.

3 Review of Literatures:

Like other developing countries, energy security is a major concern in Bangladesh. There were several studies such as Islam et al., (2014), Uddin et al., (2016), Gunatilake and Holst, (2013) are remarkable that have been conducted on the energy security issue in Bangladesh. All of these studies more or less have drawn the same conclusion that energy security has to be ensured for sustainable development. The present study is only a modest attempt to revisit the energy (power) security issue by considering the most recent experiences.

4 Objective of the Study:

The uninterrupted power supply is the most important prerequisite for inclusive economic development in every country across the world. Considering the importance of secured coverage of power supply in inclusive development, this study aims to assess the power security in Bangladesh by applying the performance comparison of the power sector in terms of accessibility, affordability and readily available source using the most recent data.

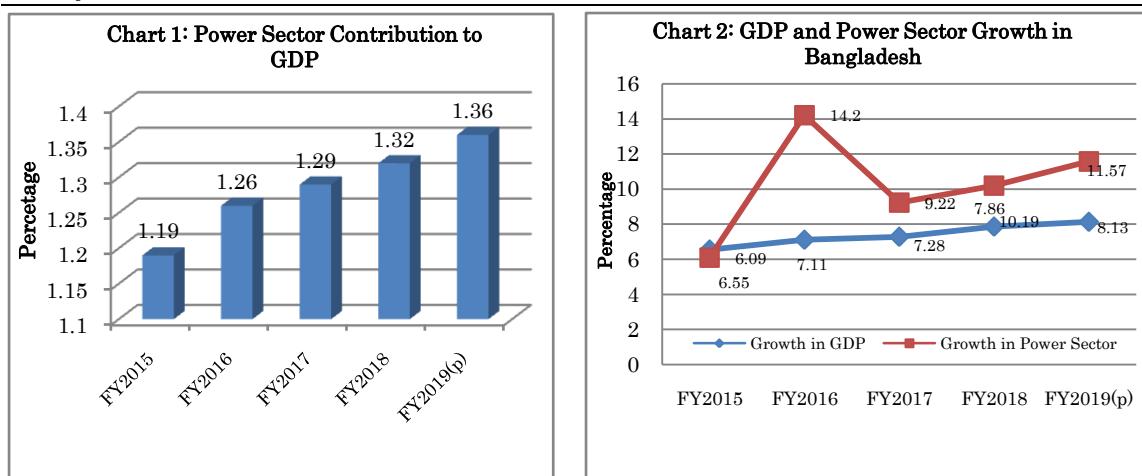
5 Descriptive Features and Discussions:

5.1 Power Sector Contribution:

The low rate of GDP growth (around 7% per annum) in Bangladesh is closely associated with the limited supplies of power and energy. Power and energy contribution to GDP is tremendously low. In fiscal year (FY) 2019, power³ sector share of GDP was only 1.36% and it was only 1.19% in FY2015. Compared to FY2015, the contribution of the power sector is increased by only a 0.17 percentage point in FY2019. The increment was significantly low that reflected an unremarkable development in this sector. Although, in FY2019, the growth rate in power sector increased to 11.57% from 6.09% in FY2015, while in the same period the GDP growth rate also increased to 8.13% from 6.55%; however, shortage of power supplies along with poor investment and political unrest situation play an important role hindering the growth in output.

²See 6th Five Year Plan, FY2011-FY2015 (Part-2, Page-126).

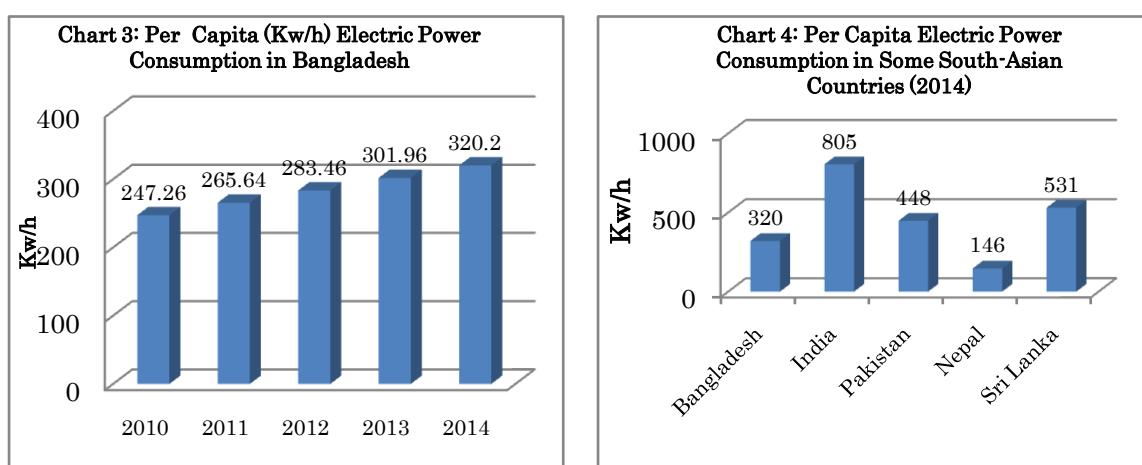
³In this paper, power means electric power or electricity.



Source: Bangladesh Bureau of Statistics. Note: P denotes for provisional.

5.2 Electric Power Consumption:

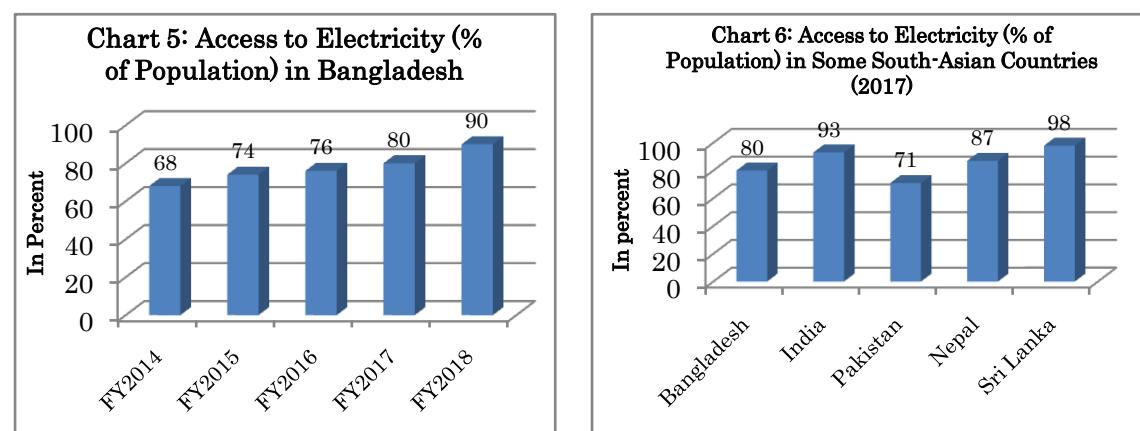
The proper and reliable supply of electricity can positively stimulate the national economy. The nationwide access to electricity is considered as the main ingredient to alleviate poverty along with improving the socioeconomic condition. The availability of electricity is necessary to ensure sustainable and inclusive economic development. In general, the availability of electricity is one of the key indicators to measure energy security. The availability of electricity largely relies on high per capita electricity consumption, universal coverage and mitigating the gap between supply and demand of electricity. In Bangladesh, per capita consumption of electricity is increasing day by day that is a good sign for the economy, but the increasing rate is not sufficient according to demand. In 2014, the per capita consumption of electricity was 320 Kw/h, which was 302 Kw/h in 2013. Compared to neighboring countries, the per capita consumption is much lower, whereas, in 2014, the per capita consumption of electricity in India, Pakistan and Sri Lanka were 805 Kw/h, 448 Kw/h, and 531 Kw/h respectively. Low per capita electricity consumption level in Bangladesh indicates that the country's power demand is standing far behind from the saturation stage.



Source: World Bank Data. Note: Kw/h means kilowatt per hour.

5.3 Access to Electricity:

Universal electricity coverage is a prerequisite for expanding the nationwide economic activities, where people can fully participate in the development works. In Bangladesh, people's access to electricity is increasing frequently, but still a number of citizens who do not have access to electricity. In FY2018, 90% of the total population has access to electricity (including renewable energy). The electricity coverage was 80% in FY2017 and it was 68% in FY2014. Compared to neighboring countries, the electricity coverage in Bangladesh is much lower. In 2017, the percentage of the total population has access to electricity was 93, 71, 98 and 87 in India, Pakistan, Sri Lanka, and Nepal respectively. In the same period, the electricity coverage in Bangladesh was 80%. From FY2014 to FY2018, the coverage of electricity is increased by 22%. Within five years, such an increase in electricity coverage shows the hoping improvement. However, the country's access to power coverage is not at a satisfactory level for achieving the status of electricity for all by 2021 as per government announcement.



Source: Bangladesh Economic Review and World Bank Data.

5.4 Installed and Generation Capacity:

Recently, the viability of ongoing development projects in the country is facing serious challenges that mainly come from the worse performance of the power sector in managing the demand-supply gap. In contrast to the high demand for electricity, the increasing gap between the installed capacity for electricity generation and maximum generation of electricity has been a remarkable year by year. Although both installed capacity and power generation have increased, the rising trend in the gap has offset the possible benefits of increased installed capacity. The following table shows the most recent (last five years) scenarios of electric power installed capacity and maximum generation in Bangladesh.

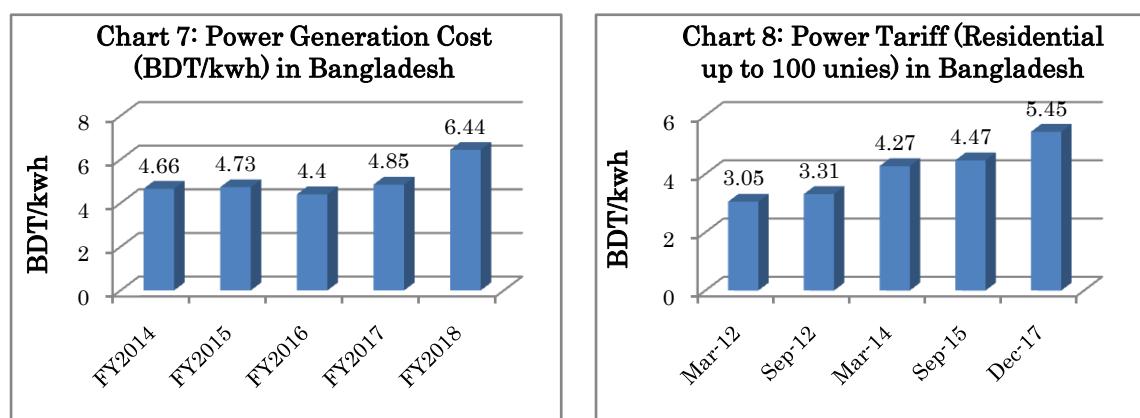
Table 1: Electricity Installed Capacity and Maximum Generation in Bangladesh

Period	Installed Capacity (Megawatt)	Maximum Generation (Megawatt)	Gap (Installed Capacity-Maximum Generation)	Percentage Change in Gap
FY2014	9821	7356	2465	17.21
FY2015	10939	7817	3122	26.65
FY2016	11770	9036	2734	-12.43
FY2017	12771	9479	3292	20.41
FY2018	15953	10958	4995	51.73

Source: Bangladesh Economic Review.

5.5 Generation Cost and Tariff:

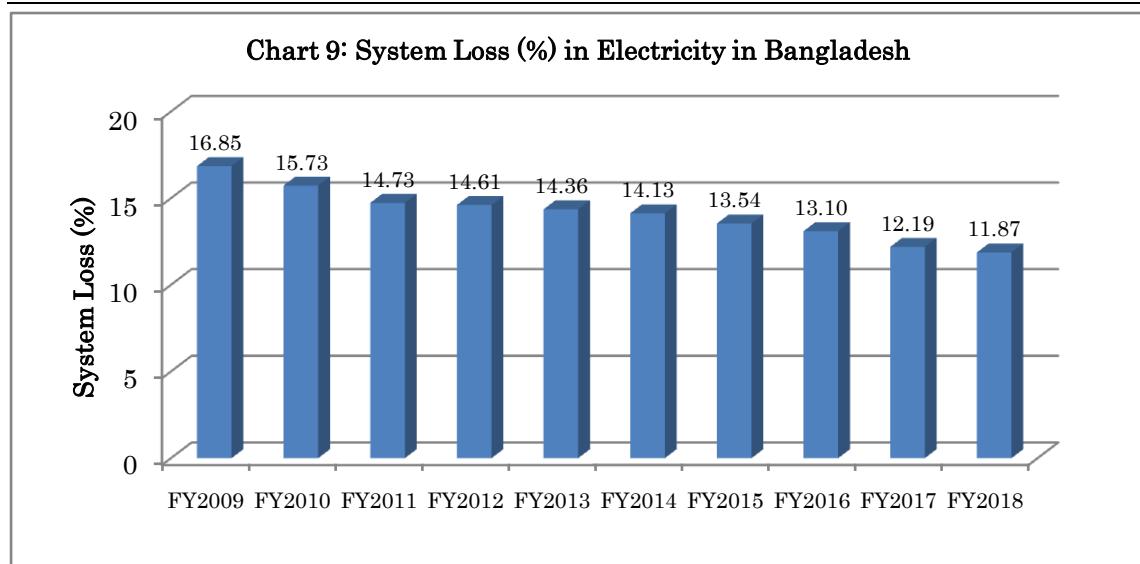
The people's affordability to get electricity also measures power security. The price of electricity and the cost of producing electricity are the indicators of affordability in getting electricity. The cost of power generation has increased in the last couple of years because the government has purchased electricity from the oil-based rental power plants for mitigating the increasing demand for electricity. Due to a shortage of gas, the government relies on imported petroleum-based rental power plants and purchases electricity at a higher cost. As a result, increasing power generation costs hike the power tariff frequently even though the government allocates a huge amount of subsidy that ultimately raises the indirect tax burden on the public. The increased price of electricity creates an adverse impact on the economy, especially poses a barrier to the development of the agriculture and industrial sector.



Source: Bangladesh Power Development Board.

5.6 Efficiency:

The efficiency in the power sector can be measured by observing the system (distribution and transmission) loss situation in electricity management. In Bangladesh, the system loss in electricity is decreasing year by year because of more involvement of private entities in the power sector.



Source: Bangladesh Economic Review.

6 Suggestive Measures:

Electric power is the most typical form of energy in Bangladesh that mainly depends on gas for production. Due to the limited reserve of gas, it is no longer a reliable source for electricity production and furthermore, the extensive use of gas in power generation is depleting the reserve of gas day by day. Currently, the economy substantially depends on imported liquid fuel for electricity production that is the cause of spending a huge amount of foreign currency. On the other hand, excessive reliance on imported petroleum for power generation frequently hikes the power tariff in the last couple of years. Rising power tariff increases the production cost in both agriculture and industry sectors. Inadequate energy supplies, depletion of gas reserve and rapid hikes in power tariff have immensely an adverse effect on agricultural and industrial production and that poses a serious threat to energy security. Therefore, the government, including policymakers should think about the way of sustainable solutions in order to ensure a universally secured power sector for inclusive economic development.

7 Conclusion:

In Bangladesh, the fast-rising population, frequent urbanization and rapidly growing economic activities have been increasing the demand for energy, but the insufficient supply of energy cannot satisfy this demand. The country has been suffering a persistent shortage of energy for a long time. Such a deficiency of energy has created short-run insecurity in the energy sector. Compared to other neighboring countries, a large number of people do not have access to energy and the per capita consumption of energy is too low. Inadequate sources of energy, insufficient investments and lack of advanced technologies are hindering the long-run security in the energy sector as well. Since the supply of energy is not readily available and affordable as well as the sources of energy are not reliable, Bangladesh has to improve its energy sector long way to achieve energy security.

References:

- [1]. *Annual Report (Various Issues)*, Bangladesh Power Development Board, Bangladesh.
- [2]. *Bangladesh Economic Review (Various Issues)*, Finance Division, Ministry of Finance, Bangladesh.
- [3]. *Energy Security: Trends and Challenges*, Bangladesh Economic Update, Volume 5, No.11, November 2014, Unnayan Onneshan, Dhaka, Bangladesh.
- [4]. Gunatilake, Herath, and David Roland- Holst.(2013) Energy Policy Options for Sustainable Development in Bangladesh.*ADB Economics Working Paper Series* No. 359 (November).
- [5]. Ishtiaque, T., F. Ahsan, N. M. A. Haq, and M. A. R. Sarkar. Energy Sector Development and Energy Security in Bangladesh. *Bangladesh Economic Association* (Available at: <http://bea-bd.org/site/images/pdf/055.pdf>).
- [6]. Islam, Aminul, Eng-Seng Chan, Yun Hin Taufiq-Yap, Md. Alam Hossain Mondal, M. Moniruzzaman, and Moniruzzaman Mridha.(2014) Energy Security in Bangladesh Perspective-An Assessment and Implication. *Renewable and Sustainable Energy Reviews* 32 (January): pp. 154-171.
- [7]. Mujeri, Mustafa K., Tahreen Tahrima Chowdhury, and Siban Shahana.(2014) Energy Sector in Bangladesh: An Agenda for Reforms.*GSI Report, International Institute for Sustainable Development* (March).
- [8]. *National Accounts Statistics (Provisional Estimates of GDP, 2015-16 and Final Estimates of GDP, 2014-15)*, Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, Bangladesh.
- [9]. *Sixth Five Year Plan FY2011-FY2015 (Part-2)*, General Economic Division, Planning Commission, Ministry of Planning, Bangladesh.
- [10]. Uddin, Md. Shazib, A.N. Faisal Ahmed, and Sayeed Ahmmed.(2016) Assesment of Energy Security Snapshot in Developing Country Bangladesh. *IOSR Journal of Environmental Science, Taxicology and Food Technology (IOSR-JESTFT)* 10 (November): pp. 15-24.
- [11]. <https://data.worldbank.org/indicator/EG.USE.ELEC.KH.PC>(Retrieved on June 18, 2017).
- [12]. <https://www.iea.org/topics/energysecurity/> (Retrieved on June 18, 2017).