

Success in Generating and Distributing Electricity Power Throughout Bangladesh: An Overview of NESCO (Northern Electricity Supply Company)

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Abstract: Since electricity is a powerful tool for development, Bangladesh has succeeded in ensuring that energy is distributed properly throughout the country. Huge demand for electricity compelled the Bangladeshi government to increase production using coal and natural gas. With the assistance of five separate agencies that are interconnected to oversee the distribution and import of power, the Bangladeshi government has now provided electricity to all of Bangladesh. Northern Electricity Supply Co. Ltd. (NESCO), one of these five entities, is in charge of managing the electricity supply to Bangladesh's northern region. Rangpur and Rajshahi are including in these territory and these two areas include 16 districts. NESCO has contributed to the power generation and electricity sector of Bangladesh since 2016 and now is one reliable name of Northern Bangladesh in case of electricity power generation and distribution. This paper will attempt to analyze the potential and significance of NESCO in power supply in Bangladesh, and how far it goes with earning profit. The findings supported the objectives with scrutinizing the extracted data and also propose a future prospect of what to do next with NESCO. SPSS and MS excel are used for data analysis in this paper.

Keywords: Electricity Power, NESCO, Northern Region of Bangladesh, Bangladesh

1. Introduction

An important tool for achieving economic progress for a nation is electricity. Because the expansion of industries and productivity are both correlated with power. In order to use information and communications technology in a digital world, power must be generated continuously [2]. By Presidential Order 59, Bangladesh Power Development Board and Bangladesh Water Development Board were formed on 31 May 1972 by dividing WAPDA (Water And Power Development Authority) in order to provide water and electricity supply and distribution to the citizens of Bangladesh. Bangladesh Power Development Board is a service-oriented public service organization under the Ministry of Power, Energy and Mineral Resources. The main objective of this organization is to implement the plan

adopted by the government for the development of socio-economic and human resources of the country through an uninterrupted and quality power supply. Also one of the responsibilities of the Bangladesh Power Development Board (BPDB) is to formulate and implement a comprehensive plan to find an alternative or new sources of energy used for power generation in Bangladesh and to develop and ensure maximum utilization of power. BPDB is working to provide affordable electricity to all by 2021. BPDB has been responsible for the distribution of electricity in some rural areas including Chittagong, Cumilla, Mymensingh and Sylhet areas. At present BPDB is purchasing power from public and private power plants as a single buyer in addition to its power generation and selling power in DPDC, DESCO, WZPDCL, NESCO, REB and BPDB's distribution areas.

Considering the immense importance of electricity in the

field of agriculture and rural economic development, Bangladesh Rural Electrification Board (REB) was formed in October 1987 through the ordinance of 1977 to expedite the use of electricity in rural areas. Later under the power sector reforms, Dhaka Electricity Supply Authority (DESA) was formed in 1990 for the greater Dhaka area to streamline and regulate the use of electricity in the capital Dhaka and its adjacent districts under the power development board. Dhaka Electricity Supply Company Ltd. (DESCO) was formed in 1996 with a part of DESA. Besides, DPDC started its journey in 2006 with the overall activities of Dhaka Power Distribution Company (DPDC). Power Grid Company Bangladesh (PGCB) was formed in 1996 under the company act and was entrusted with the full responsibility of the transmission system. Following the reform program, various activities of BPDB gradually transformed into different

companies. For example, APSCL formed in 1996, WZPDCL with Khulna and Barishal division in 2002, EGCB in 2004, NWZPGCL in 2007. The newest member of the BPDB family is NESCO formed in 2016 [3]. All these newly formed companies created from BPDB are being operated as subsidiaries of BPDB. The main objective of this paper is to find out potential significance of NESCO in distributing electricity power in Rajshahi Division as well as Bangladesh. Also a brief introduction of NESCO with future initiatives can be realized by the readers of this paper along with current power supply situation of different organizations of Bangladesh. The following diagram shows how power electricity is generated by different organizations then all transmitted and contril by the central regulatory board then distributed by different organization based on locations.

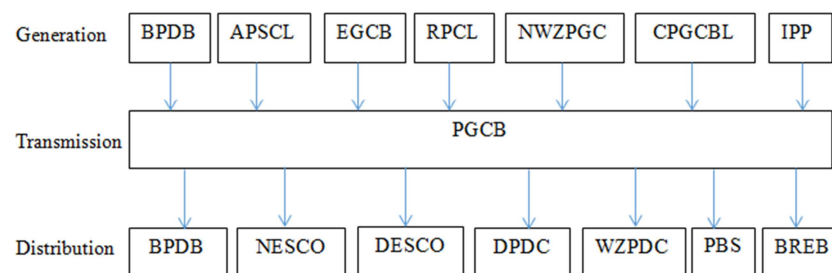


Figure 1. Electricity Generation, Transmission and Distribution with Corresponding Organization.

2. Literature Review

The power sector in Bangladesh is one of South Asia's fastest-growing. Based on estimates made by distribution companies in Bangladesh, growing demand in the residential sector is responsible for a significant portion of the recent increases in peak demand [15]. According to the World Bank and the Bangladesh Power Development Board, the increase in terms of capacity addition has been impressive rising from 5 percent to 28 percent from 2012 to 2018. In keeping with the rise in power, electricity demand has increased. The domestic and manufacturing industries are the country's main generators of power production. One of the main problems in the new government's election manifesto was addressing the worsening energy crisis. Fast Rental Power Plants that operate on diesel fuel became the priority of the government [6]. It was originally able to reduce the generation and demand difference for power, but the cost of fuel made the

cost of electricity drastically higher. Because the government has to subsidize energy in the petroleum industry, the price of electricity per unit has risen three times in a mere four months. Electricity prices per KWhr increased from TK 4.16 (USD 0.051) to TK 4.72 (USD 0.058) on 1st December 2011, to TK 5.02 (USD 0.061) on 1st February 2012 and TK 5.32 (USD 0.065) on 1st March 2012 [1]. The situation has changed and the government of Bangladesh is willing to develop its electricity capacity as before. The government aims to generate 24,000 MW of electricity by 2021, 40,000 MW by 2030, and 60,000 MW by 2041 under that motto. Although the process is long-term, it is not unlikely for the Power Production Board of Bangladesh [4]. Up to now, 138 power plans in Bangladesh generate 23548 MW of captive load and renewable energy.

For distributing the electricity all over the Bangladesh government has distributed Bangladesh into 5 parts and five different organizations have been appointed to maintain that.

Table 1. The Electricity Distribution Companies in Bangladesh.

Established Year	Name of the Companies	Operational Area
1972	Bangladesh Power Development Board (BPDB) [1].	Comilla, Chittagong, Sylhet, Mymanshing.
1996	Dhaka Electricity Supply Co. Ltd. (DESCO).	Dhaka City Corporation (North).
2002	West Zone Power Distribution Co. Ltd. (WZPDCL).	Khulna, Madaripur, Barisal.
2007	Dhaka Power Distribution Co. Ltd (DPDC).	Dhaka City Corporation (South).
2016	Northern Electricity Supply Co. Ltd. (NESCO).	Rajshahi, Rangpur.

Source: Authors.

The most recently established organization is NESCO and is working for the Northern Territory of Bangladesh. Even if the

organization Northern Electricity Supply Co. Ltd. (NESCO) has been established on 3rd August 2005 under the decision of the cabinet division to restructure and reform the power sector of Bangladesh, it started the operations on 1st October 2016, in 16 districts with 50 sales & distribution centres in cities and urban areas so that domestic, agricultural and industrial purposes the uses of electricity can be assured [14].

NESCO has the vision the main vision of NESCO is to make electricity available to all citizens in the Rajshahi and Rangpur division under the NESCO area for the upliftment of our socio-economic development [5]. And the mission of distributing electricity in a reliable, secure, safe, environmentally responsible and cost-effective manner. Also, to provide uninterrupted power supply to our customers enabling trade and industry, commerce, educational and social activities to flourish and enrich the lives of customers.

Table 2. *The Electricity Distribution Area of NESCO.*

Rajshahi	Rajshahi, Natore, Chapainawabganj, Pabna, Sirajganj, Bogura, Naogaon, Joypurhat.
Rangpur	Rangpur, Dinajpur, Gaibandha, Kurigram, Lalmanirhat, Nilphamari, Thakurgaon, Panchagarh.

Source: Authors.

The organization has several departments to ensure the services for the customers of the northern territory such as the human resource management department for managing NESCO, procurement department for all electricity purchases, MIS and ICT department for information management of the organization to contribute significantly in the power reforms process, particularly in the areas of business process automation, revenue and commercial management [7]. For customer service management NESCO has started digital services such as information website, online new connection, online bill payment, Smart pre-payment etc. The organisation has added an opportunity for distributing electricity according to the needs of it to the general people.

3. Methodology

Based on the interview questions, the data gathered from key informant interviews and survey questionnaires has been examined. Each question has undergone a separate study in order to provide a comprehensive understanding of the situation. The majority of the analysis was qualitative and

derived from perception-based interviews with the respondents. On the other hand, several quantitative analyses have also been performed using the respondents' provided data. Using various analytical and presentation techniques, including tables, graphs, figures, pie charts, and more, the data and the thorough analysis have been presented. The sources of secondary information are given below;

- 1) Collection statement from the regional accounts offices.
- 2) Documents supplied from field offices.
- 3) Official website.
- 4) Rules, regulations and office order provided by higher authority.
- 5) Annual report.
- 6) Statistical graphs and charts from the MIS report of the company.
- 7) Electricity Act, 2018.

4. Data Analysis and Results Evaluation

For evaluating the operations of NESCO in the Northern territory of Bangladesh, it can be compared to the BPDB which stands for Bangladesh Power Development Board. It is a public-sector organization to boost the country's power sector after the emergence of Bangladesh as an independent state in 1972. The organization is now operating on Comilla, Chittagong, Sylhet and Mymensingh; handling a huge portion of power supply and management in Bangladesh. As the first-ever established electricity board in the country; it has been the pioneer in the industry and has created the pathway for other organizations to enter the industry as well. So by comparing NESCO to BPDB, the state of NESCO can be thoroughly evaluated. The comparison based on the growth rate of each company in the recent fiscal years, the number of system losses and the accounts receivable is some of the sectors in which the two companies can be compared.

New Connections: The Total number of consumers under NESCO stands at 1461954 at the end of the financial year 2018-19 whereas 1378258 was at the end of the 2017-18 FY and 1293256 at the end of 2016-17 financial year. The growth rate of consumers is around 8%. In line with the directions of the Bangladesh Investment Development Authority (BIDA), NESCO contributes to the Ease of Doing Business Index by providing domestic consumer connections within 07 days and commercial/industrial connections within 28 days [11-13].

Table 3. *NESCO and BPDB New Electrical Connection Rate.*

NESCO			BPDB (Distribution Zone, North)		
FY	Total Consumer No.	Growth Rate (%)	FY	Total Consumer No.	Growth Rate (%)
2016-17	1293256 ^[9]	5	2013-14	939269 ^[2]	8
2017-18	1378258 ^[10]	6.9	2014-15	1046749 ^[3]	9.6
2018-19	1461954 ^[8]	8	2015-16	1160654 ^[4]	10.25

Source: Annual Reports of NESCO & BPDB of corresponding Financial Year (FY) 2015-19.

System Loss: System loss is a KPI of any electricity distribution company and is determined by the quantity of energy purchased and sold. System loss should be contained within 10%. Our government targets single-digit system loss.

The system loss works out to 11.38% in FY 2017-18 as against 11.91% in FY 2016-17 year which follows 10.51% in FY 2018-19.

During BPDB, system loss of northern distribution zone in

the last three financial years is 12.93%, 12.33% and 12.53% respectively.

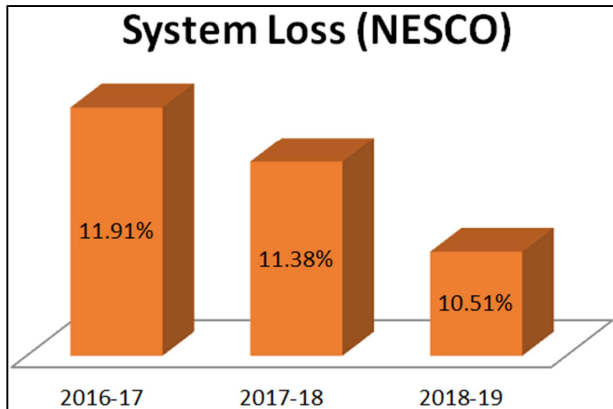


Figure 2. The System Loss Rate of NESCO.

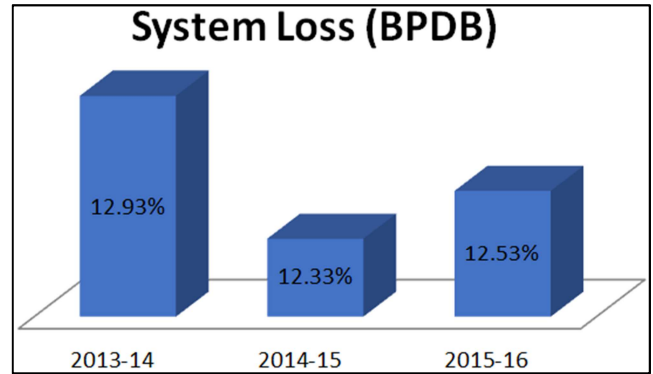


Figure 3. The System Loss Rate of BPDB.

As we can see that system loss of BPDB fluctuated in those years whereas NESCO system loss decreased day by day. The following table and figure show the variation of system loss of NESCO and BPDB at a glance:

Table 4. System Loss and Changes of NESCO and BPDB.

NESCO			BPDB (Distribution Zone, North)		
FY	System loss	Change	FY	System loss	Change
2016-17	11.91% [9]	-5.21%	2013-14	12.93% [2]	-3.72%
2017-18	11.38% [10]	-4.66%	2014-15	12.33% [3]	-4.64%
2018-19	10.51% [8]	-8.28%	2015-16	12.53% [4]	1.6%

Source: Annual Reports of NESCO & BPDB of corresponding FY

Account Receivable: One of the indicators of efficient financial management is to decrease the accounts receivable/sales ratio. The Company maintains a system of continuous monitoring of accounts receivable by way of monthly reports and analysis. The Accounts Receivable is 6415.3 million taka FY 2017-18 against around 5843 million

takas in the FY 2016-17 which follows 6967 million takas.

While operating BPDB, in the last financial year the amount of accounts receivable and comparison between BPDB last three financial year and NESCO first three financial years is shown below:

Table 5. Account Receivable Condition of NESCO and BPDB.

NESCO			BPDB (Distribution Zone, North)		
Financial Year	Accounts Receivables (Million Tk)	% increase over the previous year	Financial Year	Accounts Receivables (Million Tk)	% increase over the previous year
2016-17	5843 [11]	12.51%	2013-14	3639 [2]	22.31%
2017-18	6415.3 [12]	9.80%	2014-15	4435 [3]	21.87%
2018-19	6967 [13]	8.60%	2015-16	5193 [4]	17.09%

Source: Annual Reports of NESCO & BPDB of corresponding FY

Financial Condition: The synergy of technical and commercial activities is reflected in the improved financial results of the company year to year as under-

Table 6. Present Condition of NESCO.

Particulars	2018-19 (Crore Tk.) [12]	2017-18 (Crore Tk.) [11]	2016-17 (Crore Tk.) [10]
Revenue from Operations	2313.62	2077.64	1373.69
Cost of Sales	1870.99	1846.11	1360.86
Gross Profit	442.63	231.53	12.83
Operating Expenses	443.63	328.89	253.49
Operating Profit/loss	(1.00)	(97.36)	(240.66)
Non-Operating Income	26.54	18.92	12.57
Net Profit for the year	6.41	(78.45)	(228.10)

Source: Annual Reports of NESCO of corresponding FY

Ratio Analysis: Financial ratios are indicators of the financial strength or weakness of an organization. Some of these are

presented below to reflect NESCO's financial position:

Table 7. The Reflection of NESCO's Financial Position.

Particulars	2018-19	2017-18	2016-17
Current Ratio	1.71	1.77	3.28
Quick Ratio	1.57	1.61	2.88
Debt/Equity Ratio	3.64	3.74	3.01
Gross margin/ Sales ratio	19.39%	11.28%	0.95%
Operating margin/Sales ratio	-0.04%	-4.75%	-17.74%
Net income/ Sales ratio	0.28%	-3.82%	-16.82%

Source: Authors.

Contribution to the Exchequer: Since the commencement of its operation, NESCO has been contributing a substantial amount to the national exchequer by way of vat and taxes as shown in the table below:

Table 8. Contribution of NESCO to the Exchequer.

Vat and income tax	2018-19 [13] (Crore tk)	2017-18 [12] (Crore tk)	2016-17 [11] (Crore tk)
Vat from electricity bills	113.98	100.53	67.25
Vat from contractors/suppliers bills	3.24	3.58	2.51
Income tax deduction at source	1.37	0.90	0.32
Total	118.59	105.01	70.08

Source: Annual Reports of NESCO of corresponding FY

Proposed Projects of NESCO: The contribution of NESCO in the power development of Bangladesh is immense and it is also proposing many new projects so that the company can contribute even better to the industry. Some of the proposed projects of NESCO will be described for a better understanding of its contribution.

1) 05 (five) lakh smart pre-payment meter installation project in NESCO area:

Purpose of the Project:

- Receiving advance revenue
- Providing improved customer service
- Decreasing non-technical loss to zero
- Simplifying the demand side load controlling system
- Resisting electricity dissipation

Target:

- Installation of 4,67,200 single-phase smart pre-payment meters.
- Installation of 32,800 three-phase smart pre-payment meters.
- Installation of 3000 Data Concentrator Units.
- Installation of 01 Central Data Center.
- Installation of 01 Master Information Center.
- Installation of 01 Disaster Recovery Center.
- Installation of 17 Utility Vending Station.

Table 9. Project Area of NESCO.

Division	District	City Corporation/ Upozila	Electricity Supply Unit
Rajshahi	Rajshahi	Rajshahi City Corporation	S & D-1/4, Rajshahi
	Chapainawabganj	Chapainawabganj Sadar	S & D-1/2, Chapainawabganj
	Pabna	Pabna Sadar	S & D-1/2, Pabna.
	Bogura	Bogura Sadar, Kahalu, Shahjahanpur	S & D- 1/2/3, Bogura
	Natore	Natore Sadar	S & D, Natore
Rangpur	Dinajpur	Dinajpur Sadar	S & D-1/2, Dinajpur
	Nilphamari	Nilphamari Sadar, Saidpur	S & D, Saidpur; S & D, Nilphamari
	Thakurgaon	Thakurgaon Sadar	S & D, Thakurgaon
	Panchagarh	Panchagarh Sadar	S & D, Panchagarh.

Source: Authors

The total estimated cost of this project is 4148.262 million BDT. NESCO will bear 141.279 million BDT and the government will bear 4006.983 million BDT of the total cost.

2) Extension and renovation project of distribution line and sub-station of Rajshahi division:

Purpose of the Project:

- 100% electrification in Rajshahi division under NESCO by 2021.
- Strengthening and upgrading the distribution substations and lines to provide uninterrupted and quality power to the consumers up to 2030.
- Facilitating the power distribution system in the project area and providing quality services to the consumers by improving and maintaining the distribution system.

Target:

- Installation of 03 new 33/11 kV sub-stations.
- Upgradation and renovation of 20 33/11 kV substations.

- Construction of 137.5 km new 33 kV line.
- Rehabilitation of 87 km old 33 kV line.
- Construction of 447 km new 11 kV line.
- Renovation of 334 km old 11 kV line.
- Construction of 516 km new 11/0.4 kV line.
- Renovation of 369 km old 11/0.4 kV line.
- Construction of 683 km new 0.4 kV line.
- Renovation of 621 km old 0.4 kV line.
- Construction of 259 km new 0.24 kV line.
- Installation of 3400 Nos. 11/0.4 kV distribution transformers.
- Installation of 451 Nos. 6.35/0.24 kV distribution transformers.
- Installation of 05 set 33 kV bay equipment and circuit breakers for 132/33 kV sub-station.
- Installation of 33 kV bay equipment and circuit breakers for 33/11 kV sub-station.
- Installation of 16 Nos 11 kV circuit breaker.
- Installation of 311 Nos 11 kV 100 kV capacitor bank.

Table 10. Project Area of NESCO.

Division	District	City Corporation/Upozila	Electricity Supply Unit
Rajshahi	Rajshahi	Rajshahi City Corporation, Godagari, Paba, Tanore, Puthiya	S & D-1/2/3/4/5, Rajshahi; S & D- Godagari; Tanore ESU.
	Chapainawabganj	Chapainawabganj Sadar, Gomostapur, Shibganj	S & D-1/2, Chapainawabganj; S & D- Gomostapur; Shibganj ESU.
	Natore	Natore Sadar	S & D- Natore.
	Naogaon	Naogaon Sadar, Santahar	S & D- Naogaon; S & D- Santahar.
	Pabna	Pabna Sadar, Ishwardi	S & D-1/2, Pabna; S & D-Ishwardi.
	Sirajganj	Sirajganj Sadar	S & D-1/2, Sirajganj.
	Joypurhat	Joypurhat Sadar, Akkelpur	S & D- Joypurhat.
	Bogura	Bogura Sadar, Kahalu, Dupchanchia, Sherpur, Shahjahanpur	S & D-1/2/3, Bogura; S & D- Dupchanchia; Sherpur ESU.

Source: Authors

The total estimated cost of this project is 10914.291 million BDT. NESCO will bear 359.989 million BDT and the government will bear 10554.302 million BDT of the total cost.

Output:

Hopefully 2,35,000 new consumers will be added to NESCO and an additional 375 MW of power will be supplied to the consumers after implementation of this project. As a result, 100% electrification will be completed in the Rajshahi division under NESCO by 2021 as well as revenue collection will increase proportionately. Along with this, all consumers will be benefitted from the quality and uninterruptible power within 2030.

3) Extension and renovation project of distribution line and sub-station of Rangpur division:

Purpose of the Project:

- 100% electrification in Rangpur division under NESCO by 2021.
- Strengthening and upgrading the distribution substations and lines to provide uninterrupted and quality power to the consumers up to 2030.
- Facilitating the power distribution system in the project area and providing quality services to the

consumers by improving and maintaining the distribution system.

Target:

- Upgradation and renovation of 10 nos 33/11 kV substations.
- Construction of 55 km new 33 kV line.
- Rehabilitation of 57 km old 33 kV line.
- Construction of 585 km new 11 kV line.
- Renovation of 410 km old 11 kV line.
- Construction of 782 km new 11/0.4 kV line.
- Renovation of 355 km old 11/0.4 kV line.
- Construction of 1339 km new 0.4 kV line.
- Renovation of 917 km old 0.4 kV line.
- Construction of 421 km new 0.24 kV line.
- Installation of 2733 Nos. 11/0.4 kV distribution transformers.
- Installation of 1593 Nos. 6.35/0.24 kV distribution transformers.
- Installation of 33 kV bay equipment and circuit breakers for 33/11 kV sub-station.
- Installation of 368 Nos 11 kV 100 kV capacitor bank.

Table 11. Project Area of NESCO.

Division	District	City Corporation/Upozila	Electricity Supply Unit
Rangpur	Rangpur	Rangpur City Corporation	S & D-1/2/3, Rangpur.
	Gaibandha	Gaibandha Sadar, Gobindaganj, Palashbari, Saghata.	S & D-1/2, Gaibandha; S & D- Gobindaganj; Palashbari ESU.
	Kurigram	Kurigram Sadar.	S & D- Kurigram.
	Lalmonirhat	Lalmonirhat Sadar, Kalignaj, Patgram, Hatibandha.	S & D- Lalmonirhat; S & D- Patgram; S & D- Hatibandha; S & D- Kalignaj.
	Dinajpur	Dinajpur Sadar, Bochaganj, Parbortipur, Fulbari.	S & D-1/2, Dinajpur; Parbortipur ESU; Fulbari ESU.
	Nilphamari	Nilphamari Sadar, Saidpur, Kishorganj, Jaldhaka.	S & D- Nilphamari; S & D- Saidpur; S & D- Domar; Jaldhaka ESU; Kishorganj ESU.
	Thakurgaon	Thakurgaon Sadar,	S & D- Thakurgaon.
	Panchagarh	Panchagarh Sadar,	S & D- Panchagarh; Tetulia ESU

Source: Authors

The total estimated cost of this project is 11239.756 million BDT. NESCO will bear 367.432 million BDT and the government will bear 10872.324 million BDT of the total cost.

Output: 1,80,000 new consumers will be added to NESCO and an additional 205 MW power will be supplied to the consumers after implementation of this project. As a result,

100% power electrification will be completed in the Rangpur division under NESCO by 2021 as well as revenue collection will increase proportionately. Along with this, all consumers will be benefitted from the quality and uninterruptible power within 2030.

5. Future Prospects

There are also many prospects of the company and also there are a lot of challenges to the operations of NESCO with the strong surveillance of top management and proper guideline by the board of directors the dedicated manpower of NESCO has been able to turn the challenges into possibilities. The company will have certain prospects. These are given below:

- 1) One million smart pre-paid metering project of NESCO.
- 2) Smart grid project in NESCO: Implementation of DAS and SCADA.
- 3) Geographical Information System project in NESCO.
- 4) Conversion of overhead 33kV line into the underground line of NESCO.

6. Conclusion

Continuous investments in network capacity and peak generation are necessary due to Bangladesh's rising peak demand [15]. The operational area of NESCO Ltd. encircles in Rajshahi and Rangpur Division, the northern part of Bangladesh which is known as an underprivileged and financially weaker region in Bangladesh. Moreover, around 80% of the consumers of NESCO are in the Domestic Consumer class whereas a major portion falls under the lifeline consumer category. The distribution line of NESCO Ltd. operational area is not that much standard and reliable so far. These are the reasons why it is really difficult to reduce system loss. NESCO authority identifies risks and takes initiative from time to time to mitigate issues. Their main concern is to ensure proper services to consumers including remote geographical area. This company has to handle delicately various types of consumers. They want to ensure continuity of uninterrupted power supply to their consumers as well as effective operation without hampering the community interest. This company tries to ensure safety, security and a healthy environment for the employees within the organization. NESCO is targeting protecting the interest of the other stakeholders and create and promote a risk awareness culture within the company. Government has a clear vision to develop the electricity distribution system all over the country. That's why NESCO Ltd. is working to contribute the socio-economic development by strengthening and improving the power distribution system to ensure a safe and reliable electricity supply to the consumers by 2030 and to provide better customer service as well.

Acronyms

APSCL: Ashuganj Power Supply Company Limited.
 BPDB: Bangladesh Power Development Board.
 BREB: Bangladesh Rural Electrification Board.
 CPGCB: Coal Power Generation Company Bangladesh Limited.
 DAS: Distribution Automation System.
 DESCO: Dhaka Electric Supply Company Limited.
 DPDC: Dhaka Power Distribution Company.
 EGCB: Electricity Generation Company Bangladesh.

IPP: Independent Power Producer.

NESCO: Northern Electricity Supply Company.

NWZPGC: North West Zone Power Generation Company Limited.

PBS: Palli Bidyut Samiti.

PGCB: Power Grid Company Bangladesh.

RPCL: Rural Power Company Limited.

SCADA: Supervisory Control And Data Acquisition.

WZPDC: West Zone Power Distribution Company Limit.

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