

STUDY ON DETERMINATION OF ELECTRICITY DISTRIBUTION COST OF DHAKA PBS-1

**A Thesis submitted in partial fulfillment of the requirements for the Award
of Degree of Bachelor of Science in Electrical and Electronic Engineering**

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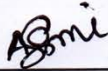
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August-2019

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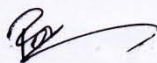
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Dedicated to
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List of Abbreviations

AGE	Administration & General Expenses
BERC	Bangladesh Electricity Regulatory Commission
BPDB	Bangladesh Power Development Board
BREB	Bangladesh Rural Electrification Board
CSE	Consumer Selling Expenses
DAE	Depreciation & Amortization Expenses
DC	Distribution Cost
DESCO	Dhaka Electricity Supply Company
EC	Energy Cost
GDP	Gross Domestic Product
GOB	Government of Bangladesh
HE	Electrified Houses
IE	Import Energy
IE	Interest Expenses
IPPs	Independent Power Producers
KV	Kilovolt
KWh	Kilo Watt Hour (Unit)
MU	Million Units (Million KWh)
MW	Mega Watt
OME	Operation & Maintenance Expenses
PBS	PalliBidyutSamity
PDB	Power Development Board
PF	Power Factor
PGCB	Power Grid Company of Bangladesh
REB	Rural Electrification Board
REP	Rural Electrification Program
SL	System Loss
TC	Total Supply Cost
TR	Total Revenue

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Abstract

This thesis is on “**Study on Determination of Electricity Distribution Cost of DPBS-1**”. Day-to-day challenges are becoming difficult to meet up the power crisis, especially in rural areas to meet up the power crisis. So, the government established the Rural Electrification Board (RRB) from the Bangladesh Development Board (BPDB) to meet up the rural electricity demand. This organization plays a significant role for the rural people. The purpose of this paper is to give a brief overview of REB and at the same time the socio-economic impact of REB reconsideration is emphasized. In my thesis, I have tried to study on whole power distribution scenario of DhakaPalliBidyutSamity-1 (PBS) for calculation of 2017-2018 fiscal years. A details study on primary data such as energy import, energy consumption, monthly consumer etc. has been discussed. This paper also demonstrated a details study on total distribution cost, distribution cost per unit, supply cost, supply cost per unit, total revenue per unit, energy purchase cost, system loss, surplus etc. The main goal of this thesis show that Dhaka PBS-1 is losable PalliBidyutSamity (PBS).

Keywords: Rural Electrification, REP, BREB, PBS.

Chapter 1

BREB AND DHAKA PBS-1

1.1 Introduction

Being a developing country, the demand for electricity in Bangladesh has been increasing at a significantly high rate day by day. Since independence, Bangladesh has a number of reconstructs in the power sector, but these reconstructions failed to make specific improvements in the power sector. There are three main components of an electrical power system, including generation system, transmission system and distribution system. The power sector has the most important problem with the distribution system, which is characterized by heavy system loss and poor collection performance; however, the distribution system rarely gets the priority in reconstruction initiatives. Therefore, keeping the distribution system obsolete, it is very difficult to achieve the benefits of reconstruct. In order to make it efficient and effective, its administration must be reconstituted. At the same time, its performance should be monitored continually on the basis of particular performance indicators. In any power distribution system in Bangladesh, the system should not exceed 10% of the loss of system, such as the collection-import (CI) ratio should be exceeded 90%. At the recommended level to maintain the system loss and the CI ratio, fraudulent behavior by utility workers must be stopped quickly. This will help to achieve economic stability. Bangladesh government has taken various projects to meet this fast-growing demand.

1.2 BREB

Bangladesh Rural Electrification Board or BREB, is owned by government and run, corporation in Dhaka, Bangladesh and is responsible for rural electrification. It is the leading power distribution company in Bangladesh. Rural Electrification Board was founded on 29 October, 1977 and started functioning on 1 January, 1978. It applies electricity to rural areas and builds electric lines and sub stations in Bangladesh. PalliBidyutSamities in a subsidiary of the board and

works as a consumer cooperative. The board has extended quickly to rural electric connections. It has accepted some market shares of solar energy.

Since origin, BREB puts forward the following major objectives in actualizing the rural electrification program.

- Ensure peoples participation in policy formulation in a democratic way.
- Provide reliable and sustainable electricity to the rural people at affordable price.
- Improve economic condition of the rural people by using electricity in agriculture, cottage and agro based industry.
- Improve living condition of rural peoples.
- Bring about entire rural Bangladesh under RE program or an area coverage basis.

Table 1.1: Rural Electrification Board at a Glance (as on July, 2018)

	Website	www.reb.gov.bd
1	Total PBSs	80 Nos.
2	Approved Projects	78 Nos.
3	District included in RE program	61 Nos.
4	Upazillas included in RE program	460 Nos.
5	100% Energized Upazillas	79 Nos.
6	Villages included in RE program	83,303 Nos.
7	Villages energized	74,926 Nos.
8	House Hold in Program Area	2,51,68,763 Nos.
9	Population in Program Area	10,68,93,673 Nos.
10	Line constructed	4,09,106 Km
11	Line energized	3,94,963 Km
12	Number of 33/11KV Sub-station & Capacity	867 Nos. & 10,075 MVA
13	System loss (80 PBSs)	11.43% (12 Month Avg), 15.43% (This Month)

14	Monthly Sales	Tk 1250 Crore
15	Bill collection	98.34%
16	Peak demand	6200 MW

17. Consumer (By category):

1)	LT-A (Domestic)	2,09,93,260
2)	LT-B (Irrigation)	2,18,993
3)	LT-C1 (Small Industry)	1,57,422
4)	LT-C2 (Construction)	569
5)	LT-D1 (Charitable Institute)	2,92,340
6)	LT-D2 (Street Light)	20,940
7)	LT-E (Commercial)	14,76,179
8)	LT-T (Temporary)	652
9)	MT-1 (Domestic)	83
10)	MT-2 (Commercial)	911
11)	MT-3 (Industry)	11,799
12)	MT-4 (Construction)	82
13)	MT-5 (General)	370
14)	MT-6 (Temporary)	67
15)	HT-1 (General)	7
16)	HT -2 (Commercial)	0
17)	HT-3 (Industry)	277
18)	HT-4 (Construction)	0
19)	EHT-1 (General)	0
20)	EHT-2 (General)	0
21)	Solar	13,745
Total		2,31,87,666

Ref: MIS July, 2018 & Line Construction Report

1.3 Future plane

The utility electricity sector in Bangladesh has one national grid with an installed capacity of 21,419 MW as of September 2019. The total installed capacity is 20,000 MW (combining solar power). Bangladesh's energy sector is booming. Recently Bangladesh started construction of the 2.4-gigawatt (GW) Rooppur Nuclear Power Plant expected to go into operation in 2023. According to the Bangladesh Power Development Board in July 2018, 90 percent of the population had access to electricity. However per capita energy consumption in Bangladesh is considered low.

Electricity is the major source of power for most of the country's economic activities. Bangladesh's total installed electricity generation capacity (including captive power) was 15,351 megawatts (MW) as of January 2017 and 20,000 megawatts in 2018.

The largest energy consumers in Bangladesh are industries and the residential sector, followed by the commercial and agricultural sectors.

As of 2015, 92% of the urban population and 67% of the rural population had access to electricity. An average of 77.9% of the population had access to electricity in Bangladesh. Bangladesh will need an estimated 34,000 MW of power by 2030 to sustain its economic growth of over 7 percent.

Bangladesh has 15 MW solar energy capacity through rural households and 1.9 MW wind power in Kutubdia and Feni. The government of Bangladesh has approved the construction by private developers of 19 on-grid solar parks, which would have cumulative generation capacity of 1070 MW.^[17] A solar power plant having a power generation capacity of 28 MW has recently started its operation in Teknaf of Cox's Bazar. Accounting this, the power generation capacity from renewable energy sources exceeds five percent of the country's total demand. Technical Solartech Energy Ltd (TSEL) has installed this power plant in Teknaf utilizing a total of 116 acres of land. Currently, the power plant is feeding 20MW to the national grid.

Bangladesh has planned to produce 10% of total power generation by 2020 from renewable energy sources like wind, waste, and solar energy. The country plans to increase its renewable energy share to 17% by 2041 under its Intended Nationally Determined Contribution (INDC) commitment to reduce greenhouse gas emissions by 5% until 2030.

1.4 PalliBidyutSamity (PBS)

The REB program is managed by the local rural electric associations called PalliBidyutSamity (PBS). The PBS concept is based on the Rural Electric Co-operatives model in the USA, which deals with cooperatives and consumers ownership. REB doesn't generate any electricity. They

purchase electricity from the National Grid or selected IPPs at the 33KV voltage stage. They are responsible for their 78 PBS members and the electricity supply to the customer.

Function of Samity Board:

The Samity Board in addition to other duties and responsibilities as prescribed within these Bye-Laws performs or cause to perform the following functions: 1. Generate, produce, manufacture, purchase, acquire, accumulate and transmit electric power and energy, and to distribute, sell, supply and dispose of electric power and energy to the Samity members, to Governmental agencies and others; 2. Administer and guide the business and affairs of the Samity; 3. Formulate plans, adopt policies, promulgate rules and Bye-Laws for the management, operations and conduct of the business affairs of a Samity; 4. Fix retail rate charges for sale of electricity, subject to approval by the Rural Electrification Board; 5. On behalf of the Samity, execute agreements, contracts, deeds and other legal documents with the Power Development Board, Autonomous or Semi-autonomous bodies, any person, organization or other bodies as deemed necessary and expedient, unless such powers have been reserved by the Bye-Laws of the Samity which assigned or delegated such powers to any other person.

1.5 DhakaPalliBidyutSamity-1

Since its beginning in 1978, DhakaPalliBidyutSamity-1 is playing an important role in Agricultural, Industrial and Socio-Economical development of Dhaka District. The Rural Electrification Program led by DhakaPalliBidyutSamity has acted a leap-forward in the development of the financial structure of rural regions in Jamalpur district as well as whole Bangladesh. In particular, the development of the jute industries plays an important role in the development of the livelihood of the people of Jamalpur District and the whole of Bangladesh, playing a leading role in the development of food, self-sufficiency in the fields of other large and small cottage industries and development of education, health and information technology through modern irrigation system. Women's employment and women's empowerment has been widespread, with the widespread employment of all the class people. It has a huge and continued effect on agricultural development, industrialization, business, and commercial functions in rural regions. It is a consumer possessed element sorted out on the fundamental standards of co-operative for distribution of electric power to its members and works on No Loss - No Profit reason for the common advantages of its entire member.

Table 1.3: DPBS-1 at a Glance (as on August 2018)

WEBSITE	www.dhakapbs1.org.bd
DATE OF REGISTRATION	13/12/1978
DATE OF ENERGIZATION	02/06/1980
AREA	486 Sq. Km
NO. OF UPAZILA	02
NO. OF UNION	15
NO. OF VILLAGE	488
NO. OF ENERGIZED VILLAGE	474
NO. OF ZONAL OFFICE	06
NO. OF AREA OFFICE	00
NO. OF COMPLAIN CENTRE	19
NO. OF CONTROL ROOM	01
NO. OF SUB-STATION (33/11 KV) Active	31
MAXIMUM DEMAND	315 MW
AMOUNT OF CONSTRUCTED LINE	2815 Km
AMOUNT OF ELECTRIFIED LINE	2538 Km
TOTAL CONSUMER CONNECTED (with service removals)	377663
CATEGORY WISE CONNECTIONS	
(i) DOMESTIC	342639
(ii) COMMERCIAL	27335
(iv) IRRIGATION	1105
(v) INDUSTRY	3246
(vi) OTHERS	2046

Now we can easily get information about get a new connection, billing and tariff rate or about PBS form the individual website of each PBS.

1.6 Objectives

Objectives of this research are discussed below:

1. Overall brief discussion: Overall brief discussion on electricity distribution cost determination of Dhaka PBS-1 will be discussed with proper recent information and data.
2. Study on data analysis: Study on data analysis of power distributions of Dhaka PBS-1 will be discussed. Proper and recent data from verified sources will be presented in chart and diagram.
3. Study on distribution losses and challenges: There will be a study on present distribution losses of DPBS-1. We will also discuss which challenges are making obstacle in the way of power development and there will a discussion on how we can solve our power related problems.

The main objective is that, we will learn about how to calculate month wise revenue data, cost calculation, import energy, sell energy, expenditure, distribution cost of energy according to the calculation of DPBS-1.

1.7 Research Methodology

We were aware during the course of our study and following discussions with representatives of the power division of the Department of Rural Electrification that there were no established techniques or methodology in this field of socio-economic research. Indeed, in view of uniqueness of the areas studied and the scarcity of suitable data, it is doubtful if any but a most general methodology could be established. Accordingly, we describe in greater detail than might be normal, the concepts, definitions and difficulties encountered in our approach to the study in the expectations that such descriptions will be of use in future studies. We highlight a number of reform options and recommendations for industry and household energy use policies. Losses are important as there is an environmental and economic cost associated with them.

In this research, a methodology or a model based on System dynamic approach has been developed to make more energy available at affordable prices to enable all people to use modern energy to meet their basic needs. To slow overall growth of energy consumption through conservation and energy efficiency improvement and to make energy sources more environmentally sustainable.

Today BREB have 78 operating rural electric cooperatives called PalliBidyutSamity (PBS). For research, I choose the Dhaka PBS-1 which is establish nearest my home town. I collected some primary data from Dhaka PBS-1, BREB and BERC.

1.8 Thesis Outline

This Thesis is organized as follows:

Chapter 1 BREB and DPBS-1

Chapter 2 Literature Reviews

Chapter 3 Socio-economic Impact of REP in Bangladesh

Chapter 4 Import Energy of Dhaka PBS-1

Chapter 5 Revenue and Consumers of DPBS

Chapter 6 Electricity Cost and Rate

Chapter 7 Conclusion

CHAPTER 2

LITERATURE REVIEWS

2.1 Literature Review

Electric power distribution system is essentially is the system that receives power from one or more points of power supply. The most familiar portion of electricity supply is distribution. Electric power distribution is the final stage of delivery electric power. It carries electricity from the transmission system to individual consumers. The first power distribution systems installed in European and US cities were used to supply lighting. Distribution substations connect to the transmission system. The lower the transmission voltage to medium voltage ranging. Commercial and residential customers are connected to the secondary distribution lines through service drops. Customers demanding a much larger amount of power may be connected directly to the primary distribution level or the sub transmission level.

Barry Hayes and Milan Prodanovic provided a survey of techniques for state estimation in electric power distribution systems. Although estimates of the state for decades has been applied for monitoring and control of power transmission, distribution grid to date it has not been widely applied[4].Sachidananda Prasad ; DullaMallesham Vinod Kumar presented that a bibliographical survey of different methods used for state estimation in electric power distribution network [5]. Gabriele D'Antona ; Carlo Muscas ; Sara Sulis, mentioned that the impact of economical and technological changes on electric distribution systems, such as market liberalization and increasing diffusion of nonlinear loads, creates new management, control and monitoring issues[6].C. Unsihuay ; O.R. Saavedra reported that transmission losses are a significant component of the amount of power to be generated in order to meet the power demand. Today, in competitive operating under pool-based, bilateral contracts or hybrid model, transmission losses must be allocated among the market participants. This process should take in account the buyer and seller spatial locations on the network as well as the non-linear interaction among simultaneous transactions in order to reflect the real market operation and adequate economic efficiencies [7].M.S.Alam, E.Kabir, M.M.Rahman and M.A.K.Chowdhury reported that no loss

of system loss should be exceeded by 10% of any power distribution system found in Bangladesh, such as the collection-import (CI) ratio should be kept above 90%. In order to maintain system loss and CI ratio, at the recommended level, utility workers should stop corruption quickly. This will help to achieve economic stability [8]. Shahidur R. Khandker, Douglas F. Barnes and Hussain A. Samad pointed that Lack of access to electricity is one of the major impediments to growth and development of the rural economies in developing countries. That is why access to modern energy, in particular to electricity, has been one of the priority themes of the World Bank and other development organizations. Using a cross-sectional survey conducted in 2005 of some 20,000 households in rural Bangladesh, this paper studies the welfare impacts of households' grid connectivity [9]. Mahedi Masuduzzaman tried to investigate the relationship between economic growth, electricity consumption and investment for Bangladesh through co-integration and causality analysis over the period 1981 to 2011 [10].

Yohanis, Mondol, Wright and Norton revealed that Domestic power consumption relies upon the area, structure and construction of a residency, and the detail of warming systems and their controls together with the proficiency of apparatuses and the attitude and socio-demographical characteristics of inhabitants [11]. They also pointed out that the electrical energy needs of the family can change each hour of every day, weekdays and weekends, and for various months of the year. Energy conservation measures are largely determined by income: a low-income consumer can invest only a small amount of money; where a high-income consumer is able to take long payback deadlines.

Navani, Sharma, Sapra reported that the world “distribution losses” refers to the difference between the quantity of energy delivered to the distribution system and the amount of energy customers is charged. They also designated that the losses on the total distribution government organizations) and human development bodies have extended their activities in remote rural areas to help govt’s efforts at poverty alleviation and human development. By dint of electricity, NGOs are encouraging varied human endeavors in the form of handicraft development and cross-cultural interchanges. These things ultimately reduce migration towards cities and relieve them of stagnation of infrastructures and civic amenities. On the other hand, it ensures effective and maximum utilization of human and other properties [12].

Systems are equivalent to non-technical losses as well as technical losses. Mentioned the causes for such high losses are; insufficiency of enough T & D capability, too many conversion levels, inappropriate load distribution and extended rural electrification etc.

We focus on a number of alternative reforms and recommendations for industry and household energy use policies. Losses are important as an environmental and economic cost related with them. In this study, a system or model has been developed based on the dynamic method of the system, which can provide more energy at affordable cost so that all people are able to use modern energy to fulfill their basic demands. Reduce overall growth of energy consumption through conservation and energy efficiency improvement and to make energy sources more environmentally sustainable.

Chapter 3

SOCIO-ECONOMIC IMPACT OF RURAL ELECTRIFICATION PROGRAM (REP) IN BANGLADESH

3.1 Background

Energy and environmental policies are being shaped at the national and international levels in response to a wide range of challenges. Rural Electrification Program (REP) in Bangladesh started its journey in 1978, primarily with the technical assistance of National Rural Electrification Cooperative Association (NRECA) of United States of America with an aim to provide the electricity outside the urban strata. The program is based on the concept of member-owned, PalliBidyutSamity (PBS) similar to the rural electric cooperatives that exist in the United States. Seventy-eight PBSs have been organized to date in Bangladesh.

REP aimed initially at electrification of irrigation pumps and tube-wells, agro-based industries and serving domestic and commercial loads of only those villages, which fall right alongside the electrical distribution facilities built for irrigation purposes. To date, electricity made available through PBS areas, is intended to use for all possible applications that serve the purpose of improved living conditions of rural populace

3.2 Impacts in Different Sector

3.2.1 Social and Economic Impact – Household Level

Extension of infrastructure in rural regions is essential for bringing any meaningful modification in the rural living patterns. Before our liberation in the year 1971, we had few facilities made for

the rural citizenry. Almost, the government had few opportunities for elaboration of the distribution network in a massive scale. In 1972, Rural Electrification Directorate (under The Bangladesh Power Development Board) was established to gear up efforts towards formation of a separate body responsible for electrifying rural areas. In 1976 NRECA conveyed a feasibility study for reaching electricity to each and every rural household and other rural organizations. As a result, the Rural Electrification Board was organized to take up efforts at bringing variations in rural living patterns.

Over the final 38 years, the program has touched approximately 433 thanes of the country, hence fixing it a core development program. The program has brought light to many families, so far remaining in perfect darkness. It has afforded them the enlightenment towards innovative living, freedom from poverty, malnutrition and hunger. Electricity has brought many families near to the rural households. Some of them are thinking of leading new initiatives in industrial and farming sectors.

Rural Electrification is a multi-dimensional economic and social impact at the household level; both are real and impossible; both are real and incomparable. The multifaceted impacts and benefits are either direct or indirect. In 2015, consume more than 65% of the electricity supply provided in the rural areas of the household. Most of the direct impact on the economy, and increased income, and employment, and cost optimized pattern, surpluses, savings, and wealth is reflected in the building. Most of the indirect impacts are related to the social and cultural aspects of life, including topics such as education, health, women's status, modernization, etc. among others. These direct and indirect benefits together bring economic growth, poverty reduction, and tolerance to human development.

3.2.2 Impact on Income Sector

Statistics Bureau of Bangladesh says the average monthly household income is approximately at Tk. 11,479 at the national level, Tk. 9,648 in the rural area and Tk. 16,475 in the urban area. The same was Tk. 7,203 at the national level, Tk. 6,095 in the rural area and Tk. 10,463 in the urban area. Average nominal income increased by 59.38 percent at the national level, 58.27 percent in the rural area and by 57.48 percent in the urban area. Real incomes increased by 15 percent at the national level, 13 percent in the rural areas and 14 percent in the urban areas. Such growth is indeed small for a period of five years and it primarily reflects significant under-reporting of

income. The average annual income of households with electricity (HE) is more than that in the households of non-electrified villages. As compared to the non-electrified households, the electrified households show a higher income inequality but with higher income in the comparison groups. This means the electrified households can be characterized as being relatively high-income inequality with relatively high income. This means that the relatively high income of the electricity family can be identified as relatively high-income discrimination.

3.2.3 Impact on Employment

Rural Electric societies have provided jobs to rural families/youths. In addition, a total of 8000 persons are employed in the construction firms and consulting offices working for the program. Rural people now have much better work-habits and an improved sense of discipline and social security, which came as a result of the assurances of basic amenities in life.

3.2.4 Impact on Education

Compared to the non-charged family units, the general proficiency rates for both male and female in the energized were essentially higher, particularly because of the family unit's entrance to power which has contributed much both in monetary terms just as in bringing issues to light about the estimation of instruction. The rich-poor gap in proficiency was additionally less articulated in the jolted than that in the non-energized family units. The nature of instruction estimated as far as family unit use on training, marks (grades) got in the last examinations, school drop-outs, school participation rate, and time spent for concentrate by understudies around evening time – all discovered much enhanced in the charged than in the non-jolted family. Power matters in enhancing the nature of training. These quality enhancements in the charged family units work through differ numerous channels: additional time accessible for concentrate after the nightfall, the nature of that time because of adequate light and fan for solace, fortifying the information based because of access to TV (which thus builds the craving for learning), guardians (particularly moms/other senior female individuals) dedicate additional time in helping youngsters' instruction contrasted with before power and so on.

3.2.5 Impact on generation dimension: Women's empowerment changing status and modernization effects

Rapid electrification of our rural housewives and other consumers has accelerated up the timely use of natural and other representations. Women enjoy electricity in rural regions. They can perform extra work after homework and can add to the household income. Women are self-reliant, producing small groups for income generation, particularly poultry and cattle, making plant farms and taking projects of sewing projects and sewing and opening small shops. Lighter use during the evening ensures a safe movement of women elsewhere. Power mobility, participation in income generation activities (IGA), decision making, freedom of income and savings, good utilization of loans, knowledge about gender discrimination problems, housework planning, change attitudes on convenience, health care, reduction in discrimination, overall schooling for children and girls Growth, sending girls to school, legal matters Awareness (IE, 18-year-old daughters and 1-year-old boys) and awareness of the negative effects of dowry. In the power plants, women have adopted gender equality, such as participation in the decision making process, land / livestock / purchase / sale, home repair, marriage, health and education. Women spend more time watching TV than listening to radio and other programs in news and health-related programs. They are receiving more knowledge and thus are creating the effects of modernization. Among the 15 areas that are broadcasted through radio / TV, the quality of health (1), quality of education (2), quality of education of women (3), the usefulness of family planning (4), development of knowledge through development of the press (5), agricultural practice Improvements 6), Modern fishing knowledge (7), Pest management (8), Government knowledge Khaas land distribution (9), dowry prohibited (10), law on divorce (11), legal tools against women abuse (12), local government issues (13), women's rights (14) and human rights issues (15).

3.2.6 Impaction Direct Users of Domestic Electricity: Problems of Supply Interruptions

Changes in habits mediated through electricity have taken place. The best change in habit and leisure activities have a direct positive impact on improving the quality of life and changing the outlook of people towards a better life. Prime power should be adjusted, should be adjusted regularly at 6-10 and irregular supply of the summer season should be conducted to attempt to resolve the problem for all damages. This can be identified as electricity-driven demand creation for an improved standard of living. Irregularity of power supply and load shedding are serious problems in REP. In the summer most of the time, irregular electricity is supplied and 6-10 PM

is the most irregular supply time. These results are enough to increase the question of supply of power quality through REP in the PBS. The policy implications are straight forward: ensuring the regularity of electricity (or reducing the frequency of irregularities); power supply during the prime time, should be adjusted regularly at 6-10 and irregular supply of the summer season should be conducted to attempt to resolve the problem for all damages. Perhaps more likely to be the most important way to solve the problem of generating electricity due to population growth and increasing the electricity demand in rural households.

3.2.7 Impact on industrial development

The industry is the second most noteworthy consumer of rural electricity utilizing 42.3% of the absolute MWH. During the most recent twenty years, the all-out number of the industrial consumer of rural electricity has expanded 3210 times and the average number of industrial connections per PBS has expanded 550 times. Considerable development in industrial output (both as far as volume and value) has been recognized in the investigation. During the last five years, the development in value was about 295% in charged businesses. The absolute volume of output (as far as the ton) has expanded by 78%, while a similar development was just 8% in non-energized industry. The volume of output regarding piece unit (other than ton and mound) grew up by 121% in charged family units, and it was – 0.44% (negative) in non-energized enterprises during the last five years.

3.2.8 Impact on local governance and democratization

PBS individuals choose the Board of Directors by direct casting a ballot which makes a chance to build an informal community among the clients and to have command over the systems that permit their voices at the PBS management level. Since power made a friendly environment for political and get-together, network and patio meeting, individuals spend a more extended period in association gathering, clubs, cooperatives, and sanitation and strongly take an interest in neighborhood-level basic leadership. Less than one-third of the PBS members (29.6%) were found to know the qualification criteria to be a Director, about one-fourth (23.9%) of the PBS members reported to attend the last AGM and majority of the PBS members (65%) never cast their vote. Referenced purposes behind not taking an interest in PBS election were – the distance of PBS election centers from the home, lack of time and transport fare and so on.

3.2.9 Impact on irrigation and agricultural production

In agriculture, Rural Electricity Program (REP) improves food self-sufficiency using significant productive and effective irrigation equipment's. The intensity of the use of electricity and the supply pumps (DTW/STW/LLP), both higher than diesel. Under the power supply pump, the average revenue per acre is more than 24% higher than diesel. Power supply pumps contribute one-third of the food self-sufficiency in Bangladesh. Through its Electrified Irrigation Pump, the REP covers the 4.1 million acres of land for the HVV Boro and Aman. RRP produces 6.43 million tons of HVV boro and aman, which is about 29% of all types of rice produced in Bangladesh. 20% discount of electricity bill in irrigation pumps approved by the government, encourages farmers to increase the agricultural evolution. As a result, agricultural productivity have increased, availability of rice & other food items in villages has helped rural people keep up better food habits.

3.2.10 Social Impact of Mass Media

Living pattern in rural areas have changed due to introduction of new consumer items and like Refrigerator, Television, Radio, Cassette Players, Fans etc. Villages are experiencing a kind of urbanization in the shape of civic amenities, regular education, sanitation and health care and enhanced economic activities. By dint of TV, people are now keeping informed about the latest state of sports, culture and political developments. As the satellite has opened up the world before the eyes, people get acquainted with the world and this ensures their early socialization. The workload of women has reduced and they have sufficient time to watch TV, listen to radio and can assist children in their education.

3.3 Summary

Rural electrification has positive impacts in both social and economic sectors. Rural electrified industries have been playing an important role in transforming the living condition of the rural people, whose fortune was tied up with subsistence agriculture until the coming of rural electrification. 90% of rural areas in Bangladesh can develop rural electrification technologies, as well as the development of the country.

CHAPTER 4

IMPORT ENERGY OF DHAKA

PBS-1

4.1 Introduction

The demand of electricity is increasing day by day. Crisis of power is one of the major problems in Bangladesh. For economic emancipation and in order to meet the consumer demands, the electricity growth that is generating more electricity, building more transmission/ distribution capacity, bringing more area/ population under electricity coverage and ensuring more efficient management of these are the essential issues. The Government of Bangladesh (GOB) has decided to build power plants in private sectors and Independent Power Producers (IPPs) launched their business in Bangladesh. According to the power sector growth in the country, the PBSimport 133.464 to 154.755 MKWh power each month to meet the growing demands of the consumers and average import per month 129.586MKWh for the year of 2016-2017. In this chapter brief the history of the DPBS-1, their energy import scenarios are discussed.

4.2 DPBS-1 Import from BPDB

DPBS-1 imports electricity only from government sector to meet their consumer demand. DPBS-1 does not import energy from any others to provide electricity to the different level of consumers. In this chapter we discuss about Energy Purchase and purchase cost from Public and private sector for three years (2015-2016, 2016-2017 & 2017-2018), also explain about different grid capacity, supply and peak demand, system loss, KWh sold to the consumers.

4.3 Data Analysis

Table 4.1.1: Energy Import of DPBS-1, 2015-16

Import point	July'15			August'15		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	62,069,184	107,224,012	8.24	75,699,360	122,202,771	9.02
Gazipur Pbs	4,337,152			4,647,041		
Ashulia 11MW	5,619,960			5,822,355		
Power Station (34)	17,527,800			20,003,264		
Dhaka Pbs 3	5,041,649			5,093,474		
Upgd Co Ltd	22,251,360			23,050,080		
Total	116,847,105					

Import point	September'15			October'15		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	65,588,064	109,949,082	6.47	72,619,872	120,527,938	7.85
Gazipur Pbs	4,603,553			4,491,647		
Ashulia 11MW	5,096,727			6,390,761		
Power Station (34)	17,510,291			16,962,068		
Dhaka Pbs 3	5,622,385			6,822,221		
Upgd Co Ltd	19,139,040			23,513,280		
Total	117,560,060					

Import point	November'15			December'15		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	55,693,824	101,412,978	6.25	41,886,048	93,841,158	8.11
Gazipur Pbs	3,619,701			3,664,962		
Ashulia 11MW	5,560,020			5,994,000		
Power Station (34)	17,630,400			18,047,400		
Dhaka Pbs 3	4,985,278			4,024,737		
Upgd Co Ltd	20,679,840			28,510,560		
Total	108,169,063					

Import point	January'16			February'16		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	46,595,328	92,467,271	2.04	57,253,728	99,643,917	3.89
Gazipur Pbs	4,099,091			4,126,976		
Ashulia 11MW	5,471,460			6,119,460		
Power Station (34)	13,952,400			14,253,000		
Dhaka Pbs 3	3,709,935			3,487,119		
Upgd Co Ltd	20,562,240			18,431,520		
Total	94,390,454					

Import point	March'16			April'16		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	74,954,304	115,713,711	7.90	88,049,664	124,462,970	7.86
Gazipur Pbs	4,235,994			4,817,883		
Ashulia 11MW	5,916,240			4,585,680		
Power Station (34)	19,636,200			17,589,600		
Dhaka Pbs 3	6,057,490			6,984,014		
Upgd Co Ltd	14,834,400			13,046,400		
Total	125,634,628					

Import point	May'16			June'16		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	82,785,504	118,113,823	9.08	96,306,720	126,911,812	10.21
Gazipur Pbs	3,841,285			6,123,600		
Ashulia 11MW	5,449,180			5,229,489		
Power Station (34)	17,737,200			19,465,200		
Dhaka Pbs 3	6,967,200			7,261,832		
Upgd Co Ltd	13,129,440			6,956,640		
Total	129,909,809					

From the above table, in July 2015, DPBS-1 import 116,847,105 KWh units, where 62,069,184 units from Kabirpur Grid, 4,337,152 units from Gazipur Pbs , 5,619,960 units Ashulia 11MW Grid, 17,527,800 units from Power Station (34) . As per statistics both grids provide electricity to DPBS-1. In June 2016, DPBS-1 import 141,343,481 units where 96,306,720 units from Kabirpur Grid, 6,123,600 units from Gazipur Pbs 5,229,489 units from Ashulia 11MW , 19,465,200 units from Power Station (34).

The rest of the month energy import analysis showed in the Table: 4.2.3. The demand of the electricity varies with different season in Bangladesh, like as winter, summer, and rainy season. I try to show relevant analysis for winter and summer seasons. In June 2017, the energy import is 141,343,481units, which is high import from previous months and system loss is also comparatively high and it's an effect of summer season because in the summer, energy consumption of different consumer is high, especially for domestic side. Same as at April, 2016 the energy import is 135,073,241units which is also quite high.

On the other hand, the energy imports for the month of December, January are low to compare as other months of the year. It is seasonal effect of winter when the domestic consumer consumes lower amount of electricity and same as some industries are consume lower amount of energy as per demand of production. In January 2016, the energy import is 94,390,454units, which is lower import than the previous. In February 2016, the energy import is 103,671,803units, which is higher from previous month. The system loss is not quite same. In January 2016, the system loss is 2.04%, which is lowest from the others month of the year but in June 2017, the system loss is higher. Again the energy import demand is high for the month of March, April, May and June 2016. For June 2016, energy import is 141,343,481units which is the highest amount of import for the year and the system loss is 10.21%, which is comparatively highest of the year. As per statistics, only grid provides electricity to DPBS-1. We present energy import scenario in this chapter by showing graphical figure.

Table 4.1.2: Energy Import of DPBS-1, 2016-17

Import point	July'16			August'16		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	78,149,376	124,028,342	7.07	96,927,072	131,407,524	7.85
Gazipur Pbs	4,652,977			3,930,900		
Ashulia 11MW	5,821,020			6,200,223		
Power Station (34)	19,318,200			17,868,000		
Dhaka Pbs 3	6,891,626			7,473,738		
Upgd Co Ltd	18,630,720			10,208,640		
Total	133,463,919			142,608,573		

Import point	September'16			October'16		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	78,882,144	116,953,348	6.79	92,115,264	135,919,887	8.37
Gazipur Pbs	5,398,042			18,559,826		
Ashulia 11MW	5,312,405			6,144,840		
Power Station (34)	15,223,200			15,392,400		
Dhaka Pbs 3	6,683,951			7,132,274		
Upgd Co Ltd	13,973,280			8,987,040		
Total	125,473,022			148,331,644		

Import point	November'16			December'16		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	61,683,744	118,370,537	2.04	66,936,096	97,546,205	8.31
Gazipur Pbs	13,385,459			5,674,644		
Ashulia 11MW	4,860,180			5,642,820		
Power Station (34)	14,384,400			11,883,600		
Dhaka Pbs 3	5,636,716			5,178,677		
Upgd Co Ltd	20,890,080			11,070,720		
Total	120,840,579			106,386,557		

Import point	January'17			February'17		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	66,029,406	101,407,634	1.87	61,227,645	106,518,602	0.90
Gazipur Pbs	7,374,223			14,522,600		
Ashulia 11MW	5,440,680			4,480,920		
Power Station (34)	11,986,800			13,992,000		
Dhaka Pbs 3	5,124,356			4,941,118		
Upgd Co Ltd	7,380,960			8,325,120		
Total	103,336,425					

Import point	March'17			April'17		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	70,589,523	117,160,427	7.33	73,910,917	125,963,566	8.11
Gazipur Pbs	21,170,433			28,701,160		
Ashulia 11MW	4,757,220			4,461,300		
Power Station (34)	14,865,600			15,517,800		
Dhaka Pbs 3	6,359,743			7,516,386		
Upgd Co Ltd	8,691,840			6,972,960		
Total	126,434,359					

Import point	May'17			June'17		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	84,399,027	139,513,584	9.85	70,891,237	134,522,383	9.63
Gazipur Pbs	33,656,330			40,375,708		
Ashulia 11MW	5,302,620			5,513,580		
Power Station (34)	17,249,400			14,626,200		
Dhaka Pbs 3	8,762,981			7,976,441		
Upgd Co Ltd	5,384,160			9,466,560		
Total	154,754,518					

From the above table, in July 2016, DPBS-1 import 133,463,919 KWh units, where 78,149,376 units from Kabirpur Grid, 4,652,977 units from Gazipur Pbs, 5,821,020 units from Ashulia 11MW Grid, 19,318,200 units from Power Station (34). As per statistics both grids provide electricity to DPBS-1. In June 2017, DPBS-1 import 148,849,726 units where 70,891,237 units

from Kabirpur Grid, 40,375,708 units from Gazipur Pbs , 5,513,580 units from Ashulia 11MW , 14,626,200 units from Power Station (34).

The rest of the month energy import analysis showed in the Table: 4.2.2. The demand of the electricity varies with different season in Bangladesh, like as winter, summer, and rainy season. We try to show relevant analysis for winter and summer seasons. In May 2017, the energy import is 154,754,518units, which is high import from previous months and system loss is also comparatively high and it's an effect of summer season because in the summer, energy consumption of different consumer is high, especially for domestic side. Same as at October, 2016 the energy import is 148,331,644units which is also quite high.

On the other hand, the energy imports for the month of December, January are low to compare as other months of the year. It is seasonal effect of winter when the domestic consumer consumes lower amount of electricity and same as some industries are consume lower amount of energy as per demand of production. In January 2017, the energy import is 103,336,425units, which is lower import than the previous. In February 2017, the energy import is 107,489,403units, which is higher from previous month. The system loss is not quite same. In November 2016, the system loss is 2.04%, which is lowest from the others month of the year but in April 2017, the system loss is higher. Again the energy import demand is high for the month of March, April, May and June 2017. For May 2017, energy import is 154,754,518units which is the highest amount of import for the year and the system loss is 9.85%, which is comparatively highest of the year. As per statistics, only grid provides electricity to DPBS-1. We present energy import scenario in this chapter by showing graphical figure.

Table 4.1.3: Energy Import of DPBS-1, 2017-18

Import point	July'17			August'17		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	85,043,091	162,405,742	7.88	90,690,133	164,958,802	6.76
Gazipur Pbs	49,519,908			48,235,833		
Ashulia 11MW	5,963,580			4,794,120		
Power Station (34)	18,911,400			18,504,000		
Dhaka Pbs 3	8,908,320			9,130,868		
Upgd Co Ltd	7,959,360			5,558,880		
Total	176,305,659			176,913,834		

Import point	September'17			October'17		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	75,190,845	146,084,720	3.58	88,959,377	153,088,503	6.99
Gazipur Pbs	40,547,127			44,010,399		
Ashulia 11MW	4,750,740			4,702,320		
Power Station (34)	15,136,200			13,912,800		
Dhaka Pbs 3	7,962,466			7,981,984		
Upgd Co Ltd	7,920,480			5,024,640		
Total	151,507,858					

Import point	November'17			December'17		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	63,197,462	137,489,490	1.07	49,728,467	119,949,192	5.67
Gazipur Pbs	38,282,001			34,761,435		
Ashulia 11MW	5,573,880			18,886,580		
Power Station (34)	16,503,600			6,015,213		
Dhaka Pbs 3	6,241,535			5,936,273		
Upgd Co Ltd	9,184,320			11,837,280		
Total	138,982,798					

Import point	January'18			February'18		
	Unit	Total	Substation	Unit	Total	Substation
	kWh(Purchase)	KWh(sold)	SL %	kWh(Purchase)	KWh(sold)	SL %
Kabirpur Grid	50,941,288	120,104,842	4.05	48,298,352	119,221,381	1.28
Gazipur Pbs	35,424,308			34,763,346		
Ashulia 11MW	5,896,260			5,093,560		
Power Station (34)	18,894,000			17,070,000		
Dhaka Pbs 3	6,203,605			5,996,197		
Upgd Co Ltd	7,815,360			9,540,000		
Total	125,174,821					

Import point	March'18			April'18		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	81,220,284	153,030,421	8.95	75,536,604	150,033,026	5.75
Gazipur Pbs	46,577,685			42,238,750		
Ashulia 11MW	5,171,040			4,896,720		
Power Station (34)	18,231,000			17,823,600		
Dhaka Pbs 3	9,066,279			8,447,423		
Upgd Co Ltd	7,800,960			10,235,040		
Total	168,067,248			159,178,137		

Import point	May'18			June'18		
	Unit	Total KWh(sold)	Substation SL %	Unit	Total KWh(sold)	Substation SL %
	kWh(Purchase)			kWh(Purchase)		
Kabirpur Grid	81,017,577	162,693,161	6.70	77,743,082	149,204,734	10.25
Gazipur Pbs	48,372,931			44,258,324		
Ashulia 11MW	5,757,840			4,624,020		
Power Station (34)	19,121,400			18,174,000		
Dhaka Pbs 3	9,392,915			9,438,021		
Upgd Co Ltd	10,712,640			12,001,921		
Total	174,375,303			166,239,368		

4.4 Graphical Analysis

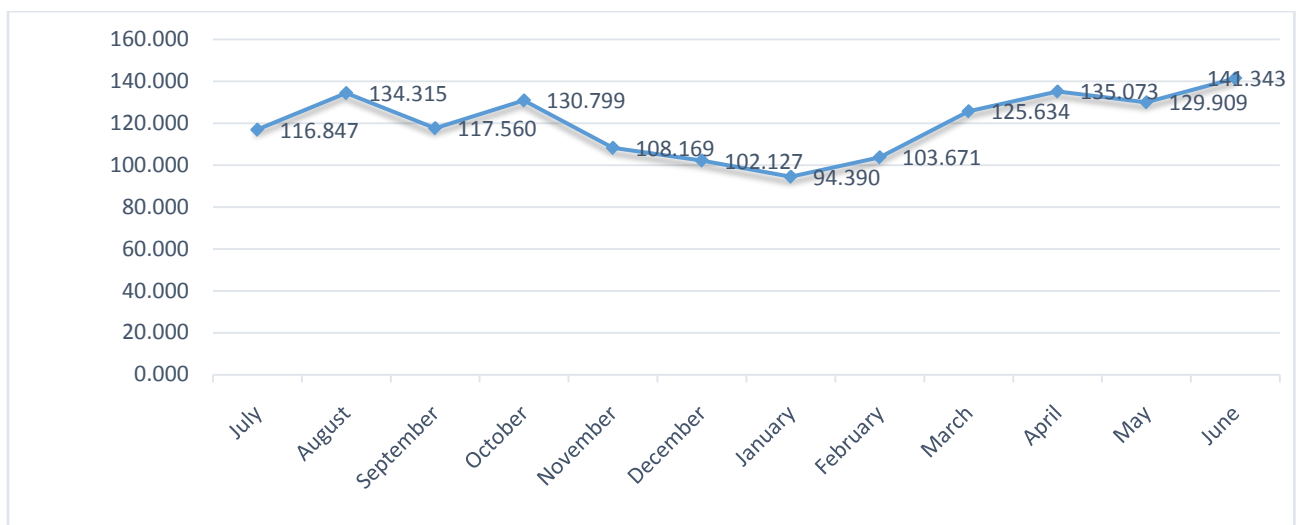


Fig 4.1.1: Month wise Energy Import (MU) of DPBS-1, 2015-2016

The line graph shows estimated month wise energy import (MU) of DPBS-1, 2015-2016. From the line graph, the high energy import is in July, August, September October 2015 and April, May, June 2016. The lowest point during the period shown here is in November, December 2015 and January, February 2016. Overall the graph shows that the energy imports and supply to the consumer may vary season to season.

To control the load needs by proper load management, it can be possible to encourage Independent Power Producers (IPPs) and reduce transmission loss. Considering the inclusion of IPP and Local Government (GOV), the Central Government should take the initiative to develop skilled manpower for the power sector, to increase power generation and to ensure the proper use of Bangladesh, Central GOV can take responsibility.

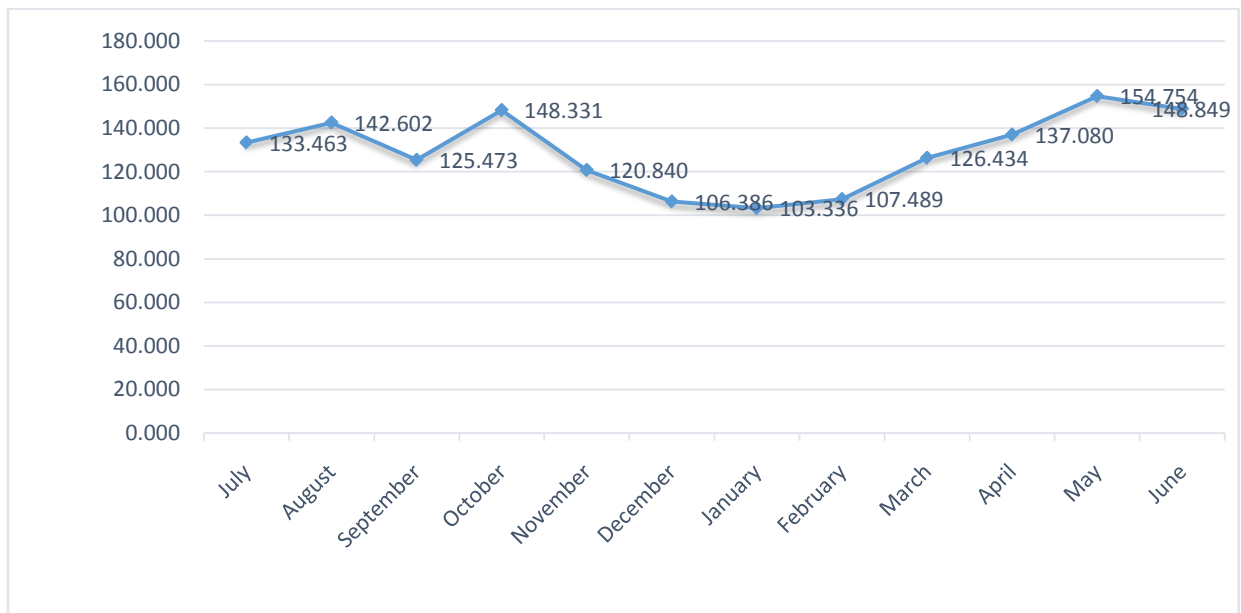


Fig 4.1.2: Month wise Energy Import (MU) of DPBS-1, 2016-2017

The line graph shows estimated month wise energy import (MU) of DPBS-1, 2016-2017. From the line graph, the high energy import is in July, August, September October 2016 and April, May, June 2017. The lowest point during the period shown here is in November, December 2016 and January, February 2017. Overall the graph shows that the energy imports and supply to the consumer may vary season to season.

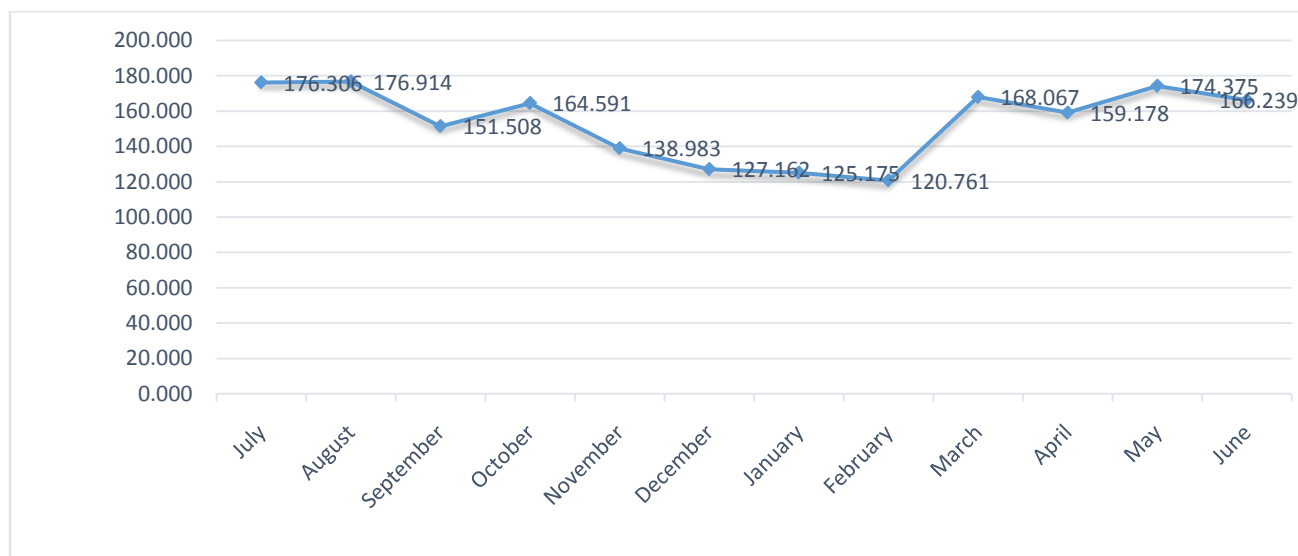


Fig 4.1.3: Month wise Energy Import (MU) of DPBS, 2017-2018

4.5 Substations of DPBS-1

There are many substations under DPBS-1 which are connected with different grids. The energy storage and consumption different from one substation to another substation based on the location, consumer demand, industrial zone, transmission distance and many factors. The imported energy may reduce during the transmission process due to system loss.

DPBS-1 all substation names listed below-

1. Palashbari-1
2. Palashbari-2
3. Bismile(Desa)
4. Bismile(PBS-1)/776
5. Bismile(PBS-2)/761
6. Dairy Farm
7. DEPZ-1(Unit-10)
8. DEPZ-1(Unit-2)
9. DEPZ-2(Unit-1)
10. DEPZ-2(Unit-2)
11. Atomic Energy
12. BKSP
13. Bengal Plastic
14. Kabirpur Radio

15. Kabirpur
16. Sreepur
17. KaliaKair-2(Unit-10)
18. KaliaKair-2, Kall-4
19. Kaliakair-1
20. Mouchak-1
21. Mouchak-2
22. Vannara
23. Apex Pharma
24. Fantasy(New)
25. Ashulia
26. Yearpur-1 (ACR)
27. Yearpur-2
28. AEC Unit-2
29. CP Bangladesh 33

4.6 System Losses

Table 4.2.1: System Loss of DPBS-1 in 2015-16

Month	Grid Wise Import (MKWh)	Substation Wise Import (MKWh)	Unit Sold at Consumer End (MKWh)	Total System Loss (MKWh)	Sub-station System Loss (MKWh)	Grid to 33 KV Line Loss (MKWh)
July	116.847	115.994	107.224	9.623	8.770	0.853
August	134.315	134.046	122.202	12.113	11.844	0.269
September	117.560	116.917	109.949	7.611	6.968	0.643
October	130.799	125.032	120.527	10.272	4.505	5.767
November	108.169	103.474	101.412	6.757	2.062	4.695
December	102.127	99.267	93.841	8.286	5.426	2.860
January	94.390	94.190	92.467	1.923	1.723	0.200
February	103.671	102.435	99.643	4.028	2.792	1.236
March	125.634	121.758	115.713	9.921	6.045	3.876
April	135.073	129.867	124.462	10.611	5.405	5.206
May	129.909	123.227	118.113	11.796	5.114	6.682
June	141.343	138.447	126.911	14.432	11.536	2.896

As we found from the Table 4.2.1, Total loss of energy in summer is much higher than winter. Heat increases the line resistance and resistance makes the amount of loss higher. 33 KV Line losses are quite similar but sub-station system losses differ huge. Where from November, 2015 to February, 2016; during winter season, system losses were below than 3 MKWh. In July, August

2015 and May, June 2016; both of these in summer, we found the total system loss about 3 times higher than winter.

PBS says illegal use of electricity is also responsible for this. Illegal use of electricity rise in summer very badly. That’s why; loss is much higher in summer. PBS try to stop illegal use of electricity but public awareness can stop this “Thief Loss”. PBS also has some loss for storms during summer and rainy season.

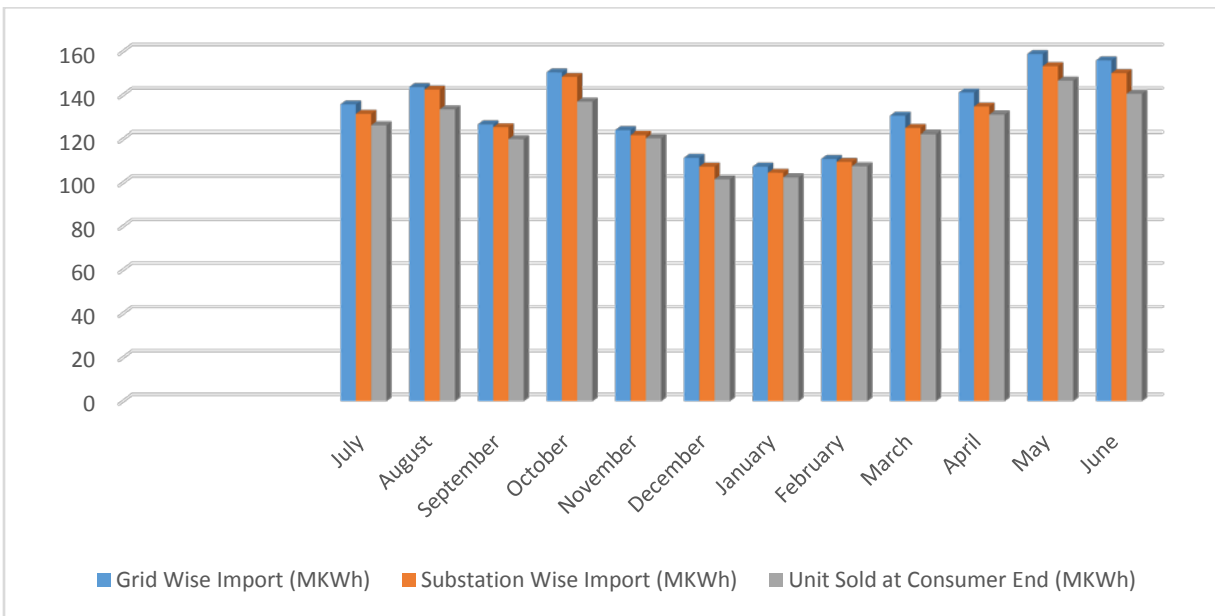


Fig 4.2.1: Grid and Sub-station wise import with Unit sold at consumer end, 2015-2016

Table 4.2.2: System Loss of DPBS-1 in 2016-17

Month	Grid Wise Import (MKWh)	Substation Wise Import (MKWh)	Unit Sold at Consumer End	Total System Loss (MKWh)	Sub-station System Loss (MKWh)	Grid to 33 KV Line Loss (MKWh)
July	133.463	128.321	124.028	9.435	4.293	5.142
August	142.608	139.429	131.407	11.201	8.022	3.179
September	125.473	122.179	116.953	8.520	5.226	3.294
October	148.331	145.285	135.919	12.412	9.366	3.046
November	120.480	118.771	118.370	2.110	0.401	1.709
December	106.386	104.363	97.546	8.840	6.817	2.023
January	103.336	101.579	101.407	1.929	0.172	1.757
February	107.889	106.536	106.518	1.371	0.018	1.353
March	126.434	121.852	117.160	9.274	4.692	4.582
April	137.080	131.678	125.963	11.117	5.715	5.402
May	154.754	150.158	139.513	15.241	10.645	4.596
June	148.859	146.997	134.522	14.337	12.475	1.862

From the Table 4.2.2, Total loss of energy in summer is much higher than winter. Heat increases the line resistance and resistance makes the amount of loss higher. 33 KV Line losses are quite similar but sub-station system losses differ huge. Where from November, 2016 to February, 2017; during winter season, system losses were below than about 4 MKWh. In July, August 2016 and May, June 2017; both of these in summer, we found the total system loss about 3 times higher than winter.

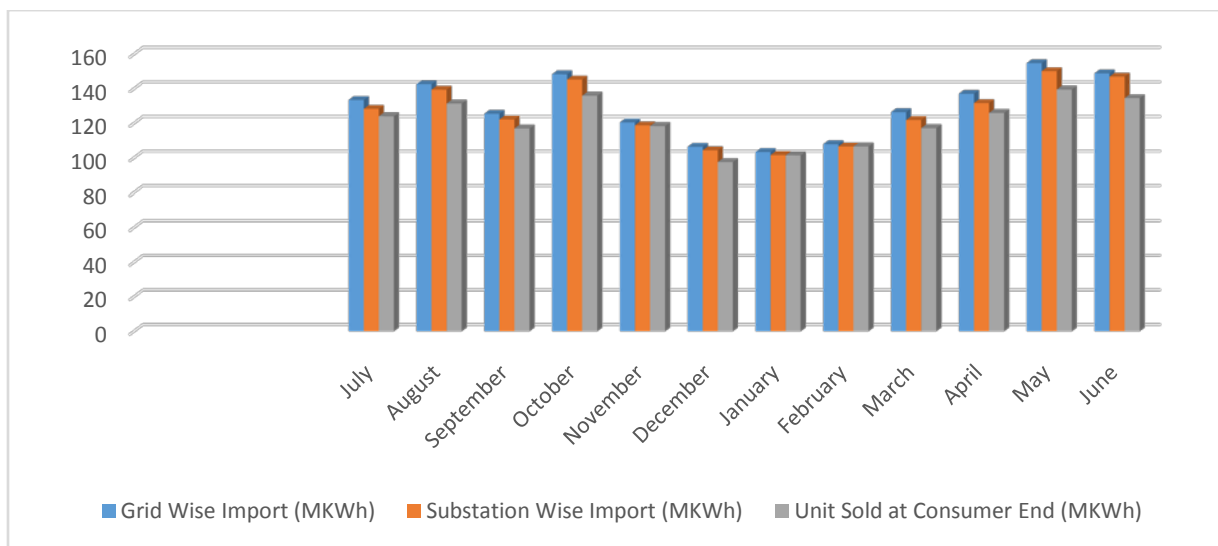


Fig 4.2.2: Grid and Sub-station wise import with Unit sold at consumer end, 2016-2017

Table 4.2.3: System Loss of DPBS-1 in 2017-18

Month	Grid Wise Import (MKWh)	Substation Wise Import (MKWh)	Unit Sold at Consumer End	Total System Loss (MKWh)	Sub-station System Loss (MKWh)	Grid to 33 KV Line Loss (MKWh)
July	176.306	172.830	162.406	13.900	10.424	3.476
August	176.914	173.157	164.959	11.955	8.198	3.757
September	151.508	148.467	146.085	5.423	2.382	3.041
October	164.591	160.654	153.089	11.502	7.565	3.937
November	138.983	137.497	137.489	1.494	0.008	1.486
December	127.162	124.761	119.949	7.213	4.812	2.401
January	125.175	123.841	120.105	5.070	3.736	1.334
February	120.761	119.777	119.221	1.540	0.556	0.984
March	168.067	165.961	153.030	15.037	12.931	2.106
April	159.178	156.031	150.033	9.145	5.998	3.147
May	174.375	172.365	162.693	11.682	9.672	2.010
June	166.239	162.992	149.205	17.034	13.787	3.247

PBS says illegal use of electricity is also responsible for this. Illegal use of electricity rise in summer very badly. That's why; loss is much higher in summer. PBS try to stop illegal use of electricity but public awareness can stop this "Thief Loss". PBS also has some loss for storms during summer and rainy season.

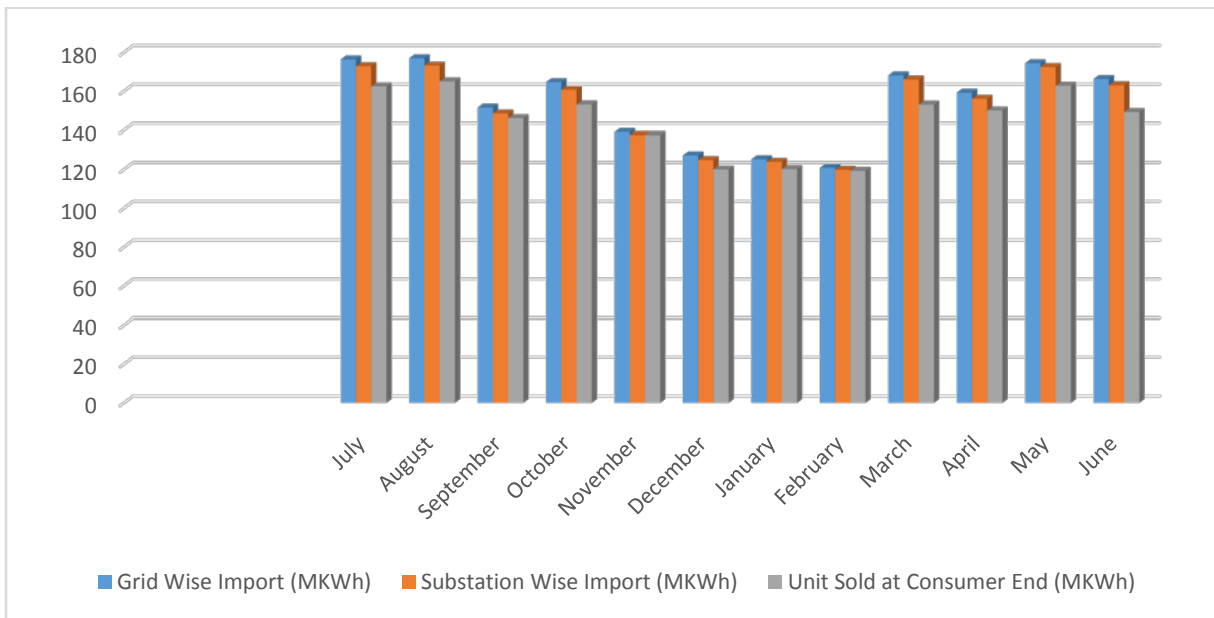


Fig 4.2.3: Grid and Sub-station wise import with Unit sold at consumer end, 2017-2018

We know that there are certain losses which affect the economy of the power system. It is a well-known fact that all energy supplied to a distribution utility does not reach the end consumer. A substantial amount of energy is lost in the distribution system by way of Technical and Non-Technical losses. The distribution system accounts for highest technical and non-technical losses in the power sector. In Bangladesh, the percentage of transmission and distribution losses has been quite high. Distribution line losses are comprised of two types: Technical losses and Non-Technical losses.

4.7.1 Technical Losses

The technical losses are due to energy dissipated in the conductors, equipment used for transmission line, transformer, sub transmission line and distribution line and magnetic losses in transformers.

4.7.2 Non-Technical Losses

Losses Non- Technical losses are more difficult to measure because these losses are often unaccounted for by the system operators and thus have no recorded information. For example, if a monthly-read meter is read incorrectly such that the consumption is one month is too low, when the meter is read correctly next month, there will be additional KWh recorded. The missing KWh will initially appear to be losses of electricity.

4.8 Summary

It is possible to control load demand by proper load management, encouraging Independent Power Producers (IPP) and reducing transmission loss. Initiative should be taken to develop skilled manpower required for the power sector considering incorporating IPP and local Government (GOV), central GOB, private sector may take the responsibility to increase the power generation and ensure its proper use in Bangladesh. The process of energy import and distribution of JPBS is low from some other PBS. DPBS-1 tries to reduce their problems.

CHAPTER 5

REVENUE AND CONSUMERS OF DHAKA PBS-1

5.1 Introduction

Electric industry is one of the mother industries in each country, because today the production of all goods and consuming of many things are impossible without electric power. Utilizing many services like lighting, conditioning, freezing and much other services depends on electricity.

5.2 Description of Consumer Class

There are eight types of consumer in every PBS under BREB based on their demand and category of energy use. Those classes are bellows:

5.2.1 Domestic Consumers

Domestic consumers are those who consumed electrical energy in their resident through household equipment. These consumers are classified based on amount of their consumed unit (KWh) energy. These consumers use single phase line.

Domestic consumers are classified into eight slabs. These are

1. Minimum KWh
2. 0-50 KWh
3. 0-75 KWh
4. 76-200 KWh
5. 201-300 KWh
6. 301-400 KWh
7. 401-600 KWh
8. Above 600 KWh

Types of the other consumer category are follows:

5.2.2 Commercial Consumers

Commercial consumers are actually related with business or commercial activities. Commercial consumers have higher electric demand than Domestic consumers. But they use single phase line as Domestic consumers.

Types of consumer under this category will be as follows,

Hat- bazaar, Shop (including tailoring shop), Commercial enterprise, Government and Semi-Government office, Private clinic, Practicing chamber, Community center and community hall, Rest house, Cinema hall, Mobile Tower, Petrol/CNG pump Station.

5.2.3 Charitable Institute

Charitable institutes are depending on charity of the Government or any private sector. Charitable institutes may any educational, religious or social development institutions.

Types of consumer under this category will be as follows,

Masjid, Temple, Church, Pagoda, School, College, Madrasah, Club, Orphanage, Charitable institution (Not complex), Charitable dispensary, Crippled rehabilitation center etc.

5.2.4 Irrigation

Basically all kinds of water pumps are used to irrigate in agriculture fields in this class. They may be single or three phase in connection.

5.2.5 General Power

Generally, PalliBidyutSamity will implement secondary metering (L.T. metering) for such types of consumer where supply voltage will be 230/400 V and power will be 50KW.

Types of consumer under this category will be as follows:

All types of industries and industrial complex, Government office complex, Government and charitable hospital complex, Charitable, religious and education complex, Small Industries

related to production or fabrication, Union Paribar Kalian Kendra, Cantonment, air or naval base/installation, Police station, Camp, Outpost etc. and BDR Camp, BOP Installation etc.

5.2.6 Large Power

PalliBidyutSamity will implement primary metering (H.T metering) connection for such type of consumer where Supply voltage will be 6350/11000 voltage and power may be the same as general power but in these case connections will three phases.

Types of consumer under this category will be as follows:

All types of industries and industrial complex, Government office complex, Government and charitable hospital complex, Charitable, religious and education complex, Small Industries related to production or fabrication, Cantonment, Air or Naval base/installation etc. Police station, BDR Camp, BOP Installation etc.

5.2.7 33KV

33KV consumers are mostly industries. They have an individual sub-station for consuming energy. DPBS-1has on consumer in this class till now.

5.2.8 Street Lights

Consumed electric power by street lights is in this category. Street light is a raised source of light on the edge of a road in rural area. These are developing a village early.

5.3 Description of Table and its Analysis

In making of revenue sheet we use Electricity rate, used electricity in KWh, Consumer class, and revenue in monthly and finally we calculate it in yearly. In analysis part we want to show that rate changing of electricity, Number of consumer and its increment or decrement in monthly, used electricity in KWh and its monthly status and revenue increment or decrement in monthly. From these analyses we will see that the present condition of the revenue of BREB.

Table 5.1.1: Monthly Revenue data of DPBS-1, 2015-2016

Customer Class	Tariff Rate	July'15 - June'16					
		Unit	%	Consumers	%	Revenue	%
Domestic							
Minimum		2055197	0.18	191906	6.03	17,271,540	0.23
0-50	3.36	28728375	2.57	718209	22.58	114,482,565	1.52
0-75	3.83	167322769	14.97	515987	16.22	653,745,880	8.67
76-200	5.10	180834605	16.18	1118904	35.18	950,229,086	12.61
201-300	5.32	56677850	5.07	321212	10.10	320,196,462	4.25
301-400	5.60	30068342	2.69	161619	5.08	172,423,190	2.29
401-600	8.65	19725000	1.76	131500	4.13	173,908,750	2.31
600++	9.94	7139289	0.64	21450	0.67	71,500,783	0.95
Total		492551427	44.06	3180787	100%	2,473,758,256	32.82
Commercial	9.76	76406934	6.83	255163		766,513,967	10.17
Charitable	5.18	3984097	0.36	18815		21,430,038	0.28
Irrigation	3.82	5668756	0.51	9437		22,413,964	0.30
General Power	7.61	38117360	3.41	24169		306,124,857	4.06
Large Power	7.52	467663762	41.83	13,962		3,690,441,032	48.97
33 KV	7.45	33408280	2.99	107		254,887,116	3.38
Street Light	7.13	113048	0.01	632		661,369	0.01
Grand Total		1,117,913,664	100%	3,503,072		7,536,230,599	100%

If we look at July-2015 to June-2016, Domestic consumer consumed total 492551427 units, Number of total consumer 3180787 and total revenue 2,473,758,256TK where minimum slab was 2055197 units, Number of consumer 191906 and revenue 17,271,540 TK. In 0-50 were 28728375 units, Number of consumer 718209 and revenue 114,482,565TK.

Table 5.1.2: Monthly Revenue data of DPBS-1, 2016-2017

Customer Class	Tariff Rate	July'16 - June'17					
		Unit	%	Consumers	%	Revenue	%
Domestic							
Minimum		2566972	0.20	253217	6.71	22,789,530	0.27
0-50	3.36	14807134	1.18	514943	13.65	62,625,545	0.73
0-75	3.80	216058953	17.18	611740	16.22	836,317,521	9.80
76-200	5.14	230226307	18.31	2106098	55.84	1,236,015,668	14.49
201-300	5.36	26481343	2.11	98382	2.61	144,399,548	1.69
301-400	5.63	16160945	1.29	83962	2.23	93,085,170	1.09
401-600	8.70	15398020	1.22	63756	1.69	135,556,674	1.59
600++	9.98	8549908	0.68	39245	1.04	86,309,207	1.01
Total		530249582	42.17	3771343	100%	2,617,098,863	30.68
Commercial	9.80	88373279	7.03	312769		892,095,725	10.46
Charitable	5.22	4271045	0.34	21686		23,246,874	0.27
Irrigation	3.82	5459404	0.43	9298		21,653,792	0.25
General Power	7.66	39220048	3.12	23938		316,409,041	3.71
Large Power	7.57	515492867	41.00	14,827		4,091,656,643	47.97
33 KV	7.49	74250140	5.90	170		566,912,034	6.65
Street Light	7.17	126441	0.01	4,313		977,100	0.01
Grand Total		1,257,442,806	100%	4,158,344		8,530,050,072	100%

If we look at July-2016 to June-2017, Domestic consumer consumed total 530249582 units, Number of total consumer 3771343 and total revenue 2,617,098,863TK where minimum slab was 2566972units, Number of consumer 253217 and revenue 22,789,530TK. In 0-50 was 14807134 units, Number of consumer 514943 and revenue 62,625,545TK.

Table 5.1.3: Monthly Revenue data of JPBS, 2017-2018

Customer Class	Tariff Rate	July'17 - November'17					
		Unit	%	Consumers	%	Revenue	%
Domestic							
Minimum		1212480	0.18	104403	6.01	9,396,270	0.21
0-50	3.36	2422849	0.37	75714	4.36	10,033,623	0.23
0-75	3.80	108100680	16.45	366226	21.07	419,938,234	9.47
76-200	5.14	113101750	17.21	870961	50.11	603,117,020	13.59
201-300	5.36	30002740	4.57	99965	5.75	163,313,811	3.68
301-400	5.63	20800540	3.17	99069	5.70	119,583,765	2.70
401-600	8.70	16000600	2.44	61754	3.55	140,749,070	3.17
600++	9.98	442140	0.07	59899	3.45	5,910,032	0.13
Total		292083779	44.45	1737991	100%	1,472,041,825	33.18
Commercial	9.80	43754884	6.66	149536		440,699,269	9.93
Charitable	5.22	2356857	0.36	10006		12,746,652	0.29
Irrigation	3.82	560767	0.09	3662		2,475,833	0.06
General Power	7.66	17314611	2.64	10024		143,694,654	3.24
Large Power	7.57	246486679	37.51	6,543		1,924,049,707	43.37
33 KV	7.49	54449215	8.29	92		440,432,573	9.93
Street Light	7.17	59670	0.01	2,210		461,815	0.01
Grand Total		657,066,462	100%	1,920,064		4,436,602,328	100%

Customer Class	Tariff Rate	December'17 - June'18					
		Unit	%	Consumers	%	Revenue	%
Domestic							
Minimum		1212480	0.33	104403	3.88	93,962,703	3.88
0-50	3.5	24771589	6.82	717732	26.66	95,810,562	3.96
0-75	4.00	120207711	33.11	306400	11.38	498,774,144	20.60
76-200	5.54	112198875	30.91	1240450	46.08	642,495,119	26.54
201-300	5.70	17367266	4.78	219460	8.15	105,028,566	4.34
301-400	6.02	8934076	2.46	39800	1.48	54,977,138	2.27
401-600	9.30	8714700	2.40	34482	1.28	82,169,860	3.39
600++	10.70	600958	0.17	29455	1.09	8,554,076	0.35
Total		294007655	80.98	2692182	100%	1,581,772,168	65.33
Commercial	4.00	3545798	0.98	5803		15,103,787	0.62
Charitable	8.20	299017	0.08	13381		188,812,088	7.80
Irrigation	5.73	2337893	0.64	14707		14,452,177	0.60
General Power	7.70	1176984	0.32	2554		9,277,017	0.38
Large Power	10.30	40317714	11.11	224,814		419,215,374	17.31
33 KV	7.20	531098	0.15	51		4,869,834	0.20
Street Light	7.56	20827033	5.74	758		187,726,527	7.75
Grand Total		363,043,192	100%	2,954,250		2,421,228,972	100%

5.4 Graphical Analysis (Domestic)

In these processes we calculate all the month of the year of 2017-2018. Here we divided the year in three season for our capitalize which are,

- Summer season (March-June)
- Rainy season (July-October)
- Winter season (November-February)

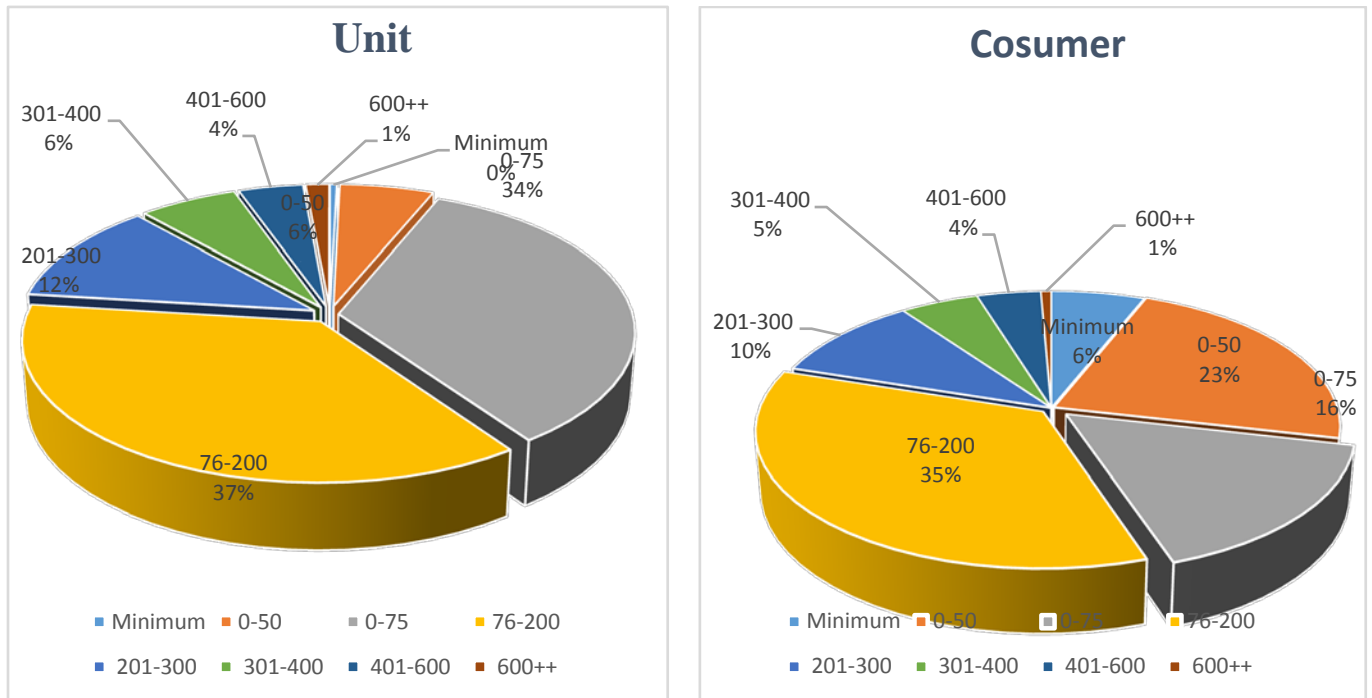


Fig 5.1.1: Domestic Unit and Consumer on July 2015- June 2016

In Fig 5.1.1, energy consumption is 6% for 0-50 KWh with 23% consumer, 0-75 KWh consume 34% of energy with 16% consumer, 76-200 consume of energy and consumer which is the largest percentage of the graph, 201-300 KWh consume of energy and consumer are 12% and 10%, 301-400 KWh consume energy and consumer are 6% and 5%, Minimum slab consume 0% with 6% consumer and both 600++ consumer and consume energy are about to 1%. In summer season, consumer increases in higher consumed slabs due to more use of electrical appliance.

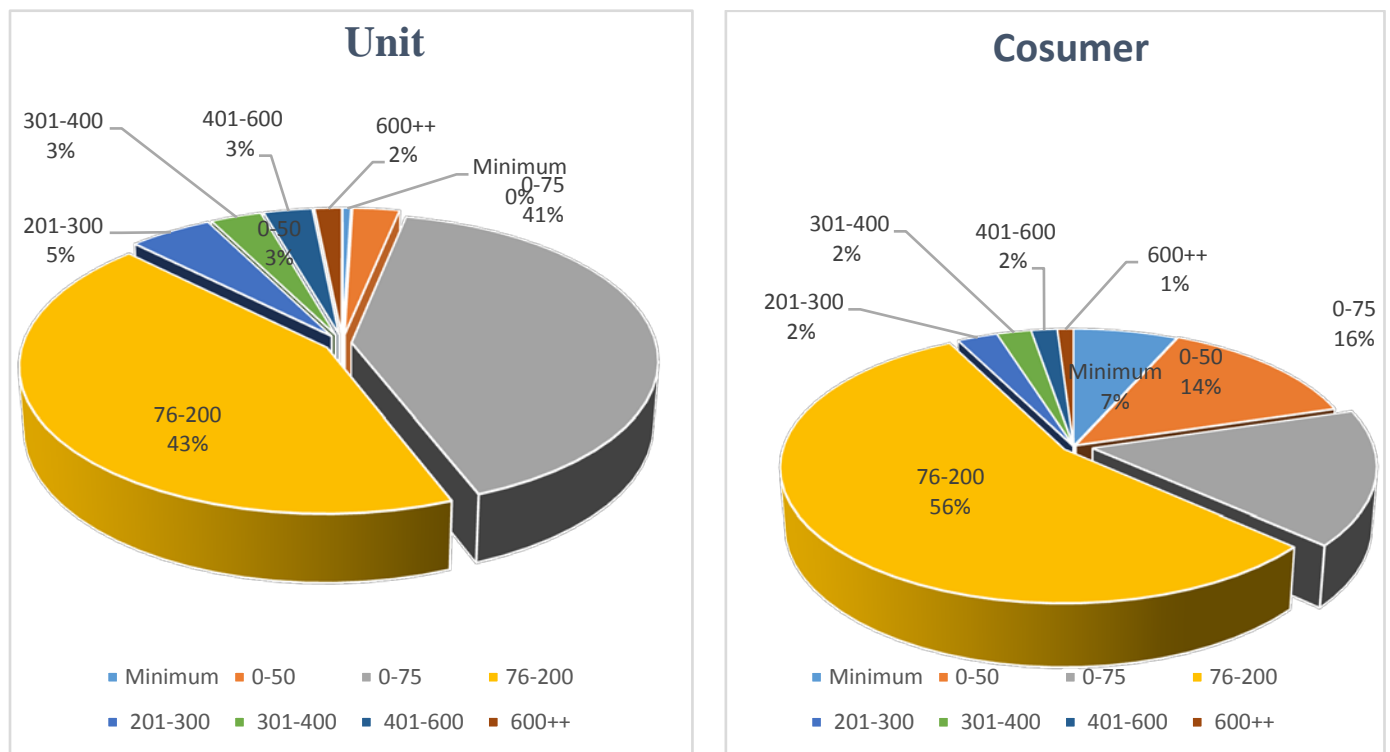


Fig 5.2.1: Domestic Unit and Consumer on July 2016 – June 2017

In Fig 5.2.1, energy consumption is 3% for 0-50 KWh with 14% consumer, 0-75 KWh consume 41% of energy with 16% consumer, 76-200 consume 43% of energy with 56% consumer, 201-300 KWh consume 5% of energy with 2% consumer, 301-400 KWh consume 3% energy with 2% consumer, Minimum slab consume 2% with 12% consumer and 600++ consumer 0% and consume energy is 1%. In summer season, consumer increases in higher consumed slabs due to more use of electrical appliance. In Fig5.2.2, energy consumption is 20% for 0-50 KWh slab with 24% consumer, 0-75 KWh slab consume 35% with 26% consumer which is the highest percentage of the unit of the graph, Minimum consumer is 7%; consume 0% energy and 600++ consumer 2% and energy consume 1%. In winter season, consumer goes down into lower slabs due to less use of electrical appliance like AC, fan, refrigerator etc.

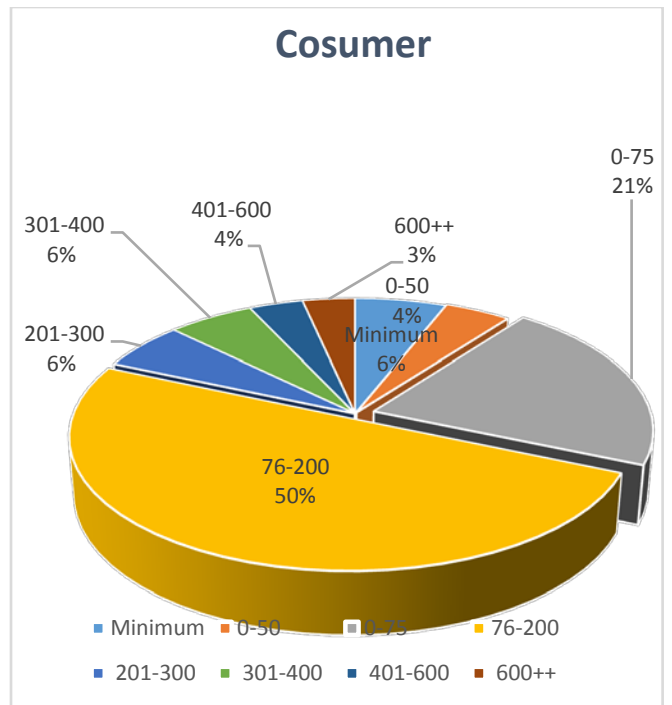
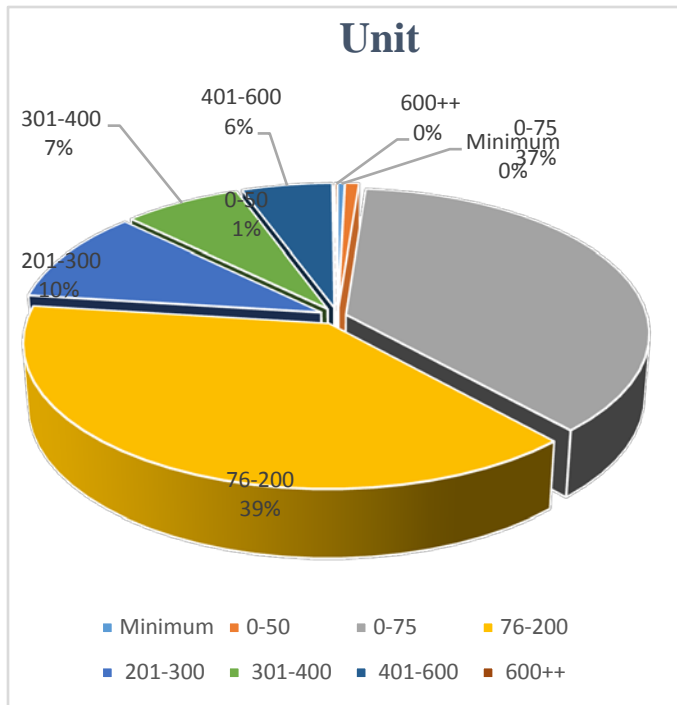


Fig 5.3.1: Domestic Unit and Consumer on July 2017-November 2017

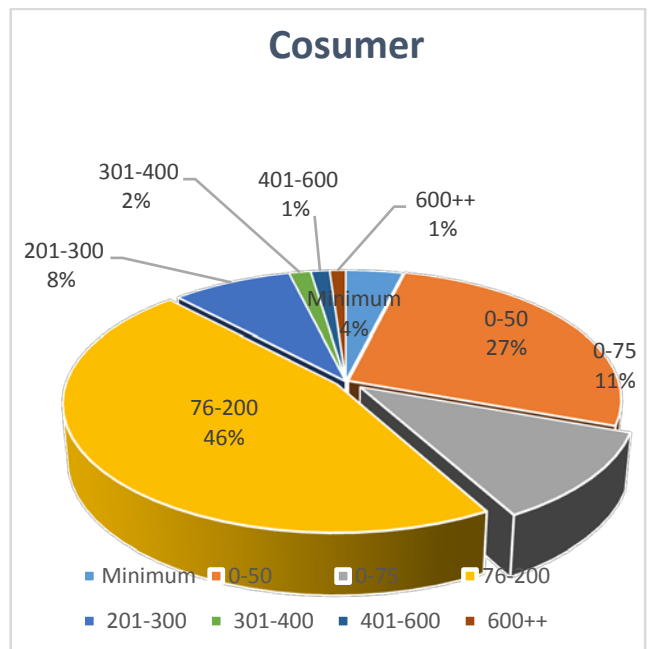
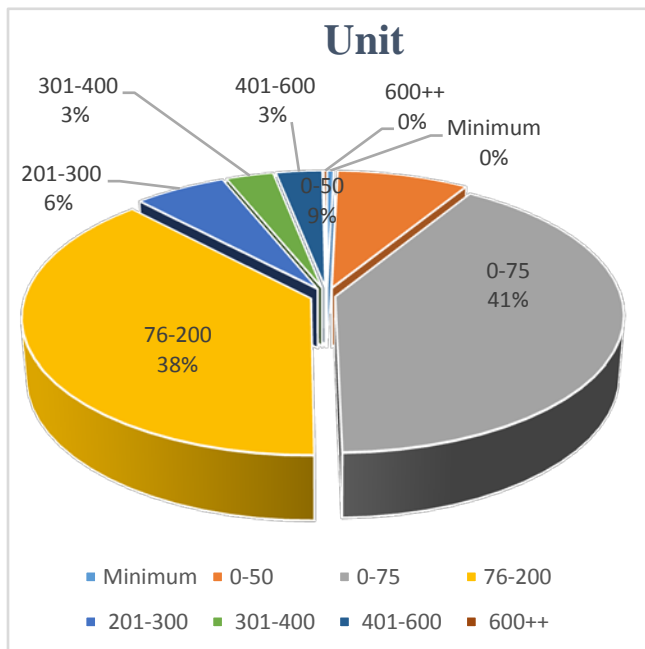


Fig 5.3.2: Domestic Unit and Consumer on December 2017 - June 2018

The above graph express about number of consumer of domestic slab for different seasons. The Number of consumer varies season to season from upper slab to lower slab and lower slab to upper slab. There eight types of consumer in domestic slab such as, Minimum, 0-50 KWh, 0-75 KWh, 76-200 KWh, 201-300 KWh, 301-400 KWh, 401-600 KWh and 600++ KWh.

In Fig 5.3.2, energy consumption is 9% for 0-50 KWh with 27% consumer, 0-75 KWh consume 41% of energy with 11% consumer, 76-200 consume 38% of energy with 46% consumer, 201-300 KWh consume 6% of energy with 8% consumer, 301-400 KWh consume 3% energy with 2% consumer, Minimum slab consume 0% with 4% consumer and 600++ consumer and consume energy are about to 0% and 1%. In summer season, consumer increases in higher consumed slabs due to more use of electrical appliance. In Fig 5.3.1, energy consumption is 1% for 0-50 KWh slab with 4% consumer, 0-75 KWh slab consume 37% with 21% consumer, Minimum consumer is 0%; consume 6% energy and 600++ consumer and energy consume are about to 0 % and 6%. In winter season, consumer goes down into lower slabs due to less use of electrical appliance like AC, fan, refrigerator etc.

5.5 Summary

Revenue of DPBS-1 is not sufficient to meet the profit. Wrongly included data in Domestic slabs are increasing the financial loss. Demand of all Domestic slabs is same. If demands vary in higher consuming slabs, then revenue would have been increased a little and demand charge would be more effectible for PBSs. Overall energy consumption, consumer and revenue are increasing.

Chapter 6

ELECTRICITY COST AND RATE

6.1 Electricity Cost

Cost is an important term in any business, where profit or loss is a concern. Supplying electricity is a business also. Cost of electricity is how much one spent or pays to generate, distribute or consume electricity. Electricity is the major power source in all over the world. That's why, cost of electricity is important to improve economic and social benefits.

6.2 Electricity Purchase Cost (EPC)

Electricity purchase cost is purchasing cost of electricity and consist with bulk price and wheeling charge. Bulk price is paid to the Generation Company and wheeling charge is paid to the Transmission Company by the Distribution Company. As a distribution wing, PPBS-2 pays BPDB or their IPPs bulk price to buying electric energy and wheeling charge to PGCB for wheeling.

6.2.1 Bulk Rate

BPDB sales their generating electricity to distribution companies with bulk rate. BERC fixed this rate as per situation. Distribution companies are also purchase electricity from some private generation companies. But rate is much lower than bulk rate.

6.2.2 Wheeling Charge

PGCB is paid wheeling charges by the distribution companies. The company has taken infrastructure development projects for further development of its operation. In order to financial new investment, ensure proper maintenance of its existing assets, PGCB requires to be paid at better rates than what it is now getting from the distribution companies. At the bulk supply level, it is evident that the cost of purchase from rental power plants is the major contributor to losses. The exact quantification of losses will require a more detailed study of supply and losses at

different voltage level and to different bulk purchasers. A more immediate requirement is to address the generation plan in the short term so that lower cost of power is available in the grid. In the medium to long term, given the role of private and public sector in generation, to enhance competitiveness, it is recommended that a concerted effort to establish a competitive dispatch regime for electricity generation through a cooperative pool. At the retail level, cross – subsidies arise between the different categories of customers.

6.3 Distribution Cost

Expense for distributing the electric energy to consumers is said to be distribution cost. Operation and maintenance cost, Consumer selling expenses, Administration and general expenses, Depreciation and amortization expenses, Tax expenses and interest expenses are included in distribution cost.

Distribution Cost = Operation & Maintenance Expenses + Consumer selling expenses + Administration & General Expenses + Depreciation & Amortization + Tax Expenses + Interest Expenses.

Table 6.1.1: Distribution and Total Supply Cost in 2015-16 of DPBS-1

Month	EC	Distribution Cost						Total Distributio	Total Supply Cost
		OME	CSE	AGE	DAE	TE	IE		
July	57.902	0.423	1.372	0.617	2.329	0.047	0.227	5.015	62.917
August	66.152	0.637	1.079	0.653	2.373	0.180	0.227	5.149	71.301
Septembe	63.476	0.506	1.374	0.841	2.395	0.279	0.227	5.622	69.098
October	67.135	0.929	1.174	0.615	2.387	0.175	0.227	5.507	72.642
Novembe	57.485	0.508	1.169	0.670	2.395	0.071	0.227	5.040	62.525
Decembe	59.391	0.754	1.080	0.624	2.539	0.124	0.074	5.195	64.586
January	51.462	0.819	2.183	1.336	2.519	0.062	0.227	7.146	58.608
February	58.028	0.461	1.083	0.676	2.577	0.151	0.227	5.175	63.203
March	73.770	0.315	1.139	0.609	2.596	0.001	0.227	4.887	78.657
April	70.896	0.846	1.227	2.034	2.600	0.358	0.227	7.292	78.188
May	59.266	3.286	4.232	0.645	2.741	0.203	0.253	11.360	70.626
June	77.784	0.065	7.015	2.575	2.756	0.214	0.108	12.733	90.517
Grand total	762.747	9.549	24.127	11.895	30.207	1.865	2.478	80.121	842.868

Table 6.1.2: Distribution and Total Supply Cost in 2016-17 of DPBS-1

Month	EC	Distribution Cost						Total Distributio	Total Supply Cost
		OME	CSE	AGE	DAE	TE	IE		
July	67.795	0.444	1.579	0.744	2.796	0.291	0.227	6.081	73.876
August	73.615	1.491	2.324	1.538	2.799	0.021	0.227	8.400	82.015
September	84.827	0.597	1.708	0.866	6.813	0.103	0.227	10.314	95.141
October	76.653	0.521	1.594	0.803	2.869	0.245	0.227	6.259	82.912
November	66.177	0.542	1.573	0.907	2.899	0.858	0.227	7.006	73.183
December	65.232	1.561	1.728	0.964	2.936	0.082	0.354	7.625	72.857
January	59.567	0.676	1.504	0.962	2.942	0.209	2.527	8.820	68.387
February	58.647	0.729	1.538	1.084	2.944	0.169	0.227	6.691	65.338
March	78.484	1.019	3.698	3.839	2.949	0.173	0.227	11.905	90.389
April	63.056	0.452	1.797	0.870	2.379	0.191	0.227	5.916	68.972
May	83.735	0.776	1.683	0.528	2.955	0.199	0.227	6.368	90.103
June	70.863	0.901	2.109	4.417	3.139	0.326	0.142	11.034	81.897
Grand total	848.651	9.709	22.835	17.522	38.420	2.867	5.066	96.419	945.070

Table 6.1.3: Distribution and Total Supply Cost in 2017-18 of DPBS-1

Month	EC	Distribution Cost						Total Distributio	Total Supply Cost
		OME	CSE	AGE	DAE	TE	IE		
July	93.594	0.361	1.679	0.967	3.181	0.082	0.207	8.244	101.838
August	93.359	0.966	2.508	0.936	3.161	0.270	0.207	8.048	101.407
September	83.766	0.496	1.702	0.841	1.161	0.102	0.207	4.509	88.275
October	87.166	0.829	1.655	0.836	3.161	0.285	0.207	6.973	94.139
November	77.676	0.706	1.613	0.937	3.209	0.200	0.207	6.872	84.548
December	88.791	0.524	1.854	1.183	3.306	0.944	0.433	8.244	97.035
January	76.672	1.206	2.896	1.569	3.317	0.226	0.210	9.424	86.096
February	77.956	0.913	1.625	0.884	3.356	0.107	0.210	7.095	85.051
March	63.266	0.664	1.365	1.924	3.392	0.307	0.210	7.862	71.128
April	98.241	0.389	2.056	0.817	3.374	0.029	0.210	6.875	105.116
May	86.845	1.000	1.687	0.904	3.374	0.183	0.210	7.358	94.203
June	3.317	1.199	1.852	2.459	3.424	0.036	1.047	10.017	13.334
Grand total	930.649	9.253	22.492	14.257	37.416	2.771	3.565	91.521	1022.170

6.3.1 Operation & Maintenance Expenses (OME)

All types of expenses for operational and maintenance is included as OME. Operation supervision and Engineering, substation expenses, overhead line expenses, meter expenses, consumer installation expenses are in operation and maintenance expense. In Table 6.1 all data are describe in crore taka.

6.3.2 Consumer Selling Expenses (CSE)

Consumer selling expenses are consumer related expenses. Field supervision, meter reading expenses, consumer records/collection expenses, consumer assist/demonstration/selling expenses and sales to freedom fighter are including in CSE.

6.3.3 Administration and General Expenses (AGE)

Administrative and General Expenses are broken into operation and maintenance expenses, with the bulk of the expenses being operation based. Operation expenses include administrative and general salaries, office supplies and expenses, administrative expenses transferred, outside services, property insurance, injuries and damages, hired service and rents. Maintenance expenses include only maintenance of general plant.

6.3.4 Depreciation & Amortization Expenses (DAE)

The depreciation expenses included as a cost is the monthly depreciation for all used and useful assets. In a broader economic sense, the depreciation cost is the aggregate amount of capital that is "used up" in a given period, such as a fiscal year. This value can be examined for trends in capital spending and accounting aggressiveness. DPBS-1 calculates 20% depreciation of its assets per year.

6.3.5 Tax Expenses (TE)

All type of tax is included in tax expenses such as expense for revenue stamp, municipal tax, land and development tax etc.

6.3.6 Interest Expenses (IE)

Expenses of payable interests on loans from bank, BREB or from any other loans are included as IE. In 2017-18, DPBS-1 pays 3.56 crore Taka.

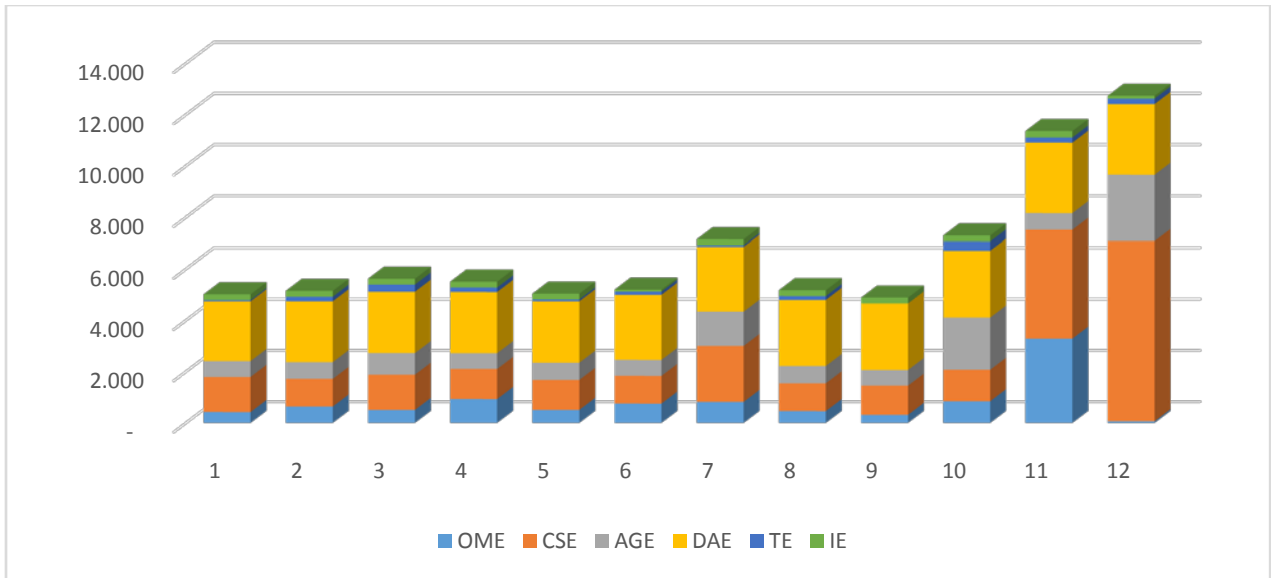


Fig 6.1.1: Distribution Cost of DPBS-1(10⁷ Tk), 2015-16

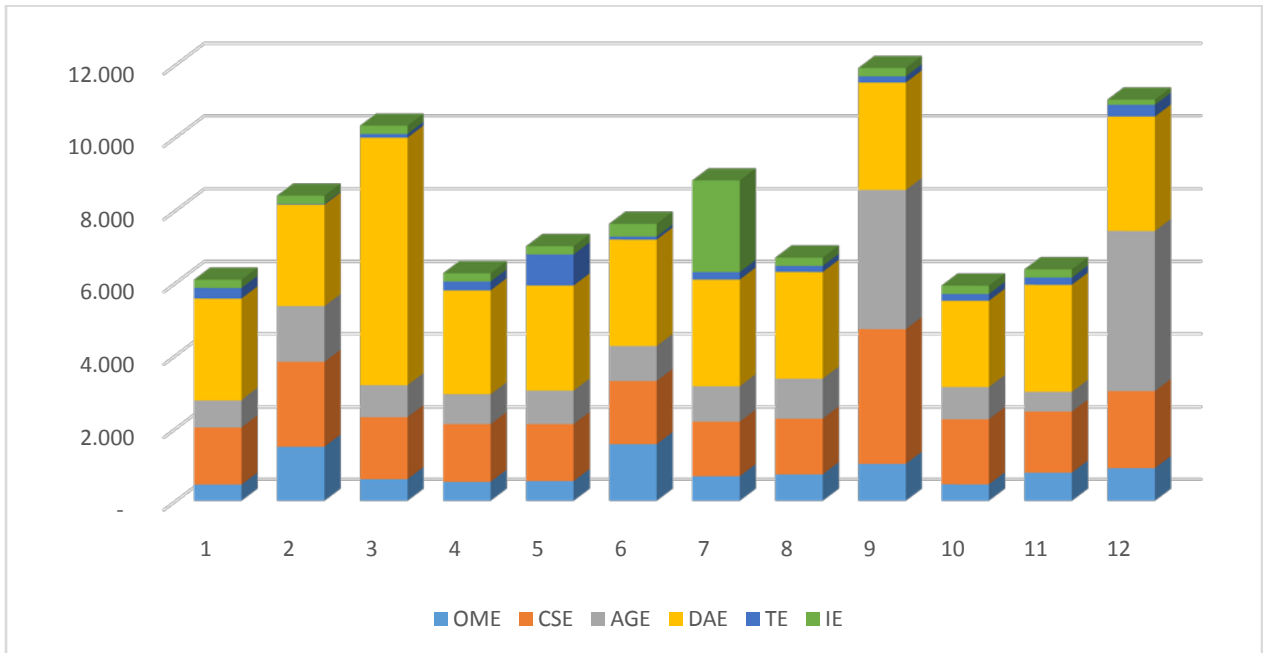


Fig 6.1.2: Distribution Cost of DPBS-1(10⁷ Tk), 2016-17

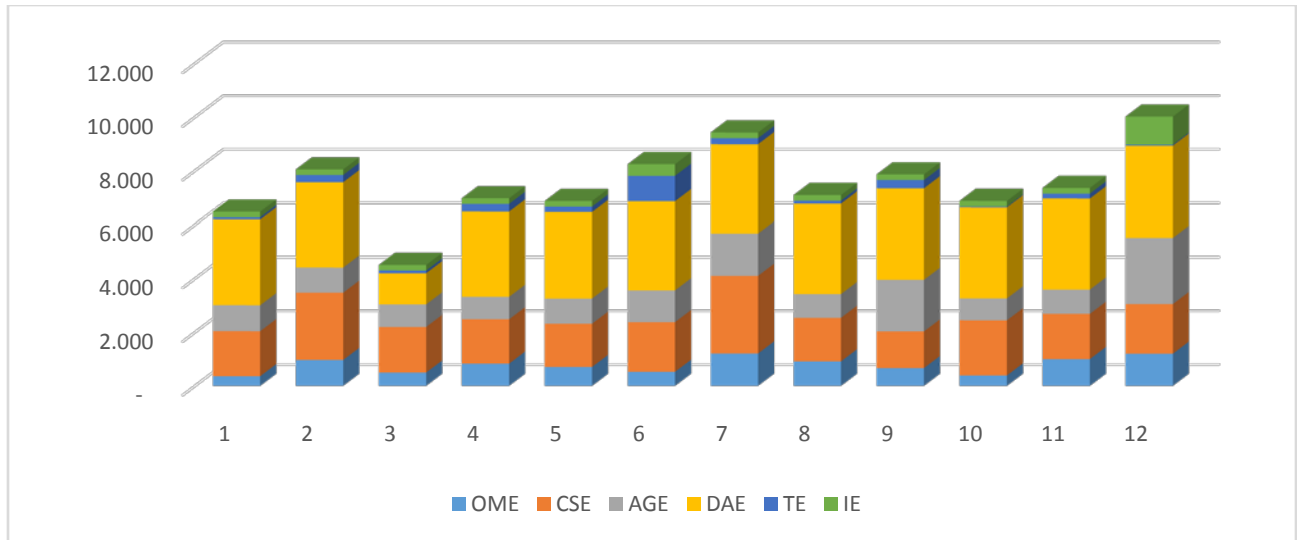


Fig 6.1.3: Distribution Cost of DPBS-1(10⁷ Tk), 2017-18

6.3.7 System Loss (Tk)

Calculate system loss KWh in taka. System loss in taka is help to calculate the distribution cost more correctly and showed an economical figure of system loss. DPBS-1 had a system loss of total 3.889 crore taka in 2017-18.

$$\text{System Loss (Tk)} = \text{System Loss (Energy)} \times \text{System loss (Tk/Unit)}$$

6.4 Revenue

The revenue is the amount of income that a PBS should have opportunity to earn in order to maintain operations and attract capital for investment, but still maintains least cost for consumers. Revenue of DPBS-1 4 to 99 crore taka per month in 2017-18.

Table 6.2.1: Import energy, Purchase cost, Expenditure, Sell energy, Revenue, Distribution cost of energy according to the Thesis Calculation on DPBS-1 (2015-2016)

Month	Energy Import (MU)	Energy Purchase Cost (10 ⁷ Tk)	Energy Sell (MU)	Distribution cost (10 ⁷ Tk)	Total Supply Cost (10 ⁷ Tk)	Revenue from Sale Energy (10 ⁷ Tk)	Revenue from other sources (10 ⁷ Tk)	Total Revenue (10 ⁷ Tk)	System Loss%	Surplus (+/-) (10 ⁷ Tk)	System Loss (10 ⁷ Tk)	System Loss (Tk/Unit)	Distribution Cost (Tk/Unit)	Total Revenue (Tk/Unit)
July	116.847	52.687	107.224	5.015	58.092	65.697	0.517	66.214	8.236	8.122	0.389	0.405	0.504	5.667
August	134.316	60.564	122.203	5.149	66.255	76.144	6.603	82.747	9.018	16.492	0.541	0.447	0.466	6.161
September	117.560	53.009	109.949	5.622	58.869	68.429	0.693	69.122	6.474	10.253	0.238	0.312	0.533	5.880
October	130.799	58.979	120.528	5.507	64.880	76.639	0.968	77.607	7.853	12.727	0.395	0.384	0.490	5.933
November	108.169	48.774	101.413	5.040	54.017	65.392	1.079	66.470	6.246	12.453	0.203	0.300	0.517	6.145
December	102.128	46.051	93.841	5.195	51.576	59.289	1.062	60.352	8.114	8.776	0.330	0.398	0.589	5.909
January	94.390	42.561	92.467	7.146	49.725	60.179	0.785	60.179	2.037	10.454	0.018	0.094	0.775	6.376
February	103.671	46.746	99.644	5.175	51.995	65.127	0.790	65.917	3.884	13.922	0.073	0.182	0.527	6.358
March	125.635	56.650	115.714	4.887	61.921	75.222	0.929	76.152	7.897	14.231	0.384	0.387	0.455	6.061
April	135.073	60.906	124.463	7.292	68.606	80.066	0.864	80.930	7.855	12.324	0.408	0.384	0.619	5.992
May	129.959	58.600	118.113	11.360	70.495	75.533	1.209	76.743	9.115	6.248	0.536	0.452	1.007	5.905
June	141.344	63.733	126.911	12.733	77.207	80.811	1.921	82.731	10.211	5.524	0.740	0.513	1.062	5.853
Grand total	1439.891	649.261	1332.470	80.121	733.637	848.528	17.420	865.164	86.94	131.53	4.255	4.259	7.542	72.240

Table 6.2.2: Import energy, Purchase cost, Expenditure, Sell energy, Revenue, Distribution cost of energy according to the Thesis Calculation on DPBS-1 (2016-2017)

Month	Energy Import (MU)	Energy Purchase Cost (10 ⁷ Tk)	Energy Sell (MU)	Distribution cost (10 ⁷ Tk)	Total Supply Cost (10 ⁷ Tk)	Revenue from Sale Energy (10 ⁷ Tk)	Revenue from other sources (10 ⁷ Tk)	Total Revenue (10 ⁷ Tk)	System Loss%	Surplus (+/-) (10 ⁷ Tk)	System Loss (10 ⁷ Tk)	System Loss (Tk/Unit)	Distribution Cost (Tk/Unit)	Total Revenue (Tk/Unit)
July	133.463	60.180	124.028	6.081	66.584	77.719	0.494	78.494	7.069	11.910	0.324	0.343	0.516	5.881
August	142.608	64.303	131.407	8.400	73.134	162.124	1.567	163.689	7.854	90.555	0.431	0.384	0.672	11.478
September	125.473	56.577	116.953	10.314	67.171	235.000	2.380	238.246	6.790	171.075	0.280	0.328	0.906	18.988
October	148.331	66.884	135.919	6.259	73.654	235.866	3.399	326.510	8.368	252.856	0.511	0.412	0.498	22.012
November	120.840	54.488	118.371	7.006	61.517	399.132	4.532	403.664	2.043	342.147	0.023	0.094	0.594	33.405
December	106.387	47.971	91.546	7.625	56.681	463.276	5.662	468.938	13.950	412.257	1.085	0.731	0.951	44.079
January	103.336	46.595	101.408	8.820	55.432	530.352	6.150	536.501	1.866	481.069	0.017	0.086	0.871	51.918
February	107.489	48.468	106.519	6.691	55.163	601.245	7.029	608.275	0.902	553.112	0.004	0.041	0.629	56.590
March	126.434	57.010	117.160	11.905	69.246	679.404	7.912	687.316	7.335	618.070	0.331	0.357	1.044	54.362
April	137.081	61.811	125.964	5.916	68.170	761.997	8.824	770.821	8.110	702.651	0.442	0.398	0.505	56.231
May	154.755	69.781	139.514	6.368	76.899	853.607	10.009	863.616	9.848	786.717	0.751	0.493	0.510	55.805
June	148.494	66.957	134.522	11.034	78.646	939.516	11.616	951.132	9.409	872.486	0.654	0.468	0.869	64.052
Grand total	1554.691	701.026	1443.311	96.419	802.297	5,939.238	69.574	6097.202	83.55	5294.91	4.852	4.135	8.566	474.801

Table 6.2.3: Import energy, Purchase cost, Expenditure, Sell energy, Revenue, Distribution cost of energy according to the Thesis Calculation on DPBS-1 (2017-2018)

Month	Energy Import (MU)	Energy Purchase Cost (10 ⁷ Tk)	Energy Sell (MU)	Distribution cost (10 ⁷ Tk)	Total Supply Cost (10 ⁷ Tk)	Revenue from Sale Energy (10 ⁷ Tk)	Revenue from other sources (10 ⁷ Tk)	Total Revenue (10 ⁷ Tk)	System Loss%	Surplus (+/-) (10 ⁷ Tk)	System Loss (10 ⁷ Tk)	System Loss (Tk/Unit)	Distribution Cost (Tk/Unit)	Total Revenue (Tk/Unit)
July	176.306	79.498	162.406	8.244	88.279	4.103	2.308	6.411	7.884	-81.868	0.536	0.386	0.541	0.364
August	176.914	79.772	164.959	8.048	88.211	6.307	0.903	7.210	6.758	-81.001	0.391	0.327	0.512	0.408
September	151.508	68.316	146.085	4.509	72.916	92.678	0.768	93.446	3.579	20.530	0.091	0.167	0.315	6.168
October	164.591	74.216	153.089	6.973	81.578	99.039	1.288	100.327	6.988	18.749	0.390	0.339	0.481	6.096
November	138.983	62.669	137.489	6.872	69.548	89.752	1.103	90.855	1.075	21.307	0.007	0.049	0.500	6.537
December	127.162	57.339	119.949	8.244	65.778	83.819	1.368	85.187	5.672	19.409	0.196	0.271	0.704	6.699
January	125.175	56.443	120.105	9.424	65.963	84.988	1.220	86.209	4.050	20.246	0.097	0.190	0.793	6.887
February	120.761	54.452	119.221	7.095	61.556	83.808	0.912	84.720	1.275	23.164	0.009	0.058	0.596	7.016
March	168.067	75.783	153.030	7.862	84.311	7.305	1.094	8.398	8.947	-75.913	0.666	0.443	0.557	0.500
April	159.178	71.775	150.033	6.875	78.901	3.600	0.951	4.551	5.745	-74.350	0.251	0.275	0.475	0.286
May	174.375	78.627	162.693	7.358	86.364	13.035	1.389	14.424	6.699	-71.940	0.378	0.324	0.476	0.827
June	166.239	74.959	149.205	10.017	85.853	0.774	1.506	2.280	10.247	-83.573	0.877	0.515	0.730	0.137
Grand total	1849.259	833.849	1738.264	91.521	929.259	569.208	14.810	584.018	68.92	-345.24	3.889	3.344	6.678	41.923

6.4.1 Total Revenue (TR)

Total revenue is the total earning money of a PBS. A PBS earns its revenue from two sources. One is from sales of energy to the consumers and the other is revenue from other operating sources.

$$\text{Total revenue} = \text{Revenue from sales of energy} + \text{Revenue from others.}$$

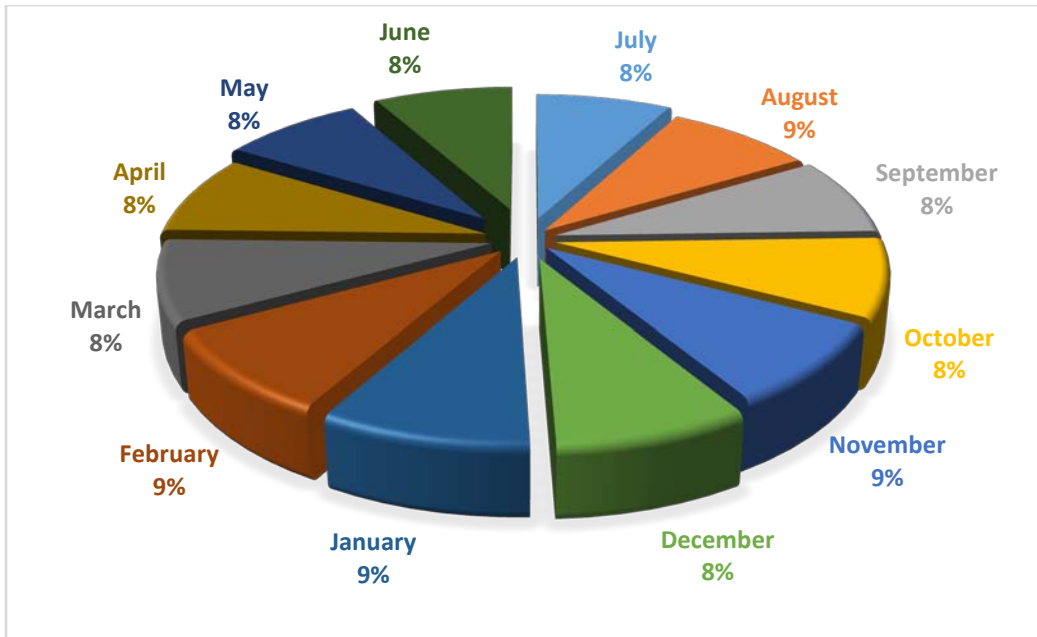


Fig 6.2.1: Revenue per Month (in %), 2015-16

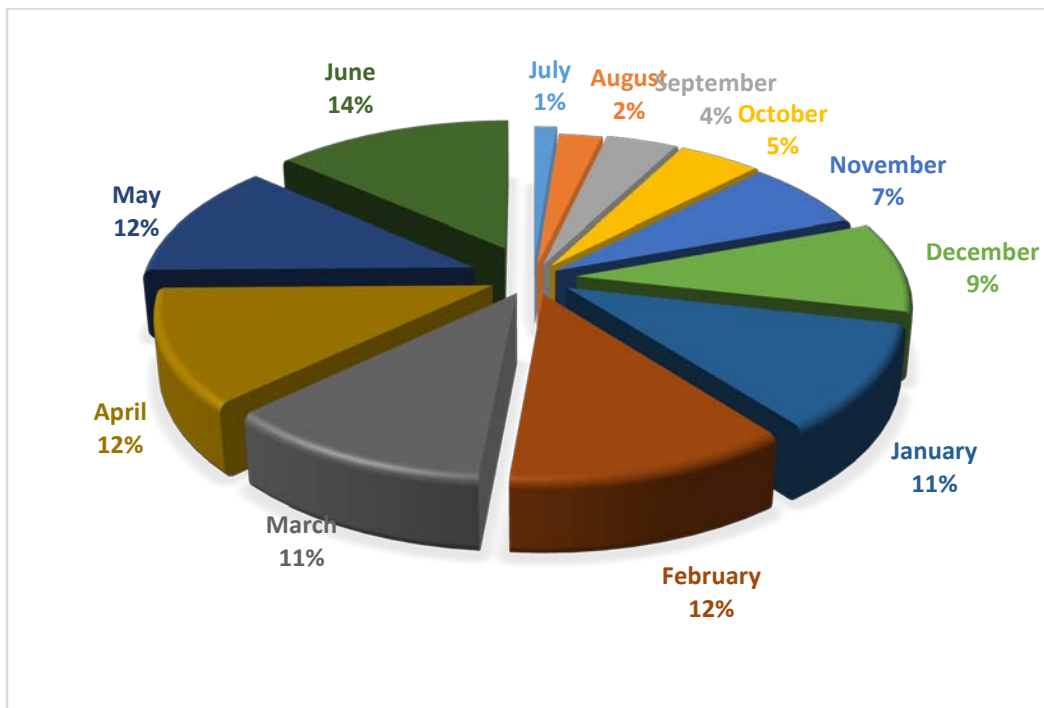


Fig 6.2.2: Revenue per Month (in %), 2016-17

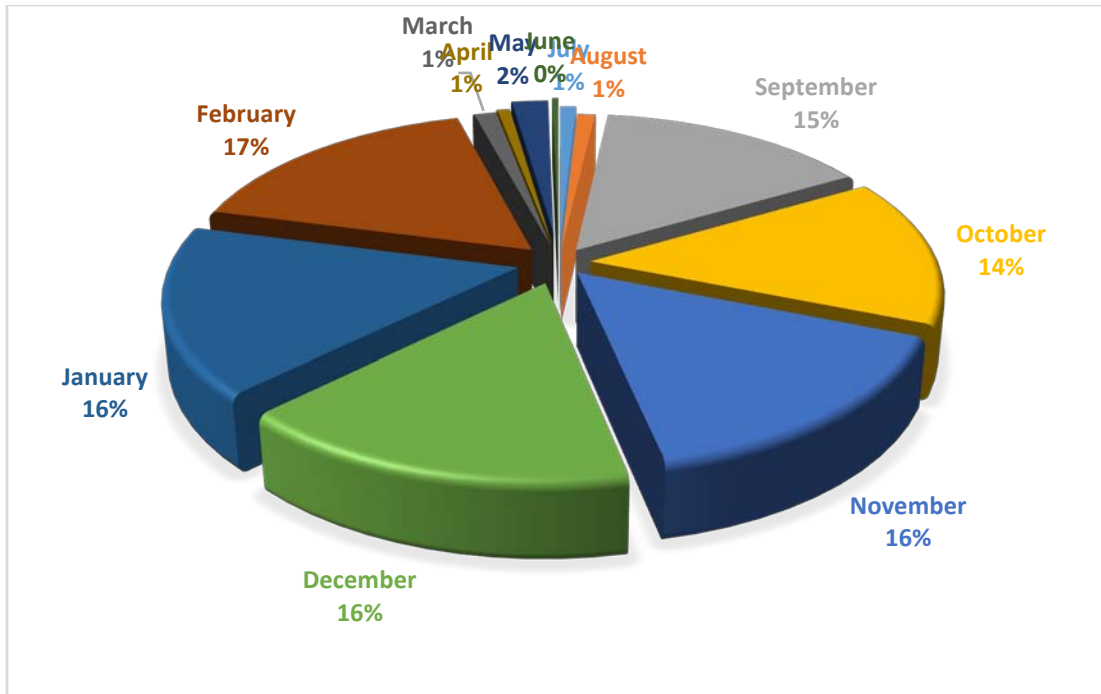


Fig 6.2.3: Revenue per Month (in %), 2017-18

6.4.1.1 Revenue from Sales Energy

Revenue from only selling energy to the consumers are in this category. These amounts are collecting through the electricity bills from the consumers. Demand charge, corresponding energy rate and some other charges are included in this revenue.

6.4.1.2 Revenue from Others

Revenue from others is actually summation of operating revenue from other sources, non-operating margins- interest and non-operating margins-Others.

Revenue from others = Other Operating Revenue + Non-operating Margins- Interest + Non-operating Margins-Others.

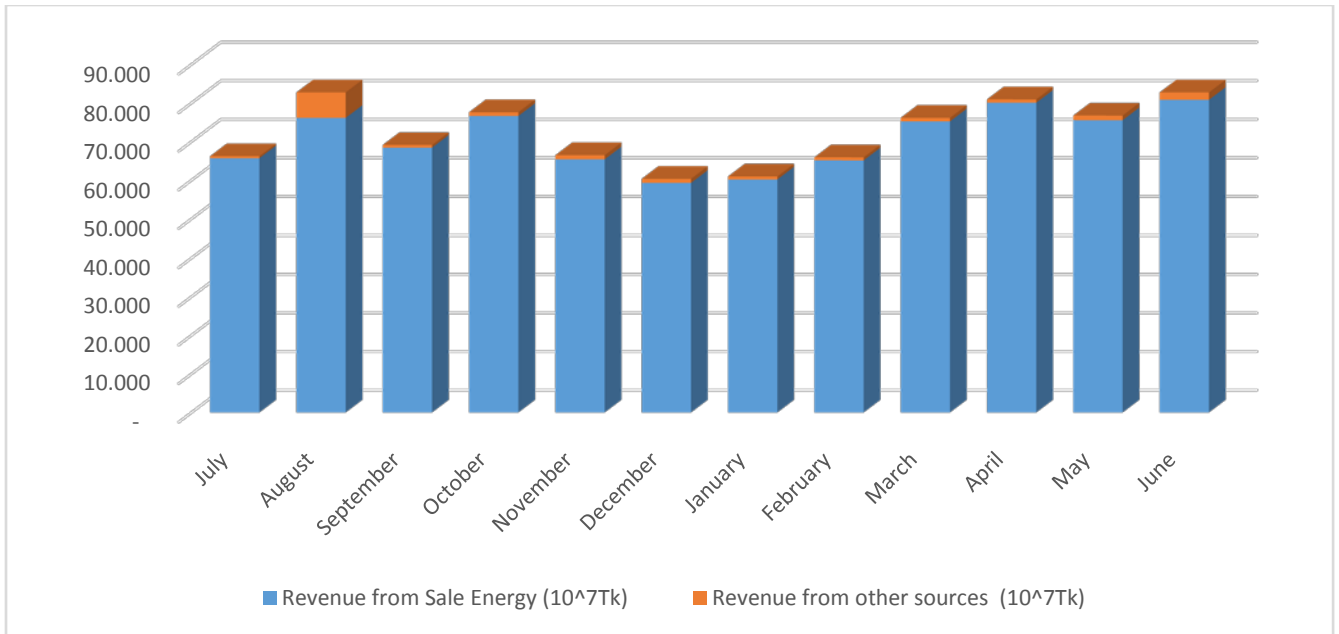


Fig 6.3.1: Monthly Total Revenue of DPBS-1 (10⁷ taka), 2015-16

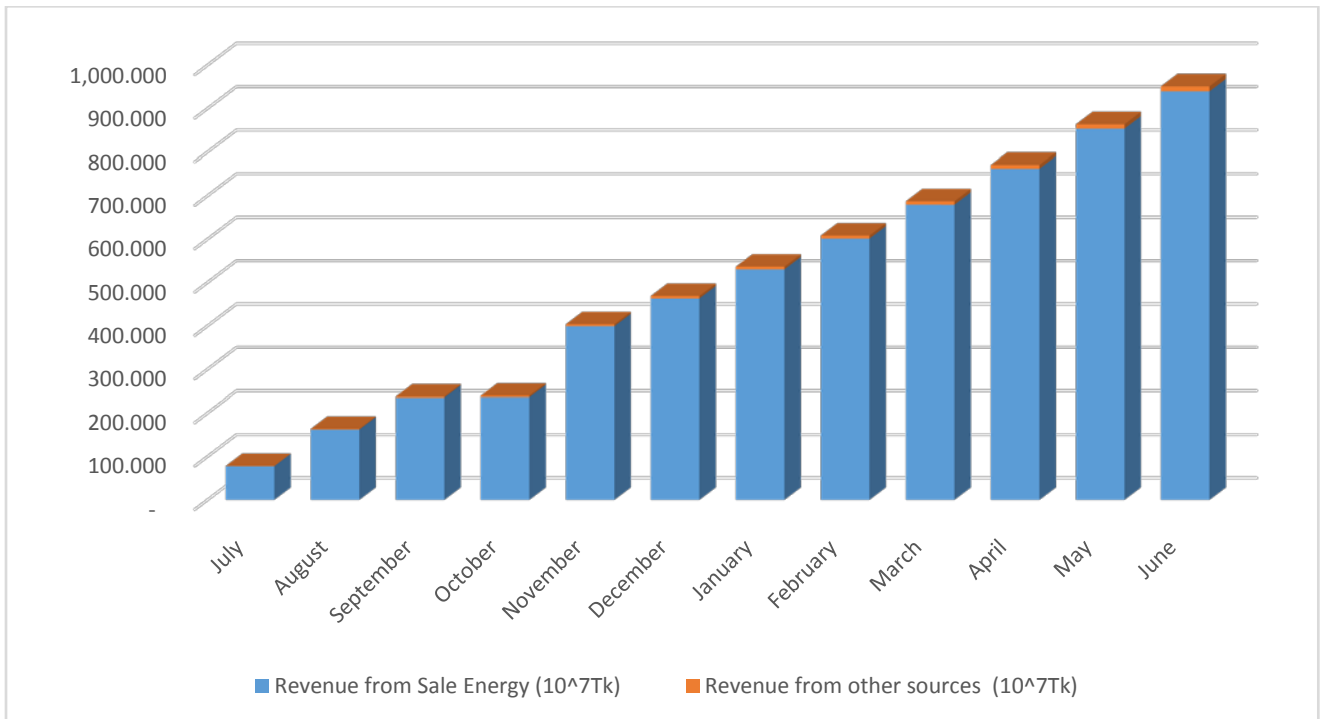


Fig 6.3.2: Monthly Total Revenue of DPBS-1 (10⁷ taka), 2016-17

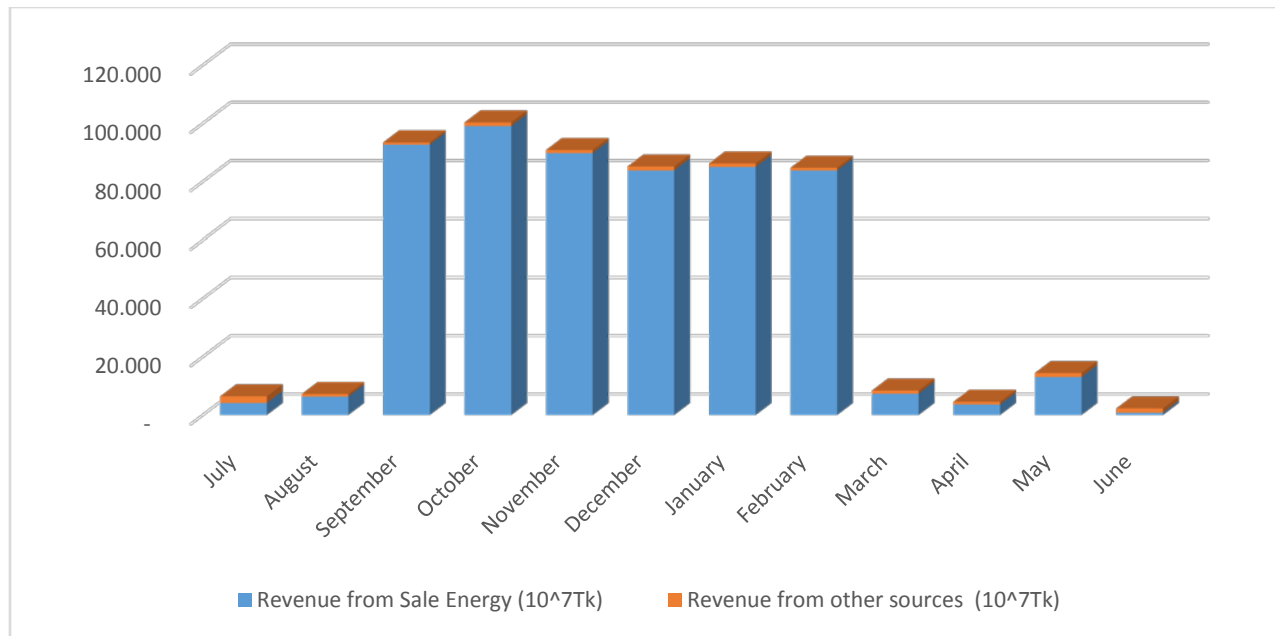


Fig 6.3.3: Monthly Total Revenue of DPBS-1 (10⁷ taka), 2017-18

6.4.1.3 Other Operating Revenue

Late payment charge, miscellaneous service revenue, rent for electric property and other electric revenue are calculated as other operating revenue.

6.4.1.4 Non-operating Margins- Interest

Interest from bank deposit, interest from employee loans (Home loan) related with this part. PBS calculates this as revenue and employee have to pay about 10% interest on their home loan.

6.5 Total Supply Cost (TC)

From purchase to supply electric energy to the consumers, total cost is said to be the Total Supply Cost. This is the total operational expenses of a PBS. In 2017-18 fiscal year, DPBS-1 showed about 929.259 crore taka as their total supply .

$$\text{Total supply cost (TC)} = \text{Energy Purchase Cost} + \text{System Loss (in Tk)} + \text{Distribution cost (DC)}$$

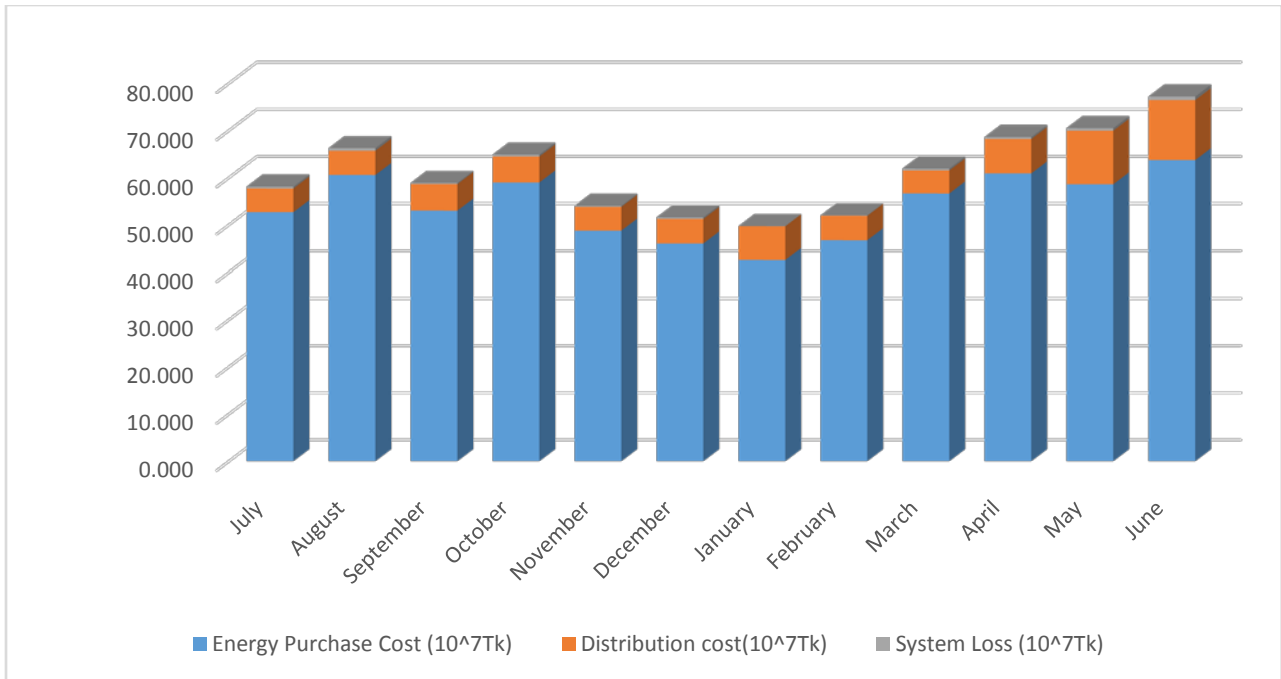


Fig 6.4.1: Monthly Total Supply Cost of DPBS-1, 2015-16

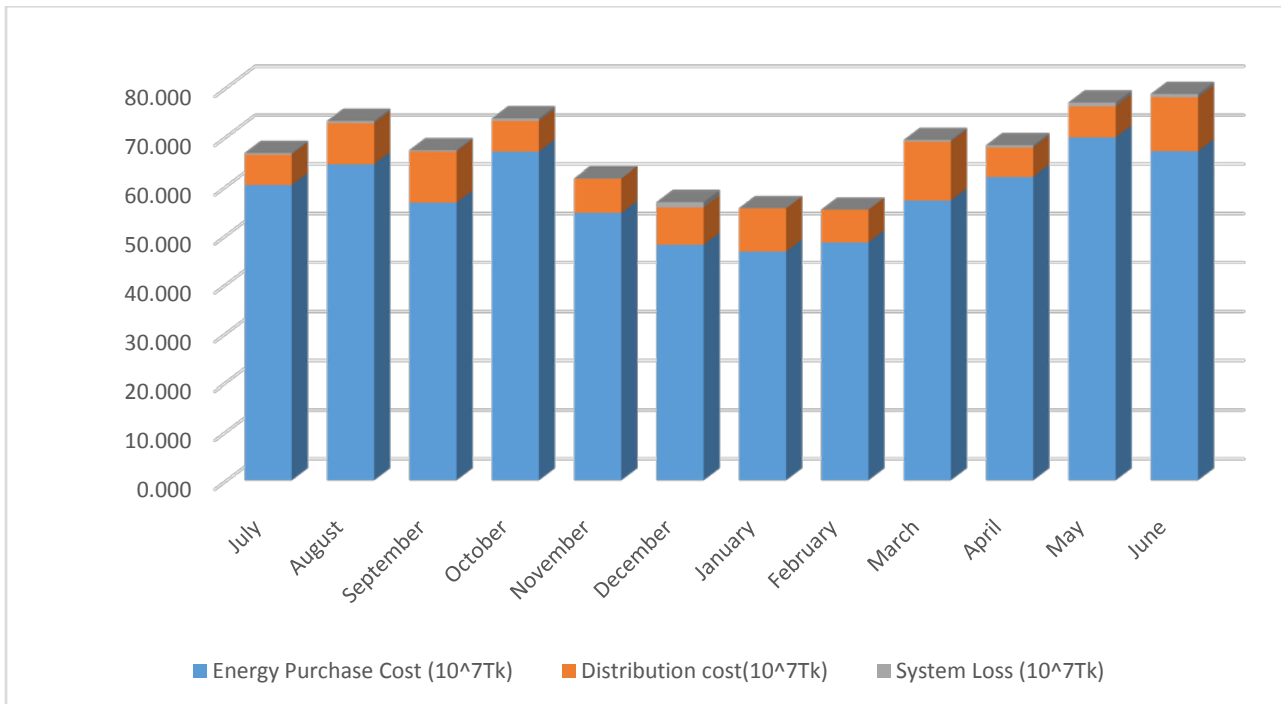


Fig 6.4.2: Monthly Total Supply Cost of DPBS-1, 2016-17

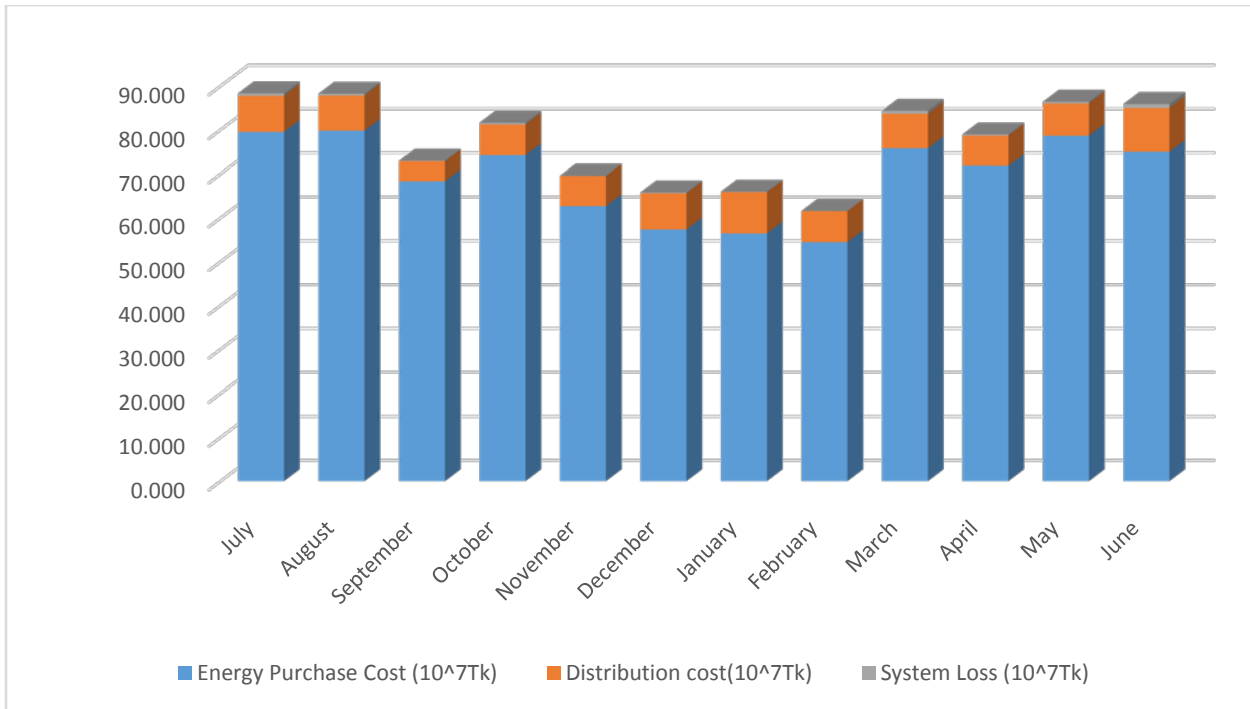


Fig 6.4.3: Monthly Total Supply Cost of DPBS-1, 2017-18

6.6 Surplus

Surplus defines the profit or loss of a PBS. It's also known as operating margin.

$$\text{Surplus} = \text{Total Revenue} - \text{Total Supply Cost}$$

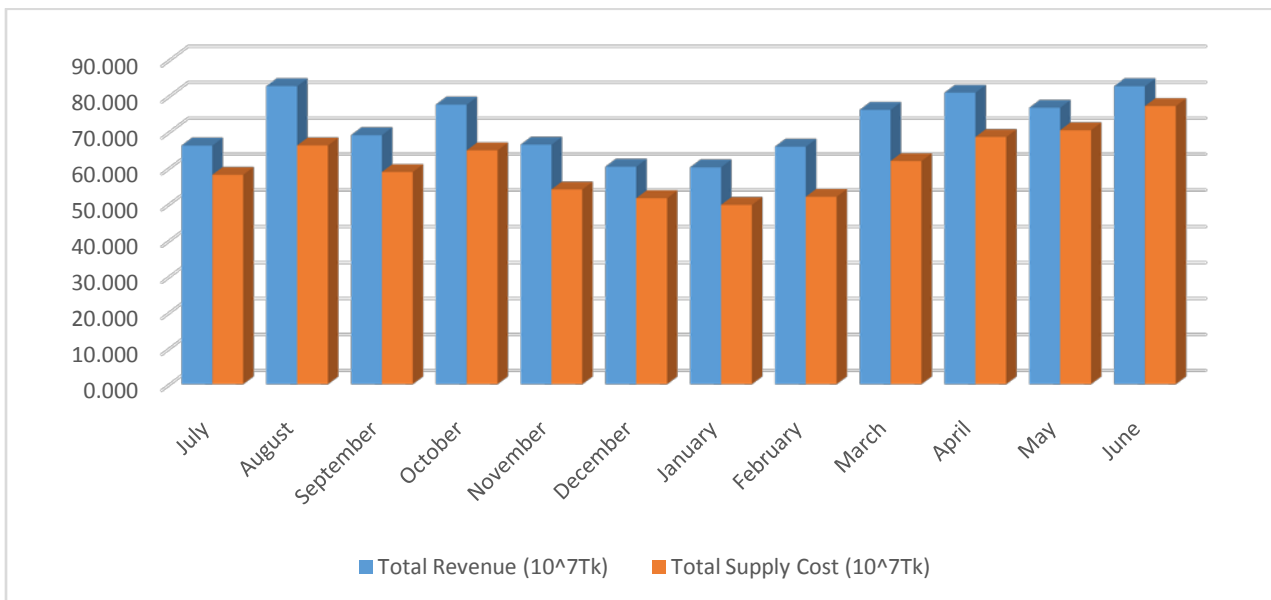


Fig 6.5.1: Monthly revenue with Supply cost of DPBS-1, 2015-16

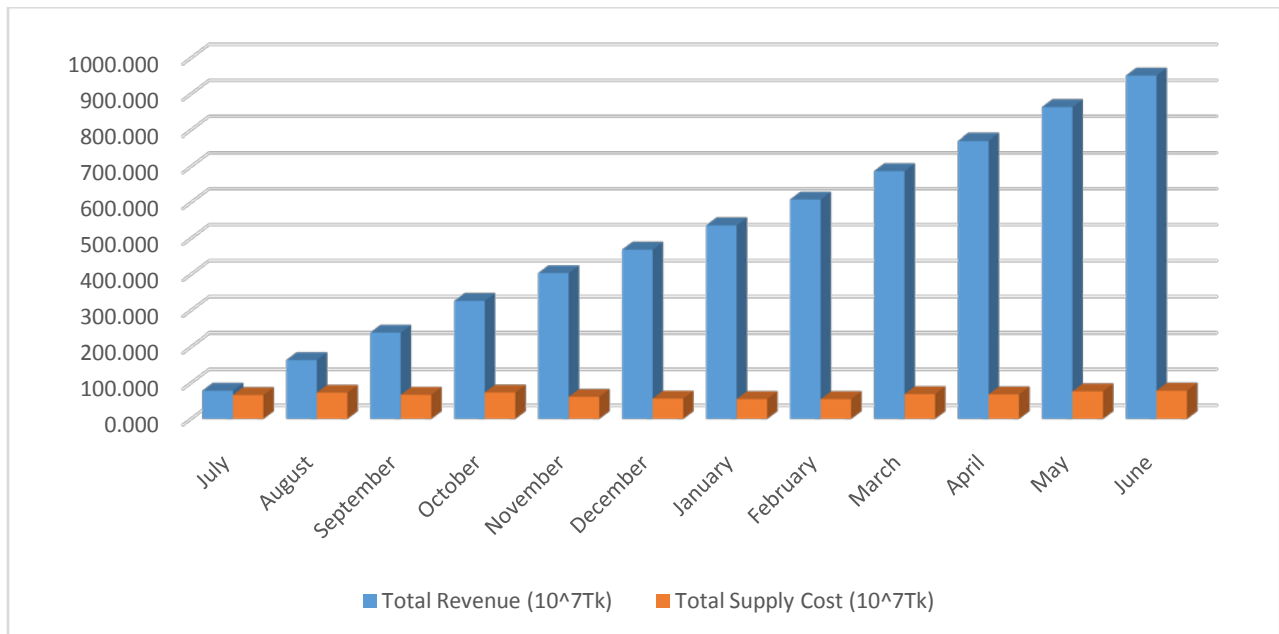


Fig 6.5.2: Monthly revenue with Supply cost of DPBS-1, 2016-17

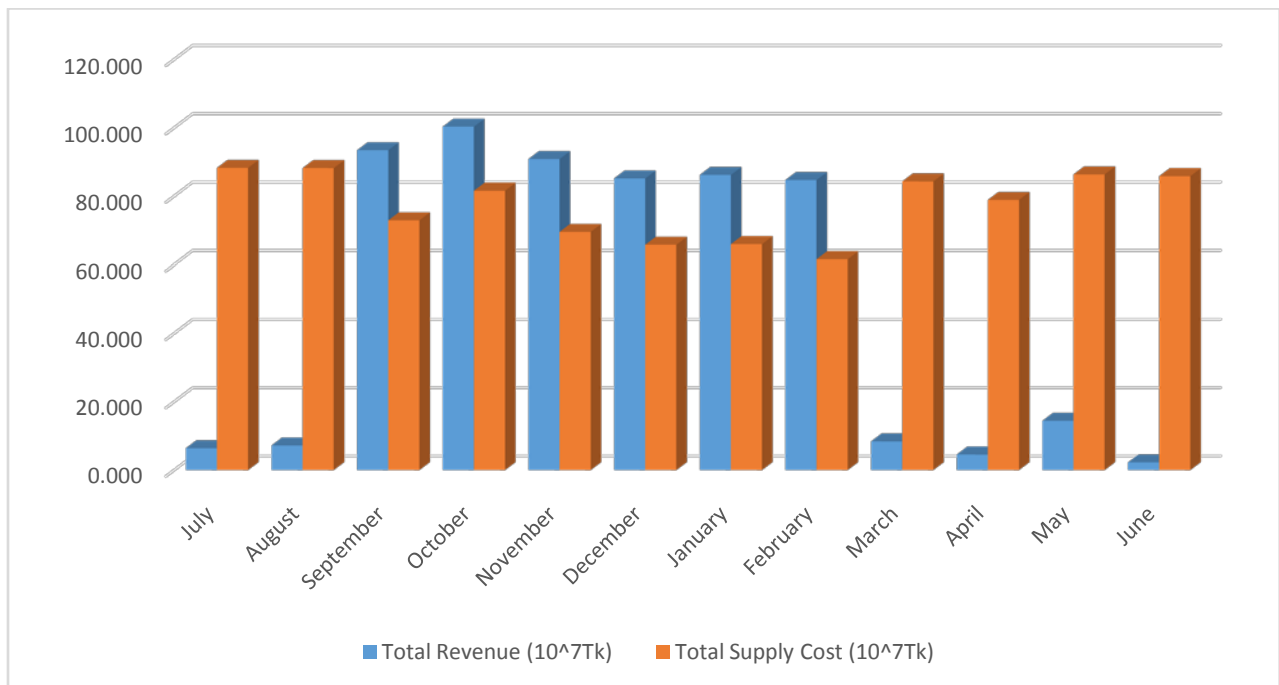


Fig 6.5.3: Monthly revenue with Supply cost of DPBS-1, 2017-18

6.7 Per Unit Cost Calculation

Per unit cost calculated to find cost or revenue of one unit energy that's why we assume profit and loss in short. Here we listed some per unit calculation for DPBS-1:

6.7.1 Distribution Cost (Tk/Unit)

In January, 2018 DPBS-1 had 65.963 crore taka Total Supply Cost, 56.443 crore taka Energy Purchase Cost and Energy sell is 120.105MU. So the Distribution cost (Tk/Unit) of January, 2018 was,

$$\begin{aligned}\text{Distribution Cost (Tk/Unit)} &= ((\text{Total Supply Cost} - \text{Energy Purchase Cost}) / \text{Energy Sell}) * 10 \\ &= ((65.963 - 56.443) / 120.105) * 10 \\ &= \mathbf{0.80} \text{ Tk/Unit}\end{aligned}$$

6.7.2 Revenue (Tk/Unit)

In January, 2018 DPBS-1 had 86.209 crore taka Total Revenue and import 125.175MU energy. So Revenue on January, 2018 was,

$$\begin{aligned}\text{Revenue (Tk/Unit)} &= (\text{Total Revenue} / \text{Energy Import}) * 10 \\ &= (86.209 / 125.175) * 10 \\ &= \mathbf{6.89} \text{ Tk / Unit}\end{aligned}$$

6.7.3 System Loss Tk/Unit (SL)

System loss (Tk/Unit) is calculated the price of each unit in system loss.

In January, 2018 DPBS-1 had purchased 125.175MU with 56.443 crore taka and Energy sell is 120.105 MU. So the system loss (Tk/Unit) of January, 2018 was

$$\begin{aligned}\text{System loss (Tk/Unit)} &= ((\text{Purchase cost/Sell Energy}) - (\text{Purchase cost/Import Energy})) * 10 \\ &= ((56.443/120.105) - (56.443/125.175)) * 10 \\ &= \mathbf{0.190} \text{ Tk / Unit}\end{aligned}$$

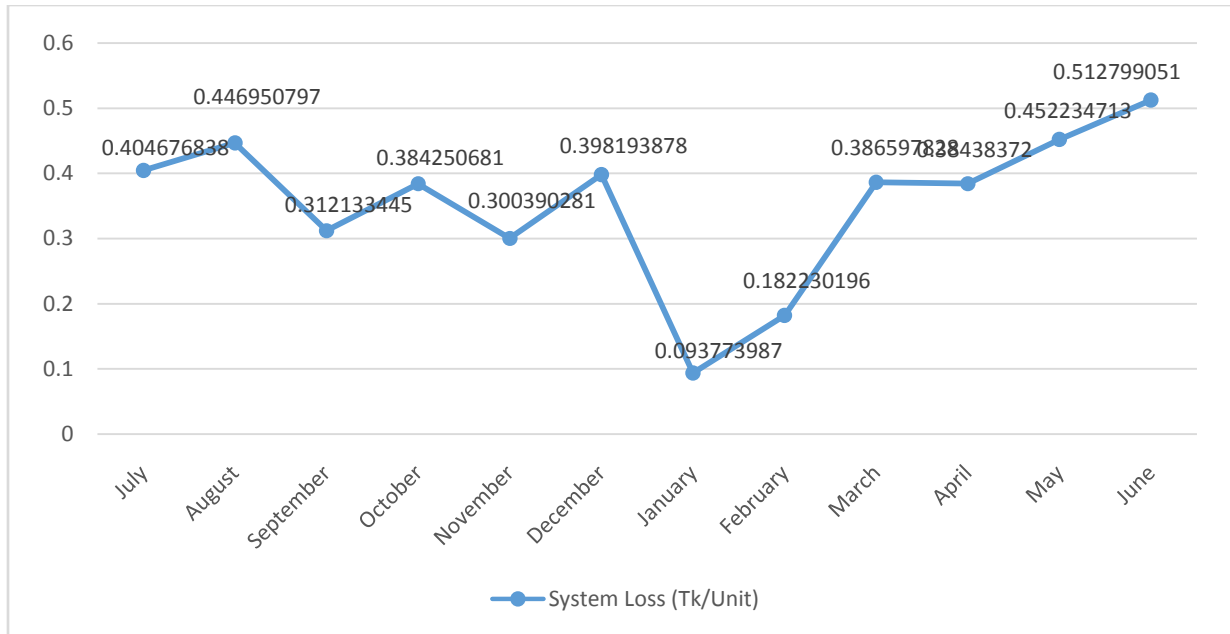


Fig 6.6.1: Month Wise System Loss (TK/Unit) of DPBS-1, 2015-2016

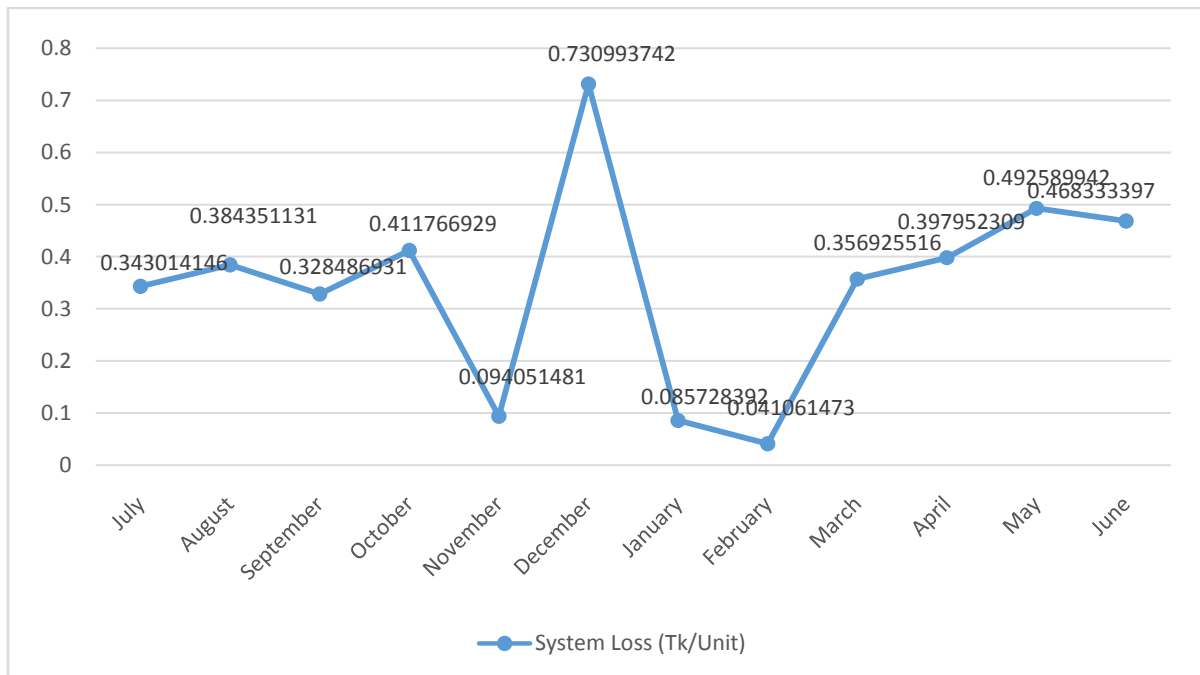


Fig 6.6.2: Month Wise System Loss (TK/Unit) of JPBS, 2016-2017

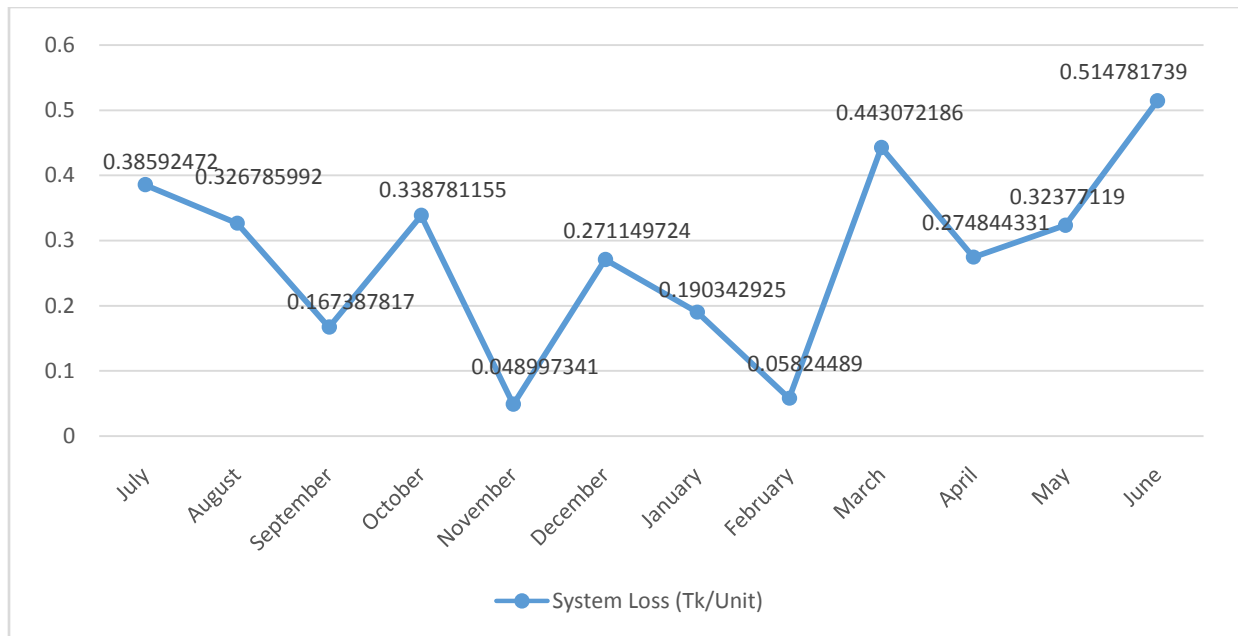


Fig 6.6.3: Month Wise System Loss (TK/Unit) of JPBS, 2017-2018

6.8 Tariff Rate

This is for information of all concerned that in accordance with the BERC Order Dated: 27 August 2015, the new tariff rates with respect to retail sales of electricity of Bangladesh Rural Electrification (BREB) has been made effective bill from month September 2015 shown in Table 6.3. In this table, it's also shown rate and slabs change since December, 2009.

Table 6.3: Tariff Rates Since 2009 to 2016

Consumer class	Slab	Before Dec-2009	01-Dec, 09	Slab	01 Dec, 11	01 Feb, 12	01 Mar, 12	Slab	01 Sep, 12	Slab	01 Mar, 14	01 Sep, 15
	0-25	0	0	Min	0	0	0	Min	0	Min	0	0
	0-100	2.53-2.90	2.64-3.03	00-100	2.77-3.78	2.9-3.34	3.08-3.55	0-75	3.36-3.87	0-50	3.74	3.36-3.87
	101-300	2.57-2.95	2.81-3.23	101-300	3.25-3.73	3.45-3.95	3.67-4.20	76-200	4.05-4.63	0-75	3.87	3.8
Domestic	301-500	3.89-4.15	4.28-4.56	301-500	5.21-5.54	5.63-5.98	5.98-6.35	201-300	4.18-4.79	76-200	5.01	5.14
	500++	4.99-5.95	5.64-6.72	500++	6.87-8.18	7.42-8.83	7.88-9.38	301-400	6.88-7.30	201-300	5.19	5.36
								401-600	7.18-7.62	301-400	5.42	5.63
								600++	9.38	401-600	8.51	8.7
										600++	9.93	9.98
				Flat	6.8	7.33	7.79	Flat	9	Flat	9.58	9.8
Commercial		5.11-5.15	5.62-5.66	Off Peak	5.23	5.88	6.25	Off Peak	7.22	Off Peak	8.16	8.45
				Peak	9.31	9.66	10.26	Peak	11.85	Peak	11.85	11.98
Charitable		3.28-3.35	3.28-3.35		3.45-3.52	3.62-3.70	3.85-3.93		4.45-4.54		4.98	5.22
Irrigation		2.60-3.05	2.6-3.05		2.73-2.20	2.87-3.36	3.05-3.57		3.39-3.96		3.39-3.96	3.82
				Flat	5.27	5.67	6.02	Flat	6.95	Flat	7.42	7.66
General Power		3.91-4.10	4.30-4.51	Off Peak	4.41	4.86	5.16	Off Peak	5.96	Off Peak	6.64	6.9
				Peak	4.41	6.9	7.33	Peak	8.47	Peak	9	9.24
				Flat	5.14	5.55	5.9	Flat	6.81	Flat	7.32	7.57
Large Power		3.80-3.95	4.18-4.34	Off Peak	4.4	4.86	5.16	Off Peak	5.96	Off Peak	6.62	6.88
				Peak	7.55	7.6	8.08	Peak	9.33	Peak	9.33	9.57
				Flat	4.88	5.28	5.61	Flat	6.48	Flat	7.2	7.49
33 KV				Off Peak	4.3	4.78	5.08	Off Peak	5.87	Off Peak	6.55	6.82
				Peak	7.34	7.44	7.91	Peak	9.14	Peak	9.28	9.52
Street Light		3.75-3.85	4.12-4.23		4.9	5.28	5.61		6.48		6.93	7.17

6.9 Bill Explanation

➤ What all utility bills should contain?

Bills—for electricity—should always be dated and contain the following information (Usually on the first page of the bill) –

- Your Name and Address.
- Your customer account or reference number (Always quote this when you contact your supplier).
- The name of your supplier and its contact details.
- How much you need to pay (Including any money owed from previous bills) and when you need to pay by.

➤ **More Detailed Information**

The following more detailed information about the amount of energy you've used is often found on a separate page of the bill–

- **Billing Period** – The period in which you used the energy you're being charged for.
- **Meter Readings**–Difference between the previous and latest reading is the amount of energy (Measured in Kilo watt-hours or KWh) you've used.
- The amount your supplier is charging you for each KWh of electricity. If you pay a standing charge (Which covers things like meter readings and the cost of keeping you connected to the network) you'll pay a single rate; if not then you will pay a higher price for a given number of units and then a lower rate thereafter.
- **Meter Number**– If your supplier has changed your meter during the billing period you'll see readings for two different meter numbers.

6.10 Summary

In this chapter, electricity rate, revenue and expenses or cost of DPBS-1 are calculated according to the thesis formula. System loss calculated in taka. System loss, Distribution cost and Total Revenue calculated month wise in per unit. DPBS-1 find in massive loss.

CHAPTER 7

CONCLUSION

7.1 Conclusions

Electricity distribution cost is an important issue in our country. Because electricity tariff rate and distribution cost are related with our economic growth. However, we have a huge lack of electricity in Bangladesh but all of generation, substation, consultancy, local member service of BREB is more efficient and taking an important role to cover the lack of electricity. When electricity tariff rate becomes high then poor people of our country suffer a lot. By thinking about them, electricity tariff rate of our country should be low.

Government has given highest priority to power development in Bangladesh and is committed to generating electricity will sufficient for all citizens by 2021. Our government should take steps for improvement of our power station. In our power station, generator efficiency rate is low. It should be increased to a high value by taking necessary steps.

7.2 Limitations

There are few limitations I have faced are mentioned below-

- In this study the data of DPBS-1 I have used, collected from BREB (Bangladesh Rural Electrification Board) and DPBS-1 but I think some of these data are assumption.
- The distribution cost of DPBS-1 I have calculated are almost the same as that given by BERC. The slight difference of cost caused by the data that are assumption.
- In this thesis, I have discussed about electricity distribution structure and calculated the distribution cost. I have also calculated the tariff rate of electric power which depends on generating, transmission, distribution cost. To calculate the tariff rate of electric power, transmission and distribution cost needs to be calculated along with the generation and transmission cost.

7.3 Future Outline

Usually, Tariff rate of electrical power depends on transmission and distribution cost. If electricity supply costs are high, then electrical tariff rate will high and committed negative result. In this paper, I discussed about Distribution cost of Dhaka PBS-1, how to calculate, with examples. I also discussed about important terms. Interested people can study to calculate the Distribution cost and electricity tariff. This paper will also be helpful to get knowledge a stable electricity distribution structure to meet the future electricity crisis of Bangladesh.

REFERENCES

- [1] <http://www.dhakaaps1.org.bd/>
- [2] https://en.wikipedia.org/wiki/Rural_Electrification_Board
- [3] <http://pbs.jamalpur.gov.bd/>
- [4] Barry Hayes ; Milan Prodanovic State Estimation Techniques for Electric Power Distribution Systems, 2014, pp. 303 – 308.
- [5] Sachidananda Prasad ; Dulla Mallesham Vinod Kumar, Distribution System State Estimation: A bibliographical Survey, 2017, pp. 1 – 6.
- [6] Gabriele D'Antona ; Carlo Muscas ; Sara Sulis, State Estimation for the Localization of Harmonic Sources in Electric Distribution Systems, Vol. 58 , Issue: 5 , May 2009.
- [7] C. Unsihuay ; O.R. Saavedra, Comparative studies on transmission loss allocation methods for competitive electricity markets, Published in: 2003 IEEE Bologna Power Tech Conference Proceedings, Print ISBN: 0-7803-7967-5, INSPEC Accession Number: 8127014, DOI: 10.1109/PTC.2003.1304457.
- [8] M.S. Alam, E. Kabir, M.M. Rahman and M.A.K. Chowdhury, Power sector reform in Bangladesh: Electricity distribution system, 2004, Vol. 29, pp. 1773-1783.
- [9] Khandker, Shahidur R.; Barnes, Douglas F.; Samad, Hussain A., Welfare Impacts Of Rural Electrification: A Case Study From Bangladesh, Energy Journal. 2012, Vol. 33 Issue 1, p187-206. 20p.
- [10] Mahedi Masuduzzaman, Electricity Consumption and Economic Growth in Bangladesh: Co-integration and Causality Analysis, Vol. 12, No. 11 (2012): Global Journal of Management and Business, Published: 2012-07-07.
- [11] Yigzaw G. Yohanis, Jayanta D. Mondol , Alan Wright , Brian Norton, Real-life energy use in the UK: How occupancy and dwelling characteristics affect domestic electricity use, Energy and Buildings, Vol. 40, 2008, pp. 1053–1059.
- [12] 2015 Statistical Year Book Bangladesh, 35th Edition, September 2016.

APPENDIX-A

1. ORGANIZATION AND FUNCTIONS OF REB:

After starting functioning REB has gone to a lot of changes. But to ensure a proper function a board was crated. It consists of a Chairman, four full time members and four-part time members. Also to ensure direct participation of the beneficiaries, each project area should form an electric cooperative, called a PalliBidyutSamity (PBS).These PBSs consists of several members. But PBS is directed by a member of REB.A organization chart of REB is given below:

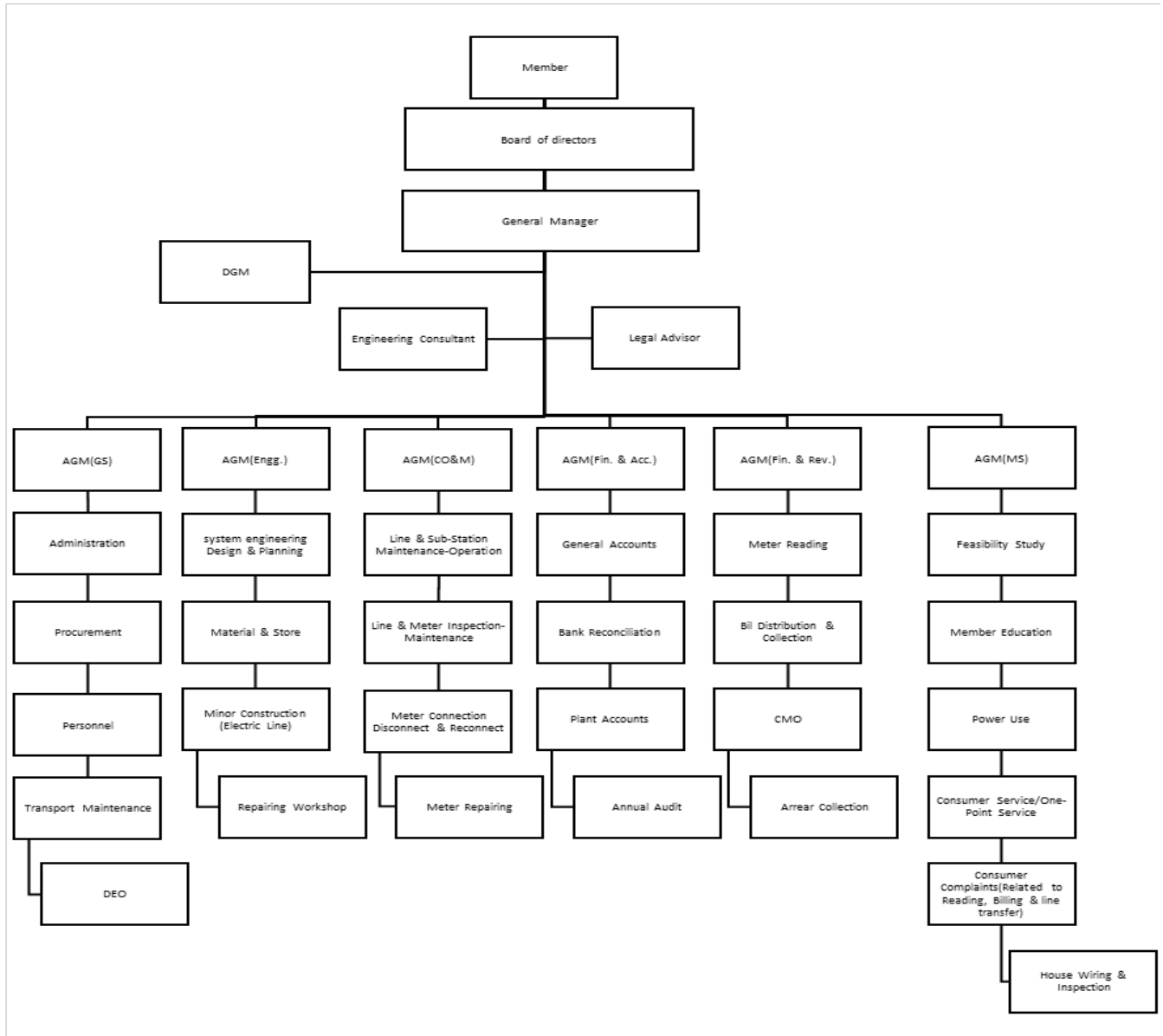


Fig 7.1: Organization of REB

APPENDIX- B

Formula According to Thesis

Total revenue = Revenue from sales of energy + Revenue from other sources

Revenue from others = Other Operating Revenue + Non-operating Margins- interest+ Non-operating Margins-Others

Distribution cost = Operation & Maintenance Expenses + Consumer Selling Expenses + Administration & General Expenses + Depreciation & Amortization + Tax Expenses + Interest Expenses

Total supply cost = Energy Purchase Cost + System Loss + Distribution Cost

System Loss (Tk) = Import Energy × System Loss (Tk/Unit)

Surplus (Tk) = Total Revenue – Total Supply Cost

Energy Purchase Cost = Energy × Rate

System loss (Tk/Unit) = $\left(\frac{\text{Purchase cost}}{\text{Sell Energy}} - \frac{\text{Purchase cost}}{\text{Import Energy}} \right) \times 10$

System Loss % = $\frac{\text{Energy Import} - \text{Energy Sell}}{\text{Energy Import}} \times 100$

Distribution Cost (Tk/Unit) = $\frac{\text{Total Supply Cost} - \text{Energy Purchase Cost}}{\text{Energy Sell}} \times 10$

Total Revenue (Tk/Unit) = $\frac{\text{Revenue from other sources}}{\text{Energy Import}} \times 10$

Load Factor = $\frac{\text{Total Unit kWh (Purchase)}}{(\text{Total Peak demand} \times 1000) \times 24 \times 30} \times 100$

KWh (Purchase) % = $\frac{\text{Reference grid unit KWh}}{\text{Total Unit KWh purchase}} \times 100$

Increment % = $\frac{\text{Present value} - \text{Past value}}{\text{Past value}} \times 100$

Grand Total = Sum of all related values

APPENDIX- C

As per Sub-station Meter Data with Load Factor (2015-16) of DPBS-1

Import point	July'15				August'15			
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Palashbari-1	17.5	7,808,500	107,224,012	7.56	17.5	8,536,670	122,202,771	8.84
Palashbari-2	12.000	5,846,500			12.000	3,814,938		
Bismile(Desa)	14.500	3,968,167			14.500	4,727,093		
Bismile(PBS-1)/776	8.750	4,902,788			8.750	4,605,759		
Bismile(PBS-2)/761	4.500	1,278,000			4.500	665,400		
Dairy Farm	8.500	5,475,390			8.500	3,264,744		
DEPZ-1(Unit-10)	7.500	65,000			7.500	92,720		
DEPZ-1(Unit-2)	5.250	792,000			5.250	833,030		
DEPZ-2(Unit-1)	4	248,710			4	181,505		
DEPZ-2(Unit-2)	6.000	3,231,000			6.000	2,171,177		
Atomic Energy	10	4,136,000			10	3,757,600		
BKSP	8.000	7,731,000			8.000	6,677,081		
Bengal Plastic	1.000	660,000			1.000	651,750		
Kabirpur Radio	1.000	38,160			1.000	35,775		
Kabirpur	16.000	6,436,000			16.000	7,867,765		
Sreepur	6.000	3,886,000			6.000	4,232,838		
KaliaKair-2(Unit-10)	8.000	2,928,000			8.000	2,715,000		
KaliaKair-2, Kall-4	7.000	3,104,000			7.000	6,064,000		
Kaliakair-1	16.000	8,600,000			16.000	8,073,065		
Mouchak-1	15.500	7,890,960			15.500	6,517,500		
Mouchak-2	8.000	2,943,000			8.000	4,832,000		
Vannara	9.000	2,306,000			9.000	4,341,000		
Apex Pharma	1.000	99,000			1.000	93,500		
Fantasy(New)	8.000	6,877,000			8.000	5,063,000		
Ashulia	16.000	5,907,000			16.000	8,195,000		
Yearpur-1 (ACR)	17.000	9,658,000			17.000	9,073,929		
Yearpur-2	15.000	5,935,000			15.000	3,162,000		
AEC Unit-2	7.000	2,324,000			7.000	2,101,292		
CP Bangladesh 33	3.000	222,750			3.000	490,875		
Bluesen(430-2260)	0.180	481,250			0.180	239,250		
Nayarhat Radio 33Kv	1.000	317,747			1.000	297,523		
DPBS 3	0.000	5,041,649			0.000	5,093,474		
Tangail Pbs 33KV	0.000	7,033,634			0.000	7,295,687		
SUMMIT	0.000	3,300	0.000	4,107				
UPGDC Ltd	0.000	51,840	0.000	24,960				
Kabirpur Radio 2	1.000	8,640	1.000	9,840				
Poly Kat	1.000	63,250	1.000	115,500				
Kaliakoir-3	7.000	2,368,000	7.000	2,902,000				
Bay Footwear	0.000	-	2.000	159,500				
Total	271.180	115,994,008		273.180	134,046,847			

Import point	September'15				October'15			
	Peak	Unit	Total	Substation	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			KWh(sold)	SL %		
Palashbari-1	17.5	7,228,287	109,949,082	5.96	17.5	8,258,751	120,527,938	3.60
Palashbari-2	12.000	3,313,063			12.000	3,641,000		
Bismile(Desa)	14.500	4,438,569			14.600	4,544,670		
Bismile(PBS-1)/776	8.750	3,939,079			8.750	4,179,084		
Bismile(PBS-2)/761	4.500	770,000			4.500	1,223,600		
Dairy Farm	8.500	4,093,410			10.500	4,767,958		
DEPZ-1(Unit-10)	7.500	102,900			7.500	169,840		
DEPZ-1(Unit-2)	5.250	724,570			5.250	794,970		
DEPZ-2(Unit-1)	4	185,792			4	176,425		
DEPZ-2(Unit-2)	6.000	1,889,497			6.000	2,108,257		
Atomic Energy	10	3,311,770			10	3,648,810		
BKSP	8.000	6,091,680			8.000	6,584,160		
Bengal Plastic	1.000	507,375			1.500	676,500		
Kabirpur Radio	1.000	34,233			1.000	36,787		
Kabirpur	16.000	6,088,025			16.000	7,188,875		
Sreepur	6.000	3,733,708			6.000	4,130,152		
KaliaKair-2(Unit-10)	8.000	2,574,070			8.000	2,588,080		
KaliaKair-2, Kall-4	7.000	2,718,337			7.000	2,827,053		
Kaliakair-1	16.000	6,311,653			16.000	7,150,000		
Mouchak-1	15.500	5,962,000			15.500	7,067,500		
Mouchak-2	8.000	3,320,000			8.000	3,655,000		
Vannara	9.000	4,255,000			9.000	4,091,000		
Apex Pharma	1.000	79,750			1.000	104,500		
Fantasy(New)	8.000	4,080,000			8.000	4,546,666		
Ashulia	16.000	7,084,000			16.000	8,085,000		
Yearpur-1 (ACR)	17.000	8,052,000			17.000	9,053,000		
Yearpur-2	15.000	8,826,000			15.000	8,001,000		
AEC Unit-2	7.000	1,816,363			7.000	1,827,469		
CP Bangladesh 33	3.000	453,750			3.000	544,500		
Bluesen(430-2260)	0.180	277,750			0.180	456,500		
Nayarhat Radio 33kv	1.000	278,850			1.000	396,330		
DPBS 3	0.000	3,415,091			0.000	2,389,495		
Tangail Pbs 33KV	0.000	6,915,952			0.000	6,933,796		
SUMMIT	0.000	3,531	0.000	4,628				
UPGDC Ltd	0.000	31,680	0.000	24,480				
Kabirpur Radio 2	1.000	6,800	1.000	6,800				
Poly Kat	1.000	109,285	1.000	154,715				
Kaliakoir-3	7.000	2,271,000	7.000	2,734,000				
Bay Footwear	2.000	1,622,510	2.000	261,250				
Total	273.180	116,917,330			275.780	125,032,601		

Import point	November'15				December'15			
	Peak Demand(MW)	Unit	Total KWh(sold)	Substation SL %	Peak Demand(MW)	Unit	Total KWh(sold)	Substation SL %
		kWh(Purchase)				kWh(Purchase)		
Palashbari-1	14	6,543,592	101,412,978	1.99	12	6,422,887	93,841,158	5.47
Palashbari-2	9.000	3,041,500			6.000	4,174,500		
Bismile(Desa)	13.000	3,311,123			10.000	2,769,393		
Bismile(PBS-1)/776	6.000	3,544,404			6.000	4,169,417		
Bismile(PBS-2)/761	4.000	943,200			4	1,171,000		
Dairy Farm	6.000	3,288,162			6	2,121,532		
DEPZ-1(Unit-10)	6.000	114,290			6	103,630		
DEPZ-1(Unit-2)	5.000	695,200			5.000	575,080		
DEPZ-2(Unit-1)	4	195,158			4	167,006		
DEPZ-2(Unit-2)	6.000	1,688,240			6.000	1,387,397		
Atomic Energy	9	2,932,820			9	5,529,080		
BKSP	8.000	5,331,840			8.00	4,933,536		
Bengal Plastic	1.500	565,125			1.50	851,625		
Kabirpur Radio	1.000	31,535			1.00	35,245		
Kabirpur	12.000	6,195,681			12.00	5,778,240		
Sreepur	5.000	3,566,446			5.000	3,161,650		
KaliaKair-2(Unit-10)	7.000	1,955,850			7.00	1,901,000		
KaliaKair-2, Kall-4	6.000	2,273,610			6.00	2,179,000		
Kaliakair-1	14.000	4,440,380			14.00	5,859,073		
Mouchak-1	13.000	5,746,235			13.00	5,160,265		
Mouchak-2	7.000	2,908,000			7.00	2,356,000		
Vannara	7.000	3,374,000			7.00	3,341,000		
Apex Pharma	1.000	77,000			1.00	82,500		
Fantasy(New)	12.000	4,817,000			12.00	4,849,000		
Ashulia	13.000	7,172,000			13.00	6,303,000		
Yearpur-1 (ACR)	14.000	6,787,000			14.00	6,028,000		
Yearpur-2	13.000	6,397,000			13.00	5,554,000		
AEC Unit-2	6.000	1,451,488			6.00	1,214,056		
CP Bangladesh 33	3.000	577,500			3.00	408,375		
Bluesen(430-2260)	0.180	404,250			0.18	404,250		
Nayarhat Radio 33Kv	1.000	259,957			1.00	259,957		
DPBS 3	0.000	1,976,245			0.000	2,170,465		
Tangail Pbs 33KV	0.000	5,494,146			0.000	4,968,654		
SUMMIT	0.000	5,700	0.000	2,340				
UPGDC Ltd	0.000	38,880	0.000	14,400				
Kabirpur Radio 2	1.000	4,800	1.000	4,160				
Poly Kat	1.000	123,750	1.000	156,750				
Kaliakoir-3	7.000	2,498,000	7.000	2,405,000				
Bay Footwear	2.000	173,250	2.000	110,000				
Total	237.680	103,474,057			229.680	99,267,649		

Import point	January'16				February'16			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation SL
	Demand(MW)	kWh(Purchase)			KWh(sold)	Demand(MW)		
Palashbari-1	12	5,284,627	92,467,271	1.83	15	6,708,965	99,643,917	2.73
Palashbari-2	6.000	2,211,000			6.000	2,970,000		
Bismile(Desa)	10.000	3,042,966			10.00	3,151,806		
Bismile(PBS-1)/776	6.000	2,952,059			6.00	3,759,065		
Bismile(PBS-2)/761	4.000	707,400			4	685,200		
Dairy Farm	6.000	1,858,128			6	2,036,660		
DEPZ-1(Unit-10)	6.000	99,080			6	95,000		
DEPZ-1(Unit-2)	5.000	594,220			5.000	654,500		
DEPZ-2(Unit-1)	4	172,258			4	179,918		
DEPZ-2(Unit-2)	6.000	1,477,363			6.000	2,091,000		
Atomic Energy	9	2,300,100			9	2,783,000		
BKSP	8.000	5,229,984			8.00	5,778,000		
Bengal Plastic	1.500	742,500			1.50	622,875		
Kabirpur Radio	1.000	43,725			1.00	37,895		
Kabirpur	12.000	6,155,079			12.00	6,094,000		
Sreepur	5.000	3,184,000			5.00	3,790,000		
KaliaKair-2(Unit-10)	7.000	1,881,000			7.00	2,022,000		
KaliaKair-2, Kall-4	6.000	2,287,000			6.00	2,390,000		
Kaliakair-1	14.000	5,303,432			14.00	5,009,649		
Mouchak-1	13.000	5,395,500			13.00	5,687,000		
Mouchak-2	7.000	1,560,000			7.00	2,500,000		
Vannara	7.000	3,763,000			7.00	3,654,000		
Apex Pharma	1.000	107,250			1.00	66,000		
Fantasy(New)	12.000	4,632,000			12.00	5,031,000		
Ashulia	13.000	3,773,000			13.00	4,575,000		
Yearpur-1 (ACR)	14.000	7,260,000			14.00	5,544,000		
Yearpur-2	13.000	5,044,000			13.00	6,223,000		
AEC Unit-2	6.000	1,163,456			6.00	1,284,000		
CP Bangladesh 33	3.000	726,000			3.00	870,375		
Bluesen(430-2260)	0.000	302,500			-	173,250		
Nayarhat Radio 33kv	1.000	418,880			-	342,677		
DPBS 3	0.000	2,235,991			0.000	1,890,655		
Tangail Pbs 33KV	0.000	6,193,106			0.000	7,341,256		
SUMMIT	0.000	180	0.000	2,160				
UPGDC Ltd	0.000	41,760	1.000	57,600				
Kabirpur Radio 2	1.000	6,080	1.000	5,600				
Poly Kat	1.000	195,250	7.000	178,750				
Kaliakoir-3	7.000	2,239,000	2.000	2,196,000				
Bay Footwear	0.000	283,250	1.000	104,500				
Total	227.500	94,190,979			232.500	102,435,671		

Import point	March'16				April'16			
	Peak	Unit	Total	Substation	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			KWh(sold)	SL %		
Palashbari-1	15	7,763,356	115,713,711	4.96	18	7,812,050	124,462,970	4.16
Palashbari-2	12.000	3,256,000			12.000	4,449,500		
Bismile(Desa)	10.000	3,789,294			10.000	4,427,555		
Bismile(PBS-1)/776	7.000	3,903,745			7.000	3,918,412		
Bismile(PBS-2)/761	5.000	808,400			5	854,800		
Dairy Farm	7.000	3,574,470			11	4,824,450		
DEPZ-1(Unit-10)	6.000	150,000			8	257,000		
DEPZ-1(Unit-2)	5.000	968,000			6.000	1,160,500		
DEPZ-2(Unit-1)	4	248,710			4	285,752		
DEPZ-2(Unit-2)	6.000	2,564,000			8.000	2,935,000		
Atomic Energy	9	3,597,000			12	3,707,000		
BKSP	8.000	6,799,000			14.00	6,096,000		
Bengal Plastic	1.500	775,500			1.50	684,750		
Kabirpur Radio	1.000	27,295			1.00	39,485		
Kabirpur	12.000	7,181,000			14.00	7,872,540		
Sreepur	5.000	3,944,000			8.00	3,850,000		
KaliaKair-2(Unit-10)	7.000	2,256,000			8.00	2,708,000		
KaliaKair-2, Kall-4	6.000	2,760,000			6.00	2,988,000		
Kaliakair-1	14.000	6,725,043			16.00	7,600,000		
Mouchak-1	13.000	6,693,500			15.00	7,073,000		
Mouchak-2	7.000	3,046,000			8.00	2,667,000		
Vannara	7.000	3,903,000			10.00	4,615,000		
Apex Pharma	1.000	82,500			1.00	112,750		
Fantasy(New)	12.000	5,924,000			14.00	6,661,000		
Ashulia	13.000	4,950,000			15.00	4,950,000		
Yearpur-1 (ACR)	14.000	8,217,000			17.00	8,217,000		
Yearpur-2	13.000	6,387,000			15.00	6,387,000		
AEC Unit-2	6.000	1,751,000			7.00	1,751,000		
CP Bangladesh 33	3.000	660,000			3.00	660,000		
Bluesen(430-2260)	0.000	500,500			9.15	500,500		
Nayarhat Radio 33Kv	1.000	218,653			1.00	218,653		
DPBS 3	0.000	2,899,470			0.000	2,607,323		
Tangail Pbs 33KV	0.000	7,786,134			0.000	8,059,263		
SUMMIT	0.000	7,440	0.000	5,940				
UPGDC Ltd	0.000	72,480	0.000	65,280				
Kabirpur Radio 2	1.000	7,840	1.000	9,200				
Poly Kat	1.000	211,750	1.000	187,000				
Kaliakoir-3	7.000	2,578,000	7.000	2,681,000				
Bay Footwear	2.000	242,000	2.000	250,250				
Total	241.500	121,758,645			295.650	129,867,117		

Import point	May'16				June'16			
	Peak	Unit	Total	Substation SL %	Peak	Unit	Total	Substation SL %
	Demand(MW)	kWh(Purchase)	KWh(sold)		Demand(MW)	kWh(Purchase)	KWh(sold)	
Palashbari-1	18	6,681,616	118,113,823	4.15	18	7,808,500	126,911,812	8.33
Palashbari-2	12.000	5,076,500						
Bismile(Desa)	10.000	4,261,681						
Bismile(PBS-1)/776	7.000	3,528,714						
Bismile(PBS-2)/761	5.000	845,800						
Dairy Farm	11.000	5,110,740						
DEPZ-1(Unit-10)	8.000	129,000						
DEPZ-1(Unit-2)	6.000	1,078,000						
DEPZ-2(Unit-1)	4	174,626						
DEPZ-2(Unit-2)	8.000	2,849,000						
Atomic Energy	12	3,729,000						
BKSP	14.000	6,058,000						
Bengal Plastic	1.500	676,500						
Kabirpur Radio	1.000	38,690						
Kabirpur	14.000	6,687,000						
Sreepur	8.000	3,803,000						
KaliaKair-2(Unit-10)	8.000	2,499,000						
KaliaKair-2, Kall-4	6.000	2,897,000						
Kaliakair-1	16.000	7,300,000						
Mouchak-1	15.000	6,909,540						
Mouchak-2	8.000	2,949,000						
Vannara	10.000	2,996,000						
Apex Pharma	1.000	104,500						
Fantasy(New)	14.000	6,293,000						
Ashulia	15.000	5,251,000						
Yearpur-1 (ACR)	17.000	8,238,000						
Yearpur-2	15.000	5,166,000						
AEC Unit-2	7.000	2,067,000						
CP Bangladesh 33	3.000	416,625						
Bluesen(430-2260)	0.000	522,500						
Nayarhat Radio 33Kv	1.000	332,658						
DPBS 3	0.000	2,127,884						
Tangail Pbs 33KV	0.000	7,151,234						
SUMMIT	0.000	6,780						
UPGDC Ltd	0.000	93,120						
Kabirpur Radio 2	1.000	7,120						
Poly Kat	1.000	181,500						
Kaliakoir-3	7.000	2,809,000						
Bay Footwear	2.000	2,255,000						
Total	286.500	123,227,908			292.500	138,447,236		

As per Sub-station Meter Data with Load Factor (2016-17) of DPBS-1

Import point	July'16				August'16			
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Palashbari-1	18	6,205,970	124,028,342	3.35	18	7,112,017	131,407,524	5.75
Palashbari-2	12.000	5,060,000						
Bismile(Desa)	10.000	4,008,882						
Bismile(PBS-1)/776	7.000	4,516,757						
Bismile(PBS-2)/761	5.000	693,600						
Dairy Farm	11.000	5,208,310						
DEPZ-1(Unit-10)	8.000	122,000						
DEPZ-1(Unit-2)	6.000	885,500						
DEPZ-2(Unit-1)	4	190,501						
DEPZ-2(Unit-2)	8.000	2,785,000						
Atomic Energy	12	3,036,000						
BKSP	14.000	6,791,000						
Bengal Plastic	1.500	532,125						
Kabirpur Radio	7.000	47,170						
Kabirpur	14.000	5,957,000						
Sreepur	8.000	3,567,000						
KaliaKair-2(Unit-10)	8.000	2,731,000						
KaliaKair-2, Kall-4	6.000	3,236,000						
Kaliakair-1	16.000	8,098,880						
Mouchak-1	15.000	7,425,000						
Mouchak-2	8.000	3,251,000						
Vannara	10.000	2,150,000						
Apex Pharma	1.000	85,250						
Fantasy(New)	14.000	7,044,000						
Ashulia	15.000	5,379,000						
Yearpur-1 (ACR)	17.000	7,777,000						
Yearpur-2	15.000	6,565,000						
AEC Unit-2	7.000	3,046,000						
CP Bangladesh 33	3.000	4,125						
Bluesen(430-2260)	0.000	354,750						
Nayarhat Radio 33Kv	1.000	303,710						
DPBS 3	0.000	1,683,316						
Tangail Pbs 33KV	0.000	8,489,454						
SUMMIT	0.000	4,080						
UPGDC Ltd	0.000	225,500						
Kabirpur Radio 2	1.000	3,200,000						
Poly Kat	1.000	203,500						
Kaliakoir-3	7.000	409,750						
Bay Footwear	2.000	8,215						
Total	292.500	128,321,527			292.500	139,429,521		

Import point	September'16				October'16			
	Peak	Unit	Total	Substation	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)	KWh(sold)		SL %	Demand(MW)	kWh(Purchase)	
Palashbari-1	8	5,179,985	116,953,348	4.28	12	5,910,018	135,919,887	6.45
Palashbari-2	12.000	4,653,000			17.000	7,932,500		
Bismile(Desa)	10.000	3,103,466			5.00	3,678,789		
Bismile(PBS-1)/776	7.000	3,240,059			7.00	4,527,404		
Bismile(PBS-2)/761	5.000	22,200			4.5	3,837,528		
Dairy Farm	11.000	5,762,870			11	5,471,240		
DEPZ-1(Unit-10)	8.000	134,000			4	444,000		
DEPZ-1(Unit-2)	6.000	814,000			6.000	1,287,000		
DEPZ-2(Unit-1)	4	137,584			3	232,835		
DEPZ-2(Unit-2)	8.000	2,452,000			8.000	3,075,000		
Atomic Energy	12	3,828,000			11	3,894,000		
BKSP	14.000	6,469,000			11.00	7,553,000		
Bengal Plastic	1.000	672,375			1.50	829,125		
Kabirpur Radio	7.000	49,555			7.00	46,640		
Kabirpur	14.000	5,813,000			12.00	5,538,000		
Sreepur	8.000	1,344,000			7.00	4,230,000		
KaliaKair-2(Unit-10)	8.000	2,698,000			8.00	3,010,000		
KaliaKair-2, Kall-4	6.000	3,221,000			6.00	3,623,000		
Kaliakair-1	16.000	10,000,000			16.00	12,750,000		
Mouchak-1	15.000	7,276,000			13.00	8,739,500		
Mouchak-2	8.000	2,659,000			8.00	4,300,000		
Vannara	10.000	2,163,000			6.00	3,305,000		
Apex Pharma	1.000	93,500			1.00	132,000		
Fantasy(New)	14.000	6,655,000			12.00	6,764,000		
Ashulia	15.000	5,544,000			13.00	5,962,000		
Yearpur-1 (ACR)	17.000	8,085,000			14.00	9,207,000		
Yearpur-2	15.000	5,126,000			13.00	5,937,000		
AEC Unit-2	7.000	2,048,000			6.00	2,456,000		
CP Bangladesh 33	3.000	515,625			2.00	598,125		
Bluesen(430-2260)	0.000	288,750			-	453,750		
Nayarhat Radio 33Kv	1.000	258,694			1.00	384,753		
DPBS 3	0.000	1,604,001			0.000	1,661,034		
Tangail Pbs 33KV	0.000	8,240,615			0.000	8,453,068		
SUMMIT	0.000	2,382	0.000	1,920				
UPGDC Ltd	0.000	51,840	0.000	21,600				
Kabirpur Radio 2	1.000	231,000	1.000	287,750				
Poly Kat	1.000	134,750	0.000	39,050				
Kaliakoir-3	7.000	354,750	0.000	2,902,000				
Bay Footwear	0.000	8,480	1.000	646,250				
Total	280.000	122,179,427			248.000	145,285,124		

Import point	November'16				December'16			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)	KWh(sold)		Demand(MW)	kWh(Purchase)	KWh(sold)	
Palashbari-1	12	2,630,054	107,224,012	9.69	8	2,341,153	97,546,205	6.53
Palashbari-2	17.000	7,853,500			13.000	5,553,500		
Bismile(Desa)	5.000	2,641,893			5.00	2,420,719		
Bismile(PBS-1)/776	7.000	4,192,265			5.00	2,531,100		
Bismile(PBS-2)/761	4.500	3,674,798			3.5	2,299,275		
Dairy Farm	11.000	4,333,170			8	3,950,430		
DEPZ-1(Unit-10)	4.000	11,000			2	124,000		
DEPZ-1(Unit-2)	6.000	781,000			5.000	709,500		
DEPZ-2(Unit-1)	3	127,001			2	190,501		
DEPZ-2(Unit-2)	8.000	2,224,000			3.500	2,000,000		
Atomic Energy	11	3,080,000			8	2,508,000		
BKSP	11.000	6,320,000			6.00	4,909,000		
Bengal Plastic	1.500	829,125			0.50	606,375		
Kabirpur Radio	7.000	39,220			1.50	33,125		
Kabirpur	12.000	5,439,000			9.00	4,682,000		
Sreepur	7.000	3,136,000			5.00	2,771,000		
KaliaKair-2(Unit-10)	8.000	1,847,000			6.00	2,271,000		
KaliaKair-2, Kall-4	6.000	2,596,000			5.00	2,519,000		
Kaliakair-1	16.000	12,444,500			11.00	1,186,000		
Mouchak-1	13.000	5,142,500			8.00	4,521,000		
Mouchak-2	8.000	2,399,000			5.00	3,263,000		
Vannara	6.000	2,563,000			5.00	3,343,000		
Apex Pharma	1.000	93,500			0.50	35,750		
Fantasy(New)	12.000	6,458,000			10.00	5,444,000		
Ashulia	13.000	3,997,840			6.00	3,649,470		
Yearpur-1 (ACR)	14.000	7,128,000			9.00	6,303,000		
Yearpur-2	13.000	7,289,000			8.00	5,561,000		
AEC Unit-2	6.000	1,611,000			2.00	1,095,000		
CP Bangladesh 33	2.000	561,000			0.50	507,375		
Bluesen(430-2260)	0.000	563,750			0.50	434,500		
Nayarhat Radio 33Kv	1.000	294,222	1.00	346,500				
DPBS 3	0.000	1,303,546	0.000	1,252,717				
Tangail Pbs 33KV	0.000	6,375,701	0.000	5,147,373				
SUMMIT	0.000	2,520	0.000	2,340				
UPGDC Ltd	0.000	36,480	0.500	170,880				
Kabirpur Radio 2	0.000	280,500	0.000	217,250				
Poly Kat	0.000	156,750	0.500	140,250				
Kaliakoir-3	1.000	651,750	1.000	536,250				
Bay Footwear	0.000	6,095	0.000	6,095				
Total	247.000	118,731,635			164.500	104,363,288		

Import point	January'17				February'17			
	Peak Demand(M	Unit	Total KWh(sold)	Substation SL %	Peak Demand(M	Unit	Total KWh(sold)	Substation SL %
		Wh(Purchase				Wh(Purchase		
Palashbari-1	8	2,493,871	101,407,634	0.17	5	2,598,272	106,518,602	0.02
Palashbari-2	13.000	4,284,760			13.000	4,345,550		
Bismile(Desa)	5.000	2,428,151			5.00	2,341,096		
Bismile(PBS-1)	5.000	2,159,795			5.00	2,422,090		
Bismile(PBS-2)	3.500	2,599,245			3.5	2,665,905		
Dairy Farm	8.000	3,805,740			8	3,724,745		
DEPZ-1(Unit-10)	2.000	86,000			2	110,000		
DEPZ-1(Unit-2)	5.000	737,000			5.000	1,094,500		
DEPZ-2(Unit-1)	2	179,918			2	381,002		
DEPZ-2(Unit-2)	3.000	2,145,000			3.500	2,071,000		
Atomic Energy	8	2,882,000			8	2,772,000		
BKSP	6.000	5,690,000			6.00	5,975,000		
Bengal Plastic	0.500	713,625			0.50	829,125		
Kabirpur Radio	1.500	33,920			1.50	41,870		
Kabirpur	9.000	4,516,000			9.00	4,745,000		
Sreepur	5.000	3,109,000			5.00	2,934,000		
KaliaKair-2(Uni	6.000	1,984,000			6.00	3,778,000		
KaliaKair-2, Kal	5.000	2,531,000			5.00	1,963,000		
Kaliakair-1	11.000	10,136,250			11.00	9,127,518		
Mouchak-1	8.000	5,670,500			8.00	5,345,835		
Mouchak-2	5.000	3,441,000			5.00	3,663,780		
Vannara	5.000	3,363,000			5.00	3,034,000		
Apex Pharma	0.500	74,250			0.50	36,250		
Fantasy(New)	10.000	3,706,000			10.00	4,774,000		
Ashulia	6.000	2,955,590			6.00	4,049,540		
Yearpur-1 (ACR	9.000	5,258,000			9.00	6,281,000		
Yearpur-2	8.000	3,655,000			8.00	4,594,000		
AEC Unit-2	2.000	1,335,000			2.00	1,408,000		
CP Bangladesh	0.500	222,750			0.50	701,250		
Bluesen(430-22	0.500	610,500			0.50	319,000		
Nayarhat Radio	1.000	338,250			1.00	384,092		
DPBS 3	0.000	994,374			0.000	391,121		
Tangail Pbs 33K	0.000	5,759,550			0.000	6,884,485		
SUMMIT	0.000	960	0.000	960				
UPGDC Ltd	0.000	560,160	0.000	415,680				
Kabirpur Radio	0.000	258,500	0.000	308,000				
Poly Kat	0.500	79,750	0.500	247,445				
Kaliakoir-3	0.000	566,500	0.000	682,000				
Bay Footwear	0.500	258,500	0.500	12,455				
Total	163.000	101,578,672			160.500	106,535,932		

Import point	March'17				April'17			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			Demand(MW)	kWh(Purchase)		
Palashbari-1	12	4,550,600	117,160,427	3.85	11	4,270,923	122,202,771	7.20
Palashbari-2	13.000	5,625,550			14.000	6,499,059		
Bismile(Desa)	6.000	2,920,287			10.00	3,211,386		
Bismile(PBS-1)/776	6.000	3,163,105			8.00	3,474,155		
Bismile(PBS-2)/761	8.000	3,352,140			7	3,157,853		
Dairy Farm	11.000	4,842,490			11	5,815,700		
DEPZ-1(Unit-10)	2.000	180,000			2	323,000		
DEPZ-1(Unit-2)	6.000	1,001,000			7.000	1,127,500		
DEPZ-2(Unit-1)	2	312,210			2	375,711		
DEPZ-2(Unit-2)	8.000	2,329,000			5.000	2,873,000		
Atomic Energy	11	3,278,000			11	3,531,000		
BKSP	11.000	6,867,000			11.00	6,719,000		
Bengal Plastic	0.500	878,625			1.55	730,125		
Kabirpur Radio	1.500	45,580			0.50	75,690		
Kabirpur	13.000	4,041,000			12.00	5,093,000		
Sreepur	7.000	3,069,000			7.00	3,354,000		
KaliaKair-2(Unit-10)	8.000	1,964,000			5.00	2,250,000		
KaliaKair-2, Kall-4	7.000	2,933,000			7.00	3,155,000		
Kaliakair-1	15.000	12,063,500			16.00	9,090,500		
Mouchak-1	8.000	6,160,165			12.00	6,267,250		
Mouchak-2	5.000	4,303,370			1.00	4,305,410		
Vannara	7.000	2,979,000			7.00	3,071,000		
Apex Pharma	0.500	82,500			0.49	60,500		
Fantasy(New)	10.000	5,703,000			10.00	6,657,000		
Ashulia	6.000	4,045,580			6.00	4,560,380		
Yearpur-1 (ACR)	14.000	6,237,000			17.00	6,391,000		
Yearpur-2	13.000	3,029,000			18.00	6,649,000		
AEC Unit-2	5.000	1,720,000			5.00	1,991,000		
CP Bangladesh 33	0.500	552,750			1.90	598,125		
Bluesen(430-2260)	0.500	214,500			1.53	165,000		
Nayarhat Radio 33Kv	1.000	417,505			1.37	242,248		
DPBS 3	0.000	1,497,896	0.000	1,713,374				
Tangail Pbs 33KV	0.000	7,335,560	0.000	7,677,012				
SUMMIT	0.000	3,300	0.000	5,880				
UPGDC Ltd	0.000	278,880	0.000	272,640				
Kabirpur Radio 2	0.000	33,275	0.000	343,750				
Poly Kat	0.500	239,305	1.110	429,000				
Kaliakoir-3	0.000	654,500	4.000	283,250				
Bay Footwear	0.500	10,335	1.840	673,228				
Total	219.500	121,851,849			236.289	131,678,294		

Import point	May'17				June'17			
	Peak	Unit	Total	Substation	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			KWh(sold)	SL %		
Palashbari-1	11	4,130,748	139,513,584	7.09	11	4,665,608	134,522,383	8.49
Palashbari-2	14.000	6,578,751			13.000	6,057,171		
Bismile(Desa)	10.000	2,828,644			5.00	2,243,082		
Bismile(PBS-1)/776	8.000	4,013,955			8.00	3,668,280		
Bismile(PBS-2)/761	7.000	3,789,060			7	3,336,548		
Dairy Farm	11.000	687,280			11	4,349,200		
DEPZ-1(Unit-10)	2.000	323,000			2	190,000		
DEPZ-1(Unit-2)	7.000	1,122,000			7.000	1,039,500		
DEPZ-2(Unit-1)	2	381,002			2	455,086		
DEPZ-2(Unit-2)	5.000	3,413,222			5.000	2,975,129		
Atomic Energy	11	3,729,000			11	2,255,000		
BKSP	11.000	6,749,000			11.00	6,762,000		
Bengal Plastic	1.550	767,250			1.55	680,625		
Kabirpur Radio	0.500	59,360			0.50	17,755		
Kabirpur	12.000	6,711,929			12.00	6,303,156		
Sreepur	7.000	4,872,664			7.00	4,439,000		
KaliaKair-2(Unit-10)	5.000	3,027,000			5.00	2,905,000		
KaliaKair-2, Kall-4	7.000	3,478,000			7.00	2,661,000		
KaliaKair-1	16.000	11,409,750			16.00	11,558,250		
Mouchak-1	12.000	7,240,750			12.00	8,019,000		
Mouchak-2	10.000	4,715,640			10.00	4,866,800		
Vannara	7.000	3,787,600			7.00	3,402,400		
Apex Pharma	0.490	88,000			0.49	66,000		
Fantasy(New)	17.000	7,181,000			17.00	7,127,000		
Ashulia	14.000	5,422,230			14.00	4,954,840		
Yearpur-1 (ACR)	17.000	7,722,000			17.00	6,743,000		
Yearpur-2	18.000	7,770,000			18.00	7,860,000		
AEC Unit-2	7.000	2,503,000			7.00	3,229,000		
CP Bangladesh 33	1.890	771,375			1.89	561,000		
Bluesen(430-2260)	1.530	272,250			1.53	247,500		
Nayarhat Radio 33Kv	1.370	390,335			1.37	352,275		
DPBS 3	0.000	1,902,668			0.000	1,634,511		
Tangail Pbs 33KV	0.000	8,271,359			0.000	4,859,974		
SUMMIT	0.000	5,040	0.000	8,287,568				
UPGDC Ltd	0.000	233,760	0.000	1,740				
Kabirpur Radio 2	0.000	396,000	0.000	199,200				
Poly Kat	1.110	825,000	1.110	431,750				
KaliaKoir-3	1.500	352,000	1.500	22,000				
Bay Footwear	1.840	704,522	1.840	316,250				
Total	259.780	150,157,742			253.780	146,997,312		

As per Sub-station Meter Data with Load Factor (2017-18) of DPBS-1

Import point	July'17				August'17			
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Palashbari-1	14	6,561,000	126,028,342	26.76	14	6,925,000	133,407,524	22.96
Palashbari-2	12.000	6,153,641						
Bismile(Desa)	5.000	2,815,692						
Bismile(PBS-1)/776	8.000	4,178,680						
Bismile(PBS-2)/761	7.000	4,103,963						
Dairy Farm	11.000	7,092,800						
DEPZ-1(Unit-10)	2.000	412,000						
DEPZ-1(Unit-2)	7.000	1,408,000						
DEPZ-2(Unit-1)	2	291,044						
DEPZ-2(Unit-2)	5.000	3,377,056						
Atomic Energy	11	2,662,000						
BKSP	11.000	7,741,000						
Bengal Plastic	1.550	879,574						
Kabirpur Radio	0.050	45,580						
Kabirpur	12.000	6,956,354						
Sreepur	7.000	4,629,000						
KaliaKair-2(Unit-10)	5.000	2,840,000						
KaliaKair-2, Kall-4	7.000	3,836,000						
Kaliakair-1	23.000	12,983,850						
Mouchak-1	14.000	9,091,500						
Mouchak-2	11.000	5,567,000						
Vannara	7.500	4,306,000						
Apex Pharma	0.490	90,750						
Fantasy(New)	17.000	8,163,000						
Ashulia	14.000	6,592,760						
Yearpur-1 (ACR)	17.000	8,140,000						
Yearpur-2	18.000	8,964,000						
AEC Unit-2	7.000	3,771,393						
CP Bangladesh 33	1.890	965,250						
Bluesen(430-2260)	1.530	261,250						
Nayarhat Radio 33Kv	1.370	249,343						
DPBS 3	0.000	1,720,988						
Tangail Pbs 33KV	0.000	8,621,303						
SUMMIT	0.000	1,560						
UPGDC Ltd	0.000	232,800						
Kabirpur Radio 2	1.000	423,500						
Poly Kat	1.110	371,250						
Kaliakoir-3	1.500	701,113						
Bay Footwear	1.840	9,779						
Total	306.810	172,082,675			313.830	173,156,646		

Import point	September'17				October'17			
	Peak Demand(MW)	Unit	Total KWh(sold)	Substation SL %	Peak Demand(MW)	Unit	Total KWh(sold)	Substation SL %
		kWh(Purchase)				kWh(Purchase)		
Palashbari-1	13	5,525,000	119,953,348	19.21	13	6,625,000	136,919,887	14.77
Palashbari-2	10.000	4,789,400			10.000	5,107,575		
Bismile(Desa)	5.000	2,546,396			5.000	2,778,952		
Bismile(PBS-1)/776	6.000	3,868,095			6.000	381,089		
Bismile(PBS-2)/761	7.000	3,320,708			7.000	3,903,900		
Dairy Farm	11.000	6,215,000			11.000	6,169,900		
DEPZ-1(Unit-10)	2.000	395,000			2.000	692,000		
DEPZ-1(Unit-2)	7.000	1,325,500			7.000	1,710,500		
DEPZ-2(Unit-1)	2	698,504			2	936,631		
DEPZ-2(Unit-2)	5.000	2,955,502			5.000	1,215,511		
Atomic Energy	11	2,134,000			11	2,453,000		
BKSP	11.000	7,018,000			11.000	7,498,000		
Bengal Plastic	1.550	779,625			1.550	812,625		
Kabirpur Radio	0.500	35,245			0.500	28,885		
Kabirpur	11.000	6,270,000			11.000	6,347,000		
Sreepur	7.000	3,679,500			7.000	4,108,500		
KaliaKair-2(Unit-10)	22.000	2,936,000			22.000	2,970,000		
KaliaKair-2, Kall-4	15.000	3,128,000			15.000	3,746,000		
Kaliakair-1	10.000	9,885,150			10.000	10,537,560		
Mouchak-1	7.000	7,093,955			7.000	7,958,500		
Mouchak-2	0.500	4,683,600			0.500	5,539,000		
Vannara	16.000	4,074,010			16.000	3,817,000		
Apex Pharma	13.000	63,250			13.000	60,500		
Fantasy(New)	16.000	6,847,000			16.000	7,205,000		
Ashulia	17.000	5,951,000			17.000	5,650,590		
Yearpur-1 (ACR)	7.000	6,776,000			7.000	7,359,000		
Yearpur-2	1.690	7,546,000			1.690	8,470,000		
AEC Unit-2	1.060	3,118,500			1.060	3,305,500		
CP Bangladesh 33	1.370	643,500			1.370	870,375		
Bluesen(430-2260)	0.000	200,750			0.000	165,000		
Nayarhat Radio 33KV	0.000	205,645	0.000	313,500				
DPBS 3	0.000	5,052,369	0.000	1,722,813				
Tangail Pbs 33KV	0.000	25,859,973	0.000	7,163,985				
SUMMIT	1.110	5,220	1.110	2,940				
UPGDC Ltd	10.540	1,021,440	10.540	884,640				
Kabirpur Radio 2	2.100	1,465,750	2.100	585,750				
Poly Kat	1.650	2,343,000	1.650	2,046,000				
Kaliakoir-3	0.000	941,475	0.000	355,025				
Bay Footwear	15.000	1,946,863	15.000	731,500				
Total	304.660	148,467,059		304.660	160,653,751			

Import point	November'17				December'17			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)	KWh(sold)		%	Demand(MW)	kWh(Purchase)	
Palashbari-1	10	5,625,000	120,224,012	12.56	9	5,425,000	101,546,205	18.61
Palashbari-2	8.000	4,169,275						
Bismile(Desa)	3.000	2,355,315						
Bismile(PBS-1)/776	4.000	3,062,675						
Bismile(PBS-2)/761	5.000	3,426,390						
Dairy Farm	8.000	4,586,200						
DEPZ-1(Unit-10)	2.000	273,450						
DEPZ-1(Unit-2)	5.000	1,131,570						
DEPZ-2(Unit-1)	2	310,252						
DEPZ-2(Unit-2)	4.000	3,046,000						
Atomic Energy	4	2,082,190						
BKSP	10.000	6,348,000						
Bengal Plastic	0.800	885,266						
Kabirpur Radio	0.500	34,450						
Kabirpur	8.000	5,082,000						
Sreepur	5.000	3,366,000						
KaliaKair-2(Unit-10)	4.000	2,312,000						
KaliaKair-2, Kall-4	5.000	3,194,000						
Kaliakair-1	15.000	9,704,310						
Mouchak-1	12.000	6,430,985						
Mouchak-2	12.000	5,006,640						
Vannara	4.000	3,072,000						
Apex Pharma	0.000	-						
Fantasy(New)	11.000	6,314,000						
Ashulia	10.000	5,591,430						
Yearpur-1 (ACR)	12.000	6,723,388						
Yearpur-2	12.500	7,700,000						
AEC Unit-2	5.000	2,416,810						
CP Bangladesh 33	1.690	738,375						
Bluesen(430-2260)	0.900	30,250						
Nayarhat Radio 33Kv	0.000	-						
DPBS 3	0.000	1,305,272						
Tangail Pbs 33KV	0.000	5,621,865						
SUMMIT	1.110	960						
UPGDC Ltd	8.000	90,240						
Kabirpur Radio 2	1.500	562,980						
Poly Kat	1.650	1,595,000						
Kaliakoir-3	0.000	301,345						
Bay Footwear	12.000	789,250						
Total	233.940	137,497,164			216.270	124,761,454		

Import point	January'18				February'18			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)	KWh(sold)		Demand(MW)	kWh(Purchase)	KWh(sold)	
Palashbari-1	9	4,250,020	102,407,634	17.31	9	5,231,020	107,518,602	10.23
Palashbari-2	8.000	4,704,415						
Bismile(Desa)	3.00	2,073,421						
Bismile(PBS-1)/776	4.00	2,711,005						
Bismile(PBS-2)/761	5	3,086,820						
Dairy Farm	8	5,039,100						
DEPZ-1(Unit-10)	2	2,000						
DEPZ-1(Unit-2)	5.000	33,000						
DEPZ-2(Unit-1)	2	5,292						
DEPZ-2(Unit-2)	4.000	2,132,000						
Atomic Energy	4	1,837,000						
BKSP	9.00	5,819,000						
Bengal Plastic	0.80	965,250						
Kabirpur Radio	0.50	33,655						
Kabirpur	8.00	4,884,000						
Sreepur	5.00	3,102,000						
KaliaKair-2(Unit-10)	4.00	1,302,830						
KaliaKair-2, Kall-4	5.00	2,700,670						
Kaliakair-1	15.00	9,369,195						
Mouchak-1	12.00	6,299,865						
Mouchak-2	2.00	4,457,723						
Vannara	4.00	3,808,290						
Apex Pharma	0.50	13,750						
Fantasy(New)	11.00	5,148,000						
Ashulia	10.00	4,482,280						
Yearpur-1 (ACR)	13.00	5,434,000						
Yearpur-2	12.00	6,358,000						
AEC Unit-2	1.69	1,980,000						
CP Bangladesh 33	0.90	750,750						
Bluesen(430-2260)	1.37	310,750						
Nayarhat Radio 33Kv	1.00	234,245						
DPBS 3	0.000	1,115,488						
Tangail Pbs 33KV	0.000	6,218,856						
SUMMIT	1.110	960						
UPGDC Ltd	4.000	121,440						
Kabirpur Radio 2	0.600	555,500						
Poly Kat	0.900	726,000						
Kaliakoir-3	0.000	264,000						
Bay Footwear	10.000	262,970						
Total	208.470	123,840,697			211.470	119,777,357		

Import point	March'18				April'18			
	Peak	Unit	Total	Substation SL	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			Demand(MW)	kWh(Purchase)		
Palashbari-1	13	2,714,000	122,160,427	26.39	13	4,070,000	130,202,771	16.55
Palashbari-2	9.000	3,573,790						
Bismile(Desa)	6.000	2,675,818						
Bismile(PBS-1)/776	5.000	3,692,755						
Bismile(PBS-2)/761	5.000	3,916,523						
Dairy Farm	12.000	7,329,300						
DEPZ-1(Unit-10)	5.000	422,000						
DEPZ-1(Unit-2)	3.000	60,500						
DEPZ-2(Unit-1)	4	165,471						
DEPZ-2(Unit-2)	4.000	2,993,000						
Atomic Energy	4	1,254,000						
BKSP	11.000	7,678,000						
Bengal Plastic	1.000	870,375						
Kabirpur Radio	0.500	45,580						
Kabirpur	10.000	6,776,000						
Sreepur	8.000	3,580,500						
KaliaKair-2(Unit-10)	6.000	2,398,000						
KaliaKair-2, Kall-4	6.000	3,118,500						
Kaliakair-1	20.000	5,845,125						
Mouchak-1	11.000	7,072,835						
Mouchak-2	8.000	5,493,525						
Vannara	6.000	4,248,810						
Apex Pharma	1.000	79,750						
Fantasy(New)	9.000	7,073,000						
Ashulia	9.000	5,876,640						
Yearpur-1 (ACR)	8.000	7,678,000						
Yearpur-2	10.000	8,646,000						
AEC Unit-2	6.000	3,102,000						
CP Bangladesh 33	3.000	684,750						
Bluesen(430-2260)	3.000	302,500						
Nayarhat Radio 33Kv	0.000	259,160						
DPBS 3	0.000	1,658,730						
Tangail Pbs 33KV	0.000	10,291,028						
SUMMIT	0.000	2,340						
UPGDC Ltd	2.000	132,480						
Kabirpur Radio 2	15.000	649,000						
Poly Kat	3.000	6,248,000						
Kaliakoir-3	3.000	209,550						
Bay Footwear	0.000	830,500						
Total	275.500	165,960,960			277.500	156,031,223		

Import point	May'18				June'18			
	Peak	Unit	Total	Substation	Peak	Unit	Total	Substation
	Demand(MW)	kWh(Purchase)			Demand(MW)	kWh(Purchase)		
Palashbari-1	13	3,678,000	146,513,584	15.00	13	1,207,000	140,522,383	13.79
Palashbari-2	9.000	4,629,020						
Bismile(Desa)	6.000	2,394,222						
Bismile(PBS-1)/776	5.000	4,146,655						
Bismile(PBS-2)/761	5.000	4,442,048						
Dairy Farm	12.000	7,657,100						
DEPZ-1(Unit-10)	5.000	111,000						
DEPZ-1(Unit-2)	3.000	984,500						
DEPZ-2(Unit-1)	4	10,583						
DEPZ-2(Unit-2)	4.000	2,991,000						
Atomic Energy	4	3,729,000						
BKSP	11.000	7,535,000						
Bengal Plastic	1.000	792,000						
Kabirpur Radio	0.500	43,195						
Kabirpur	10.000	7,271,000						
Sreepur	8.000	4,067,250						
KaliaKair-2(Unit-10)	6.000	2,876,500						
KaliaKair-2, Kall-4	6.000	3,311,000						
Kaliakair-1	20.000	5,379,000						
Mouchak-1	11.000	7,589,945						
Mouchak-2	8.000	5,970,620						
Vannara	6.000	3,777,370						
Apex Pharma	1.000	79,750						
Fantasy(New)	9.000	7,953,000						
Ashulia	9.000	6,492,750						
Yearpur-1 (ACR)	8.000	8,041,000						
Yearpur-2	10.000	9,042,000						
AEC Unit-2	6.000	3,509,000						
CP Bangladesh 33	3.000	717,750						
Bluesen(430-2260)	3.000	572,000						
Nayarhat Radio 33Kv	0.000	335,995						
DPBS 3	0.000	1,665,553						
Tangail Pbs 33KV	0.000	8,438,688						
SUMMIT	0.000	2,120						
UPGDC Ltd	2.000	73,920						
Kabirpur Radio 2	15.000	693,000						
Poly Kat	3.000	7,260,000						
Kaliakoir-3	3.000	253,963						
Bay Footwear	0.000	729,328						
Total	280.500	172,364,850			282.500	162,992,165		

Monthly Financial & Statistical Report 2015-16 of DPBS-1

SL. No	Particular	July'15	August'15	September'15	October'15	November'15	December'15
	Operating Revenue						
1	Sales of electricity	656,968,943.87	761,440,594.52	684,290,184.18	766,397,752.72	653,919,008.10	592,899,408.82
2	Other operating revenue	4,385,232.00	64,415,684.00	5,773,177.00	8,575,782.00	9,564,819.00	9,453,858.00
3	Total operating revenue (1+2)	661,354,175.87	767,856,278.52	690,063,361.18	774,973,534.72	663,483,827.10	602,353,266.82
4	Cost of purchased power	579,024,139.98	661,528,825.82	634,755,296.56	671,350,269.30	574,853,743.24	593,909,029.00
5	Gross profit/Margin (3-4)						
6	Distribution Expenses -Operating & Maintenance	4,234,410.47	6,373,785.49	5,062,459.63	9,291,827.08	5,089,594.68	7,535,446.50
7	Consumer Selling expenses	13,720,599.50	10,798,348.25	13,744,967.00	11,738,766.25	11,688,160.50	10,803,246.00
8	Administration & General Expenses	6,175,670.68	6,531,066.31	8,413,350.10	6,155,121.75	6,706,466.25	6,236,468.25
9	Total operating & General expenses (4 to 8)	603,154,820.63	685,232,025.87	661,976,073.82	698,535,984.38	598,337,964.87	618,484,189.75
10	Depreciation & Amortization expenses	23,298,880.00	23,727,231.00	23,952,010.00	23,872,751.00	23,949,562.00	25,391,138.00
11	Tax expenses	472,880.00	1,809,290.00	2,788,678.00	1,747,136.00	717,725.00	1,241,669.00
12	Interest on long term loan	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	746,165.00
13	Total cost of electric service (9+10+11+12)	629,200,080.00	713,042,046.87	690,990,261.81	726,429,371.38	625,278,751.67	645,863,161.75
14	Operating profit/Margin (3-13)	32,154,095.24	54,814,231.65	926,900.63	485,474,163.34	38,205,075.23	(43,509,894.93)
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	3,917,885.70	7,759,420.75	57,565,975.31	3,475,680.76	13,308,510.80	94,861,912.28
17	Non-operating margins-others	786,350.00	1,615,820.00	1,166,350.00	1,102,915.00	1,225,100.00	1,166,967.00
18	Net Profit/Margin (14+15+16+17)	36,858,330.94	64,189,472.40	57,805,424.68	53,122,759.10	52,738,686.03	52,518,984.35

SL. No	Particular	January'16	February'16	March'16	April'16	May'16	June'16
	Operating Revenue						
1	Sales of electricity	601,790,196.36	651,273,248.36	752,221,337.75	800,665,258.16	755,336,495.71	808,106,343.91
2	Other operating revenue	7,184,777.00	6,918,210.00	7,799,973.71	7,812,725.10	11,176,846.00	18,320,014.00
3	Total operating revenue (1+2)	608,974,973.36	658,191,458.36	760,020,911.46	808,477,783.26	766,513,341.71	826,426,417.91
4	Cost of purchased power	514,618,198.25	580,282,503.76	737,695,083.98	708,964,962.06	592,656,853.61	777,835,736.52
5	Gross profit/Margin (3-4)						
6	Distribution Expenses -Operating & Maintenance	8,191,678.02	4,612,311.95	3,157,510.28	8,461,913.80	32,858,117.83	650,577.44
7	Consumer Selling expenses	21,828,525.75	10,827,564.75	11,391,321.25	12,270,065.50	42,321,397.00	7,015,062.00
8	Administration & General Expenses	13,362,868.14	6,759,436.25	6,087,504.25	20,335,348.81	6,451,441.25	25,746,192.39
9	Total operating & General expenses (4 to 8)	558,000,690.16	602,481,816.71	758,331,419.76	750,032,290.17	744,715,709.69	817,102,761.35
10	Depreciation & Amortization expenses	25,193,393.00	25,767,697.00	25,963,469.00	26,001,809.00	27,411,626.00	27,556,498.00
11	Tax expenses	623,013.00	1,515,290.00	16,171.00	3,578,047.00	2,038,160.00	2,147,660.00
12	Interest on long term loan	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	1,080,907.00
13	Total cost of electric service (9+10+11+12)	586,090,596.16	632,038,303.71	786,584,559.76	781,885,646.17	776,438,995.69	875,726,012.35
14	Operating profit/Margin (3-13)	22,884,377.20	26,153,154.65	(26,563,648.30)	26,592,137.09	9,925,453.98	19,299,591.11
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	9,798,611.05	10,500,351.88	75,783,939.77	6,642,275.22	12,637,020.06	52,994,111.17
17	Non-operating margins-others	666,417.00	981,973.00	1,494,007.00	824,515.00	922,670.00	886,745.00
18	Net Profit/Margin (14+15+16+17)	33,349,405.25	37,635,499.53	50,714,298.47	34,058,927.31	3,634,236.08	34,581,595.03

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SL. No	Particular	July'16	August'16	September'16	October'16	November'16	December'16
	Operating Revenue						
1	Sales of electricity	7,791,974,734.11	842,041,340.76	737,424,126.04	872,442,287.47	860,217,694.04	641,441,945.07
2	Other operating revenue	4,183,508.00	9,029,992.00	6,729,159.00	8,916,913.00	9,781,861.00	10,383,184.00
3	Total operating revenue (1+2)	784,078,442.11	851,071,332.76	744,153,285.04	881,359,200.40	76,999,555.04	651,825,129.07
4	Cost of purchased power	677,954,271.47	736,152,419.87	848,268,638.50	766,532,008.13	661,773,944.69	652,324,387.10
5	Gross profit/Margin (3-4)						
6	Distribution Expenses - Operating & Maintenance	4,446,772.75	14,915,464.59	5,970,646.51	5,211,837.87	5,427,468.49	15,615,031.58
7	Consumer Selling expenses	15,796,539.50	23,264,411.84	17,078,561.10	15,936,806.63	15,727,456.81	17,278,186.11
8	Administration & General Expenses	7,436,332.67	15,383,083.22	8,664,297.22	8,032,732.91	9,073,464.05	9,643,460.61
9	Total operating & General expenses (4 to 8)	705,633,916.39	789,715,379.12	679,962,143.33	795,712,385.44	692,002,346.04	994,861,065.44
10	Depreciation & Amortization expenses	27,961,349.00	27,978,557.00	68,134,692.00	28,689,927.00	28,994,349.00	29,363,438.00
11	Tax expenses	2,914,900.00	210,960.00	1,035,428.00	2,454,432.00	8,580,090.00	828,868.00
12	Interest on long term loan	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	3,544,667.00
13	Total cost of electric service (9+10+11+12)	738,783,665.39	820,178,396.12	714,425,763.33	829,130,244.44	725,850,285.07	1,028,598,038.44
14	Operating profit/Margin (3-13)	45,294,776.72	30,892,936.74	29,727,521.71	52,228,955.96	44,149,270.00	(376,772,909.37)
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	5,113,395.27	1,317,900.04	49,129,740.37	1,512,399.12	11,101,104.12	114,813,299.11
17	Non-operating margins-others	585,073.00	1,162,080.00	1,412,229.00	1,279,750.00	1,543,870.00	316,554.00
18	Net Profit/Margin (14+15+16+17)	50,993,244.99	33,372,916.78	80,269,491.08	55,021,105.08	56,794,244.12	(261,643,056.26)

SL. No	Particular	January'17	February'17	March'17	April'17	May'17	June'17
	Operating Revenue						
1	Sales of electricity	670,554,117.33	708,938,042.06	781,584,923.00	825,928,176.82	916,104,326.91	859,087,583.17
2	Other operating revenue	9,277,688.00	7,364,865.00	7,956,168.00	4,084,637.00	10,844,800.00	15,468,954.00
3	Total operating revenue (1+2)	680,031,605.33	716,302,907.06	789,541,091.00	830,012,813.82	926,949,126.91	874,556,537.17
4	Cost of purchased power	595,674,003.32	586,474,326.10	784,842,066.03	630,564,272.00	837,349,903.00	708,626,576.02
5	Gross profit/Margin (3-4)						
6	Distribution Expenses - Operating & Maintenance	6,760,647.78	7,296,869.76	10,194,355.43	4,525,009.24	7,760,667.96	9,019,874.13
7	Consumer Selling expenses	15,042,808.00	15,377,770.75	36,975,351.71	17,965,837.50	16,825,732.75	21,087,452.88
8	Administration & General Expenses	9,617,254.25	10,839,127.75	38,388,105.31	8,878,546.33	8,253,489.43	44,176,931.87
9	Total operating & General expenses (4 to 8)	627,094,713.35	619,988,094.36	870,399,878.48	661,933,665.07	870,189,793.14	782,910,834.90
10	Depreciation & Amortization expenses	29,418,512.00	29,435,669.00	29,496,361.00	23,793,807.00	29,547,410.00	31,393,311.00
11	Tax expenses	2,091,789.00	1,690,170.00	1,733,780.00	1,912,768.00	1,999,713.00	3,263,260.00
12	Interest on long term loan	25,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	2,273,500.00	1,428,445.00
13	Total cost of electric service (9+10+11+12)	683,878,514.35	653,387,433.36	903,903,519.48	689,913,740.07	904,010,416.14	818,995,850.90
14	Operating profit/Margin (3-13)	19,123,290.98	62,915,473.70	(114,362,428.48)	38,098,073.75	22,938,710.77	55,560,686.27
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	156,714.22	340,329.74	117,314,877.73	7,744,165.95	8,602,358.62	34,325,231.90
17	Non-operating margins-others	4,400,342.00	1,424,206.00	874,294.00	1,016,893.00	1,004,677.00	596,216.00
18	Net Profit/Margin (14+15+16+17)	30,323,663.20	64,680,009.44	3,826,743.25	46,859,132.70	32,545,746.39	90,482,134.17

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SL. No	Particular	July'17	August'17	September'17	October'17	November'17	December'17
	Operating Revenue						
1	Sales of electricity	41,033,369.87	63,069,611.71	926,781,571.68	990,395,652.00	897,523,950.42	838,188,588.71
2	Other operating revenue	22,074,023.10	8,115,238.10	7,084,143.00	11,812,892.00	10,287,298.44	12,984,565.00
3	Total operating revenue (1+2)	63,107,392.97	71,184,849.81	933,865,714.68	2,208,544.00	907,811,248.44	851,173,153.71
4	Cost of purchased power	935,939,693.72	933,587,834.58	837,663,013.82	871,659,050.81	776,763,473.44	887,911,962.63
5	Gross profit/Margin (3-4)						
6	Distribution Expenses -Operating & Maintenance	3,608,062.44	9,665,148.80	4,958,599.12	8,298,894.11	7,060,414.49	5,239,989.08
7	Consumer Selling expenses	16,788,967.75	25,076,902.25	17,017,215.25	16,547,841.00	16,132,758.75	18,540,992.50
8	Administration & General Expenses	9,671,288.25	9,357,579.00	8,411,124.25	8,363,466.75	9,366,583.00	11,834,362.50
9	Total operating & General expenses (4 to 8)	966,008,012.16	977,687,464.63	868,049,952.44	904,869,252.67	809,323,229.24	923,527,306.71
10	Depreciation & Amortization expenses	31,809,655.00	31,610,469.00	31,610,463.00	31,610,469.00	32,096,054.00	33,056,999.00
11	Tax expenses	821,167.00	2,738,670.00	1,022,400.00	2,852,240.00	2,002,373.00	9,436,850.00
12	Interest on long term loan	2,070,000.00	2,071,000.00	2,070,000.00	2,070,000.00	2,070,000.00	4,330,887.00
13	Total cost of electric service (9+10+11+12)	1,000,708,834.16	14,106,597.63	902,752,815.44	941,401,961.67	845,491,656.24	960,915,192.71
14	Operating profit/Margin (3-13)	62,398,558.81	57,078,252.18	31,112,899.24	60,806,582.33	62,319,592.20	(109,742,039.00)
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	1,669,743.02	633,104.96	49,903,368.11	1,418,617.29	9,383,972.99	109,046,089.00
17	Non-operating margins-others	1,005,825.00	917,847.00	597,226.00	1,067,510.00	745,313.00	695,950.00
18	Net Profit/Margin (14+15+16+17)	65,074,126.83	58,629,204.14	81,613,493.35	60,455,475.44	72,448,878.19	-

SL. No	Particular	January'18	February'18	March'18	April'18	May'18	June'18
	Operating Revenue						
1	Sales of electricity	849,878,069.64	838,077,660.25	73,046,447.08	36,004,123.08	130,347,922.92	7,738,717.25
2	Other operating revenue	11,395,616.00	8,327,929.00	10,067,308.00	8,855,336.10	13,197,266.00	14,615,917.00
3	Total operating revenue (1+2)	861,273,685.64	846,405,589.25	83,113,755.08	44,849,459.18	143,545,188.92	22,354,634.25
4	Cost of purchased power	766,721,734.01	779,560,424.01	63,265,683.56	982,405,965.56	868,453,116.28	33,169,800.67
5	Gross profit/Margin (3-4)						
6	Distribution Expenses -Operating & Maintenance	12,060,747.13	9,127,715.20	6,642,967.78	3,894,795.54	10,009,217.41	11,991,758.64
7	Consumer Selling expenses	28,960,755.00	16,252,540.50	13,655,295.25	20,564,093.75	16,870,303.76	18,525,515.58
8	Administration & General Expenses	15,699,856.25	8,843,066.95	19,239,210.25	8,171,718.00	9,043,442.33	24,585,154.24
9	Total operating & General expenses (4 to 8)	833,443,092.39	613,783,676.66	102,803,156.84	15,036,573.60	904,376,079.77	88,272,229.13
10	Depreciation & Amortization expenses	33,170,972.00	33,560,604.00	33,924,484.00	33,736,414.00	33,736,414.00	34,239,664.00
11	Tax expenses	2,264,550.00	1,068,780.00	3,065,117.00	295,960.00	1,831,612.00	366,010.00
12	Interest on long term loan	2,100,000.00	2,100,000.00	2,100,000.00	2,100,000.00	2,100,000.00	10,474,086.00
13	Total cost of electric service (9+10+11+12)	870,978,614.39	850,513,130.66	141,982,757.84	51,168,947.60	942,044,105.77	133,351,989.31
14	Operating profit/Margin (3-13)	(9,704,928.75)	(4,107,541.41)	58,779,002.76	6,309,488.42	201,501,083.15	110,997,354.88
15	Government Subsidy	0.00	0.00	0.00	0.00	0.00	0.00
16	Non-operating margins-interest	8,891,331.75	3,310,521.41	57,905,797.76	5,653,335.42	8,025,222.23	24,713,403.25
17	Non-operating margins-others	813,597.00	797,020.00	873,205.00	656,153.00	698,021.73	447,858.00
18	Net Profit/Margin (14+15+16+17)	-	0.00	117,558,005.52	12,618,976.84	210,224,327.11	135,262,800.00

APPENDIX-D

According to REB:

Distribution Cost (10⁷ Tk), 2015-2016

OME												
July	August	September	October	November	December	January	February	March	April	May	June	Grand Total
0.423	0.637	0.506	0.929	0.508	0.754	0.819	0.461	0.315	0.846	3.286	0.065	9.549

Cost of Electric Service (10⁷ Tk), 2015-2016

Month	CSE	AGE	DAE	TE	IE
July	1.372	0.617	2.329	0.047	0.227
August	1.079	0.653	2.373	0.180	0.227
September	1.374	0.841	2.395	0.279	0.227
October	1.174	0.615	2.387	0.175	0.227
November	1.169	0.670	2.395	0.071	0.227
December	1.080	0.624	2.539	0.124	0.074
January	2.183	1.336	2.519	0.062	0.227
February	1.083	0.676	2.577	0.151	0.227
March	1.139	0.609	2.596	0.001	0.227
April	1.227	2.034	2.600	0.358	0.227
May	4.232	0.645	2.741	0.203	0.253
June	7.015	2.575	2.756	0.214	0.108
Grand total	24.127	11.895	30.207	1.865	2.478
Cost of Electric Service(10⁷Tk) = 70.572					

Distribution Cost (10⁷ Tk), 2016-2017

OME												
July	August	September	October	November	December	January	February	March	April	May	June	Grand Total
0.444	1.491	0.597	0.521	0.542	1.561	0.676	0.729	1.019	0.452	0.776	0.901	9.709

Cost of Electric Service (10⁷ Tk), 2016-2017

Month	CSE	AGE	DAE	TE	IE
July	1.579	0.744	2.796	0.291	0.227
August	2.324	1.538	2.799	0.021	0.227
September	1.708	0.866	6.813	0.103	0.227
October	1.594	0.803	2.869	0.245	0.227
November	1.573	0.907	2.899	0.858	0.227
December	1.728	0.964	2.936	0.082	0.354
January	1.504	0.962	2.942	0.209	2.527
February	1.538	1.084	2.944	0.169	0.227
March	3.698	3.839	2.949	0.173	0.227
April	1.797	0.870	2.379	0.191	0.227
May	1.683	0.528	2.955	0.199	0.227
June	2.109	4.417	3.139	0.326	0.142
Grand total	22.835	17.522	38.420	2.867	5.066
Cost of Electric Service(10⁷Tk) = 86.710					

Distribution Cost (10⁷ Tk), 2017-2018

OME												
July	August	September	October	November	December	January	February	March	April	May	June	Grand Total
0.361	0.966	0.496	0.829	0.706	0.524	1.206	0.913	0.664	0.389	1.000	1.199	9.253

Cost of Electric Service (10⁷ Tk), 2017-2018

Month	CSE	AGE	DAE	TE	IE
July	1.679	0.967	3.181	0.082	0.207
August	2.508	0.936	3.161	0.270	0.207
September	1.702	0.841	1.161	0.102	0.207
October	1.655	0.836	3.161	0.285	0.207
November	1.613	0.937	3.209	0.200	0.207
December	1.854	1.183	3.306	0.944	0.433
January	2.896	1.569	3.317	0.226	0.210
February	1.625	0.884	3.356	0.107	0.210
March	1.365	1.924	3.392	0.307	0.210
April	2.056	0.817	3.374	0.029	0.210
May	1.687	0.904	3.374	0.183	0.210
June	1.852	2.459	3.424	0.036	1.047
Grand total	22.492	14.257	37.416	2.771	3.565
Cost of Electric Service(10⁷Tk) = 80.501					