STUDY ON DETERMINTION OF ELECTRICITY DISTRIBUTION COST OF DHAKA PBS-4

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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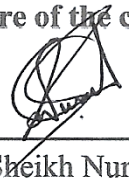

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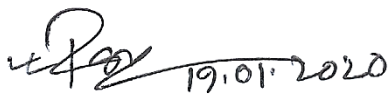

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Dedicated to

Our Parents
And
Teachers

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List of Abbreviations

AGE	Administration & General Expenses
BERC	Bangladesh Electricity Regulatory Commission
BPDP	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
EV	Electrified Village
GDP	Gross Domestic Product
GOB	Government of Bangladesh
EH	Electrified Houses
HP	Horse Power
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
NEV	Non Electrified Village
OME	Operation & Maintenance Expenses
PBS	Palli Bidyut Samity
PDB	Power Development Board
PF	Power Factor
PGCB	Power Grid Company of Bangladesh
REP	Rural Electrification Program
SL	System Loss
TC	Total Supply Cost
TX	Tax Expenses
Tk	Taka (TK)
TR	Total Revenue
WC	Wheeling Charge

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Executive Summary

Bangladesh is an energy hunger as well as other developing country. After the freedom war to get together power emergency was a standout amongst the most imperative difficulties for the government. Step by step the test turns out to be truly harder to harder to get together power emergency, particularly to get together power emergency in the rustic region. So government shaped Rural Electrification Board (REB) from Bangladesh Power Development Board (BPDB) to satisfy the power interest for town individuals. Duty rate of electrical power relies on upon transmission and dispersion cost. On the off chance that power supply expenses are high then electrical tariff rate will high and submitted negative outcome. In this paper, it takes Dhaka PBS-4 as my standard PBS for calculation of the 2015-2018 fiscal year. Here it gathered some essential information, for example, Energy Import, Energy Consumption, and Monthly Consumer and so forth. What's more, this paper, it quickly talks about the about of Customer class particularly Domestic level, Customer expands Energy, Energy Import point, Social and monetary effect, Power factor Penalty and so on. This Paper additionally finds that Total Distribution cost, Distribution cost per unit, Supply cost, Supply cost per unit, Total Revenue, Total Revenue Per unit, Energy Purchase cost, System loss, Surplus and so on. This paper will likewise be useful to get learning a steady power dispersion structure to meet the future power crisis of Bangladesh. Power circulation cost is an essential issue in our nation. Since power tax rate and dissemination cost are connected with our monetary development. At last, it additionally demonstrates that Dhaka PBS-4 is productive Palli Bidyut Samity (PBS).

CHAPTER 1

INTRODUCTION

1.1 Introduction

In Bangladesh, the age of rural electrification is now enough mature to face any challenges. This is a story of how to supply a cost-effective electric energy and it has been developing lifestyle in about 90 percent areas of Bangladesh. After the liberation war, it is a journey from darkness to the light of the conflict between desire and hope. The government of Bangladesh has a huge plan to generate electricity like 60,000MW electricity under 13 years. Dhaka already has a success of producing 20,000MW power by lighting fireworks. Our study is on how electric energy supply more cost-efficient and with less of power losses, which can be more safe and affordable then now to the rural area. There are many factors which may have been contributing towards such change. Our study is a modest attempt to find any missing linkage in energy supply that could be more developed the supply. The Bangladesh government is planning to generate 24,000MW by 2021, 40,000MW by 2030, and 60,000MW electricity by 2041. Dhaka already celebrated the success of producing 20,000MW power by lighting fireworks

1.2 Context of Bangladesh Electricity sector

The utility of electricity sector in Bangladesh has total installed capacity is 21,419 MW (combining solar power). Bangladesh's energy sector has been booming. Recently Bangladesh has started construction of the Ruppur Nuclear Power Plant of 2.4 gigawatt (GW) which has 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 the electricity. However per capita energy consumption in Bangladesh is 464 KW as 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 21,419MW as of May 2019 where Maximum generation was 12,494 MW as of 11 May, 2019.

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 the electricity. An average of 77.9% of the population had access to the electricity in Bangladesh. Bangladesh will need an estimated 34,000 MW of power by 2030 to sustain its economic growth of over 7 percent. Whereas targeted goal an estimated 24,000 MW of power by 2021 and 40,000 MW of power by 2030, 60,000 MW of power by 2041 respectively.

Problems in Bangladesh's electric power sector include high system losses, delays in completion of new plants, low plant efficiency, erratic power supply, electricity theft, blackouts, and shortages of funds for power plant maintenance. Overall, the country's generation plants have been unable to meet system demand over the past decade.

1.3 BREB

After the independence of Bangladesh in 1971, the first major initiative to extend grid electricity in rural areas was taken in 1975 under a scheme called 'Total Electrification Program'. This program looked beyond grid connectivity towards the development of the basic distribution facilities for effective delivery of power to rural areas by 1978. At around the same time, establishing an institutional structure was considered, which would develop the technical, economic, financial and social analysis, and organizational requirements for a rural electrification project in Bangladesh. Then at the request of the Bangladesh Government Rural Electrification Project Committee, a decision was taken for the establishment of a new national agency under the Power Ministry to develop and administer a rural electrification program. Accordingly, Rural Electrification Board (REB) was established on 29 October 1977 and started functioning on 1 January 1978 with following basic objectives:

- Ensure consumer participation in policy-making.
- Provide reliable, sustainable and affordable electricity to rural people.
- Help improve the economic condition of rural people by providing electricity for Agriculture and small industries.
- Help improve the living condition of rural people.
- Expand electrification to entire rural Bangladesh.

It implements the programs of distribution of power in rural areas and constructs power distribution line and power sub-stations through Rural Electric Societies (Palli Biddyut Samity PBS) on the principle of co-operative. Its headquarters are at in Dhaka. By March 2011, BREB formed 70 PBS

throughout the country and 48,746 villages under 433 upazilas of 61 districts of the country were brought under the rural electrification program. The BREB constructed 222,780 km of distribution lines, of which 120,947 km had been energized. It also constructed 426 sub-stations (33/11 KV) through which 83, 29,657 consumers were given power lines the figure was 3178,987 in 2000.

Table 1.1: Bangladesh Rural Electrification Board at a Glance

Website	www.reb.gov.bd
No of Board member	12
No of Approved Projects	83
Number of PBSs operating commercially	80
No PBSs electrified	80
Number of district Included in RE program	61
No of Upazillas Included in RE program	478
No of villagers energized	68,049
Distribution line constructed(Km)	4,08,000KM
Total distribution line energized	4,08,000KM
Number of 33/11 KV Sub-Station Constructed	867 (589 Constructed by BREB)
Average system Loss	11%
Installed Capacity of Sub-stations	10075
Consumers	20.39 Million
Monthly Sale	1250 Million

Now BREB form 83 PBS throughout the country and 68,049 villages under 478 upazilas of 61 districts of the country were brought under the rural electrification program. The BREB constructed 3, 19,708 km of distribution lines, of which 3, 03,464 km had been energized. It also constructed 765 sub-stations (33/11 KV) through.

The Rural Electrification Board of Bangladesh has been providing service to rural member consumers for over 39 years. Continued support from the Government of Bangladesh, the donor community, consulting partners, and member consumers will help this program continue to expand, providing the gift of electricity to millions more Bangladeshi households, businesses, and industries.

1.3.1 Future plans

Due importance has been given on energy conservation and energy efficiency. A target has been set to conserve 15% energy by 2021 and 20% by 2030. The present government is committed to turn Bangladesh into a middle-income country by 2021, and by 2041 aiming to transforming it into a developed country. For that, Bangladesh needs to generate 24,000 MW, 40,000 MW, and 60,000 MW by 2021, 2030 and 2041 respectively. The Power Division is working relentlessly to implement the power generation plan accordingly, and committed to implement the pledge "Sheikh Hasina'r Uddyog, Ghore Ghore Biddyut". According to the pledge they gives a plan which are given bellow:

- Ensure electricity for all by 2019.
- Increase the number of consumers to 2.60 million within june 2019.
- Electrification of 88,000 village.
- Installation of 4.4million pre-paid meters.
- Installation of 2000 solar irrigation pumps.
- Project for automation of existing sub-stations & smart grid.
- Increase the number of sub-stations to 1500 nos with a total capacity of 15,232MVA.
- Reduce system loss to single digit.
- Maintenance of existing distribution lines & 33/11 KV sub-stations.

Table 1.2: Future Development Plan at a glance.

SL.No.	Year	Generation Plan
1	2021	24,000 MW
2	2030	40,000 MW
3	2041	60,000 MW

Accordingly, rural electrification has been aimed as one of the principal components of the overall rural infrastructures for development of national economy. Without

improving electricity coverage in the rural areas, Bangladesh would not have been able to realize the targeted annual GDP growth rate.

1.3.2 Future work plans for ICT

- Centralized Billing System: A unified integrated centralized billing system is underway for 3 rural power societies. Customer friendly system development is underway to pay electricity bills.
- Fault Locator: With Fault Locator, a fault can be identified in the distribution line and it can be resolved quickly. The program has been launched as a pilot.
- Online Completely Management System: Any person / customer from any part of the country will be connected to any rural electricity association within a short time and will answer the inquiry with the concerned officer. The program has been launched as a pilot.
- Establishment of Smart Pre-Paid Meters Periodically.
- Paperless Smart Office will be implemented in Biobio / Pubis.
- ERP implementation will be completed with the help of Power Cell.

1.3.3 Comparison of Activities (30 years vs. 10 years):

Table 1.3: Comparison of Activities

Description	1978-2008 (30 Years)	2009-2018 (10 Years)	Total
Consumer Connection	74 lakhs	1.65 crore	2.39 crore
Supply of Electricity(MV)	2,000	7,775	9,775
System Loss	18%	11%	7%decrease
Distribution Line(KM)	2.17 lakhs	1.91 lakhs	4.08 lakhs
Number of sub-stations & capacity	497 (4,650MVA)	370 (5,425MVA)	867 (10,075MVA)
ISO Certificate For PBS	0	44	44

1.3.4 Achievements of Fiscal Year 2017-2018

- The best companies are recognized for their rapid expansion of distribution systems
- Received the purification prize in 20-25
- Those millions of new connections
- 3,000 km new line construction
- Sub-station capacity was increased to 20 mVA
- The system loss has been reduced to 8.5%
- Amount of outstanding months
- Percentage of purchase through e-GP is complete
- Achieve ISO Certificate of 5 PUBs
- APA Achievement 5.2% in FY 20-20
- Bangladesh Rural Electrification Board 'Lighting Ferrywala' awarded at Innovation Showcase-23

1.4 Palli Bidyut Samity (PBS)

The REB program operates through locally organized rural electric associations called Palli Bidyut Samity (PBS). The concept of PBS is based on the model of Rural Electric Cooperatives in the USA, which operates with cooperatives and ownership of consumers. REB doesn't generate any electricity. They purchase electricity from the national grid or from selected IPPs at the 33Kv voltage level. They are responsible for providing electricity to their 78 PBSs members and customer.

1.4.1 FUNCTIONS OF PBS

- Consumer connection
- Sub-station & line maintenance.
- Consumer complains handling.
- Decide on line extension.
- Motivate people.
- Purchase & sale of electricity.
- Tariff setting in consultation with BREB.

1.5 Dhaka Palli Bidyut Samity -4

Since its inception in 2018, Dhaka Palli Bidyut Samity-4 is playing a vital role in Agricultural, Industrial and Socio-Economic Development of Dhaka District. The Rural Electrification Program conducted by Dhaka Palli Bidyut Samity-4 has acted a leap-forward in the development of socio-economic structure of rural areas in Dhaka District as well as entire Bangladesh. If has significant and sustained impact on agricultural growth, industrialization and business & commercial activities in the rural areas. It is a consumer owned entity organized on the basic principles of Co-operative for distribution of electric power to its members and operates on No Loss – No Profit basis for the mutual benefits of all its Members.

Table 1.4: DPBS-4at a Glance

WEBSITE	www.Dhakapbs.org.bd
DATE OF REGISTRATION	22-09-2016
DATE OF ENERGIZATION	22-09-2016
AREA	178 Sq. Km
NO. OF UPAZILA	01 Full & 2 Half
NO. OF UNION	15(12 Full & 3 Half)
NO. OF ZONAL OFFICE	03
NO. OF AREA OFFICE	02
NO. OF COMPLAIN CENTRE	05
NO. OF CONTROL ROOM	07
NO. OF VILLAGE	914
NO. OF VILLAGE ELECTRIFIED	914
VILLAGE ELECTRIFIED	914
LINE CONSTRUCTION REQUIRED FOR TOTAL ELECTRIFICATION	4731.km.
TOTAL LINE CONSTRUCTED	33 KV 102 Km. & 11 KV 2073 Km. (Total : 2175 Km)
TOTAL CONSUMER CONNECTED	286226
CATEGORY WISE CONNECTIONS (i) DOMESTIC (ii) COMMERCIAL (iii) Others (iv) IRRIGATION (v) INDUSTRY	 259274 21372 2300 412 2868
NO. OF CONSUMERS PER Km.	52*
% REVENUE PER (TK.) FY 16-17 IMPROVEMENT OF POWER FACTOR	76%
NO. OF SUB-STATION (33/11 KV) Active	Total : 19,(11 PBS, 8 Privet)
MAXIMUM DEMAND	126 MW
AVERAGE REVENUE (PER UNIT)	TK. 4.56*
AVERAGE COST (PER UNIT)	Tk. 5.40*
OPERATING MARGIN (Jun 19)	TK. 463704632
NET MARGIN (Jun, 19)	TK. 2886859096
% SYSTEM LOSS (2018-19)	5.64%
COLLECTION	100%

1.5 Objective

The scope of this study is the exploration of the costs that are associated with the power transfer as well as the earning of new methods and tools regarding the calculation and the allocation of these that is to reach self-sufficiency and profitability by increasing income and reducing expenditure.

The power distribution costs, which are accused to the market participants, are a central issue of the new cosmos of electricity markets. The increased requirement for fair and transparent pricing in the competitive environment as well as the complexity introduced by unbundling the services point out why this issue is of great importance. In general, the cost associated with the distributed power may be categorized as follows:

- Universal access to quality electricity in a cost-effective and affordable manner.
- Provide quality and reliable electricity to the people of the country for desired economic, social and human development.
- To deliver quality electricity with service excellence.
- To make electricity available on demand within the geographical area of REB.

The main objective of our study is a decent attempt to find any missing/ leakage in energy supply that could be more developed the supply for rural electrification board.

1.6 Methodology

We were conscious 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 the uniqueness of the areas studied and the scarcity of suitable data, it is doubtful if any but a most general methodology could be placed. Accordingly, we describe in greater details than might be normal, the concepts, definitions, and difficulties encountered in our access 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 access has been developing to make more energy available at affordable prices to enable all people to use modern energy to meet their basic needs. To slow the overall growth of energy consumption through

Change and energy efficiency improvement and to make energy sources more environmentally sustainable.

Today BREB have 78 operating rural electric cooperatives called Palli Bidyut Samity (PBS).For research, I choose the Dhaka PBS-4. I collected some primary data from Dhaka PBS-4, BREB and BERC.

1.7 Outline of the Thesis

The outline of the thesis is as follows:

- Chapter 1: Introduction, BREB, PBS, DPBS-4then the objective of the thesis, outline of the thesis.
- Chapter 2: Literature view.
- Chapter 3: Introduction, Important Terms Energy Import Analysis, Data
- Analysis, Substation of DPBS-4, System loss
- Chapter 4: Introduction, Description of consumer class, Domestic
- Consumers, Commercial Consumers, Charitable institute, Irrigation, General power, large power, In case of 33KV, Street Lights, Description of table and its analysis.
- Chapter 5: Electricity Cost, Electricity Purchase Cost, Bulk rate, Wheeling Charge, Distribution Cost, Operation & maintenance expenses (OME), Consumer selling expenses (CSE), Administration and General Expenses (AGE), Depreciation & amortization expenses (DAE), Tax expenses (TE), Interest expenses (IE), System Loss (Tk), Total Revenue (TR), Revenue from Sales Energy, Revenue from others, other operating revenue, Non-operating Margins- interest, Total supply cost (TC), Surplus, Per Unit Cost Calculation, Distribution Cost (Tk/Unit), Revenue (Tk/Unit), System Loss Tk/Unit (SL), Tariff Rate, Bill Explanation.
- Chapter 6: Introduction, Broad and Specific, Impact on Education, Impact on Gender Dimensions, Impact on Irrigation and Agricultural Production, Impact on Mass Media, Summary.
- Chapter 7: Conclusions, Limitations of the Work, Future Outline ❖Chapter 9: Appendix

CHAPTER 2

LITERATURE REVIEWS

2.1 Literature review

Social development, industrial progress, economies and human life style are heavily depend on energy in 21st century. Energy are traded globally and the effects of energy use have worldwide consequences. Due to population increase and industrial development in future huge energy will be needed. Bangladesh, as a developing country needs an efficient energy system to minimize the losses and maximum utilization of generated power. Rural energy system is a very exoteric affair to researchers and planners. This paper provides an acknowledgment to assist in understanding the different factors affecting energy distribution, energy consumption, energy losses and energy cost. Uninterrupted electricity is the major ingredients for socio-economic development of a country. Recognizing the necessity of the electricity, Government has declared vision to provide electricity to all by 2021. Despite the relentless efforts of the Government till to date only 95% population have access to electricity.

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 ; Dulla Mallesham Vinod Kumar presented that a bibliographical survey of different methods used for state estimation in electric power distribution network [1].

Paul Cook stated that now rural electrification has underlined their development with productive uses of energy and poverty reduction. Despite this emphasis, progress in electrifying remote rural areas has been slow. He critically reviews the economic and social issues underlying the development of rural electrification. To making rural electrification more feasible and affordable and for complementary services need appropriate institutions to support rural electrification. [2].

Gabriele D'Antona ; Carlo Muscas ; Sara Sulis, mentioned that the impact of economic and technological changes on electric distribution systems, such as market liberalization and increasing diffusion of nonlinear loads, creates new management, control and monitoring issues [3].

Shahidur R. Khandker, Douglas F. Barnes and Hussain A. Samadpointed 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 [4].

B. Amanulla, Saikat Chakrabarti, S. N. Singh mentioned that a power distribution system reconfiguration methodology considering the reliability and the power loss. Probabilistic reliability models are used in order to evaluate the reliability at the load points. An algorithm for finding the minimal cut sets is utilized to find the minimal set of components appearing between the feeder and any particular load point. The optimal status of the switches in order to maximize the reliability and minimize the real power loss is found by a binary particle swarm optimizationbased search algorithm [5].

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 [6].

Thomas F.Sanquist, Heather Orr, Bin Shui and AlvahC.Bittner indicated that Residential Energy Consumption Survey (RECS) identified five lifestyle factors reflecting social and behavioral patterns associated with air-conditioning, laundry usage, personal computer usage, climate zone of residence, and TV use. Multiple regression analysis using the lifestyle factors yields solutions accounting for approximately 40% of the variance in electricity consumption for both years. By adding the household and market characteristics of income, local electricity price variance accounted for is increased to approximately 50% [7].

Douglas F.Barnes, ShahidurR.Khandker and Hussain A.Samad pointed that Energy poverty is a well-established concept among energy and development specialists. They uses a demand-based approach to define the energy poverty line as the threshold point at which energy consumption

begins to rise with increases in household income. The findings suggest that some 58 percent of rural households in Bangladesh are energy poor, versus 45 percent that are income poor. The findings also suggest that policies to support rural electrification and greater use of improved biomass stoves might play a significant role in reducing energy poverty. [8].

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 [9].

Md. Alam Hossain Mondal, Wulf Boie and Manfred Denichnoted that data on the future electricity demand is an essential requirement for planning the expansion of a power system. In the low to high GDP growth scenarios, the extent of industrial restructuring and technical advancement is gradually increased. The study also compares the projected per capita electricity consumption in Bangladesh with the historical growth in several other developing countries. Such an evaluation can create awareness among the planners of power system expansion in Bangladesh to meet the high future demand. [10].

This paper presents most of the focus on households demand, but the few studies analyzing commercial, industrial demand and irrigation demand are also reviewed.

CHAPTER-3

ENERGY IMPORT OF DHAKA PBS-4

3.1 Introduction

Need of electricity is increasing day by day. The lack of power is one of the major problems in Bangladesh. For economic freedom and in order to meet the consumer demands, the electricity growth that is produce more electricity, building more transmission and distribution capacity, bringing more area population under electricity coverage and ensuring more effective and efficient management, of these are the essential issues. The Government of Bangladesh (GOB) has decided to build power plants in private sectors so that Independent Power Producers (IPPs) launched their business in Bangladesh. In this chapter brief the history of the DPBS-4 and their energy import scenarios are discussed.

3.2 Important Terms Energy Import Analysis

Grid:

In electrical system, a grid is a network of synchronized power providers and consumers that are connected by transmission and distribution lines and operated by one or more control centers.

Substation:

A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions.

Kilowatt-Hour (KWh):

Kilowatt-Hour means measure of electricity define as a unit of worker energy, measured as 1 Kilowatt (1,000watts) of power expended for1 hour.

Peak Demand:

The peak demand of an installation or a system is simply the highest demand that has occurred over a specified time period. Peak demand is typically characterized as annual, daily or seasonal and has the unit of power. Peak demand, Peak load or On-peak are terms used in energy demand

management describing a period in which electrical power is expected to be provided for a sustained period at a significantly higher than average supply level.

System Loss:

Power generated in power stations pass through large and complex networks like transformers, overhead lines, cables and other equipment and reaches the end users. It is fact that the unit of electric energy generated by Power Station does not match with the units distributed to the consumers. Some percentage of the units is lost in the distribution network. This difference in the generated and distributed units is known as Transmission and

Distribution loss. Transmission and Distribution loss are the amounts that are not paid for by users.

System Loss (%) = [(Energy Input to feeder (Kwh) – Billed Energy to Consumer (Kwh))

÷ Energy Input (KWh)] x 100.

Load Factor:

Load Factor means the ratio of the average load to peak load served by a plant or power system during a specified time interval. A higher load factor indicates the higher use of the generating resources.

$$\textbf{Load Factor} = \frac{\textbf{Total Unit KWh(Purchase)}}{\textbf{Total Peak Demand} \times 1000 \times 24 \times 30} \times 10$$

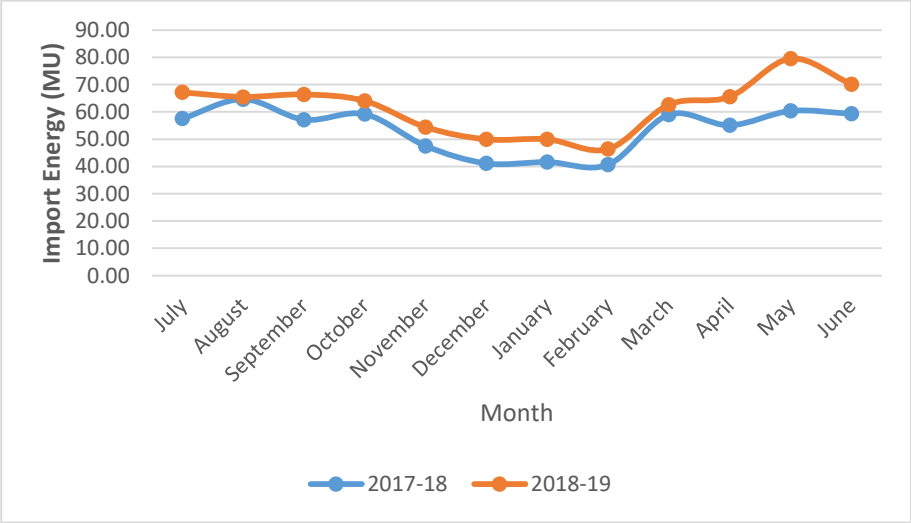
3.3 Import Energy Data Analysis of DPBS-4

Dhaka PBS-4 import electricity from both government and private sector to meet their consumer demand, DPBS-4 import electricity from twenty two public sectors i.e.; Zinzira Ckt-1 (HAS) , Zinzira Ckt-2 (HAS) , Hasnabad T-3(HAS) , Hasnabad T-4(HAS) , Munshigonj PBS-33 , 132 KV Auxilary , 230 KV Auxilary , Lalbag CKT-1 (HAS) , Grid Complaint Center , Hasnabad T-8(HAS) , Pangaon(HAS) , Bus Loss , Aganagar(HAS) , Aganagar 2 (HAS) , BSIC , Dohar from HAS , Dohar 33KVA , Hoglagati (OLD) , Hoglagati (New) , Generation Import , Zinzira Ckt-3 , Bosundahara to provide electricity to the different level of consumers. In this chapter we discuss about Energy Purchase and purchase cost from Public sector. For two years (2017-2018) & (2018-2019), also explain about different Grid and Substations, Supply, System Losses, KWh Sold to the consumers in [*APPENDIX-C (Sl. 1)*].

Table 3.1: Import Energy of DPBS-4

Import Energy (MU)	2017-18	2018-19
July	57.51	67.14
August	64.64	65.49
September	57.14	66.39
October	59.16	64.01
November	47.50	54.40
December	41.12	49.94
January	41.61	49.96
February	40.67	46.37
March	59.00	62.67
April	55.08	65.53
May	60.34	79.52
June	59.32	70.16

Figure 3.1: Import Energy of DPBS-4



All of the month energy import analysis showed in the ***Figure 3.1***. As we can see the Import of the electricity varies with different season in DPBS-4, like as winter, summer, and rainy season. We try to show relevant analysis for winter and summer seasons, which is high import from previous month and system loss is also comparatively high and it's an effect of summer season because in summer the energy consumption of different consumers is high. On the other hand, the energy import for the month of November, December, January and February are low to compare as other months of the year. It is seasonal effect of winter, when the domestic consumer consume lower amount of electricity and same as some industries are consume lower amount of energy as per demand of production. The energy import demand is high for the month of March, April, May and June.

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 GOV may take the responsibility to increase the power generation and ensure its proper use in Bangladesh

3.4 Substation of DPBS-4

There are 16 substations under DPBS-4 which are connected with different grids. The energy storage and consumption different form 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-4 all substation names listed below and the 33 KV consumers are indicated with star sign.

Table 3.2: Sub-stations of DPBS-4

Zinzira	Kalatia
Hasnabad	Atibazer
Pangaon	Jhilmil-1
Baghoir	Jhilmil-2
BASIC	Kona Khola
Aganagar	
Bashundhara 1 (Privet) Bashundhara 2 (Privet) Bashundhara Oil & Gas (Privet) Bshundhara Multi Food (Privet) WASA (Privet)	

3.5 System Losses

Table 3.3: System Loss of DPBS-4 in 2017-18

Month	Grid wise import (MU)	Substation Wise Import (MU)	KWh sold at Consumer end(MU)	Grid system loss (MU)	Sub-station system loss (MU)	Grid to 33 KV line loss (MU)
July	57.51	56.91	52.04	5.47	4.87	0.6
August	64.64	61.77	57.03	7.61	4.74	2.87
September	57.13	54.81	54.72	2.41	0.09	2.32
October	59.16	57.2	56.11	3.05	1.09	1.96
November	47.49	45.94	46.97	0.52	-1.03	1.55
December	41.11	40.02	37	4.11	3.02	1.09
January	41.6	39.22	39.87	1.73	-0.65	2.38
February	40.66	38.95	38.56	2.1	0.39	1.71
March	58.99	56.92	52.22	6.77	4.7	2.07
April	55.07	53.51	52.48	2.59	1.03	1.56
May	60.34	58.38	55.49	4.85	2.89	1.96
June	59.32	56.64	51.71	7.61	4.93	2.68

Table 3.4: System Loss of DPBS-4 in 2018-19

Month	Grid wise import (MU)	Substation Wise Import (MU)	KWh sold at Consumer end (MU)	Grid system loss (MU)	Sub-station system loss (MU)	Grid to 33 KV line loss (MU)
July	18.97	18.80	17.01	1.96	1.79	0.17
August	18.86	18.67	17.04	1.82	1.63	0.19
September	18.17	17.99	16.60	1.58	1.40	0.18
October	20.05	19.91	18.26	1.78	1.64	0.14
November	15.60	15.52	14.24	1.36	1.29	0.08
December	16.15	16.05	14.64	1.51	1.41	0.09
January	20.92	20.79	18.47	2.45	2.32	0.13
February	22.59	22.34	20.93	1.66	1.41	0.24
March	25.99	25.78	23.22	2.77	2.56	0.22
April	27.56	27.18	24.24	3.32	2.94	0.38
May	19.38	19.16	16.98	2.40	2.18	0.22
June	22.80	22.60	20.03	2.77	2.57	0.20

In **Table 3.3** We Can Collect the Relevant Data of Grid Wise System Loss, Sub-Station Wise System Loss and Grid to Sub-Station Wise System Loss.

Grid system loss= Grid wise import energy - KWh sold energy at Consumer end

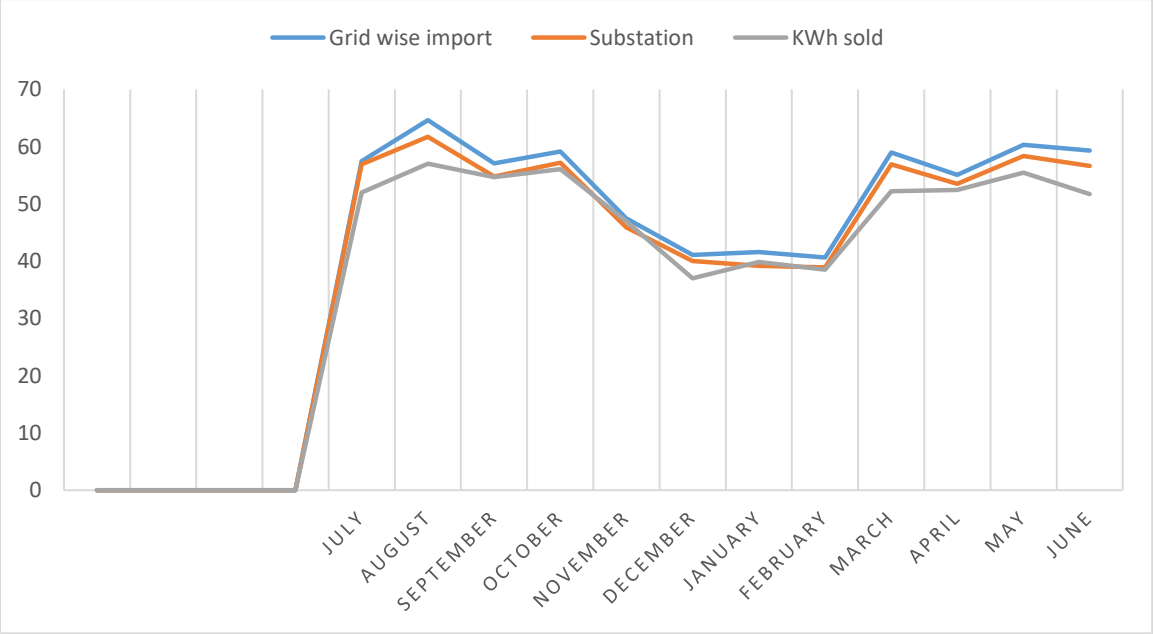
Sub-station system loss= Substation Wise Import energy - KWh sold energy at Consumer end

Grid to Sub-station loss= Grid wise import energy - Substation Wise Import energy

As we found from the table, 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 hugely. During the winter season, system losses were below than 2 MU. In July, 2018 and June, 2019; 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. Illegal use of electricity rise in summer very badly. That's why; the loss is very much in summer. PBS try to stop the illegal use of electricity but public awareness can stop this "Thief Loss". PBS also has some loss for storms during summer and Rainy season.

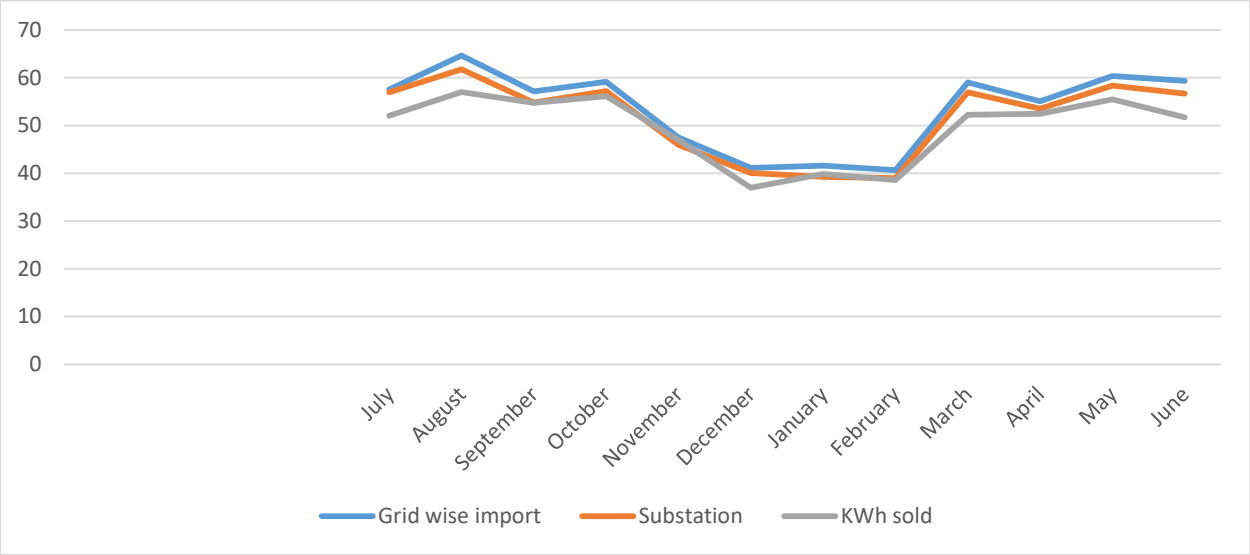
3.6 Graphical Representation

Fig 3.2: Grid and Sub-station wise import with Unit sold at consumer end 2017-18.



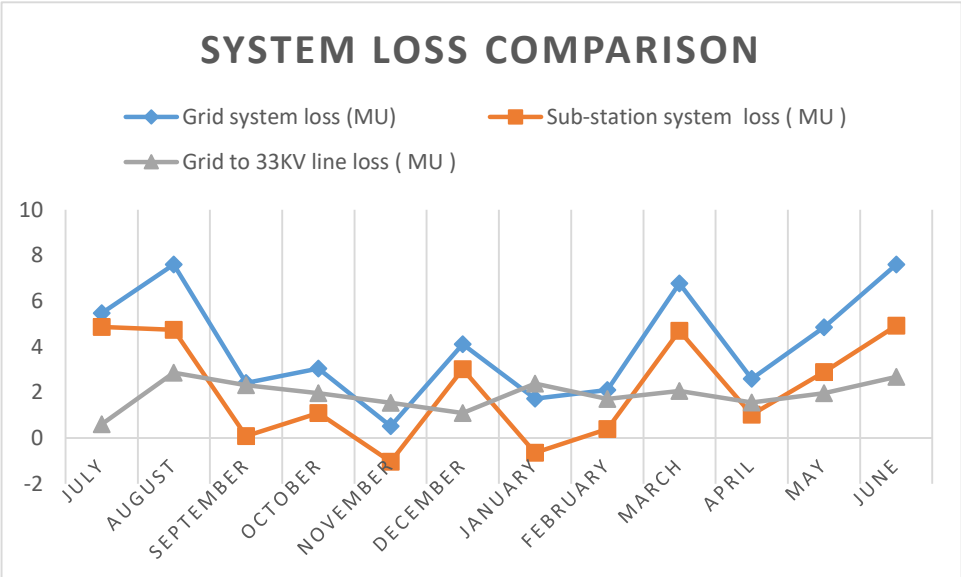
In Fig 3.2 We can see that the month of July, August, September and October the Grid wise import (MU), Substation wise import (MU) and KWh sold at consumer end (MU) Comparably high and the month of November, December, January, February month are low and we can see that again the line are high in the month of March, April, May, June.

Fig 3.3: Grid and Sub-station wise import with Unit sold at consumer end 2018-19.



In **Fig 3.3** We can see that the month of July, August, September and October the Grid wise import (MU), Substation wise import (MU) and KWh sold at consumer end (MU) Comparably high and the month of November, December, January, February month are low and we can see that again the line are high in the month of March, April, May, June which is almost same as previous years.

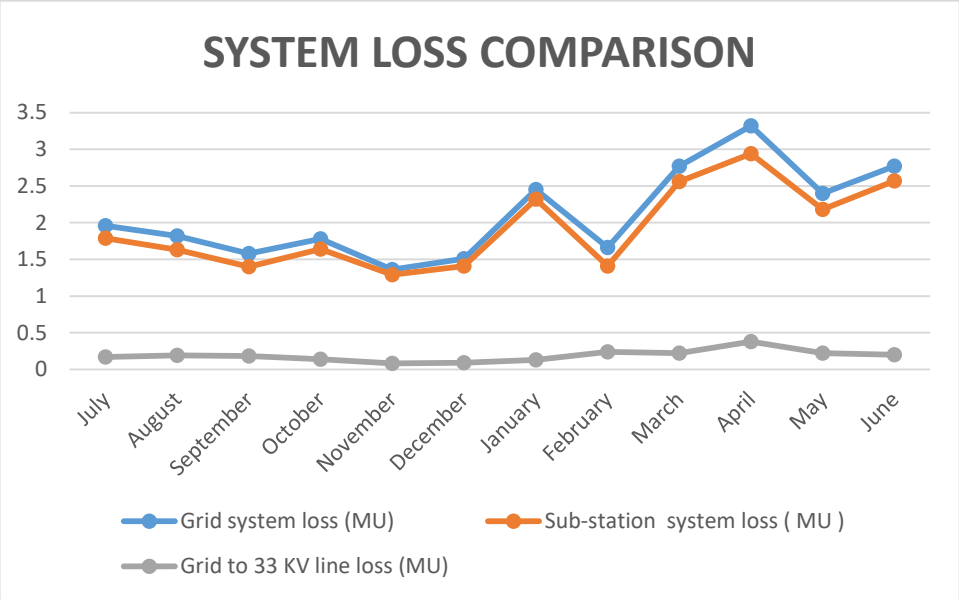
Fig 3.4: System Loss Comparison 2017-18.



In **Fig 3.4 & Fig 3.5** We can see that our grid wise system loss is very high because In an electrical or electronic circuit or power system part of the energy in play is dissipated by unwanted effects, including energy lost by unwanted heating of resistive components (electricity is also used for the intention of heating, which is not a loss), the effect of parasitic

elements (resistance, capacitance, and inductance), skin effect, losses in the windings and cores of transformers due to resistive heating and magnetic losses caused by eddy currents, hysteresis, unwanted radiation, dielectric loss, corona discharge, and other effects. There are also losses during electric power transmission.

Fig 3.5: System Loss Comparison 2018-19



In addition to these losses of energy, there may be non-technical loss of revenue and profit, leading to electrical energy generated not being paid for, primarily due to theft. These losses include meter tampering and bypassing, arranged false meter readings, faulty meters, and un-metered supply. Non-technical losses are reported to account for up to 40% of the total electricity distributed. Technical and human errors in meter readings, data processing and billing may occur, and may lead to either over-charging or under-charging.

3.7 Load Factor

Load factor is defined as the ratio of the average load over a given period of time to the maximum demand (peak load) occurring in that period. In other words, the load factor is the ratio of energy consumed in a given period of the times in hours to the peak load which has occurred during that particular period**.** A load factor is simply the energy load on a system compared to its maximum potential or peak load for a period of time.

Table 3.5: Load Factor of DPBS-4 in 2017-18 & 2018-19

Load Factor 2017-18

Month	Load Factor
July	65.82
August	70.54
September	67.55
October	74.67
November	64.95
December	62.26
January	56.95
February	53.49
March	72.41
April	67.53
May	70.36
June	65.54

Load Factor 2018-19

Month	Load Factor
July	71.85
August	69.45
September	70.91
October	69.56
November	68.14
December	68.21
January	59.44
February	63.91
March	80.00
April	71.45
May	88.24
June	78.41

Graphical Analysis:

Fig 3.6.: Load factor of DPBS-4 in 2017-2018

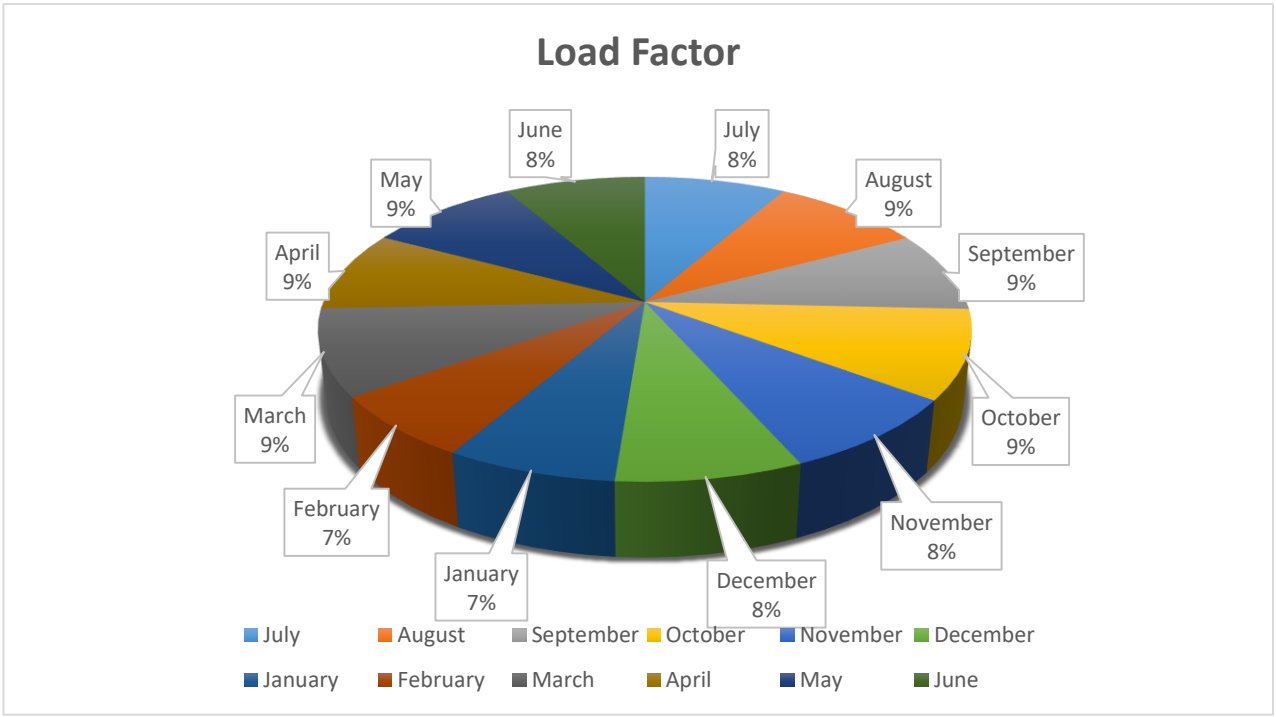
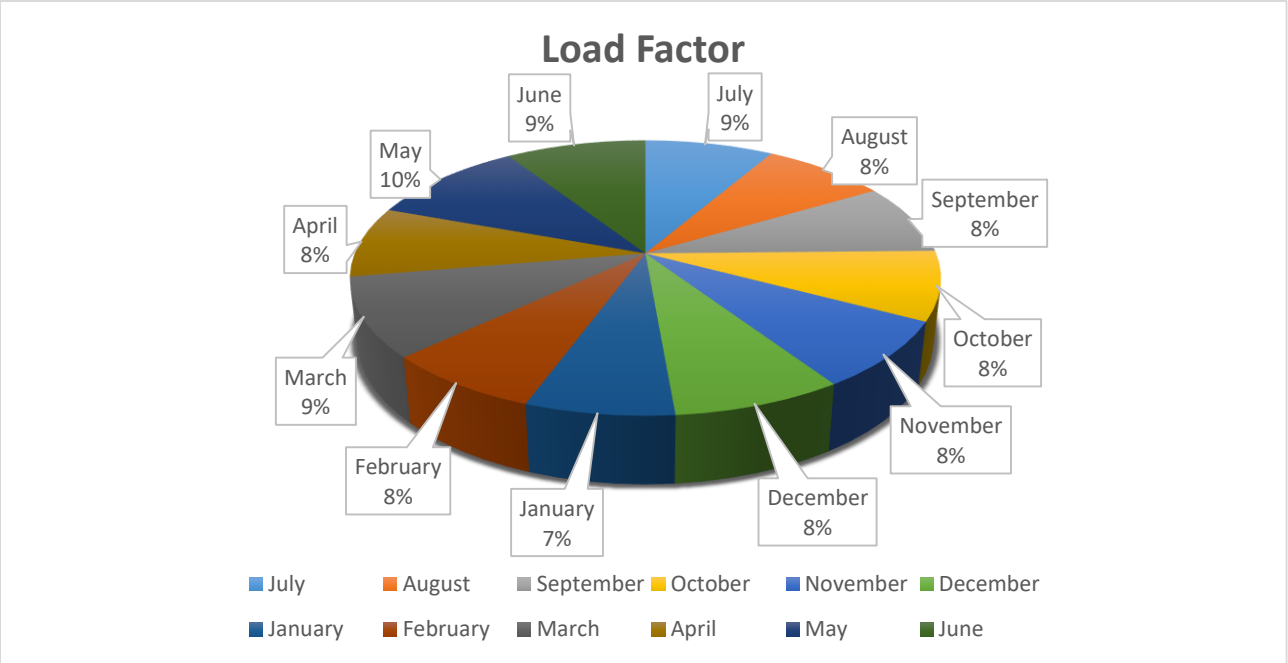


Fig 3.7: Load factor of DPBS-4 in 2018-2019



Here, DPBS-4 maintain a constant range of load factor of 7 to 10% from 2017 to 2019 in average. But some month has higher percentage value than the average. As figure shown, June 2018 and October 2019 have higher percentage only. DPBS-4 need to maintain this percentage. It is highly recommended that, load factor should be high and assure proper distribution of electricity.

3.8 Summary

It is possible to control load demand by proper load management, encouraging Independent Power Producers (IPP) and reducing transmission loss. The Initiative should be taken to develop skilled manpower required for the power sector considering incorporating IPP and local Government (GOV), central GOV, 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 DPBS-4is better from other PBS.

CHAPTER 4

CONSUMERS AND REVENUE OF DHAKA PBS-4

4.1 Introduction

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

4.2 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,

4.2.1. Domestic Consumers

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

- Minimum KWh
- 0-50 KWh
- 0-75 KWh
- 76-200 KWh
- 201-300 KWh
- 301-400 KWh
- 401-600 KWh
- Above 600 KWh

4.2.2. Commercial Consumers

Commercial consumers are actually related to 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 or Hall, Rest House, Cinema Hall, Mobile Tower, Petrol/CNG Pump Station.

4.2.3. Charitable Institute

Charitable institutes are depend on the 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,
Mashed, Temple, Church, Pagoda, School, College, Madrasha, Club, Orphanage, Charitable institution (Not complex), Charitable dispensary, Crippled rehabilitation center etc.

4.2.4 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.

4.2.5 General power

Generally Palli Bidyut Samity 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. All consumers like 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.

4.2.6 Large power

Generally, Palli Bidyut Samity will implement primary metering (H.T metering) connection for such type of the 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.

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 etc. Police station, Camp, Outpost etc. and BDR Camp, BOP Installation etc.

4.2.7 33KV

33KV consumers are mostly industries. They have an individual sub-station for consuming energy. DPBS-4 have no consumer in category.

4.2.8 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 the rural area. These helps to develop the transport facilities of a village.

4.3 Description of Table and its Analysis

The 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 consumers and its increment or decrement in monthly, used electricity in KWh and its monthly status and revenue increment or decrement in monthly.

From this analysis we will see that the present condition of the revenue of BREB

Table 4.1: Monthly Revenue Data of DPBS-4 in 2017-18

Customer Class	Tariff Rate	July'17					
		Unit	%	Consumers	%	Revenue	%
Domestic							
Minimum		14852	0.09		0.00	93,350	0.06
0-50	2.76	175373	1.12	8593	14.30	698,872	0.43
0-75	3.41	274678	1.76	4193	6.98	1,042,835	0.65
76-200	4.74	3857529	24.67	27869	46.39	19,019,145	11.81
201-300	4.67	2798565	17.89	11350	18.89	13,359,579	8.30
301-400	4.90	1608287	10.28	4630	7.71	8,009,958	4.98
401-600	5.59	1280749	8.19	2689	4.48	72,344,857	44.94
600++	7.12	589253	3.77	750	1.25	4,214,650	2.62
Total		**10599286**	**67.77**	**60074**	**100%**	**118,783,246**	**73.78**
Commercial		1305048	8.34	4376		13,199,707	8.20
Charitable	5.40	179437	1.15	518		972,732	0.60
Irrigation	5.09	2063	0.01	15		9,859	0.01
General Power		752426	4.81	683		6,128,252	3.81
Large Power	6108.80	2801201	17.91	107		21,899,783	13.60
33 KV	0.00	0	0.00	0		0	0.00
Street Light	7.17	90	0.00	2		646	0.00
Grand Total		**15,639,551**	**100%**	**65,775**		**160,994,225**	**100%**

Here we insert only one year monthly revenue data like July 2017. And I also describe July 2017 monthly revenue data .others month of revenue data are included in [*Appendix C Sl.2*]. If we look at July-2017-2018, Domestic consumer consumed total as 10599286 units, Number of consumer 60074 and revenue 118783246 Tk. In 1-50 was 175373units, Number of total consumer 8.593 and total revenue 698872 Tk. where minimum slab 14852 Units, Number of consumer 0 and revenue 93350 Tk.

In 1-75 was274678units, Number of consumer 4193. And revenue 1042835. In 76-200 was 3857529 units, Number of consumer 27869and revenue TK. In 19019145,in 201-300 was 2798565 units, Number of consumer 11350 and revenue 13359579 TK. In 301-400 was 1608287 units, Number of consumer 4630, and revenue 8009958 TK. In 401-600 was 1280749units, Number of consumer2689 and revenue 72344857TK and above 600 was 589253 units, Number of consumer 750 and revenue 18783246TK.

In Commercial consumer consumed total 1305048 units, Number of consumer 4376 and revenue 13,199,707 TK. In Charitable institute consumer consumed total 179437units, Number of consumer 518 and revenue 972,732TK. In Irrigation, consumer consumed total 2063 units, Number of consumer 15 and revenue 9,859TK. In General power, consumer consumed total 752426 units, Number of consumer 683 and revenue 61, 28,252 TK. In Large power, consumer consumed total 2801201 units, Number of consumer 107 and revenue 21,889,783 TK. In 33KVconsumer consumed total 0 units, Number of consumer 0 and revenue 0 TK. In street light, totally consumed energy is 7.17 units, Number of consumer 02 and revenue 646TK.

4.4 Graphical Analysis (Domestic)

In these process we calculate all the month of the year of 2017-2018

Here we divided every year in three season for our capitalize which are,

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

Fig 4.1: Unit Consumption and Consumer (Domestic) in July, 2017

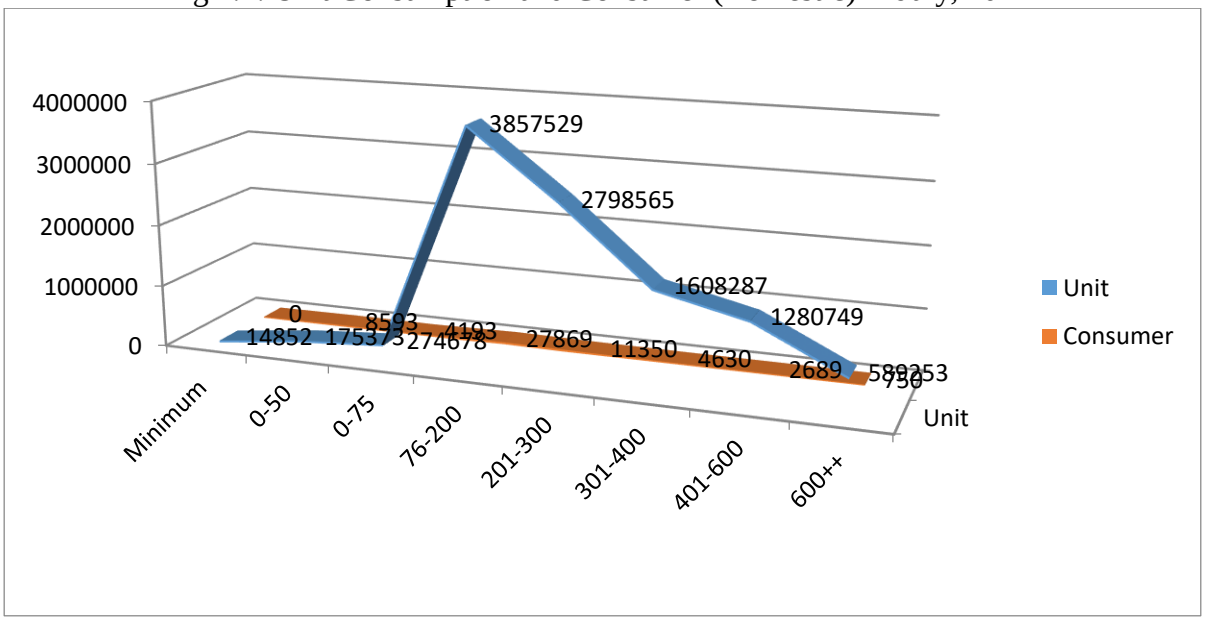


Fig 4.2: Unit Consumption and Consumer (Domestic) in December, 2017

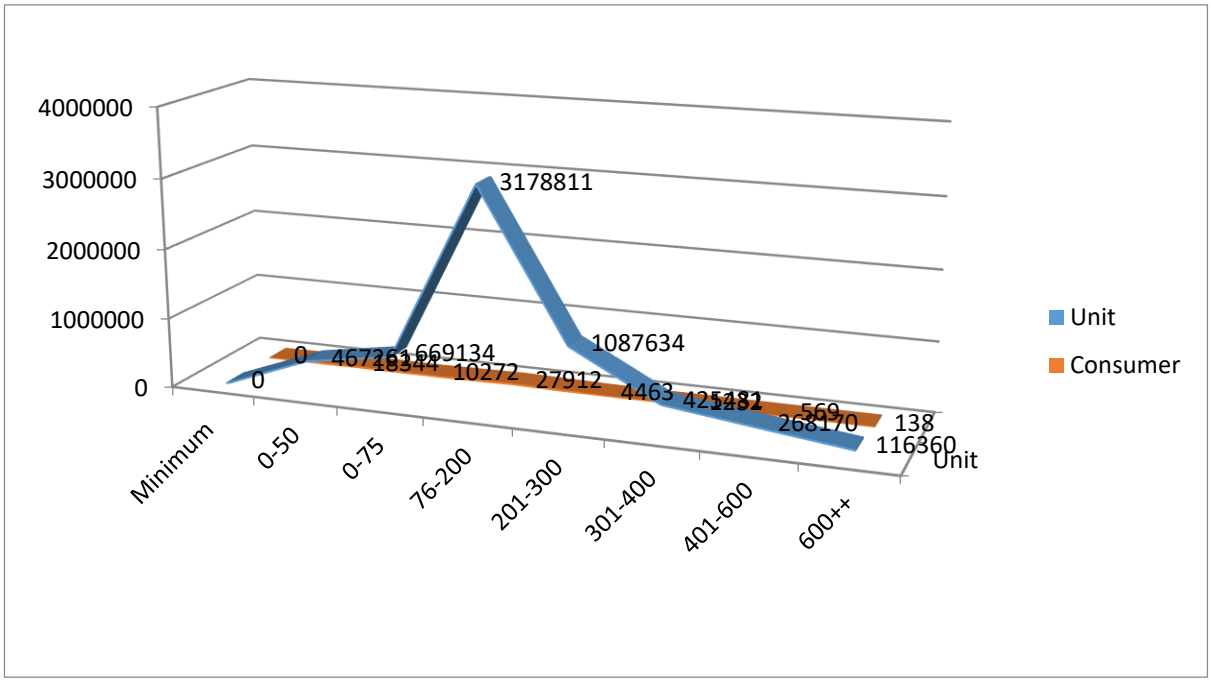
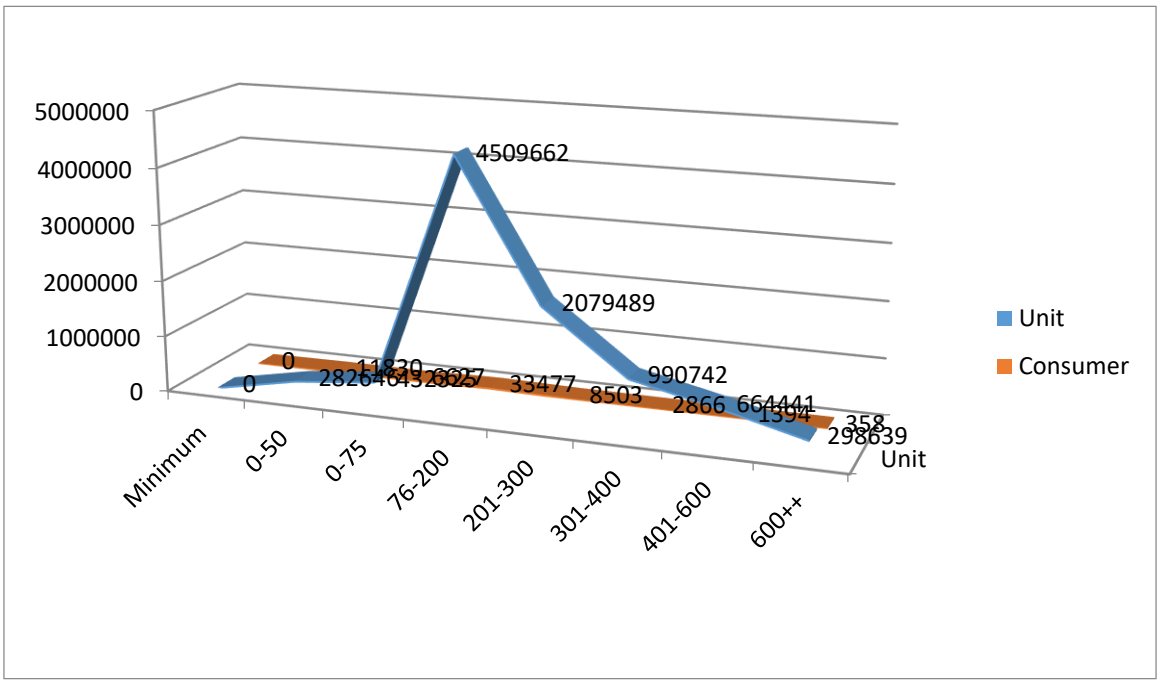


Fig 4.3: Unit Consumption and Consumer (Domestic) in May, 2018



In July 2018, the number of the consumer is 1.65% for 1-75KWh and the number of units is 7% for 1-75 KWh is highest percentage of the graph, 1-50 KWh the number of consumers is 1.06%and the number of units is 14%, 76-200 KWh the number of consumers is 47% and the number of units is 24%, the minimum consumer is 0%the minimum unit is 0% and 301- 400 KWh the consumer is 7 % and the unit is 9% and 600++ consumer and unit is about to 0 %. In summer season number of consumer increase in 76-200 KWh slab due to more use of the electrical appliance.

In December 2017, the number of the consumer is 30 % and the number of units is 25% for 1-75 KWh which is the highest percentage of the consumer of the graph, 1-50 KWh consumer is 14% and the unit is 24%, the minimum consumer is 33% and the unit is 7% and

600++ consumer and unit about to 0 %. In winter season number of consumer increase in 175 slab due to less use of electrical appliance like AC, fan, refrigerator etc.

In May 2018, the number of the consumer is 36 % and the number of units is 26% for 1-75 KWh which is the highest percentage of the consumer of the graph, 1-50 KWh consumer is 20%and the unit is 10%, the minimum consumer is 20 % and unit is 2% and 600++ consumer and unit is about 0 %.

4.5 Comparison of Total, Domestic, Lifeline and Minimum Consumer

In the above table analysis shown that the comparison between a Total slab of the consumer to the Domestic slab and we know Total slab of consumer consist ofthe Domestic slab, Commercial slab:

4.2: Compare Domestic with Total Domestic and Lifeline (0-50), Minimum and 1-75 (2017-18)

Month (17-18)	Total			Domestic compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	15639551	160944225	65775	10599286	67.77	118783246	73.78	60074	91.33
August	16799713	102478903	67153	10989595	65.42	55171062	53.84	60694	90.38
September	19150634	97709673	68057	11195436	58.46	57206267	58.55	61484	90.34
October	15959433	97975663	67810	10528068	65.97	52748962	53.84	61886	91.26
November	17530383	89948416	68302	8270165	47.18	43024436	47.83	62302	91.22
December	15081724	79011839	68995	6212851	41.19	32546591	41.19	62930	91.21
January	10978972	7485895.4	69547	5704141	51.96	28432902.4	37.98	63401	91.16
February	16826808	74696531.25	81660	5944995	35.33	28708080.3	38.43	64015	78.39
March	14743939	94910443	70774	8104097	54.97	39951237	42.09	64627	91.31
April	14830429	96784282	70828	8986191	60.59	46299522	47.84	64671	91.31
May	15368288	100773631.8	71242	9257944	60.24	47366350.3	47	65055	91.32
June	14568575	92978422	71758	10033455	68.87	52058863	55.99	65552	91.35

Slabs with Domestic

Month (17-18)	Domestic compare with Total						Lifeline compare with Domestic					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	10599286	67.77	118783246	73.78	60074	91.33	175373	1.12	698872	0.43	8593	13.06
August	10989595	65.42	55171062	53.84	60694	90.38	165635	0.99	658061	0.64	8090	12.05
September	11195436	58.46	57206267	58.55	61484	90.34	160260	0.84	640018	0.66	4021	5.91
October	10528068	65.97	52748962	53.84	61886	91.26	176428	1.11	704605	0.72	8538	12.59
November	8270165	47.18	43024436	47.83	62302	91.22	271850	1.55	1645503	1.83	6620	9.69
December	6212851	41.19	32546591	41.19	62930	91.21	467261	3.10	1719141	2.18	18344	26.59
January	5704141	51.96	28432902.4	37.98	63401	91.16	586136	5.34	2156637	2.88	22395	32.20
February	5944995	35.33	28708080.3	38.43	64015	78.39	596395	3.54	2193121	2.94	22707	27.81
March	8104097	54.97	39951237	42.09	64627	91.31	373108	2.53	1374309	1.45	15351	21.69
April	8986191	60.59	46299522	47.84	64671	91.31	299953	2.02	1106454	1.14	12681	17.90
May	9257944	60.24	47366350.3	47	65055	91.32	282646	1.84	1040740	1.03	11830	16.61
June	10033455	68.87	52058863	55.99	65552	91.35	244353	1.68	902508	0.97	10771	15.01

Month (17-18)	Slab 1-75 compare with domestic					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	274678	1.76	1042835	0.65	4193	6.37
August	275286	1.64	1046086	1.02	4213	6.27
September	263578	1.38	1001682	1.03	4021	5.91
October	300827	1.88	1143782	1.17	4591	6.77
November	432923	2.47	1645503	1.83	6620	9.69
December	669134	4.44	2676416	3.39	10272	14.89
January	769764	7.01	3080110.6	4.11	11913	17.13
February	778307	4.63	3111614.3	4.17	12017	14.72
March	568097	3.85	2276133	2.40	8693	12.28
April	460620	3.11	1844729	1.91	7043	9.94
May	432325	2.81	1734158	1.72	6627	9.30
June	368853	2.53	1477319.5	1.59	5636	7.85

First, we compare the number of Consumer, energy consumption and revenue with Total and Domestic according to Total. The percentage of energy consumption shown in Domestic, as usually low during the winter season. It's also clear that domestics consume above 53.35% of total energy in DPBS-4. Where Revenue shows 60.69% and Number of consumer above 87.32% in average of their total.

4.6 Graphical Representation

Fig 4.4: Monthly Unit Consumption of Lifeline, Minimum and 1-75 Slab (2017-2018)

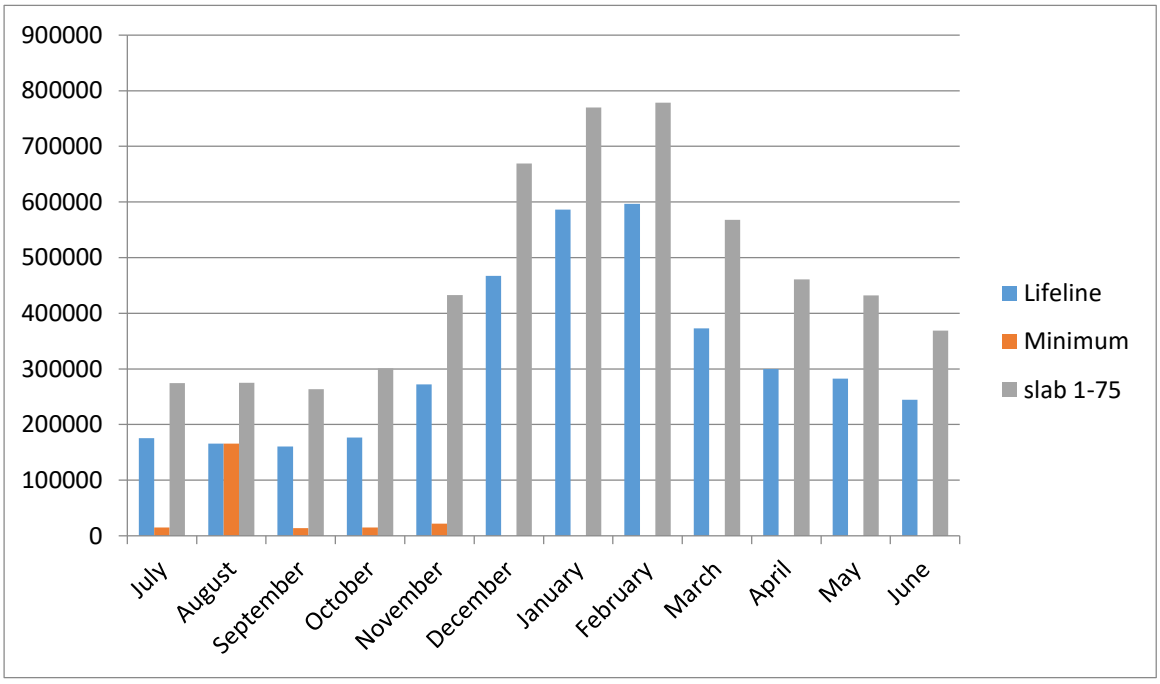
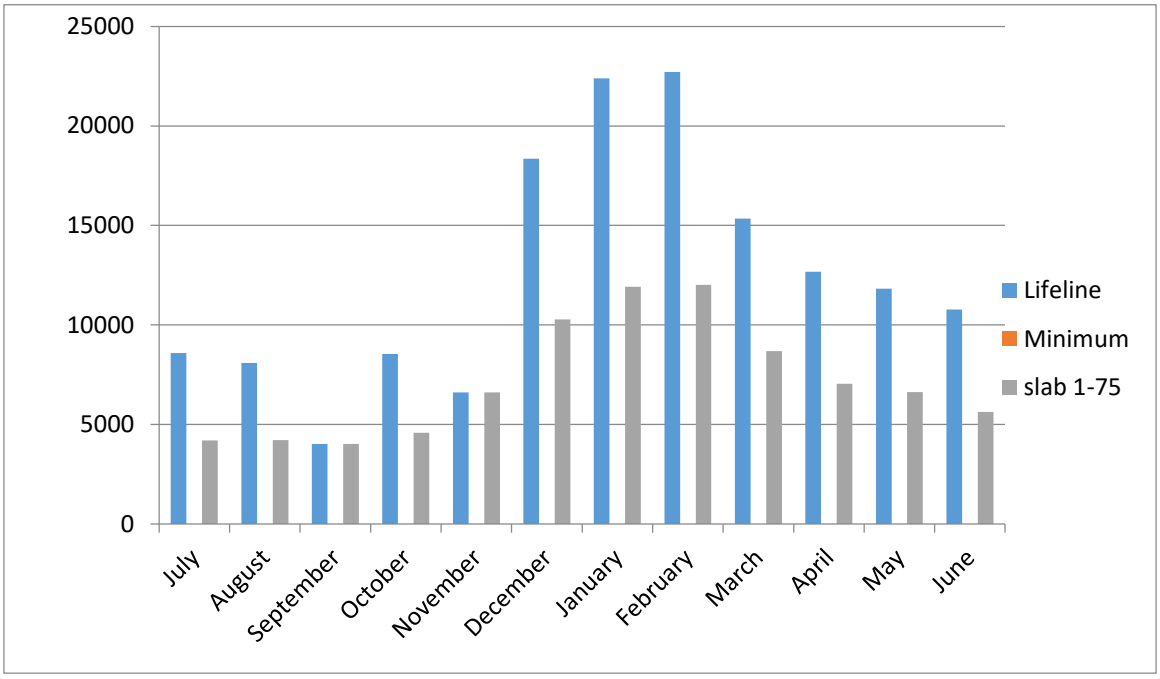


Fig 4.5: Monthly Consumer of Lifeline, Minimum and 1-75 Slab (2017-2018)



Compare with Fig 4.4 and 4.5 Minimum consumer consume very little amount of energy but sometime their number was highest

4.7 Comparison of Total, Commercial, Charitable Institution and Irrigation, General Power, Large Power,33 KV, Street Light Consumer

First we compare between the number of consumer, energy consumption and revenue with Total and Commercial according to Total. The percentage of energy consumption show in

Commercial, are high during winter season. It's also clear that Commercial consume above 3.64% of total energy in DPBS-4.

Table 4.3: Compare Domestic with Total Domestic and Commercial (2017-2018)

Month (17-18)	Total			Commercial compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	15639551	160944225	65775	1305048	8.34	13,199,707	8.20	4376	6.65
August	16799713	102478903	67153	1371133	8.16	13,556,979	13.23	4436	6.61
September	19150634	97709673	68057	1327913	6.93	13,553,324	13.87	4504	6.62
October	15959433	97975663	67810	1298388	8.14	13,142,353	13.41	4550	6.71
November	17530383	89948416	68302	1102835	6.29	12,223,910	13.59	4606	6.74
December	15081724	79011839	68995	1050611	6.97	11,224,277	14.21	4863	7.05
January	10978972	7485895.4	69547	976070	8.89	10475505.05	13.99	4943	7.11
February	16826808	74696531.3	81660	944391	5.61	10,296,998	13.79	4944	6.05
March	14743939	94910443	70774	1229166	8.34	13,077,864	13.78	4923	6.96
April	14830429	96784282	70828	1242477.11	8.38	13,190,193	13.63	4933	6.96
May	15368288	100773632	71242	1279204	8.32	13,609,733	13.51	4966	6.97
June	14568575	92978422	71758	1366966	9.38	14,490,440	15.58	5003	6.97

Month (17-18)	Charitable Institution compare with Total						Irrigation compare with Total					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	179437	1.15	972,732	0.60	518	0.79	2063	0.01	9,859	0.01	15	0.02
August	199894	1.19	1,079,191	1.05	520	0.77	680	0.00	3,868	0.00	11	0.02
September	187455	0.98	1,013,048	1.04	521	0.77	679	0.00	3,694	0.00	8	0.01
October	187408	1.17	1,013,579	1.03	521	0.77	516	0.00	2,921	0.00	8	0.01
November	128300	0.73	705,588	0.78	523	0.77	1350	0.01	6,630	0.01	10	0.01
December	77790	0.52	511,064	0.65	525	0.76	-1920	-0.01	-7,160	-0.01	8	0.01
January	72326	0.66	439458.00	0.59	526	0.76	15276	0.14	61449.00	0.08	23	0.03
February	73364	0.44	427,029	0.57	528	0.65	8067935	47.95	229,068	0.31	10264	12.57
March	172578	1.17	735,449	0.77	528	0.75	98398	0.67	416,977	0.44	50	0.07
April	148675	1.00	886,924	0.92	531	0.75	47515	0.32	190,795	0.2	49	0.07
May	149196	0.97	889,962	0.88	531	0.75	7654	0.05	31,381	0.03	50	0.07
June	201376	1.38	1,191,746	1.28	537	0.75	1196	0.01	5,159	0.01	25	0.03

Month (17-18)	General Power compare with Total						Large Power compare with Total					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	1075336	7.08	8540398	10.13	1759	1.24	2801201	17.91	21899783	13.60	107	0.16
August	1087219	6.47	8596813	9.21	1766	1.21	3336147.4	19.86	25368950	24.76	107	0.16
September	1249702	7.60	10128504	11.05	1765	1.18	5009914	26.16	19974913	20.44	108	0.16
October	1016629	5.93	8335607	8.73	1772	1.14	3066786.8	19.22	23980549	24.48	111	0.16
November	986165	7.13	8357816	10.38	1764	1.11	6479835.3	36.96	27216702	30.26	118	0.17
December	1271575	9.77	10361434	13.61	1766	1.09	6334270.3	42.00	28374299	35.91	119	0.17
January	1161806	7.33	9499397	11.07	1758	1.05	3398618.4	30.96	28626497	38.24	119	0.17
February	1090621	5.76	8942254	9.18	1761	1.03	664023	3.95	28554677	38.21	109	0.13
March	1132518	5.88	9348623	9.53	1760	1.00	4159936.4	28.21	32406358	34.14	121	0.17
April	1091281	6.31	8984713	9.88	1743	0.97	3448968	23.26	28211290	29.15	122	0.17
May	1271920	8.89	10257427	12.58	1752	0.95	3661072.8	23.82	30067317	29.84	121	0.17
June	1081711	6.79	8769160	9.69	1741	0.93	2324926.8	15.96	19792784	21.29	121	0.17

Month (17-18)	Total			Street Lights compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	15639551	160944225	65775	90	0.00	646	0.00	2	0.00
August	16799713	102478903	67153	90	0.00	646	0.00	2	0.00
September	19150634	97709673	68057	90	0.00	646	0.00	2	0.00
October	15959433	97975663	67810	90	0.00	646	0.00	2	0.00
November	17530383	89948416	68302	90	0.00	646	0.00	2	0.00
December	15081724	79011839	68995	90	0.00	774	0.00	2	0.00
January	10978972	7485895.4	69547	90	0.00	704	0.00	2	0.00
February	16826808	74696531.3	81660	90	0.00	774	0.00	2	0.00
March	14743939	94910443	70774	90	0.00	774	0.00	2	0.00
April	14830429	96784282	70828	90	0.00	774	0.00	2	0.00
May	15368288	100773632	71242	90	0.00	544	0.00	2	0.00
June	14568575	92978422	71758	90	0.00	899	0.00	2	0.00

4.8 Graphical Representation

In Fig 4.6, monthly energy consumption of the slabs except Domestic are described. Nothing is abnormal in there. Irrigation slab consume more energy February to April than the other months. Consumption of Charitable Institutions and General Power are regular. Consumption of Commercial and Large Power are increased. DPBS-4 has no 33KV consumer so that it shown in the Figure.

Fig 4.6 Monthly unit consumption of Lifeline, Minimum, slabs 1-75DPBS-4 (2017-2018)

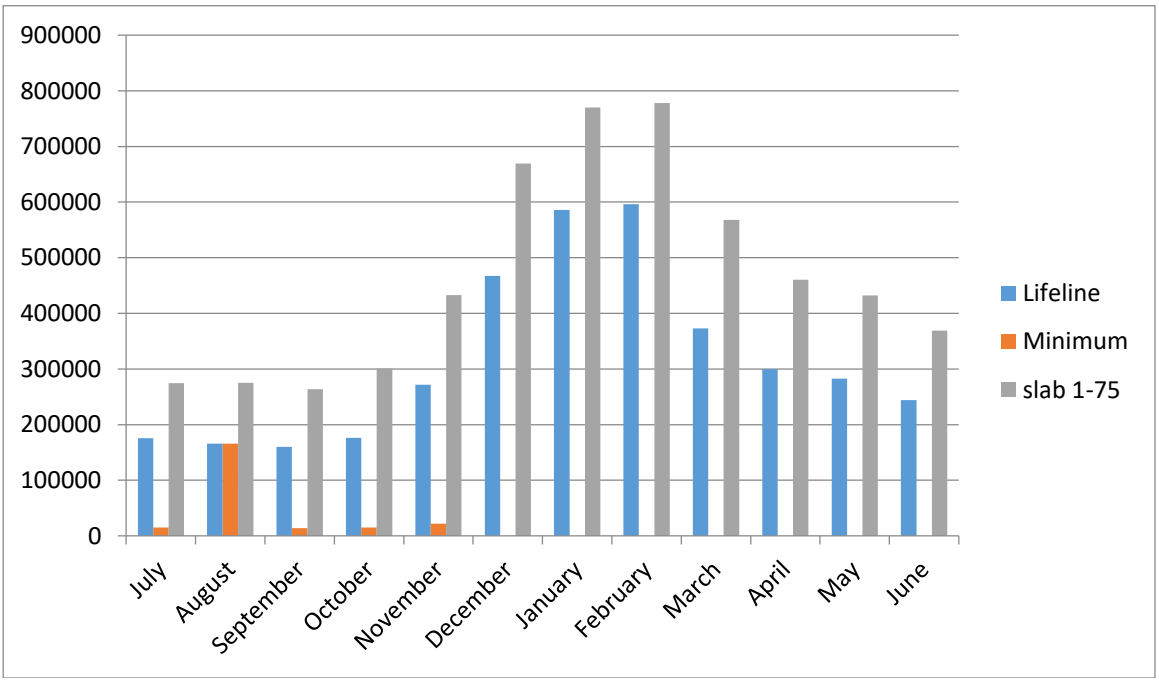


Fig 4.7 Monthly Consumer of Lifeline, Minimum, slabs 1-75DPBS-4 (2017-2018)

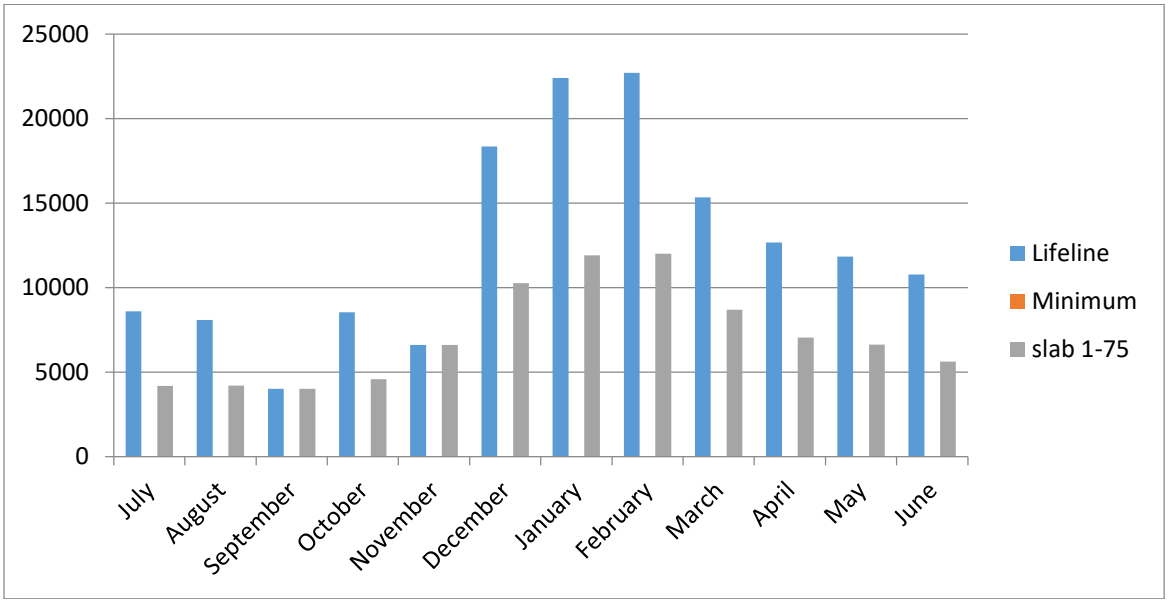


Fig 4.8 Monthly consumer of Commercial, Charitable, Irrigation, Large power DPBS-4 (2017-2018)

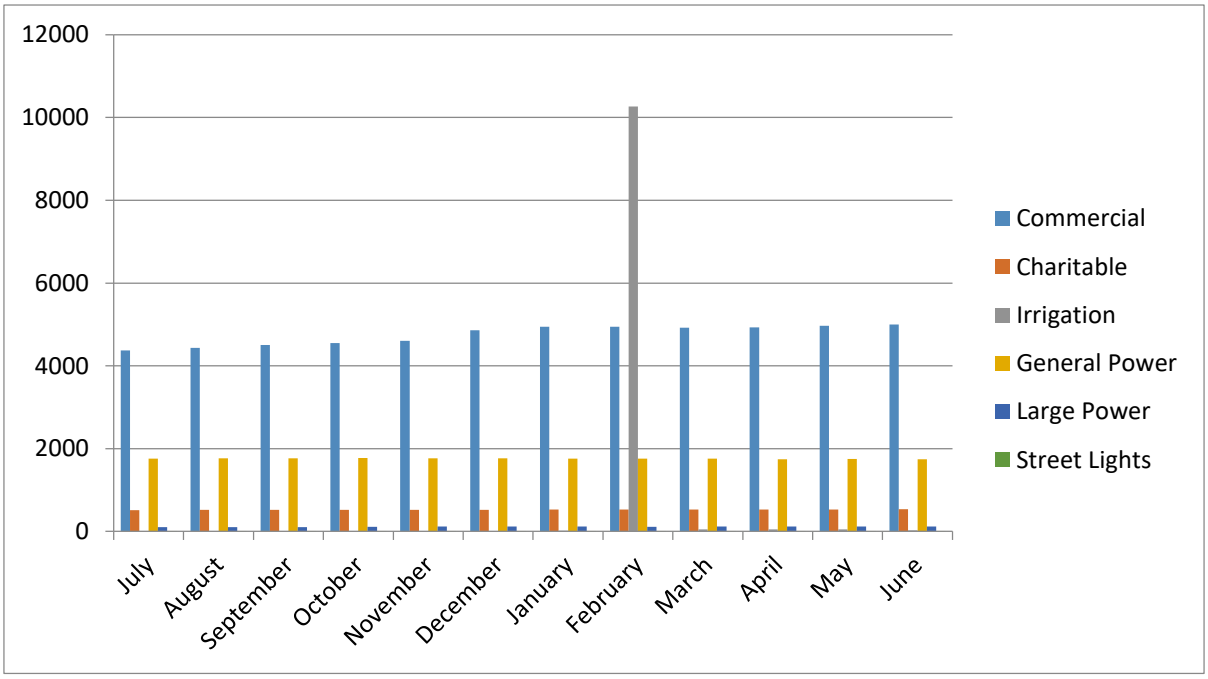
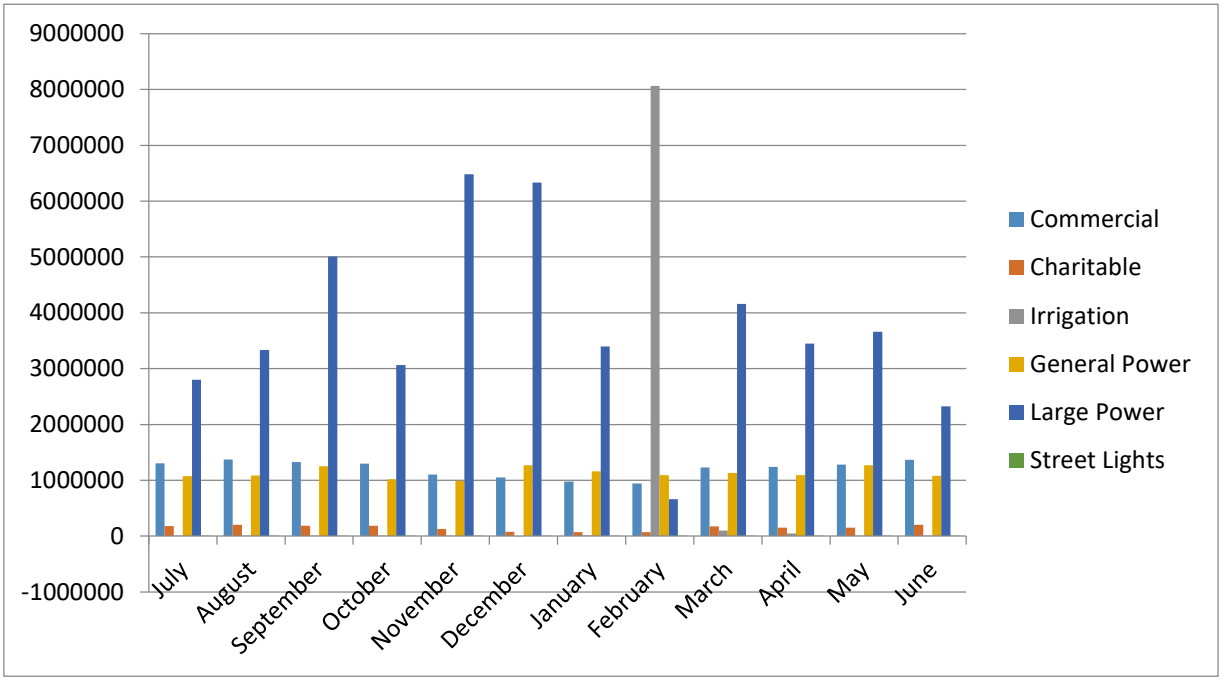


Fig 4.9 Monthly unit consumption of Commercial, Charitable, Irrigation, Large power DPBS-4 (2017-2018)



4.4: Compare Domestic with Total Domestic and Lifeline (0-50), Minimum and 1-75 (2018-19)

Month (18-19)	Total			Domestic compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consume
July	18431776.78	121,803,059	72,679	11702910	63.49	62646734	51.43	66426	91.40
August	17644976.69	115367415.7	73,386	12415608	67.36	66835675.5	54.87	67079	92.29
September	18,415,356	119,211,580	74,296	12392352	67.23	65937995	54.13	67900	93.42
October	22147254.69	112944361	75,035	11345280	61.55	61485047	50.48	68559	94.33
November	18758821	101,149,331	75,726	8625375	46.80	46951555	38.55	69178	95.18
December	15276401	81,013,438	76,639	6347188	34.44	32682986	26.83	70001	96.32
January	12646865.5	84642715	77,084	6427570	34.87	30738652	25.24	70385	96.84
February	11,787,051	79555191	77,730	6204851	33.66	30519586	25.06	70947	97.62
March	13331632.2	89,227,531	77,915	6678345	36.23	31981249	26.26	71091	97.82
April	15971097.76	104,907,126	76,905	9275703	50.32	46801829	38.42	70077	96.42
May	16874498	112639037	72,207	9886541	53.64	51574949	42.34	65803	90.54
June	14536615	95,050,996	65,383	9719496	52.73	51592737	42.36	59451	81.80

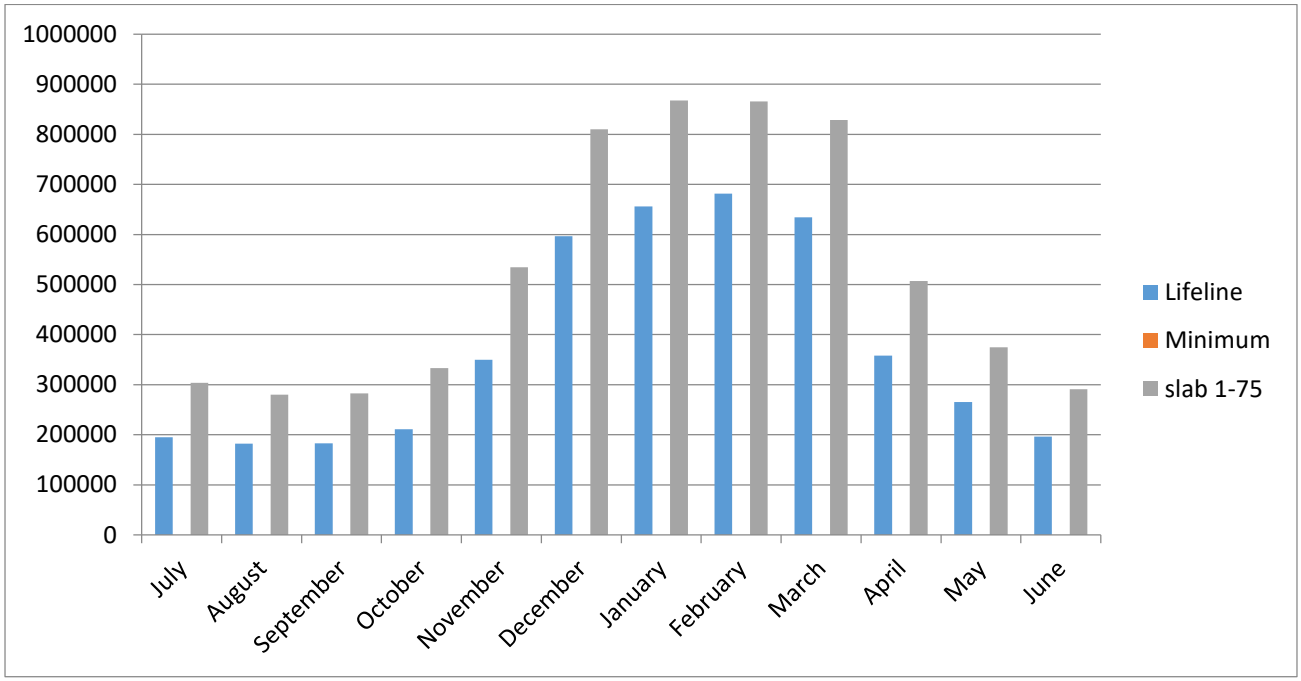
Month (18-19)	Domestic compare with Total						Lifeline compare with Domestic					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consume	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consume
July	10599286	67.77	118783246	73.78	60074	91.33	194686	1.06	721,312	0.59	9309	12.81
August	10989595	65.42	55171062	53.84	60694	90.38	182089	0.99	664,199.75	0.55	8756	12.05
Septembe	11195436	58.46	57206267	58.55	61484	90.34	183111	0.99	676,912	0.56	8901	12.25
October	10528068	65.97	52748962	53.84	61886	91.26	210720	1.14	781,381	0.64	9701	13.35
Novembe	8270165	47.18	43024436	47.83	62302	91.22	349977	1.90	1,294,207	1.06	14572	20.05
Decembe	6212851	41.19	32546591	41.19	62930	91.21	596379	3.24	2,200,716	1.81	23285	32.04
January	5704141	51.96	28432902.4	37.98	63401	91.16	656165	3.56	2422196.00	1.99	25327	34.85
February	5944995	35.33	28708080.3	38.43	64015	78.39	681739	3.70	2,514,384	2.06	26223	36.08
March	8104097	54.97	39951237	42.09	64627	91.31	633932	3.44	2,337,059	1.92	24460	33.65
April	8986191	60.59	46299522	47.84	64671	91.31	358298	1.94	1,323,696	1.09	15325	21.09
May	9257944	60.24	47366350.3	47	65055	91.32	265373	1.44	979,920	0.80	12202	16.79
June	10033455	68.87	52058863	55.99	65552	91.35	196440	1.07	725,749	0.60	9613	13.23

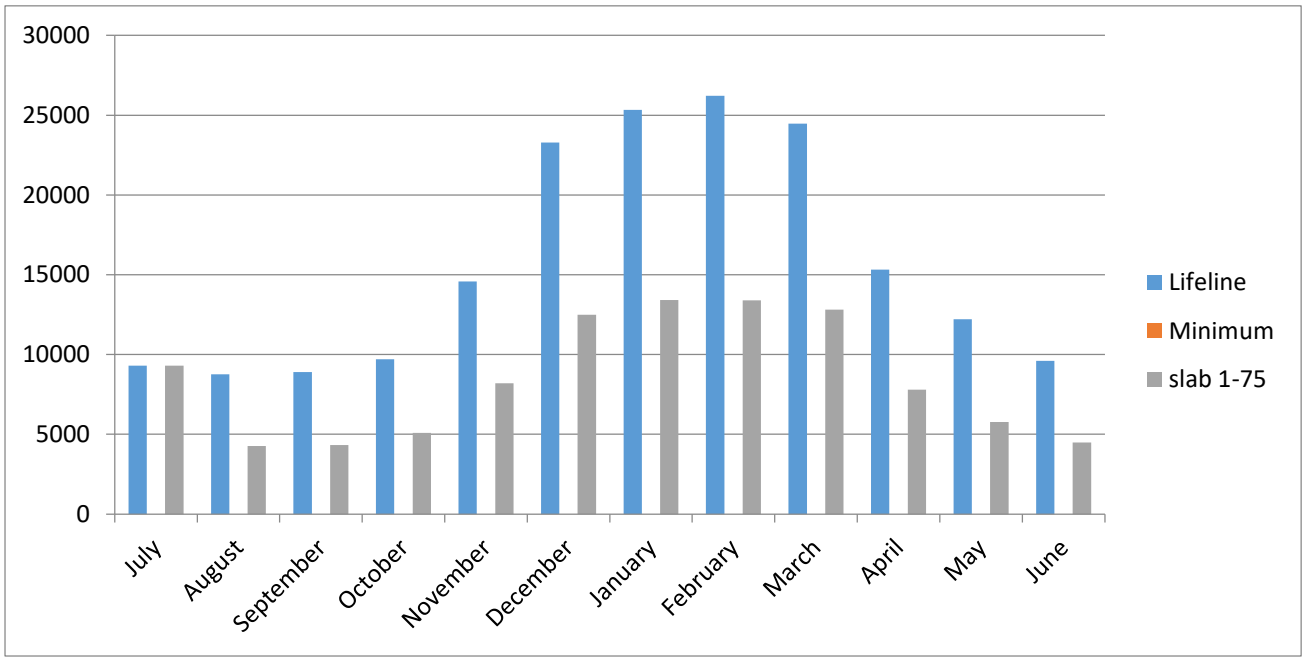
Month (18-19)	Slab 1-75 compare with domestic					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consume
July	303716.00	1.65	721,312	0.59	9309	12.81
August	279916	1.52	1,120,940.00	0.92	4276	5.88
Septembe	282890	1.53	1,133,807	0.93	4336	5.97
October	333040	1.81	1,335,106	1.10	5086	7.00
Novembe	534671	2.90	2,140,661	1.76	8192	11.27
Decembe	810059	4.39	3,243,793	2.66	12498	17.20
January	867739	4.71	3473444.00	2.85	13416	18.46
February	865768	4.70	3466878.00	2.85	13393	18.43
March	828631	4.50	3,318,638	2.72	12821	17.64
April	507086	2.75	2,029,924	1.67	7795	10.73
May	374380	2.03	1,499,883	1.23	5765	7.93
June	291211	1.58	1166846	0.96	4482	6.17

First, we compare the number of Consumer, energy consumption and revenue with Total and Domestic according to Total. The percentage of energy consumption shown in Domestic, as usually low during the winter season. It's also clear that domestics consume above 63.49% of total energy in DPBS-4. Where Revenue shows 51.43% and Number of consumer above 100% in average of their total.

4.9 Graphical Representation

Fig 4.10: Monthly Unit Consumption of Lifeline, Minimum and 1-75 Slab





4.10 Comparison of Total, Commercial, Charitable Institution and Irrigation, General Power, Large Power,33 KV, Street Light

Consumer

First we compare between the number of consumer, energy consumption and revenue with Total and Commercial according to Total. The percentage of energy consumption show in Commercial, are high during winter season. It's also clear that Commercial consume above 3.64% of total energy in DPBS-4.

Table 4.5: Compare Domestic with Total Domestic and Commercial (2018-2019)

Month (18-19)	Total			Commercial compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consume
July	18431776.8	121,803,059	72,679	1471480	7.98	15,605,219	12.81	5048	6.95
August	17644976.69	115367416	73,386	1516448	8.23	16,060,344.80	13.19	5106	7.03
September	18,415,356	119,211,580	74,296	1498648	8.13	15,928,786	13.08	5188	7.14
October	22147254.7	112944361	75,035	1475634	8.01	16,072,309	13.20	5266	7.25
November	18758821	101,149,331	75,726	1338970	7.26	14,327,573	11.76	5327	7.33
December	15276401	81,013,438	76,639	1073786	5.83	11,515,728	9.45	5412	7.45
January	12646865.5	84642715	77,084	1098322	5.96	11786280.00	9.68	5446	7.49
February	11,787,051	79555191	77,730	1070112	5.81	11,448,395	9.40	5503	7.57
March	13331632.2	89,227,531	77,915	1160006	6.29	12,395,069	10.18	5533	7.61
April	15971097.8	104,907,126	76,905	1351282	7.33	14,297,106	11.74	5529	7.61
May	16874498	112639037	72,207	1350746	7.33	14,322,434	11.76	5105	7.02
June	14536615	95,050,996	65,383	1300516	7.06	13,767,991	11.30	4647	6.39

Month (18-19)	Charitable Institution compare with Total						Irrigation compare with Total					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	205040	1.11	15,605,219	12.81	540	0.74	1654	0.01	6,781	0.01	11	0.02
August	22397	0.12	1,322,800.00	1.09	541	0.74	546	0.00	(21,000.00)	-0.02	6	0.01
Septembe	213261	1.16	1,261,102	1.04	545	0.75	2075	0.01	8,405	0.01	6	0.01
October	207015	1.12	1,118,187	0.92	547	0.75	945	0.01	3,855	0.00	5	0.01
Novembe	124814	0.68	750,297	0.62	549	0.76	895	0.00	3,640	0.00	4	0.01
Decembe	81083	0.44	498,230	0.41	551	0.76	1420	0.01	5,845	0.00	5	0.01
January	76045	0.41	469390.00	0.39	556	0.77	28823	0.16	115742.00	0.10	24	0.03
February	78387	0.43	482,847	0.40	557	0.77	49053	0.27	196,872	0.16	44	0.06
March	96793	0.53	589,244	0.48	561	0.77	71209	0.39	285,496	0.23	44	0.06
April	163194	0.89	972,567	0.80	561	0.77	63733	0.35	255,592	0.21	44	0.06
May	224983	1.22	1,330,601	1.09	557	0.77	40320	0.22	161,940	0.13	44	0.06
June	243183	1.32	1,436,670	1.18	558	0.77	2123	0.01	8,957	0.01	31	0.04

Month (18-19)	Total			Street Lights compare with Total					
	Unit	Revenue	Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	18431776.78	121,803,059	72,679	-2220	-0.01	-9,448	-0.01	2	0.00
August	17644976.69	115367416	73,386	0	0.00	0	0.00	0	0.00
September	18,415,356	119,211,580	74,296	0	0.00	0	0.00	0	0.00
October	22147254.69	112944361	75,035	0	0.00	0	0.00	0	0.00
November	18758821	101,149,331	75,726	0	0.00	0	0.00	0	0.00
December	15276401	81,013,438	76,639	505	0.00	4,209	0.00	1	0.00
January	12646865.5	84642715	77,084	1295	0.01	10932.00	0.01	3	0.00
February	11,787,051	79555191	77,730	1250	0.01	10,586	0.01	3	0.00
March	13331632.2	89,227,531	77,915	1195	0.01	10,123	0.01	3	0.00
April	15971097.76	104,907,126	76,905	2125	0.01	17,323	0.01	3	0.00
May	16874498	112639037	72,207	2400	0.01	19,441	0.02	3	0.00
June	14536615	95,050,996	65,383	7188	0.04	57,748	0.05	4	0.01

Month (18-19)	General Power compare with Total						Large Power compare with Total					
	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer	Unit	% of total Unit	Revenue	% of total Revenue	Consumer	% of total Consumer
July	986818	5.35	8,309,985	6.82	525	0.72	4066094.8	22.06	34,029,708	27.94	127	0.17
August	784212	4.25	6,614,844.35	5.43	526	0.72	2905765.3	15.76	24,554,751.00	20.16	128	0.18
Septembe	884419	4.80	7,460,194	6.12	526	0.72	3424600.6	18.58	28,615,098	23.49	131	0.18
October	1706940	9.26	5,418,856	4.45	527	0.73	7411440.7	40.21	28,846,107	23.68	131	0.18
Novembe	1588318	8.62	7,122,982	5.85	533	0.73	7079694	38.41	31,981,576	26.26	134	0.18
Decembe	706517	3.83	6,002,470	4.93	535	0.74	7065902	38.34	30,303,970	24.88	134	0.18
January	844081	4.58	7172804.00	5.89	532	0.73	4170729.5	22.63	34348915.00	28.20	138	0.19
February	778735	4.22	6,634,840	5.45	532	0.73	3604663	19.56	30,262,065	24.85	144	0.20
March	975845	5.29	8,261,921	6.78	536	0.74	4348239.2	23.59	35,724,429	29.33	147	0.20
April	978937	5.31	8,292,374	6.81	539	0.74	4136123.8	22.44	34,270,335	28.14	152	0.21
May	998604	5.42	8,450,166	6.94	541	0.74	4370904	23.71	36,779,506	30.20	154	0.21
June	557969	3.03	4,815,052	3.95	540	0.74	2706140	14.68	23,371,841	19.19	152	0.21

4.11 Graphical Representation

In Fig 4.11, monthly energy consumption of the slabs except Domestic are described. Nothing is abnormal in there. Irrigation slab consume more energy February to April than the other months. Consumption of Charitable Institutions and General Power are regular. Consumption of Commercial and Large Power are increased. DPBS-4 has no 33KV consumer so that it shown in the Figure.

Fig 4.11 Monthly consumer of Commercial, Charitable, Irrigation, Large power DPBS-4 (2017-2018)

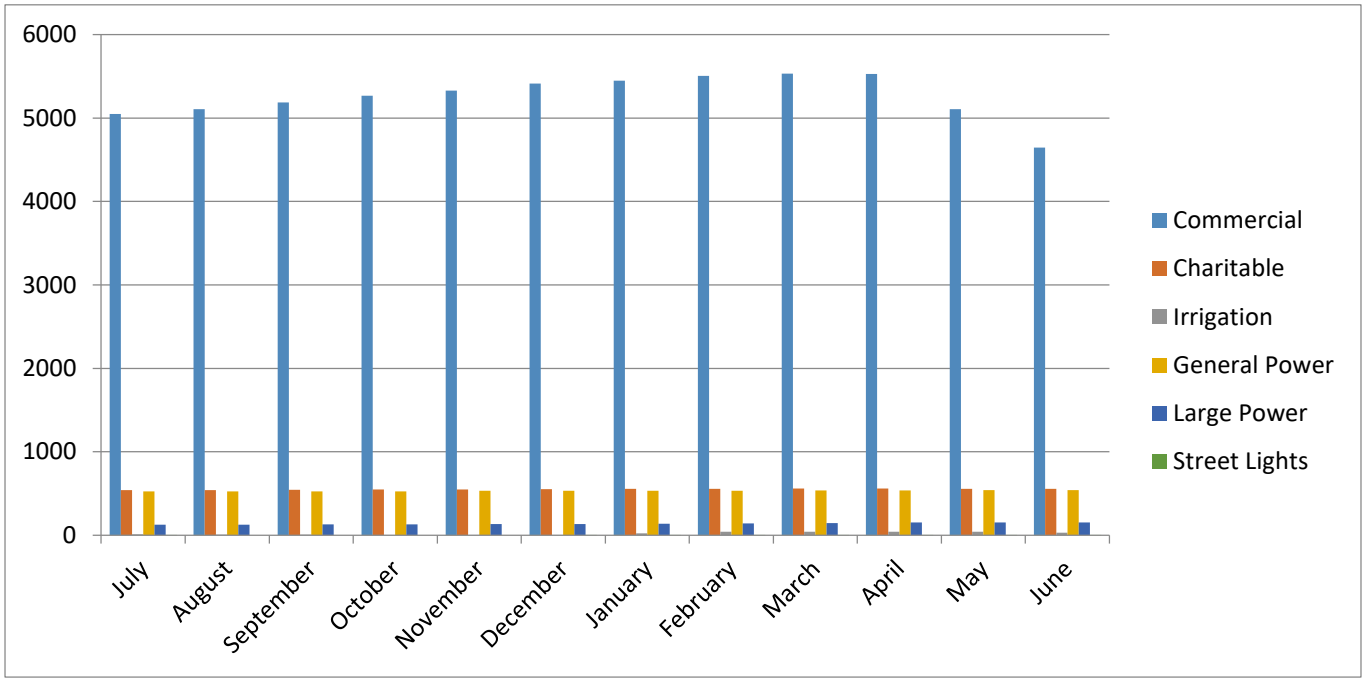
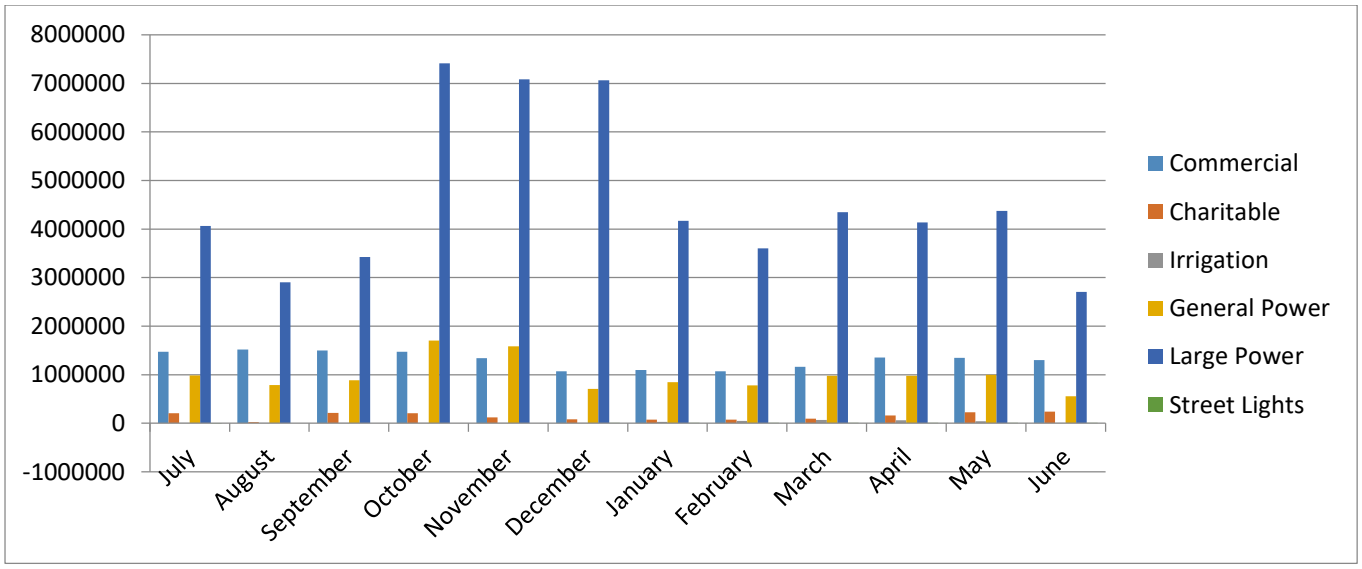


Fig 4.12 Monthly unit consumption of Commercial, Charitable, Irrigation, Large power DPBS-4 (2017-2018)



4.12 Summary

Revenue of DPBS-4 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 5

ELECTRICITY COST AND RATE

5.1 Electricity Cost

Cost is an important term in any business, where profit or loss is a concern. Supplying electricity is a business also. The 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 the cost of electricity is important to improve economic and social benefits.

5.2 Electricity Purchase Cost

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, DPBS-4-1 pays BPDB or their IPPs bulk price to buying electric energy and wheeling charge to PGCB for wheeling.

5.2.1 Bulk rate

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

5.2.2 Wheeling Charge

PGCB is paid wheeling charges by the distribution companies. The company has taken infrastructure development projects for the further development of its operation. In order to finance new investment, ensure proper maintenance of its existing assets, PGCB requires being 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 the 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 the 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

5.3 Distribution Cost

The 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 + Consumer selling expenses +

Administration & general Expenses + Depreciation & amortization + Tax Expenses + Interest Expenses

5.3.1 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.

5.3.2 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

Table 5.1: Distribution and Total Supply Cost (2017-2018)

Month (17-18)	EC	Distribution Cost						Total Distribution cost	Total Supply Cost	SL (10^7Tk)
		OME	CSE	AGE	DAE	TE	IE			
July	255.595	0.755	0.736	0.497	1.716	0.140	0.380	4.225	259.820	0.259093
August	287.336	1.521	1.013	0.662	1.786	0.919	0.380	6.281	293.617	0.456787
September	255.278	1.009	0.774	0.521	1.836	0.107	0.380	4.628	259.906	0.047881
October	263.444	0.901	0.729	0.675	1.848	0.186	0.380	4.719	268.163	0.074581
November	211.821	0.811	0.710	0.542	1.842	0.192	0.400	4.496	216.317	0.002633
December	399.550	0.988	0.746	0.645	1.945	0.157	0.655	5.137	404.687	0.206138
January	214.675	1.767	1.372	0.789	1.902	0.116	0.285	6.232	220.906	0.033785
February	214.253	0.900	0.729	0.611	1.940	0.177	0.285	4.641	218.894	0.05144
March	314.651	1.175	0.953	0.673	1.964	0.101	0.285	5.150	319.801	0.396033
April	306.651	1.176	0.665	0.553	2.015	0.112	0.285	4.806	311.457	0.057625
May	149.713	1.112	1.199	0.834	2.040	0.190	1.454	6.829	156.542	0.191118
June	-	-	-	-	-	-	0.000	0.000	0.000	0.504463
Grand total	**2872.967**	**12.114**	**9.626**	**7.003**	**20.835**	**2.396**	**5.169**	**57.143**	**2930.110**	**2.281576**

Table 5.2: Distribution and Total Supply Cost (2018-2019)

Month (18-19)	EC	Distribution Cost						Total Distribution cost	Total Supply Cost	SL (10^7Tk)
		OME	CSE	AGE	DAE	TE	IE			
July	341.998	1.057	0.738	0.747	2.240	0.140	0.432	5.355	347.353	0.359305
August	333.734	1.346	0.920	0.674	2.245	0.251	0.432	5.869	339.603	0.208457
September	338.897	1.053	0.625	0.529	2.249	0.148	0.432	5.036	343.933	0.069756
October	325.595	1.117	0.859	0.689	2.256	0.148	0.432	5.502	331.097	0.016146
November	277.524	1.080	0.565	0.638	2.238	0.244	0.432	5.197	282.721	0.023017
December	257.981	1.090	0.820	0.619	2.254	0.183	0.432	5.398	263.379	0.149563
January	249.267	1.134	0.671	0.630	2.267	0.111	0.432	5.245	254.512	0.012696
February	235.651	1.883	1.566	0.846	2.278	0.139	0.432	7.145	242.796	0.016071
March	319.166	0.906	0.908	0.661	2.284	0.096	0.213	5.069	324.235	0.399263
April	335.832	1.184	0.839	0.407	2.304	0.165	0.400	5.299	341.131	0.12343
May	405.916	1.509	1.144	0.817	2.306	0.061	0.400	6.237	412.154	0.429271
June	355.627	1.178	1.088	6.647	2.304	0.137	0.362	11.715	367.343	0.161121
Grand total	**3777.188**	**14.538**	**10.743**	**13.905**	**27.225**	**1.823**	**4.833**	**73.067**	**3850.256**	**1.968**

Fig 5.1: Distribution Cost of DPBS-4 in 2017-18

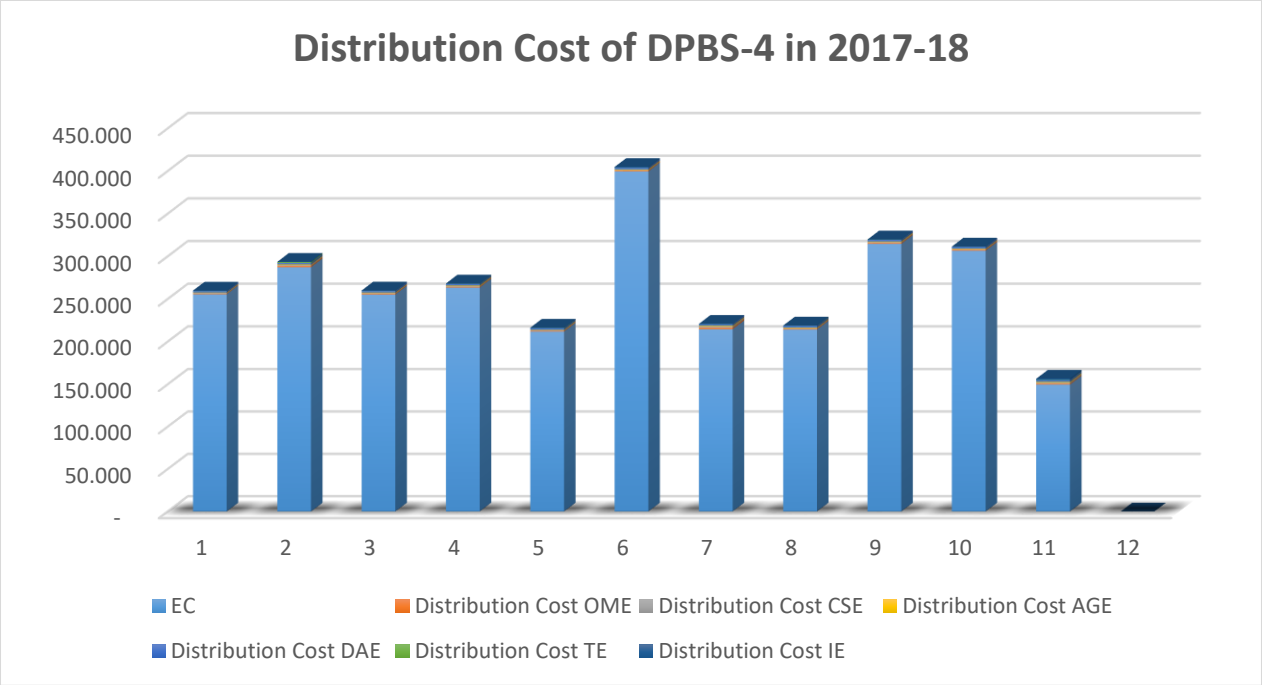
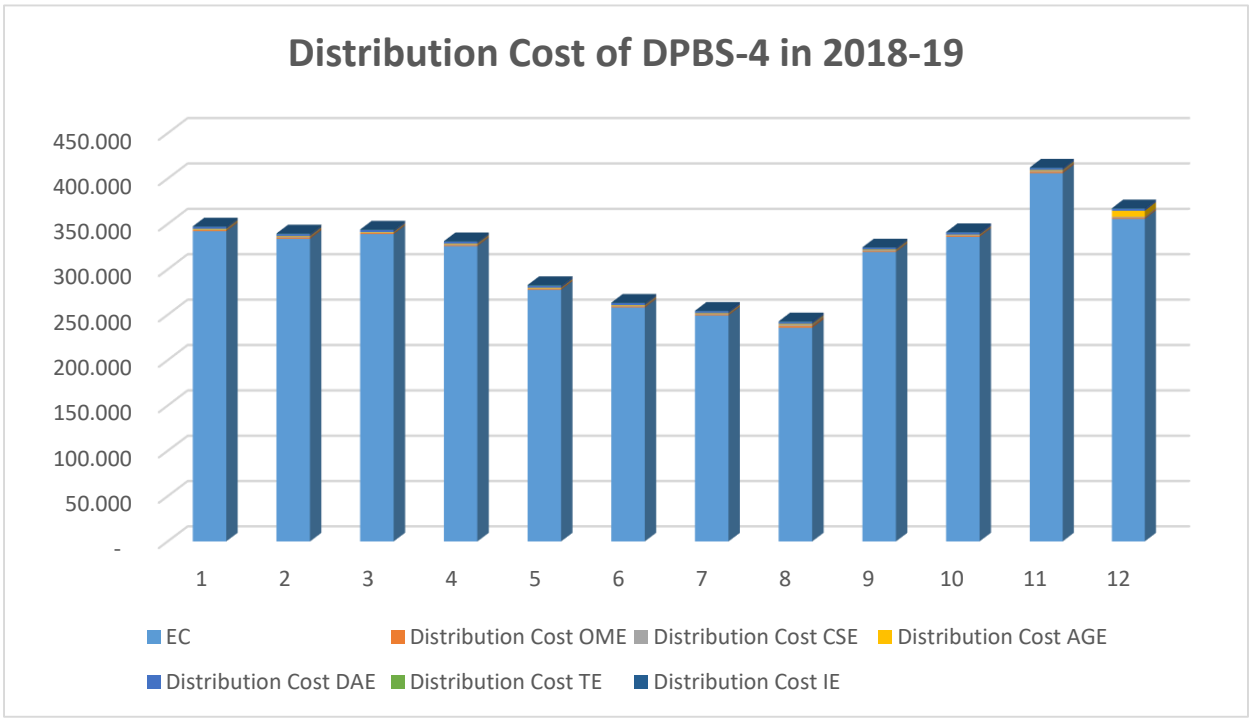


Fig 5.2: Distribution Cost of DPBS-4 in 2018-19



This table shown that in July, 2017-18 the Energy Cost is 10.608 core, total distribution cost is 5.1 Core, system loss cost is 0.4 core, so total supply cost is 30.418core.

These table shown that in December, 2017 the Energy Cost is 41.607 core, total distribution cost is 5.1 core, system loss cost is 10.00 core, so total supply cost is 23.88 core.

These table shown that in June, 2017 the Energy Cost is 59.321 core, total distribution cost is 0.056 core, system loss cost is 0.555 core, so total supply cost is 12.355 core.

The rest of the month distribution and total supply cost analysis showed in the Table no 7.1.InMarch-18, April-18, May-18, June-18 the energy cost is high, system loss is high so total supply cost also high than previous months.

This table shown that in July, 2017-18 the Energy Cost is 8.553core, total distribution cost is 3.541Core, system loss cost is 0.102core, so total supply cost is 12.196core.

These table shown that in December, 2018 the Energy Cost is 7.281core, total distribution cost is 4.495core, system loss cost is 0.070core, so total supply cost is 11.846core.

These table shown that in June, 2018 the Energy Cost is 10.281core, total distribution cost is 5.081core, system loss cost is 0.013core, so total supply cost is 15.376core.

The rest of the month distribution and total supply cost analysis showed in the Table no 7.2.InMarch-19, April-19, May-19, June-19 the energy cost is high, system loss is high so total supply cost also high than previous months.

This table shown that in July, 2018-19 the Energy Cost is 10.146 core, total distribution cost is 3.917 Core, system loss cost is 0.322 core, so total supply cost is 14.385 core.

These table shown that in December, 2018 the Energy Cost is 7.160 core, total distribution cost is 4.465 core, system loss cost is 0.173 core, so total supply cost is 11.798 core.

These table shown that in June, 2018 the Energy Cost is 7.621 core, total distribution cost is 5.061 core, system loss cost is 0.676core, so total supply cost is 13.358core.

The rest of the month distribution and total supply cost analysis showed in the Table no 7.3.InMarch-19, April-19, May-19, June-19 the energy cost is high, system loss is high so total supply cost also high than previous months.

5.3.3 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.

5.3.4 Depreciation & Amortization Expenses (DAE)

The depreciation expenses included as a cost is the monthly depreciation for all used and useful assets. DPBS-4 calculates 3 % depreciation of its assets.

5.3.5 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.

5.3.6 Interest expenses (IE)

Expenses of payable interest on loans from bank, BREB or from any other loans are included as IE. DPBS-4

5.3.7 System Loss (Tk)

Calculate system loss KWh in taka. System loss in taka is the help to calculate the distribution cost more correctly and showed an economical figure of system loss. DPBS-4 had a system loss in taka 2.11 in (2015-16), 0.997 (2016-17), 3.660 (2017-18)

System Loss (Tk) = Import Energy x System loss (Tk/Unit)

5.4 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.

Table 5.3: Import energy, Purchase cost, Expenditure, Sell energy, Revenue, Distribution cost of energy according to the Thesis Calculation (2017-2018)

2017-2018	Energy Import (MU)	Energy Purchase Cost (10^7Tk)	Energy Sell (MU)	Distribution cost (10^7Tk)	Total Supply Cost (10^7Tk)	Revenue from Sale Energy (10^7Tk)	Revenue from other sources (10^7Tk)	Total Revenue (10^7Tk)	System Loss%	Surplus (+/-) (10^7Tk)	System Loss (10^7Tk)	System Loss (Tk/Unit)	Distribution Cost (Tk/Unit)	Total Revenue (Tk/Unit)
July	57.514	25.934	52.045	4.225	30.418	32.005	0.318	32.323	9.508	1.905	0.259	0.474	0.862	5.620
August	64.641	29.147	57.040	6.281	35.885	34.623	0.375	34.998	11.760	-0.888	0.457	0.601	1.181	5.414
September	57.137	25.764	54.726	4.628	30.439	33.428	0.308	33.736	4.219	3.297	0.048	0.199	0.854	5.904
October	59.161	26.676	56.115	4.719	31.470	34.549	0.446	34.995	5.150	3.525	0.075	0.245	0.854	5.915
November	47.499	21.418	46.975	4.496	25.916	30.441	0.448	30.889	1.103	4.973	0.003	0.050	0.958	6.503
December	41.117	18.540	37.004	5.137	23.883	25.376	0.491	25.867	10.003	1.983	0.206	0.501	1.444	6.291
January	41.607	18.761	39.878	6.232	25.027	27.092	0.561	27.653	4.155	2.626	0.034	0.195	1.571	6.646
February	40.667	18.337	38.569	4.641	23.029	25.630	0.383	26.014	5.158	2.984	0.051	0.245	1.217	6.397
March	58.995	26.601	52.222	5.150	32.147	34.023	1.027	35.050	11.480	2.903	0.396	0.585	1.062	5.941
April	55.078	24.835	52.488	4.806	29.699	34.800	0.602	35.401	4.702	5.703	0.058	0.222	0.927	6.428
May	60.343	27.209	55.494	6.829	34.230	35.995	0.720	36.715	8.037	2.486	0.191	0.394	1.265	6.084
June	59.321	26.748	51.714	0.000	27.253	-	-	0.000	12.822	-27.253	0.504	0.663	0.098	0.000
Grand total	**643.080**	**289.971**	**594.271**	**57.144**	**349.397**	**347.961**	**5.679**	**353.641**	**88.10**	**4.24**	**2.282**	**4.375**	**12.292**	**67.144**

Table 5.4: Import energy, Purchase cost, Expenditure, Sell energy, Revenue, Distribution cost of energy according to the Thesis Calculation (2018-2019)

2018-2019	Energy Import (MU)	Energy Purchase Cost (10^7Tk)	Energy Sell (MU)	Distribution cost (10^7Tk)	Total Supply Cost (10^7Tk)	Revenue from Sale Energy (10^7Tk)	Revenue from other sources (10^7Tk)	Total Revenue (10^7Tk)	System Loss%	Surplus (+/-) (10^7Tk)	System Loss (10^7Tk)	System Loss (Tk/Unit)	Distribution Cost (Tk/Unit)	Total Revenue (Tk/Unit)
July	67.144	30.276	60.217	5.335	35.970	39.439	0.501	39.940	10.317	3.969	0.359	0.519	0.946	5.948
August	65.487	29.529	60.211	5.869	35.606	38.802	0.476	39.278	8.057	3.671	0.208	0.395	1.009	5.998
September	66.394	29.938	63.265	5.036	35.043	41.245	0.438	41.683	4.712	6.640	0.070	0.223	0.807	6.278
October	64.011	28.863	62.514	5.502	34.381	40.664	0.410	41.074	2.337	6.693	0.016	0.108	0.883	6.417
November	54.401	24.530	52.760	5.197	29.750	35.114	0.563	35.677	3.017	5.926	0.023	0.140	0.989	6.558
December	49.937	22.517	46.030	5.398	28.065	30.670	0.825	31.495	7.825	3.430	0.150	0.383	1.205	6.307
January	49.959	22.527	48.787	5.245	27.785	32.944	0.416	33.359	2.346	5.575	0.013	0.108	1.078	6.677
February	46.372	20.910	45.104	7.145	28.071	29.809	0.402	30.211	2.734	2.140	0.016	0.127	1.588	6.515
March	62.665	28.256	55.646	5.069	33.725	36.622	0.542	37.163	11.201	3.439	0.399	0.569	0.983	5.930
April	65.532	29.549	61.431	5.299	34.971	40.494	0.559	41.053	6.258	6.082	0.123	0.301	0.883	6.265
May	79.523	35.858	71.285	6.237	42.524	48.346	0.563	48.909	10.359	6.385	0.429	0.521	0.935	6.150
June	70.159	31.636	65.328	11.715	43.512	41.706	0.522	42.228	6.886	-1.283	0.161	0.333	1.818	6.019
Grand total	**741.584**	**334.388**	**692.578**	**73.047**	**409.403**	**455.854**	**6.216**	**462.070**	**76.05**	**52.67**	**1.968**	**3.727**	**13.123**	**75.063**

Here this table shown that only in June-2017 the Dhaka PBS-4 is in 0.170 surplus that means in profit position due to increased system loss heavily (14.355). But the other months of the year is in negatives surplus that means in profit position. In Octobor-17 and May-17 the PBS is in mostly profit position.

Here this table shown that only in June-2018 the Dhaka PBS-4 is in – 16.76 surplus that means in loss position due to increased system loss heavily (12.11). But the other months of the year is in negative surplus that means in profit position. In Octobor-17 and December-17 the PBS is in mostly loss position.

Here this table shown that only in June-2018 the Dhaka PBS-4 is in – 17.58 surplus that means in loss position due to increased system loss heavily (12.37). But the other months of the year is in negative surplus that means in profit position. In Octobor-17 and December-17 the PBS is in mostly loss position.

5.4.1 Total Revenue (TR)

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

Total revenue = Revenue from sales of energy + Revenue from others.

Fig 5.3: Monthly Revenue of 2017-2018 (in % of Total)

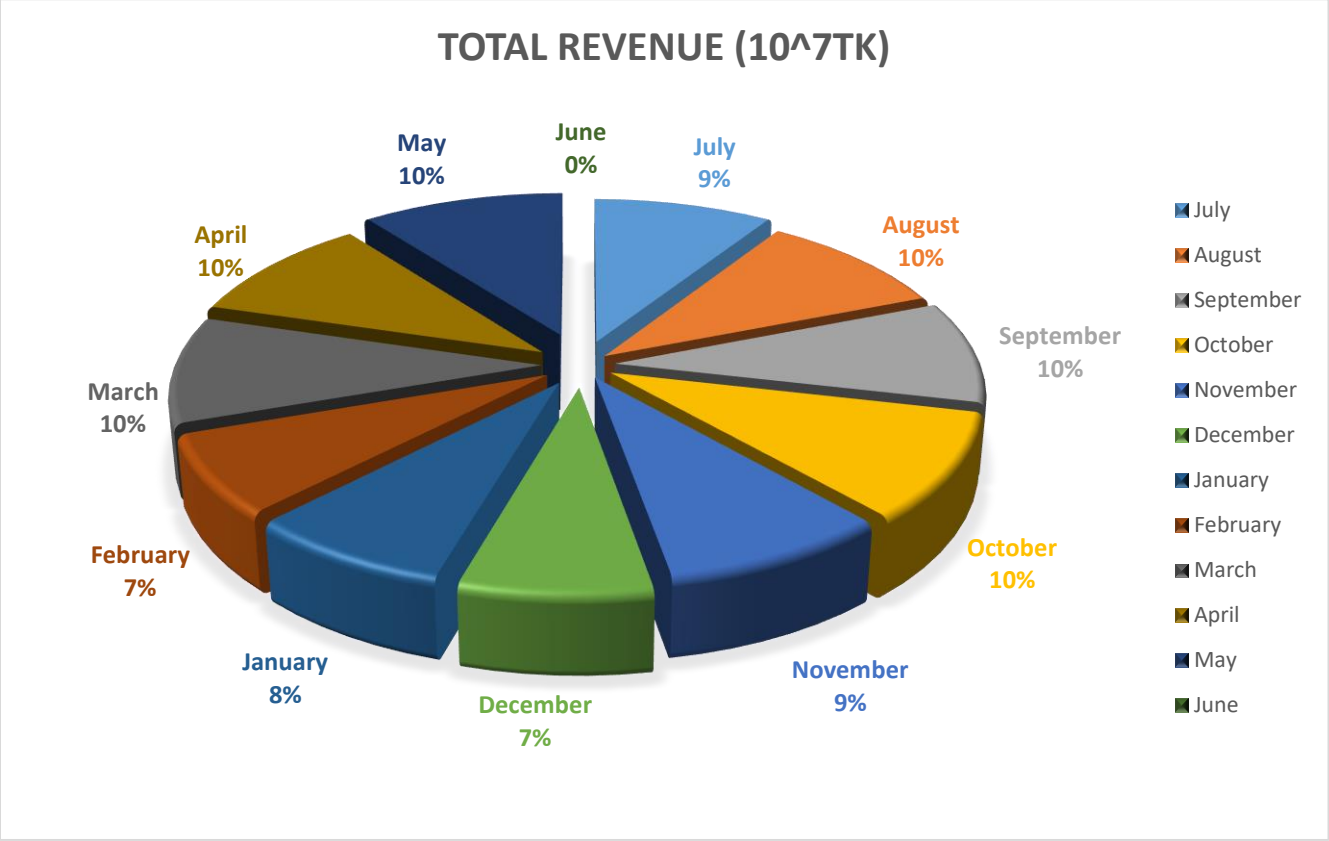


Fig 5.4: Monthly Revenue of 2018-2019 (in % of Total)

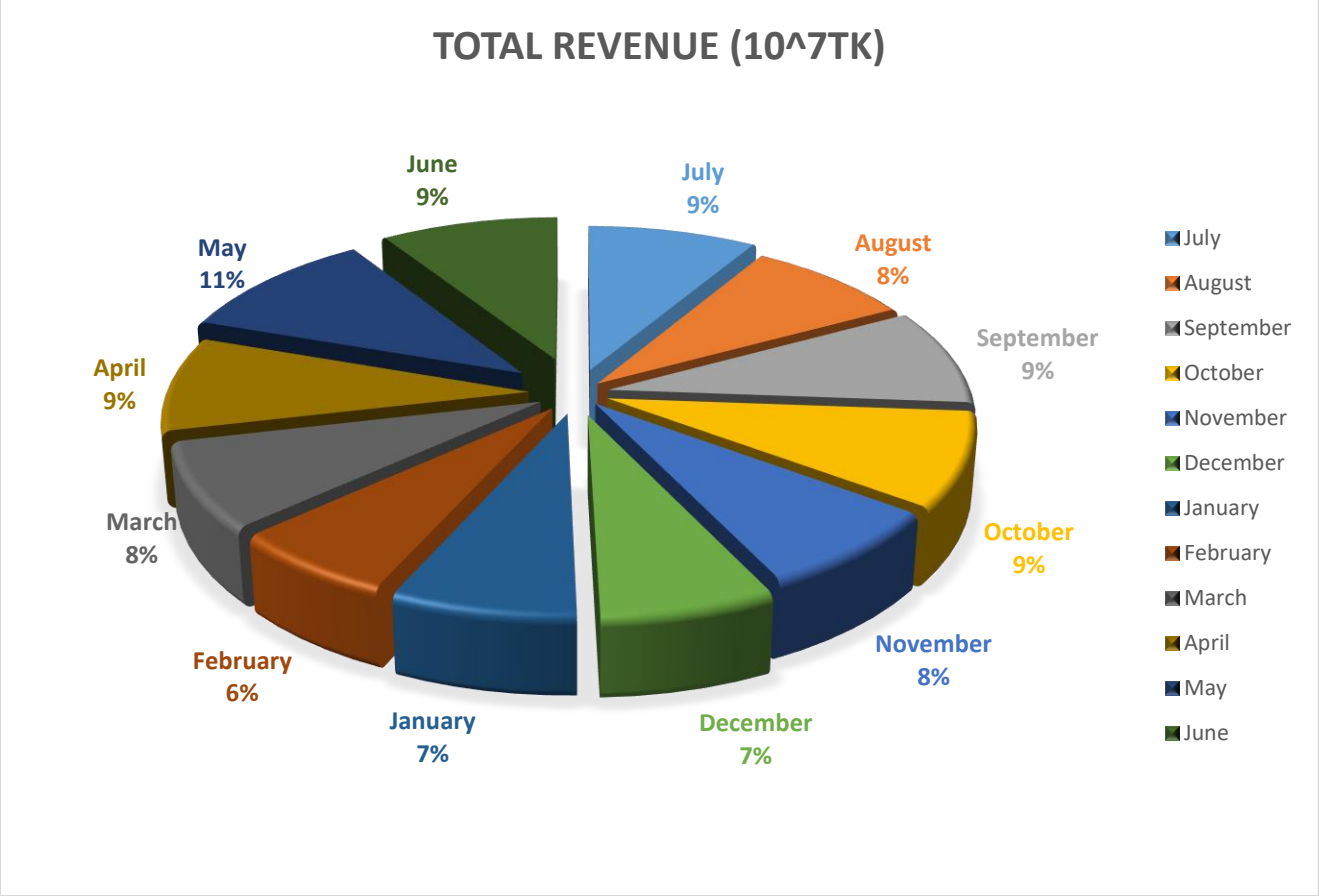


Fig 5.5: Monthly Revenue & Revenue from Other of 2017-2018 (in % of Total)

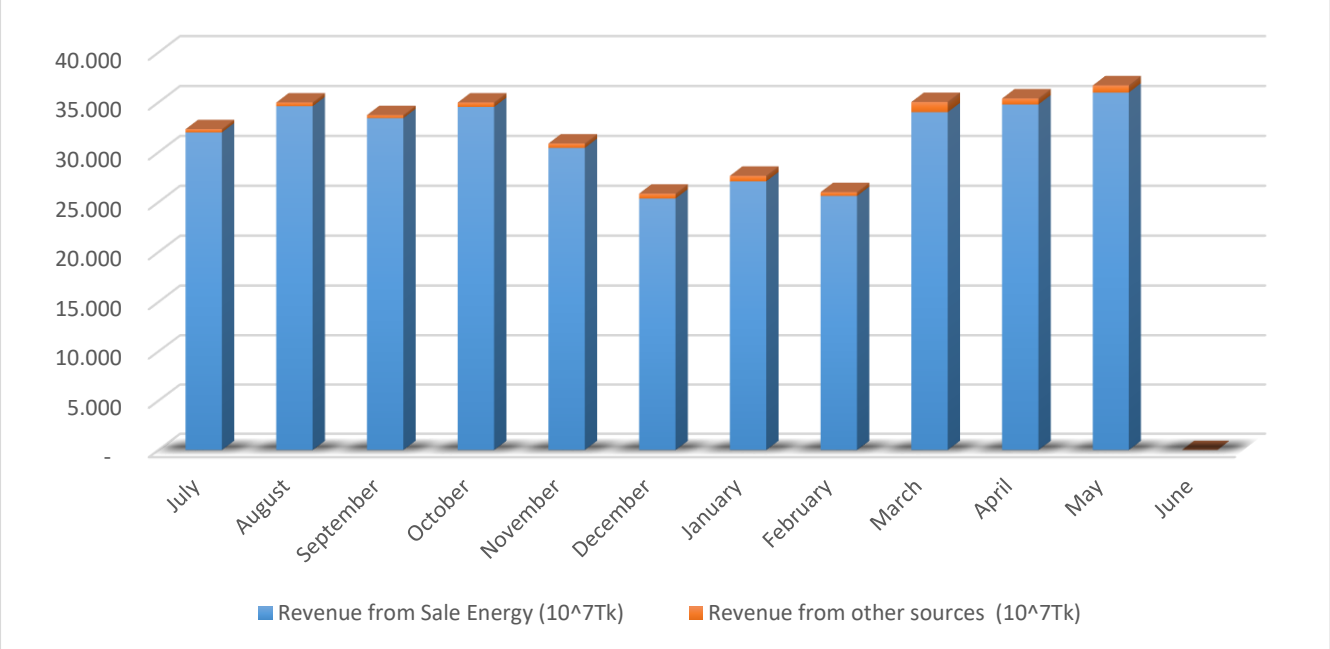


Fig 5.5: Monthly Revenue & Revenue from Other of 2018-2019 (in % of Total)

In this Graph the revenue is 11% (high) in March-16 and May-17, also revenue is 9% in and October-17, revenue is 8% in August-15 and September-17 and revenue is 8% in other months of 2017-2018 years.

5.4.1.1 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.

5.4.1.2 Revenue from others

Revenue from others is actually the 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

5.4.1.3 Other operating revenue

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

5.4.1.4 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.

5.5 Total supply cost (TC)

From purchase to supply electric energy to the consumers, the total cost is said to be the Total Supply Cost. This is the total operational expenses of a PBS. In 2017-19 fiscal year DPBS-4 showed about 131.735, 296.28,319.53 core taka as their total supply cost, where energy purchase cost was

Total supply cost (TC) = Energy Purchase Cost+ System Loss (inTk.) + Distribution cost (DC)

Fig 5.6: Monthly Total Supply Cost of DPBS 2017-18(10`7 Tk.)

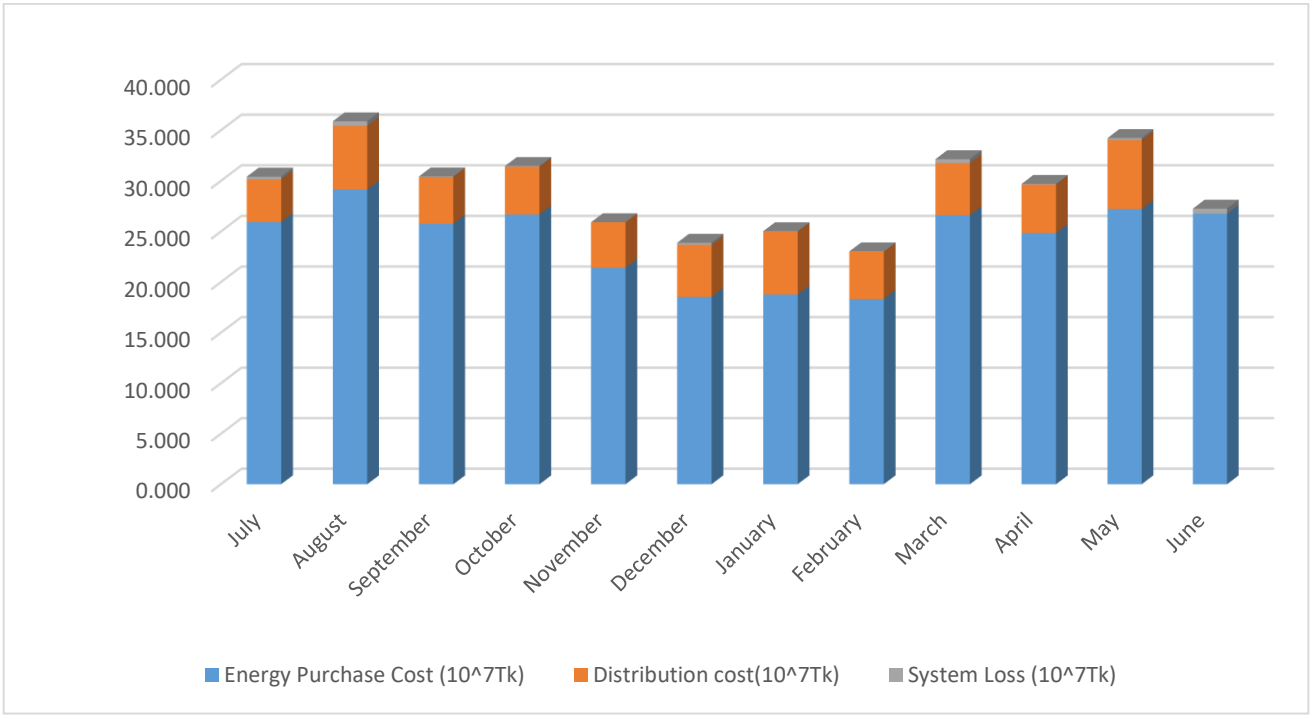
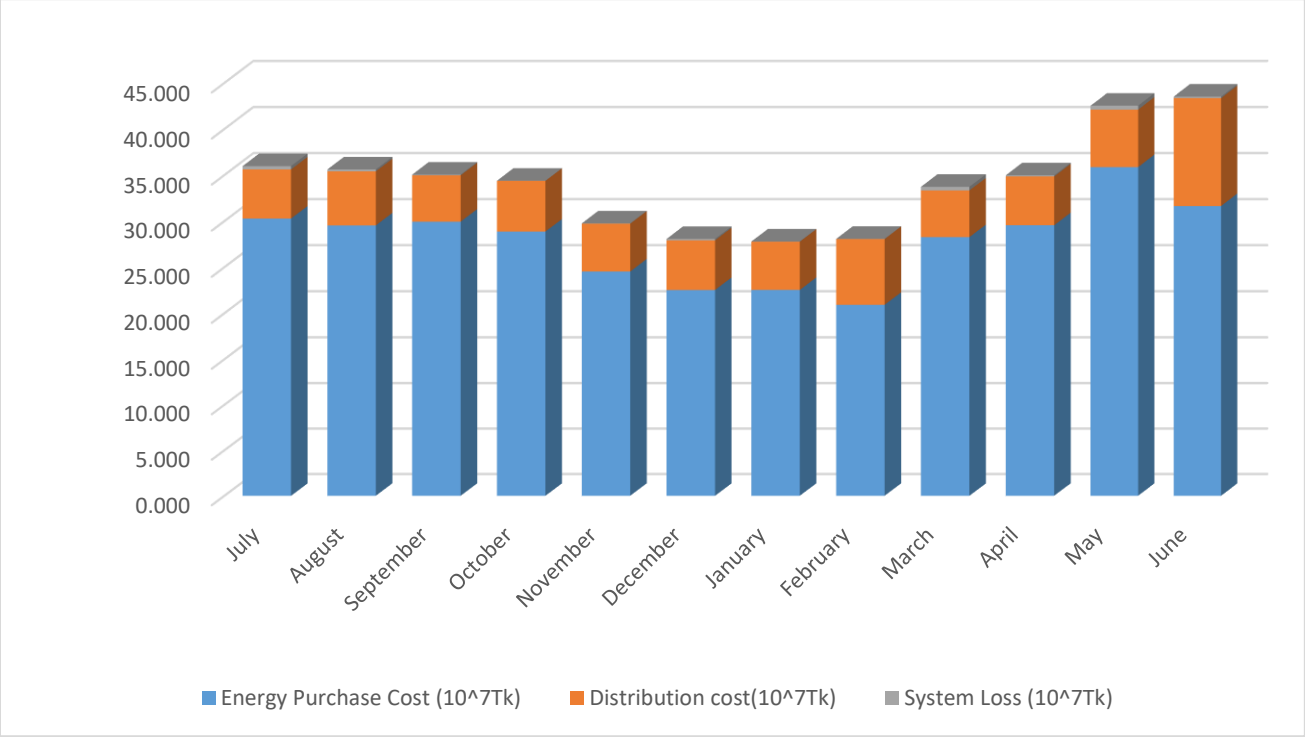


Fig 5.7: Monthly Total Supply Cost of DPBS 2018-19(10`7 Tk.)



5.6 Surplus

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

Surplus = Total Revenue - Total Supply Cost

Fig 5.8: Monthly Total Surplus of DPBS 2017-18(10`7 Tk.)

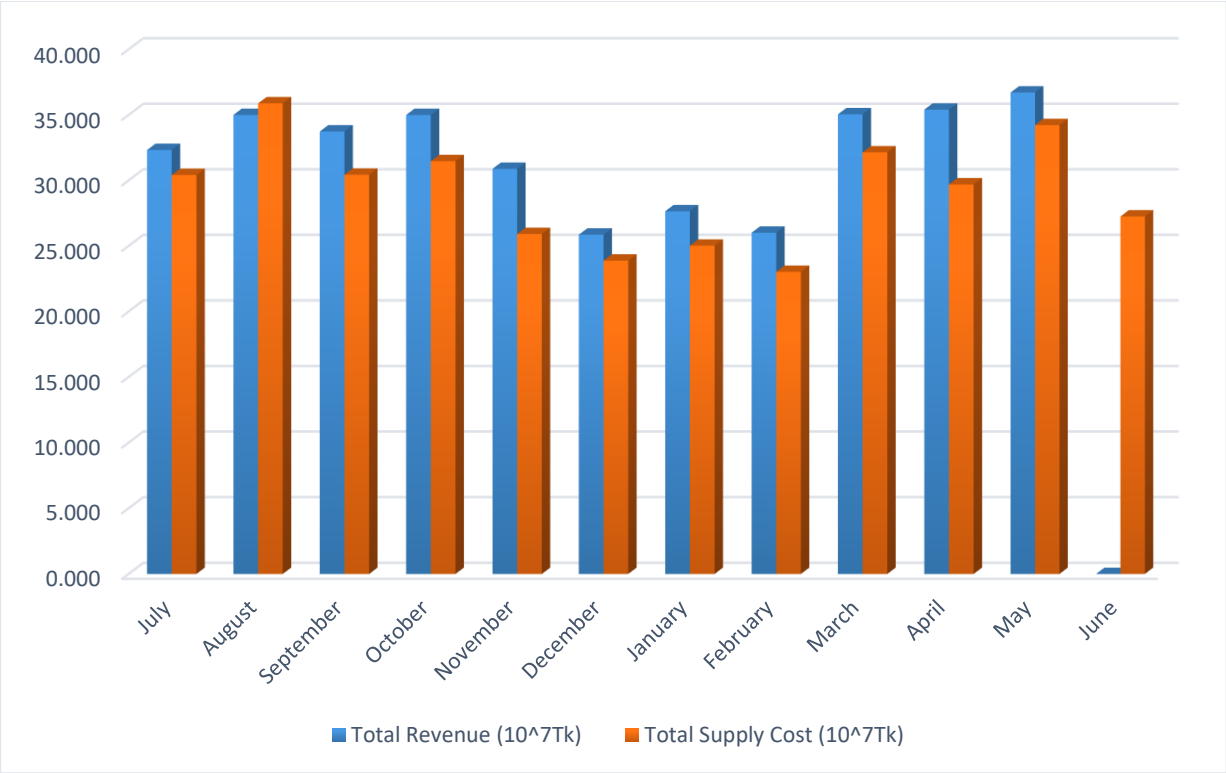
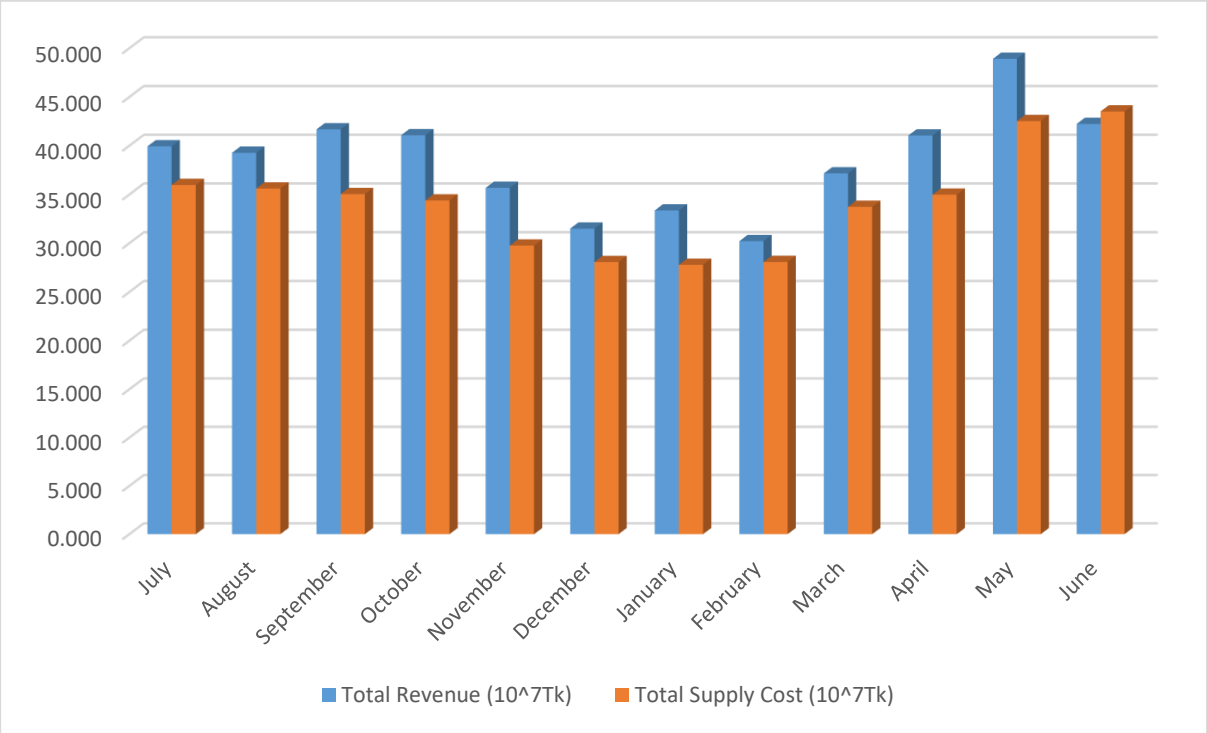


Fig 5.9: Monthly Total Surplus of DPBS 2018-19(10`7 Tk.)



5.7 Per Unit Cost Calculation

Per unit cost calculated to find cost or revenue on each unit energy that's why we assume profit and loss in short. Here we listed some per unit calculation for DPBS-4,

5.7.1 Distribution Cost (Tk/Unit)

In July, 2015 DPBS-4 had 10.590, core taka Total Supply Cost, 7.062 core taka Energy Purchase Cost and Energy sell is 13.960MU. So the Distribution cost (Tk/Unit) of July, 2015 is

Distribution Cost (Tk/Unit**) =** ((Total Supply Cost - Energy Purchase Cost) / Energy Sell)*10

= ((10.590– 7.062) / 13.960) * 10

= 25.272Tk / Unit

In July, 2016 DPBS-4 had 22.512, core taka Total Supply Cost, 8.554, core taka Energy Purchase Cost and Energy sell is 17.011MU. So the Distribution cost (Tk/Unit) of July, 2017 is

Distribution Cost (Tk/Unit**) =** ((Total Supply Cost - Energy Purchase Cost) / Energy Sell)*10

= ((22.512– 8.554) / 17.011) * 10

= 82.052Tk / Unit

5.7.2 Revenue (Tk/Unit)

In July 2015, DPBS-4 had 7.755, core taka Total Revenue and import energy 16.57 MU. So Revenue on July 2015 was,

Revenue (Tk/Unit) = (Total Revenue / Energy Import)*10

= (7.755/ 16.57) * 10

= 46.801Tk / Unit

In July 2016, DPBS-4 had 9.339, core taka Total Revenue and import energy 18.97 MU.So Revenue on July 2016 was,

Revenue (Tk/Unit) = (Total Revenue / Energy Import)*10

= (9.339/ 18.97) * 10

= 49.230 Tk / Unit

5.7.3 System Loss (Tk/Unit) (SL)

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

In July 2015 DPBS-4 had purchased 7.062 MU with 13.960core taka and Energy sell is 7.062MU. so the system loss (Tk/Unit) of July 2015 is

System loss (Tk/Unit) = ((Purchase cost/Sell Energy)-(Purchase cost/Import Energy))*10

$$= \left(\frac{7.062 \text{ core}}{13.960 \text{ MKwh}} - \frac{7.062 \text{ core}}{16.57 \text{ MKwh}}\right) * 10$$

= 0.445Tk / Unit

5.8 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 from bill month September 2017 as the following.

Table 5.5: Tariff Rates Since 2009 to 2016

Consumer Class	Slab	Before Dec,2009	09-Dec	Slab	01-Dec-11	01-Feb-12	01-Mar-12	Slab	01-Sep-12	Slab	14-Mar	15-Sep
	0-25	0	0	Minimum	0	0	0	Minimum	0	Minimum	0	0
Domestic	0-100	2.53-2.90	2.64-3.03	00-100	2.77-3.18	2.90-3.34	3.08-3.55	00-75	3.36-3.87	1-50	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	1-75	3.87	3.8
	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
Commercial		5.11-5.15	5.62-5.66	Flat	6.8	7.33	7.79	Flat	9	Flat	9.58	9.8
				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
Irrgation		2.60-3.05	2.60-3.05		2.73-3.20	2.87-3.36	3.05-3.57		3.39-3.96		3.39-3.96	3.82
General Power		3.91-4.10	4.30-4.51	Flat	5.27	5.67	6.02	Flat	6.95	Flat	7.42	7.66
				Off-peak	4.41	4.86	5.16	Off-peak	5.96	Off-peak	6.64	6.9
				Peak	6.75	6.9	7.33	Peak	8.47	Peak	9	9.24
Large Power		3.80-3.95	4.18-4.34	Flat	5.14	5.55	5.9	Flat	6.81	Flat	7.32	7.57
				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
33KV				Flat	4.88	5.28	5.61	Flat	6.48	Flat	7.2	7.49
				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

5.9 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. [18]

5.10 Summary

In this chapter, electricity rate, revenue and expenses or cost of DPBS-4 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-4 find in massive loss.

CHAPTER-6

SOCIAL FINANCIAL IMPACT OF BREB

6.1 Introduction

Extension of infrastructure in rural areas is essential for bringing down any meaningful change in the rural living patterns. Before our liberation in the year 1971, we had little facilities created for the rural people. Virtually, government had little opportunities for expansion of the distribution network in a massive scale. In 1972, Rural Electrification Directorate (under Power Development Board) was established to gear up efforts towards formation of a separate body responsible for electrifying rural areas. In 1976 NRECA conducted a feasibility study for reaching electricity to each and every rural home and other rural establishments. As a result Rural Electrification Board was formed to take up efforts at bringing down changes in rural living patterns.

Over the last 38 years, the program has reached about 433 thanes of the country, thus making it a core development program. The program has brought light to many families, hitherto remaining in complete darkness. It has given them the enlightenment towards modern lining, freedom from poverty, malnutrition and hunger. Electricity has brought many families close to the rural homes. Some of them are thinking of taking new initiatives in industrial and agricultural sectors. 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.

Literacy rate in the rural areas has increased significantly due to the expansion of mass education program. Poor workers can attend the night schools at the end of the day's business. They can also sit beside the children to supervise their education. 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. Access to resources, equality of men and women in terms of wage/employment, women trafficking, punishing criminal offences, child trafficking, acid throwing, choice of family planning use, right to participate in the election RE program have sped the other development activities in the rural areas. Many new infrastructure development NGOs (nongovernment organizations) and human development bodies have extended their activities in remote rural areas to help government 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.

6.2 Broad and Specific

The broad objective of the study was to make an assessment of economic and social impacts of Rural Electrification Program in Bangladesh. In line with the Terms of Reference and the broad objective, the specific objectives of the study were

- To design the economic and social impact evaluation study of the Rural Electrification Program that includes reconfirmation of direct (intended) objectives and identification of broader (indirect) impacts of REP, defining impact indicators, identification of relevant testable hypotheses, and development of appropriate methodology.
- To determine impact of Rural Electrification Program on the various dimensions of human development focusing on standard of living, poverty reduction and gender development.
- To evaluate the impact of Rural Electrification Program on industrial development.
- To assess the impact of Rural Electrification Program on the develop commercial activities.
- To evaluate the impact of Rural Electrification Program on the various dimensions of irrigation and agriculture.
- To put forward logically sound recommendations based on scientifically rigorous impact evaluation in line with the above objectives and the Government's Energy Policy, especially for accelerated development and poverty reduction in a sustainable way through rural electrification.

6.3 Impact on Education

Compared to the non-electrified households, the overall literacy rates for both male and female in the electrified were significantly higher, especially due to the household's access to electricity which has contributed much both in economic terms as well as in raising awareness about value of education. The rich-poor divide in literacy was also less pronounced in the electrified than that in the non-electrified households.

The quality of education measured in terms of household expenditure on education, marks (grades) obtained in the last final examinations, school drop-outs, school attendance rate, and time spent for study by students at night all found much improved in the electrified than in the no electrified household. Electricity matters in improving the quality of education. This quality improvement in the electrified households works through vary many channels more time available for study after the sunset, the quality of that time due to sufficient light and fan for comfort, strengthening the knowledge-based due to access to TV (which in turn increases the appetite for learning), parents (especially mothers/other elder female members) devote more time in assisting children's education compared to before electricity etc.

6.4 Impact on Gender Dimensions

Electrification has contributed to the positive development on women's socio-economic status.

Electricity has left a profound impact on women's mobility, decision-making, freedom in using income and savings, better utilization of credit, knowledge about gender inequality issues, household work plan according to convenience, changes in attitude in terms of reducing healthcare disparities, increase in overall years of schooling for both boys and girls, preference to send girls to schools, awareness of legal issues (as for example, marriage for girls at 18 and boys at 21), and awareness about negative impact of dowry.

Although, women in the non-electrified villages are working inside and outside home, they have less control over utilization of their earnings, decision-making; and their level of awareness of fundamental rights is low. One of the significant facts that, emerged is that if electricity is provided to them these women can benefit substantially with more power or status.

Electricity enables all members in electrified households to avail more time after sunset, in comparison with those in EV and NEV. The daily average time from sunset to sleeping is higher for all categories of household members in HE. Socio-cultural development is the most prominent

activity after sunset for household of their electrification status. Watching TV/listening radio is the major activity for senior members both male and female in HE followed by socialization. Business, emerging as the most prominent activity signifies increased economic activities in the region as has been reflected with higher time spent by EV in comparison with NEV.

Electricity plays the role of a catalyst in having a quality education both by extended time period and by creating comfortable environment through electrical appliances. For landless electrified household, longer study hours for students and more time spent for socio-cultural development by the female household heads, acted as a catalyst for reducing human poverty. Higher allocation of time by the male household heads, the principal earner of the family in most cases, can contribute in reducing income poverty in an indirect fashion. The interplay of all those, actually create the environment for new opportunities to overcome the hardship of poverty.

Providing electricity at the household level is crucial to ensure better standard of living as the effective use of time shapes up the life style for each individual concerned. Given the study results, the better use of additional time attributed to electricity, has facilitated the electrified household members to explore new range of activities as well as extended time period for the old ones. Comparing the pre and post electrification time allocation pattern for electrified household members, the study results revealed increased time allocation for activities like income generating activities or watching TV, which address income as well as human poverty. In the electrified household, reduced household chore for female members and reduced gender gap in terms of daily average time for studying is clearly indicative of improved gender status. Thus, it can be recommended that to ensure better use of time after sunset by efficient allocation across different activities, it will be important to provide electricity at the household level.

Electricity available at the household level should be a priority from the perspective of poverty reduction and women empowerment too, as the study revealed improved gender status in HE in the post - electrification period. Dominant spillover effect reported by higher difference in terms of time allocation between HE and WE-NEV, also rationalize the provision of electricity at the community level to ensure environment conducive to economic growth and higher standard of living.

6.5 Impact on Irrigation and Agricultural Production:

In agriculture, REB has contributed significantly in attaining food self-sufficiency through use of productive and efficient irrigation equipment's, and generated stable employment opportunities. Electrified irrigation equipment in general are more dependable compared to diesel operated. Both operational cost and energy cost of electrified equipment, on average, three-fourths as compared to those of diesel operated ones. Electrified irrigation equipment creates employment for two persons for almost half of the year and with the electrification of irrigation equipment, more than one hundred

thousand additional employments have been created throughout the year in rural areas of the country. As land use intensity and cropping intensity through electrified equipment is higher and cost of operation of the same is lower (including breakdown and associated problems) in comparison with diesel equipment, electrified irrigation has got distinct advantages over other types of irrigation.

As the contribution of electricity is evidentially clear in the agriculture sector of Bangladesh, therefore, more generation of electricity, on the one hand, and better distribution of the same, on the other, is recommended. The REB needs to entertain its initial mission of connecting all irrigation pumps and think its mission/goal about engaging itself into generation of electricity too.

6.6 Impact on Mass Media

With all the fluctuations in the movement of households, industrial and irrigational electrified area from one asset group to another, as compared to the non-electrified area, the electrified area have shown a much progressive trend in their economic strengths measured through upward movement of the people asset situation.

6.7 Summary

The program in Bangladesh has already witnessed with manifold and for reaching socioeconomic impact in the electrified areas as stated above. A recent USAID study's findings and assessments about impact of the rural electrification program in Bangladesh are the following:-

1. Presently 55.41% villages and 5.08 million rural households are electrified and no. of beneficiaries are 30.5 million.
2. 93.7% at the electrified households (HHs) reported decrease in fuel cost. Average electrified HHs monthly Kerosene savings 1.7 liters in comparison to non-electric HHs, which is 8.6-million liter Kerosene, and of value US$ 3.74 million.
3. Literacy rate in the electrified HHs is 71%, where 54% in the un-electrified HHs.
4. Electrified HHs use daily 50 minutes more than that of non-electrified HHs between sunset and sleep.
5. In the electrified HHs students study 23 minutes more than the non-electrified HHs daily.
6. 78.2% HHs reported an increase on working house.
7. 62.0 % HHs reported an increase in HHs income.
8. 81% HHs reported an increase in reading habits
9. 93.7% reported an increase in children's study time.
10. 92.0% reported an increase in amusement as well as standard of living.
11. 94.7% reported an improvement in security.

12. Electrified HHs per capita daily food intake 96 gram, 164 Kil. Cal. and per capita protein 46 gram more than that of non-electrified HHs.
13. The annual infant mortality rate in the electrified HHs is 42.7/1000 live births, in the non-electrified HHs 57.8/1000. Thus annual number of infant deaths that could be saved will be around 36818, i.e., a saving of 101 infant deaths every day.
14. About 68% of currently married women in the electrified HHs reported of using contraceptive methods, where in the non-electrified HHs the rate is 63%.
15. 61% electrified HHs use hygiene latrine, where only 29% non-electrified HHs use the same latrine.
16. Over 50% Electrified HHs possess TV, TV watching was reported by 70% HHs.
17. Women of the electrified HHs watch TV by 65 minutes; use 56 minutes in income generating and 161 minutes in socio-cultural activities at night daily.
18. 64% women of the electrified HHs reported TV as the main source of knowledge.
19. 11% women of the electrified HHs involve in income generating in handicraft/sewing activities.
20. 53% women of the electrified HHs reported allowing young girls/women to work outside the village.
21. 71% women of the electrified HHs reported that a couple should have two children.
22. Around 25% electrified HHs have radio sets, 39% women listen radio on an average about 27 minutes per day
23. About 18.8 million Bulb, 2.3 million tube light, 8.5 million electric fan, 2.7 million TV, 1.5 million electric iron, .3 million refrigerator, .2 million mobile phone, .1 million juice machine are using in the electrified HHs.
24. Each electric irrigation pump (DTW/STW/LLP) has 12 acres more command area than diesel pumps.
25. Yield of rice by each electric pump 68 kg more than that produced by diesel pump.
26. Total operation cost (price of pump, material cost, labor cost) of each electric pump is US$111 less than that of diesel pump.
27. Annual energy cost (diesel) saving by all electric pumps $2.41 million by not using diesel.
28. Out of all electrified industries 38.5% are as food manufacturing, 20.5% as textile, 13.5% as wood/wood product, 10.3% as metal/metal product, 12.8% as handicrafts, 4.4% as others.
29. Electrified shops remain open about 99 more minutes after sunset in comparison with the un-electrified shops.

30. Creates 5.06 million direct employment opportunities in the electrified irrigation pumps, industries and commercial shops.

Based on the empirical findings presented above it would be pertinent to conclude that rural electricity has profound and far-reaching economic, socio-cultural and demographic impacts on life and living of the rural people in Bangladesh. It has significant and sustained impact on agricultural growth, industrialization and business and commercial activities. It has impact on human capital formation through knowledge building mediated through electricity-driven media exposure. Thus, in order to accelerate the process of economic growth, strengthening pro-poor orientation in the growth process, attain the millennium development goal with an emphasis to PRSP and to further boost up human development in Bangladesh access to electricity of the households and social and economic institutions should be expanded within shortest time.

CHAPTER 7

CONCLUSIONS

7.1Conclusions

Electricity distribution cost is important issue in our country. Because electricity tariff rate and distribution cost are related with our economic growth. When electricity tariff rate becomes high then poor people of our country suffers 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 step for improvement our power station. In our power station, generators efficiency rate is low. It should be increased to a high value by taking necessary steps.

7.2 Limitations of the Work

There are few limitations I have faced are mentioned below-

- In this study the data of SPBS. I have used are collected from BERC (Bangladesh Energy Regulatory Commission) but some of these data are assumption.
- The distribution cost of SPBS 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 of several power plants. But the tariff rate of electric power 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 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, we discussed about Distribution cost of a PBS, how to calculate, with example. We 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.

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APPENDIX- A

1. Organization and function of BREB

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 Palli Bidyut Samity (PBS).These PBS consists of several members. But PBS is directed by a member of REB.A organization chart of REB is given below:

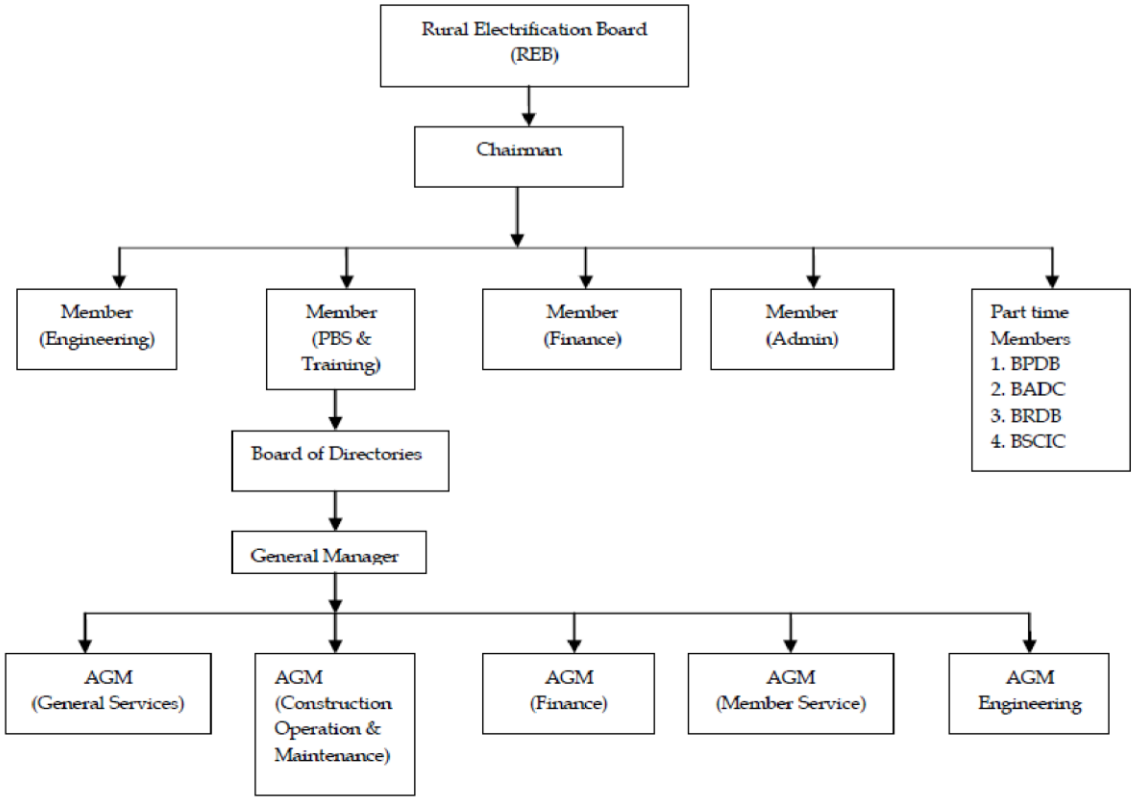

Fig9.1.Organogram of REB

APPENDIX- B

Formula According to Thesis

Total revenue = Revenue from sales of energy + revenue from others

Revenue from others = other operating revenue + Non-operating Margins- interest+ No-operating Margins-Others

Distribution cost = Operation & maintenance+ 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 = $\frac{\text{Total Unit kWh(Purchase)}}{(\text{Total Peak demand} \times 1000) \times 24 \times 30)} \times 100$

Unit 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 values

APPENDIX- C

1. As per Energy Import Data of DPBS-4 (2017-2018) & (2018-2019)

Import point	July'17			August'17		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	12,276,961			12,881,799		
Zinzira Ckt-2 (HAS)	11,308,555			11,682,226		
Hasnabad T-3(HAS)	4,712,832			5,193,024		
Hasnabad T-4(HAS)	4,149,888			4,474,032		
Munshigonj PBS-33	0			0		
132 KV Auxilary	19,163			20,160		
230 KV Auxilary	6,550			15,191		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,942,460			3,065,544		
Pangaon(HAS)	11,248,200			11,936,988		
Bus Loss	90,933	52,045,175	9.51	74,733	57,039,856	**11.76**
Aganagar(HAS)	6,619,378			8,573,450		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	5,309,637			5,553,420		
Dohar 33KVA	-314,118			314,118		
Hoglagati (OLD)	-856,705			856,705		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**57,513,734**			**64,641,390**		

Import point	September'17			October'17		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	11,492,187			11,197,765		
Zinzira Ckt-2 (HAS)	10,166,994			9,153,069		
Hasnabad T-3(HAS)	4,015,536			4,717,104		
Hasnabad T-4(HAS)	4,051,776			4,405,104		
Munshigonj PBS-33	0			0		
132 KV Auxilary	19,728			18,070		
230 KV Auxilary	12,628			15,191		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,349,036			2,267,874		
Pangaon(HAS)	9,692,028			9,310,788		
Bus Loss	96,157	54,726,101	4.22	80,262	56,114,840	**5.15**
Aganagar(HAS)	6,607,419			8,220,006		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	8,633,255			9,776,161		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**57,136,744**			**59,161,394**		

Import point	November'17			December'17		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	8,527,458			7,516,473		
Zinzira Ckt-2 (HAS)	8,355,563			7,198,738		
Hasnabad T-3(HAS)	3,764,928			3,181,392		
Hasnabad T-4(HAS)	3,502,224			3,107,232		
Munshigonj PBS-33	0			0		
132 KV Auxilary	14,010			10,640		
230 KV Auxilary	14,740			6,857		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,286,540			1,456,074		
Pangaon(HAS)	6,718,464			7,645,212		
Bus Loss	61,490			53,309		
Aganagar(HAS)	6,720,050	46,975,076	1.10	5,249,295	37,004,427	**10.00**
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	7,533,335			5,692,224		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**47,498,802**			**41,117,446**		

Import point	January'18			February'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	7,506,373			7,967,039		
Zinzira Ckt-2 (HAS)	7,244,668			7,055,142		
Hasnabad T-3(HAS)	3,045,408			2,989,104		
Hasnabad T-4(HAS)	2,918,592			2,981,760		
Munshigonj PBS-33	0			0		
132 KV Auxilary	9,434			9,508		
230 KV Auxilary	0			0		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	1,729,566			2,009,538		
Pangaon(HAS)	7,302,312			6,355,368		
Bus Loss	58,350	39,878,133	4.15	63,389	38,569,117	**5.16**
Aganagar(HAS)	5,403,517			5,677,994		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	6,388,471			5,557,888		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**41,606,691**			**40,666,730**		

Import point	March'18			April'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	11,967,476			9,716,710		
Zinzira Ckt-2 (HAS)	10,561,383			10,281,794		
Hasnabad T-3(HAS)	4,686,672			4,400,208		
Hasnabad T-4(HAS)	4,298,400			4,028,064		
Munshigonj PBS-33	0			0		
132 KV Auxilary	16,322			15,818		
230 KV Auxilary	12,992			57,712		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,591,244			2,391,408		
Pangaon(HAS)	7,663,680			10,073,304		
Bus Loss	35,507	52,222,090	11.48	64,287	52,487,957	**4.70**
Aganagar(HAS)	8,995,273			8,549,628		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	8,165,620			5,498,960		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**58,994,569**			**55,077,893**		

Import point	May'18			June'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	11,623,174			11,973,062		
Zinzira Ckt-2 (HAS)	10,868,528			11,005,829		
Hasnabad T-3(HAS)	4,755,984			4,603,728		
Hasnabad T-4(HAS)	4,247,952			4,117,536		
Munshigonj PBS-33	0			0		
132 KV Auxilary	14,071			16,826		
230 KV Auxilary	14,998			16,725		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,604,834			2,475,900		
Pangaon(HAS)	9,589,392			10,117,188		
Bus Loss	78,994	55,493,572	8.04	69,289	51,714,469	**12.82**
Aganagar(HAS)	9,586,783			8,312,605		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	6,958,696			6,612,124		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**60,343,406**			**59,320,812**		

Import point	July'18			August'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	14,490,104			14,361,576		
Zinzira Ckt-2 (HAS)	13,303,579			11,989,659		
Hasnabad T-3(HAS)	5,037,792			4,618,032		
Hasnabad T-4(HAS)	4,708,656			4,428,528		
Munshigonj PBS-33	0			0		
132 KV Auxilary	17,036			18,733		
230 KV Auxilary	17,203			16,911		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,912,256			2,804,634		
Pangaon(HAS)	10,076,112			10,078,380		
Bus Loss	66,965	60,216,849	10.32	78,443	60,211,036	**8.06**
Aganagar(HAS)	9,762,819			8929550		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	6,751,332			8,162,544		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**67,143,854**			**65,486,990**		

Import point	September'18			October'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	14,175,233			11,912,988		
Zinzira Ckt-2 (HAS)	11,924,354			10,906,173		
Hasnabad T-3(HAS)	4,980,146			4,690,536		
Hasnabad T-4(HAS)	4,719,696			4,386,384		
Munshigonj PBS-33	0			0		
132 KV Auxilary	17,614			13,936		
230 KV Auxilary	17,002			16,552		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,902,212			2,800,638		
Pangaon(HAS)	10,761,227			11,022,588		
Bus Loss	74,278	63,265,124	4.71	74,319	62,514,452	**2.34**
Aganagar(HAS)	0			9,314,340		
Aganagar 2 (HAS)	8,491,037			0		
BSIC	0			0		
Dohar from HAS	8,330,764			8,872,140		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**66,393,563**			**64,010,594**		

Import point	November'18			December'18		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	9,170,779			7,733,528		
Zinzira Ckt-2 (HAS)	8,815,498			7,790,610		
Hasnabad T-3(HAS)	3,728,496			3,197,904		
Hasnabad T-4(HAS)	3,396,960			2,587,056		
Munshigonj PBS-33	0			0		
132 KV Auxilary	10,959			8,413		
230 KV Auxilary	12,395			11,876		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,221,848			1,918,026		
Pangaon(HAS)	10,060,704			10,166,760		
Bus Loss	47,745	52,760,306	3.02	64,880	46,029,924	**7.82**
Aganagar(HAS)	7,907,070			5,685,401		
Aganagar 2 (HAS)	0			0		
BSIC	0			0		
Dohar from HAS	9,028,940			10,392,288		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			380,581		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**54,401,394**			**49,937,323**		

Import point	January'19			February'19		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	7,937,091			6,883,880		
Zinzira Ckt-2 (HAS)	7,555,357			7,512,374		
Hasnabad T-3(HAS)	3,234,192			3,184,128		
Hasnabad T-4(HAS)	2,679,792			2,647,824		
Munshigonj PBS-33	0			0		
132 KV Auxilary	7,454			8,044		
230 KV Auxilary	11,676			13,284		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	1,901,160			1,740,780		
Pangaon(HAS)	9,611,532			9,138,780		
Bus Loss	41,258	48,786,766	2.35	72,247	45,104,199	**2.73**
Aganagar(HAS)	5,748,953			5,893,488		
Aganagar 2 (HAS)	0			-		
BSIC	0			0		
Dohar from HAS	11,230,350			9,277,270		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	0			0		
Bosundahara	0			0		
Total	**49,958,815**			**46,372,099**		

Import point	March'19			April'19		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	10,112,733			11,594,218		
Zinzira Ckt-2 (HAS)	10,110,114			11,893,523		
Hasnabad T-3(HAS)	4,374,768			4,322,928		
Hasnabad T-4(HAS)	3,799,920			3,800,976		
Munshigonj PBS-33	0			0		
132 KV Auxilary	14,120			16,236		
230 KV Auxilary	14,437			12,448		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,364,966			2,013,066		
Pangaon(HAS)	11,851,560			7,440,984		
Bus Loss	35,693	55,645,734	11.20	112,418	61,431,139	**6.26**
Aganagar(HAS)	8,878,473			119,520		
Aganagar 2 (HAS)	0			8,897,725		
BSIC	0			0		
Dohar from HAS	11,088,916			6,303,858		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	18,540			8,272,980		
Bosundahara	900			730,980		
Total	**62,665,140**			**65,531,860**		

Import point	May'19			June'19		
	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %
Zinzira Ckt-1 (HAS)	13,661,374			9,935,002		
Zinzira Ckt-2 (HAS)	11,584,519			11,970,433		
Hasnabad T-3(HAS)	4,654,656			3,839,088		
Hasnabad T-4(HAS)	4,049,424			3,299,424		
Munshigonj PBS-33	0			0		
132 KV Auxilary	21,820			18,536		
230 KV Auxilary	14,507			12,766		
Lalbag CKT-1 (HAS)	0			0		
Grid Complaint Center	0			0		
Hasnabad T-8(HAS)	2,446,398			2,185,542		
Pangaon(HAS)	6,418,260			4,426,668		
Bus Loss	108,926	71,285,074	10.36	97,742	65,327,887	**6.89**
Aganagar(HAS)	11,496,600			7,314,660		
Aganagar 2 (HAS)	6,091,500			6,401,000		
BSIC	0			0		
Dohar from HAS	4,402,983			6,742,715		
Dohar 33KVA	0			0		
Hoglagati (OLD)	0			0		
Hoglagati (New)	0			0		
Generation Import	0			0		
Zinzira Ckt-3	12,411,540			11,096,460		
Bosundahara	2,160,540			2,819,340		
Total	**79,523,047**			**70,159,376**		

2. As per Monthly Revenue Data of DPBS-4 (2017-2018) & (2018-2019)

Customer Class	Tariff Rate	July'17						August'17					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		14852	0.09		0.00	93,350	0.06	13236	0.08		0.00	88,500	0.09
0-50	2.76	175373	1.12	8593	14.30	698,872	0.43	165635	0.99	8090	13.33	658,061	0.64
0-75	3.41	274678	1.76	4193	6.98	1,042,835	0.65	275286	1.64	4213	6.94	1,046,086	1.02
76-200	4.74	3857529	24.67	27869	46.39	19,019,145	11.81	4065297	24.20	28369	46.74	19,560,462	19.09
201-300	4.67	2798565	17.89	11350	18.89	13,359,579	8.30	2884691	17.17	11704	19.28	13,770,094	13.44
301-400	4.90	1608287	10.28	4630	7.71	8,009,958	4.98	1645193	9.79	4741	7.81	8,192,627	7.99
401-600	5.59	1280749	8.19	2689	4.48	72,344,857	44.94	1331906	7.93	2798	4.61	7,521,550	7.34
600++	7.12	589253	3.77	750	1.25	4,214,650	2.62	608351	3.62	779	1.28	4,333,682	4.23
Total		**10599286**	**67.77**	**60074**	**100%**	**118,783,246**	**73.78**	**10989595**	**65.42**	**60694**	**100%**	**55,171,062**	**53.84**
Commercial		1305048	8.34	4376		13,199,707	8.20	1371133	8.16	4436		13,556,979	13.23
Charitable	5.40	179437	1.15	518		972,732	0.60	199894	1.19	520		1,079,191	1.05
Irrigation	5.09	2063	0.01	15		9,859	0.01	680	0.00	11		3,868	0.00
General Power		752426	4.81	683		6,128,252	3.81	902174	5.37	1383		7,298,207	7.12
Large Power	6108.80	2801201	17.91	107		21,899,783	13.60	3336147.4	19.86	107		25,368,950	24.76
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	7.17	90	0.00	2		646	0.00	90	0.00	2		646	0.00
Grand Total		**15,639,551**	**100%**	**65,775**		**160,994,225**	**100%**	**16799713.40**	**100%**	**67,153**		**102,478,903**	**100%**

Customer Class	Tariff Rate	September'17						October'17					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		13666	0.07		0.00	90,725	0.09	14938	0.09		0.00	91,900	0.09
0-50	2.73	160260	0.84	8055	13.10	640,018	0.66	176428	1.11	8538	13.80	704,605	0.72
0-75	3.41	263578	1.38	4021	6.54	1,001,682	1.03	300827	1.88	4591	7.42	1,143,782	1.17
76-200	4.80	3840642	20.05	28182	45.84	19,159,275	19.61	4152533	26.02	30242	48.87	20,222,855	20.64
201-300	4.67	3006104	8.00	12204	19.85	14,348,368	14.68	2740632	17.17	11140	18.00	13,080,389	13.35
301-400	4.90	1771419	9.25	5106	8.30	8,821,583	9.03	1524917	9.55	4401	7.11	7,592,531	7.75
401-600	5.60	1456113	7.60	3053	4.97	8,238,856	8.43	1111505	6.96	2342	3.78	6,264,105	6.39
600++	7.14	683654	3.57	863	1.40	4,905,760	5.02	506288	3.17	632	1.02	3,648,795	3.72
Total		**11195436**	**58.46**	**61484**	**100%**	**57,206,267**	**58.55**	**10528068**	**65.97**	**61886**	**100%**	**52,748,962**	**53.84**
Commercial		1327913	6.93	4504		13,553,324	13.87	1298388	8.14	4550		13,142,353	13.41
Charitable	5.36	187455	0.98	521		1,013,048	1.04	187408	1.17	521		1,013,579	1.03
Irrigation	4.86	679	0.00	8		3,694	0.00	516	0.00	8		2,921	0.00
General Power	8.18	1429147	7.46	1430		5,957,781	6.10	878176	5.50	732		7,086,653	7.23
Large Power	8.02	5009914	26.16	108		19,974,913	20.44	3066786.8	19.22	111		23,980,549	24.48
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	7.17	90	0.00	2		646	0.00	90	0.00	2		646	0.00
Grand Total		**19,150,634**	**100%**	**68,057**		**97,709,673**	**100%**	**15959432.80**	**100%**	**67,810**		**97,975,663**	**100%**

Customer Class	Tariff Rate	November'17						December'17					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		21958	0.13		0.00	113,050	0.13	0	0.00		0.00	0	0.00
0-50	2.86	271850	1.55	12059	19.36	1,081,155	1.20	467261	3.10	18344	29.15	1,719,141	2.18
0-75	3.41	432923	2.47	6620	10.63	1,645,503	1.83	669134	4.44	10272	16.32	2,676,416	3.39
76-200	5.31	3557461	20.29	30684	49.25	19,681,859	21.88	3178811	21.08	27912	44.35	17,892,455	22.65
201-300	4.66	2049015	11.69	8340	13.39	9,777,192	10.87	1087634	7.21	4463	7.09	5,490,592	6.95
301-400	4.90	960911	5.48	2784	4.47	4,782,260	5.32	425481	2.82	1232	1.96	2,247,727	2.84
401-600	5.59	697349	3.98	1467	2.35	3,935,076	4.37	268170	1.78	569	0.90	1,607,340	2.03
600++	7.17	278698	1.59	348	0.56	2,008,341	2.23	116360	0.77	138	0.22	912,920	1.16
Total		**8270165**	**47.18**	**62302**	**100%**	**43,024,436**	**47.83**	**6212851**	**41.19**	**62930**	**100%**	**32,546,591**	**41.19**
Commercial		1102835	6.29	4606		12,223,910	13.59	1050611	6.97	4863		11,224,277	14.21
Charitable	5.43	128300	0.73	523		705,588	0.78	77790	0.52	525		511,064	0.65
Irrigation	4.59	1350	0.01	10		6,630	0.01	-1920	-0.01	8		-7,160	-0.01
General Power	9.19	1547808	8.83	741		6,770,504	7.53	1408032	9.34	548		6,361,994	8.05
Large Power	9.03	6479835.25	36.96	118		27,216,702	30.26	6334270.283	42.00	119		28,374,299	35.91
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	7.17	90	0.00	2		646	0.00	90	0.00	2		774	0.00
Grand Total		**17530383.25**	**100%**	**68,302**		**89,948,416**	**100%**	**15081724.28**	**100%**	**68,995**		**79,011,839**	**100%**

Customer Class	Tariff Rate	January'18						February'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0.00	0.00	0	0.00		0.00	0	0.00
0-50	2.72	586136	5.34	22395	35.32	2156636.50	2.88	596395	3.54	22707	35.47	2,193,121	2.94
0-75	3.61	769764	7.01	11913	18.79	3080110.60	4.11	778307	4.63	12017	18.77	3111614.25	4.17
76-200	5.07	2941675	26.79	24395	38.48	15528110.25	20.74	3146415	18.70	24602	38.43	15,527,493	20.79
201-300	4.94	793730	7.23	3267	5.15	4007398.00	5.35	775076	4.61	3212	5.02	3916770.50	5.24
301-400	5.21	293333	2.67	851	1.34	1551533.00	2.07	318839	1.89	924	1.44	1,687,293	2.26
401-600	5.94	214276	1.95	454	0.72	1285894.00	1.72	197695	1.17	410	0.64	1,207,918	1.62
600++	7.79	105227	0.96	126	0.20	823220.00	1.10	132268	0.79	143	0.22	1,063,871	1.42
Total		**5704141**	**51.96**	**63401**	**100%**	**28432902.35**	**37.98**	**5944995**	**35.33**	**64015**	**100%**	**28708080.25**	**38.43**
Commercial		976070	8.89	4943		10475505.05	13.99	944391	5.61	4944		10,296,998	13.79
Charitable	5.96	72326	0.66	526		439458.00	0.59	73364	0.44	528		427,029	0.57
Irrigation	4.04	15276	0.14	23		61449.00	0.08	8067935	47.95	10264		229,068	0.31
General Power		812451	7.40	533		6822080.00	9.11	1090621	6.48	1761		6,489,905	8.69
Large Power		3398618.4	30.96	119		28626497.00	38.24	664023	3.95	109		28,544,677	38.21
33 KV	0.00	0	0.00	0		0.00	0.00	23968	0.14	1		0	0.00
Street Light	8.53	90	0.00	2		704.00	0.00	17511	0.10	38		774	0.00
Grand Total		**10978972.40**	**100%**	**69,547**		**74858595.40**	**100%**	**16,826,808**	**100%**	**81,660**		**74696531.25**	**100%**

Customer Class	Tariff Rate	March'18						April'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00		0.00	0	0.00
0-50	2.65	373108	2.53	15351	23.75	1,374,309	1.45	299953	2.02	12681	19.61	1,106,454	1.14
0-75	3.62	568097	3.85	8693	13.45	2,276,133	2.40	460620	3.11	7043	10.89	1,844,729	1.91
76-200	4.62	4252546	28.84	30954	47.90	20,421,483	21.52	4290015	28.93	32179	49.76	21,733,482	22.46
201-300	4.95	1583287	10.74	6489	10.04	8,004,374	8.43	2035748	13.73	8325	12.87	10,288,829	10.63
301-400	5.21	684384	4.64	1987	3.07	3,620,963	3.82	945293	6.37	2735	4.23	5,002,534	5.17
401-600	5.94	420106	2.85	889	1.38	2,521,592	2.66	628089	4.24	1323	2.05	3,779,939	3.91
600++	7.75	222569	1.51	264	0.41	1,732,383	1.83	326473	2.20	385	0.60	2,543,555	2.63
Total		**8104097**	**54.97**	**64627**	**100%**	**39,951,237**	**42.09**	**8986191**	**60.59**	**64671**	**100%**	**46,299,522**	**47.84**
Commercial		1229166	8.34	4923		13,077,864	13.78	1242477.114	8.38	4933		13,190,193	13.63
Charitable	5.89	172578	1.17	528		735,449	0.77	148675	1.00	531		886,924	0.92
Irrigation	4.33	98398	0.67	50		416,977	0.44	47515	0.32	49		190,795	0.20
General Power		979674	6.64	523		8,321,784	8.77	956513	6.45	520		8,004,784	8.27
Large Power	107.81	4159936.36	28.21	121		32,406,358	34.14	3448968	23.26	122		28,211,290	29.15
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	8.53	90	0.00	2		774	0.00	90	0.00	2		774	0.00
Grand Total		**14743939.36**	**100%**	**70,774**		**94,910,443**	**100%**	**14830429.11**	**100%**	**70,828**		**96,784,282**	**100%**

Customer Class	Tariff Rate	May'18						June'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00	0	0.00	0	0.00
0-50	2.63	282646	1.84	11830	18.18	1,040,740	1.03	244358	1.68	10771	16.43	902,508	0.97
0-75	3.62	432325	2.81	6627	10.19	1,734,158	1.72	368853	2.53	5636	8.60	1477319.5	1.59
76-200	4.80	4509662	29.34	33477	51.46	22,526,494	22.35	4650846	31.92	33834	51.61	23458014.5	25.23
201-300	4.94	2079489	13.53	8503	13.07	10,505,240	10.42	2357800	16.18	9639	14.70	11,918,618	12.82
301-400	5.21	990742	6.45	2866	4.41	5,240,015	5.20	1182001	8.11	3424	5.22	6,254,808	6.73
401-600	5.97	664441	4.32	1394	2.14	4,003,477	3.97	841641	5.78	1777	2.71	5,046,816	5.43
600++	7.72	298639	1.94	358	0.55	2,316,226	2.30	387956	2.66	471	0.72	3,000,779	3.23
Total		**9257944**	**60.24**	**65055**	**100%**	**47366350.25**	**47.00**	**10033455**	**68.87**	**65552**	**100%**	**52,058,863**	**55.99**
Commercial		1279204	8.32	4966		13,609,733	13.51	1366966	9.38	5003		14,490,440	15.58
Charitable	5.90	149196	0.97	531		889,962	0.88	201376	1.38	537		1,191,746	1.28
Irrigation	4.16	7654	0.05	50		31,381	0.03	1196	0.01	25		5,159	0.01
General Power		1013127	6.59	517		8,808,345	8.74	640565	4.40	519		5,438,531	5.85
Large Power	373.73	3661072.8	23.82	121		30,067,317	29.84	2324926.825	15.96	120		19,792,784	21.29
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	8.53	90	0.00	2		544	0.00	90	0.00	2		899	0.00
Grand Total		**15368287.8**	**100%**	**71,242**		**100773631.8**	**100%**	**14568574.83**	**100%**	**71,758**		**92,978,422**	**100%**

Customer Class	Tariff Rate	July'18						August'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum	0.00	0	0.00		0.00	0	0.00	0	0.00		0.00		0.58
0-50	2.50	194686	1.06	9309	14.01	721,312	0.59	182089	1.03	8756	13.05	664,199.75	0.97
0-75	3.62	303716.00	1.65	4647	7.00	1,218,556	1.00	279916	1.59	4276	6.37	1,120,940.00	19.94
76-200	5.00	4442259.00	24.10	31573	47.53	23,039,223	18.92	4488623	25.44	31309	46.67	23,003,364.75	14.37
201-300	4.95	3054223	16.57	12414	18.69	15,448,462	12.68	3278860	18.58	13333	19.88	16,581,317.00	8.43
301-400	5.21	1680745	9.12	4837	7.28	8,888,446	7.30	1838811	10.42	5305	7.91	9,721,898.00	8.08
401-600	5.96	1359075	7.37	2833	4.26	8,172,842	6.71	1546206	8.76	3228	4.81	9,318,266.00	5.57
600++	7.68	668206	3.63	813	1.22	5,157,893	4.23	801103	4.54	872	1.30	6,425,690.00	#REF!
Total		**11702910**	**63.49**	**66426**	**100%**	**62,646,734**	**51.43**	**12415608**	**70.36**	**67079**	**100%**	**66,835,675.50**	**57.93**
Commercial	0.00	1471480	7.98	5048		15,605,219	12.81	1516448.443	8.59	5106		16,060,344.80	13.92
Charitable	5.86	205040	1.11	540		1,214,080	1.00	22397	0.13	541		1,322,800.00	1.15
Irrigation	4.09	1654	0.01	11		6,781	0.01	546	0.00	6		(21,000.00)	-0.02
General Power		986818	5.35	525		8,309,985	6.82	784212	4.44	526		6,614,844.35	5.73
Large Power		4066094.784	22.06	127		34,029,708	27.94	2905765.25	16.47	128		24,554,751.00	21.28
33 KV		0	0.00	0		0	0.00	0	0.00	0		-	0.00
Street Light		-2220	-0.01	2		-9,448	-0.01	0	0.00	0		-	0.00
Grand Total		**18431776.78**	**100%**	**72,679**		**121,803,059**	**100%**	**17644976.69**	**100%**	**73,386**		**115,367,415.65**	**100%**

Customer Class	Tariff Rate	September'18						October'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00		0.00	0	0.00
0-50	2.48	183111	0.99	8901	13.11	676,912	0.57	210720	0.95	9701	14.15	781,381	0.69
0-75	3.62	282890	1.54	4336	6.39	1,133,807	0.95	333040	1.50	5086	7.42	1,335,106	1.18
76-200	4.87	4418377	23.99	31435	46.30	22,331,283	18.73	4373858	19.75	33558	48.95	23,805,003	21.08
201-300	4.95	3364648	8.00	13684	20.15	17,017,240	14.27	2994215	13.52	12213	17.81	15,143,269	13.41
301-400	5.21	1877651	10.20	5416	7.98	9,932,452	8.33	1612636	7.28	4664	6.80	8,525,365	7.55
401-600	5.97	1540346	8.36	3229	4.76	9,280,161	7.78	1246562	5.63	2620	3.82	7,499,559	6.64
600++	7.64	725329	3.94	899	1.32	5,566,141	4.67	574249	2.59	717	1.05	4,395,364	3.89
Total		**12392352**	**67.29**	**67900**	**100%**	**65,937,995**	**55.31**	**11345280**	**51.23**	**68559**	**100%**	**61,485,047**	**54.44**
Commercial		1498648	8.14	5188		15,928,786	13.36	1475634	6.66	5266		16,072,309	14.23
Charitable	5.36	213261	1.16	545		1,261,102	1.06	207015	0.93	547		1,118,187	0.99
Irrigation	4.86	2075	0.01	6		8,405	0.01	945	0.00	5		3,855	0.00
General Power	8.18	884419	4.80	526		7,460,194	6.26	1706940	7.71	527		5,418,856	4.80
Large Power	8.02	3424600.6	18.60	131		28,615,098	24.00	7411440.693	33.46	131		28,846,107	25.54
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	7.17	0	0.00	-		0	0.00	0	0.00	0		0	0.00
Grand Total		**18,415,356**	**100%**	**74,296**		**119,211,580**	**100%**	**22147254.69**	**100%**	**75,035**		**112,944,361**	**100%**

Customer Class	Tariff Rate	November'18						December'18					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00		0.00	0	0.00
0-50	2.65	349977	1.87	14572	21.06	1,294,207	1.28	596379	3.90	23285	33.26	2,200,716	2.72
0-75	3.62	534671	2.85	8192	11.84	2,140,661	2.12	810059	5.30	12498	17.85	3,243,793	4.00
76-200	5.57	3937544	20.99	33925	49.04	22,797,420	22.54	3262559	21.36	28544	40.78	18,117,983	22.36
201-300	4.95	1993989	10.63	8173	11.81	10,076,026	9.96	970119	6.35	4006	5.72	4,900,460	6.05
301-400	5.21	932132	4.97	2701	3.90	4,931,735	4.88	364775	2.39	1061	1.52	1,931,288	2.38
401-600	5.94	617791	3.29	1304	1.88	3,708,382	3.67	220557	1.44	464	0.66	1,327,548	1.64
600++	7.69	259271	1.38	311	0.45	2,003,124	1.98	122740	0.80	143	0.20	961,198	1.19
Total		**8625375**	**45.98**	**69178**	**100%**	**46,951,555**	**46.42**	**6347188**	**41.55**	**70001**	**100%**	**32,682,986**	**40.34**
Commercial	0.00	1338970	7.14	5327		14,327,573	14.16	1073786	7.03	5412		11,515,728	14.21
Charitable	5.90	124814	0.67	549		750,297	0.74	81083	0.53	551		498,230	0.61
Irrigation	4.06	895	0.00	4		3,640	0.00	1420	0.01	5		5,845	0.01
General Power	9.41	1588318	8.47	533		7,122,982	7.04	706517	4.62	535		6,002,470	7.41
Large Power	9.51	7079694	37.74	134		31,981,576	31.62	7065902	46.25	134		30,303,970	37.41
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	0.00	755	0.00	1		11,708	0.01	505	0.00	1		4,209	0.01
Grand Total		**18758821.00**	**100%**	**75,726**		**101,149,331**	**100%**	**15276401.00**	**100%**	**76,639**		**81,013,438**	**100%**

Customer Class	Tariff Rate	January'19						February'19					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0.00	0.00	0	0.00		0.00	0	0.00
0-50	2.72	656165	5.19	25327	35.98	2422196.00	2.86	681739	5.78	26223	36.96	2,514,384	3.16
0-75	3.61	867739	6.86	13416	19.06	3473444.00	4.10	865768	7.35	13393	18.88	3466878.00	4.36
76-200	4.69	3444672	27.24	26801	38.08	16849435.00	19.91	3239470	27.48	26592	37.48	16,755,240	21.06
201-300	4.95	812449	6.42	3364	4.78	4105893.00	4.85	817860	6.94	3374	4.76	4132949.00	5.20
301-400	5.24	304455	2.41	882	1.25	1617948.00	1.91	275703	2.34	800	1.13	1,460,616	1.84
401-600	5.95	213104	1.69	448	0.64	1281123.00	1.51	198330	1.68	420	0.59	1,193,497	1.50
600++	7.63	128986	1.02	147	0.21	988613.00	1.17	125981	1.07	145	0.20	996,022	1.25
Total		**6427570**	**50.82**	**70385**	**100%**	**30738652.00**	**36.32**	**6204851**	**52.64**	**70947**	**100%**	**30519586.00**	**38.36**
Commercial		1098322	8.68	5446		11786280.00	13.92	1070112	9.08	5503		11,448,395	14.39
Charitable	5.99	76045	0.60	556		469390.00	0.55	78387	0.67	557		482,847	0.61
Irrigation	4.01	28823	0.23	24		115742.00	0.14	49053	0.42	44		196,872	0.25
General Power		844081	6.67	532		7172804.00	8.47	778735	6.61	532		6,634,840	8.34
Large Power	683.13	4170729.5	32.98	138		34348915.00	40.58	3604663	30.58	144		30,262,065	38.04
33 KV	0.00	0	0.00	0		0.00	0.00	0	0.00	0		0	0.01
Street Light	0.00	1295	0.01	3		10932.00	0.01	1250	0.01	3		10,586	0.01
Grand Total		**12646865.50**	**100%**	**77,084**		**84642715.00**	**100%**	**11,787,051**	**100%**	**77,730**		**79555191.00**	**100%**

Customer Class	Tariff Rate	March'19						April'19					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00		0.00	0	0.00
0-50	2.72	633932	4.76	24460	34.41	2,337,059	2.62	358298	2.24	15325	21.87	1,323,696	1.26
0-75	3.61	828631	6.22	12821	18.03	3,318,638	3.72	507086	3.18	7795	11.12	2,029,924	1.93
76-200	4.68	3705835	27.80	28699	40.37	18,083,120	20.27	4683469	29.32	34620	49.40	23,165,168	22.08
201-300	4.94	874993	6.56	3622	5.09	4,421,158	4.95	2001596	12.53	8216	11.72	10,114,466	9.64
301-400	5.21	327689	2.46	955	1.34	1,732,754	1.94	895177	5.60	2607	3.72	4,731,056	4.51
401-600	5.97	187749	1.41	397	0.56	1,131,067	1.27	574936	3.60	1210	1.73	3,455,565	3.29
600++	7.81	119516	0.90	137	0.19	937,453	1.05	255141	1.60	304	0.43	1,981,954	1.89
Total		**6678345**	**50.09**	**71091**	**100%**	**31,961,249**	**35.82**	**9275703**	**58.08**	**70077**	**100%**	**46,801,829**	**44.61**
Commercial		1160006	8.70	5533		12,395,069	13.89	1351282	8.46	5529		14,297,106	13.63
Charitable	5.89	96793	0.73	561		589,244	0.66	163194	1.02	561		972,567	0.93
Irrigation	4.33	71209	0.53	44		285,496	0.32	63733	0.40	44		255,592	0.24
General Power		975845	7.32	536		8,261,921	9.26	978937	6.13	539		8,292,374	7.90
Large Power	107.81	4348239.2	32.62	147		35,724,429	40.04	4136123.763	25.90	152		34,270,335	32.67
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light	8.53	1195	0.01	3		10,123	0.01	2125	0.01	3		17,323	0.02
Grand Total		**13331632.2**	**100%**	**77,915**		**89,227,531**	**100%**	**15971097.76**	**100%**	**76,905**		**104,907,126**	**100%**

Customer Class	Tariff Rate	May'19						June'19					
		Unit	%	Consumers	%	Revenue	%	Unit	%	Consumers	%	Revenue	%
Domestic													
Minimum		0	0.00		0.00	0	0.00	0	0.00	0	0.00	0	0.00
0-50	2.54	265373	1.57	12202	18.54	979,920	0.87	196440	1.35	9613	16.17	725,749	0.76
0-75	3.62	374380	2.22	5765	8.76	1,499,883	1.33	291211	2.00	4482	7.54	1166846	1.23
76-200	4.91	4428973	26.25	32401	49.24	22,556,292	20.03	3956607	27.22	28635	48.17	20574193	21.65
201-300	4.95	2396175	14.20	9802	14.90	12,107,130	10.75	2526936	17.38	10305	17.33	12,775,532	13.44
301-400	5.21	1149840	6.81	3328	5.06	6,078,064	5.40	1324942	9.11	3833	6.45	7,002,737	7.37
401-600	5.96	872202	5.17	1827	2.78	5,248,417	4.66	973344	6.70	2039	3.43	5,864,984	6.17
600++	7.74	399598	2.37	478	0.73	3,105,243	2.76	450016	3.10	544	0.92	3,482,696	3.66
Total		**9886541**	**58.59**	**65803**	**100%**	**51574949**	**45.79**	**9719496**	**66.86**	**59451**	**100%**	**51,592,737**	**54.28**
Commercial		1350746	8.00	5105		14,322,434	12.72	1300516	8.95	4647		13,767,991	14.48
Charitable	5.87	224983	1.33	557		1,330,601	1.18	243183	1.67	558		1,436,670	1.51
Irrigation	4.01	40320	0.24	44		161,940	0.14	2123	0.01	31		8,957	0.01
General Power		998604	5.92	541		8,450,166	7.50	557969	3.84	540		4,815,052	5.07
Large Power		4370904	25.90	154		36,779,506	32.65	2706140	18.62	152		23,371,841	24.59
33 KV	0.00	0	0.00	0		0	0.00	0	0.00	0		0	0.00
Street Light		2400	0.01	3		19,441	0.02	7188	0.05	4		57,748	0.06
Grand Total		**16874498**	**100%**	**72,207**		**112639037**	**100%**	**14536615**	**100%**	**65,383**		**95,050,996**	**100%**

3. As per Sub-station Meter Data (2017-2018) & (2018-2019)

Import point	July'17					August'17				
	Peak Demand(MW	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	25.000	11,240,000				25.000	11,640,000			
HASNABAD	16.700	8,888,433				16.700	9,702,406			
KALATIA	7.745	2,814,295				8.015	2,955,911			
MUNSHIGONJ	0.000	0.000				0.000	0			
BAGHAIR-1	7.302	4,080,000				5.500	3,407,000			
BSCIC	8.000	3,673,000				7.000	4,127,000			
BAGHAIR-2	6.660	2810500.000				6.000	2,777,500			
QUALITY STEEL	0.000	0.000				0.000	0			
Grid Complaint	0.000	0.000				0.000	0			
HASNABAD T-8	7.500	2,942,460				7.500	3,065,544			
PANGAON(Has)	3.500	2,365,000				3.500	2,504,000			
BASUNDARA	1.039	1,600,500				2.634	1,556,500			
KALATIA UNIT-2	3.825	1,610,000				3.965	1,671,000			
AGANAGAR-1	7.500	3,046,206				8.200	3,753,663			
AGANAGAR-2	7.000	3,540,240				8.500	4,777,135			
ATIBAZAR	7.865	3,728,000	52,045,175	8.55	65.82	7.900	3,937,000	57,039,856	**7.66**	70.54
Macca Multilayer	1.413	635250.000				1.500	632,500			
ZINZIRA T-3	8.750	3360500.000				8.500	3,146,000			
SUNDARBAN	0.180	173250.000				0.657	231,000			
Janony Paper-1	0.110	63250.000				0.560	93,500			
Janony Paper-2	0.000	0.000				0.000	0			
JIL MIL SS	0.000	341000.000				0.000	1,796,000			
Agannagar-3	0.000	0.000				0.000	0			
Konakhola	0.000	0.000				0.000	0			
Jil MIL-2	0.000	0.000				0.000	0			
Multi Basundhara	0.000	0.000				0.000	0			
Basundhara-2	0.000	0.000				0.000	0			
Wasa	0.000	0.000				0.000	0			
Resale Unit	0.000	0.000				0.000	0			
Basundhara Oil	0.000	0.000				0.000	0			
Janony Plastic	0.000	0.000				0.000	0			
total	**120.089**	**56,911,884**				**121.631**	**61,773,659**			

Import point	November'17					December'17				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	21.750	8,537,000				18.390	7,403,000			
HASNABAD	14.500	7,295,901				13.000	6,306,121			
KALATIA	4.230	1,837,501				4.490	1,698,926			
MUNSHIGONJ	0.000	0.000				0.000	0			
BAGHAIR-1	6.998	2,749,000				6.000	1,873,000			
BSCIC	8.500	2,750,000				6.000	3,359,999			
BAGHAIR-2	4.500	2,090,000				5.250	1,787,500			
QUALITY STEEL	0.000	0.000				0.000	0			
Grid Complaint	0.000	0.000				0.000	0			
HASNABAD T-8	4.000	2,286,540				4.000	1,456,074			
PANGAON(Has)	4.000	2,144,000				3.000	1,977,000			
BASUNDARA	2.334	1,823,250				2.350	1,680,250			
KALATIA UNIT-2	3.010	1,043,000				2.990	963,000			
AGANAGAR-1	4.800	1,941,162				4.000	1,349,254			
AGANAGAR-2	7.500	2,849,110				5.260	2,124,540			
ATIBAZAR	4.165	2,531,000	46,975,076	(2.24)	64.95	4.130	2,195,000	37,004,427	**7.54**	62.26
Macca Multilayer	1.500	583,000				1.500	569,250			
ZINZIRA T-3	5.250	2,167,000				3.700	1,727,000			
SUNDARBAN	0.657	236,500				0.660	222,750			
Janony Paper-1	0.560	154,000				0.560	104,500			
Janony Paper-2	0.000	0.000				0.000	0			
JIL MIL SS	0.000	1020451.000				0.000	1,464,895			
Agannagar-3	0.000	1905827.000				4.000	1,758,132			
Konakhola	0.000	0.000				0.000	0			
Jil MIL-2	0.000	0.000				0.000	0			
Multi Basundhara	0.000	0.000				0.000	0			
Basundhara-2	0.000	0.000				0.000	0			
Wasa	0.000	0.000				0.000	0			
Resale Unit	0.000	0.000				0.000	0			
Basundhara Oil	0.000	0.000				0.000	0			
Janony Plastic	0.000	0.000				0.000	0			
total	**98.254**	**45,944,242**				**89.280**	**40,020,191**			

Import point	January'18					February'18				
	Peak Demand(MW	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	20.500	7,091,000				19.750	6,884,000			
HASNABAD	13.000	5,973,434				14.000	5,980,372			
KALATIA	4.480	1,581,934				4.650	1,560,529			
MUNSHIGONJ	0.000	0.000				0.000	0			
BAGHAIR-1	6.090	1,783,000				4.810	1,679,000			
BSCIC	6.500	3,252,000				6.500	3,067,000			
BAGHAIR-2	5.260	946000.000				5.260	830,500			
QUALITY STEEL	0.000	0.000				0.000	0			
Grid Complaint	0.000	0.000				0.000	0			
HASNABAD T-8	6.000	1,729,566				7.000	2,009,538			
PANGAON(Has)	3.000	2,012,000				4.000	2,004,000			
BASUNDARA	3.210	2,051,500				3.380	1,696,750			
KALATIA UNIT-2	2.980	944,000				3.020	877,000			
AGANAGAR-1	4.000	1,934,404				5.200	2,031,460			
AGANAGAR-2	5.000	1,834,580				6.500	2,306,370			
ATIBAZAR	4.110	2,126,000	39,878,133	(1.66)	56.95	4.580	2,195,000	38,569,117	**0.99**	53.49
Macca Multilayer	1.460	671000.000				1.450	500,500			
ZINZIRA T-3	5.000	1606000.000				5.500	1,710,500			
SUNDARBAN	0.590	269500.000				0.740	247,500			
Janony Paper-1	0.480	173250.000				0.410	112,750			
Janony Paper-2	0.000	0.000				0.000	0			
JIL MIL SS	0.000	1630362.000				0.000	1,941,829			
Agannagar-3	4.000	1615689.000				4.400	1,318,475			
Konakhola	0.000	0.000				0.000	0			
Jil MIL-2	0.000	0.000				0.000	0			
Multi Basundhara	0.000	0.000				0.000	0			
Basundhara-2	0.000	0.000				0.000	0			
Wasa	0.000	0.000				0.000	0			
Resale Unit	0.000	0.000				0.000	0			
Basundhara Oil	0.000	0.000				0.000	0			
Janony Plastic	0.000	0.000				0.000	0			
total	**95.660**	**39,225,219**				**101.150**	**38,953,073**			

Import point	March'18					April'18				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	22.000	9,277,000				22.000	8,135,000			
HASNABAD	17.000	9,014,386				17.000	8,501,801			
KALATIA	7.330	2,405,589				8.120	2,097,249			
MUNSHIGONJ	0.000	0.000				0.000	0			
BAGHAIR-1	5.800	2,238,000				5.800	1,952,000			
BSCIC	8.000	3,808,000				8.000	3,484,007			
BAGHAIR-2	3.250	1,237,500				3.000	1,155,000			
QUALITY STEEL	0.000	0.000				0.000	0			
Grid Complaint	0.000	0.000				0.000	0			
HASNABAD T-8	5.000	2,591,244				5.000	2,391,408			
PANGAON(Has)	5.000	3,027,000				5.000	2,816,000			
BASUNDARA	3.290	1,746,250				3.190	1,870,000			
KALATIA UNIT-2	3.110	1,300,000				3.550	1,104,000			
AGANAGAR-1	4.000	3,112,160				4.000	2,670,603			
AGANAGAR-2	6.500	3,399,605				6.500	3,342,075			
ATIBAZAR	6.910	3,448,000	52,222,090	8.26	72.41	6.940	3,068,000	52,487,957	**1.91**	67.53
Macca Multilayer	1.320	544,500				1.310	434,500			
ZINZIRA T-3	5.400	2,750,000				5.400	2,700,500			
SUNDARBAN	0.820	288750.000				0.780	330,000			
Janony Paper-1	0.460	159500.000				0.460	129,250			
Janony Paper-2	0.000	0.000				0.000	0			
JIL MIL SS	0.000	2734945.000				0.000	2,656,983			
Agannagar-3	4.000	2450949.000				4.000	2,506,887			
Konakhola	0.000	1307000.000				0.000	1,945,352			
Jil MIL-2	0.000	85920.000				0.000	220,800			
Multi Basundhara	0.000	0.000				0.000	0			
Basundhara-2	0.000	0.000				0.000	0			
Wasa	0.000	0.000				0.000	0			
Resale Unit	0.000	0.000				0.000	0			
Basundhara Oil	0.000	0.000				0.000	0			
Janony Plastic	0.000	0.000				0.000	0			
total	**109.190**	**56,926,298**				**110.050**	**53,511,415**			

Import point	May'18					June'18				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	19.750	8,863,000				19.000	8,301,000			
HASNABAD	17.500	9,033,005				17.500	8,754,815			
KALATIA	6.900	2,386,377				7.600	2,273,963			
MUNSHIGONJ	0.000	0.000				0.000	0			
BAGHAIR-1	5.090	1,919,000				5.090	2,168,000			
BSCIC	10.500	4,011,139				9.000	3,624,488			
BAGHAIR-2	3.580	1,221,000				3.580	1,353,000			
QUALITY STEEL	0.000	0.000				0.000	0			
Grid Complaint	0.000	0.000				0.000	0			
HASNABAD T-8	6.000	2,604,834				6.000	2,475,900			
PANGAON(Has)	5.000	3,092,000				6.500	3,191,000			
BASUNDARA	3.190	1,511,263				3.090	1,248,500			
KALATIA UNIT-2	3.640	1,322,000				3.700	1,582,000			
AGANAGAR-1	4.000	3,591,223				7.000	2,167,514			
AGANAGAR-2	7.000	3,402,300				8.500	4,348,850			
ATIBAZAR	8.680	3,703,000				9.900	4,475,000			
Macca Multilayer	0.480	457,518	55,493,572	4.96	70.36	1.440	445,500	51,714,469	**8.71**	65.54
ZINZIRA T-3	9.000	3,055,580				6.000	2,959,000			
SUNDARBAN	0.780	291,583				0.750	198,000			
Janony Paper-1	0.170	128,370				0.390	126,500			
Janony Paper-2	0.000	0.000				0.000	0			
JIL MIL SS	0.000	2824655.000				0.000	2,682,150			
Agannagar-3	4.000	2545565.000				5.000	1,754,885			
Konakhola	0.000	2065352.000				0.000	2,130,352			
Jil MIL-2	0.000	360480.000				0.000	388,800			
Multi Basundhara	0.000	0.000				0.000	0			
Basundhara-2	0.000	0.000				0.000	0			
Wasa	0.000	0.000				0.000	0			
Resale Unit	0.000	0.000				0.000	0			
Basundhara Oil	0.000	0.000				0.000	0			
Janony Plastic	0.000	0.000				0.000	0			
total	**115.260**	**58,389,244**				**120.040**	**56,649,217**			

Import point	July'18					August'18				
	Peak Demand(MW	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	21	10,248,000				23.400	9,785,000			
HASNABAD	17.500	9,780,686				17.500	9,082,203			
KALATIA	7.750	2,571,825				8.050	2,616,727			
MUNSHIGONJ	0.000	-				0.000	0			
BAGHAIR-1	5.460	2,117,000				5.460	2,366,150			
BSCIC	12.030	4,383,813				9.600	3,871,137			
BAGHAIR-2	3.870	1,369,500				3.78	1,509,640			
QUALITY STEEL	0	-				0.000	0			
Grid Complaint	0.000	-				0.000	0			
HASNABAD T-8	6.500	2,912,256				6.500	2,804,634			
PANGAON(Has)	6.500	3,435,000				6.500	3,693,000			
BASUNDARA	3.280	1,683,000				3.280	1,336,500			
KALATIA UNIT-2	3.720	1,668,000				4.000	1,759,000			
AGANAGAR-1	7.000	3,085,538				7.000	2,537,629			
AGANAGAR-2	6.000	4,322,505				7.000	4,164,985			
ATIBAZAR	10.010	4,891,894				9.940	5,013,700			
Macca Multilayer	1.440	662,750	60,216,849	8.35	71.85	1.440	601,590	60,211,036	**4.73**	69.45
ZINZIRA T-3	8.000	3,509,000				6.000	3,388,000			
SUNDARBAN	0.960	390,500				0.960	391,820			
Janony Paper-1	0.490	192,500				0.490	129,278			
Janony Paper-2	0.000	-				0.000	0			
JIL MIL SS	0.000	3,082,144				0.000	2,955,950			
Agannagar-3	5.500	2,306,205				5.500	2,182,510			
Konakhola	0.000	2,554,362				0.000	2,389,943			
Jil MIL-2	0.000	491,040				0.000	477,600			
Multi Basundhara	0.000	44,000				0.000	138,408			
Basundhara-2	0.000	-				0.000	5,445			
Wasa	0.000	-				0.000	0			
Resale Unit	0.000	-				0.000	0			
Basundhara Oil	0.000	-				0.000	0			
Janony Plastic	0.000	-				0.000	0			
total	**127.010**	**65,701,518**				**126.400**	**63,200,849**			

Import point	September'18					October'18				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	22.05	10,442,000				23.250	9,762,000			
HASNABAD	17.500	9,734,457				16.000	9,107,408			
KALATIA	8.050	2,448,453				7.360	2,007,501			
MUNSHIGONJ	0.000	-				0.000	0			
BAGHAIR-1	5.460	2,294,850				5.220	2,115,000			
BSCIC	11.100	4,069,862				11.250	3,710,850			
BAGHAIR-2	3.760	1,520,860				4.09	1,545,500			
QUALITY STEEL	0	-				0.000	0			
Grid Complaint	0.000	-				0.000	0			
HASNABAD T-8	6.500	2,902,212				5.500	2,800,638			
PANGAON(Has)	6.500	3,538,000				6.500	3,091,000			
BASUNDARA	3.280	1,732,830				3.280	1,770,670			
KALATIA UNIT-2	4.000	1,683,000				3.100	1,377,000			
AGANAGAR-1	7.000	2,413,863				6.500	2,976,000			
AGANAGAR-2	7.000	4,061,640				7.000	3,987,500			
ATIBAZAR	9.940	5,026,700	63,265,124	2.15	70.91	8.590	4,255,000	62,514,452	**(2.09)**	69.56
Macca Multilayer	1.580	703,560				1.620	743,380			
ZINZIRA T-3	6.000	2,975,500				6.000	2,871,000			
SUNDARBAN	0.960	407,385				0.960	325,545			
Janony Paper-1	0.460	180,620				0.540	215,435			
Janony Paper-2	0.000	-				0.000	0			
JIL MIL SS	0.000	3,109,751				0.000	2,989,263			
Agannagar-3	5.500	1,973,290				5.500	2,304,500			
Konakhola	0.000	2,369,943				0.000	1,497,922			
Jil MIL-2	0.000	492,840				0.000	352,680			
Multi Basundhara	0.000	256,768				0.000	355,575			
Basundhara-2	0.000	314,518				0.000	1,071,538			
Wasa	0.000	-				0.000	0			
Resale Unit	0.000	-				0.000	0			
Basundhara Oil	0.000	-				0.000	0			
Janony Plastic	0.000	-				0.000	0			
total	**126.640**	**64,652,902**				**122.260**	**61,232,905**			

Import point	November'18					December'18				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	19	7,659,000				16.000	6,412,000			
HASNABAD	14.000	7,148,810				14.000	5,805,249			
KALATIA	5.250	1,500,105				5.250	1,562,995			
MUNSHIGONJ	0.000	-				0.000	0			
BAGHAIR-1	5.830	1,674,000				4.290	1,708,000			
BSCIC	6.000	3,398,000				5.800	3,264,543			
BAGHAIR-2	3.320	1,193,500				3.32	1,061,500			
QUALITY STEEL	0	-				0.000	0			
Grid Complaint	0.000	-				0.000	0			
HASNABAD T-8	5.000	2,221,848				4.000	1,918,026			
PANGAON(Has)	4.500	2,704,000				4.500	2,162,000			
BASUNDARA	2.940	1,637,790				2.900	1,563,210			
KALATIA UNIT-2	3.050	1,048,000				2.600	954,000			
AGANAGAR-1	5.500	2,552,585				4.500	2,141,500			
AGANAGAR-2	6.500	3,217,224				5.500	2,152,095			
ATIBAZAR	9.300	3,221,000	52,760,306	(4.02)	68.14	5.370	2,880,000	46,029,924	**(5.05)**	68.21
Macca Multilayer	1.530	540,458				1.530	632,885			
ZINZIRA T-3	5.500	2,293,500				4.000	1,754,500			
SUNDARBAN	1.150	265,128				1.140	302,638			
Janony Paper-1	0.520	185,323				0.520	212,520			
Janony Paper-2	0.000	-				0.000	0			
JIL MIL SS	0.000	2,538,845				0.000	2,501,900			
Agannagar-3	4.500	2,097,920				4.000	1,374,175			
Konakhola	0.000	1,402,500				0.000	1,136,441			
Jil MIL-2	0.000	217,104				0.000	211,260			
Multi Basundhara	0.000	448,855				0.000	683,210			
Basundhara-2	0.000	1,558,150				0.000	1,414,078			
Wasa	0.000	-				0.000	7,535			
Resale Unit	0.000	-				0.000	0			
Basundhara Oil	0.000	-				0.000	0			
Janony Plastic	0.000	-				0.000	0			
total	**103.390**	**50,723,645**				**89.220**	**43,816,260**			

Import point	January'19					February'19				
	Peak Demand(MW	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	16.5	6,516,000				16.500	6,119,000			
HASNABAD	14.000	5,933,113				14.000	5,853,280			
KALATIA	5.250	1,330,472				5.250	1,289,131			
MUNSHIGONJ	0.000	-				0.000	-			
BAGHAIR-1	4.290	1,651,000				4.290	1,501,000			
BSCIC	5.400	3,592,512				5.400	2,962,688			
BAGHAIR-2	3.320	1,023,000				3.320	973,500			
QUALITY STEEL	0.000	-				0.000	-			
Grid Complaint	0.000	-				0.000	-			
HASNABAD T-8	4.000	1,901,160				4.000	1,740,780			
PANGAON(Has)	4.500	2,287,000				4.500	2,065,677			
BASUNDARA	2.900	1,366,750				2.900	1,457,500			
KALATIA UNIT-2	2.600	947,000				2.600	702,000			
AGANAGAR-1	4.500	1,926,853				4.500	1,946,853			
AGANAGAR-2	2.900	2,303,180				2.900	2,453,000			
ATIBAZAR	2.600	2,804,000	48,786,766	(14.55)	59.44	2.600	2,675,000	45,104,199	**1.51**	63.91
Macca Multilayer	4.500	675,538				4.500	480,590			
ZINZIRA T-3	5.700	1,722,875				5.700	1,665,125			
SUNDARBAN	5.370	309,485				5.370	305,250			
Janony Paper-1	1.530	197,395				1.530	166,375			
Janony Paper-2	4.000	-				4.000	-			
JIL MIL SS	1.140	2,244,725				1.140	2,103,560			
Agannagar-3	0.520	1,499,905				0.520	1,474,000			
Konakhola	0.000	1,255,063				0.000	1,145,545			
Jil MIL-2	0.000	322,800				0.000	315,540			
Multi Basundhara	4.000	779,185				4.000	891,000			
Basundhara-2	0.000	1,119,773				0.000	1,078,000			
Wasa	0.000	460,103				0.000	770			
Resale Unit	0.000	19,273,701				0.000	4,429,281			
Basundhara Oil	0.000	-				0.000	-			
Janony Plastic	0.000	-				0.000	-			
total	**99.520**	**42,589,011**				**99.520**	**45,794,445**			

Import point	March'19					April'19				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	22	7,975,000				22.500	9,560,000			
HASNABAD	15.000	8,203,246				17.500	8,152,588			
KALATIA	5.250	1,800,152				6.400	2,315,745			
MUNSHIGONJ	0.000	-				0.000	-			
BAGHAIR-1	5.500	2,390,000				10.400	2,422,000			
BSCIC	6.500	3,621,912				6.800	3,942,557			
BAGHAIR-2	3.500	1,320,000				3.32	1,555,345			
QUALITY STEEL	0.000	-				0.000	-			
Grid Complaint	0.000	-				0.000	-			
HASNABAD T-8	4.500	2,364,966				6.000	2,013,066			
PANGAON(Has)	6.500	3,265,677				7.000	3,465,677			
BASUNDARA	2.900	1,684,183				2.900	1,470,013			
KALATIA UNIT-2	2.600	1,233,000				2.600	1,391,000			
AGANAGAR-1	7.500	2,693,200				8.200	2,355,000			
AGANAGAR-2	8.000	4,042,500				8.500	3,877,520			
ATIBAZAR	5.370	3,990,000	55,645,734	9.70	80.00	9.700	4,554,000	61,431,139	**5.23**	71.45
Macca Multilayer	0.540	643,088				1.530	490,545			
ZINZIRA T-3	5.500	2,387,000				7.000	2,854,500			
SUNDARBAN	1.140	339,158				1.140	342,210			
Janony Paper-1	0.180	213,015				0.520	171,298			
Janony Paper-2	0.000	-				0.000	-			
JIL MIL SS	0.000	2,433,865				0.000	3,581,107			
Agannagar-3	4.500	2,112,000				4.000	2,752,000			
Konakhola	0.000	1,785,076				0.000	2,106,508			
Jil MIL-2	s	17,760				0.000	1,258,500			
Multi Basundhara	0.000	1,218,305				0.000	712,470			
Basundhara-2	0.000	1,532,850				0.000	1,329,103			
Wasa	0.000	-				0.000	-			
Resale Unit	0.000	4,356,660				0.000	1,419,031			
Basundhara Oil	0.000	-				0.000	730,980			
Janony Plastic	0.000	-				0.000	-			
total	**106.980**	**61,622,613**				**126.010**	**64,822,763**			

Import point	May'19					June'19				
	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor	Peak Demand(MW)	Unit kWh(Purchase)	Total KWh(sold)	Substation SL %	Load Factor
ZINZIRA	22.5	11,591,000				22.500	9,738,000			
HASNABAD	17.500	8,740,407				17.500	7,169,814			
KALATIA	6.100	3,310,721				6.100	3,249,000			
MUNSHIGONJ	0.000	0				0.000	0			
BAGHAIR-1	6.410	2,719,000				5.940	2,904,000			
BSCIC	6.800	4,971,267				8.200	3,820,086			
BAGHAIR-2	0.870	1,933,030				5.100	1,808,125			
QUALITY STEEL	0	0				0.000	0			
Grid Complaint	0.000	0				0.000	0			
HASNABAD T-8	6.000	2,446,398				6.000	2,185,542			
PANGAON(Has)	7.000	4,558,847				7.000	3,713,309			
BASUNDARA	2.900	1,059,190				2.760	2,819,340			
KALATIA UNIT-2	4.200	1,801,000				4.200	1,815,000			
AGANAGAR-1	8.200	3,047,600				8.200	1,117,814			
AGANAGAR-2	8.500	4,614,500				8.300	4,086,500			
ATIBAZAR	8.900	4,914,000	71,285,074	9.20	88.24	8.900	4,589,000	65,327,887	**6.21**	78.41
Macca Multilayer	0.610	778,443				0.560	701,305			
ZINZIRA T-3	7.000	3,190,000				5.500	2,783,000			
SUNDARBAN	1.140	263,175				0.000	0			
Janony Paper-1	0.200	195,498				0.170	98,835			
Janony Paper-2	0.000	0				0.000	0			
JIL MIL SS	0.000	4,462,475				0.000	3,125,788			
Agannagar-3	4.000	3,625,820				4.000	2,057,000			
Konakhola	0.000	2,259,602				0.000	2,262,485			
Jil MIL-2	0.000	2,186,400				0.000	2,429,640			
Multi Basundhara	2.100	833,388				2.450	701,415			
Basundhara-2	2.630	1,097,938				0.000	0			
Wasa	0.000	0				0.000	1,677			
Resale Unit	0.000	3,139,575				0.000	6,470,825			
Basundhara Oil	0.000	759,165				0.000	0			
Janony Plastic	0.000	6,600				0.000	4,029			
total	**123.560**	**78,505,039**				**123.380**	**69,651,529**			