INTRENSHIP REPORT

ON

Dhaka Palli Bidyut Samity-01

BY

Md. Saiful Islam (2007-1-80-007)

Md. Mushfiqul Arefin Chowdhury (2007-1-80-023)

Submitted to the

Department of Electrical and Electronic Engineering

Faculty of Science and Engineering

East West University

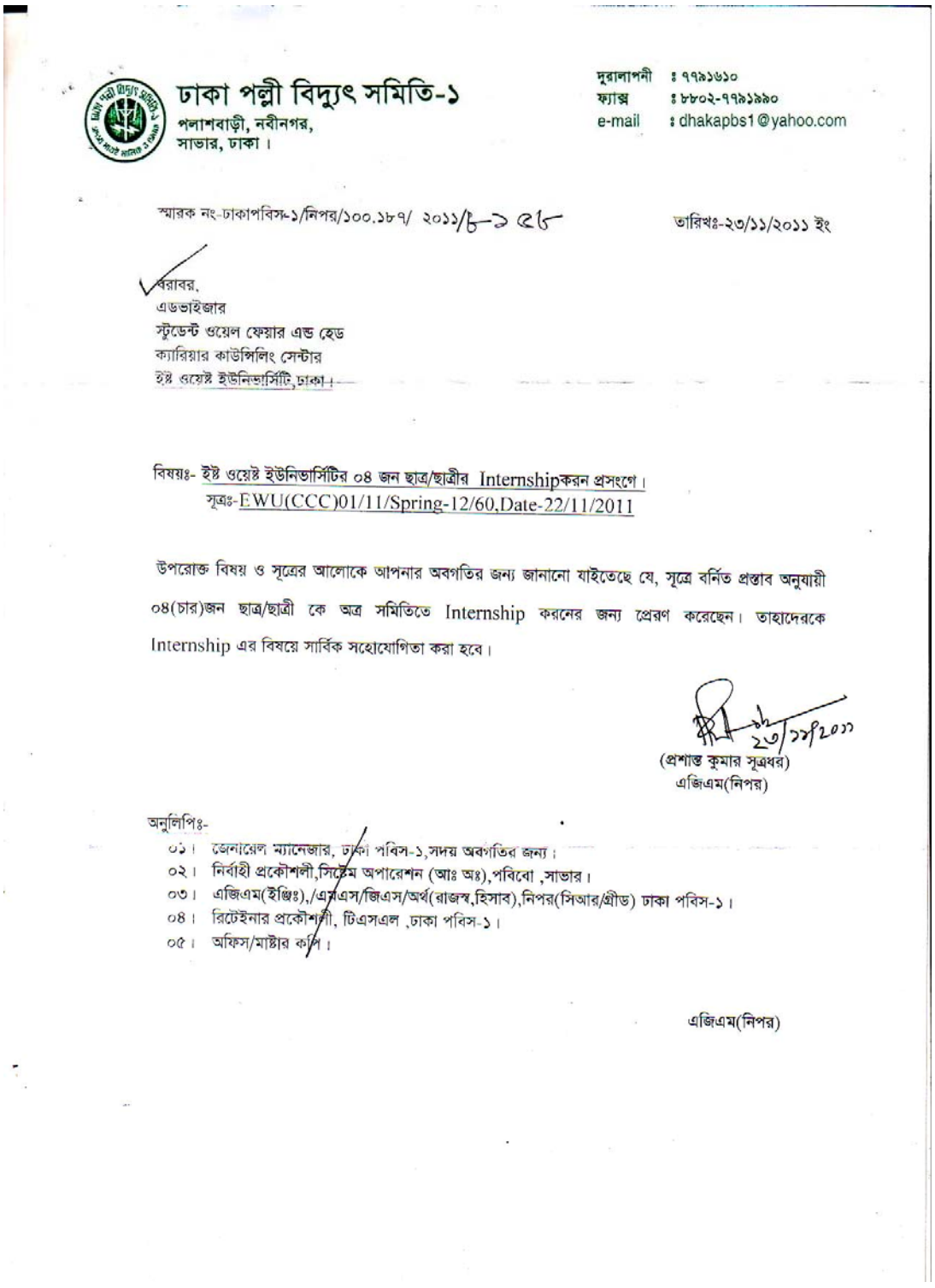
In partial fulfillment of the requirements for the degree of

Bachelor of Science in Electrical and Electronic Engineering

(B.Sc. in EEE)

Spring, 2012

APPROVAL LETTER



ঢাকা পল্লী বিদ্যুৎ সমিতি-১
পলাশবাড়ী, নবীনগর,
সাভার, ঢাকা।

দুরালাপনী ঃ ৭৭৯১৬১০
ফ্যাক্স ঃ ৮৮০২-৭৭৯১৯৯০
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স্মারক নং-ঢাকাপবিস-১/নিপর/১০০.১৮৭/ ২০১১/৮-১ ৫৮ তারিখঃ-২৩/১১/২০১১ ইং

বরাবর,
এডভাইজার
স্টুডেন্ট ওয়েল ফেয়ার এন্ড হেড
ক্যারিয়ার কাউন্সিলিং সেন্টার
ইষ্ট ওয়েষ্ট ইউনিভার্সিটি,ঢাকা।

বিষয়ঃ- ইষ্ট ওয়েষ্ট ইউনিভার্সিটির ০৪ জন ছাত্র/ছাত্রীর Internshipকরন প্রসংগে।
সূত্রঃ-EWU(CCC)01/11/Spring-12/60,Date-22/11/2011

উপরোক্ত বিষয় ও সূত্রের আলোকে আপনার অবগতির জন্য জানানো যাইতেছে যে, সূত্রে বর্নিত প্রস্তাব অনুযায়ী ০৪(চার)জন ছাত্র/ছাত্রী কে অত্র সমিতিতে Internship করনের জন্য প্রেরণ করেছেন। তাহাদেরকে Internship এর বিষয়ে সার্বিক সহোযোগিতা করা হবে।

২৩/১১/২০১১
(প্রশান্ত কুমার সূত্রধর)
এজিএম(নিপর)

অনুলিপিঃ-
০১। জেনারেল ম্যানেজার, ঢাকা পবিস-১,সদয় অবগতির জন্য।
০২। নির্বাহী প্রকৌশলী,সিষ্টেম অপারেশন (আঃ অঃ),পবিবো ,সাভার।
০৩। এজিএম(ইঞ্জিঃ),/এসএস/জিএস/অর্থ(রাজস্ব,হিসাব),নিপর(সিআর/গ্রীড) ঢাকা পবিস-১।
০৪। রিটেইনার প্রকৌশলী, টিএসএল ,ঢাকা পবিস-১।
০৫। অফিস/মাষ্টার কপি।

এজিএম(নিপর)

INTERNSHIP CERTIFICATE

ঢাকা পল্লী বিদ্যুৎ সমিতি-১
পলাশবাড়ী, নবীনগর,
সাভার, ঢাকা।

দুরালাপনী ঃ ৭৭৯১৬১০
ফ্যাক্স ঃ ৮৮০২-৭৭৯১৯৯০
e-mail ঃ dhakapbs1@yahoo.com

TO WHOM IT MAY CONCERN

This is to certify that Md.Saiful Islam, SID 2007-1-80-007, Md. Mushfiqul Arefin Chowdhury, SID 2007-1-80-023, Nowrin Shantia Khanom, SID 2008-2-80-030, Muntaha Karim, SID 2008-2-80-047 have successfully completed their internship from Dhaka Palli Bidyut Somity-1. (DPBS-1) from 24th December 2011 to 11th January 2012. They have completed 106 hours of their internship on power generation, transmission, distribution and protection system of the various sub-station equipments of Dhaka Palli Bidyut Samity -1, Summit Power Generation and United Power Generation and Distribution Company Ltd. During the tenure of their training with us all the students put their best effort to comprehend the overall of Power Distribution system.

The undersigned on behalf of Dhaka Palli Bidyut Samity-1.(DPBS-1), recommending this work as the fulfilment of the requirements of EEE 499(Industrial training) of the East West University,Dhaka.

I wish their success in life.

21.01.2012

Engr. Prasanta Kumar Sutradhar

Assistant general manager

Construction, Operation & Maintenance

Dhaka Palli Bidyut Samity-1

ACKNOWLEDGMENT

We had a remarkable time during our internship in Dhaka Palli Bidyut Samity-01 which is located at Nabinagar, Savar. We are thankful to the people of Palli Bidyut Samity-01 for the encouragement and assistance given to us. We want to specially mention Mr. Prasanta Kumar Sutradhar who is the CO&M (construction, operation and maintenance) Engineer of Dhaka Palli Bidyut Samity-01 for his support and guidance during the internship program.

We are grateful to our honorable academic supervisor Mohammad Zakir Alam, Lecturer, Department of Electrical & Electronic Engineering, East West University (EWU) and Dr. Mohammad Mojammel Al Hakim, Associate Professor, Department of Electrical & Electronic Engineering, East West University (EWU) for providing us time and encouragement for the internship report.

We would also like to mention Dr. Khairul Alam Chairperson of the Department of Electrical & Electronic Engineering, East West University (EWU) for being so kind during the period of our internship. Finally, we would like to thank some persons who had given us appointment from their precious time. They are Md. Nazmul Hasan (AGM- MS dept), Syed Mohhammad Saherul Azam (AGM-GS dept), Md. Abul Kalam Azad (AGM- Engr dept), Md. Abul Kashem (AGM-Fin dept), Renaz Nishat Chowdhury (AGM- Grid), Syeda Farhana Naz (AGM- COM), Abdus Sobhan (Retainer engineer), Shahinur Rahman (Staking dept).

But the most of all, we would like thank the omnipotent Allah for giving the chance to complete our internship and preparing the internship report.

EXECUTIVE SUMMARY

To fulfill the requirements to be a B.Sc. Engineer from East West University, we have chosen Industrial training (EEE-499). We did our internship at Dhaka Palli Bidyut Samity-01(DPBS-01) at Savar, Dhaka. Our internship title is 'Dhaka Palli Bidyut Samity-01'. Our major area is Power. Dhaka Palli Bidyut Samity is a power distribution company and it is related to our field.

At DPBS-01 we have gathered practical knowledge about power sub-station, grid sub-station, power distribution, transformer (both CT and PT), isolator, circuit Breaker, lightning arrester, air breaker switch, auto voltage regulator, auto circuit recloser, grounding, maintenance and workshop, client related services, billing system etc. From our academic courses we learn about these things theoretically, which we saw and learned practically in our internship period.

DETAILS OF TRAINING SCHEDULE

ঢাকা পল্লী বিদ্যুৎ সমিতি-১
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স্মারকনং-ঢাকা পবিস-১/নিপর/১০০.১৮৭/২০১১/২০৮২ তারিখ:২২/১২/২০১১ ইং

বিষয়ঃ- ইষ্ট ওয়েষ্ট ইউনিভার্সিটির ০৪ জন ছাত্রের (Internship)করন প্রসংগে।
সূত্রঃ-EWU(CCC)01/11/Spring-12/60,Date-22/11/2011

উপরোক্ত বিষয়ের প্রেক্ষিতে সংশ্লিষ্ট সকলের অবগতি ও প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য নিম্নোক্ত মতে ইষ্ট ওয়েষ্ট ইউনিভার্সিটির ০৪ জন ছাত্র/ছাত্রীর Internship করন বিষয়ে সহযোগীতার জন্য অনুরোধ করা হল।

ক্রমিক নং	তারিখ	বিষয়	সংযুক্ত দপ্তর	মোট ঘন্টা
০১	২৪/১২/২০১১, ২৬/১২/২০১১	বিদ্যুতের ইতিহাস (EPWAPD, WAPDA,BPDB,REB,PGCB, DPDC,DESCO,WZPDCL, NZPDCL,EGCB,IPP ও CAPTIVE POWER সর্ম্পকে ধারনা ও নিপর বিভাগের কার্য্যবলী।	নিপর বিভাগ ,সদর দপ্তর	০৯:০০-১৩:০০ এবং ১৪:০০-১৭:০০
০২	২৭/১২/২০১১	সদস্য সেবা বিভাগের কার্য্যবলী	সদস্য সেবা বিভাগ	ঐ
০৩	২৮/১২/২০১১	সাধারন সেবা বিভাগের কার্য্যবলী	সাধারন সেবা বিভাগ	ঐ
০৪	২৯/১২/২০১১	প্রকৌশল বিভাগের কার্য্যবলী ও ওয়ার্কশপ	প্রকৌশল বিভাগ	ঐ
০৫	৩১/১২/২০১১	অর্থ বিভাগ(রাজস্ব/হিসাব) বিভাগের কার্য্যবলী	অর্থ বিভাগ(রাজস্ব/হিসাব)	ঐ
০৬	০১/০১/২০১২, ০২/০১/২০১২	উপকেন্দ্র সম্পর্কে জ্ঞানার্জন,লাইন রক্ষনাবেক্ষন কাজ পরিদর্শন,উপকেন্দ্রপরিদর্শন হাতে কলমে প্রশিক্ষন।	নিপর বিভাগ সদর দপ্তর	ঐ
০৭	০৩/০১/২০১২	গ্রীড উপকেন্দ্র সর্ম্পকে জানা, ডিজাইন, কানেকশন সম্পর্কে প্রশিক্ষন গ্রহন।	উপকেন্দ্রের দায়িত্ব প্রাপ্ত এজিএম (নিপর) ,১৩২/৩৩ কেভি গ্রীড উপকেন্দ্র	ঐ
০৮	০৪/০১/২০১২	৩৩ কেভি ব্রেকার ও ১১ কেভি ব্রেকার সম্পর্কে জ্ঞানার্জন।	এজিএম (নিপর) ,সিআর	ঐ
০৯	০৫/০১/২০১২	ষ্টেকিং ও ডিজাইন সম্পর্কে ধারনা	রিটেইনার প্রকৌশলীর দপ্তর	ঐ
১০	০৭/০১/২০১২	সামিট জেনারেশন প্লাট পরিচালন ও কার্যক্রম সম্পর্কে জ্ঞানার্জন	নিপর বিভাগ ,সদর দপ্তর	ঐ
১১	০৮/০১/২০১২	ইউনাইটেড জেনারেশন পরিচালন	নিপর বিভাগ ,সদর দপ্তর	ঐ
১২	০৯/০১/২০১২	সিংগেল লাইন ডায়াগ্রাম ও ভোল্টেজ ড্রপ ক্যালকুলেশন	রিটেইনার প্রকৌশলীর দপ্তর	ঐ
১৩	১০/০১/২০১২	সকল বিভাগ সম্পর্কে পর্যালোচনা ও প্রশ্নোত্তর	নিপর বিভাগ ,সদর দপ্তর	ঐ
১৪	১১/০১/২০১২	মূল্যায়ন	এজিএম (নিপর),সদর দপ্তর	১০.০০-১১.০০

(প্রশান্ত কুমার সূত্রধর)
এজিএম(নিপর)

অনুলিপিঃ-
০১। জেনারেল ম্যানেজার, ঢাকা পবিস-১,সদয় অবগতির জন্য।
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০৩। এজিএম(ইঞ্জিঃ),/এমএস/জিএস/অর্থ(রাজস্ব,হিসাব),নিপর(সিআর/গ্রীড) ঢাকা পবিস-১।
০৪। রিটেইনার প্রকৌশলী, টিএসএল ,ঢাকা পবিস-১।
০৫। অফিস/মাষ্টার কপি।

এজিএম(নিপর)

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1. Introduction

Electricity is a vital ingredient, to upgrade the socio-economic condition and to alleviate poverty. The supply of electricity has a great impact on the national economy. Proper and enough reliable electricity supply have a great positive impact on our GDP and GDP is one of the key measures to understand the economy of a country. Because when the foreign investors want to invest in any country at first they observe the economic growth or the GDP of the country. For the developing country like Bangladesh, foreign investment is very necessary to develop the country. Bangladesh is a densely populated country of 170 million (approximately). Population is increasing but generation of power is not increasing. Only 42 % of the country's population has access to electricity, which is very low compared to other developing countries of the world. And per capita generation is 164 kWh which is also lower compared to the neighboring countries. This current power crisis is slowing the pace of our GDP growth rate.

Currently, Bangladesh GDP growth rate is 8.51% which need to be increased a lot to have a stable economy. To increase the GDP growth rate, available and reasonably priced electricity is a prerequisite because Bangladesh economy is depending upon educational, agricultural, industrial, commercial and other relevant development. These developments directly and indirectly depend upon uninterruptable electricity supply. The main reason for the current power crisis is the demand of power is very high but the generation capacity is very low. Hence, there is a huge short age of power. Huge power capacity addition is needed. Additional generated power will need to be transferred to the desired distribution centers. So transmission capacity also needs to be upgraded and transmitted power need to distribute with a minimum system loss to different places. That's why distribution technology also needs to be upgraded. For the improvement of power sector huge investment is required. There is huge gap existing in Bangladesh power sector. For this reason government is attracting foreign and private investors through vision and policy guideline, making reform and restructure and by giving fiscal incentives. So investment opportunities in Bangladesh power sector are promising for private sector and foreign investors.

1.0 Purpose of the Study

The growing future of any country is totally dependent upon the socio-economic situation. Power is a very essential factor to improve the socio economic situation. Power sector is one of the most important sectors which need a huge investment. Huge power crises exist in Bangladesh. Demand for power is very high but supply of power is very low. This demand supply gap has created an investment opportunity. Currently net generated power is not enough more power need to be generated. For new generation of power huge investment is needed in power sector. Bangladesh government alone cannot invest such a big amount in power sector. So government opened the door for private and foreign investors to invest in power generation. As power sector is a growing sector so investing in power sector in capital market will also be very profitable. Palli Bidyut Samity also play a great role to meet up the daily needs of electricity that's why it is very popular name among the people of Bangladesh. So our main objective of this internship was to study Palli Bidyut Samity power system structure.

1.1 History

1.1.1 History of Electricity

Power is a small word but makes our life easy and comfortable. This small word is not built in a day. It is the beauty and gift of Science where it has a history of discovering Electricity. Many people think **Benjamin Franklin** discovered electricity with his famous kite-flying experiments in 1752, but electricity was not discovered all at once. At first, electricity was associated with light. People wanted a cheap and safe way to light their homes, and scientists thought electricity might be a way.

1.1.2 History of Electricity Generation and Distribution in Bangladesh

Dhaka, the capital city of Bangladesh is an ancient city. There is a public saying that Nawab of Dhaka installed a small generator in his residence "Ahsan Monjil" and started generating power at 5pm on 7th of December 1901, which is considered as the introduction of electricity in the

Dhaka city. Later, in and around 1930, M/S. DEVCO, a subsidiary of M/S. Octavian's Steel Company, developed electricity distribution system at 400V level under complete private ownership and brought that for public use. Most probably in the year 1933 a power generating station named "Dhanmondi Power House" was established with two 1500 KW generators each and from there the electricity distribution system was started to sale to the public on commercial basis. At first BPDB (Bangladesh Power Development Board) used to generate transmit and distribute power. Then Bangladesh government formulated National Energy Policy in 1996 and segregated power generation, transmission, and distribution functions in to separate services. BPDB started generating power; transmission responsibility was given to PGCB (Power Grid Company Bangladesh). BPDB used to distribute power to mainly the urban areas except the metropolitan city of Dhaka. The responsibility of distributing power in Dhaka was given to Dhaka Electric Supply Authority (DESA). Later, DESA went through lots of controversies and corruption, so government created a new subsidiary named Dhaka Electric Supply Company Ltd. (DESCO) and provided the responsibility of electricity distribution in Mirpur, Gulshan,Baridhara and Uttora area of Dhaka.

2. Company Profile

2.1 Foundation of Palli Bidyut Samity

A well planned and organized rural electrification program did not exist till 1970s. One of our main earning sources is agriculture and for irrigation purpose power is very much needed. Bangladesh was being developed after independence and development plans of Bangladesh recognized the necessity of electrifying rural area. To increase economic growth, employment generation and alleviation of poverty electrifying rural area is very important. At that time, Bangladesh government engaged two consulting firms of USA to carry out a comprehensive feasibility study on rural electrification in Bangladesh.

The firms studied overall related issues in depth and gave recommendation for a sustainable and viable rural electrification program. Then in late 1970s Government of Bangladesh (GOB) created Rural Electrification Board (REB) through REB ordinance LI of 1977. The Board is a statutory Government organization with primary responsibility to implement countrywide rural

electrification. To achieve this objective of rural electrification program the Board established Palli Bidyut Samities (PBS) based on the model of Rural Electric Co-operatives in USA. For the commendable performance of PBS at present, the rural people are under coverage of electrification, which created new job opportunities and access to electronic media. This also improved the standard of rural people's living. Electricity is now available to operate 86,766 irrigation pumps, 62,875 small and cottage industry units, 373,119 commercial setups and 8,733 other establishments in the rural areas. In our country there are 70 PBS where service line is about 225000 Km and consumer is 75 Lac. REB achieved an outstanding success in electrifying rural area. The main reason of REB's success was the introduction of the Performance Target Agreement (PTA), which encouraged rural electric societies to improve their performances.

2.2Overview

Till date in Bangladesh the power sector has been under the authority of government directly or indirectly. The power sector in Bangladesh has been managed, facilitated and regularized by the government in such a way that delivers the flourished outcome. Overview of Bangladesh power sector has been given below

Owner & Regulator

Power Division, Ministry of Power, Energy & Mineral Resources

Generation

Bangladesh Power Development Board (BPDB)

Rural Electrification Board (REB)

Ashuganj Power station Co. Ltd (APSCL)

Electricity Generation Company of Bangladesh Ltd. (EGCBL)

Independent Power Producer (IPP)

Small Power Producer (SPP)

Transmission

Power Grid Company of Bangladesh Ltd. (PGCB)

Distribution

Bangladesh Power Development Board (BPDB)

Dhaka Electricity Supply Authority (DESA)

Dhaka Electric Supply Company Ltd (DESCO)

Rural Electrification Board through Rural Electric Co-operatives, Palli Biddyut Samities (PBS)

West Zone Power Distribution Co. Ltd (WZPDCL).

2.3 Organogram of Dhaka Palli Bidyut Samity-1

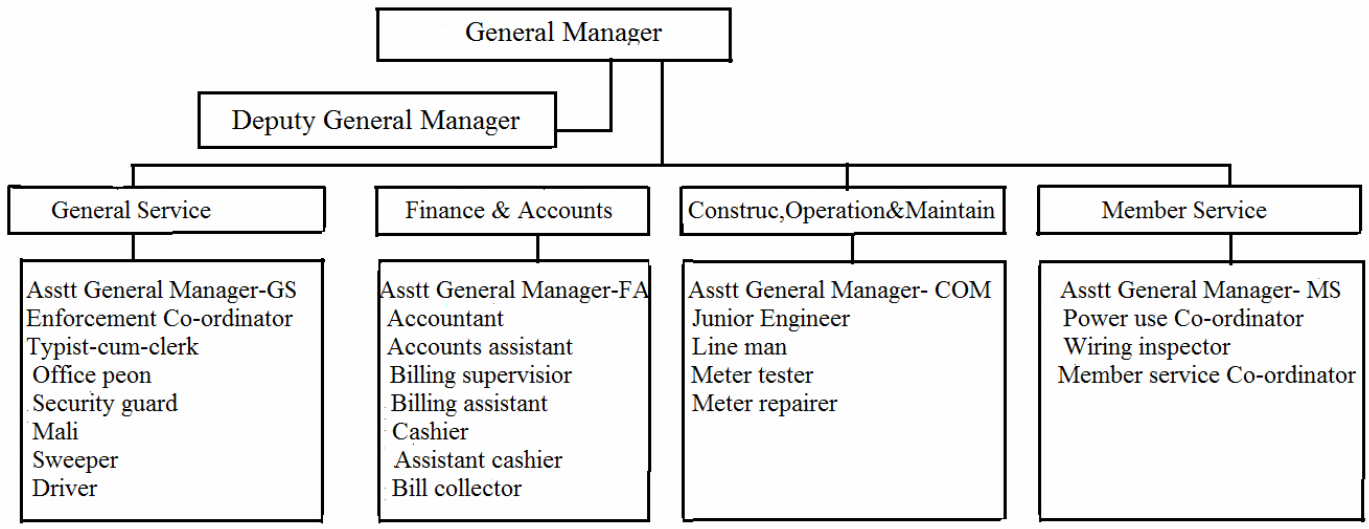


Fig 2.1: Organogram of Dhaka Palli Bidyut Samity-1

2.4 Objective of Palli Bidyut Samity-1

1) Production of electricity, transmission, conversion and establishing distribution system.
2) To ensure effective use of electricity for rural development.
3) To determine conditions of rural electrification to achieve maximum social outcome.
4) To execute survey or feasibility study to establish electricity distribution system for the development of the countries Infra-structure.
5) Presentation of the prospect-plan including report for Government approval.
6) To acquire assets and liabilities along with distribution system from other organization and run these.
7) To create rural electrification club/forum assembling the probable customers.
8) To circulate rules to run the forum/club and register with the board.
9) To arrange donations and loans from Government, other organizations even individuals as to execute the duties given to Rural Electrification Board (REB) about rural electrification.
10) To arrange advance fund for the forum to run its approved activities according to specific condition and system.
11) To transfer the already executed project administration and maintenance according prior specific condition.
12) Preparation, implementation, direction and management to arrange rural electrification programmed effectively.
13) To give direction about quality standard of goods, works, machineries, direction, maintenance and procurement as to follow by registered board or groups by Rural Electrification Board.
14) To specify the conditions of loan payment of loans board or others group and to provide rules for project evaluation and proper administration.
15) To reconciliation the staff who works in local government administration, interested non-government organizations, local authority as well as rural development and various fields as establishing trade and agricultural development.
16) To involve in business related electronic machineries production and to sign any contract as to perform the duties given to REB.

17) To take any action or even force if necessary according to the duties by the ordinance along with some special power given to Rural Electrification Board so that duties are performed accordingly.

2.5 At a Glance of PBS-1 on November 2011:

1) Date of Registration : 13-12-1978
2) Date of Energization : 02-06-1980
3) Area : 911 Sq. Km
4) No of Upazilla : 03
5) No of Union : 40
6) No of Zonal office : 07
7) No of area office : 01
8) No of complain centre : 16
9) No of control room : 02
10) No of Village : 1078
11) No of Village Electrified : 984
12) % of Village Electrified : 91%
13) Line Construction Required for total Electrification : 5100Km
14) Total line constructed : 4422Km
15) Total consumer connected : 3,32,709
16) Category wise connection
    a) Domestic : 2,89,124
    b) Commercial : 29,615
    c) Irrigation pump : 4,816
    1) DTW : 544(Savar-77, Dham-265, Kalia-202)
    2) STW : 4006(Savar-76, Dham-3473, Kalia-457)
    3) LLP : 226(Savar-20, Dham-147, Kalia-99)
    d) Industry
        1) LP : 107
        2) GP : 6253

e) Others : 2794

17) Category wise consumption of Electricity

a) Domestic : 53%

b) Commercial : 8%

c) Industrial : 38%

d) Others : 01%

18) No. of SUB-STATION (33/11KV) : 24

19) No. of SUB-STATION (33/11 KV) over loaded : 05

20) No. of 11KV FEEDER : 80

21) No. of over loaded 11KV FEEDER : 21

22) No. of 33KV FEEDER : 12

23) No. of over loaded 33KV FEEDER : 04

24) No. of GRID SUB-STATION : 05

25) No. of over loaded GRID SUB-STATION : 02

26) Max Demand (MW) : 219

27) Purchase of Electricity (KWH) : 50crore 63Lac (from July-11 to Nov-11)

28) Sold of Electricity (KWH) : 44crore 61Lac (from July-11 to Nov-11)

29) Purchase of Electricity (TAKA) : 149crore 56Lac (from July-11 to Nov-11)

30) Sold of Electricity (TAKA) : 179crore 27Lac

31) Average sailing rate (TAKA) : 4.03 (from July-11 to Nov-11)

32) System Loss

a) Sub-Station meter (2010-2011) : 7.31%

b) Grid meter (2010-2011) : 10.88%

33) Month of Outstanding : 1.52

34) Collection Percentage : 95.47%

35) Revenue per KM (2010-2011) TAKA : 865000

36) No. of Employees : 806 (Female-96)

37) Ratio of Consumer & line man : 1700:1

38) Consumer per KM : 74

39) No. of distribution X-former : 20,504

40) No. of distribution X-former(Over loaded) : 1854

41) X-former upgrade in year 2010-2011 : 578

42) X-former upgrade from July-11 to Nov-11 : 302

43) Name of Electrical Consultant : M/S TECHNOLOGICAL SERVICES LTD.

2.6 Member Service Department (MS):

Kaliakoir, Dhamrai, Savar are the main upazilla of DPBS-1 where the service depends on geographical design and load. Before getting new connection the rule is only the members will get new connection and this will be fulfilled by depositing 20TK. Then the procedures given below

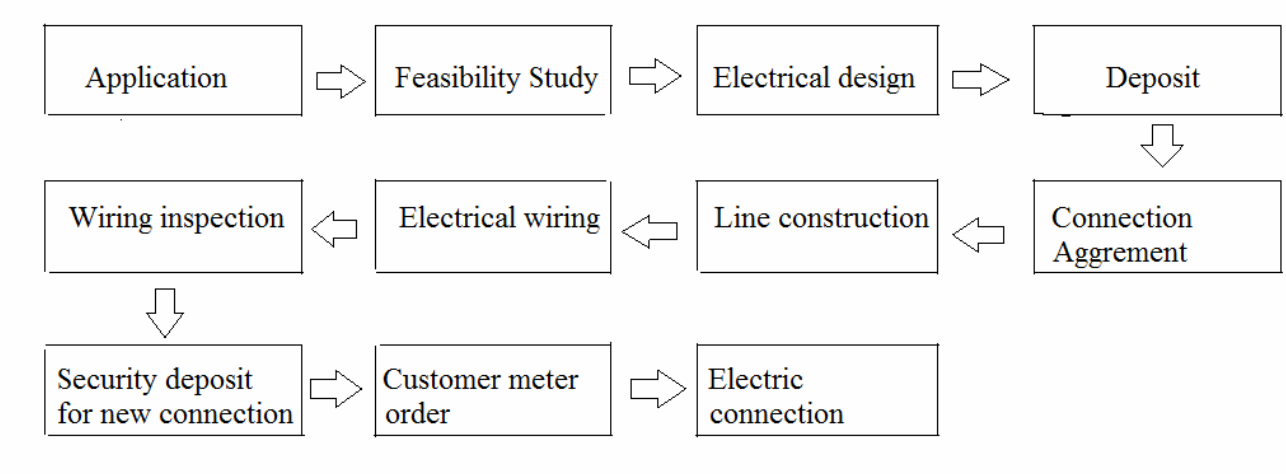


Fig 2.2: Steps of Electrical Connection in Palli Bidyut Samity-1

MS (Member Service) department also provide one point service which will be described in next subsection.

2.6.1 One Point Service:

1) The customer Service provides individual Customer services from one desk/point is referred to as “One Point Service”.
2) At first, customers fill-up a prescribed complain-form, available at one point desk. After solving the problems/ complaints (it may be different department related problems/complaints) customers get necessary information’s/services from the same one point desk.
3) Generally, Customers can get the following services from **“One Point Service desk”** :-
    a) Meter Related: More/less running, Socket burn, Seal broken, blue seal missing, Broken/missing, Meter runs without load, not running, Testing, Shifting etc.
    b) Wiring inspection.
    c) Service entrance cable burn.
    d) Consumer deposited meter/security money deposit but not yet get connection.
    e) Monthly electric bill missing.
    f) Disconnection/Reconnection.
    g) Right off way problems (cutting tree to free the lines).
    h) Duplicate bill.
    i) Consumer ownership charge.
    j) New connection procedure.
    k) Load shedding.
    l) Illegal connection, meter by pass, illegal electricity use etc.
    m) More/less electrical bill.
    n) Information for outstanding bill.

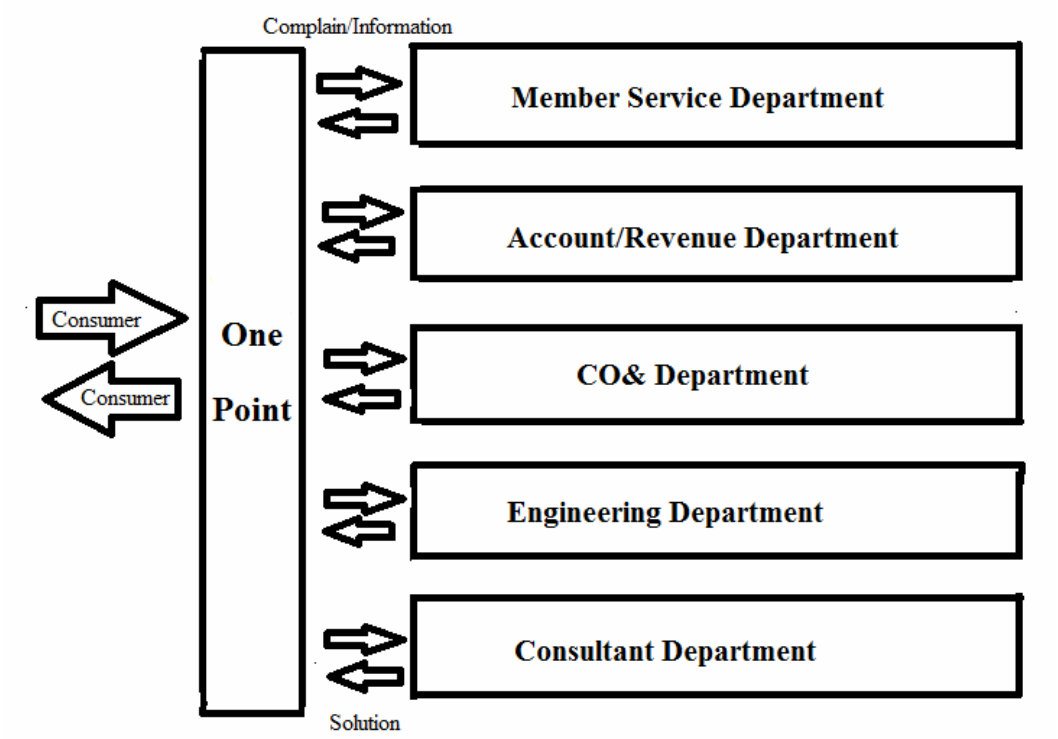


Fig 2.3: One Point Service

2.7 General Service (GS) Department:

The internal services run through this department. The services are following

1) At first they make a selection board.
2) New materials are bought through tender by this board.
3) Employee Logistic Support.
4) Salary, Vacation, Sue, Transport, Meeting also this department's duty.

2.8 Construction, Operation and Maintains (CO&M) Department:

This department is actually run by Engineers and their services are given below:

1) Line and system maintenance, operation.
2) Line and meter inspection, maintenance.
3) Meter connection, re-connection, dis-connection.
4) Meter test and repair.
5) Complain about connection.

2.9 Finance Department:

This department is actually worked for employee salary, bill collection, bank reconciliation, Annual budget etc. All those things are come from billing money, governmental fund etc. Their main work bill is given below

Billing, Billing Procedure & Bill Collection:

A) Each Meter reader collects 2000 domestic and commercial customer meter reading per month.
B) Supervisor and Officers collect irrigation and industrial meter readings.
C) After collecting meter readings, each billing assistant prepares 5000 electric bill per month.
D) Each messenger distributes 2000 electric bills to the consumer premises per month.
E) Electric bills are collected by cashier of PBS cash collection booth and also collected by different commercial banks.

In below there is a bar graph of October 2011 in where it shows how much number billed, KWH sold, amount billed, Number of minimum bill.

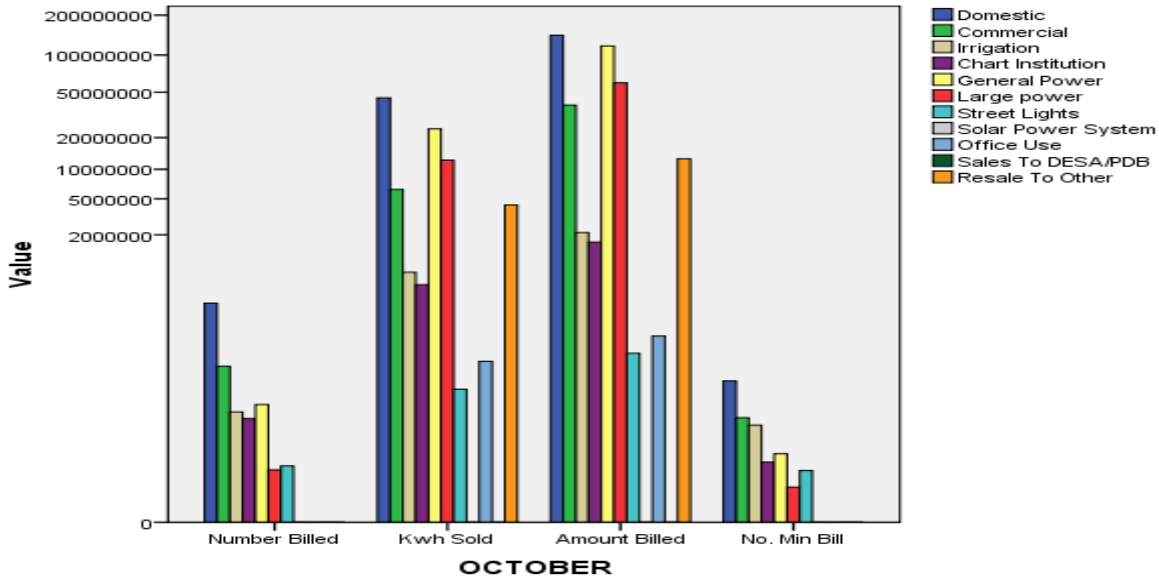


Fig 2.4: Billing bar graph of October

2.10 Design

2.10.1 Staking

The main aim of DPBS-1 is to distribute continuous and disturb less power for popularity among the customers. At first they plan for give their maximum. The strategy which they apply for giving best effort is making a detail area plan for putting their service line through the feeder, pillar, transformer etc. The plan or the whole design that's they have used is called Staking.

At first they take the geographical map where they want to put service line, like Fulbaria. They take the geographical map of Fulbari and then they form a team for collecting data's of population depth, low area, high area, watery area, low earning people area, high earning people area, industrial area, market area etc. This map is called Key map where 1"=1mile. Then they make an engineering drawing map where demanding load, distance between the service pillar and consumer house is a big question because cost is a major factor in engineering. DPBS-1 always establishes 11KV line and service voltage is 220V or 440V.

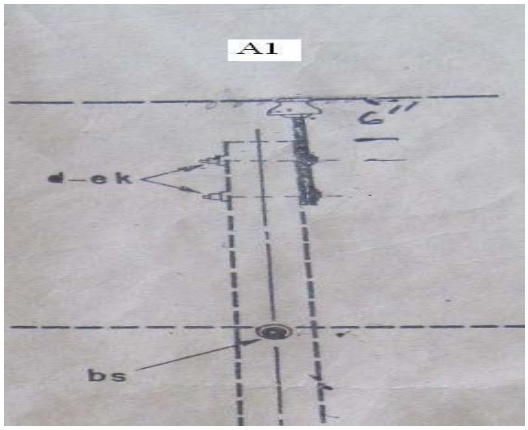
For engineering drawing Palli Bidyut Samity-01 always follow '100-28' book for Standard specification and drawings where at first they draw the backbone line means feeder line. Those lines provide them in where they will make Sub-Station. The line which comes from the back bone line called Lateral line. Those lines (lateral lines) go to the consumer house. Lateral lines are categorized into different modules depend on distance, distribution and loads. They are 0-1 category, 1-3 category, 3-5 category and last 5> category. All those categories are described in the '100-28' book.

After the lateral line drawing now it is the duty for establishing fittings for supplying power and also protection for the system. Fittings are 2 types where one is Primary and the other is Secondary. Categories mainly depend on loads where tangent is also a major fact for establishing service pillar because all places are not same.

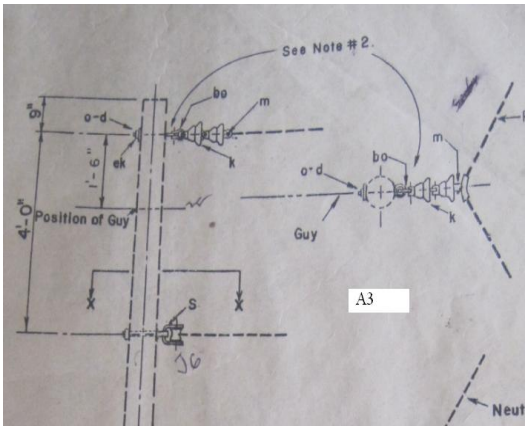
2.10.1. a) Primary Line

11KV Single Phase primary line is denoted with A and 11KV Single support tangent line expressed by A1. Also 11KV double primary support tangent line expressed by A1-1. So if the

tangent is 0°-30° then it is denoted by A2, 30°-60° then it is denoted by A3, 60° - 90° then it is denoted by A4. And at last the dead-end (where the service line ends) is denoted by A5.



(a)



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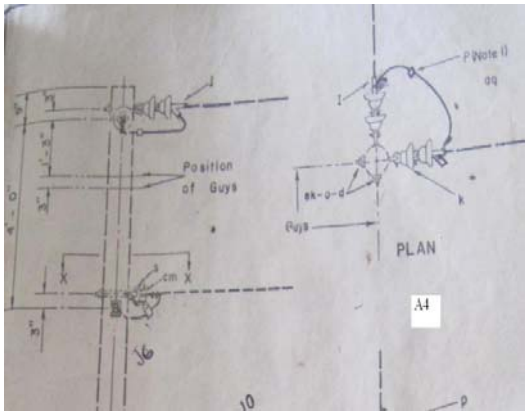

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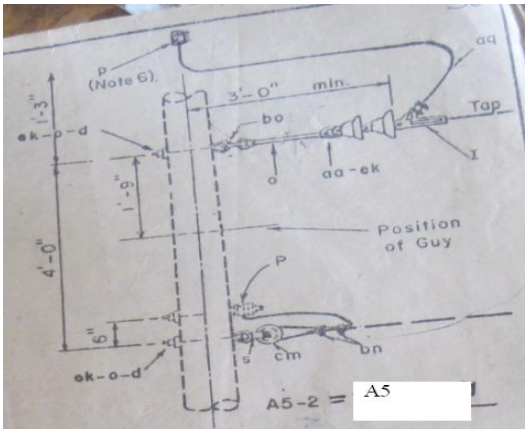
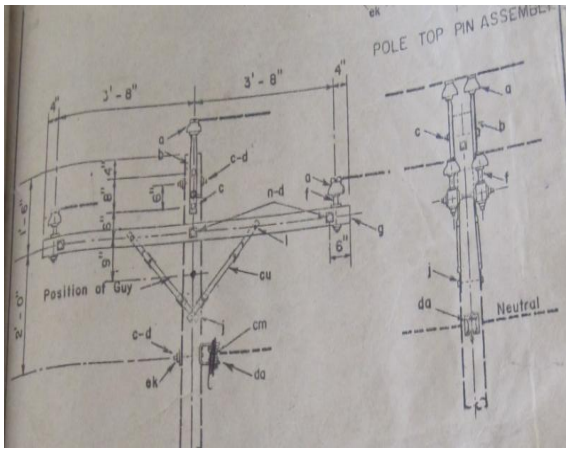


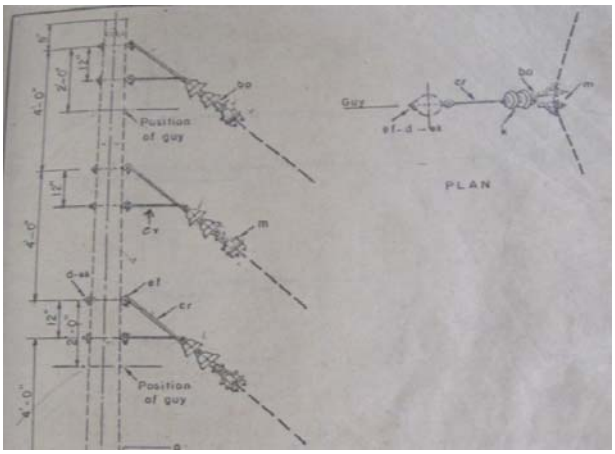
(d)

Fig 2.5: Different type of primary line. a)A1, b)A3, c)A4, d)A5

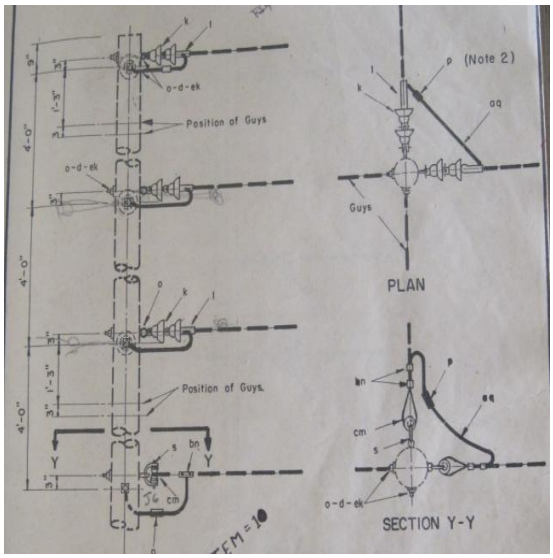
11KV three Phase primary lines expressed by C1 and 11KV three phase double primary support line expressed by C1-1. So if the tangent is 0° - 30° then it is denoted by C2, 30° - 60° then it is denoted by C3, 60° - 90° then it is denoted by C4. And at last the dead-end (Where the service line ends) is denoted by C7.



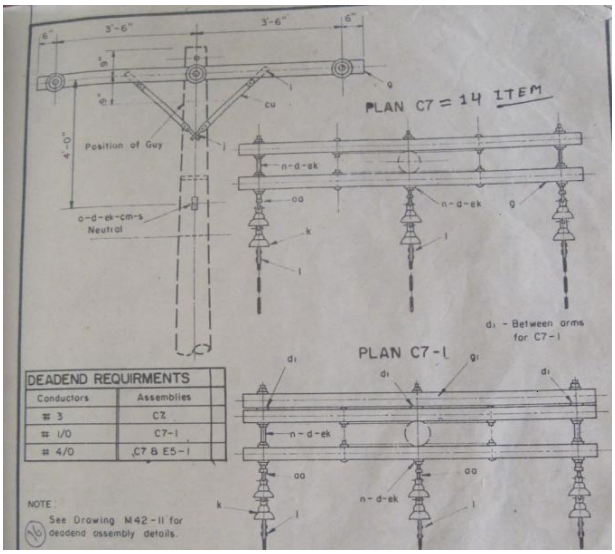
(a)



(b)



(c)



(d)

Fig 2.6: Different type of primary line. a)C-2 b)C-3 c)C-4 d)C-7

As earlier we have explained that all areas are not same that's why for some areas the service pillars are giving strength by guy wire which is expressed by E1 and it is completely goes to the radius of the wire. So if the radius is ¼ then it is denoted by E1-1, if it is 3/8 then it is denoted by E1-2, if it is 7/16 then it is denoted by E1-3.

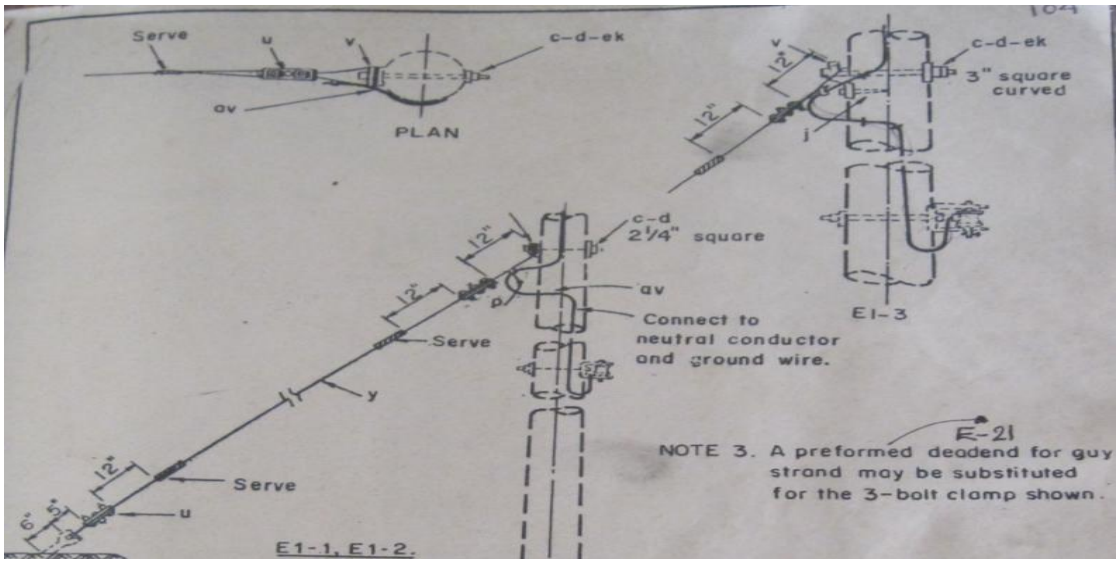
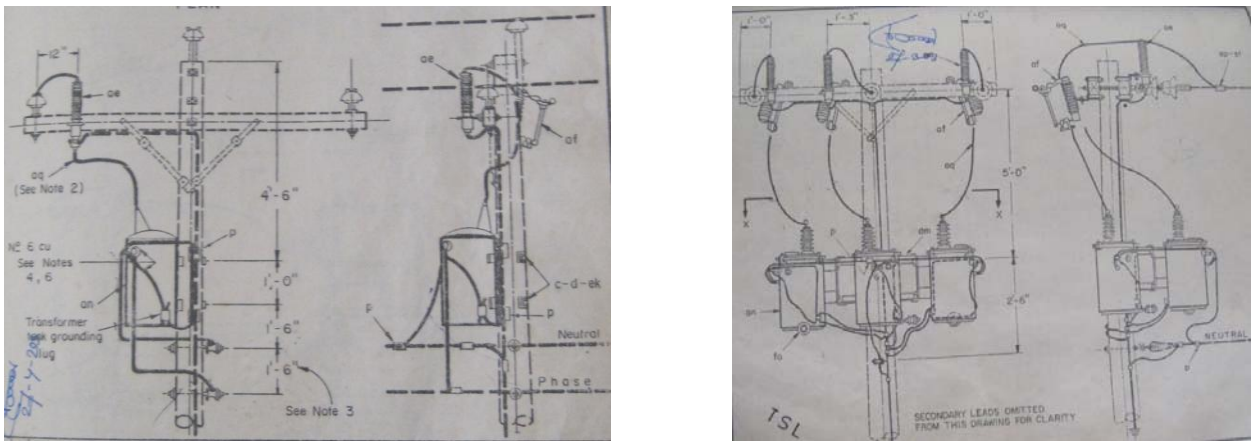


Fig 2.7: Different type of primary line.E1-1, E1-2, E1-3

Where soil is not much hard then the service pillar need anchor for extra strength which is denoted by F2. For 3 Feet anchor it is denoted by F2-1, 6 Feet anchor it is denoted by F2-2. In this book transformer is denoted by G. For single line tangent it is expressed by G105. When the line is three phase but the transformer is single phase then it is expressed by G136. When three single phase transformer are on three phase line then it is expressed by G312.



a) b)

Fig 2.8: Different type of 1-Φ primary line. a)G-136, b)G-312

2.10.1. b) Secondary Line

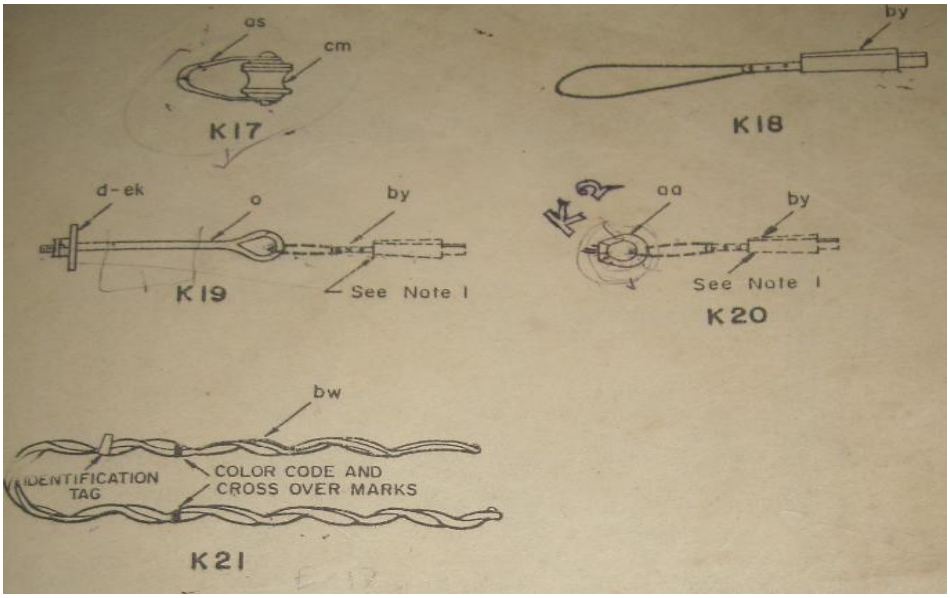


Fig 2.9: Different type of secondary line. K-17-21

For hook up the COVERED conductors it is expressed by K19, K20 and K21.

For hook up the UNCOVERED conductors it is expressed by J5, J6 and J8.

Every pillar is grounding for over voltage protection. For that they used ROD GROUNDING where its height is 8 Feet and expressed by M2. For system grounding after four pole it is expressed by M2-1. The pole which contains Transformer is expressed by M2-11. Also they used METAL PLATE GROUNDING for 33KV line and it is denoted by M2-2.

After establishing primary and secondary lines it comes miscellaneous items like wire where PDB used ACSR (Aluminum Conductor Steel Reinforce). The distance between two poles is 90M (300Feet) and the distance between poles to consumer house is 30M. For conductor PDB follows 100-21 book for Engineering & Staking Manual. The sheets which content data are called Staking Sheet.

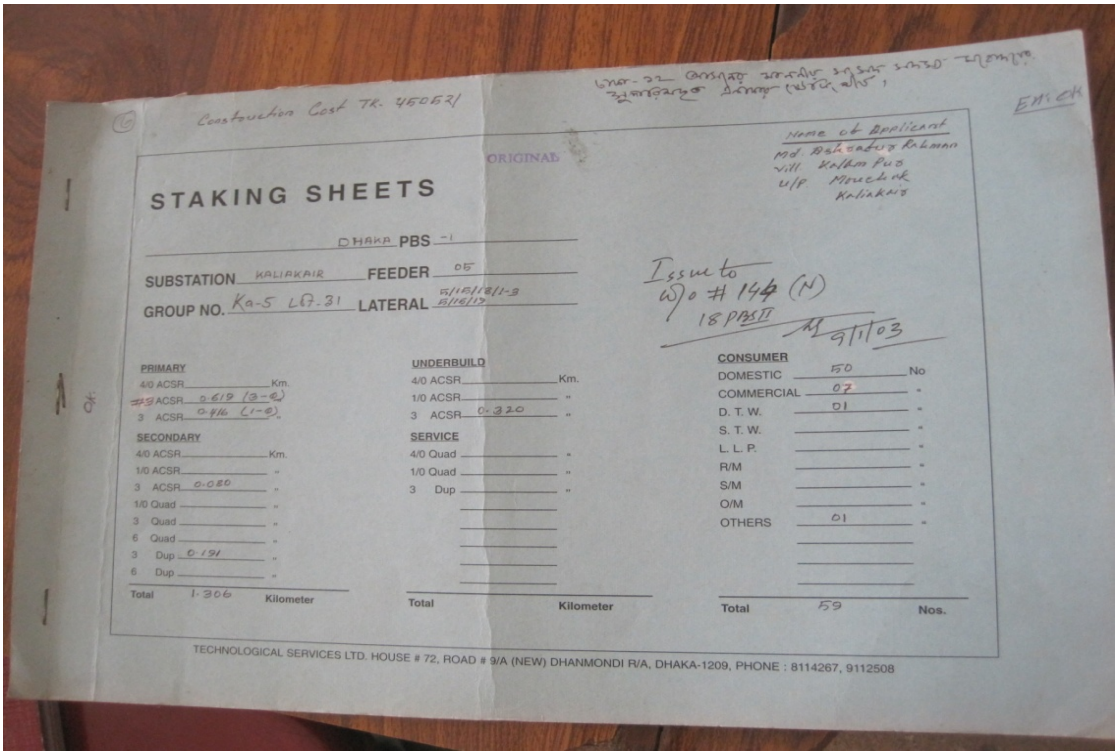


Fig 2.10: Staking Sheet

2.10.2 Single Line Diagrams

In power engineering, a one-line diagram or single-line diagram is a simplified notation for representing a three-phase power system. The one-line diagram has its largest application in power flow studies. Electrical elements such as circuit breakers, transformers, capacitors, bus bars, and conductors are shown by standardized schematic symbols. Instead of representing each of three phases with a separate line or terminal, only one conductor is represented. Elements on the diagram do not represent the physical size or location of the electrical equipment, but it is a common convention to organize the diagram with the same left-to-right, top-to-bottom sequence as the switchgear or other apparatus represented.

A typical one-line diagram with annotated power flows. Red boxes represent circuit breakers, lines represent three-phase bus and interconnecting conductors, the orange circle represents an electric generator, the green spiral is an inductor, and the three overlapping blue circles represent a double-wound transformer with a tertiary winding.

Power systems are extremely complicated electrical networks that are geographically spread over very large areas. For most part, they are also three phase networks – each power circuit consists of three conductors and all devices such as generators, transformers, breakers etc are installed in all three phases. In fact, the power systems are so complex that a complete conventional diagram showing all the connections is impractical. Yet, it is desirable, that there is some concise way of communicating the basic arrangement of power system components. This is done by using Single Line Diagrams (SLD). SLDs are also called One Line Diagrams.

Single Line Diagrams do not show the exact electrical connections of the circuits. As the name suggests, SLDs use a single line to represent all three phases. They show the relative electrical interconnections of generators, transformers, transmission and distribution lines, loads, circuit breakers, etc., used in assembling the power system. For example, if the SLD is used in initial stages of designing a substation, then all major equipment will be included in the diagram – major equipment being transformers, breakers, disconnects and buses. There is no need to include instrument transformers or protection and metering devices. However, if the purpose is to design a protection scheme for the equipment in the substation, then instrument transformers and relays are also included. There is no universally accepted set of symbols used for single line diagrams. Often used symbols are shown in Fig2.11 The variations in symbols are usually minor and are not difficult to understand.

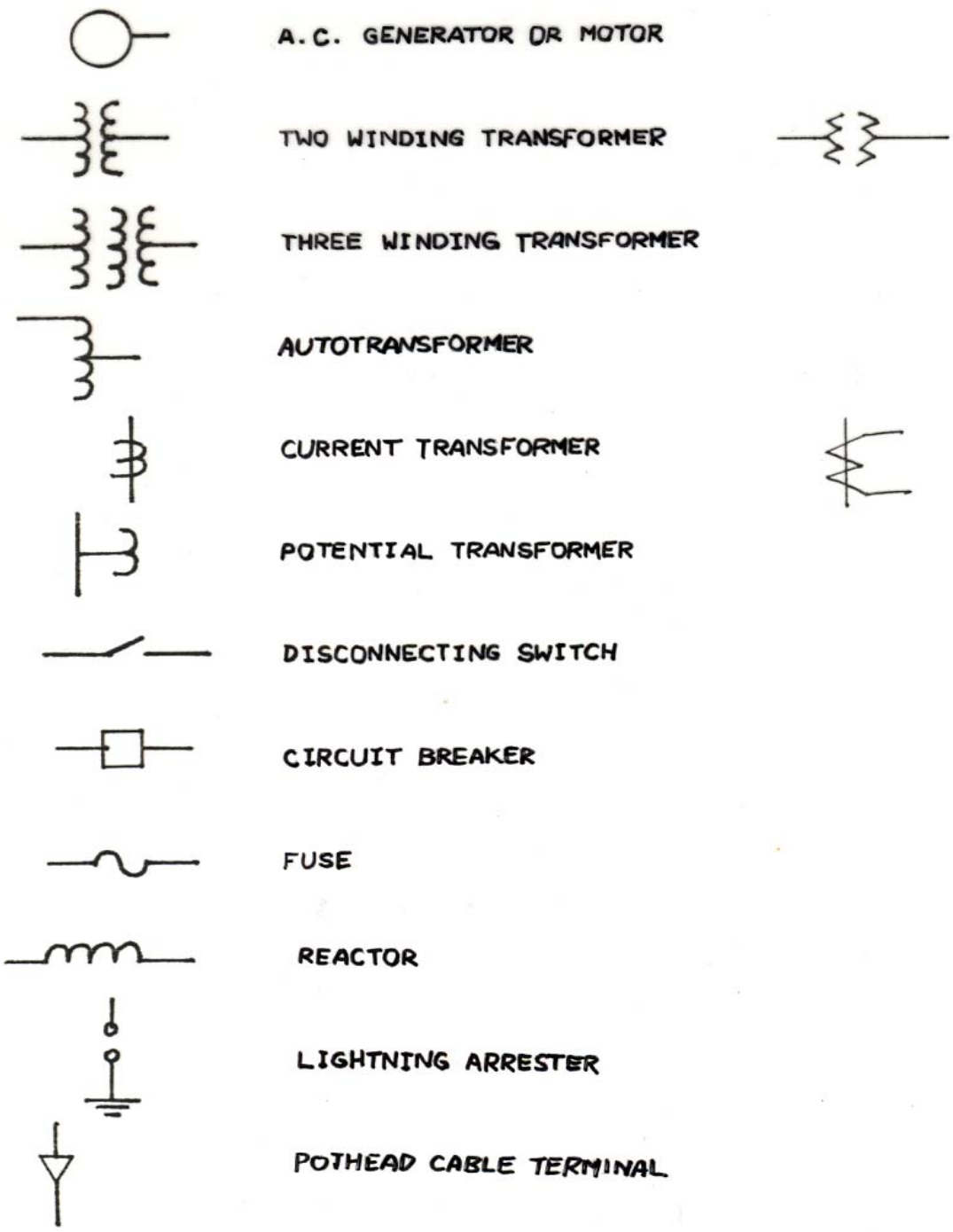


Fig 2.11: Graphical Symbols for Single Line Diagrams

2.10.3 Voltage drop

Voltage drop is the reduction in voltage in the passive elements (not containing sources) of an electrical circuit. Voltage drops across conductors, contacts, connectors and source internal resistances are undesired as they reduce the supplied voltage while voltage drops across loads and other electrical and electronic elements are useful and desired.

In electrical wiring, national and local electrical codes may set guidelines for maximum voltage drop allowed in circuit conductors, to ensure reasonable efficiency of distribution and proper operation of electrical equipment. Voltage drop may be neglected when the impedance of the interconnecting conductors is small relative to the other components of the circuit. For example, an electric space heater may very well have a resistance of ten ohms, and the wires which supply it may have a resistance of 0.2 ohms, about 2% of the total circuit resistance. This means that 2% of the supplied voltage is actually being lost by the wire itself. Excessive voltage drop will result in unsatisfactory operation of electrical equipment, and represents energy wastage in the wiring system. Voltage drop can also cause damage to electrical motors.

In electronic design and power transmission, various techniques are used to compensate for the effect of voltage drop on long circuits or where voltage levels must be accurately maintained. The simplest way to reduce voltage drop is to increase the diameter of the conductor between the source and the load which lowers the overall resistance. The more sophisticated techniques use active elements to compensate the undesired voltage drop.

For measuring voltage drop DPBS-1 used two kind of software. One is Lotus (earlier version of Ms-Excel) for data entry. Those data denotes source end, load end, section length, total distance, wire name, total load, section current, voltage drop factor etc. After putting all of the data we can find on which point the voltage is dropped or not. Like from the figure Fulbari Feeder no-02, voltage drop from pole 57-67 is .34 where distance is 4.38Km. The standard voltage drop is 6.9 but if it goes high then they take necessary steps.

Line Section Information		Section Length (Km.)	Total Distance (Km.)	Line Con.-Ph	Total Load KW	Section Currents Amps	Voltage Drop Factor	Voltage Drop	
Source End	Load End							This Section	Upto This Section
S/S	39	1.75	1.75	4/0-3Ph	600.22	34.62	0.9197	0.97	0.97
39	39/8	0.36	2.11	#3-3Ph	25.18	1.45	2.6856	0.02	0.99
39	57	1.80	3.55	4/0-3Ph	502.63	28.99	0.9197	0.83	1.80
57	57/9	0.58	4.13	#3-1Ph	19.53	3.38	9.3890	0.11	1.90
57	67	0.83	4.38	4/0-3Ph	439.05	25.32	0.9197	0.34	2.13
67	67/4	0.27	4.65	#3-3Ph	68.51	3.95	2.6856	0.05	2.18
67	96	1.31	5.69	4/0-3Ph	316.47	18.25	0.9197	0.38	2.51
96	96/42	1.89	7.58	#3-3Ph	162.73	9.39	2.6856	0.83	3.34

Table-2.1: Feeder wise voltage drop calculation (Bismile Power Sub-station)

The other software used for calculating voltage drop is Harvard Graphics from where we can observe voltage drop in pasteurized form. Like in figure Fulbari Feeder no-02, it is voltage vs distance graph. Here we can observe voltage drop where the maximum voltage in that line is 241.5V.

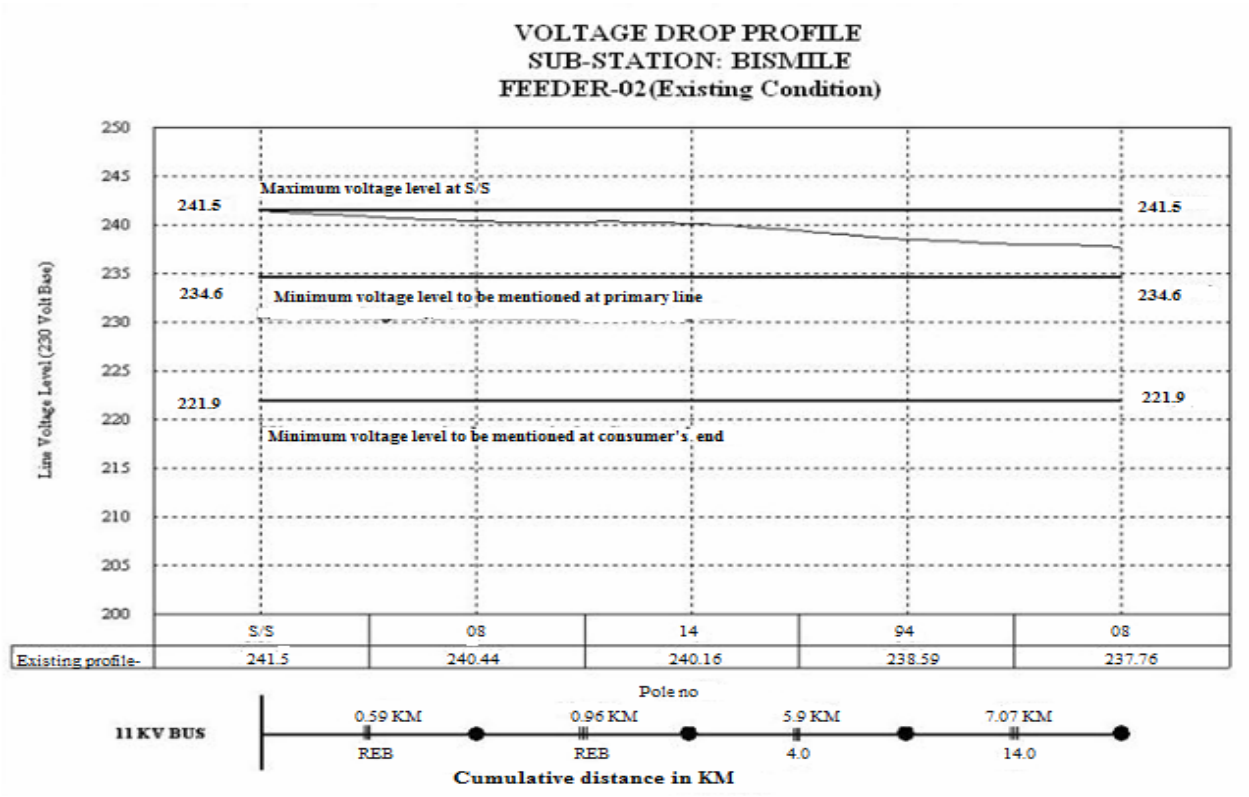


Fig 2.12: Voltage drop profile (voltage vs. distance)

3. Power Generation

3.1 Power Station

A power station is an industrial facility for the generation of electric power. The world's first power station was built by **Sigmund Schuckert** in the Bavarian town of Ettal and went to operation in 1878 and the generators were driven by steam engine.

During our internship we have visited two power generation companies. They are Summit Power Generation Limited and the other is United Power Generation Limited where we have seen power generation process, Engine, Control room and also distribution system.

3.1.1 Summit Power Generation Limited

This power plant is at Ashulia, Savar. Their production started from 27th April 2006. There are 2 types of engine in Summit power plant. One is **Wartsilla Engine (**quantity 4) from Ireland whose daily production capacity is 34MW. Another is **Caterpillar Engine** (quantity 3) from USA whose daily production is 11MW. So this plant total generation capacity is 45MW. The fuel of this plant is Natural Gas. The supplier gas is Titas and DPBS-1(Dhaka Palli Bidyut Samity-1) is the main consumer of this plant. We have also seen their control room office where in case of any emergency they can do any kind of operation like engine on or off through the computer. Their control system is given below

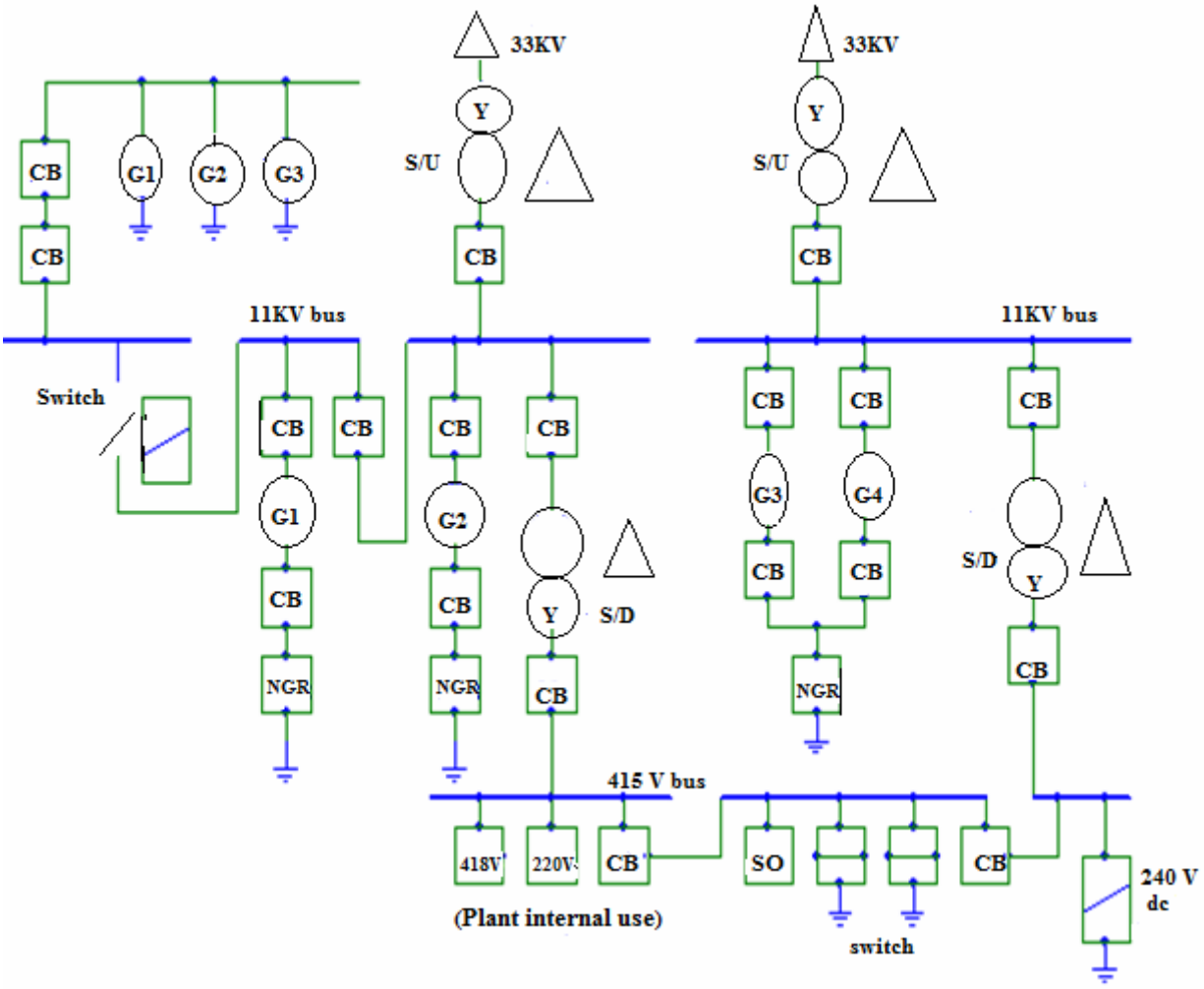


Fig 3.1: Control system of Summit Power Generation Limited

From the figure the upper left side is Cater pillar engine with protection of circuit breaker. Circuit breakers one side is join with engine and the other side is joining with 11KV bus bar. The 4 Wartsilla engines are in the lower side of the figure where they are also connected with circuit breaker for protection. From here we will get 11KV which goes to the substation for step up with 33KV. For their internal power this 11KV step down into 440V which shows at the lower part of right side. In case of power failure and for metering there is also a DC supply shows in the figure. Here in Wartsilla engine G1 & G2 are in parallel connection where it has no connection with G3& G4 because for production any 2 engines are start first. After some time for rest the other 2 engines are began to production. In case of emergency any engine can be shut down from this system

3.1.2 Working Principle of Engine

The engines are called four stroke internal combustion engines. The four strokes refer suction, compression, Expansion (power), and exhaust strokes that occur during two crankshaft rotations per working cycle of the gasoline engine and diesel engine. The four stroke are-

a) Suction stroke

It is the first stroke. Here the piston is pulled towards the crankshaft. The inlet valve is open, and fuel and air are drawn past the valve and into the combustion chamber and cylinder from the inlet manifold located on top of the combustion chamber. The exhaust valve is closed and the electrical contact switch is open. The cylinder and combustion chamber are full of the low pressure fuel/air mixture and, as the piston begins to move to the right, the intake valve closes.

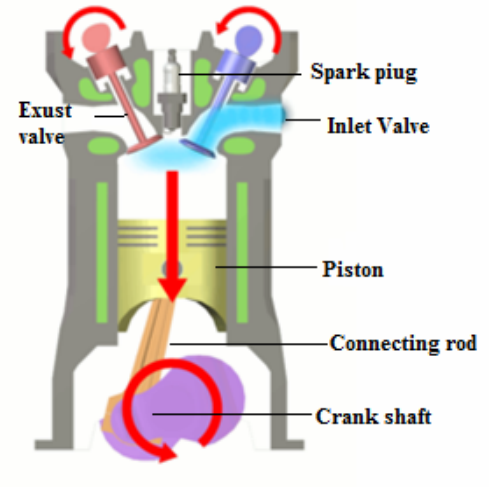


Fig 3.2: Suction (inlet) stroke

b) Compression Stroke

With both valves closed, the combination of the cylinder and combustion chamber form a completely closed vessel containing the fuel/air mixture. As the piston is pushed to the upward, the volume is reduced and the fuel/air mixture is compressed during the compression stroke.

During this no heat is transferred to the fuel/air mixture. As the volume is decreased because of the piston's motion, the pressure in the gas is increased, as described by the laws of thermodynamics. During the compression stroke the electrical contact is kept opened. When the volume is the smallest, and the pressure the highest, the contact is closed.

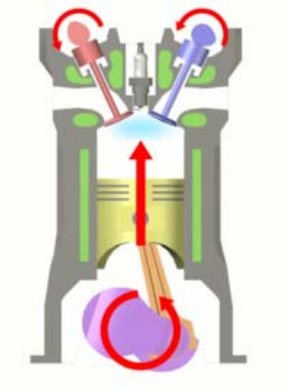


Fig 3.3: Compression Stroke

c) Power Stroke

At the beginning of the power stroke, the electrical contact is opened. The sudden opening of the contact produces a spark in the combustion chamber which ignites the fuel/air mixture. Rapid combustion of the fuel releases heat, and produces exhaust gases in the combustion chamber. Because the intake and exhaust valves are closed, the combustion of the fuel takes place in a totally enclosed (and nearly constant volume) vessel. The combustion increases the temperature of the exhaust gases, any residual air in the combustion chamber, and the combustion chamber itself. From the ideal gas law, the increased temperature of the gases also produces an increased pressure in the combustion chamber. The high pressure of the gases acting on the face of the piston causes the piston to move to the down which initiates the power stroke. Unlike the compression stroke, the hot gas does work on the piston during the power stroke.

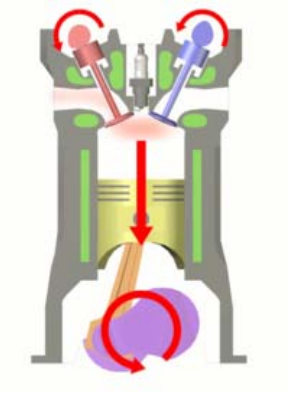


Fig 3.4: Power Stroke

The force on the piston is transmitted by the piston rod to the crankshaft, where the linear motion of the piston is converted to angular motion of the crankshaft. The work done on the piston is then used to turn the shaft, and the propellers, and to compress the gases in the neighboring cylinder's compression stroke. Having produced the igniting spark, the electrical contact remains opened. During the power stroke, the volume occupied by the gases is increased because of the piston motion and no heat is transferred to the fuel/air mixture. As the volume is increased because of the piston's motion, the pressure and temperature of the gas are decreased.

d) Exhaust Stroke

At the end of the power stroke, the piston is located at the far left. Heat that is left over from the power stroke is now transferred to the water in the water jacket until the pressure approaches atmospheric pressure. The exhaust valve is then opened by the cam pushing on the rocker arm to begin the exhaust stroke. The purpose of the exhaust stroke is to clear the cylinder of the spent exhaust in preparation for another ignition cycle. As the exhaust stroke begins, the cylinder and combustion chamber are full of exhaust products at low pressure because the exhaust valve is open. The exhaust gas is pushed past the valve and exits the engine. The intake valve is closed and the electrical contact is open during this movement of the piston.

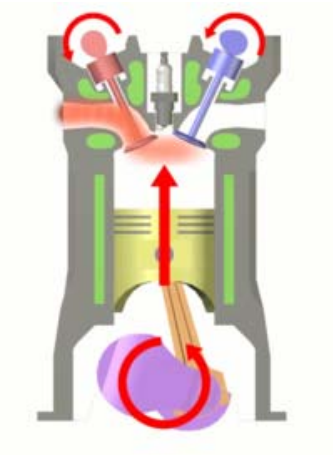


Fig 3.5: Exhaust Stroke

At the end of the exhaust stroke, the exhaust valve is closed and the engine begins another intake stroke.

3.2 United Power Generation limited

This power plant is at DEPZ(Dhaka Export Zone), Savar. Their production started from 25th December 2008. This power plant also has 2 types of engine. One is **Wartsilla** (quantity 4) from Ireland. Daily production capacity is 8.730 MW* 4 = 34.92 MW. The other is **MTU**(quantity 3) from Germany. Daily production capacity is 1.96 MW* 3 = 5.88MW. So overall production is almost 41. This power plant is also a Gas power plant and distributor is Titas and consumer is DEPZ whose daily demand is 38MW (for 25 years) and rest 3MW goes to the other consumer DPBS-1.

4. Power Distribution

4.1 Substation

A substation is a part of an electrical generation, transmission and distribution system. Substations transform voltage from high to low, or low to high. Electric power may flow through several substations between generating plant and consumer, and its voltage may change in several steps. A substation may include x-formers to change voltage levels between high transmission voltages and lower distribution voltages, or at the interconnection of two different transmission voltages.

4.2 Grid Substation

Grid sub-station is such a network from where we take/get huge energy. A grid sub-station is used for power transmission from high power to low power and also used for power distribution. On 03/01/12 we have visited 132/33 KV Grid Sub Station at Savar in Dhaka. There we visited two offices, one is for PGCBL (Power Grid Company Bangladesh Limited) and the other is for PBS-01(Palli Bidyut Samity-01). We have also seen the control room of the Grid Sub Station.

4.2.1 Elements of a Grid Substation

A. Primary power lines

B. Secondary power lines

C. Transformer

C1. X-former for measurement of electric power

a) PT (Potential Transformer)

b) CT (Current Transformer)

C2. Main X-former

D. Control building

Protection elements of Sub-station:

E. Circuit breaker

F. Insulator

G. Lightning arrester

H. Ground wire

I. Security fence

A. Primary Power Lines

In a grid sub-station has different incoming power supply line which is called primary power line. From these lines grid sub-station get the power which is used for transmission and distribution. The grid sub-station of PBS-01 has two primary power lines and in here, one line is active and another is normally disconnected. This allows if one line disconnected then the sub-station get the power from another. The incoming power rating of Savar Grid Sub-station of PBS-01 is 132KVA.

B. Secondary Power Lines

The outgoing power line which carries the transmitted power is called secondary power line. In Savar Grid Sub-station this out going power line rating is 33KV.

C. Transformer

X-former is a device that transfers electrical energy from one circuit to another through inductively coupled conductors—the transformer's coils. A varying current in the first or primary winding creates a varying magnetic flux in the transformer's core and thus a varying magnetic field through the secondary winding. This varying magnetic field induces a varying voltage in the secondary winding. This effect is called inductive coupling.

If a load is connected to the secondary, current will flow in the secondary winding, and electrical energy will be transferred from the primary circuit through the transformer to the load. In an ideal transformer, the induced voltage in the secondary winding (V_s) is in proportion to the primary voltage (V_p) and is given by the ratio of the number of turns in the secondary (N_s) to the number of turns in the primary (N_p) as follows:

$$Vp/Vs = Np/Ns$$

This ratio is called x-former ratio or x-former turn ratio. A transformer is called "stepped up" by making N_s greater than N_p, or "stepped down" by making N_s less than N_p.

C1. X-former for measurement of Electric Power

In a grid sub-station incoming line is connected in different x-former which are used for measurement of electric power. Two type of x-former is used for measurement. These are PT (potential transformer) and CT (current transformer).

a) PT (Potential Transformer)

A potential transformer in a sub-station used to step down the high voltage into a low level so that it can be measured using a meter. In the Savar grid sub-station the rating of a PT is 132KV/110V.

b) CT (Current Transformer)

In a sub-station a current transformer is used to step down the high current into a low level so that it can be measured using a meter. In the Savar grid sub-station the rating of a CT is 1200-800/1A.

Fig-4.1: Grid Current transformer

C2. Main X-former

Grid sub-station has a main x-former. This x-former is used for power transmission from high voltage to low voltage and also used for power distribution. In this x-former primary side is connected by Δ-connection and the secondary side is Y-connected. In the Savar Grid Sub-station it has two main x-former. The rating of these x-former is 132/33 KV or, 50/75MVA.

Fig-4.2: 132/33KV X-former in Grid Sub-station

D. Control building

In the grid sub-station it has a control building. In this building it has some machines such as relay controller, digital fault recorder, PT/CT controller, circuit breaker controller etc. All these equipments can operate by remote control and also anyone can control the whole sub-station from here without going outside of the building.

Protection elements of Sub-station:

E. Circuit breaker

A circuit breaker is an automatically-operated electrical switch designed to protect an electrical circuit from damage caused by overload or short circuit. Its basic function is to detect a fault

condition and, by interrupting continuity, it immediately discontinues electrical flow. Unlike a fuse, which operates once and then it has to be replaced, a circuit breaker can be reset (either manually or automatically) to resume normal operation. Circuit breakers are made in varying sizes, from small devices that protect an individual household appliance up to large switchgear designed to protect high voltage circuits feeding an entire city.

F. Insulator

An insulator is a material that does not respond to an electric field and completely resists the flow of electric charge. Dielectric materials with high dielectric constants are considered insulators. These materials are used in electrical equipment as insulators or insulation. Their function is to support or separate electrical conductors without allowing current through themselves.

G. Lightning Arrester

A lightning arrestor is that material which is used on electrical power systems to protect the insulation and conductors of the system from the damaging effects of lightning. The typical lightning arrester has a high-voltage terminal and a ground terminal. When a lightning surge travels along the power line to the arrester then it pass the extra power to the ground and save the equipments near it. A lightning arrestor is placed where wires enter the sub-station and also in the top place where more equipment are placed together.

Fig-4.3: Lightning Arrester

H. Ground Wire

Ground or earth is the reference point of an electrical circuit and the power passing wire to ground is called ground wire or grounding wire. The main purpose of a grounding wire is to pass the over power for the safety purpose if the system is failed to insulation the electrical voltage or if the system has any over power.

I. Security fence

In a sub-station it is need a fence to make a boundary to protect the all equipments.

In here, after the power transmission from high power to low power the output line is goes different location by feeder and also the sub-station which is controlled by of PBS-01. The rating of incoming line is 132KV and output line rating is 33KV. The main x-former rating in grid is 132KV/33KV. In the Savar Grid Sub-station it can distribute the power in different location by using 16outgoing feeders.

In the grid sub-station it has a control building. In this building it has some machines such as relay controller, digital fault recorder, PT/CT controller, circuit breaker controller etc. There is also a battery room in the Grid Sub Station.

Fig-4.4: Series connected Nickel Cadmium battery

In case of power failure the internal power supply the machines which will be run by DC for collecting the data. All these equipments can operate by remote control and also anyone can control the whole sub-station from here without going outside from the building.

The relay controller is used for to identify any fault or damage and then they find the solution and solve the problem.

Fig-4.5: Relay(display)

Fig4.6: X-former and line feeder panel

Fig4.7: Digital fault recorder

Digital fault meter is used for the monitoring the fault. The total loss or the amount of transmits power or over power. Finally the battery power recorder used for the dc power supply internally which we mentioned earlier. All the operation can operate manually or by using this remote control panel.

4.3 PBS-01 Sub-Station (SS)

On 02/01/12 we have visited 33/11 KVA PBS-01 Sub Station at Savar in Dhaka. In here, the incoming power supply comes from Summit Power Generation Co. Ltd., United Power Generation Co. Ltd. and Savar Grid Sub-station. After the power transmission from high power to low power the output line is goes different location by feeders. The rating of incoming line is 33KVA and output line rating is 11KVA.

Fig4.8: Dhaka Palli Bidyut Samity-01 Power sub-station (33/11KVA)

In the PBS-01 Sub-station it can distribute the power in different location by using 6 outgoing feeders. Depends on their consumer PBS-01 set their 1-Φ or 3-Φ x-former in load area. In here, the x-former rating of PBS-01 (used for distribution line) is

1-Φ x-former: 1.667MVA and 3.33MVA

3-Φ x-former: 5MVA, 10MVA and 20MVA

Fig-4.9: 1-Φ x-former

4.3.1 Elements of PBS-01 Substation

The elements of PBS-01 are primary power lines, ground wire, x-former, insulator, circuit breaker, ABS (air breaker switch), AVR (auto voltage regulator), ACR (auto circuit recloser), LVR (line voltage regulator), lightning arrester, secondary power lines, security fence etc. Purpose of some elements such as x-former, lightning arrester, ground wire etc which we mentioned earlier. In here, we discuss about primary power lines, secondary power lines and some protection elements of PBS-01 sub-station.

a. Primary Power Lines

PBS-01 sub-station has different incoming power supply line which is called primary power line. From these lines sub-station get the power which is used for transmission and distribution. The sub-station of PBS-01 has different primary power lines. In here, the incoming power line comes from grid sub-station, Summit Power Plant and United power plant. This allows if one line disconnected then the sub-station get the power from another. The incoming power rating of Sub-station of PBS-01 is 33KVA.

b. Secondary Power Lines

The outgoing power line which carries the transmitted power is called secondary power line. In PBS-01 Sub-station this out going power line rating is 11KVA.

c. Indoor type Circuit breaker

Under PBS-01 there has a power sub-station in Bismile at Savar in Dhaka which capacity is 35MVA. Here, present three 10MVA x-formers and one 5MVA x-former.

Fig4.10: Indoor type Circuit breaker

The upper part of this circuit breaker has some switch and lower part contains breaker part where it has some gas tubes. On the upper and bottom side of these gas tubes it has some clip parts. And these clips are connected with the bus bar; where the bus bar is placed in the inner side of the breaker.

Fig4.11: Indoor type circuit breaker

In Bismile power sub-station there are different incoming sources from different places. Those are Savar, Kobirpur, Kollanpur, Joydabpur, Tongi, Nayarhat etc. Here, only 5 outgoing feeders

and those feeders distribute power in 5 different locations. In this sub-station one circuit breaker use for one outgoing feeder (11KVA). Those are

1) Savar Radio feeder which circuit breaker rating is 1200/5

2) Savar Bazar feeder which circuit breaker rating is 600/5

3) Savar Cant. feeder which circuit breaker rating is 200/5

4) Nayarhat feeder which circuit breaker rating is 200/5

5) Rajason feeder which circuit breaker rating is 400/5

d. Air Breaker Switch (ABS)

Air breaker switch is a kind of circuit breaker which is placed in the incoming supply pole. Normally ABS operates manually. Manually it is disconnected or connected with the system because of safety purpose. If there is any fault in the system and anyone disconnects. By manually operating an ABS a person can ensure that the line is disconnected from the system.

Fig4.12: Manually operate an ABS (disconnected)

e. Auto Voltage Regulator (AVR)

Auto voltage regulator is used as a kind of circuit breaker which is controlled or regulated the power supply. In an AVR initially the system is required to set manually the conditions when it will operate. In an AVR there present a relay to sense any fault or abnormal condition to disconnect the system.

Fig4.13: Auto voltage regulator

Fig4.14: manually setup part of AVR

If there is any fault in supply power, that time AVR controls the power supply by increasing or decreasing the power rating. If the supply is much higher or less from the setup rating then AVR disconnects the system. In an AVR it is also present a meter from which we can see the supply power condition. When over load condition comes then meter scale goes into red point and when power is low than it goes into yellow point. That time it disconnects the system. So, the system will be safe from any damage. If the AVR meter scale is placed in its green zone then it indicates the system has no faults and AVR is operated in normal condition.

In PBS-01, the setup rating of an AVR is 11KVA and the power regulating rate (increasing or decreasing rate) is 10% of 11KVA. So, when the line flow more or less power from 11KVA then AVR will adjust the supply power by increasing or decreasing 10% of the incoming power.

f. Auto Circuit Recloser (ACR)

Auto circuit recloser is used as a kind of circuit breaker. In an ACR initially the system is required to set manually the conditions when it will operate. In an ACR there present a relay to sense any fault or abnormal condition to disconnect the system. If there is any fault in the output supply line or somewhere in the distribution line then the ACR disconnected or closed the system. By this the system is free from any damage or any accident.

Fig4.15: An ACR (auto circuit recloser)

Fig4.16: Internal setup box of ACR

g. LVR (Line voltage regulator)

Line voltage regulator is placed in the outside of a power sub-station. Line voltage regulator is used as a kind of circuit breaker which is controlled or regulated the power supply. In an LVR initially the system is required to set manually the conditions when it will operate. In an LVR there present a relay to sense any fault or abnormal condition to disconnect the system. If there is any fault in supply power, that time LVR controlled or regulated the power supply by increasing or decreasing the power rating. If the supply is much higher or less from the setup rating then LVR disconnected the system.

Fig4.17: LVR (line voltage regulator)

In PBS-01, the setup rating of an LVR is 11KVA and the power regulating rate (increasing or decreasing rate) is 10% of 11KVA. So, when the line flow more or less power from 11KVA then LVR will adjust the supply power by increasing or decreasing 10% of the incoming power.

5. Maintenance & Workshop

5.1 Maintenance

Dhaka Palli Bidyut Samity-01 maintenances there all power sub-stations at different times in a year. In our internship period we attended at their maintenance in Dhaka EPZ power sub-station and DPBS-01 sub-station. In this period PBS-01 employs check all the equipments of the sub-station to find out any problem or any faults. This time they test the x-formers, circuit breaker, AVR, ACR, grounding wire etc. To operate an AVR or an ACR initially it's required to set manually the conditions when it will operate. In the maintenances time PBS-01 employs did this work. And also set the relay operating condition.

They check the x-former cooling system, x-former oil, x-former inner side gas/oil pressure etc. If they got any fault then they try to solve the faults, i.e. sometime cooling fan not operate correctly, so its need to change, also sometime its need to change x-former oil etc.

Fig5.1: checking a x-former

5.2 REB workshop

REB has a workshop for repairing there all instruments if anything is damage or present any fault in any instrument such as x-former, circuit breaker etc. Dhaka Palli Bidyut Samity-1 workshop is the main workshop of all PBS in Bangladesh. Here, we saw the different kind of x-former test such as no-load test, full-load test, cooling system test etc.

X-former test

Two types of tests are done mainly to identify faults in x-former which is known x-former test. These two tests are called no-load test and full load test. X-former (stepped up/down) has some standard value of turn ratio which is depending on the making or rating of x-former. In these tests it calculated the primary and secondary side voltage and then the ratio is calculated. If the ratio is same as the standard value then it is considered that the x-former has no fault.

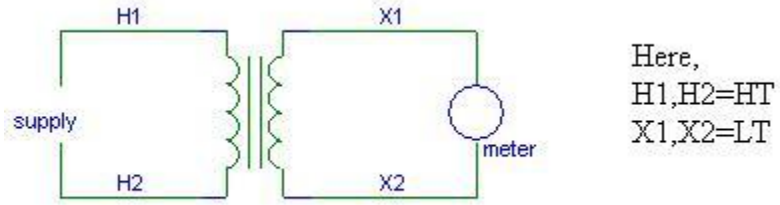


Fig5.2: Full-load test of X-former

Full-load test is known as cupper loss test where the x-formers HT (high tension) side is fed with power supply and the LT (low tension) side is kept in short. Here a meter is placed for checking the rating of the x-former. REB considers some type of x-formers turn ratio has standard value of 26.45. So, if the HT side gives the supply 6350V then the LT side will be getting 240V. So, x-former ratio is (6350/240) or, 26.45. If this occurs than it is considered that the x-former has no fault.

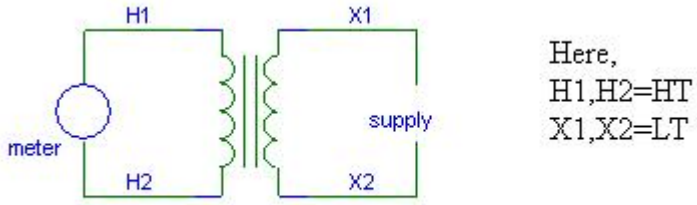


Fig5.3: No-Load test of X-former

No-load test is known as stepped up test or core loss test. In this condition the connection is opposite of the full-load test. That means here the supply is connected in LT side and the HT side is shorted. In the HT side a meter is placed to see the rating. If in LT side input is 240V than it should be get 6350V in HT side. So, x-former ratio is (6350/240) or, 26.45. And it is considered that the x-former has no fault.

In this workshop they repair circuit breakers, x-former, AVR, ACR etc. Sometime for the over power supply the isolating paper of a x-former was burn. Then they change the isolating paper.

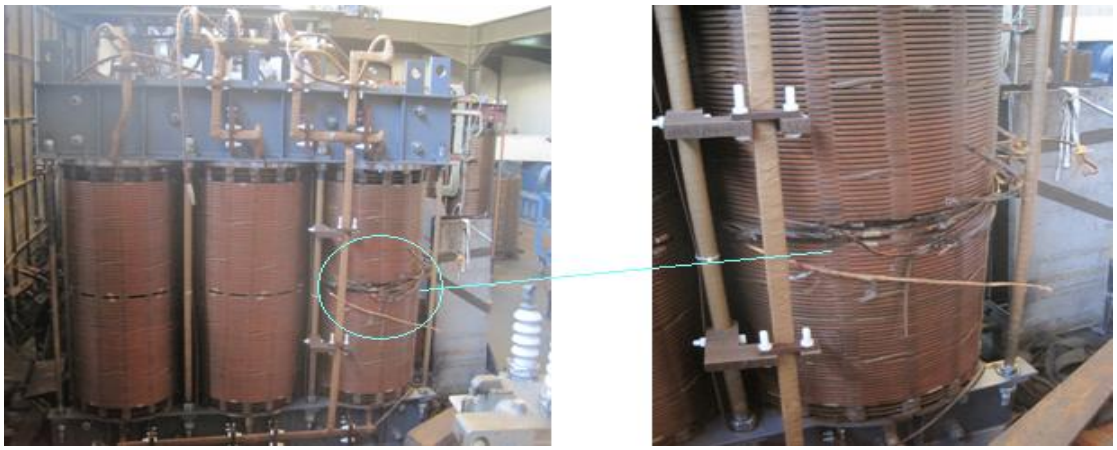


Fig5.4: A damage x-former in workshop for repairing

Fig5.5: Isolating paper

Fig5.6: Repairing a x-former with isolating paper

In a x-former there used oil which use for creating insulation and keep the x-former cool. After a time period the oil is damage or not operate correctly, so the oil changed in here. If the manual setup part of an AVR, ACR damage then it solve in here. When the x-former work then sometime it produces heat and that time its need to keep cool for saving from any damage. In x-former they also use some fans for cooling. When the x-former producing heats that time those fans start atomically and keep the x-former cool. If the oil or fans didn't work properly then in the workshop its change or solve the faults.

6. Conclusion

Power is a small word but makes our life easy and comfortable. This easy word is the beauty and gift of science. The administration who gives this facility in the rural places of our country is Palli Bidyut Samity who has already very profound name among the people of Bangladesh and we are very happy to get a chance for the internee in there. There we have seen power transmission, distribution, protection system, repair of various powers equipment like transformers, CT, PT, AVR etc and we have also seen power generation in 2 renowned power plants which broaden our knowledge. This really gives us a practical view in power sector and we are really very thankful to them who have related with Palli Bidyut Samity.

Daily Activity Report

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Biddut Samiti-01
Name of the student:	MD. MUSHFIQUL ARFIN CHOWDHURY
ID:	2007-1-80-023

Date:	24/12/2011
Start time/End time	09:00 am - 1:00pm, 2:00pm - 5:00pm
Location:	Palash bari, Nobinagar, Savar
Mentor:	Mr. Prashanta Kumar Sutradhar

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 **What was the objective of the day's activities? (If applicable. list multiple objectives)**

To know about the history of electricity and also about Palli Biddut Samiti-01. Also how they distribute power.

2. **List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.**

1. Lecture on Palli Biddut Samiti-01.
2. IPP & Captive power distribution.
3. Distribution system of Dhaka Palli Biddut Samiti-01.

Comment: A brief description no gives a clear concept on our objective.

3. **Relate your practical activity with the theoretical knowledge you gained in the respective academic course.**

EEE-301 (Electrical Machine-01)
EEE-304 (Electrical Machine-02)

24/1/12

Prasanta Kumar Sutradhar
A.G.M (C.O & M)
WZ Palli Bidyut Samity-1

Signature of the mentor with date
Name: Prasanta Kumar Sutradhar
Designation: A.G.M(N'i por)
Contact Phone #: 01936016003
email # priota179@Gmail.com

24.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Biddut Samiti-01
Name of the student:	MD. MUSHFIQUL AREFIN CHOWDHURY
ID:	2007-1-80-023

Date:	26/12/2011
Start time/End time	09:00 am-1:00pm, 2:00pm-5:00pm
Location:	Palashbari, Nobinagar, Savar.
Mentor:	Mr. Prasanta Kumar Sutradhar

General Instructions:

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Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

Our main objective of todays activity is to know about the history of electricity and also about the companies those who have transmitted power.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. Strong lecture on power tranmission companies.
2. Also we have visited the repair workshop of transformers at REB

Comment: Yes, those activites fulfill our objective because practical work is better than theoretical study.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE – 441 (Power station)
EEE – 442 (Switch gear & protective relays)

26/12/11

Signature of the mentor with date
Name: Prasanta Kumar Sutradhar
Designation: A.G.M
Contact Phone #: 01936016003
email = priota179@Gmail.Com.

Prasanta Kumar Sutradhar
A G M (CO & M)
Dhaka Palli Bidyut Samity

24.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Biddut Samity – 01
Name of the student:	Md. Mushfiqul Arefin Chowdhury
ID:	2007-1-80-023

Date:	27/12/2011
Start time/End time	09:00am – 01:pm ,02:00pm – 05:00 pm
Location:	Polashbari, Nabinagar, Savar
Mentor:	Md. Naimul Hasan.

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
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d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

To know about the member service of Dhaka Palli biddut Samity-01.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. A brief description on member service.
2. Also visit the one point service.

Comment : After watching the one point service DPBS-01's member service is very good then the other services.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

MGT - 321

Signature of the mentor with date
Name: Md. Naimul Hasan
Designation: AGM(MS)
Contact Phone #: 01936016002

MD NAIMUL HASAN
AGM (MS)
Dhaka PBS-1

24.1.22

Signature of academic supervisor with date
Name: MOHAMMAD FARIR ADAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	DhakaPalli biddut Samiti -01
Name of the student:	Md. Mushfiqul Arefin Chowdhury
ID:	2007-1-80-023

Date:	28/12/2011
Start time/End time	09:am – 01:00pm, 02:00pm – 05:pm
Location:	Polashbari, Nabinagar, Savar
Mentor:	Syed Mohammad Saherul Azam

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

To know about the general service of Dhaka Palli Biddut Samiti-01.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. A brief description ~~of~~ on the general service.
2. The working principle of the general service

Comment: General Service is very important for a institution like DPBS-01. To run this we have to know its rules and regulations.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

MGT(321)

28.12.2011

Signature of the mentor with date
Name: Syed Mohammad Saiful Azam
Designation: A.G.M. (G.S)
Contact Phone #: 01712027797

29.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR AZAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Biddut Samiti – 01
Name of the student:	Md. Mushfiqul Arefin Chowdhury
ID:	2007-1-80-023

Date:	31/12/2011
Start time/End time	09:00am – 01:00 pm, 02:00pm – 05:00 pm
Location:	Palashbari, Nabinagar, Savar
Mentor:	Mohammad Abul Kashem

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 **What was the objective of the day's activities? (If applicable. list multiple objectives)**

To know about the finance department of Dhaka Palli Bidyut Samiti-01.

2. **List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.**

1. A brief description on the working principle of finance department.
2. Costing is a vital subject in the field of engineering and we have gain it after seeing the process of billing system and distribution system of DPBS-01.

Comment: without costing one can not show his benefit or loss and finance department give us a clear view on it.

3. **Relate your practical activity with the theoretical knowledge you gained in the respective academic course.**

EEE – 301 (Electrical Machine)
HGT- 321

31/12/14
Mohammad Abul Kashem
AGM Finance (Revenue)
Dhaka PBS-1
Sayar, Dhaka.

Signature of the mentor with date
Name: Md. Abul Kashem
Designation: AGM (Finance)
Contact Phone #: 77 91610

24.1.15

Signature of academic supervisor with date
Name: MOHAMMAD FAKIR ALAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-01
Name of the student:	Md. Mushfiqul Arefin Chowdhury
ID:	2007-1-80-023

Date:	05/01/2012
Start time/End time	09:00 am-01:00am, ~~02:00 pm-05:00pm~~
Location:	Palashbari, Nabinagar, Savar
Mentor:	Abdus Sobhan

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

To know about the staking designing.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. A brief description on staking and designing.
2. Also talk about the transmission line, feeder, Insulators, transformers etc.
3. How to draw a system for distribution ?
4. Also calculate the costing.

comment: Todays lecture is very vital for engineering drawing ~~or~~ for ~~stu~~ power distribution.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301 (Electrical machine)
EEE-200 (Engineering drawing)

24/1/12

Signature of the mentor with date
Name: Abdus Sobhan
Designation: Retainer engineer
Contact Phone #: 01711675580

Zakir 24.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKER ALAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-01
Name of the student:	Md. Mushfiqul Arefin Chowdhury
ID:	2007-180-023

Date:	09/01/2012
Start time/End time	09:00 am - 01:00 pm, 02:00 pm - 05:00 pm
Location:	Palashbari, Nalsinagar, Savar
Mentor:	Shahinur Rahman

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

To Know about Single line diagram and voltage drop Calculation.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. A brief description on Single line diagran and voltage drop calculation.
2. Design of a particular place for Single line diagram.
3. Uses of two software. Lotus and Harvad graphics.
4. Also the calculatim of voltage drop.

Comment: Voltage drop calculatim is very important for electrical engineering.

3. Relate your practical activity with the theoretical ~~knowledge~~ you gained in the respective academic course.

EEE-301 (Electrical machine-01)
EEE-304 (Electrical machine-02)
EEE-200 (Engineering Drawings)

09.01.12

Signature of the mentor with date
Name: Shahinur Rahman
Designation: Design Engineer (Electrical)
Contact Phone #: 01725135634

09.1.12

Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR HOSSAIN
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity-01
Name of the student:	Md: Mushfiqul Arefin Chowdhury
ID:	2007-1-80-023

Date:	07/01/2012
Start time/End time	09:00 am-1:00pm, 02:00pm-05:00pm
Location:	Summit Power Plant, Asulia
Mentor:	MN Sajjad

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

To know about the power generation system of summit powerplant and also visit in their plant.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

1. A brief description on Power generation.
2. Watching the PLC System.
3. Watching their two engines for power generation.

Comment: Visit on a power generation company gives us a clear concept on generation.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-441 (Power station)

Signature of the mentor with date
Name: H.N. Sazzad
Designation: Shift. Engineer
Contact Phone #: 01716-604993

24.1.12
Signature of academic supervisor with date
Name: MOHAMMAD ZAKIR ALAM
Designation: LECTURER

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-007

Date:	08/01/2012
Start time/End time	9am - 01.00pm, 02.00 pm - 05.00pm
Location:	United Power Generation & Distribution
Mentor:	Md. Jahidul Islam, Engineering (G&D)

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

know about United Power Generation & Distribution Company Ltd.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

First we attend a lecture class then visit United Power Generation & Distribution Company Ltd. see the generation engine, system of distribution of DEPZ & PBS-01.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304
EEE-492

08.01.2012

Signature of the mentor with date
Name: Md. Jahirul Islam
Designation: ~~GD&D~~ Engr.(G.&D.)
Contact Phone #: 01914-001093

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Associate. Prof.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Somity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-007

Date:	03/01/2012
Start time/End time	09 am - 01 pm, 02:00 pm - 05:00 pm
Location:	Savar 132/33 kV Grid Sub-Station, Fulbaria, Savar, Dhaka.
Mentor:	Renaz Nishat Chowdhury

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 **What was the objective of the day's activities? (If applicable. list multiple objectives)**

know about the grid sub-station, design, connection of SS, relay work, power transmission etc.

2. **List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.**

See the power supply line, transmission system, control room, operating principle of the 132/33 kV SS.

Comment: learn the things in practically and visit the whole SS

3. **Relate your practical activity with the theoretical knowledge you gained in the respective academic course.**

EEE-301
EEE-304
EEE-442
EEE-200

5/1/12

Signature of the mentor with date
Name: Renaz Nishat Chawdhary
Designation: A.G.M. (COEM, Gail)
Contact Phone #: 01936-016008

Renaz Nishat Chowdhury
Asst. General Manager (CO & M)
Savar 132/ 33 kv Grid s/s
Dhaka Palli Biddut Samity-1

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Assoc. Prof.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-007

Date:	01/01/2012
Start time/End time	9am - 01.00pm, 02.00pm - 05.00 pm
Location:	Savar, Dhaka.
Mentor:	Prasanta kumar Sutradhar

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
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d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

know about Power SS design, power transmission line system, CT, PT etc.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

Attend a lecture class then visit the DPBS-01 Sub-~~station~~ station. See the connection and transmission line system.

Comment:

know the source line in SS and out from SS.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304
EEE-442
EEE-200

01/01/12

Signature of the mentor with date
Name: Mr. Prasanta kumar sutradhar
Designation: A.G.M (C&M)
Contact Phone #:

Prasanta Kumar Sutradhar
A G M (CO & M)
Dhaka Palli Bidyut Samity

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Assoct. Prof.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity -01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-007

Date:	02/01/12
Start time/End time	9am - 01:00pm, 02:00pm - 05:00pm
Location:	Savar, Dhaka
Mentor:	Mr. Prasanta kumar Sutradhar

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 **What was the objective of the day's activities? (If applicable. list multiple objectives)**

knows about Power Sub-station, design, power ~~com~~ transmission line system, CT/PT connection etc.

2. **List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.**

Attend a lecture class then visit the Palli Bidyut Somity-01 ~~PSS~~ Power Sub-station. See the connection and transmission line system.

Comment:-

know that how a source line in a SS and out via S/D system (33/11kV system).

3. **Relate your practical activity with the theoretical knowledge you gained in the respective academic course.**

EEE-304

EEE-442

EEE-301

EEE-200

02/01/2015

Prasanta Kumar Sutradha
A.G.M (CO & M)
Palli Bidyut Samity

Signature of the mentor with date
Name: Mr. Prasanta kumar Sutradhar
Designation: A.G.M (CO&M)
Contact Phone #: 01936-016003

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Asstt. Proff.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Somity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-480-007

Date:	04/01/2012
Start time/End time	9am - 02:00pm, ~~02:00pm - 05:00pm~~ (2-5)
Location:	Bishnile Control Room, Savar, Dhaka
Mentor:	Syeda Farhana Nur

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 **What was the objective of the day's activities? (If applicable. list multiple objectives)**

know about the 33kV and 11kV circuit breaker

2. **List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.**

Attend a lecture class then visit the power sub-station, see the circuit breaker also visit at Bashundhara power sub-station about know the circuit breaker

3. **Relate your practical activity with the theoretical knowledge you gained in the respective academic course.**

EEE-442

Farhana 04/01/12

Signature of the mentor with date
Name: Syeda Farhana Naz
Designation: A.G.M. (C.O & M)
Contact Phone #: 01723-271717

সৈয়দা ফারহানা নাজ
এ জি এম (নিপর)
ঢাকা পবিস-১

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Asstt. Prof.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Palli Bidyut Samity- 01
Name of the student:	Saiful Islam
ID:	2007-1-80-007

Date:	29/12/2011
Start time/End time	9am-2:00pm, ~~2:00pm-5:00pm~~
Location:	Nobinagor, Savar, Dhaka
Mentor:	Md. Abul kalam Azad

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

know abont the engineering sector and workshop of PBS-01.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

Attend a lecture class abont engineering department visit the workshop of PBS-01, see the transformer test etc.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304
EEE-442

27.12.2011

Signature of the mentor with date
Name: Md Abul kalam Azad
Designation: AGM (Engineering)
Contact Phone #: 01680-140845

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Assoct. Prof.

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-007

Date:	10/01/2012
Start time/End time	09:00 pm, 02:00pm - 05:00pm
Location:	Savar, Dhaka
Mentor:	Prasanta Kumar Sutradhar

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

Today's activity is review the all department working principle and also visit in the DEPZ-01 & DEPZ-02 Sub-Station (33kV/11kV)

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

attend a lecture class from our supervisor, visit DEPZ-01 SS (33/11 kV), DEPZ-02 SS.

Comment:

After our class we know our all question answer. See 2 SS in DEPZ-1 and DEPZ-2.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304
EEE-442

10/01/12

Prasanta Kumar Sutradhar
A.G.M (CO & M)
Dhaka Palli Bidyut Samity-1

Signature of the mentor with date
Name: Prasanta kumar Sutradhar
Designation: AGM (CO&M)
Contact Phone #:

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Assoct. Prof

Department of Electrical and Electronic Engineering
East West University
EEE 499
Industrial Training
Daily Activity Report

Separate Daily Activity Report should be completed by each intern for every day of work and should be signed by the mentor from the company and the academic advisor. Copy of all the reports should be attached to the final internship report.

Name of the company:	Dhaka Palli Bidyut Samity - 01
Name of the student:	Md. Saiful Islam
ID:	2007-1-80-087

Date:	11/01/2012
Start time/End time	9.00am - 02:00pm, ~~02:00pm - 05:00pm~~
Location:	Savar, Dhaka
Mentor:	Prasanta kumar Sutradhar

General Instructions:

a. It is the intern's duty to make sure that all his/her daily activity reports are appropriately signed by both the mentor and the academic supervisor.
b. The daily report should be a brief narration of the activities during the internship period in the eyes of the intern and should be completed and submitted by every intern irrespective of the number of partners s/he might have for the presentation and final report writing purpose.
c. The report should not be a compilation of lectures notes taken during the internship, rather it should depict what the intern has learned on a particular day.
d. In case of any confusion, interns are strongly recommended to consult their respective academic supervisors.

Department of Electrical and Electronic Engineering
East West University

Address the following points briefly (Use additional page if necessary)

1 What was the objective of the day's activities? (If applicable. list multiple objectives)

Today's activity is to ~~give~~ attend an exam about our internship. in PBS-01.

2. List the day's activities according to the order of objectives listed in 1. Mention the specifications of the equipments used/visited. Comment on how these activities fulfill your objectives.

attend the exam, then observe the power sub-station, ~~and~~ know if anything need about these.

3. Relate your practical activity with the theoretical knowledge you gained in the respective academic course.

EEE-301
EEE-304
EEE-200
EEE-442

11/01/12

Signature of the mentor with date
Name: Prasanta kumar Sutradhar
Designation: AGM (CO&M)
Contact Phone #:

Prasanta Kumar Sutradhar
A G M (CO & M)
Dhaka Palli Bidyut Samity-1

Signature of academic supervisor with date
Name: Dr. Mohammad Al Hakim
Designation: Assoll. Prff.