



WELCOME  
TO  
OPTICAL NETWORK  
OF

POWER GRID COMPANY  
OF BANGLADESH Ltd.



# BACKGROUND OF PGCB

The Govt. of Bangladesh formed the Power Grid Company of Bangladesh Ltd. (PGCB) in 1996 as a functional unit under the Power Sector Reform Program and entrusted with the responsibility for operation, maintenance and expansion of high voltage power transmission network of Bangladesh.



From the beginning of its inception, the company has undertaken necessary progressive steps, so that the power generated from the power plants could be evacuated and transmitted effectively and economically to the power distribution sectors and ultimately to the doorsteps of the common people.



## **PRESENT COMMUNICATION SYSTEM**

For day to day routine works and system operation the company maintains its own communication system called Power Line Carrier (PLC) using its high voltage transmission lines connecting all the power plants and high voltage sub-stations (230 KV & 132 KV) with the Load Despatch Center.



The functions include  
Telecommunication, Tele-protection,  
Data-transmission, supervisory control and  
data acquisition (SCADA) , economic load  
despatching etc. are being done by the  
system.



The frequency band of the existing PLC communication system is very low (100 Khz to 500 Khz) and its speech band is only 4 Khz.



With this narrow band- width, all the functions of system operation can not be coped-with and its economic system operation is hampering badly .



# PRESENT STATUS OF OPTICAL NETWORK OF PGCB

To overcome the low bandwidth problem, the company has decided to expand its communication system and started installation of optical fiber over its high voltage transmission lines throughout the whole country.



Until now 448 Km optical fiber (single mode) has already been installed around Dhaka and Dhaka to Chittagong route as OPGW (OPTical Ground Wire) without having any terminal equipment.



The route includes –

- 1) Ashuganj – Comilla – Feni – Hathazari  
(with 8 fibers) as shown in annexure –I .



2) Hasnabad – Meghnaghat – Comilla –  
Haripur – Rampura - Ghorasal  
(with 12 fibers).



### 3) Tongi-Aminbazar-Hasnabad (with 48 fibers.)



# PROJECTS UNDER TAKEN

With a view to improve overall performance and efficiency of PGCB the Company has undertaken different transmission line projects (230 KV & 132 KV).



All the new lines will have provision of Optical Ground Wire ( as OPGW) which will facilitate spreading the back bone communication throughout the whole country.



Under the project about 782 Km 230 KV and 527 km 132 KV transmission line will have Optical Ground Wire, which includes –



➤ Ashuganj – Shahjibazar – Srimongol –  
Sylhet 230 KV transmission line (170 Km).



➤ Khulna – Bheramara – Ishurdi –  
Baghabari – Sirajganj – Bogra –  
Bara pukuria 230 KV transmission line  
(447 Km).



- Ashuganj – Sirajganj 230 KV transmission line (165 Km).



- Rangpur – Bara pukuria – Saidpur  
132 Kv transmission line (80Km).



- Mymensingh – Joydebpur – Kabirpur – Tangail – Madhupur – Jamalpur 132 KV transmission line (447 Km), will have optical fiber as optical ground wire.

# NLDC PROJECT

With an objective to install a modern SCADA and Energy Management System (EMS) and to develop reliable communication network to cover all the power stations and grid sub-stations, the company has undertaken a National Load Despatch Center (NLDC) project to be located at Rampura (near Dhaka).





In this project about 1200 Km optical fiber will be installed as ADSS (All- Dielectric Self-supporting) cable and 151 km OPGW on existing transmission lines throughout the whole country.



The project includes –

Comilla – Feni – Hathazari – Madanhat –  
Shikalbaha – Dohazari – Cox'sBazar 132  
KV transmission line (288 Km) will be  
equipped with optical cable (ADSS).



Bheramara – Faridpur – Madaripur –  
Barisal– Patuakhali 132 KV transmission  
line (275Km) with ADSS.



Bogra – Natore – Rajshahi – Chapai  
Nawabganj 132 KV transmission line (153  
Km) will have optical cable as ADSS and  
many other links required for connecting the  
important locations.



71 Km OPGW on existing 230 KV transmission lines between Tongi – Ghorashal – Ashuganj by replacing one of the earth wires.



80 Km OPGW on existing 132 KV transmission lines from Bheramara-Khulna s/s replacing one of the wires.



45 Km Under ground optical cable in different location will also be installed.



# MICROWAVE SYSTEM

One Microwave link between Faridpur and Manikganj has been planned to make redundancy in case of disruption of Sirajganj – Ashuganj optical link between the East and West part of the country.



The link is approximately 38 Km in length and crosses the Padma river (the aerial distance is roughly 5 Km).



The link shall operate in the 7.5 GHz band and shall carry one or more STM-1 Signals.



Radio terminals shall be configured for space diversity operation (with hot standby transmission) to ensure maximum reliability.

# CONCLUSION

It may be seen that after completion of the projects undertaken by PGCB most of the district towns of Bangladesh could be connected at Cox's Bazar with the optical submarine cable as shown in annexure-2 .





The Optical network of PGCB will be much reliable and safe in comparison to other Optical Fiber Network presently working in the country because PGCB's optical network has been installed over the high voltage transmission line and so it is free from most of the unwanted interruptions resulting from frequent cutting of soil due to construction works of different departments.



PGCB will use some small portion (10%) of the optical fiber network capacity and the remaining portion will remain spare after meeting different needs of PGCB.



PGCB intends to lease out the rest (90%) through open tender to interested party/parties engaged in Telecommunication, Internet service and other ICT business.



The Optical network of PGCB would be very robust , noise free and its reliability will be over 99.98%.



So the Optical network of PGCB can be comfortably used for telecommunication, Internet service and other ICT business.



PGCB will be highly glad to invite national and international companies engaged in telecommunication, Internet services and other ICT business to utilize the latent capacity of the optical fiber installed by PGCB to make Bangladesh as a part of Global Village.



**Thank you**