



ANNUAL REPORT

1996-97

POWER GRID COMPANY OF BANGLADESH LIMITED

বার্ষিক প্রতিবেদন ১৯৯৬-৯৭
Annual Report 1996-97



পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড (পিজিসিবি)
POWER GRID COMPANY OF BANGLADESH LTD (PGCB)
(An Enterprise of Government of Bangladesh)

Auditor : Basu Banerjee
Nath & Company
Chartered Accountants
14-15, Motijheel Commercial, Area
Dhaka

Banker : Janata Bank
Dhanmondi Branch
Mirpur Road, Dhaka

Office : House No. 1/A (5th floor)
Road No. 13
Dhanmondi Residential Area
Mirpur Road, Dhaka-1209

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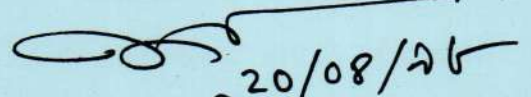
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প্রথম বার্ষিক সাধারণ সভার নোটিশ

এতদ্বারা নোটিশ প্রদান করা যাইতেছে যে, নিম্নোক্ত বিষয়সমূহ বিবেচনার জন্য পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি) এর প্রথম বার্ষিক সাধারণ সভা আগামী ১৪-০৫-৯৮ ইং তারিখ রোজ বৃহস্পতিবার বিকাল ৫-৩০ ঘটিকায় কোম্পানীর সদর দপ্তরের সভা কক্ষে অনুষ্ঠিত হইবে।

- ১। ১৯৯৬-৯৭ইং অর্থ বৎসরের পরিচালক পর্ষদের প্রতিবেদন গ্রহণ ও অনুমোদন।
- ২। ১৯৯৬-৯৭ইং অর্থ বৎসরের কোম্পানীর নিরীক্ষিত হিসাব ও নিরীক্ষকের প্রতিবেদন গ্রহণ ও অনুমোদন।
- ৩। ১৯৯৭-৯৮ ইং অর্থ বৎসরের জন্য নিরীক্ষক নিয়োগ ও তাহাদের পারিশ্রমিক নির্ধারণ।
- ৪। কোম্পানীর পরিচালক নিয়োগ সম্পর্কিত।
- ৫। বিবিধ - চেয়ারম্যান মহোদয়ের অনুমোদনক্রমে অন্যান্য বিষয় বিবেচনা।

পরিচালক পর্ষদের নির্দেশক্রমে,


20/08/98
এন. জি. সাহা
সচিব

বিতরণ :

চেয়ারম্যানবৃন্দ :

- ১। জনাব নুরুদ্দীন মাহমুদ কামাল, চেয়ারম্যান, বিউবোর্ড/পিজিসিবি।
- ২। জনাব মোঃ হাবীবুর রহমান খান, প্রাক্তন সদস্য (অর্থ), বিউবোর্ড।
- ৩। জনাব সৈয়দ মহিউদ্দিন আহমেদ, সদস্য (উৎপাদন), বিউবোর্ড (অবসর প্রস্তুতিমূলক ছুটিতে)।
- ৪। জনাব মোঃ রফিকুল ইসলাম, সদস্য (বিতরণ), বিউবোর্ড (অবসর প্রস্তুতিমূলক ছুটিতে)।
- ৫। জনাব মোঃ সরওয়ার হোসেন, সদস্য (সঞ্চালন ও সিস্টেম অপারেশন), বিউবোর্ড (অবসর প্রস্তুতিমূলক ছুটিতে)।
- ৬। জনাব আখতার হোসেন খান, প্রাক্তন সদস্য (প্রশাসন), বিউবোর্ড এবং মহাপরিচালক, বাংলাদেশ পল্লী উন্নয়ন একাডেমী।
- ৭। জনাব এ. ওয়াই. এম. জিয়াউল হক, সদস্য (পরিঃ ও উন্নয়ন), বিউবোর্ড।

পরিচালকবৃন্দ :

- ১। জনাব নুরুদ্দীন মাহমুদ কামাল, চেয়ারম্যান, পিজিসিবি।
- ২। জনাব মোঃ সরওয়ার হোসেন, সদস্য (সঞ্চালন ও সিস্টেম অপারেশন), বিউবোর্ড (অবসর প্রস্তুতিমূলক ছুটিতে)।
- ৩। জনাব জামাল উদ্দিন আহমদ, সদস্য (প্রশাসন), বিউবোর্ড।
- ৪। জনাব সৈয়দ মোঃ সামছুল কাওনাইন, সদস্য, নির্বাহী কমিটি, এফবিসিসিআই।
- ৫। জনাব অনিল চন্দ্র নাথ, প্রাক্তন সভাপতি, আইসিএবি।
- ৬। জনাব কাজী ফারুক, জেনারেল সেক্রেটারী, সিএবি।
- ৭। জনাব আ. ন. ম. রিজওয়ান, ব্যবস্থাপনা পরিচালক, পিজিসিবি।
- ৮। জনাব এন. জি. সাহা, পরিচালক (টেকনিক্যাল), পিজিসিবি।
- ৯। জনাব মোঃ আনিসুর রহমান, পরিচালক (অর্থ), পিজিসিবি।

অনুলিপি :

- ১। বসু ব্যানার্জী নাথ এন্ড কোম্পানী, চার্টার্ড একাউন্ট্যান্টস, ইস্পাহানী বিল্ডিং (৪র্থ তলা), ১৪-১৫, মতিঝিল বা/এ, ঢাকা।

لِسْنَتِهَا قَالِمٌ



প্রধানমন্ত্রী
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

০৩ বৈশাখ ১৪০৫
১৬ এপ্রিল ১৯৯৮

বাণী

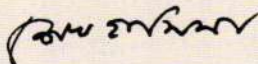
দেশের অন্যতম গুরুত্বপূর্ণ অবকাঠামো হলো বিদ্যুৎ। প্রতিটি গ্রাহকের কাছে চাহিদানুযায়ী বিদ্যুৎ পৌছানোর জন্য আমাদের সরকার নিরলসভাবে কাজ করে যাচ্ছে।

বিদ্যুৎ সেক্টরের কর্মকাণ্ডে গতিশীলতা, স্বচ্ছতা ও জবাবদিহিতা নিশ্চিত করার জন্য সরকার এ সেক্টরে সাংগঠনিক সংস্কার কর্মসূচি প্রবর্তন করেছে। বিদ্যুৎ সঞ্চালন ও ব্যবস্থাপনাকে সুষ্ঠু ও স্থিতিশীল করার লক্ষ্যে সৃষ্টি করা হয়েছে পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড। এই কোম্পানী সরকারি ও বেসরকারি খাতে উৎপাদিত বিদ্যুৎ রাজধানী ঢাকাসহ সকল লোড সেন্টারে পৌঁছে দেবে।

পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড দেশের বিদ্যুৎ সঞ্চালন ব্যবস্থাকে পর্যাপ্ত ও স্থিতিশীল করে গড়ে তুলবে এটাই আন্তরিকভাবে কাম্য।

আমি এই কোম্পানীর সাফল্য কামনা করি।

জয় বাংলা, জয় বঙ্গবন্ধু
বাংলাদেশ চিরজীবী হোক


শেখ হাসিনা

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



প্রতিমন্ত্রী

বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ সচিবালয়, ঢাকা।

বাণী

নবগঠিত পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি) ইহার প্রথম বার্ষিক সাধারণ সভা অনুষ্ঠান করছে এবং তদোপলক্ষ্যে কোম্পানীর ১৯৯৬-৯৭ অর্থ বছরের কর্মকান্ডের উপর বার্ষিক প্রতিবেদন প্রকাশিত হচ্ছে জেনে আমি খুশী হয়েছি।

বলা বাহুল্য যে, বিদ্যুৎ দেশের সবচেয়ে গুরুত্বপূর্ণ অবকাঠামো। আমাদের দেশে অতি প্রয়োজনীয় এই অবকাঠামোর কাজিত উন্নয়ন সাধিত হয়নি। দেশের দ্রুত উন্নয়নের জন্য সকল গ্রাহকের ঘরে ঘরে নিরবচ্ছিন্ন বিদ্যুৎ সরবরাহ পৌছান একান্ত কাম্য। এই লক্ষ্যে সরকার নিরলসভাবে কাজ করে যাচ্ছে। বিদ্যুৎ সেক্টরে সেবার মান উন্নয়নের জন্য বিদ্যুৎ ব্যবস্থাপনায় সরকারী খাতের পাশাপাশি বেসরকারী খাতের অংশ গ্রহণ উৎসাহিত করা হচ্ছে। একই সংগে বিদ্যুৎ সেক্টরে সংস্কার কর্মসূচী প্রবর্তন করে ব্যবস্থাপনায় জবাবদিহিতা, স্বচ্ছতা ও গতিশীলতা আনয়নের ব্যবস্থা গৃহীত হয়েছে। এরই ধারাবাহিকতায় সৃষ্টি করা হয়েছে পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি)। এটি দেশের ট্রান্সমিশন নেটওয়ার্কের দায়িত্ব গ্রহণ করবে এবং বেসরকারী খাতে উৎপাদিত বিদ্যুৎসহ সরকারী খাতে উৎপাদিত বিদ্যুৎ দেশের সকল লোড সেন্টারে পৌছে দেবে। শুরুতেই এই কোম্পানী মেঘনাঘাটে বেসরকারী খাতে উৎপাদিত বিদ্যুৎ ঢাকাসহ দেশের অন্যান্য লোড সেন্টারে পৌছানোর জন্য ১০০ কিমি দীর্ঘ কুমিল্লা-মেঘনাঘাট-রামপুরা ২৩০ কেভি সঞ্চালন লাইন এবং রামপুরায় অত্যাধুনিক একটি জাতীয় পর্যায়ের লোড ডেসপ্যাচ সেন্টার স্থাপনের কাজ হাতে নিয়েছে জেনে আমি আনন্দিত। এ দুটি প্রকল্প বাস্তবায়িত হলে দেশের বিদ্যুৎ সঞ্চালন ও নিয়ন্ত্রণ ব্যবস্থায় প্রভূত উন্নতি সাধিত হবে।

নবজাত কোম্পানী ধীরে ধীরে গ্রীড সিস্টেমের দায়িত্ব গ্রহণ করে দেশকে একটি স্থিতিশীল বিদ্যুৎ সিস্টেম উপহার দেবে এটাই এই মুহূর্তে আমার প্রত্যাশা।

অধ্যাপক রফিকুল ইসলাম



সচিব
বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়
গণপ্রজাতন্ত্রী বাংলাদেশ সরকার
বাংলাদেশ সচিবালয়, ঢাকা।

শুভেচ্ছা বাণী

পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি) প্রথম বার্ষিক সাধারণ সভা অনুষ্ঠান উপলক্ষ্যে বার্ষিক প্রতিবেদন প্রকাশ করছে জেনে আমি খুশী হয়েছি। বিদ্যুৎ ব্যবস্থাপনায় দক্ষতা বৃদ্ধির লক্ষ্যে সংস্কার কর্মসূচীর পদক্ষেপ হিসাবে পিজিসিবি'র সৃষ্টি হয়। এই সংস্থা দেশের সঞ্চালন সিস্টেম অবিলম্বে অধিগ্রহণ করে সুষ্ঠু ব্যবস্থাপনার মাধ্যমে কাজিত দক্ষতা বৃদ্ধিতে অবদান রাখবে - এটাই প্রত্যাশা। কোম্পানী সৃষ্টির স্বল্পতম সময়ে দপ্তর প্রতিষ্ঠা করে মাত্র কয়েকজন কর্মকর্তার প্রচেষ্টায় এর উপর অর্পিত প্রকল্প কুমিল্লা-মেঘনাঘাট-রামপুরা ২৩০ কেভি সঞ্চালন লাইনের কাজ এগিয়ে নিয়ে যাওয়া হচ্ছে জেনে আমি অত্যন্ত আনন্দ বোধ করছি।

আমি দৃঢ় বিশ্বাস করি যে, পিজিসিবি বাংলাদেশের বিদ্যুৎ খাত সংস্কারের সফল সূচনা করবে।

ডঃ তৌফিক-ই-ইলাহী চৌধুরী, বীবি



চেয়ারম্যান
পিজিসিবি পরিচালক পর্ষদ

অবতরণিকা

পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি) এর প্রথম বার্ষিক সাধারণ সভা উপলক্ষ্যে কোম্পানীর ১৯৯৬-৯৭ সালের নিরীক্ষিত হিসাব ও সার্বিক কর্মকান্ডের উপর প্রতিবেদন প্রকাশ করছে জেনে আমি আনন্দিত।

কোম্পানী ইতোমধ্যেই দপ্তর প্রতিষ্ঠা করে অবকাঠামোগত কাজ সম্পন্ন করেছে। কোম্পানী কুমিল্লা-মেঘনাঘাট-রামপুরা ২৩০ কেভি সঞ্চালন লাইন প্রকল্প বাস্তবায়নের কাজ শুরু করেছে। অদূর ভবিষ্যতে জাতীয় বিদ্যুৎ গ্রীড অধিগ্রহণ করে পিজিসিবি পূর্ণ অবয়বে যাত্রা শুরু করলে দেশের বিদ্যুৎ ব্যবস্থায় দক্ষতা বৃদ্ধির সূচনা হবে বলে আমি মনে করি। পিজিসিবি'র স্বল্প সময়ের যাত্রার অগ্রগতিতে বিদ্যুৎ ব্যবস্থায় সংস্কারের সফলতার ঈঙ্গিত পাওয়া যায়। তবে এই সফলতার পিছনে বিউবোর্ড, বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়, অর্থ মন্ত্রণালয়, অর্থনৈতিক সম্পর্ক বিভাগ, পরিকল্পনা কমিশন, অন্যান্য সরকারী ও উন্নয়ন সহযোগী দপ্তরসমূহের সক্রিয় সহযোগিতা ছিল। তাঁদের নির্দেশনা ও পরামর্শের জন্য আমি কৃতজ্ঞতা প্রকাশ করছি।

কোম্পানীর অগ্রযাত্রায় নিষ্ঠা ও কর্তব্যপরায়ণতার সর্বোচ্চ দায়িত্ব পালনের জন্য সকল স্তরের কর্মকর্তা ও কর্মচারীগণকে আন্তরিক অভিনন্দন জানিয়ে আগামী দিনগুলিতে পিজিসিবি'র উত্তরোত্তর সমৃদ্ধি কামনা করছি।

নুরুদ্দীন মাহমুদ কামাল



ব্যবস্থাপনা পরিচালক
পিজিসিবি

ব্যবস্থাপনা পরিচালকের বক্তব্য

বিদ্যুৎ উৎপাদন, সঞ্চালন ও বিতরণ একটি প্রতিষ্ঠানের মাধ্যমে না করে ভিন্ন ভিন্ন প্রতিষ্ঠানের মাধ্যমে সমাধা করলে বিদ্যুৎ খাতের ব্যবস্থাপনা সুসংগঠিত হবে, দক্ষতা ও জবাবদিহিতা বৃদ্ধি পাবে এবং সেবার মান উন্নত হবে। উপরোক্ত উদ্দেশ্য সামনে রেখে বিদ্যুৎ খাত সংস্কার কর্মসূচীর আওতায় পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড (পিজিসিবি) এর জন্ম।

দেশের সঞ্চালন ব্যবস্থার মালিকানা গ্রহণ করে উহা দক্ষতার সাথে ও বাণিজ্যিকভাবে পরিচালন, সংরক্ষণ ও উন্নয়ন করা পিজিসিবি'র মূল লক্ষ্য। বর্তমানে বাংলাদেশে প্রায় ৩৪০০ কিলোমিটার সঞ্চালন লাইন ও ৮৪টি গ্রীড সাব-স্টেশন (ডেসা-সহ) আছে। এইগুলি অচিরেই বিদ্যুৎ উন্নয়ন বোর্ড ও ডেসা হতে অধিগ্রহণ করে গ্রীড পরিচালনা ও সংরক্ষণের দায়িত্ব পিজিসিবিকে নিতে হবে। এই অধিগ্রহণ সুষ্ঠু ও নির্বিঘ্নে করার জন্য বিশ্বব্যাংকের সহায়তায় উপদেষ্টা নিয়োগ করা হয়েছে। আশা করা যায়, উপদেষ্টাদের সুপারিশ প্রাপ্তির পর গ্রীড অধিগ্রহণ সংক্রান্ত বিষয়টি ১৯৯৮ সালের শেষ নাগাদ নিষ্পত্তি করা যাবে। ইতোমধ্যে পিজিসিবি মেঘনাঘাট বিদ্যুৎ কেন্দ্র ও আরপিসি'র ময়মনসিংহ বিদ্যুৎ কেন্দ্র সংশ্লিষ্ট নতুন সঞ্চালন লাইন নির্মাণের কাজ শুরু করতে যাচ্ছে। চাহিদার সাথে সমন্বয় করে পিজিসিবি ভবিষ্যতের জন্য ট্রান্সমিশন মাস্টার প্ল্যান তৈরী করবে এবং সেই অনুযায়ী নতুন লাইন নির্মাণ করে যাবে।

পিজিসিবিকে অর্থনৈতিক দিক থেকে স্বাবলম্বী হতে হলে ট্রান্সমিশন ট্যারিফ বাণিজ্যিক ভিত্তিতে নির্ধারণ করা প্রয়োজন। যেহেতু ট্রান্সমিশন পিজিসিবি'র মনোপলি সেইহেতু এই ট্যারিফ সরকার কর্তৃক সম্মত হওয়া বাঞ্ছনীয়। বিশ্বব্যাংকের উপদেষ্টা এই বিষয়ে সমীক্ষা করে ট্যারিফের উপর সুপারিশ দিবেন। সুপারিশ প্রাপ্তির পর সরকারের সম্মতির জন্য ইহা পেশ করা হবে। ট্যারিফ নির্ধারিত হওয়ার সাথে সাথে উপদেষ্টাদের সুপারিশমালা অনুযায়ী গ্রীড সিস্টেম অধিগ্রহণ করা সম্ভব হবে।

পিজিসিবিতে এ যাবৎ যারা যোগদান করেছেন তাঁরা সকলেই উদ্যোগী ও নিবেদিত কর্মী। আমরা সকলে এই আশ্বাস দিচ্ছি যে, নতুন প্রতিষ্ঠান পিজিসিবিকে দক্ষ ও লাভজনক সংস্থা রূপে গড়ে তুলবে। এই প্রচেষ্টায় খোদা আমাদের সহায় হোন।

আ. ন. ম. রিজওয়ান

BOARD OF DIRECTORS

1996-97



Chairman
Nuruddin Mahmud Kamal
Chairman, BPDB



Director
Md. Habibur Rahman Khan
Member (Finance), BPDB



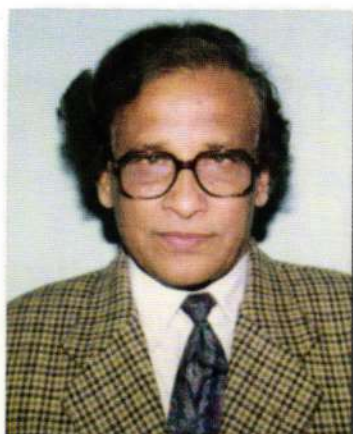
Director
Syed Mohiuddin Ahmed
Member (Generation), BPDB



Director
Md. Rafiqul Islam
Member (Distribution), BPDB



Director
Md. Sarwar Hossain
Member (Tr. & System Opn.), BPDB



Director
Akhter Hossain Khan
Member (Admn), BPDB



Director
A.Y. M. Ziaul Haq
Member (P & D), BPDB

BOARD OF DIRECTORS

1997-98

Mr. Nuruddin Mahmud Kamal Chairman, BPDB	Chairman
Mr. Md. Sarwar Hossain Member (Transmission & System Operation) BPDB (On LPR)	Director
Mr. Jamal Uddin Ahmad Member (Admn.), BPDB	Director
Syed Md. Shamsul Kaunine Member, Executive Committee FBCCI	Director
Mr. Anil Chandra Nath Ex President Institute of Chartered Accountants of Bangladesh	Director
Mr. Kazi Faruque General Secretary Consumer Association of Bangladesh	Director
Mr. A. N. M. Rizwan Managing Director PGCB	Director
Mr. N. G. Saha Director (Technical) PGCB	Director
Mr. Md. Anisur Rahman Director (Finance) PGCB	Director

পরিচালকমন্ডলীর প্রতিবেদন

১৪ই মে, ১৯৯৮ইং তারিখে পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেডের প্রথম বার্ষিক সাধারণ সভায় শেয়ার হোল্ডারগণের উদ্দেশ্যে ১৯৯৬-৯৭ অর্থ বছরের নিরীক্ষিত হিসাবসহ সার্বিক কার্যক্রমের উপর পরিচালকমন্ডলীর প্রতিবেদন।

বিসমিল্লাহির রাহমানির রাহীম

সম্মানিত শেয়ারহোল্ডারবৃন্দ

আসসালামু আলাইকুম,

পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেডের প্রথম বার্ষিক সাধারণ সভায় কোম্পানীর পরিচালক পর্ষদ ও আমার নিজের পক্ষ থেকে আপনাদের সকলকে স্বাগত জানাচ্ছি। আজ এ শুভ মুহূর্তে ১৯৯৬-৯৭ অর্থ বছরের কোম্পানীর কর্মকাণ্ডের সংক্ষিপ্ত বিবরণ, নিরীক্ষিত স্থিতিপত্র এবং নিরীক্ষকের প্রতিবেদন আপনাদের বিবেচনার্থে উপস্থাপন করছি।

কোম্পানী আইন, ১৯৯৪ সন অনুযায়ী সকল উদ্যোক্তা শেয়ারহোল্ডারগণ কোম্পানীর প্রথম পরিচালকবৃন্দ। চেয়ারম্যান, বিউবো এবং উক্ত বোর্ডের ছয় জন সদস্য উদ্যোক্তা-পরিচালক হিসাবে কোম্পানীর নিবন্ধীকরণের জন্য আবেদন করেন এবং ২১শে নভেম্বর, ১৯৯৬ইং তারিখে রেজিস্ট্রার অব জয়েন্ট স্টক কোম্পানীজ এন্ড ফার্মস এর অধীনে কোম্পানী নিবন্ধীত হয়। এরপর চেয়ারম্যান, বিউবো এবং বিউবো'র ছয় সদস্যকে (যাঁহারা সকলেই শেয়ারহোল্ডার) নিয়ে কোম্পানীর প্রাথমিক পরিচালক পর্ষদ গঠনের বিষয়টি বিদ্যুৎ উন্নয়ন বোর্ড অনুমোদন করে। বিউবো সিদ্ধান্ত গ্রহণ করে যে, চেয়ারম্যান, বিউবো এবং প্রজেক্ট ম্যানেজার, ন্যাশনাল লোড ডেসপ্যাচ সেন্টার প্রকল্প, বিউবো যথাক্রমে কোম্পানীর পরিচালক পর্ষদের চেয়ারম্যান ও কোম্পানী সচিবের দায়িত্ব পালন করবেন।

সম্মানিত শেয়ারহোল্ডারবৃন্দ,

বিদ্যুৎ উন্নয়ন বোর্ড, কোম্পানীর পক্ষে, প্রকাশ্য বিজ্ঞপ্তির মাধ্যমে কোম্পানীর ব্যবস্থাপনা পরিচালক, পরিচালক (টেকনিক্যাল) এবং পরিচালক (অর্থ)এর নিয়োগ প্রক্রিয়া সম্পন্ন করে।

প্রতিবেদনাদীন সময়ে পরিচালক পর্ষদের তিনটি বোর্ডসভা অনুষ্ঠিত হয় এবং নিম্নোক্ত কার্যাবলীর উপর সিদ্ধান্ত গৃহীত হয় :

- (ক) পিজিসিবি'র পক্ষে এশীয় উন্নয়ন ব্যাংকের নবম বিদ্যুৎ প্রকল্পের [ঋণচুক্তি নং ১৫০৫-ব্যান (এস এফ)] প্রকল্প চুক্তি ও ঋণচুক্তি স্বাক্ষর প্রদানের জন্য ফিলিপাইনস্থ বাংলাদেশের রাষ্ট্রদূতকে ক্ষমতা প্রদান করা হয়।
- (খ) পিজিসিবি'র পরিচালক পর্ষদের একজন পরিচালকের নাম পরিবর্তন করা হয়।
- (গ) এশীয় উন্নয়ন ব্যাংকের নবম বিদ্যুৎ প্রকল্পের প্রকল্প চুক্তি এবং সাবসিডিয়ারী ঋণচুক্তির উপর অর্থনৈতিক সম্পর্ক বিভাগ কর্তৃক গৃহীত আইন, বিচার ও সংসদ বিষয়ক মন্ত্রণালয়ের মতামত পরিচালক পর্ষদ কর্তৃক গ্রহণ ও অনুমোদন করা হয়।

সম্মানিত শেয়ারহোল্ডারবৃন্দ,

আপনারা অবগত আছেন যে বিদ্যুৎ সেক্টর সংস্কার কর্মসূচীর অংশ হিসেবে বিদ্যুৎ সঞ্চালন ব্যবস্থাপনায় দক্ষতা এবং সেবার মান উন্নত করার লক্ষ্যে পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিঃ (পিজিসিবি) গঠন করা হয়েছে। বিদ্যুৎ সেক্টর সংস্কার কর্মসূচীর আওতায় বিদ্যুৎ উৎপাদন কার্যক্রমকে বেসরকারী খাতেও উন্মুক্ত করা হয়েছে। প্রাইভেট সেক্টরের অধীনে মেঘনাঘাটে ৪৫০ মেগাওয়াট ক্ষমতাসম্পন্ন একটি বিদ্যুৎ উৎপাদন কেন্দ্র স্থাপনের ব্যবস্থা চূড়ান্ত করা হয়েছে।

কোম্পানী গঠনের পূর্বেই বিদ্যুৎ উন্নয়ন বোর্ড ভবিষ্যতে মেঘনাঘাটে উৎপাদিত বিদ্যুৎ সঞ্চালনের লক্ষ্যে কুমিল্লা-মেঘনাঘাট-রামপুরা এবং মেঘনাঘাট-হরিপুর ২৩০ কেভি সঞ্চালন লাইন ও ন্যাশনাল লোড ডেসপ্যাচ সেন্টার প্রকল্প নামে একটি প্রকল্পের পরিকল্পনা করে এবং জাতীয় অর্থনৈতিক পরিষদের নির্বাহী কমিটি (একনেক) কর্তৃক প্রকল্পটি ইতোমধ্যে অনুমোদিত হয়েছে। প্রকল্পটির দুটি অংশ রয়েছে, যথা : (১) কুমিল্লা-মেঘনাঘাট-হরিপুর সঞ্চালন লাইন এবং বিদ্যমান ২৩০কেভি হরিপুর-ঘোড়াশাল সঞ্চালন লাইনকে নির্মিতব্য রামপুরা উপকেন্দ্রে সংযোগ প্রদান এবং (২) ন্যাশনাল লোড ডেসপ্যাচ সেন্টার (এন.এল.ডি.সি.)। প্রকল্প ছক অনুযায়ী অংশদ্বয়ের জন্য মোট প্রাক্কলিত ব্যয় হচ্ছে টাঃ ৭৬১৮.৩২ মিলিয়ন, যার মধ্যে বৈদেশিক মুদ্রার পরিমাণ হল টাঃ ৪৮৪৩.৬২ মিলিয়ন। ঋণ ও ইকুইটির অনুপাত ধরা হয়েছে ৪০ : ৬০। প্রকল্প বাস্তবায়নের জন্য সরকার থেকে স্থানীয় মুদ্রা

বরাদ্দ হয়েছে। বৈদেশিক মুদার অর্থায়ন এশীয় উন্নয়ন ব্যাংক এর নবম বিদ্যুৎ প্রকল্পের আওতায় [ঋণ নং ১৫০৫-ব্যান (এসএফ)] সম্পাদন করা হবে। ন্যাশনাল লোড ডেসপ্যাচ সেন্টারের অর্থায়ন ইন্টারন্যাশনাল ডেভেলপমেন্ট এসোসিয়েশন (আই ডি এ) কর্তৃক করা হবে মর্মে আশা করা যাচ্ছে।

প্রকল্পের ছক (প্রজেক্ট প্রোফরমা) অনুযায়ী, নিবন্ধীকরণের পর পরই প্রকল্পটি বাস্তবায়নের দায়িত্ব কোম্পানীর উপর ন্যস্ত করা হয়েছে। কোম্পানীর ব্যবস্থাপনা পরিচালক এবং অপর দুইজন সার্বজনীন পরিচালকের নিয়োগ অর্থ বছরের শেষভাগে হয়েছে। ইতোমধ্যে বিউবো নিয়োজিত উপদেষ্টা কর্তৃক ডিজাইন এবং দরপত্র দলিল প্রণয়নের কাজ করা হয়। উল্লেখ্য যে, প্রতিবেদনাধীন সময়ে দরপত্র দলিল তৈরির কাজ সমাপ্তির পর্যায়ে ছিল।

প্রকল্পটি সরকারের বার্ষিক উন্নয়ন কর্মসূচীতে অন্তর্ভুক্ত করা হয়েছে। ট্রান্সমিশন লাইন অংশের বৈদেশিক মুদাংশের অর্থায়নের জন্য সরকার এবং এশীয় উন্নয়ন ব্যাংকের মধ্যে ৯ই জানুয়ারী, ১৯৯৭ইং তারিখে ঋণচুক্তি স্বাক্ষরিত হয়েছে।

সম্মানিত শেয়ারহোল্ডারবন্দ,

বিশ্ব ব্যাংক প্রস্তাব করেছে যে, কোম্পানীর কার্যক্রম চালু হবার সংগে সংগে ন্যাশনাল লোড ডেসপ্যাচ সেন্টার নির্মানের জন্য অর্থ যোগান দেয়া হবে। এমতাবস্থায় কোম্পানী চালু করণের লক্ষ্যে যথাশীঘ্র সম্ভব ট্রান্সমিশন সেন্টারের সম্পদ ও সংশ্লিষ্ট নির্বাচিত জনবল বিউবো থেকে অধিগ্রহণের জন্য বিশ্ব ব্যাংক পরামর্শ দিয়েছে। এর জন্য কর্মচারী ও সংগঠন সংক্রান্ত বিষয়ে সমীক্ষা পরিচালনা ও সুপারিশ প্রদানের লক্ষ্যে বিশ্ব ব্যাংক স্বল্প মেয়াদী স্থানীয় ও বিদেশী উপদেষ্টা নিয়োগ করেছে। অর্থ বছরের শেষাংশে উপদেষ্টাগণ প্রাথমিক প্রতিবেদন পেশ করেছেন। প্রতিবেদন প্রণয়নে বিদেশী বিশেষজ্ঞদের ধারণা সংক্রান্ত সীমাবদ্ধতা প্রকাশ পায়। পক্ষান্তরে, তাদের প্রণীত প্রাথমিক প্রতিবেদনে অনেক ত্রুটি, বিচ্যুতি ধরা পড়ে, যার সংশোধন, সংযোজন ও মানোন্নয়নের কাজ চলছে।

বর্ণিত প্রকল্পের জন্য প্রতিবেদনাধীন সময়ে বার্ষিক উন্নয়ন কর্মসূচীতে টাঃ ১৫০.০০ মিলিয়ন বরাদ্দ দেয়া হয়। বিউবো বরাদ্দ অনুযায়ী সম্পূর্ণ অর্থ সরকার থেকে অবমুক্ত করে এবং কোম্পানীর নিবন্ধীকরণ ও এন.এল.ডি.সি প্রকল্পের উপদেষ্টাদের আয়কর প্রদানের জন্য টাঃ ৩.৫৪ মিলিয়ন ব্যয় করে। অবশিষ্ট টাঃ ১৪৬.৪৬ মিলিয়ন কোম্পানীর ব্যাংক একাউন্টে পরবর্তীতে স্থানান্তর করা হয়েছে।

সম্মানিত শেয়ারহোল্ডারবন্দ,

আলোচ্য অর্থ বছরে নানা সীমাবদ্ধতার মধ্য দিয়ে বিদ্যুৎ সেক্টরে দেশে প্রথম সঞ্চালন কোম্পানী স্থাপনের প্রক্রিয়া শুরু করতে হয়েছে। কোম্পানীর সম্মানিত শেয়ারহোল্ডারগণের কাছ থেকে পাওয়া সকল প্রকার সাহায্য, সহযোগিতা ও সমর্থন কোম্পানীর পরিচালক মন্ডলী কৃতজ্ঞচিত্তে স্বরণ করছে।

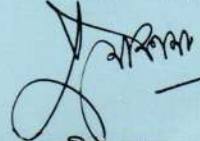
কোম্পানীর সার্বিক উন্নয়নের লক্ষ্যে নিষ্ঠার সাথে দায়িত্ব পালনের জন্য পরিচালক মন্ডলীর পক্ষ থেকে কোম্পানীর সর্বস্তরের কর্মকর্তা ও কর্মচারীবৃন্দকে আমি আন্তরিক ধন্যবাদ জানাচ্ছি।

কোম্পানীর অব্যাহত অগ্রযাত্রায় প্রয়োজনীয় উপদেশ, দিকনির্দেশনা, সাহায্য ও সহযোগিতা প্রদানের জন্য বিদ্যুৎ উন্নয়ন বোর্ড; বিদ্যুৎ, জ্বালানী ও খনিজ সম্পদ মন্ত্রণালয়; অর্থনৈতিক সম্পর্ক বিভাগ; অর্থ মন্ত্রণালয়; পরিকল্পনা মন্ত্রণালয়; বিভিন্ন সরকারী সংস্থা; এশীয় উন্নয়ন ব্যাংক এবং বিশ্ব ব্যাংক সহ সকল সংস্থাকে আমি আন্তরিক ধন্যবাদ জ্ঞাপন করছি।

কোম্পানীর প্রথম বার্ষিক সাধারণ সভায় সানুগ্রহ উপস্থিতির জন্য আমি পুনরায় আপনাদের আন্তরিক ধন্যবাদ জানাচ্ছি। একই সাথে কোম্পানীর নিরীক্ষিত হিসাব, স্থিতিপত্র ও নিরীক্ষকের প্রতিবেদন এবং পরিচালকমন্ডলীর প্রতিবেদন সদয় বিবেচনা ও অনুমোদনের জন্য অনুরোধ করছি।

পরিশেষে পাওয়ার গ্রীড কোম্পানী অব বাংলাদেশ লিমিটেড এর উত্তরোত্তর অগ্রযাত্রা ও সমৃদ্ধির জন্য সর্বশক্তিমান আল্লাহর কাছে প্রার্থনা করছি।

পরিচালক পর্যদের পক্ষে



নুরুদ্দীন মাহমুদ কামাল
চেয়ারম্যান

DIRECTORS' REPORT

Directors' Report to the Shareholders including Audited Accounts for the Financial Year 1996-97 at the 1st Annual General Meeting of Power Grid Company of Bangladesh Ltd. (PGCB) held on 14 May, 1998.

**Bismillahir Rahmanir Rahim
Esteemed Shareholders
As Salamu Alaikum,**

On behalf of the Board of Directors and on my behalf I welcome you all to the 1st Annual General Meeting of Power Grid Company of Bangladesh Ltd. On this august occasion I take pleasure to place before you, the brief account of activities of the Company together with Audited Balance Sheet and Auditor's Report for the Financial Year 1996-97 for your kind consideration.

Esteemed Shareholders,

Power Grid Company was incorporated on 21 November, 1996. As per Company's Act, 1994, all the subscribers to share capital are the first Directors of the Company. The Chairman, BPDB and the six Members of BPDB, applied as sponsor Directors for incorporation to the Registrar of Joint Stock Companies and Firms. Thereafter, BPDB Board approved formation of the initial Board of Directors comprising Chairman, BPDB and its six Members. BPDB also decided that Chairman, BPDB and Project Manager, National Load Despatch Centre Project, BPDB would hold the offices of the Chairman, PGCB Board of Directors and Secretary, PGCB respectively.

Esteemed Shareholders,

On behalf of PGCB, BPDB, which included all the Directors of PGCB, conducted the recruitment of the Managing Director, Director (Technical) and Director (Finance) of the Company through open advertisement.

During the reporting period, three meetings of the Board of Directors were held to transact, among other things, the following business :

- i. Authorising the Ambassador of Bangladesh in Philippines to sign the Project Agreement and Loan Agreement of ADB's Ninth Power Project Loan No. 1505-BAN (SF) on behalf of PGCB.
- ii. Changing name of one Director of PGCB Board of Directors.
- iii. Acceptance and approval of views of Ministry of Law, Justice and Parliamentary Affairs, obtained by ERD, on Project and Subsidiary Loan Agreements of ADB's Ninth Power Project.

Esteemed Shareholders,

As you all know, the creation of Power Grid Company of Bangladesh Ltd. is the outcome of Power Sector Reform Programme to achieve greater efficiency and cost effectiveness in transmission of power. Under the Power Sector Reform Programme, generation of electricity has also been opened up to the private sector. One of the private generation units with a capacity of 450 megawatt has been planned to be set up at Meghnaghat.

To evacuate power in future from Meghnaghat, a project called Comilla-Meghnaghat-Rampura and Meghnaghat-Haripur 230 kV Transmission Line and National Load Despatch Centre (NLDC) had been planned by BPDB before creation of the Company and the project has already been approved by ECNEC. The project comprises of two components viz. (i) Comilla-Meghnaghat-Haripur and Turn-in of existing Haripur-Ghorasal 230 kV Transmission Line at Rampura and (ii) National Load Despatch Centre (NLDC). As per Project Proforma the total project cost of both the components is Tk. 7618.32 million with foreign exchange involvement of Tk. 4843.62 million. The local currency will be provided by the Government of Bangladesh at Debt-Equity ratio of 40:60. The foreign exchange part of transmission line component will be financed by the Asian Development Bank (ADB) under 9th Power Project Loan No. 1505-BAN (SF). National Load Despatch Centre is expected to be financed by the International Development Association (IDA).

As per provision of Project Proforma, the responsibility for execution of the project has been vested in the Company soon after its incorporation. The appointment of Managing Director and two other full time Directors was made at the end of the fiscal year. Meanwhile the design work and preparation of Bidding Documents have been carried out by BPDB with their appointed Consultants. Preparation of Bidding Documents was nearing completion during the reporting period.

The project has been included in the Annual Development Programme (ADP) during the year. The Loan Agreement for financing the foreign exchange part of transmission line component has been signed between Government of Bangladesh and Asian Development Bank on 9 January, 1997.

Esteemed Shareholders,

The World Bank proposed that IDA's funding for National Load Despatch Centre would be made available as soon as the Company becomes operational. In order to make the Company operational the World Bank suggested for taking over of transmission assets and selected manpower from BPDB at the earliest. To help expedite the process of transfer of transmission lines, the World Bank has appointed short-term local and foreign Consultants to make study and put forward recommendations on employee related and organisational matters. The preliminary reports of Consultants were submitted in later part of the fiscal year. The reports were found to be lacking in many respects, including conceptual clarity of the Consultants, which are now being revised for improvement.

In the ADP for the period under report there was an allocation of Taka 150.00 million in local currency for the mentioned project. BPDB arranged to release whole of the allocation from the Government and met expenditure to the tune of Taka 3.54 million on Company's account with respect to its registration and payment of income tax obligation of the Consultants engaged by BPDB for NLDC Project. The balance amount of Taka 146.46 million has subsequently been transferred to the Company's bank account.

Esteemed Shareholders,

The process of establishment of a transmission company in the power sector was started during the year amidst many hindrances.

The Board of Directors gratefully acknowledge the unflinching support, inspiration and unencumbered co-operation, received from the esteemed shareholders of the Company.

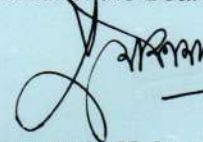
I like to express my thanks to the officers and staff of the Company on behalf of the Board of Directors for their sincere performance of duties for the development of the Company.

I also like to express my sincere gratitude to Bangladesh Power Development Board; Ministry of Energy and Mineral Resources; Economic Relations Division; Ministry of Finance; Ministry of Planning; other government departments; Asian Development Bank and the World Bank and other development partners for their assistance, advice and guidance.

I once again like to thank you for your kind presence in the first Annual General Meeting of the Company and seek your support for kind consideration and adoption of the Audited accounts, Balance Sheet, Auditor's Report and the Directors' Report for the Financial Year 1996-97.

In conclusion I pray to almighty Allah for continued success and prosperity of Power Grid Company of Bangladesh Ltd.

On behalf of the Board of Directors



Nuruddin Mahmud Kamal
Chairman

Auditors' Report

05 Mar, 1998

The Shareholders,
Power Grid company of Bangladesh Limited
Dhaka

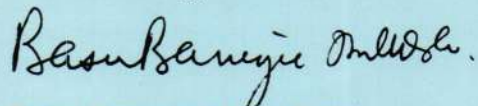
Dear Sirs,

We have examined the annexed Balance Sheet of Power Grid Company of Bangladesh Limited, Dhaka as at 30 June, 1997 together with accompanying notes thereto as prepared and produced to us by the Company for our examination and we report that :

- A) To the best of our knowledge and belief we have obtained all the information and explanations which were necessary for the purpose of our audit.
- B) In our opinion;
 - a) The Balance Sheet exhibits a true and fair view of the state of the Company's affairs at 30 June, 1997 and that the Balance Sheet contain all the information in the manner required by the Companies Act, 1994.
 - b) Proper books of account as required by law were maintained by the Company so far as appeared from our examination of those books ; and
 - e) The Balance Sheet has been drawn up in conformity with the Companies Act., 1994.

Thanking you,

Yours faithfully,

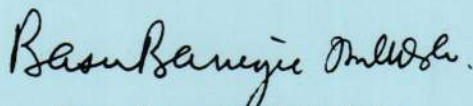


Basu Banerjee Nath & Co.
Chartered Accountants

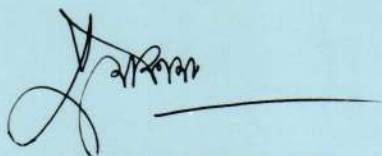
Power Grid Company of Bangladesh Limited, Dhaka Balance Sheet as at 30 June, 1997

<u>SOURCES OF FUNDS :</u>	<u>NOTES</u>	<u>TAKA</u>
SHAREHOLDERS' FUND :		
i) Share Capital	03	11,000.00
ii) Deposit for Shares	04	90,000,000.00
LONG TERM LOAN :	05	60,000,000.00
Total Tk.		=====
		150,011,000.00
		=====
APPLICATION OF FUNDS :		
PRELIMINARY EXPENSES :	06	1,539,965.00
CURRENT ASSETS & LOANS :		
Account Current with BPDB	07	146,460,035.00
Short Term Loan	08	11,000.00
CAPITAL WORK-IN-PROGRESS :		
NLDC Project (Consultancy)	09	2,000,000.00
Total Tk.		=====
		150,011,000.00
		=====

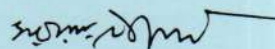
Signed in terms of our report of even date.



Basu Banerjee Nath & Co.
Chartered Accountants
Dated : 15 March, 1998
14-15, Motijheel C/A
Dhaka-1000



Nuruddin Mahmud Kamal
Chairman



Md. Sarwar Hossain
Director

Power Grid Company of Bangladesh Limited Dhaka

Notes to the Accounts for the Period Ended 30 June, 1997

01. Structure of the Company :

Power Grid Company of Bangladesh Ltd. is a Private Limited Company incorporated on 21-11-1996 having Registration No. C-31820 (941)/96 under the Companies Act, 1994.

02. Objects of the Company :

The objectives for which the company is established include, inter alia, the followings :

To plan, promote, develop, operate and maintain an integrated and efficient power transmission system network in all its aspects including planning, investigation, research, design and engineering, preparation of preliminary feasibility and detailed project reports, construction, operation and maintenance of transmission lines, sub-stations, load despatch centres and communication facilities and appurtenant works, coordination of integrated operation of regional, national and international grid systems, providing consultancy services in power systems field, execution of turnkey jobs for other utilities/organisations, wheeling of power, purchase and sale of power.

03. Share Capital :

a) Authorised Capital :	Tk.	10,000,000,000.00
10,000,000 Ordinary Shares		
of Tk. 1,000.00 each		

b) Paid-up Share Capital :	Tk.	11,000.00
11 Ordinary shares of Tk. 1,000.00 each		
fully called and paid-up in cash by the		
following members :		

No. of Shares

1.	Bangladesh Power Development Board represented by Mr. Nuruddin Mahmud Kamal Chairman	5
2.	Mr. Md. Habibur Rahman Khan Member (Finance) Bangladesh Power Development Board	1
3.	Mr. Syed Mohiuddin Ahmed Member (Generation) Bangladesh Power Development Board	1
4.	Mr. Md. Rafiqul Islam Member (Distribution), Bangladesh Power Development Board	1

- | | | |
|----|--|---|
| 5. | Mr. Md. Sarwar Hossain
Member (Transmission & System Operation)
Bangladesh Power Development Board | 1 |
| 6. | Mr. Akhter Hossain Khan
Member (Administration)
Bangladesh Power Development Board | 1 |
| 7. | Mr. A. Y. M. Ziaul Haq
Member (Planning & Development)
Bangladesh Power Development Board | 1 |

04. **Deposit for Shares (Govt. Equity) :** Tk. 90,000,000.00

This amount was received from the Government of the People's Republic of Bangladesh as part of Govt. Equity. No share has yet been allotted.

05. **Long Term Loan :** Tk. 60,000,000.00

The above loan was received from the Govt. upto 30-6-1997 in two instalments.

06. **Preliminary Expenses :** Tk. 1,539,965.00

The break-up is as follows :

Fees for registration of the Company	1,504,295.00
Cost of forms and adhesive stamps	5,670.00
Miscellaneous expenses	30,000.00

Total Tk.	1,539,965.00
	=====

07. **Account Current with BPDB :** Tk. 146,460,035.00

This amount has been lying with BPDB since no bank account was opened upto the closing date of accounts.

08. **Short Term Loan :** Tk. 11,000.00

This loan was created against the sponsor members of the Company against their share capital.

09. **Capital Work-in Progress :** Tk. 2,000,000.00

This represents income tax paid to Circle-4, Taxes Zone-1, Dhaka for 5 consultants of NLDC project working for this Company.

10. **Provision for liability :**

No provision for liability, if any, has been made in accounts.

Basu Banerjee Nath & Co.

(Basu Banerjee Nath & Co.)

Chartered Accountants

AN OVERVIEW OF POWER SECTOR AND ESTABLISHMENT OF POWER GRID COMPANY OF BANGLADESH LIMITED

INTRODUCTION

The supply of electricity in this part of the world started in the year 1890. A number of small power plants were built in succession over the next two decades and served electricity to small distribution areas in major urban towns.

The first effort to structure the industry through a legal framework came with the enactment of the Indian Electricity Act, 1910, which sought to regulate the business of isolated generation and distribution networks. The law, however, defined the rights and obligations of the supplier and the consumer.

In 1947, the Indian sub-continent was divided into two independent countries, namely, India and Pakistan. Bangladesh, which was known as East Bengal, formed the eastern part of Pakistan. At that time seven megawatts electricity was produced by local private companies in seventeen district towns and distributed to public for household consumption. In addition another fourteen megawatts were produced and supplied to tea gardens, mills and factories as captive generation. The private generations were taken over by the Government and the management was entrusted to the newly created Electricity Directorate in 1948.

In 1959, the Government created an autonomous organisation called East Pakistan Water and Power Development Authority (EPWAPDA) by promulgation of an Ordinance.

In 1960 the country-wide demand of electricity was less than 50 megawatts, with the largest generating unit of 10-megawatt at Siddhirganj. Installation of two 40-megawatt hydro-electricity units at Kaptai, a 50-megawatt unit at Siddhirganj and the construction of Dhaka-Chittagong 132 kV transmission line ushered in a revolution in the power system.

After the War with Pakistan and Liberation of Bangladesh in 1971, EPWAPDA was bifurcated into two autonomous Boards by promulgating an Ordinance (P.O. 59 of 1972). Bangladesh Power Development Board (BPDB) was solely entrusted with the responsibility of generation, transmission and distribution of electricity throughout the country. It was clearly defined that BPDB shall, for the purpose of the Electricity Act 1910, be deemed to be a licensee and shall have all powers and discharge all the obligations of licensee under that Act.

In this connection it may be noted that in 1972 against a demand for 182 megawatts the generation capacity was 224 megawatts. By 1974 the installed generation capacity rose to 667 MW, when the generation capability was 490 MW and the highest demand went up to only 266 MW, leaving a reserve margin of 46 percent. In FY 1982 the installed capacity increased to 850 MW, when the demand remained at 604 MW, with a reserve margin of 15 percent. After FY 1995, the reserve margin reduced to zero. The situation had worsened by early 1996. Any forced shutdown now leads to increase in load-shedding.

THE ELECTRIFICATION PROCESS IN BANGLADESH

With a modest beginning in the fifties, small diesel plants were set up throughout the country. Change in generation mix started by 1960s, when hydro and natural gas based plants were introduced, and with increased allocation of gas (in the eastern part) today almost over eighty per cent of the total electrical energy generation has become dependent on indigenous fuel.

Government of Bangladesh has traditionally used public and publicly guaranteed resources to finance the development of electricity sector on the assumption that low priced electricity is critical to accelerating economic

and social development. To keep prices low, the sector has also been provided with subsidies. Yet electrification in Bangladesh is not only low, even the process is far from complete. Only about sixteen percent population have access to electricity. Of the total number of consumers at around 3.3 million, BPDB maintains about 1.15 million throughout the country.

Consumption of electricity in per capita terms was also very low, only around 97 kilowatt hour (kWh) in FY 1996 compared to 79 kWh in FY1992. Although the total installed generating capacity exceeded 2900-megawatt mark over the last four decades, the firm available capacity is no more than 2200 megawatts, mainly because a good number of plants are in derated condition due to old age, a large number of them have crossed retirement stage yet in operation, some are beyond economic repair. In fact the available generation remained although lower in previous five to six years compared to actual demand. As a result the country had been facing load-shedding ranging from 250-400 megawatt during peak hours. During FY1994 load shedding was resorted to on 199 days ranging from 23 MW to 540 MW for a total duration of 547 hours. In 1995 and 1996 the highest load shedding in one day was 477 and 545 MW respectively. The distribution of the load shedding was not even and the major brunt was borne by the rural areas. Erratic power supply has also tended to increase the unwillingness of the consumers to pay bills, which in turn has led to shortages of funds for maintenance, worsening the situation still further.

The highest of the non-coincidental peak demand registered in FY1996 was around two thousand megawatts and the average load factor was about sixty per cent. Primary transmission voltages ranged from 66 kV to 230 kV. The length of such transmission lines totalled 3400 kms. Primary distribution lines ranged in voltage from 11 kV to 33 kV, while secondary distribution lines are generally 400/230V.

To operate and maintain the system, to reduce technical losses and to improve supply quality and reliability substantial new investments were needed in both transmission and distribution. Transmission development component in particular needed to be coordinated and complimented with the generation and distribution. Unfortunately the forward and backward linkages remained out of focus. For example, in early 1990s a number of power plants were built in isolated locations but commensurate evacuation facilities were not built. It was only in late 1996 proper action was taken by BPDB, which fell into a complication due to donor's last minute change in decision. The electrification process in Bangladesh thus fell into a jeopardy.

In 1991 Dhaka Electric Supply Authority (DESA) was created at the insistence of major donors, when the electricity demand of the organization was around seven hundred and fifty megawatts. Today it has crossed one thousand-megawatt mark with no major improvement in the infrastructure except construction of seven new sub-stations. Further due to theft, pilferage and other non-technical reasons the system loss in DESA is very high, resulting in substantial revenue loss annually.

Electricity generation is expected to increase from 2000-megawatt level in 1996 to 9900-megawatt in 2015, at an average annual growth rate of about 8-9 per cent. The capital requirements of the necessary power generation plants and the associated transmission and distribution facilities are estimated at about six and a half billion US dollars by 2015. Power sector expansion of this magnitude calls for fresh approaches towards (i) redefining government's role in the power sector, (ii) balance of growth in generation between public and private sectors, (iii) efficiency considerations, and (iv) integrating more closely the environmental considerations (including environmental costs).

The present electricity supply position has deteriorated because of shortage of available generation capability compared to demand. While this is an accumulated problem of many years, the existing situation is generally attributed to the following :

- i. the energy sector in general, power sector in particular, has been fully dependent on multilateral and bilateral organizations upto FY1992. Subsequently the development partners expressed their inability to continue financing public sector generation component. Unfortunately, no alternative financing was also looked for to mitigate the demand in growth of generation to the tune of about two hundred megawatt

annually. No serious effort was made to reach agreements with private sector. As a result the gap between demand and supply increased, leading to continuous load shedding year after year ;

- ii. though the energy policy was published in 1995, no realistic step was taken for implementation i.e., foreign private investment did not come through until end 1996;
- iii. the issue of demand-supply gap got aggravated when the development partners held up financing, even for some repair and rehabilitation projects ;
- iv. some vitally important donor financed gas development projects have been unduly delayed for which gas supply to gas based power plants has been reduced ;
- v. some power plants have been installed in the 1990s in highly non-desirable locations, creating evacuation problem. Also due to non-availability of gas these plants could not be operated even in the most critical juncture of power shortage ;
- vi. delay in finalising donor assistance for major high voltage transmission lines has created evacuation problem in some areas ;
- vii. the capacity of a number of very old power plants (25-30 years) were derated, some even deserved to be retired on techno-economic grounds, but BPDB was obliged to operate them because of shortage in supply compared to demand of electricity ;
- viii. from the technical standpoint the much needed 'reserve margin' had reduced to zero after FY1995, resulting in the reduction of firm generation capacity ; and
- ix. because of lack of upgradation and modernization of relay coordination and protection and also poor investment in the high voltage transmission system, recurrent problems occur.

POWER SECTOR OVERVIEW

Institutional Setting. The Ministry of Energy and Mineral Resources (MEMR) has the overall responsibility for the energy sector. The Government, through MEMR, wholly owns and supervises the Bangladesh Power Development Board (BPDB), the Dhaka Electric Supply Authority (DESA) and the Rural Electrification Board (REB), which are its three executing agencies in the power sector. The BPDB is presently responsible for all generation and transmission in the country and also for distribution in district towns, municipalities and some rural areas, while DESA is responsible for distribution in Dhaka city and its surrounding areas. Distribution of electricity in most of the rural areas of Bangladesh is the responsibility of the Palli Bidyut Samities (PBSs) which are rural electric cooperatives, organized, initially funded and monitored by REB. In the fiscal year 1996, BPDB distributed about 40 percent, DESA 48 percent and the PBSs 12 percent of all electricity sold in Bangladesh.

On 31 December, 1994, the Rural Power Company (RPC) was incorporated with REB and five PBSs as its shareholders to implement the Mymensing Power Project as part of the strategy to diversify generation.

On 18 September, 1996, in order to enhance the efficiencies and competition in power sector, the Government approved the creation of two new executing agencies, the Power Grid Company of Bangladesh Limited (PGCB) and Dhaka Electric Supply Company (DESC). PGCB, in due course, will be responsible for all power transmission in the country and DESC is responsible for electricity distribution in part of Metro Dhaka area and in future, it is supposed to take over DESA.

Power Supply. The Padma-Meghna-Jumuna river system divides Bangladesh into two parts, the east and the west region. The total installed capacity in BPDB system increased from 821 MW in FY1980 to 2908 MW in FY1996, a growth rate of 8.6 percent per annum. The installed generating mix in FY1996 comprised of 63.2 percent of steam turbine, 7.9 percent hydro, 6.2 percent of combined cycle, 20.9 percent gas turbine and 1.8

percent of diesel generating capacity. Only 294 MW fueled by diesel oil and furnace oil-fired gas and steam turbines were operating in the western zone. In the eastern zone 230 MW is hydropower, and the rest natural gas based.

Generation. The highest demand met so far is 2100 MW. It is anticipated that in future increase in the demand for electricity will be of the order of 8-9 percent per year leading to a peak demand of about 4350 MW by FY2000. Of the current installed capacity, a number of plants are very old and the rest are under rehabilitation and maintenance mainly due to forced shutdown of plants. Gross energy generation in BPDB's system was 9,785 GWh in FY1994, which increased to 11,474 GWh in FY 1996. During the FY 1980 to FY1993 gross generation increased at a rate of 10.7 percent per annum, then slowed down substantially. The country has been moving away from oil-based generation to gas-based generation since 1972 and in FY1996 gas-based generation accounted for about 87 percent of the total electricity generated. The system's thermal efficiency improved from 25 percent in FY1980 to 32.93 percent in FY1996.

Transmission System. The interconnection of the two systems (east and west) was accomplished in 1982 by a 230 kV double circuit transmission line, but began operating at 230 kV full strength in mid-1989, when the 230/132 kV substations were commissioned. Power exchange between the two zones, which became possible after December 1982, has led, in general, to a reduction in total system generating costs by substituting oil-based generation in the west, with natural gas-based generation in the east, as well as by improving the overall power supply reliability.

With rapidly increasing demand in the west, the capacity limit of this interconnector has been reached and new interconnection possibilities were being explored. It is important to note that the generating capacity requirement in the west zone is dependent on the power transfer capacity of the East-West interconnector. The capacity of the existing interconnection, which is a 178 km long, 230 kV double-circuit transmission line between Ghorasal and Ishurdi, is about 400 MW.

Power System Control And Operation. BPDB carries out overall monitoring and control of its power system from its Central Load Despatch Center at Siddhirganj. The centre is very old and is equipped with two central processing units - consoles, and a mimic board. All communications are effected through power line carrier which provides voice communication with all power stations and substations, and telemetering (of MWs, MVARs, Amperes and Volts) from 22 key locations through seven control centers. Telemetering has been extended to cover a total of 40 locations.

On line control at the present location is non-existent. The use of Supervisory Control and Data Acquisition (SCADA) is yet to be established throughout the country. The direct control of blocks of consumers at high voltage by switching is being practised, as an effective method of load management. This method of load shedding is actually characterized by poor power supply reliability, through a 'rotated' form of load shedding, whereby power supplies to consumers in different blocks are shut down for a designated period each, in rotation.

System Reliability. Bangladesh Power System is comprised of plants and machineries of different types and origins. Their protection and control facilities are of various types and philosophies. The major installations like power plants, transmission lines and grid substations of the system were installed on turnkey basis. The design of protection and controls of individual installations have been carried out by the turnkey suppliers. Such designs were tailored with specific aim of protecting individual supplier's equipment. At times, this aspect has influenced selection of sensitive protection for some equipment. Perhaps adequate effort could not be made to achieve smooth protection coordination, especially between power plants and transmission lines. As a result, non-coordinated protection operations were observed and major system collapses have been witnessed every year since early 1990s due to faults in power plants or transmission lines. The other problems are (i) the existence of some very old machines in the system which should have been retired long before and (ii) inability of the system to permit scheduled outages to power plants, transmission lines and substations. Consequently, forced outages of power plants, transmission lines and substations frequently occur, which jeopardise generation - load balance

scenario. Therefore, it is necessary to take appropriate measures to improve and upgrade relay coordination and protection system for offering reliable and stable power supply to consumers.

System Losses. High system losses have been a serious and continuing problem for BPDB and DESA. During FY1980 and FY1981, total system losses were approximately 35 percent of gross generation, declining to about 31 percent in FY1986. By FY1992 system losses increased to more than 40 percent. An emergency plan to reduce system losses was implemented and system losses was reduced to 37.2 percent in 1993.

As a percentage of gross energy generation, the average plant auxiliary consumption levels in BPDB's power stations increased gradually from 4.3 percent in 1981 to 5.5 percent in 1996. However, auxiliary consumption is not only station use but also use in offices and the residential colonies of the power station staff. Transmission and distribution losses increased from 30.7 percent to as high as 36.9 percent in FY 1992 before dropping to 32.1 percent in FY 1993. Losses in per centage of generation, excluding station use, was about 16.96 per cent and including station use was 21.60 percent in FY 1996 in BPDB, excluding DESA and REB.

Technical losses in the distribution system are high due, in part, to inadequate investment in distribution facilities in relation to investment in generation and transmission. Investment in the former had not kept pace with rapidly increasing demand, resulting in overloading of distribution networks. To alleviate this problem, BPDB and DESA, with assistance from the World Bank, Asian Development Bank, Kreditanstalt fur Wiederaufbau of Germany (KfW), Overseas Economic Cooperation Fund of Japan, Overseas Development Administration of the UK and other bilaterals, have implemented some distribution rehabilitation and expansion projects in Chittagong, Dhaka, Khulna, Rajshahi and other townships.

BPDB and DESA have identified the causes of high non-technical losses and are taking steps to reduce them, including : (a) the establishment of a high-level organizational unit to monitor system losses, (b) the replacement of a majority of the high voltage consumers' metering equipment, (c) the validation of the consumer record data base (including meter information), and (d) strengthening their ability to pursue legal action when necessary.

Power Market

At the end of FY 1993, the system supplied electricity to about 2.4 million consumers, representing an increase of about 125 percent per annum over the period FY 1980--FY 1993. Electricity sales increased from 1,406 GWh in FY1980 to 6906 GWh in FY 1993, at the rate of 11.4 percent per annum. Peak demand increased from 462 MW to 1,823 MW during the same period. Over 46 percent of BPDB's sales were to the industrial sector, but accounted for only 8 percent of the total consumers. On the other hand residential and commercial consumers comprised about 92 percent of the total consumers, but accounted for only 37.7 percent and 8.4 percent respectively, of the electricity sales. Of the total electricity consumption under BPDB, DESA and REB system in FY 1996 about 42 percent was dedicated to domestic use, 41 percent for industrial use, 8.8 percent for commercial use, 5.4 percent for agricultural use and 2.8 percent in other sectors.

Rural Electrification. The Rural Electrification Board (REB) is entrusted with the implementation of rural electric programmes in the country through the formation of Palli Bidyut Samities (PBSs or Rural Electric Cooperatives). REB is managed by a board consisting of a chairperson and three full time members (Finance, Engineering and PBSs & Training). To coordinate with the rural electrification programme in their respective fields, four part-time members, one each from BPDB, the Bangladesh Small and Cottage Industries Corporation and the Bangladesh Rural Development Board, sit on the board. These members serve as representative for their respective organization and work in advisory capacity to the full-time members.

There are 54 PBSs which served a total of about one million consumers. The PBSs vary in size and in performance. Operational performance also varied widely with system losses ranging from a low 7.32 percent to a high of 43.98 percent and accounts receivables from nil months of billing to 4.59 months of billing, although these figures have been distorted somewhat in the recent months on account of the PBSs taking over distribution lines from BPDB and DESA which have high system losses and poor collection arrangements. On the whole,

the PBSs had performed well with an average system loss of 16.65 percent and a collection ratio of about 98 percent.

Power Tariffs

Tariffs should be based on the need to earn a return on the value of assets in use and the need to finance a certain proportion of investments from internal sources. But in Bangladesh they are substantially influenced by government policy on subsidies, operational efficiency and fuel costs. Financial covenants on long term loans made from international financial institutions often direct tariff increases. Tariff adjustments also reflect fuel price adjustments and currency exchange rate variations. BPDB's cost of supply is affected by various factors such as capacity mix, geographical characteristics of the area served, indigenous resources available for electricity generation, load patterns and financial policies. The existing Electricity Tariff Regulation provides that BPDB is entitled to raise tariff upto 10%. But BPDB could never implement the policy.

Each PBS sets its own tariff with the approval of REB. Efforts have been made in the recent years to simplify tariff and relate them to the cost of supply. The tariff categories of BPDB distinguish : (a) residential light and power, (b) agricultural pumping (for irrigation and drainage of land for cultivation), (c) small industrial, (d) non-residential light and power (hospitals, educational and religious institutions), (e) low voltage commercial; (f) low-voltage bulk supply for REB/PBSs, (g) medium-voltage bulk supply for REB/PBSs, (h) high-voltage bulk supply for REB/PBSs, and (i) street lighting and water pumping.

In FY 1994, the average retail tariff of BPDB to its ultimate consumers was Tk. 2.19/kWh, that of DESA Tk 2.35/kWh and that of the PBS Tk 2.89/kWh, as against the economic border cost of supply estimated at Tk. 3.35/kWh. Retail tariffs were increased in FY 1992 and there was a need for further adjustments because of (i) the increased debt service burden on the utilities in Taka terms due to the devaluation of the Taka in comparison to Dollar; (ii) increases in the capital cost of recently commissioned projects; and (iii) increase in costs of labor and other materials on account of inflation. These tariff rates continued upto September, 1996. Subsequently the Government increased the tariff by 20 percent in five installments.

The maximum demand in BPDB's system occurs during evening hours, during 6-10 p.m. To discourage certain category of consumers from using electricity during these peak hours, BPDB and DESA have introduced two part time-of-day tariff, by which consumers of certain categories are billed at a higher rate for consumption during the peak hours and at a lower rate during off peak hours.

Power Development Plan. Since late 1980 the country was faced with power supply shortage mainly because of inadequate generation by the public sector monopoly i.e., BPDB compared to the demand of the country. The long gestation period for new capacity addition, dependence on donor's assistance and an uneven development support for power infrastructure components aggravated the situation. As a result BPDB had to resort to load shedding causing suffering to electricity consumers as well as affecting the commercial, industrial and agricultural growth.

The West Zone has no natural gas and imported petroleum products are in use for power generation. Though a large quantity of high quality coal was discovered at shallow zones in the north-west Bangladesh in early 1990, commercial exploitation of the same is yet to start. It is envisaged that about 83 percent of coal mined in the year 2000/2001 and onwards would be dedicated for generation of 250-300 Megawatt power plant at Barapukuria. On the other hand, power is generated in the East Zone from hydro and domestic natural gas. In 1991, the fuel cost per kWh of generation in the East zone was Tk. 0.36 (\$0.01), while in the West Zone it was Tk.4.19 (\$0.12). In FY 1996 fuel cost for different mode of generation was : Tk. 6.78 to 3.14 per kWh for diesel station in the West Zone ; Tk. 0.78 for gas fired gas turbine, Tk. 0.52 for gas fired combined cycle, Tk. 1.55 for oil fired steam turbine, Tk. 0.50 for gas fired steam turbine in the East Zone; Overall fuel cost per unit of thermal generation was Tk. 0.52 in the Eastern Zone and Tk. 3.83 in the Western Zone.

Hence, from a standpoint of least cost generation, the government's policy as well as that of BPDB is to maximize gas-based generation in the East Zone to meet the demand in the West Zone by exporting the surplus from the East Zone through the East-West interconnection. However, implementation of this policy is dependent on adequate surplus generation capacity in the East Zone, adequate power transfer capacity of the interconnection and maintenance of acceptable voltage levels in the West grid.

During FY 1996 electricity supply cost was around Tk. 2.21 per kWh, while average billing rate was Tk. 1.87 per kWh. Zone-wise energy generation and sales figure showed that in the Eastern zone energy generation was 93.55% of total, and energy sales were 76.90% of the total. During the same period energy generation in the Western Zone was 6.45% of the total, while energy sales was 23.10% of the total.

Of the total line length of 3055 km, 230 kV transmission line was 419 km and 132 kV line was 2636 km in BPDB. In FY 1996 no sub-station/transformer was added to the transmission system. So the total capacity of BPDB's grid sub-station remained unchanged at 6519 MVA operated in 157 numbers of transformers (230 kV 36 Nos., 132 kV 114 Nos. & 66 KV 1 No.). The total number of sub-stations operated were 70, of which 8 numbers were 230 kV, 58 numbers 132 kV and 4 numbers 66 kV.

In FY 1996, only 25.80% of energy demand in West Zone was met by local generation compared to 32.91% in FY1995. This was attributed to two reasons viz. increase in the energy demand of West Zone and decrease in energy transfer through the interconnector due to inadequate generation capacity in the East Zone. In FY 1996, 74.20% energy demand in West Zone was met through the interconnector. This was 7.21% higher than that of previous year (6.7%).

The generation requirement in BPDB's power system is projected to reach about 20039 GWh in the year 2000, increasing at an average annual growth of about 12.7 percent from the 1994 level of 9785 GWh. The corresponding installed capacity is projected to be over four thousand MW in the year 2000. Natural gas will continue to play a major role in the generation mix.

Management, Administration and Others. The BPDB is headed by a chairman, who is also the chief executive. He is assisted by six full-time members with distinct responsibilities for : (a) planning and development; (b) distribution; (c) generation; (d) transmission and system operation; (e) administration; and (f) finance. The chairman who is responsible to the government for the overall functioning and management of the Board, guides, supervises and coordinates these functions. In FY 1996, BPDB had about 24,500 employees of which 1,974 were of supervisory level (holding positions of sub-assistant engineer or higher or equivalent). For the transmission sub-sector the number of employees were around two thousand three hundred. With the creation of PGCB as a new corporate body the issue of employment of transmission sub-sector staff to this new organization is being followed up carefully.

POWER SYSTEM MASTER PLAN (PSMP)

Timely installation of power generating units of requisite capacity is a precondition to overcome the supply deficiencies. Implementation of adequate transmission and distribution projects are also necessary to face the growing demands. Implementation of projects have been carried out as per the guidelines of Power System Master Plans (PSMP) formulated in 1985 and 1995 respectively. During the period June 1983 and September, 1984, Acres International Limited, Canada assisted BPDB to carry out a 20-year PSMP through a technical assistance grant provided by the Asian Development Bank (ADB). The Report was published in 1985. PSMP report of July '95 indicated an investment requirement of around \$6.6 billion over a 20-year period between 1995-2015.

An important consideration for the 1985 PSMP was the degree of uncertainty regarding proven and recoverable reserves of gas in Bangladesh. After 10 years of steadily increasing gas consumption, the official figure of recoverable gas was around 11 trillion cubic feet (TCF). But it was still not considered sufficient for a least-cost plan extending 20 years into the future .

Nevertheless, the 1985 PSMP has been a useful document. Several of the projects recommended therein have since either been or are close to being built.

The 1995 PSMP study was also financed by ADB and implemented by Messrs Acres. The planning horizon is for 20 years, from the beginning of FY 1996 through the end of FY 2015. The study report comprised, among others, an overall national electricity demand forecast and sub-forecasts for each of the five distribution operating zones, viz. Southern Zone, DESA, Central Zone, Western Zone and Northern Zone. The forecast is presented on the basis of both energy and peak demand. It is also presented in terms of 'gross' generation, including station service power and 'net' generation, which is electrically 'sent-out' after the deduction of station service. The forecast also includes an estimate of the requirements of REB.

The reference forecast of 1995-PSMP postulates national generation of 3148 megawatts in year 2000, 4596 megawatts in 2005, 6778 megawatts in 2010 and 9905 megawatts in 2015. By the year 2015 annual energy generation of 52,000 GWh will be required, compared to 11,474 GWh (1996) in average annual compound growth rate of about 8%.

Apart from generation plans, transmission plans were prepared by 1995-PSMP. It has been found that of the overall investment required for generation, high voltage (HV) transmission, sub-transmission and distribution, the proportion required for HV transmission could be within 20%. It has been recommended that to permit a relatively even balance between generation and load in all five zones of the system, would be predicated on a network of gas lines extending across the Jamuna bridge and progressively to North, West and South Western Zones. The existing 230/132 kV electric Grid line may need to be upgraded to 400 kV transmission line to cater to future generation and supply projection.

SALE OF ELECTRICITY

Because of low return from the sale of electricity due to uneconomic tariff, high system loss and poor collection of revenue, BPDB is becoming commercially non-viable year after year.

The tariff level of BPDB bears little relationship with economic consideration. Its present tariff is only about 61% of Long Run Marginal Cost (LRMC). Again it sells electricity to DESA and REB at a subsidized rate, which is only 52% of LRMC. As a public sector enterprise government regulates BPDB along with other utilities i.e., DESA and REB. Also because of overlapping and at times unclear responsibilities among the agencies, lack of clear policy prescriptions etc., the integrated operation of BPDB suffers from management direction and commercial independence.

Both DESA and REB are required to buy electricity in bulk from BPDB and distribute in their respective areas. While the REB was created to reach electricity to remote villages throughout the country under Palli Budyut Samities (PBSs) in order to improve quality of life of the majority population of the country, the creation of DESA was with the explicit target of improving performance for collection of revenue from sale of energy to its consumers. Besides, DESA was designated to provide for a dedicated organisation for ensuring quality supply of electricity to Dhaka Metropolis, the national hub centre of political, commercial and industrial activities. The other objectives of creation of DESA was to lessen the administrative load on BPDB's management by relieving it of the burden of managing about almost forty-eight percent of the total electric energy distribution in the entire

country and one of the most difficult territories by way of theft, trade union excess and administrative interference. BPDB remained a monopoly operator for one hundred percent generation and transmission and about forty percent of the total distribution while REB provided about twelve percent of the total electricity distribution in the country. At the same time, efforts continued for improving financial health of the sector by applying different management reforms for improved revenue collection.

FINANCIAL PERFORMANCE OF BPDB

As of June, 1996 Fixed Assets in utility plant in service was about Tk. 18,329 crore, Written down value including project in progress was Tk. 10,218 crore (Note). Total Fixed Assets including investment was Tk. 14,070 crore and total Current Assets were Tk. 2757 crore to make total Property and Assets at Tk. 16,520 crore. The total capital Liabilities was Tk. 16,516 crore. The commercial operation statistics showed 10,830 MkWh net generation, system loss at 21.60 percent and collection-generation ratio at 72.76 percent. But most important aspect is that due to unsatisfactory financial performance of BPDB and DESA, external assistance to new and on going projects were gradually reduced and finally discontinued for several years. This aggravated the operational performance and put negative impact on the viability of the sector.

The problem has been continuing for a long period of time. However, to help improve the situation some changes in the Board's functions had been introduced in the recent past. With a view to reducing system loss and increasing collection, as a measure of reform, structural adjustment measures were undertaken within the framework of BPDB.

PRIVATE POWER GENERATION

Due to indifference, rather non-participation of external financial assistance in recent years, from the traditional, bilateral and multilateral donors and other development partners, the sector continued to suffer. The much talked about private sector participation in generation of electricity, remained in jeopardy for a long time. During 1991-96 at least a dozen of Memorandum Of Understanding (MOU) was signed in the Ministry of Energy with prospective private power producers, but not even a single MOU was materialized.

However, with the assistance of ADB a foreign consulting firm was appointed to prepare Request For Proposal (RFP) and other supporting documents to make a Security Package for the proposed Meghnaghat 300 MW Project and invite Independent Power Producers (IPPs) to participate in private investment in the generation sub-sector. Almost at the same time, with the assistance of the World Bank, similar RFP documents etc. were being prepared by foreign consultants under the purview of the newly created Power Cell for the proposed Haripur Project.

The first real attempt to attract foreign private investors began after the declaration of 'Private Sector Power Generation Policy' (October, 1996), when BPDB with the approval of Government floated RFP for three Barge Mounted Power Projects (100 MW each) in November, 1996 and through a fast track process, has, so far, successfully signed agreements with three of them. This was the beginning of a new era for IPPs in Bangladesh. This unique effort by a Bangladeshi public sector entity, without any external assistance or foreign consulting service, was not appreciated for obvious reasons by some development partners. At present BPDB, as directed by the Government, is negotiating with a foreign sponsor for a proposed 360 MW project to be installed at Haripur. Soon negotiation would start on the proposed 450 MW project at Meghnaghat. Discussion is in progress on a prospective 350 MW integrated power project in the Western Zone. If all these projects successfully make financial closure within the scheduled time frame, then by the year 2002, about 1460 MW power would be available from private sector.

[Note : Tk. 10 million = Tk. 1 crore]

DONOR'S INVOLVEMENT

Due to conservative plans and actions for a sustained period the performance of power sector did not improve. DESA's performance remained at frustratingly unacceptable level, which affected the revenue collection level of BPDB. Revenue collection by BPDB improved slightly but remained far below desired level of performance. Nevertheless managerial tool like performance-linked Reward and Punishment scheme was introduced in BPDB and DESA. At the same time closer monitoring of the revenue collection function was established within the existing organisational structure and policy frame-work but performance remained far below internationally acceptable level. However REB's performance, with their cooperative structure of management and non-existence of trade unions, was seen to be better than BPDB and DESA in terms of distribution activities.

The sector as a whole was facing serious difficulties in its technical and financial performance levels. The quality of service in BPDB deteriorated considerably during FY 1986 to FY 1993. Consequently the sector incurred substantial financial losses each year and was dependent on subsidies from the government. The situation got aggravated with the gradual withdrawal of development partners' financial assistance during the later period.

The development activities in the BPDB have been generally financed by bilateral and multilateral donor agencies since 1972 because of obvious reasons of the requirement of very large investment, especially in setting up of power plants. DESA was created as a distribution entity at the advice of a multilateral donor to bring about management change for improved performance. In the backdrop of low performance in the power sector, the donor agencies continued to put restrictions on lending to BPDB and subsequently to DESA. As a result new lending to development projects almost came to a grinding halt since 1990.

This put a serious constraint on generation addition programme and much needed associated transmission and distribution expansions. Financial hardship also seriously affected rehabilitation of generation units, transmission and distribution facilities. Consequently it became very difficult on the part of sectoral entities like BPDB and DESA to supply uninterrupted electricity to the consumers, vitally required for socio-economic development.

EFFORTS FOR PERFORMANCE IMPROVEMENT

In February, 1993, an 8 member Inter-ministerial Working Group was constituted by the Government to review the need and feasibility of private investment along with public sector in the power sector and to submit recommendations to the Government. The Group attended seminars and visited some electric utilities to seek knowledge about the new approaches and make policies for sustainable development and efficient operation of the power sector in Bangladesh. Given the magnitude of the inefficiencies and the sector's large capital requirement, the working group felt the necessity of bringing about basic reforms to address fundamental problems in the sector. The Working Group submitted its report under the title 'A Report On Power Sector Reforms In Bangladesh' incorporating operational, structural and other deficiencies of the sector together with options in regard to reforms with emphasis on the necessity of private investment and participation on equal footing in the power sector. Findings of the Group include, among others, the issues involving private power for any utility particularly with regard to power purchase issues.

Key Constraints

The Working Group in its report submitted to Government in June, 1993 identified key constraints in three areas viz. (a) institutional, (b) management and (c) financial and economic and put forward recommendations for sector reform. As regards institutional area, the Working Group observed, "The Government owns, operates and regulates the power sector entities. This has sometimes resulted in overlapping and unclear responsibilities with lack of accountability in terms of sector entities' operational performance and service standards. The Boards of BPDB and DESA carry out the dual function of policy making and execution. This is not conducive to accountability and has contributed to inefficiencies in operating the entities."

In respect of management area, the Working Group opined, "major impediments to BPDB's and DESA's efficient operations include lack of management and commercial independence and unclear definition of the corporate structure and responsibilities. Lack of accountability and discipline among the employees of BPDB and DESA are major constraints. Rivalry of Trade Unions affiliated to different political parties makes the environment even more difficult in BPDB and DESA".

Regarding Financial and Economic area, the Working Group observed, "The tariff level has little relevance to the financial requirements of the operating entities. Because of inadequate tariff, high system loss and low collections, self-financed investment has been insignificant. On the other hand, the requirements in the power sector are large but there are competing demands on Government resources constraining public investment in this sector. Due to the unsatisfactory financial performance of the power sector, no new external project assistance has been received for the last four years and donor assistance to 16-Town Distribution Project remained suspended for nearly two years. With some improvements in performance, taken place recently, the suspension has been lifted. However, unless substantial and sustained improvements are ensured, the donors are unlikely to commit any assistance to new projects which are required urgently."

Recommendations

The Working Group enumerated the following objectives of the proposed power sector reform programme with a view to :

- i. achieving commercial characteristics and efficiency in the power sector to attain financial viability so that subsidies are not required ;
- ii. increasing the production and distribution of electricity for the vast majority of the population of Bangladesh (over 80 percent) which is unserved and to meet the growing demands of industry, commerce and agriculture;
- iii. increasing the operating efficiency of the existing public sector entities through greater competition, managerial autonomy and accountability, and full commercialization/ corporatization;
- iv. improving the reliability and quality of the existing power supply system; and
- v. creating an enabling environment, which will attract private capital and entrepreneurs, both domestic and foreign, to supplement public sector investments and initiatives in improving the performance of the sector.

The recommendations, in respect of Sector Reform, by the Working Group, comprised of the following:

Restructuring of BPDB - BPDB should be restructured along functional lines. In the first phase, the functions of generation and transmission should be separated from those of distribution of electricity, and two separate Corporate entities, one for carrying out generation and transmission functions, and the other for carrying out distribution functions in those areas that are now being served by BPDB should be established. These two (new) public limited companies should be formed under the Companies Act, and the ownership should remain with the Government. In the longer term, generation and transmission functions may also be needed to be separated.

Restructuring of DESA - DESA should be made the focus of reforms, 'Corporatization' would be a "least change option," with the potential to provide significant improvements. Accordingly DESA should be converted into a Public Limited Company under the Companies Act with the necessary organizational and financial restructuring with the ownership remaining with the Government.

Rural Electrification - The rural electrification programme through cooperatives has been fairly successful and, therefore, should continue without changing the structure. However its area of operation should be rationalized with that of the proposed distributors companies so that duplication of investment can be avoided.

Private Participation - In order to attract private sector participation, actions on the following fronts should be taken :

Generation- Specific projects included in the list of generation projects identified through national planning be offered for private investment.

Distributions - The Government should invite private parties, possibly including co-operative societies of utility employees, to supply power in one or more localities on an experimental basis, after evaluating alternative ways to organize their participation (e.g. franchise, contract).

Contracting of services - The Government should consider contracting out some functions currently performed by BPDB and DESA, particularly meter reading, billing and/or collections.

Wheeling arrangement - The electricity generated by private generators may be supplied to the grid system, may also sell directly to large consumers through the transmission facilities of other distribution companies provided the facilities are adequate and the commercial terms and conditions of such wheeling arrangement are acceptable to all concerned.

Regulatory Framework and Change of Laws - In order that the consumers are ensured of adequate supply of electricity at a reasonable cost, the operational safety is ensured and the power utilities remain economically and financially viable, an independent regulatory body should be established. To begin with the regulatory body may be attached with the MEMR (Ministry of Energy and Mineral Resources). The regulatory tasks should include, among others, the following :

- i. framing of rules and codes of practice for operation and maintenance;
- ii. establishment of performance standards and uniform system of accounts;
- iii. approval of construction standards for safe installation;
- iv. approval of tariffs;
- v. ensuring enforcement of industry standards, public safety as well as demand management; and
- vi. issuing exclusive service franchise to distribution companies, public or private and license to private generator.

It was stated that the above would require the existing laws creating BPDP and DESA to be amended and the Electricity Act to be repealed and re-enacted.

Creation of Power cell - A cell entitled Power Cell should be created in the Ministry of Energy and Mineral Resources to carry out the reforms. In August, 1994 Joint World Bank and Asian Development Bank's Power Sector Review Mission recommended that the notion of a Power Cell should be included in the overall reform Programme. In line with the reform programme, the Power Cell could have a system planning unit and other units could be established for formulating policies. It could also be responsible for conducting tariff studies and for framing rules and regulations regarding business environment of the sector.

Subsequently, the Private Power Generation Policy, 1996 stated that the Power Cell shall facilitate all stages of promotion, development and operations of private power generation projects and suitably address the concerns of project sponsors. It will also assist project sponsors to secure necessary consents and permits that would be needed.

REFORM LINKED FUNDING

On September 12, 1994, the Government approved the report of the Working Group and since then the same report is being used as a key document by the Government for all activities related to reforms in the power sector.

Meanwhile, demand of electricity grew substantially. Constrained by the paucity of public sector resources, the government decided in principle to allow private sector participation in the power sector. Efforts continued by all concerned to improve sector performance and sizeable improvement was noticed. In view of this improvement and the restructuring effort announced by the Government, the development partners agreed to resume funding to the sector based on the principle of 'Reforms Funding Linkage' i.e. every project funded by these partners would have components addressing the reforms decided upon by the Government.

The first such project was the Rural Electrification Project being financed by the Asian Development Bank (ADB). This project resulted in the creation of the first independent generating company, incorporated on 31 December, 1994 under Companies Act, as the Rural Power Company (RPC), with REB and Five Palli Bidyut Samities (PBSs) as its shareholders to implement the Mymensingh Power Project as part of the strategy to diversify generation sources.

Although development partners do appreciate and support distribution activities under REB/PBS, they have not considered a suitable option for BPDB distribution improvement. In fact the need for evolving a ownership and participatory model for BPDB distribution component may prove to be beneficial and financable. The exercise should necessarily emphasise on decentralised model.

FORMATION OF PGCB

The next candidate project of the reform process was the proposed Ninth Power Project financed by ADB. It was agreed between ADB and the Government in September, 1994 that the first initiative for the reform of BPDB and DESA need to centre around i) building the environment for private sector investment in electricity generation, since long-term, limited-recourse financing would not be forthcoming without such a confidence building exercise; and ii) improvements in DESA, since DESA distributed about 48 percent of all the electricity sold in the country, and there was little possibility that the sector would be financially viable without an improvement in its losses and collections.

Since ADB had already agreed to provide Technical Assistance (TA) for the solicitation of private sector implementation of Meghnaghat Power Project, it agreed to consider financing of the transmission lines for evacuation of power from the Meghnaghat Power Station, and its utilization in the Dhaka area as part of the Ninth Power Project on the condition that these components were implemented by new corporatized entities that would become the successor organizations of BPDB and DESA. Since the facilities created under ADB's Eighth Power Project in Dhaka area, co-financed by ODA, were already heavily overloaded, it was agreed upon to include one component in the Project to reinforce these facilities to cater to the present demand, as well as a second component for expansion of distribution facilities in the area targeted by the Project.

The financing of the National Load Despatch Centre (NLDC) was added to the package under the Ninth Power Project but remained a dilemma between two development partners viz. ADB and WB, and the Government. The engineering of the proposed NLDC was funded from an earlier ADB Loan. The World Bank later proposed to finance the project in 1996, which is yet to be finalised and negotiated. The financing was added to the package since it would ensure optimized load despatch and grid discipline, which were essential for long-term commercialization of the sector, and would add further comfort to private sector sponsors of generation projects.

Finally to strengthen the pipeline of future private sector generation projects, and to enable preparation of public sector peak-load generation projects which are an essential component to the base load capacity additions envisaged through the private sector, a small component was added to the ADB financed Ninth Power Project for engineering of a base load power station in the West Zone and two peaking power stations in the East Zone.

Thus the technical components under the Ninth Power Project were agreed to be composed of as follows :

Part A

Construction of about 130 kilometres (km) of 230 kV transmission lines from the Meghnaghat Power Project site to Haripur, Comilla and Rampura; and extension of two 230kV substations at Haripur and Comilla as well as construction of a 230/132kV substation at Rampura.

Part B

Construction of a National Load Despatch Centre (NLDC); and installation of associated communication network.

Part C

Construction of about 280 km of 132 kV, 33 kV, 11 kV and 0.4 kV distribution systems in Dhaka, including connection of 91,000 new consumers; and enhancement of distribution capacity by about 200 MVA with connections of about 22,000 new consumers in the Mirpur area of Dhaka.

Part D

Provision of feasibility studies and detailed engineering for a gas based West-Zone combined cycle power project and East-Zone open-cycle peaking-power projects.

The formation of this Company was seen as an essential step towards "unbundling" of the BPDB so as to create the so-called 'level playing field' between the public and the private sectors.

In the light of the above Project Proforma titled 'Comilla-Meghnaghat-Rampura and Meghnaghat-Haripur 230 kV Transmission Line and National Load Despatch Centre Project' was prepared by BPDB in May, 1996 incorporating the transmission line component and the NLDC component and submitted to ECNEC for approval. In Part A, Project Digest, Item 6 (administrative authorities responsible for sponsoring and execution) the following were included :

Sponsoring - Ministry of Energy and Mineral Resources.

Execution - Bangladesh Power Development Board until formation of Power Grid Company of Bangladesh Ltd. (PGCB).

Bangladesh Power Development Board (BPDB) will work as the executing agency until formation of Power Grid Company of Bangladesh Ltd. (PGCB). One of the main objectives of power sector reforms is to restructure BPDB along its functional line. With this objective PGCB will be formed as a subsidiary organization of BPDB. PGCB's first work would be the implementation of Comilla - Meghnaghat - Rampura and Meghnaghat - Haripur 230 kV Transmission Line and the National Load Despatch Centre Project.

The PP along with creation of new entity PGCB with the ownership of Government through BPDB was approved by ECNEC on 18 September, 1996 with the following components and costs :

[Figures in Million Taka]

	Component	Local Cost	Foreign Cost	Total
a)	230 kV TransmissionLine	1388.249	2333.416	3721.665
b)	National Load Despatch Centre	1386.450	2510.203	3896.653
	Total	2774.699	4843.619	7618.318

In September, 1996, the World Bank expressed its willingness to fund the NLDC Project. Accordingly this component has been dropped from the scope of ADB's Ninth Power Project.

Following the approval of the Project Proforma (PP), whereby the formation of PGCB was approved, Power Grid Company of Bangladesh Ltd. (PGCB) was incorporated under the Registrar of Joint Stock Companies and Firms on 21 November, 1996. The Loan Agreement of Ninth Power Project was negotiated between GOB and ADB in November, 1996 and formal loan documents were signed between ADB and GOB on 9 January, 1997.

The First Board of Directors of the company were composed of Mr. Nuruddin Mahmud Kamal, Chairman and Mr. Md. Habibur Rahman Khan, Mr. Syed Mohiuddin Ahmed, Mr. Md. Rafiqul Islam, Mr. Md. Sarwar Hossain, Mr. Akhter Hossain Khan and Mr. A. Y. M. Ziaul Haq as Directors respectively on 13 November, 1996. In pursuance of the Articles of Association, of the 11 (eleven) shares subscribed in the capital of the company, five (5) of them were held by the Chairman, BPDB and one each by six members of the BPDB as the initial subscribed shares.

The full time Directors of the Company comprising Mr. A.N.M. Rizwan, Managing Director, Mr. Nani Gopal Saha, Director (Technical) and Mr. Md. Anisur Rahman, Director (Finance) were recruited by BPDB through open advertisement in June, 1997. They joined the Company on 7 July, 1997. Thereafter company activities were started.

ACTION UNDER WAY

The present government through its open policy prescription has attracted Independent Private Producers (IPPs) from abroad. So far negotiations have been completed and implementation has begun for installing three Barge Mounted Power Plants (100 MW each), atleast one in each region. Meanwhile negotiation has also progressed on the proposed 360 MW Haripur land-based project. Soon discussion on other proposed private sector generation projects will begin, including 450 MW Meghnaghat Project.

It is expected that Khulna Barge Mounted Power Plant would be commissioned before the end of 1998, and by 1999 two more such plants would be installed and the process of selling power by the private sector and buying by the public sector will commence for the first time in Bangladesh. This will pave a new and historic trend in public and private sector coordination in meeting the country's electric power needs in the coming years.

In the public sector, in addition to operationalizing Raozan 210 MW plant (unit 2), Ghorasal 6th Unit (210 MW), Shahjibazar 60 MW, Siddhirganj 210 MW, 250-300 MW Barapukuria Coal Project, Haripur 109 MW and Fenchuganj 100 MW plants are likely to be installed by the year 2001.

In FY 2001, with all plants projected to come into operation, the reserve margin is expected to reach about 25 percent. Higher reserve margin will call for excess generation and idle investment, which may lead to poor utilization of power plants. For a reasonable reliability the expected reserve margin as per PSMP is 20-22 percent. Accordingly, a rational approach is required for future generation, particularly private generation.

To the IPPs, once connected to the system, the capacity charge will have to be paid by BPDB or whosoever be the purchaser, whether energy is used or not. It may become extremely difficult, if not impossible, to pay huge amount of monthly bills, with high losses in distribution system and non payment of arrear bills, particularly by DESA.

Therefore, for the foreseeable future BPDB will have to play a dominating role to meet the growing demand of electricity in the country, however, without sacrificing safety, security and reliability of the power supply. Proportionate share of private power will depend on industrial growth of the country and purchasing power of the people. Some correct steps are necessary for demand side management, which may help to defer new private power generation addition. However, actions are also necessary to develop more power plants under public sector, more preciously peaking plants, in both eastern and western regions.

In the backdrop of above, it was high time to effectively operationalize PGCB through gradual transfer of high voltage transmission lines and setting up of national load despatch centre with advanced technology at Rampura, Dhaka. Plans are also needed to upgrade and augment the existing grid lines including modernizing protection and control systems and installing SCADA system with modern communication channels. Perhaps it is time to plan for 400 kV transmission ring for the new grid system (instead of 230 kV) to handle proposed 9900 MW system envisaged by the year 2015. More emphasis should now be given to develop transmission and distribution system so that power can be absorbed by the end users. Emphasis should also be given to demand side management.

Indeed there remains a wide gap of demand for power between peak and off-peak hours. It is due to the fact that processing industries did not grow as expected. By the end of the century required generation would be added in the system through a balance drawn between the public and private investment, perhaps tilted towards public sector.

It is not technically possible to shutdown the steam power plants which meet the demand of the base load. Ghorasal Power Station with the addition of its 6th unit by the middle of 1998, completion of Siddhirganj 210 MW unit by 2001 and full operation of Raozan 420 MW (both units) would remain major power stations until the beginning of 2001. On the other hand if IPPs come into system (Haripur 360 and Meghnaghat 450 MW by 2001) and are to operate at 80 percent plant factor, it would be difficult to keep the base load plant of the public sector in operation during off-peak hours unless large scale industrialisation takes place in the country.

To allow the economy of the country to grow, it would perhaps be necessary to go slow on new private investment and observe the scenario till the year 2000 and after one year of operation of the committed IPPs. Development of large industries will take some more years in the context of recent economic disaster of Asian Tigers. In the meantime power sector need to give emphasis for efficient development of transmission and distribution systems respectively besides continuous efforts on demand side management which is almost non-existent now. Load despatching with modern tools will, therefore, become a critical issue, in the event of large additions in generation capacity in the publicly owned system by the IPPs.

EXISTING TRANSMISSION LINES AND SUB-STATIONS IN POWER GRID SYSTEM

230 kV LINES :

Sl. No.	Name	Length km	No. of Circuits	Conductor Name	Size
1.	Ashuganj-Comilla North	79	Double	Finch	1113 MCM
2.	Ashuganj-Ghorasal	44	Double	Mallard	795 MCM
3.	East-West Electrical Interconnector	179	Double	Mallard	795 MCM
4.	Ghorasal-Haripur-Hasnabad	60	Double	Twin Mallard	2x795 MCM
5.	Ishurdi-Bheramara	8	Double	Mallard	795 MCM
6.	Rauzan-Hathazari	22	Double	Twin 300 sq. m.m.	2x300 sq. m.m.
7.	Tongi-Ghorasal	27	Double	Mallard	795 MCM
Total		419			

132 kV LINES :

Sl. No.	Name	Length km	No. of Circuits	Conductor Name	Size
1.	Ashuganj-Jamalpur	166	Single	Grosbeak	636 MCM
2.	Bagerhat-Mongla	31	Single	HAWK	477 MCM
3.	Barisal-Patuakhali	39	Single	HAWK	477 MCM
4.	Bheramara-Faridpur-Barisal	225	Double	HAWK	477 MCM
5.	Bogra-Naogaon	52	Double	Grosbeak	636 MCM
6.	Bogra-Saidpur	140	Double	HAWK	477 MCM
7.	Bogra-Sirajganj	66	Single	Grosbeak	636 MCM
8.	Comilla North-Comilla South	16	Double	Grosbeak	636 MCM
9.	Comilla South-Chandpur	70	Single	Linnet+Grosbeak	336+636 MCM
10.	Dohazari-Coxis Bazar	88	Single	Grosbeak	636 MCM
11.	Feni-Chowmuhani	32	Single	Grosbeak	636 MCM
12.	Ghorasal-Joydebpur	30	Double	Grosbeak	636 MCM
13.	Goalpara-Bagerhat-Barisal	109	Single	HAWK	477 MCM
14.	Goalpara-Ishurdi	169	Double	HAWK	477 MCM
15.	Haripur-Ghorasal	43	Double	Grosbeak	636 MCM
16.	Hasnabad-Madanganj-Haripur	36	Single	Grosbeak	636 MCM
17.	Hasnabad-Shyampur-Haripur	42.85	Single	Grosbeak	636 MCM
18.	Ishurdi-Bogra	106	Double	HAWK	477 MCM
19.	Ishurdi-Pabna	16	Double	Grosbeak	636 MCM
20.	Ishurdi-Shahjadpur	73	Single	Grosbeak	636 MCM
21.	Kabirpur-Manikganj	31	Double	Grosbeak	636 MCM
22.	Kaptai-Baroawlia	58	Double	Grosbeak	636 MCM
23.	Kaptai-Siddhirganj	273	Double	Grosbeak	636 MCM
24.	Kawkhali-Bhandaria	8	Single	HAWK	477 MCM
25.	Kulshi-Baraulia	13	Single	Grosbeak	636 MCM
26.	Kulshi-Halishahar	13	Single	Grosbeak	636 MCM
27.	Madanhat-Kulshi	13	Single	Grosbeak	636 MCM
28.	Madanhat-Sikalbaha	13	Double	Grosbeak	636 MCM
29.	Makanhat-Kulshi	13	Single	Grosbeak	636 MCM
30.	Manikganj-Siddhirganj	22	Single	Grosbeak	636 MCM
31.	Maniknagar-Banga Bhaban	1.5	Double	Grosbeak	636 MCM
32.	Maniknagar-Narinda	5.33	Double	Grosbeak	636 MCM
33.	Mirpur-Hasnabad	24.5	Double	Grosbeak	636 MCM
34.	Mymensingh-Netrokona	34	Single	Grosbeak	636 MCM
35.	Pabna-Shahjadpur	40	Single	Grosbeak	636 MCM
36.	Rajshahi-Natore	40	Single	HAWK	477 MCM
37.	Rajshahi-Nawabganj	47	Double	Grosbeak	636 MCM
38.	Rangpur-Lalmonirhat	38	Single	Grosbeak	636 MCM
39.	Saidpur-Thakurgaon	64	Double	HAWK	477 MCM
40.	Shahjibazar-Chhatak	150	Double	Grosbeak	636 MCM
41.	Sirajganj-Shahjadpur	34	Single	Grosbeak	636 MCM
42.	Siddhirganj-Haripur	1	Double	Grosbeak	636 MCM
43.	Siddhirganj-Shahjibazar	138	Double	Grosbeak	636 MCM
44.	Sikalbaha-Halishahar	13	Single	Grosbeak	636 MCM

Sl. No.	Name	Length km	No. of Circuits	Conductor Name	Size
45.	Tongi-Kabirpur	22	Double	Grosbeak	636 MCM
46.	Tongi-Kabirpur-Tangail	73	Single	Grosbeak	636 MCM
47.	Tongi-Mirpur	19.5	Double	Grosbeak	636 MCM
48.	Ullon-Dhanmondi	2.75	Double	Grosbeak	636 MCM
49.	Ullon-Maniknagar (Saidabad)	7.75	Single	Grosbeak	636 MCM
50.	Ullon-Siddhirganj	14.5	Single	Grosbeak	636 MCM
51.	Ullon-Tongi	19	Double	Grosbeak	636 MCM
	Total	2795.68			

66 kV LINES :

Sl. No.	Name	Length km	No. of Circuits
1.	Rajshahi-Ishurdi-Pabna-Ullapara-Seraiganj	167	Single
	Total	167	

GRID SUB-STATIONS**230 kV GRID SUB-STATIONS OF BOTH ZONES :**

Sl. No.	Name	Voltage	Transformer Capa city MVA
1.	Ashuganj	230/132 kV	2x150
2.	Comilla North	230/132 kV	3x75*
3.	Ghorasal	230/132 kV	2x125
4.	Haripur	230/132 kV	7x75*
5.	Hasnabad	230/132 kV	6x75
6.	Hathazari	230/132 kV	2x150
7.	Ishurdi	230/132 kV	9x75
8.	Tongi	230/132 kV	7x75*

* Transformers are single phase with one unit spare

132 kV GRID-SUB-STATIONS OF EAST ZONE :

Sl. No.	Name	Voltage	Transformer Capacity MVA
1.	Ashuganj	132/33 kV	2x15/25
2.	Banga Bhaban	132/11 kV	2x25/35
3.	Baroawlia	132/33 kV	1x28/40, 1x25/41.6
4.	Bhandaria	132/33 kV	10/13.3
5.	Bhulta	132/33 kV	1x35/50
6.	Chandpur	132/33 kV	2x15/20
7.	Chandraghona	132/33 kV	2x10/13.3
8.	Chhatak	132/33 kV	1x10
9.	Chowmuhoni	132/33 kV	2x25/41
10.	Comilla North	132/33 kV	1x40
11.	Comilla South	132/33 kV	2x15/41
12.	Cox's bazar	132/33 kV	1x16/20
13.	Dhanmondi	132/33 kV	2x50/75
14.	Dohazari	132/33 kV	2x28/40
15.	Fenchuganj	132/11 kV	1x15/20
16.	Feni	132/33 kV	2x15/20
17.	Ghorasal	132/33 kV	2x50
18.	Halishahar	132/33 kV	1x25/41.6
19.	Hasnabad	132/33 kV	3x35/50
20.	Hathazari	132/33 kV	1x44/63
21.	Jamalpur	132/33 kV	2x10/13.3
22.	Joydebpur	132/33 kV	2x35/50
23.	Kabirpur	132/33 kV	2x25/41
24.	Kalyanpur	132/33 kV	2x50/75
25.	Kaptai	132/33 kV	1x15/20
26.	Kishoregonj	132/33 kV	2x10/13.3

Sl. No.	Name	Voltage	Transformer Capacity MVA
27.	Kulsi	132/33 kV	2x44.1/63
28.	Madanganj	132/33 kV	2x35/50
29.	Madanhat	132/33 kV	2x25/41.7
30.	Manikganj	132/33 kV	2x35/50
31.	Mirpur	132/33 kV	2x35/50
32.	Mymensingh	132/33 kV	2x25/41
33.	Narinda	132/33 kV	2x50/75
34.	Netrokona	132/33 kV	2x15/20
35.	Patuakhali	132/33 kV	2x20
36.	Basundhara	132/33 kV	2x50/75
37.	Shahjibajar	132/33 kV	1x15/20
38.	Shyampur	132/33 kV	2x50/75
39.	Siddhirganj	132/33 kV	2x50/83.3
		132/33 kV	1x25/33
40.	Sikalbaha	132/11 kV	1x25/41
41.	Sreemongol	132/33 kV	1x10/12.5
		132/11 kV	1x7.5
42.	Sylhet	132/33 kV	2x15/20
43.	Tangail	132/33 kV	2x10/13.3
44.	Tongi	132/33 kV	1x50/75
		132/33 kV	1x25/41.6
45.	Ullon	132/33 kV	3x35/50

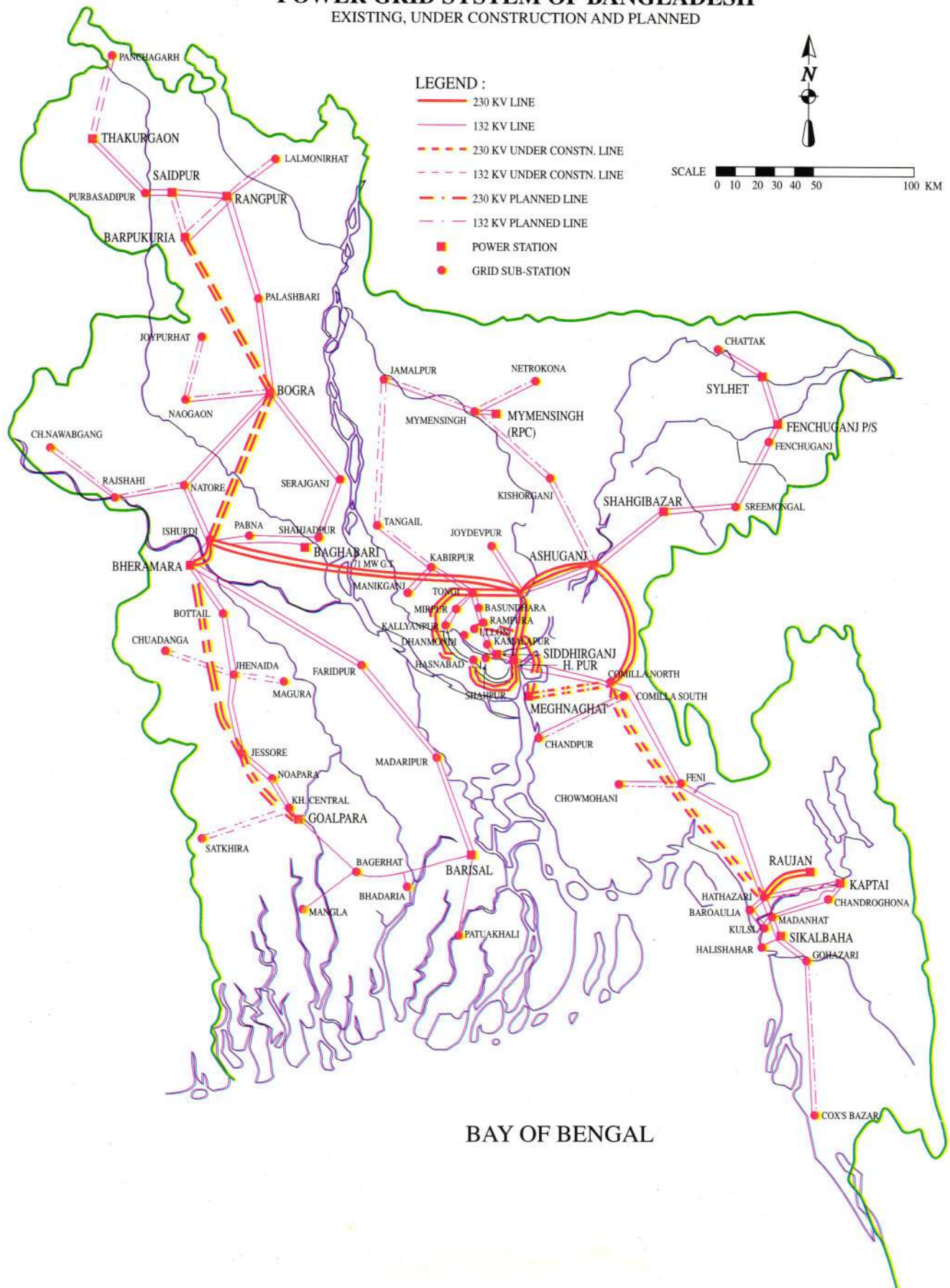
132 kV GRID SUB-STATIONS OF WEST ZONE :

Sl. No.	Name	Voltage	Transformer Capacity MVA
1.	Bagerhat	132/33 kV	2x10/13.3
2.	Barisal	132/33 kV	2x15/20
3.	Bheramara	132/11 kV	1x12.5/16.6
4.	Bogra	132/33 kV	2x25/41
5.	Bottail	132/33 kV	2x15/20
6.	Faridpur	132/33 kV	2x15/20
7.	Goalpara	132/33 kV	2x12.5/16.6
8.	Ishurdi	132/33 kV	2x12.5/16.6
		132/66 kV	2x15/20
9.	Jessore	132/33 kV	2x40
10.	Jhenaidah	132/33 kV	2x15/20
11.	Khulna central	132/33 kV	3x48/64
12.	Lalmonirhat	132/33 kV	2x15/20
13.	Madaripur	132/33 kV	2x10/13.3
14.	Mongla	132/33 kV	1x10/13.3
15.	Naogaon	132/33 kV	2x25/41
16.	Natore	132/33 kV	1x15/20
17.	Nawabganj	132/33 kV	2x15/20
18.	Noapara	132/33 kV	1x10/13.3
19.	Pabna	132/33 kV	2x25/41
20.	Palashbari	132/33 kV	2x10/13.3
21.	Purbasadiapur	132/33 kV	2x12.5/16.6
22.	Rajshahi	132/33 kV	1x25/33, 1x15/20
23.	Rangpur	132/33 kV	2x15/20
24.	Saidpur	132/33 kV	1x15/20
		132/33 kV	1x10/13.3
25.	Seraiganj	132/33 kV	2x15/20
26.	Shahjhadpur	132/66 kV	1x15/20
		132/33 kV	1x15/20
27.	Thakurgaon	132/33 kV	1x12.5/16.6
		132/33 kV	1x10/13.3
		132/33 kV	1x15/20

66 kV GRID SUB-STATIONS :

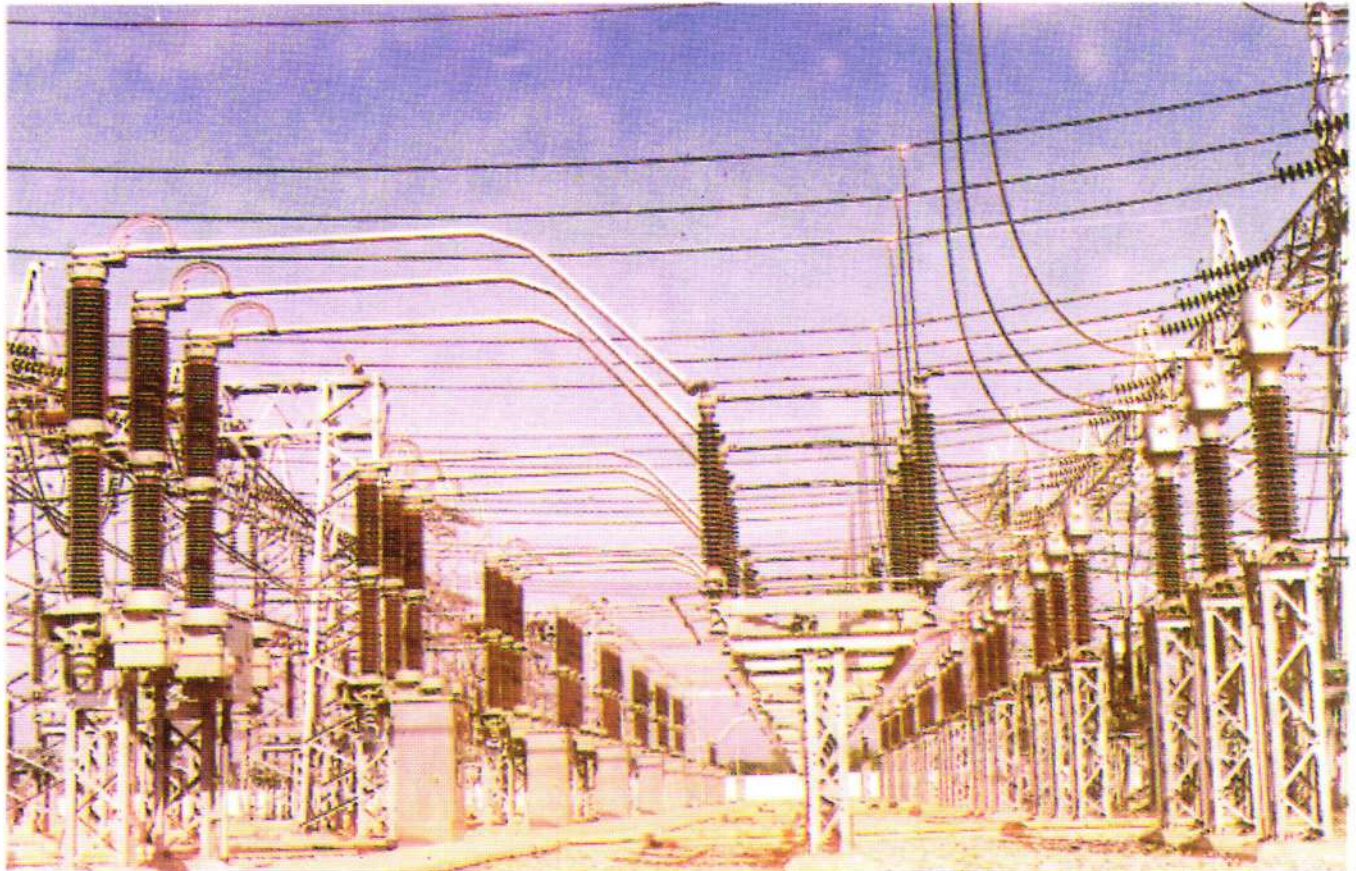
Sl. No.	Name	Voltage	Transformer Capacity MVA
1.	Ishurdi	66/33 kV	1x5
2.	Pabna	66/33 kV	1x5
		66/11 kV	1x10
3.	Seraigonj	66/11 kV	2x7.5
4.	Ullapara	66/11 kV	1x7.5, 1x1.5

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230/132 KV Grid Sub-Station

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