COMPLIMENTARY COPY

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: Construction of tunnel in progress, Upper Tamakoshi Hydroelectric Project

: Installation of Spacers, Khimti Dhalkebar 220 kV Transmission Line

Nepal Electricity Authority

Head Office : Durbar Marg, Kathmandu, Nepal
Phone : +977-1-4153007
Fax : +977-1-4153009, 4153013
E-mail : neamd@mos.com.np
Webpage : www.nea.org.np

Message from the Chairman

Despite internal challenges and external obstacles, NEA has shown resilience to shoulder immense responsibilities for past twenty five years. On this occasion of completing twenty five years of service to the nation in its new incarnation, I must congratulate NEA for its achievements and thank NEA staffs for their commendable work. Government of Nepal considers NEA as its main instrument in harnessing the ample hydro potential of the country and making it accessible to every Nepali. An active role played by NEA will foster investment opportunities that have potential to significantly reduce the impact of current economic downturns.

Global trend in power sector is pushing it more and more in private domain and public utilities of the sector are in phase of transformation. NEA is also facing similar situation. A realization that increasing energy demands can not be met by public investment only and private enterprises must be encouraged to invest in the sector for better mobilization of resources and better operational efficiency has laid the foundation for private sector participation in Nepal. Today about 26% of served energy comes from private generators. NEA role is shifting more towards trader from generator as about 37% of energy supplied by NEA comes from domestic and cross border purchases. This gives a clear indication that NEA must be careful in system reliability and reduction of losses otherwise it will spend most of revenue in purchases. It is right time for NEA for introspection and drafting a strategic plan for its future operations. Consumers are critical of NEA's plant maintenance activities. People have the impression that load shedding situation is result of unplanned and mismanaged operations. NEA must plan the maintenance works better way.

New policy for Q40 criterion of design for source optimization shall result in serious consequences to NEA if wet season surplus is not traded and suitable seasonal storage plants are not developed. Now NEA should focus on developing seasonal storage plants and strengthen its trading capacity. To prove itself the market leader in changed context NEA needs to generate capital and increase its efficiency.

NEA is the executing agency for GON plans and programs of the sector so it cannot ignore its social role. Still half of the population of Nepal is deprived of electricity. NEA has major role to play to increase access of electricity. Even in the context of deficit in electricity supply, rural electrification and distribution expansion has remained NEA's priority. NEA through Ministry of Energy has already proposed governmental support to address social role played by NEA on the basis of report of the financial restructuring committee.

NEA should play active role in the formulation of policies, program and regulations of this sector. Policy inputs from NEA can help governmental policy formulation in the energy sector.

To conclude, I thank staffs of NEA for their sincere and dedicated work and wish them all the best in their quest for a brighter future of NEA.

Dr Prakash Sharan Mahat
Minister for Energy
Chairman, Nepal Electricity Authority

Board of Directors

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Dr. Prakash Sharan Mahat
Minister for Energy

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Secretary, Ministry of Energy

Member
Mr. Krishna Hari Banskota
Secretary, Ministry of Finance

Member
Mr. Lekh Man Singh Bhandari

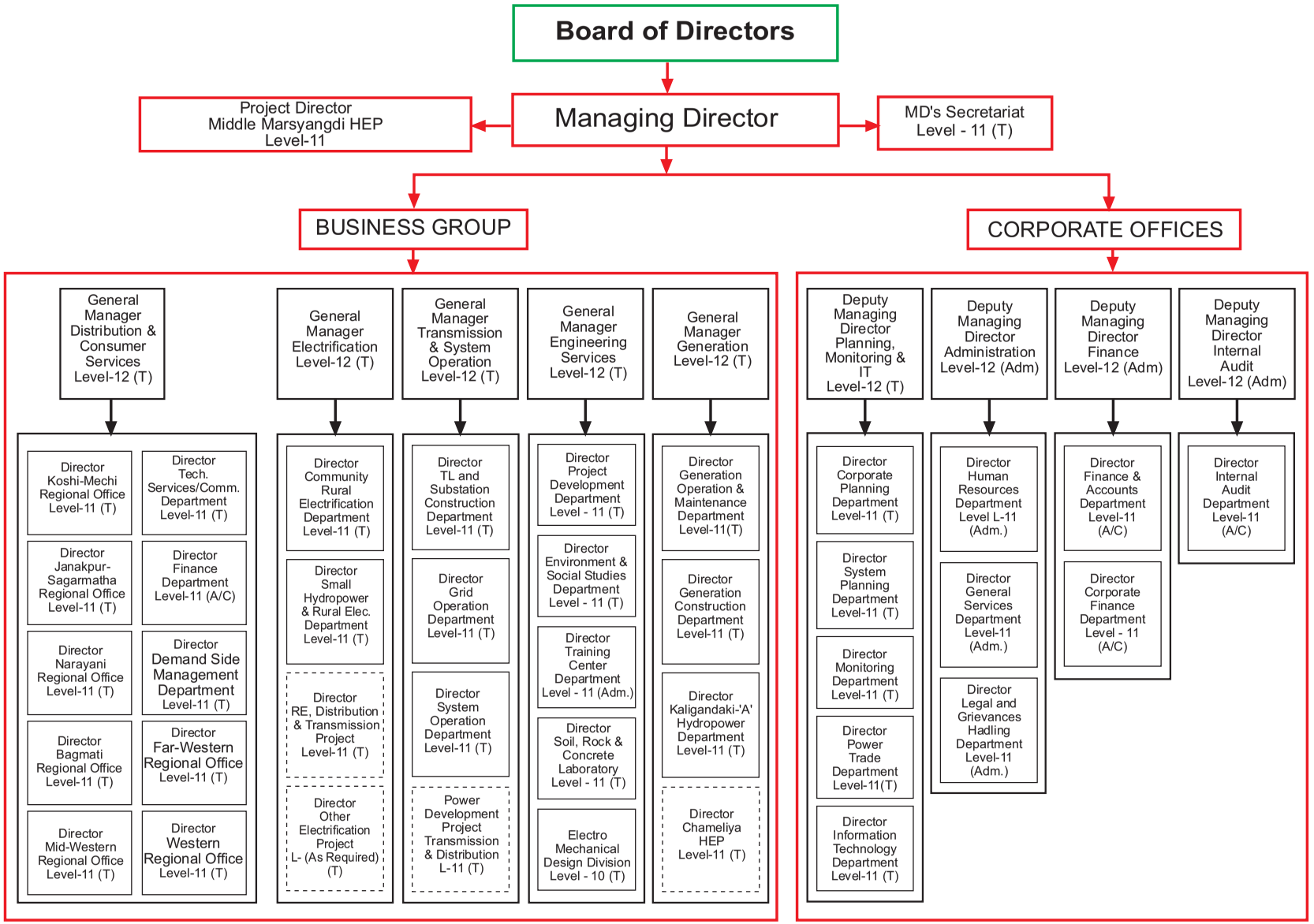
Member
Mr. Ananda Raj Batas

Member
Mr. Mukesh Raj Kafley

Member

Member Secretary
Dr. Jivendra Jha

CORPORATE STRUCTURE OF NEA



Chief Executives of NEA

Directors and Department Chiefs

Mr. Upendra Dev Bhatta
Director
Information Technology

Mr. Tirtha Man Shakya
Project Coordinator
Energy Access & Efficiency
Improvement Project

Mr. Birendra Kumar Pathak
Director
Generation Construction

Mr. Ram Chandra Mandal
Director
Central Office

Mr. Ram Chandra Pandey
Director
TL/SS Construction

Mr. Rajeswor Man Slupya
Director
Central Office

Mr. Pradeep Lal Shrestha
Director
Demand Side Management

Mr. Ganesh Prasad Raj
Director
Koshi-Mechi Regional Office

Mr. Chiranjibi Sharma Poudel
Director
Technical Services/Commercial

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Director
System Planning

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Director
Chameliya HEP

Mr. Anuj Ratna Shakya
Director
Monitoring

Mr. Vishnu Bahadur Singh
Director
Project Development

Mr. Subhash Dahal Chhetri
Director
Bagmati Regional Office

Mr. Puspa Raj Khadka
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Operation & Maintenance

Mr. Sher Singh Bhat
Director
Power Trade

Mr. Sunil Kumar Dhungel
Project Director
Middle Marsyangdi HEP

Mr. Buddha Krishna Manandhar
Director
Soil Rock, Concrete Laboratory

Mr. Rishikesh Sharma
Director
Upper Trisuli 3A HEP

Mr. Ram Ekwal Mandal
Director
Community Rural Electrification

Mr. Kanhaiya Manandhar
Director
Transmission and System Operation

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Director
Narayani Regional Office

Mr. Surendra Rajbhandari
Director
Corporate Planning

Mr. Mahesh Prasad Acharya
Project Coordinator
Distribution & Transmission Project

Mr. Dandapani Bashyal
Director
General Services

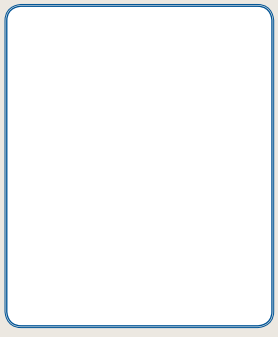
Mr. Madhav Prasad Luitel
Director
Training Center

Mr. Ishwori Prasad Khatiwada
Director
Human Resource

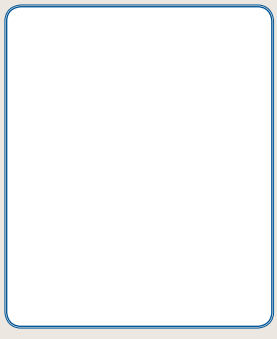
Mr. Badri Nath Roka
Director
Corporate Finance

Mr. Govinda Raj Kharel
Director
Legal & Grievances Handling

Mr. Sudhir Prasad Singh
Director
Tranmission and System Operation



Mr. Krishna Prasad Shrestha
Director
Engineering Services



Mr. Bal Krishna Shrestha
Director
Engineering Services

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Finance DCS

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Act. Director
Environmental & Social Studies

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Internal Audit

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Kaligandaki 'A' HP

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Mid Western Regional Office

Mr. Ram Chandra Gupta
Chief
Western Regional Office

Mr. Badri Narayan Shah
Chief
Far Western Regional Office

Managing Director's Report

It is a matter of pride to all of us that today our organization has completed 25 years in the service of the nation. On the Silver Jubilee of the establishment of NEA, I welcome and congratulate you all. With an association of almost all 25 years with NEA, I am presenting Annual Report as Managing Director on the special occasion of Silver Jubilee of our organization. It is difficult for me to express my feelings as words shall not be able to translate them.

NEA made a difficult journey during last 25 years but never stopped its services even for a single day howsoever the situation be. Year 2009/10 was another year of dedication in the series. At this moment, before my submission of activities and performance of NEA during fiscal year 2009/10, I pay my sincere tribute to those of our employees who lost their lives while performing their duty and contributing for the achievements that I am reporting.

Our endeavors to maximize the utilization of available resources including import from Indian short term market could not offset the imbalance between demand and supply and we were compelled to enforce 12 hours of unpleasant load shedding with a little satisfaction that we were able to reduce the load shedding by 4 hours compared to 16 hours per day of preceding year.

As an attempt for better efficiency, improved financial health as well as quality service delivery, NEA worked on a three–front approach that included Financial restructuring, Organizational restructuring and Revision of retail tariff. Financial restructuring and revision of retail tariff are beyond the control of NEA whereas we are set to implement the report on Organizational restructuring in its true spirit. Our attempt to facelift the balance sheet could not be successful during 2009/10 as the financial restructuring and revision of retail tariff remained undecided.

During the year 2009/10, NEA has continued its development activities by investing on various generation, transmission and distribution projects in an attempt to meet the targets of "Electricity Crisis Mitigation Program" and rescued the country from long hours of darkness. NEA has also been able to refute the blame that it shows reluctance in signing Power Purchase Agreements (PPAs). During the year 2009/10, NEA signed 27 new PPAs worth total capacity of 137.22 MW. In spite of difficult situation, we have been able to maintain growth in terms of volume of sales, number of consumers and revenue collection.

System Performance

Year 2009/10 witnessed new records of power and energy demand, generation and import. Annual Peak Demand was recorded 885.28 MW registering 8.96 % growth over 812.5 MW figure of previous year. Similarly Annual Energy Demand was recorded 4367.13 GWh out of which 3076.69 GWh was contributed by domestic generation, 612.58 GWh was imported and rest 677.860 GWh was managed

by load shedding. Commissioning of Middle Marsyangdi Hydroelectric Power Plant in latter half of year 2008/09 and few more IPPs during 2009/10 significantly increased the supply. As a result, we had to implement a load shedding of up to 12 hours per day per consumer exactly what we had forecasted at the beginning of the fiscal year. This year also, nature was not very favorable to us as the Kulekhani reservoir could not be fully replenished by water and dry season inflow was noticed below normal.

System Load Factor during the year remained 57% compared to 54.22 % of previous year. The estimated load curve during load shedding periods is not the true replication of demand pattern as the shifting of load generates misleading information. However, there is a tendency of flattening the peak and rise in demand during off peak hours which is favourable for the system. Increased load factor, lower peak demand growth and higher energy demand growth are impacts of our demand side management initiatives.

Insufficient transmission capacity has violated N-1 criterion and problem of poor system voltage results in frequent and unusual system collapses. Total of 28 system collapses were recorded during the year.

Activities and Impressions of Operation

With 13.1% growth over previous year's figure of 3859 GWh, annual energy demand of the interconnected system during 2009/10 was estimated at 4367.13 GWh, of which only 3689.27 GWh could be served. Of the total served energy, NEA owned generation contributed 2117.64 GWh, IPPs contributed 959.05 GWh and the rest 612.58 GWh came from import. NEA owned generation increased by 269.06 GWh i.e. 14.55 % compared to 1848.58 GWh of previous year. Out of the total served energy of 3689.27 GWh, 83.4 % was domestic generation while 16.6 % was import. Domestic generation comprised 3064.05 GWh hydro and 13.12 GWh thermal.

Against the served energy figure of 3689.27 GWh, sales figure totaled 2677.83 GWh registering 473.24 GWh increase. Internal sales within Nepal totaled 2603.35 GWh and accounted for 97.22 % of the total sales and 91.5 % of total revenue. This year, we made slight improvement in export against the trend of decline by exporting 74.48 GWh compared to 46.38 GWh of preceding year. Total number of customers increased by 10.59 % and reached 1854275 by the end of the year. Of the total customers, 95.18 % domestic customers accounted for 41.41 % sales and 41.1 % revenue, 1.65% industrial customers accounted for 37.66 % sales and contributed 35.23 % revenue, 0.43 % commercial consumers accounted for 7.27 % sales and contributed 9.95 % revenue, 0.70 % non commercial consumers accounted for 4.14 % sales and 5.73 % revenue whereas other 2.04% consumers accounted for 9.52 % sales and 7.99 % revenue.

Major overhauling of Generator and Turbine set of Unit No. 2 of Kulekhani-II Hydropower Station was completed under the supervision of Fuji Electric Systems Co. Ltd. (Japan). Similarly, overhauling of turbine runners of Kulekhani-I (Unit Nos. 1 and 2), Trishuli (Unit No. 3), Sunkoshi (Unit No. 3), Puwakhola (Unit No. 2) and Seti (Unit No. 2) Hydropower Stations was performed. Repair of air drive system in 132kV GIS and Generator No. 3, and various condition monitoring tests in all single phase 11kV/132kV step-up transformers and 3 Generators were carried out in Marsyangdi Hydropower Station. Under the Rehabilitation Project of Devighat Hydropower Station, almost all the equipments and machines have been delivered to site. Middle Marsyangdi Power plant was inspected by a team of contractor, consultant and donor agency kfW after one year of its commercial

operation. The contractor rectified the punch list of defects.

Similarly, new power transformers were installed at Butwal and Duhabi Grid Substation and old transformers of these substations were shifted to other locations. Similarly, to enhance the capacity of data transmission for reliable operation, earth wire from Pathlaiya to Lahan in the 132 kV transmission line was replaced with Optical Ground Wire. Overall, availability of transmission system remained above 99 %. Estimated System Losses during the year remained 26.58 % compared to actual loss figure of 28.6 % of last year. Of course, misuse of electricity in collective form and abnormal law and order situation in many parts of the country had dominant bearing on system losses.

Financial Performance

In spite of encouraging figures on demand side, NEA could not cash the opportunity so created by converting the potential demand into revenue due to lack of supply sources. NEA's financial performance did not remain up to the level of expectation and further slumped during the year. NEA incurred a net loss of Rs 2.40 per kWh which amounted to Rs 5,350.92 million as total net loss of FY 2009/10. Accumulated losses at the end of FY 2009/10 reached Rs 19,469.75 million.

NEA earned total revenue of Rs 18,711.35 million during 2009/10, of which Rs 17,586.91 million came from main business i.e. sale of electricity which is 22.08 % increase over last year's figure of Rs 14,405.93 million. Similarly, NEA earned Rs 1,124.44 million under other incomes heading. We could not generate budgeted revenue due to only partial replenishment of water in Kulekhani reservoir reducing the revenue by about 600 million rupees. Similarly, year 2009/10 was recorded as below average year from the point of view of dry season run off in the rivers, which ultimately reduced electricity generation below expectation.

High Cost of Service contributed by increased internal purchase at relatively higher tariff at generation point, annual escalation on purchase tariff, operation of thermal plants, import of very high cost seasonal energy from India, regular import at relatively higher price, increased staff cost, increased maintenance cost and hike in prices of fuel and other commodities could not be responded by proportionate increase in volume of business and prevailing retail tariff. This year, we purchased electricity from India at a price of Rs 10.72 at delivery point in India which effectively becomes Rs 13.40 per unit, exactly half of per unit revenue return rate at consumer point considering losses. Our cost of service per kWh reached Rs 8.97 whereas average sales tariff rate after rebate remained only Rs 6.57 per kWh.

NEA's liability towards Government of Nepal by the end of year 2009/10 has reached Rs 37,953.16 million as share capital, Rs 60,381.19 million as secured long term loan and Rs 693.21 million deferred taxes. Including the reserve and accumulated loss of Rs 17,951.90 million, NEA's liabilities by the end of FY 2009/10 reached Rs 81,075.66 million.

Similarly, by the end of FY 2009/10, NEA's net property as plant and equipment at historical cost reached Rs 84,740.24 million whereas Rs 19,511.07 million was recorded as expenditure in capital work in progress. NEA has invested Rs 3,189.92 million as equity shares in various subsidiary companies including Chilime and Upper Tamakoshi. Net current assets of NEA remain amount Rs (26,335.68 million) i.e. that is negative and grand total of assets reached Rs 81,075.66 million.

Government has shown its concern over

deteriorating financial health of NEA and a sub-committee was formed to suggest the financial restructuring of NEA. The subcommittee has already submitted its report. We are eagerly waiting for implementation of the report on financial restructuring.

Major Development Works

Enhancement of the generation capacity and expansion of the network have to be continued even in the odd conditions, because about half of the population is still deprived of electricity and industrial sector has just started crawling. NEA is aware that it has not only to take the lead role in the development of the sector but also to create turbulence by enhancing its own development activities and facilitating the private producers. NEA efforts in this dimension were intensified during FY 2009/10. Though not very satisfactory, progress has been attained at Kulekhani-III Hydroelectric Project (14 MW) site. The construction of Adit 1-A and Adit 4 tunnels, headrace tunnel and penstock tunnel has been completed. Similarly, the construction of access road to Adit 3 tunnel has also been completed and construction of portal at Adit 3 is nearing completion. The Project is scheduled to be completed in Year 2011.

Chameliya Hydroelectric Project (30 MW) has been making good site progress. The excavation works for Adit No.1, 2 and 3, diversion tunnel, connecting tunnel No. 1 and 2, aeration tunnel and access tunnel to desander have been completed. Excavation works for headrace tunnel (HRT), desander and tailrace are in progress. Dam foundation works and concreting works up to EL. 852.00 m have been completed. Likewise, powerhouse excavation and slope stabilization of powerhouse support installation works have been completed up to EL 778.2m. The construction of civil works is about 49% complete. The overall construction of the project is now 52% complete, and is scheduled to be completed in Year 2011.

China Gezhouba Group Corporation (CGGC), the EPC Contractor for Major Construction Works of the Upper Trishuli 3 'A' Hydroelectric Project (60 MW) has already started preparatory work at the site. The process for land acquisition for the project has been initiated and currently negotiation for land acquisition is in process. North West Hydro Consult has been selected for construction supervision of the project. NEA is in the process of awarding the contract for construction supervision. Tender has been invited for the construction of 48 km long 220 kV Transmission line from the project site to Matatirtha substation. Prequalification for bidders of main civil construction works of Rahughat Hydroelectric Project (32 MW) is completed. Government of India line of credit shall be used for Civil Works of this project. ADB and Government of Japan have agreed to finance the detailed engineering design of Upper Seti Project (127 MW). The preparatory work such as excavation of test adit is underway to facilitate detailed engineering design. Upper Trishuli 3B Hydroelectric project (37 MW) is proposed to be developed under Public – Private Model for which a draft document is under preparation.

Lack of transmission facilities was identified as main hurdle of generation capacity expansion in National Electricity Crisis Declaration and GON committed extensive support in developing transmission sector in 38 point Electricity Crisis Mitigation Program. As a result, there are 13 transmission projects under execution including Khimti – Dhalkebar 220 kV, Thankot – Chapagaon - Bhaktapur 132 kV, Hetauda - Bharatpur 220 kV, Bharatpur - Bardghat 220 kV, Dumre – Damauli – Marsyangdi 132 kV, Butwal - Kohalpur 132kV Second Circuit transmission line, Kabeli 132 kV Transmission Corridor, Singati-Lamosangu 132 kV Transmission Corridor, Chapali 132 kV Substation, Matatirtha

Substation Expansion, Pathlaiya 132 kV Substation, Syangja 132 kV Substation and Capacitor Banks at Grid Substations.

Similarly, 15 Transmission Projects are under Initial Stage of Implementation and 15 other Projects under Feasibility Study. Dhalkebar - Mujaffarpur 400kV cross border Interconnection is at much advanced stage of implementation. Realizing the potential of Cement Industries in the country, 3 Projects are launched for Power Supply to Cement Industries including Kamane (Hetauda) 132kV Substation, Kusum - Hapure 132kV Transmission Line and Mirchaiya - Katari 132kV Transmission Line whereas 6 more such projects for supply to cement industries are under feasibility study.

As part of system reinforcement and expansion of distribution system program, many activities were undertaken during the year to improve the service delivery in various parts of the country. Other initiatives in this direction include Distribution System Rehabilitation Project, Energy and Customer Accountability Enhancement Project, Energy Access and Efficiency Improvement Project, Project for Energy Efficiency through Loss Reduction, Project for Solar Powered Street Lighting, Pilot Project for Public Private Partnership in Distribution System, Separate Industrial Feeders project and Project for Distribution of quality Compact Fluorescent Lamps (CFLs) that has distributed 765000 quality CFLs.

Till date, NEA has signed 69 Power Purchase Agreements of total 392 MW capacity. Out of which, 27 projects of total 137.22 MW capacity were signed during 2009/10. Out of 69 PPA signed, 22 projects of total 164.8 MW capacity are in operation. Three projects of total 6.491 MW capacity were commissioned during FY 2009/10. One hundred twenty PPA applications of total 1600 MW capacity are under process.

NEA has always considered Independent Power Producers trusted peers in meeting country's growing electricity demand and hence new initiatives are taken for faster processing of PPA.

NEA's Subsidiary Companies and Private Participation

NEA has created special purpose companies like Chilime Hydropower Company Limited (CHPCL), Upper Tamakoshi Hydropower Company Limited (UTHPCL) and Power Transmission Company of Nepal (PTCN). CHPCL has been successful in returning increasing profits for seventh year in a run. Chilime's financial health is a pride and security for NEA as NEA floated Power Bonds with its share in CHPCL as security for the bond. CHPCL has generated energy above the design capacity and supported system with excess energy during critical dry months of the year. CHPCL is at different levels of development in Upper Sanjen (11 MW), Sanjen (35 MW), Rasuwagadi (75 MW) and Middle Bhotekoshi (80 MW) hydropower projects that will support the system by approximately 200 MW additional supply.

GON has been concerned and considerate to jack up the development of UTHPCL by committing remainder of finance which proved to be stimulus. UTHPCL is ready to start major civil works as contract award is already signed, all financial arrangement completed, shareholding agreements ready and PPA draft is almost ready for which MOU is already signed between NEA and UTHPCL. Power Transmission Company of Nepal as special purpose vehicle for cross border power transmission line development and operation is aggressively working on Dhalkebar- Muzaffarpur 400 kV Transmission Line Project.

Capacity Building and Institutional

Strengthening

For upgrading and enhancing the skill, knowledge and attitudes of human resources, NEA Training Center (NEA, TC) conducted need-based short term trainings covering 3 days to 23 days for NEA employees. A 90 day training for 39 participants of Upper Tamakoshi project affected area was also conducted by NEA Training Center. A number of assistant level and executive level staff of NEA have been benefited through these trainings. Trainings related to skill development and use of information technology in day to day business operations were very useful in improving our operational efficiency. Personnel data bank has been maintained to facilitate efficient management of human resource. Various trainings and executive peer exchange programs supported by USAID/ SARIE have given exposure to our managers.

Future Plan

Present power crisis can be resolved only through augmentation of generation capacity and NEA has concentrated its efforts in this direction. In next five years, NEA is set to commission Chameliya, Kulekhani -3, Upper Trishuli- 3A, Upper Trishuli-3B and Rahughat projects whereas Budhigandaki (600 MW), Upper Seti (127 MW) and Nalsyaugad (400 MW) storage projects shall be launched during that period. NEA shall be largest equity holder in Upper Tamakoshi that will develop Upper Tamakoshi Project in next five years. Similarly, Chilime Power Company Limited, a subsdiary of NEA, has its aggressive plan to complete Sanjen, Upper Sanjen, Rasuwagadhi and Middle Bhotekoshi Projects. In the mean time private power producers are expected to induct at least about 200 MW capacity in the system.

Efforts shall be intensified to develop internal transmission system with its backbone at 400 kV. River basin corridor concept shall be adopted while developing transmission network. Mechi corridor, Koshi corridor, Solu corridor, Tamkoshi corridor, Marsyangdi corridor, Kaligandaki corridor, Trishuli corridor transmission network are already in program. Separate export and cross border transmission system to attract investment in export oriented projects will be developed at 400 kV. Topographic survey for Dhalkebar – Bhittamod 400 kV has been completed. It is expected that construction works shall commence on Dhalkebar – Bhittamod in year 2010/11. Despite the deficit of supply sources, electrification works shall be continued so that the remaining half of the population deprived of electricity has access to it.

With the rapid increase in customers, there is simultaneous need to provide a better customer care and service. Introduction of Computerized Billing System, Queue Management System, Computer Assisted Interactive Voice Response Service and Customer Call Centre will facilitate our customers.

Way Ahead

With its little capacity of generation, NEA has to absorb the blame of not serving sufficient. Proportion of purchased energy in the total served volume is about to exceed half for which average purchase price at generation point is more than revenue return rate. Purchase energy price escalates every year, but NEA cannot address this escalation in its retail tariff resulting in widening gap between cost of service and revenue return rate. Thus NEA is compelled to operate the business for direct loss. I admit that there is scope for improvement in NEA's operation, but it will not be significant to improve the crippling health of NEA. Revision of tariff for back–logs and implementation of automatic annual tariff revision contingent to consumer price index must be introduced to make NEA continue its

services. NEA cannot bring down the energy purchase price, but it commits to take effective initiatives to improve its own generation, transmission and distribution costs.
NEA shall be least involved in developing small size ROR projects, as private sector is capable of doing that. NEA has targeted regional storage projects, firm power import and export of wet season surplus. These initiatives will ensure dry season supply.

Acknowledgements

In conclusion, I wish to take this opportunity to extend my sincere thanks to all associated with the NEA's activities contributing to performance and achievements attained during the last twenty five years. I express my deep gratitude to Chairman and members of NEA Board of Directors for strategically guiding us to meet our obligation and accountability. I must acknowledge the continued and stimulus support from Government of Nepal in our regular operation and development pursuits to meet our corporate goals. I am also indebted to bilateral donors such as India, Germany, Japan, Norway, Denmark, Sweden, China and USA as well as the international development banks such as World Bank, Asian Development Bank and Kreditanstalt fur Wiederaufbau (kfW) who have been our development partners. I sincerely express my thanks to them for their consistent support during FY2009/10 and also for the last 25 years.

I cannot restrain from expressing my thanks for continued support and dedication I received from all levels of staff. I always enjoyed working with the staff members at all levels and categories. I am thankful to representative Unions of staff for their support and cooperation. To complete this acknowledgement, I must apologize to our valued customers for the inconvenience they have been bearing and thank them for their support in delivery of service.

Thanking You.

Dr. Jivendra Jha
Managing Director

Generation Business Group

The Generation Business Group is entrusted with the responsibility of constructing new power projects and operation and maintenance of NEA owned power stations. It is headed by a General Manager and has Generation Construction Department, Operation and Maintenance Department and Kaligandaki "A" Hydropower Department under it.

This Business Group is now overseeing the construction of Chameliya Hydroelectric Project (30 MW) and Kulekhani-III Hydroelectric Project (14 MW). Further, Upper Trishuli 3 A Hydroelectric Project (60 MW) is also being implemented. Currently, it is operating and maintaining seventeen hydropower stations with a total installed capacity of 468.39 MW and two thermal power plants with a total installed capacity of 53.41 MW.

Generation from NEA owned power stations in FY 2009/10 was 2,106 GWh, an increase of 12.55 % over the previous fiscal year's figure

Operation and Maintenance Department

The Operation and Maintenance Department, headed by a Director, is responsible for operating and maintaining NEA owned power stations with the exception of Kaligandaki 'A' Hydropower Station. A total of 1345.77 GWh of energy was generated from these power stations in FY 2009/10.

In FY 2009/10, preventive maintenance works were carried out on a regular basis in all the power stations to ensure timely detection of faults and their rectification. Overhauling of turbine runners of Kulekhani-I (Unit Nos. 1 and 2), Trishuli (Unit No. 3), Sunkoshi (Unit No. 3), Puwakhola (Unit No. 2) and Seti (Unit No. 2) Hydropower Stations was performed. Further, repair of air drive system in 132kV

Installation of runner

GIS Siuchatar feeder and Generator No. 3, and various condition monitoring tests in all single phase 11kV/132kV step-up transformers and 3 Generators were carried out in Marsyangdi Hydropower Station. Furthermore, repair and major overhauling of Unit No. 2 Generator and Turbine set of Kulekhani-II Hydropower Station were completed under the supervision of experts from Fuji Electric Systems Co. Ltd. (Japan). Likewise, installation, testing and commissioning of 2 sets of 12 kV, 1600 A vacuum circuit breakers and replacement of 110 V, 240 Ah batteries were carried out in Chatara Hydropower Station.

The rehabilitation of Devighat Hydropower Station started in April 2008 is nearing completion. The stator of Unit No. 3 is ready and almost all the equipments and machines have been delivered to site. The rehabilitation project is funded jointly by Government of India (GoI), NEA and GoN. GoI has agreed to provide IRs 150 million as grant assistance and IRs 150 million as loan under a line of credit. The balance of fund equaling Rs. 37.80 million required for the rehabilitation work will be managed by NEA and GoN.

With the loan from the Asian Development Bank (ADB), procurement for the rehabilitation of excitation system and modernization of weir control system at Marsyangdi Hydropower Station, and installation of trash-rack cleaning machine at Gandak Hydropower Station was initiated in FY 2009/10. The work is scheduled to be completed in FY 2010/11. Similarly, the procurement of spare parts and overhauling of Hetauda Diesel Plant and Multi fuel Power Plant are scheduled to be carried out in FY 2010/11 with the loan from World Bank in order to enhance their reduced outputs.

A Central Maintenance Division is being proposed under this Department for the purpose of regular preventive maintenance and repair work at NEA owned stations. A mobile team of this proposed maintenance division will travel to different NEA power stations on an as-and-when required basis and maintain them as far as practicable. The Department also avails the services of other experts or technicians as the case may be in case such expertise is not available within NEA for maintaining and repairing power stations in NEA.

Kaligandaki-A Hydropower Department

The Kaliganadaki-A Hydropower Department oversees the operation and maintenance of Kaligandaki A hydropower plant with installed capacity of 144 MW, Nepal's largest hydropower plant. It is headed by a Director. In FY 2009/10, Kali Gandaki A Hydropower plant generated a total of 760.241 GWh of energy, an increase of 0.91% over the previous year's figure.

In FY 2009/10, repair and maintenance of the spillway gates, intake under-sluice gates, desander flushing gates, trash rack cleaner machine and internal communication system were carried out. Further, the major overhauling of Unit No.1 was carried out. Routine check-up of the tap-changer, dielectric test of oil, insulation test and ratio measurements of Unit No. 1 power transformer were also carried out. Similarly, the high voltage bushing on one phase in power transformer of Unit No. 3 was replaced. Installation, testing and commissioning of repaired 132/11kV, 5 MVA transformer including the installation of outdoor CVT was also completed in FY 2009/10.

Generation Construction Department

The Generation Construction Department is presently executing the construction of 14 MW Kulekhani-III Hydroelectric Project The Department is headed by a Director. The status of the Project is outlined below.

Kulekhani-III Hydroelectric Project

The Kulekhani III Hydro- electric Project (14 MW) is under construction. It is located in Bhaise Village Development Committee of Makawanpur District. It is a cascade project, which utilizes the regulated flow of the Kulekhani reservoir. Further, the discharge from Mandu river at the intake of Kulekhani II and discharge from Khani khola at the tailrace of Kulekhani II are added to it.

Main features of the project comprise of a head pond, a 4293 m long headrace tunnel, an underground forebay, a 370m long penstock and a semi underground powerhouse. Two units of vertical shaft Francis Turbines each of 7.0 MW capacity shall be installed to generate 40.85GWh of energy annually. Power generated from the project will be evacuated to Hetauda Substation through 0.5 km long 132 kV transmission line. The construction of Adit 1 A (308m) and Adit 4 (180m) tunnel, headrace tunnel (891m), penstock tunnel (180m) has been completed. Similarly the construction of access road to Adit 3 tunnel has also been completed.

Likewise, construction of portal at Adit 3 is nearing completion. The selection of contractor for the Electromechanical, Hydro-mechanical and Transmission line works is in final stage. The project has been accorded National Priority by the Government of Nepal (GoN). The estimated cost of the project is Rs 2.43 billion which is jointly funded by GoN and NEA. The Project is scheduled to be completed in Year 2011.

Chameliya Hydroelectric Project

Chameliya Hydroelectric Project (CHEP) is headed by a Director reporting directly to the General Manager, Generation. Designed as a six-hour daily peaking run-of-river scheme with an installed capacity of 30 MW, the project is expected to generate 184.21 GWh of energy annually. The project lies about 950 km west of Kathmandu in the Chameliya valley, on a tributary of Mahakali River in Darchula district in the Far Western Development Region. The

(Headrace tunnel of KL _III in progress)

main features of the project are 54m high concrete dam with two 13.5m high radial gates, underground desander with two basins, 4067m long headrace tunnel, 49.8m high restricted orifice type surge tank, 461m long penstock and semi-underground powerhouse with two units of 15.3 MW vertical shaft Francis turbines. Power generated from the project will be evacuated to Attariya substation at Kailali district through 131 km long 132 kV transmission line.

In December 2001, detailed design and tender document preparation work were completed by Hyundai Engineering Co., Ltd. & Korea Water Resources Corporation, a consortium consulting agency with the grant assistance of Korea International Co-operation Agency (KOICA) in collaboration with NEA. The 18 km long project access road with six bridges and one causeway has been completed and local transportation is in operation. Construction of the camp facility has also been completed.

On December 21, 2006, China Gezhouba Water and Power Group Company Limited (CGGC), China was awarded the civil contract for the construction of the civil works of the project. The excavation works for 305.14 m long Adit No. 1, 214 m long Adit No. 2, 283.61 m long Adit No.3, 203.6 m long diversion tunnel, 127 m long connecting tunnel No. 1, 116 m long connecting tunnel No. 2, 156m long aeration tunnel and 139.60 m long access tunnel to desander have been completed. Excavation works for headrace tunnel (HRT), desander and tailrace are in progress. Out of 4067 m headrace tunnel, excavation for 2438.1 m is complete. Similarly, 40% excavation work for desanding basin and 34% excavation work for tailrace are complete.

Dam foundation works and concreting works up to EL. 852.00 m have been completed. Likewise, powerhouse excavation and slope

Foundation work of transmission line of CHEP in progress

stabilization of powerhouse support installation works have been completed up to EL 778.2m. The construction of civil works is about 49% complete.

EIA study of the project and 132 kV transmission line has been approved by the Ministry of Environment, Science and Technology (MoEST). Land acquisition work of the project has been completed. Environment and Social studies Department of NEA has been carrying out the environment monitoring and mitigation measures as per the approved EIA study.

On October 2, 2007, Shah/Silt/Icon JV in association with Project Development Department, Engineering Services, NEA was appointed Consultant for the Construction Management and Construction Supervision of the project.

As per the Loan Agreement made between Government of Korea and Government of Nepal, EDCF has provided a soft loan of U.S $ 45 million to finance the foreign currency component towards the cost of Consulting Services and Electro-Mechanical, Hydro-Mechanical and Transmission Line Works.

On April 30, 2009, KHNP Consortium which includes Korea Hydro & Nuclear Power Co. Ltd, (KHNP) Korea; Hwachon Plant Construction Co. Ltd. (HWACHON) Korea; Sean Engineering and Construction Co. Ltd. (SEAN) Korea and Nepal Hydro & Electric Ltd., (NHE) Nepal was awarded the contract for the construction of E/M, H/M & 132 kV T/L works of the project. Similarly, on May 11, 2009, Saman Corporation, Korea was appointed Consultant for the Electro-mechanical, Hydro-mechanical & 132 kV Transmission line Works. The model tests for turbines and tower destruction tests have been witnessed and inspected, and manufacturing process has been started. Soil investigation and detailed topographical survey including foundation design have been completed. The embedded parts for grounding in the powerhouse are also complete. Two draft tubes with all accessories and embedded parts for T/L towers have already arrived at site.

The overall construction of the project is now 52% complete, and the project is scheduled to be completed in Year 2011.

Headworks of Kaligandaki 'A' HPS

Upper Trishuli 3 'A' Hydroelectric Project

In order to enhance the generation capacity of NEA at the earliest, this project is being implemented on a priority basis. This run-of-river scheme with a capacity of 60 MW is located in Nuwakot and Rasuwa Districts. Major components of this project are headworks, intake, desander, 4.1 km long tunnel, surge shaft, inclined shaft, underground powerhouse, 48 km long 220 kV transmission line and ancillary facilities. The project's annual generation is 460.4 GWh and estimated total cost excluding VAT is US$ 125.75 Million . This project will be executed using concessional loan of US$ 120 Million from the Government of China through China Exim Bank. The whole construction has been divided into the following three packages:

A) EPC Contract for Major Construction Works of the Project:

The contract for the major works (Civil, Electro-mechanical, and Hydro-mechanical works) was with China Gezhouba Group Corporation (CGGC) on May 28, 2010. However the contract will be effective once the loan agreement with the Government of China is accomplished. The contractor has already started preparatory work at the site. The main construction work shall be undertaken in Engineering, Procurement, and Construction (EPC) mode, and estimated time for the construction is 35 months from the date of commencement. The construction includes upgrading of 11.5 km long access road from Betrawati to head -works site and construction of 2.5 km new road. The contract price of major work is US $ 89.177 Million.

The process for land acquisition for the project has been initiated and currently negotiation for land acquisition is in process.

B) Construction Supervision of the Project:
North West Hydro Consult has been selected for construction supervision of the project. NEA is in the process of awarding the contract for construction supervision.

C) 220 kV Transmission Line from the Project to Matatirtha Substation:

Tender has been invited for the construction of 48 km long 220 kV Transmission line from the project site to Matatirtha substation. The bid submission date is August 24, 2010. As part of EIA of the project, public hearing was held near the powerhouse site on February 24 , 2010. Final report of EIA has been prepared incorporating the suggestions made by the stakeholders and submitted to Ministry of Environment, Science and Technology for approval.

Middle Marsyangdi Hydroelectric Project (close out stage)

Background

Middle Marsyangdi Hydroelectric Project located near Besishahar in Lamjung District, Gandaki Zone, about 170 km. West of Kathmandu, is a peaking Run-of-River Project with an installed capacity of 70 MW and an average annual energy generation of 398 GWh. The consultant (Engineer) Fichtner JV (FJV) was selected in the year 1999 after concluding financial and project agreements between Government of Germany, the Government of Nepal (GoN) and Nepal Electricity Authority (NEA) for the grant of Euro 178.26 millions through Kreditanstalt fur Wiederaufbau (KfW). The procurement of Consulting service, Civil Works and Electromechanical Equipment was carried out through Limited Bidding system. The initial estimated Project cost in year 2000 was US$ 181.27 millions equivalent to Euro 212 millions at exchange rate US$1=Euro 1.17. But due to various circumstances project could not be completed within the original completion period of 43 months and accordingly the project cost and time has increased. As per the Engineer's updated project cost of February 2010 (Magh 2066), the revised cost is Euro 274.72 million which 2 million less than earlier estimate 276.5 million euro. These costs do not include Interest During Construction (IDC).

Civil construction works of Middle Marsyangdi Hydroelectric Project started from June 25, 2001 (Ashad 11, 2058) with the completion target of 39 months September 24, 2004 (Ashoj 8, 2061). Apart from Civil Lot there were five other lots for procurement of various equipment required for the Project: Lot E Electrical Equipment, Lot M Mechanical Equipment, Lot HSS: Hydraulic Steel Structure, Lot TRL: Transmission Line, Lot SS1: 132 kV Switchyard, Lot SS2: GIS Switchgear Equipment. The civil works was completed only on 7 November 2008 (Kartik 22, 2065) owing to the various reasons such as design changes, bandhs, and strikes. The Engineer issued taking over certificate effecting from November 7, 2008 with the punch list of remaining works. After impounding of the reservoir, wet commissioning of 2 units started from November 28, 2008 (Mangsir 13, 2065) and subsequently, on December 14, 2008 (Mansir 29, 2065), the project was inaugurated and synchronized with the National grid. As of July 15, 2010 (Asad 31, 2067), a total of 559 GWh of energy has been successfully generated from two units.

Status:

The project is now in closeout stage. The close outs activities such as capitalization of assets, preparation of operation maintenance manual, finalization of completion reports, as built drawings, processing of final statements of Civil and other lots are going on. The closeout stage is expected to be finished by the end of fiscal year 2010-11.

KfW has provided Euro 3.0 million under Neighborhood Support Program (NSP) to support the development activities and to improve the infrastructures related to Education, Health, Water support & sanitation and Rural Electrification of Eleven Village Development Committees (VDCs) in Lamjung District, in the vicinity of Project area. Most of the programs have been successfully implemented.

Additionally, Environmental mitigations works were carried out by NEA as per Environment

Mitigation Action Plan (EMAP). These works were audited by TAEC/NESS JV-Environment Consultant of MMHEP and have been accepted for its compliance.

Contractor's Claim:

The Civil Contractor DDC-JV till date has submitted the claim amounting to Euro 164.677 million and Rs 3,150.8 million. The amount of Euro 26.55 million and NRs 735.16 million has been paid as on account basis as per the Engineer's certification. With regard to Electromechanical lots, the amount of Euro 5.82 million and Rs 2.36 million has been paid as per the Engineer's certification.

Arbitration and Amicable Settlement:

As per the provision of the Contract, both parties DDC-JV and NEA issued the Notice of Intention to Commence Arbitration in March 2005 (Chaitra 2061) against Engineer's Decision. Two attempts of amicable settlement were made but settlement could not be reached. As part of the first phase of the arbitration, the Contractor has referred disputed claim amount of Euro 38.4 million and Rs 527 million to the International Court of Arbitration (ICA) of the International Chamber of Commerce (ICC) for the commencement of the Arbitral proceedings. Three Evidentiary Hearings and two Post Hearing Briefs have been conducted and the verdict is expected by September 2010. In this regard, NEA also has made counter claim amounting to Euro 37 million against DDC-JV.

Contractor has imitated proceeding for 2nd Phase Arbitration for 49 million Euro. NEA is yet to initiate the proceedings.

Payment: Till July 16, 2010 (Ashadh 32, 2067), a sum of Rs. 23,810 million has been spent for the services and works. With IDC amount of Rs. 6,364 million, the total expenditure stands at Rs 30,174 million.

Despite the increase in time and cost due to difficult circumstances and geopolitical situation prevailing during the construction of the Project, MMHEP has been successfully completed and commissioned. The Project has been able to generate 559 GWh of energy till date.

Upstream reservoir of Middle Marsyangdi HPS

Transmission and System Operation Business Group

Transmission and System Operation (TSO) Business Group is responsible for design, construction, operation and maintenance of 66 kV and above voltage level transmission system. These functions are entrusted to the Transmission Line/Substation Construction Department, Grid Operation Department and System Operation department.

The issues and challenges facing NEA in general and TSO business group in particular, are funding constraints, hurdles in acquisition of land for transmission line tower footing and substation, acquisition of right-of –way (RoW) for transmission line, congestion in major transmission lines, inordinate time taken in environmental studies (EIA/IEE). Other challenges include implementation of 38-point program of the government under National Electricity Crisis Mitigation Program -2065 and synchronization of INPS with Indian Grid etc.

Transmission Line / Substation Construction Department

This Department is responsible for the construction of new transmission lines and substations of 66kV and above voltage levels and various major transmission system reinforcements. Construction of transmission lines and substations are guided by the Transmission Planning Studies carried out by System Planning Department of NEA. Transmission Planning Studies are part of the overall system planning studies of NEA. Different phases of transmission and substation projects include feasibility study, survey license, route survey, IEE/EIA studies, construction license, land acquisition, design, tendering, construction, testing/commissioning and handing over for operation.

Recently Completed Projects

Chandranigahpur System Reinforcement

This project was started in 2004/05 with the objectives of meeting growing electricity demand of Rautahat and Sarlahi districts and reducing the technical loss of transmission system of the area. The project was completed and commissioned in 2009/10. The scope of the project included construction of 132/33 kV, 30 MVA and 33/11 kV, 8 MVA substation at Chandranigahpur and 74 km of 33 kV sub transmission line to connect the new Chandranigahpur substation with the existing 33 kV substations at Harsha, Haripur, Gaur and Nijgadh. This project was jointly financed by the World Bank (WB), Government of Nepal (GoN) and Nepal Electricity Authority (NEA). The project is in the final stage of handing over of to the concerned units responsible for operation and maintenance.

Projects under Execution

1. Khimti – Dhalkebar 220 kV Transmission Line

This project was started in 2002/03 with the objective of enhancing transmission capacity, improving supply reliability, reducing losses and voltage drops through construction of 220kV double circuit line and is scheduled to be completed in 2010/11. The scope of the project includes the construction of 75 km of 220 kV

Matatirtha Substation

transmission line from Khimti to Dhalkebar substation. The project cost is estimated at US$ 22 Million and the project is jointly funded by World Bank, GoN and NEA.

2. Thankot – Chapagaon - Bhaktapur 132kV Transmission Line

The project was started in 1998/99 with the objective of enhancing transmission capacity, improving supply reliability in Kathmandu Valley, reducing losses and voltage drops through construction of 132kV ring main and was scheduled to be completed in 2009/10. The scope of the project includes the construction of 28 km of 132 kV transmission line from Thankot to Bhaktapur via Harisidhhi, construction of 132 kV substations at Thankot and Harisidhhi and reinforcement of substation capacity at 132 kV Bhaktapur and Balaju substations. The project cost is estimated at US$ 23 Million and project is jointly financed by ADB and OPEC, GoN and NEA. Construction of transmission line has been stopped because of right of way issues raised by local inhabitants of few VDCs of Lalitpur District.

3. Hetauda - Bharatpur 220kV Transmission Line

This project was started in 2009 with the objective of easing out transmission congestion in the Bardaghat- Hetauda 132 kV section of the grid. The project will enhance the transmission capacity and reliability of the Integrated Nepal Power System (INPS), and will help to evacuate the power to be generated by other hydro power plants from western region of Nepal. The scope of the project includes the construction of 73 km of 220 kV transmission line from Hetauda to Bharatpur and the construction of 220 kV substations at Hetauda and Bharatpur. Cost of this project is estimated at US$ 62 Million and funded jointly by loan assistance of WB, GoN and NEA. The project is scheduled to be completed in 2011/12.

4. Bharatpur - Bardghat 220kV Transmission Line

The objective of this project is to enhance the transmission capacity and reliability of the Integrated Nepal Power System (INPS), and to evacuate the power to be generated by other hydro power plants from western region of Nepal. The scope of the project includes the

construction of 75 km of 220 kV transmission line from Bharatpur to Bardaghat. The project is scheduled to be cpmpleted in 2011/12.

5. Syangja 132kV Substation

Objective of this project is to improve the power supply in Syangja and its vicinity. The project was started in 2009/10 and is scheduled to be completed in 2011/12. The scope of the project includes the construction of 132/11 kV substation at Syangja. The project cost is estimated at US$6.6 Million which is jointly financed by GoN and NEA.

6. Dumre – Damauli – Marsyangdi 132kV Transmission Line

The objective of this project is to evacuate power generated by Middle Marsyangdi Hydroelectric plant, and to facilitate the power evacuation from potential hydro power projects along the Marsyangdi Corridor. The objective also includes enhancing the performance of INPS and reducing outage frequencies of Bharatpur-Pokhara 132kV transmission line. The scope of the project includes the construcation of 132 kV line from Marsyangdi to Damauli via Dumre. Cost of this project is estimated at US$ 16.6 Million which is jointly funded by loan assistance of ADB, GoN and NEA. The project was started in 2008/09 and is scheduled to be completed in 2011/012 .

7. Butwal - Kohalpur 132kV Transmission Line Second Circuit

The project started in 2008/09 (2065/066) with US$13.8 million loan assistance from ADB and Rs. 276.4 Million from GoN and NEA is scheduled to be completed in 2011/012 .

The objectives of this project are to supply increased power to Western Nepal, to meet growing electricity demand in the area, to supply electricity to upcoming cement factories in the western part of Nepal and to evacuate power from Chameliya Hydropower plant.

8. Capacitor Banks at Grid Substations

The objective of this project is to improve the voltage profile and to reduce the losses through installation of capacitor banks in Grid substations. Estimated cost of this project is US$ 2.2 Million. The cost is jointly funded by loan assistance of ADB, GoN and NEA. The project is estimated to be completed by FY 2011/012.

9. Chapali 132kV Substation

The overall objective of the project is to cater to the increased energy demand of northern part of Kathmandu and to improve power supply reliability. The project started in 2008/09 is scheduled to be completed in 2011/012. The scope of the project includes the construction of of underground line and the associated substations. The total cost of the project is estimated at US$ 16 Million jointly financed by loan assistance of ADB, GoN and NEA.

10. Matatirtha Substation Expansion

The objective of the project is to cater to the increasing electricity demand of western part of Kathmandu as well as to supply United Cement, Naubise and Laxmi Cement, Lalitpur. This substation will also help to relieve overloaded Siuchatar, Teku and New-Patan substations which feed the core areas of Kathmandu Valley. The scope of the project includes the construction of 132/33 kV, 30 MVA substation at Matatirtha. Cost of this project is estimated at US$ 3.3 million and is jointly funded by loan assistance of ADB, GoN and NEA. The project started in 2008/09 is scheduled to be completed in 2011/012 .

11. Kabeli 132kV Transmission Corridor

Objectives of this project are to facilitate evacuation of power generated from Kabeli-A Hydro Power Project and power produced from other IPP's in the region, to meet increasing demand of Damak area, to relieve Anarmani 132/33kV substation and to reduce transmission losses of that area. The scope of the project includes the construction of 65 km

of 132 kV line from Kabeli to Damak and the associated substations. Cost of this project is estimated at US$ 31 Million and is funded by GoN.

12. Pathlaiya 132kV Substation

Objective of this project is to provide adequate supply to the Birgunj industrial corridor, improve quality of supply and reduce technical losses in the area. The project started in 2008/09 is scheduled to be completed in 2011/012. The scope includes the construction of 132/33/11 kV substation at Pathlaiya. Cost of this project is estimated at US$ 5.4 Million and is jointly funded by loan assistance from WB, GoN and NEA.

13. Singati-Lamosangu 132 kV Transmission Corridor

Objective of this project is to evacuate power to be generated from different hydroelectric projects undertaken by IPP's in the Tamakoshi-Singati basin. The scope of the project includes the construction of 40 km of 132 kV line from Singati to Lamosangu. Total cost of the project is estimated at US$ 13 million. The project was started in 2008/09 and is scheduled to be completed in 2011/12.

Projects under Initial Stages of Implementation

The projects under initial stages of implementation are listed below:

1 Hetauda – Dhalkebar – Duhabi 400 kV Transmission Line
2. Koshi 220 kV Transmission Corridor
3. Marshyangdi 132 kV Transmission Corridor
4. Sunkoshi Dolakha Transmission Corridor
5. Kaligandaki (Dana-Kusma-New Modi-New Butwal-Bardghat) 220/132 kV Transmission Corridor
6. Middle Marshyangdi-Manang 132 kV Transmission Line
7. Kaski-Bhurjung-Parbat-Kusma 132 kV Transmission Line
8. Gulmi-Arghakhanchi-Chanauta 132 kV Transmission Line
9. Modi – Lekhnath 132 kV Transmission Line
10. Lekhnath-Damauli 220 V Transmission Line
11. Samundratar-Naubise 132 kV Transmission Line
12. Ramechap – Garjyang – Khimti 132 kV Transmission Line
13. Marshyangdi - Kathmandu 220 kV Transmission Line
14. Kohalpur-Surkhet 132 kV Transmission Line
15. Koshi Corridor (Basantapur-Kusaha) 220 kV Transmission Line

Cross Border Transmission Line Projects

In order to facilitate the power exchange between Nepal and India following three cross border Indo-Nepal Transmission Interconnections have been identified Under Cross-Border Transmission Line interconnection Projects.

- Dhalkebar-Mujaffarpur 400 kV Transmission Interconnection
- Duhabi-Purnia 400k V Transmission Interconnection
- Butwal-Gorkhapur 400 kV Transmission Interconnection

Dhalkebar (Nepal)-Mujaffarpur (India) 400 kV double circuit Transmission Interconnection has been prioritized under phase-I and all the efforts are underway to realize the project. Approximately 45 km of transmission line from Dhalkebar to Bitthamod near Indo-Nepal border falls under the Nepalese territory and around 100 km falls under Indian Territory.

This interconnection is envisaged to be initially charged at 220 kV and would be operated in synchronous mode between two grids. The Nepalese portion of the project cost includes Rs 1.28 billion (USD 20.0 million) out of which USD 13.2 million is to be funded by government of India through soft loan as a line of credit to GoN and for the remaining part government of Nepal has approached the World Bank for the financial assistance. The funding of Indian portion would be through domestic sources by Indian JV Company named "Cross Border Power Transmission Company" in Indian rupees.

Projects under Feasibility Study Stage

Various transmission line projects identified as part of the system reinforcements study and projects aimed at evacuating the power generated from hydro power plants to national grid are listed below:

1. Transformer Upgrade Project
2. Karnali Corridor (Upper Karnali–Lamki)132kV Transmission Line
3. Bajhang-Deepayal-Attariya 132 kV Transmission Line
4. Hapure – Tulsipur 132kV Transmission Line
5. Surkhet-Dailekh-Jumla 132 kV Transmission Line
6. Solu Corridor (Katari-Okhaldhunga-Solu) 132 kV Transmission Line
7. Kaligandaki-Gulmi (Jhimruk) 132 kV Transmission Line
8. Chilime-Trishuli-Galchhi 132 kV Transmission Line
9. Khimti (Tamakoshi)-Kathmandu 220 kV Transmission Line
10. Hetauda-Butwal 400 kV Transmission Line
11. Butwal-Lamki 400 kV Transmission Line
12. Lamki-Mahendranagar 400 kV Transmission Line
13. Duhabi-Anarmani 400 kV Transmission Line
14. Dhalkebar-Loharpatti 132 kV Transmission Line Project
15. Butwal-Lumbini 132 kV Transmission Line Project

Projects for Power Supply to Cement Industries

In order to promote cement industries, the GoN has taken policy of developing transmission line and road networks up to the manufacturing site of cement industries. In accordance with this policy, GoN allocated funds for such works in the budget speech for the fiscal year 2008/09. The transmission line projects identified for the purpose are as follows:

1. Kamane, Hetauda 132kV Substation

The main objective of this project is to provide power supply to Shivam Cement located at Hetauda. This project started in 2008/09 is scheduled to be completed in 2011/12. Estimated cost of the project is US$ 3.5 Million which is financed by GoN.

2.Kusum - Hapure 132kV Transmission Line

The main objective of this project is to develop transmission system up to the site of Dang Cement to be established at Hapure of Dang. Further extension of this line will benefit Sonapur and Rolpa cements. The project started in 2065/066 with estimated cost of Rs. 500 Million is scheduled to be completed in 2011/12. Total cost of the project is financed by GoN.

3. Mirchaiya-Katari 132kV Transmission Line

The objective of this project is to provide power supply to Maruti Cement Industry to be established at Katari. Cost of this project is estimated at Rs. 675 Million and funded by GoN. The project is scheduled to be completed by FY 2012/013.

Feasibility study has been completed for the following transmission line projects aimed to supply different cement industries:

1. Matatirtha-Naubise 33kV Transmission Line (United Cement Industry)
2. Matatirtha – Malta 33kV Transmission Line (Laxmi Cement Industry)
3. Lamahi-Ghorahi 132 kV Transmission Line Project (Ghorahi Cement Industry)
4. Panchakule-Tulsipur-Dudhras 33kV Sub-Transmission Line (Sonapur Cement Industry)
5. Panchakule-Tulsipur-Koilachour 33kV Sub-Transmission Line (Rolpa Cement Industry)
6. Lamki-Gutu 132kV Transmission Line (Surkhet Cement Industry)

Power Development Project

The NEA Transmission and Distribution, the Power Development Project is being implemented under the loan/grant assistance of the World Bank. The initial allocation to this project was about USD 31 million. As part of the original scope, the following projects are being implemented:

i. Khimti-Dhalkebar 220 kV Transmission Line Project
ii. Distribution and Rural Electrification Project
iii. Chandranigahapur System Reinforcement Project
iv. NEA Institutional Strengthening Project

Under the Khimti-Dhalkebar 220 kV Transmission Line Project, a 75 km long 220 kV line is being constructed. The Distribution and Rural Electrification Project consists of reinforcement of distribution systems and electrification in Lalitpur, Bhaktapur, Kavre, Dhading and Nuwakot districts. The Chandranigahpur System Reinforcement Project involves construction of a 132/33 kV substation at Chandranigahpur and related 33 kV sub-transmission lines. Finally, the Institutional Strengthening Project focuses on improving the processes in finance, accounts and internal audits within NEA.

The 220 kV Khimti-Dhalkebar Transmission Line and the facilities under the Distribution and Rural Electrification Projects are currently under construction. Construction of the 132/33 kV substation at Chandranigahpur and the related sub-transmission lines have been completed. The scope under the Distribution and Rural Electrification sub-component is almost completed.

In February 2008, the Power Development Project was restructured, whereby the scope of work under the NEA Transmission and Distribution component was increased providing an additional allocation of about 36 million. Under this additional scope of work the following projects are being implemented:

i. Hetauda-Bharatpur 220 kV Transmission Line Project
ii. Distribution System Reinforcement Project
iii. NEA Institutional Strengthening (II)

Hetauda-Bharatpur 220 kV transmission line project which consist of construction of about 73 km of 220 kV line and 132/11 kV substations at Hetauda and Bharatpur are ongoing. The Distribution and System Reinforcement Project includes two major activities (a) Energy and Customer Accountability Enhancement focusing large customers in Kathmandu valley and in major industrial corridors, and (b) distribution system reinforcement and rehabilitation of 33/11 kV substation in the following ten locations are being implemented: (i) Khanar, (ii) Inaruwa, (iii) Rupani, (iv) Jankpur, (v) Haripur, (vi) Chanauli, (vii) Bhairahawa, (viii) Ghorahi, (ix) Tikapur, and (x) Gularia.

The Energy and Customer Accountability activity focuses on NEA's efforts (a) to enhance

accountability to its customers through (i) the improvement of consumer services to large customers, and all customers within the Kathmandu valley by establishing effective trouble call management systems for registering complaints and for speedy resolution of complaints, and by developing capability within NEA to identify the areas of potential savings in large customers' installations by performing energy audits and advising customers on implementation of energy-saving measures; (ii) the improvement of customer interface and responsiveness by establishing easy and quick systems and processes for new service registration to enhance customer satisfaction, easy and convenient any-time access to customer information over the Internet; and by establishing easy and quick information access for the maintenance of the distribution system; (b) to build an energy accountability framework (metering and billing, verification) and revenue collection system for large customers receiving supply at high voltage.

The technical proposals of the short listed firms have been evaluated and the financial proposals are expected to be opened soon.

The progress of implantation of distribution system reinforcement is in various stages. Contracts for the supply of equipment have been awarded and contract agreements signed. Tender for the rehabilitation of the 33/11 kV, Lot 2 have been awarded, and that for Lot 1 is proposed for re-tendering, but pending the World Bank's no-objection, the actual time line of implementation could not be established.

In May 2009, the World Bank decided to provide additional credit of about USD 74 million to NEA primarily to address the energy crisis. The loan agreement for this additional financing was signed on August 21, 2009. The activities being implemented as part of this additional financing are:

i. Kali Gandaki 'A' HEP rehabilitation
ii. Duhabi Multifuel Plant rehabilitation
iii. Hetauda Diesel Centre Rehabilitation
iv. Bharatpur-Bardaghat 220 kV Transmission Line construction
v. Pathlaiya 132 kV substation construction
vi. Kathmandu Valley distribution network strengthening

Consultants have been hired to design the rehabilitation of Kali Gandaki 'A' HEP, and the design activity is going on. For Duhabi Mulfituel plant and for Hetauda Diesel Center, contracts have been awarded to respective original equipment manufacturers and the rehabilitation works are going to begin soon. The award of the contracts for Bharatpur-Bardaghat 220 kV line, and Pathlaiya 132 kV sub-station are being finalized soon. The procurement of materials for the Kathmandu valley distribution network strengthening is currently under progress.

Grid Operation Department

The Grid Operation Department under Transmission and System Operation (TSO) business group is responsible for performing various activities related to operation, maintenance, up-gradation, reinforcement, reactive compensation and rehabilitation works in Substations and Transmissions Lines. This Department is headed by a Director. This Department along with six offices (physically) under it carried out the following major works in fiscal year 2009/10.

a. Transformer Upgrading, Compensation and Substation Reinforcement Works (Completed)

Apart from operation along with routine and breakdown maintenance works this department regularly carries out up-gradation, extension and replacement works in Grid Substations and Transmission Lines to meet the growing demand for energy. Reshuffling of Power Transformers is felt a cost effective solution. Accordingly this department executed numbers of Transformer reshuffling works in FY 2009/10. Similarly reactive power compensation works are regularly carried out to improve the system voltage and overloading problems of transformers and transmission

lines. The Department also carried out number of connection agreements to facilitate evacuation of power from Independent Power Producers (IPPs).

Various works executed by this department have supported reduction of forced load shedding caused by inadequate transformation capacity. This Department carried out the following major up-gradation and reinforcement works in FY 2009/10.

1. Supply, Delivery & Commissioning of 132/33 kV, 40/51.5/63 MVA Power Transformer at Duhabi Substation was successfully completed. With this, the total transformer capacity available at 132/33kV voltage level is now 126 MVA.
2. Supply, Delivery & Commissioning of 132/33 kV, 40/51.5/63 MVA Power Transformer at Butwal Substation was successfully completed. The total transformer capacity at 132/33kV voltage level is now 93 MVA
3. Shifting, Overhauling, Installation, Testing & Commissioning of 66/11 kV, 2x10 MVA Power Transformers from Balaju Substation to Hetauda Substation was duly completed.
4. 33 kV Single Zebra Conductor Bus System of Duhabi Substation was upgraded to Double Zebra Conductor Bus.
5. Shifting, Installation and Commissioning of 132/33 kV, 5 MVA Power Transformer at Chanauta Substation was completed within shortest possible time to replace the damaged 132/33 kV, 5 MVA Transformer.
6. Replacement of old 36 kV Oil Circuit Breakers and Current Transformers by new Vacuum Circuit Breakers and Current Transformers was completed.
7. Overhauling of 132/66 kV, 20 MVA Power Transformer of Hetauda Substation and 66/11kV, 6MVA Transformer of Simara Substation was successfully completed. This will increase the performance and prolong the life of these transformers.
8. Replacement of existing 110V Battery of Simara and Bharatpur Substation, Battery and Battery Charger of Birgunj Substation has been completed.
9. Replacement of one set of 132kV Current Transformer of Marshyangi Line at Suichatar Substation was completed.
10. Supply, Delivery and commissioning of 33kV line Control and Relay Panel at Damauli Substation was completed.
11. Procurement of Portable Type Transformer Turns Ratio Test Kit was completed

b. Work in Progress

Following major up-gradation & Reinforcement works for Substation were initiated and are under progress

1 Supply, Delivery & Commissioning of 132/33 kV, 40/51.5/63 MVA Power Transformer at Lahan Substation to replace the existing 10/12.5MVA Power Transformer.

2 Supply, Delivery & Commissioning of 132/33 kV, 40/51.5/63 MVA Power Transformer at Butwal Substation to replace the existing 30 MVA Power Transformer. After the implementation of this work, the total transformer capacity at 132/33 kV Voltage Level will increase to 126 MVA.

3 Supply, Delivery & Commissioning of 132/66 kV, 45 MVA Power Transformer at New Parwanipur Substation to release the load of 66 kV transmission line from Hetauda to Parwanipur Section. After the completion of this work, total transformer capacity at 132/33 kV voltage level will increase to 126 MVA.

4 Supply, Delivery & Commissioning of new 33/11kV, 2x10/13.3/16.6 MVA Power Transformers at Duhabi Substation and shifting, overhauling and installation of existing 33/11kV, 2x10/13.3/16.6 MVA Power Transformers from Duhabi to Anarmani Substation.

5 Shifting, Installation and Commissioning of 132/33 kV, 30 MVA Power Transformer at Anarmani Substation with supply and installation of On Load Tap Changer (OLTC).
6 Shifting, Installation and Commissioning of 132/33 kV, 30 MVA Power Transformer from Butwal to Dhalkebar Substation and 132/33 kV, 15 MVA Power Transformer from Dhalkebar to Attaria Substation.
7 Shifting and Installation of 132/33 kV, 15 MVA Power Transformer from Anarmani to Kohalpur Substation to replace damaged 10 MVA Transformer.

c. Transmission Line Maintenance Work (Completed)

Re-routing, erection and stringing of Tower No. 35 of 132kV Lamosanghu-Khimti Transmission Line was successfully completed.

d. Relay Testing and Energy Meter Testing Works

Testing and calibration of more than 200 numbers of different types of relays and 100 numbers of energy meters were carried out by the Relay and Meter Testing Group of this Department in various Grid Substations including Meters of IPPs.

e. Routine & Breakdown Maintenance Works

Routine Maintenance works were carried out as per schedule for Substations and Transmission Lines.

System Operation Department

System Operation Department is responsible for the operational planning, dispatching and contingency actions. The Department has been working round the clock to keep the operation of the Integrated Nepal Power System on the right track through the use of computer based Supervisory Control and Data Acquisition (SCADA) system.

The availability of real time data and better communication system have improved the overall availability of power stations and transmission lines and has helped to minimize the time required for restoration of the power system in case of black-outs, thereby reducing loss of revenue.
For the continued smooth functioning of the system, it is necessary that the data acquisition from the power stations and substations be updated according to the latest changes/ modifications in the respective stations. The trained manpower in the LDC has been able to keep the data up-to-date in the SCADA software in the LDC. Besides the regular maintenance works, new power station Middle Marshyangdi has been integrated into the SCADA software. Around Rs.55 million revenue is being received annually by leasing (to Nepal Telecom and other private companies) the fibers from the fiber optics cables. In the sector Pathlaiya – Lahan 132kV Transmission Line (168 km) Optical fiber with Ground Wire (OPGW) was installed by replacing the existing earth wire.

Distribution and Consumer Services Business Group

The Distribution and Consumer Services (DCS) Business Group is entrusted with the key responsibility of overall management of electricity distribution network of NEA. The responsibilities of DCS include construction, operation, maintenance, rehabilitation and expansion of the network up to the 33 kV voltage levels and consumer services such as new consumer connections, meter reading, billing, and revenue collection. It is the main interface with the consumers It is the largest among the four core business groups of NEA in terms of number of employees and business activities. Approximately 60% of the total staffs of NEA are employed in DCS. Also, DCS is on the forefront to earn revenue for sustaining operation and maintenance and development activities of NEA.

This Business Group provides service to about 98% of NEA's total consumers through 34 Distribution Centers and 37 Branch Offices spread over 49 districts of the country. .

This Business Group is headed by a General Manager and organized into three departments at central level and seven regional offices each headed by a Director.

Performance Highlights:

In FY 2009/10, total number of customers under DCS reached 1,786,084, an increase of 10.91.% over the last fiscal year's figure.

Customer Category	No. of consumer (% of total consumers)	Sales %	Revenue %
Domestic	95.11	41.25	39.88
Non- Commercial	0.67	4.10	5.54
Commercial	0.44	7.25	9.73
Industrial	1.68	38.12	34.70
Others	2.10	9.28	10.15

Similarly in FY 2009/10, a total of 2,640.79 GWh of energy was sold earning a gross revenue of Rs.18216.47 million, an increase of 21.17.% and 20.93% over the previous year's energy sales and revenue respectively. Sales and revenue contributions of different customer groups under DCS in FY 2009/10 are depicted below:
Industrial and Commercial consumer categories combined together represent only 2.12 % of the total number of consumers but share 45.34% of total sale. Similarly, the domestic consumer category represents 95.12 % of total consumers but contribute only 41.25 % to the total sale.

Operational Highlights

The gap in the investment required and actual invested in distribution system has imposed pressure on DCS for the extension or rehabilitation of the system to meet the growing demands and to improve the reliability and quality of supply and service delivery.

As part of system reinforcement and expansion of distribution system program, many activities were undertaken in FY 2009/10 to improve the service delivery. The main activities undertaken are listed below:

Distribution System Rehabilitation Project

This project jointly financed by World Bank (WB), GoN and NEA is being implemented. The project is scheduled to be completed in 2012 A.D. The scope of the project includes the following:

1) Reinforcement of 33/11 kV substations at Khanar,Inaruwa,Rupani,Janakpur,Haripur, Chanauli, Bhairahawa,Ghorahi, Guleria and Tikapur;

2) Construction of 64 km of new 11 kV line, rehabilitation of 131 km of existing 11 kV distribution network, construction of 49 km of 0.4 kV new line using ABC Cable and rehabilitation of 155 km of existing 0.4 kV distribution network; and

3) Supply and delivery of computerized meter testing bench (single phase and three phase)and CT/PT testing equipments.

The reinforcement of 33/11 kV substations at Chanauli, Bhairahava,Ghorahi, Guleria Tikapur has already been started. Tender for the reinforcement of the remaining substation is in final stage. Supply and delivery of line materials has been completed

The implementation of the will help to improve quality and reliability of the power supply in these area. In addition, the project will also contribute to reduce technical losses of these area.

Kathmandu Valley Distribution System Rehabilitation Project

This project is jointly financed by World Bank (WB), GoN and NEA. The project is under construction. The project is scheduled to be completed in 2013 A.D. The project targets at improving the distribution system of Kathmandu valley. The main scope of the project includes addition and upgradation of distribution transformers, extension and upgradation of 11 kV and 0.4/0.23 kV line and installation of switches and replacement of poles.

The preparation of bidding documents for the procurement of goods is in progress. The current status of quality and reliability of the power system in Kathmandu valley is not satisfactory. The implementation of this project will significantly improve the quality and reliability of the distribution in the Valley. In addition, the implementation of the project will also help reduce the technical losses and cater to the growing energy demand of future.

Energy and Customer Accountability Enhancement Project

This project is jointly financed by World Bank (WB), GoN and NEA. The project activity mainly focuses on (i) putting in place a system for regular energy audit of large customer and verification of the accuracy of the metering system. (ii) setting up of the remote metering of large consumers via GSM or other appropriate communication network. (iii) implementation of GIS-based distribution network management (DNM) and Customer Relations Management (CRM) system in five distribution centers in the Kathmandu valley (iv) enhancing the features of the existing billing system, and developing necessary interface.

The selection of consultant is in progress. The technical proposals of the short listed firms have been evaluated and the financial proposals are expected to be opened soon. The project is targeted to be completed in FY 2011/12.

Energy Access and Efficiency Improvement Project

This project is jointly financed by Asian Development Bank (ADB), GoN and NEA is under construction. The project is scheduled to be completed in 2013. The scope of the project includes:

(i) Construction of new 33/11,6/8 MVA substation at Baniyani, Dhanusadham, Parual, Barathawa, Baskot, Kusma, Mainapokhar and 11 kV switching station in Mirmi, Swoyambhu and Mulpani

(ii) Construction of 33 kV and 11 kV lines in the substation area..

Contract for construction of substations has been awarded. The bidding process for procurement of line materials is in progress.

Project for Energy Efficiency through Loss Reduction

This project is jointly financed by Asian Development Bank (ADB) and GoN. The project activity focuses on adopting the best international practice of distribution network design right, construction and operation. For the purpose, distribution feeders with unacceptable level of loss in Kathmandu valley and Birgunj will be identified and rehabilitated. The selection of consultant is in progress. The project is schedule to be completed in 2013/14. The technical losses of the project area are expected to reduce significantly after completion of the project.

Project for Solar Powered Street Lighting

This project will facilitate the promotion of solar-powered street lighting in urban areas of Nepal. The project aims at installing solar powered and solar wind hybrid powered street lighting systems in some sections of Kathmandu valley as a pilot project. For the successful implementation of the project, an advisory committee comprising of representatives from Local Development Ministry and members from other stakeholders has been set up. The selection of consultant is in final stage. The project is expected to be completed in 2013.

Pilot Project for Public Private Partnership in Distribution System

The project aims at enhancing the quality of service delivery and overall efficiency through Public Private Partnership program in the sector of electricity distribution. The scope of the project includes procurement of the consulting services for the implementation of Public Private Partnership in three distribution centers of NEA. The selection of the consultant is in the final stage. This project is jointly financed by ADB and GoN.

33/11 kV, 6/8 MVA Substation at Dhulabari (Jhapa)

The construction of Dhulabari Substation was started in FY 2009/10 to meet the growing demand of Dhulabari and its vicinity. The project will also help to improve the voltage profile of supply and reduce the technical loses of the area. The project funded by GoN is scheduled to be completed in 2012 The scope of the project includes the construction of 33/11 kV, 6/8 MVA substation at Dhulabari.

33/11 kV,6/8 MVA Substation at Ramghat (Surkhet)

The construction of Ramghat Substation was started to cater to the growing demand for electricity in Ramghat and its vicinity. The scope of the project includes the construction of 33/11 kV, 6/8 MVA substation at Ramghat and the associated 11 kV distribution line. The project financed by GoN is expected to be completed in 2012 . The contract for the construction has been awarded.

Reinforcement of Ilam. Dhankuta, Bhedetar, Nijgarh, Lumbini, Butwal and Syangja Substations

This project financed by NEA was started to improve the quality and reliability of supply in Ilam. Dhankuta, Bhedetar, Nijgarh, Lumbini, Butwal and Syangja. The project is expected to be completed in 2011/12 The scope of the projects includes supply and installation of circuit breakers, control panel, battery and battery charger, CT at substation of Ilam, Dhankuta, Bhedetrar, Nijgadh, Lumbini, Butwal and Syangja. The contract for the construction has already been awarded.

Reinforcement of Damak and Janakpur Substation:

This project financed by NEA is being implemented to augment the substation

capacity. The scope of the project includes the replacement of the existing33/11 kV, 6/8 MVA transformer by 33/11 kV, 10/13.3/16 MVA capacity transformer at Damak and Janakpur substations. The completion of the project will help to cater to the future demands. The project will also help to improve the quality of supply and reduce the technical losses of the area.

33/11 kV,1.5 MVA Substation at Khayarmara

The construction of Khayarmara substation was started in FY 2009/10 to meet the growing demand of project area and to improve the quality of supply. The project is scheduled to be completed in 2011 The project is funded by GoN. The construction of major civil work and delivery of major electrical equipment have been completed.

Reinforcement of Birbas Substation

This project was initiated to improve the reliability of the power supply in Gulmi and Aargakhanchi area. The scope of this project includes construction of 33 kV line and installation of 33 kV breakers. The contract for construction has already been awarded. The project is expected to be complete in 2011

Chitwan Madi Electrification Project

This project jointly financed by the Govt. of India (GoI) and Govt. of Nepal (GoN) is being implemented for the electrification of Madi and its vicinity in Chitwan district The main scope of the project includes construction of 22 km of 33 kV overhead line and 8 km of 33 kV underground line, construction of 3 MVA 33/11 kV substation, construction of 30 km of 11 kV line and 50 km of 0.4 kV line and installation of 30 distribution transformers. The project will provide electricity to about 11,000 households of the area. The contract for the procurement of line materials has already been awarded. The project is scheduled to be completed in 2013.

Computerized Billing Project

The objective of the this project is to implement a common billing system in all the distribution centers of NEA for improved billing and revenue collection processes in a modern, efficient and cost effective manner. The system is in operation in 40 collection centers and preliminary work for the implementation of the system in 10 collection center is in final stage. In the initial stage, the system will be operated in a decentralized mode which will ultimately be operated in a centralized mode in future. For this purpose, the project envisages to make use of fiber optics or other broadband connection.

The project also targets to implement the computer assisted interactive voice response service, CAIVRS, in major distribution centers. This will help the customers to have information on payment dues and other service related activities over telephone without delay. The project is scheduled to be completed in FY 2011/12.

Rural Electrification through Indian Grant Assistance

The Government of India, GoI and the Government of Nepal, GoN has agreed in the MOU for the electrification of Phulbari, Bhagawanpur, Tharprek, Khajuri Mahuwa and Kanchanari VDC of Dang, Rupandehi, Nuwakot, Janakpur and Siraha districts respectively. The main scope of the project includes construction of 38 km of 11 kV line, construction of 65 km of 0.4 kV line and installation of 20 distribution transformers.

The preparation of bidding documents is in progress.

Ridi Electrification Project

Ridi electrification project financed by GON is being implemented to electrify Riri area of Gulmi district and to improve the reliability and quality of supply in the area. The project is expected to be completed in 2012. The procurement of line materials, ACSR conductor and insulators has been completed.

Annual Electrification Program

This program is jointly financed by GoN and NEA. The program focuses on extensions of the existing distribution system and on completion of outstanding incomplete electrification works on a priority basis. The activities of the program are spread over all the areas under the jurisdiction of the DCS business group. The scope of the program includes construction of 808 km 11 of kV line, 1376 km of 0.4/23 kV line and installation of 1260 number of distribution transformers. The completion of the project will significantly increase the accessibility to electricity for the rural population.

Separate Industrial Feeders Project

As part of the government program to provide reliable electric supply to industrial consumers, this project is being implemented. The scope of the project includes construction of dedicated 11 kV feeders for the industrial areas and districts. This project is financed by GoN and NEA.

Compact Fluorescent Lamps (CFLs) Distribution Project

A pilot project financed jointly by GoN and NEA was launched in 21 locations of the country in order to promote the use of CFL lamps and to increase the public awareness on the use of energy efficient lamps and appliances for reduction of system peak in the evening. Under the program, about 765,000 quality CFL lamps were distributed. An estimated 512,000 consumers participated in the program. The success of the pilot program has encouraged NEA to design and implement CFL distribution program in other locations of the country. Under this program, around one million CFL lamps are planned to be distributed. The project is financed by ADB and GoN. The selection of consultant for this purpose is in progress.

Bhadratar Talakhu Electrification Project, Nuwakot

This electrification project is financed by GoN to electrify Mahakali, Likhu,Talakhu, and Chhap VDC of Nuwakot district. The scope of the project includes construction of 12 km of 11 kV line, 16 km of 0.4/23 kV line and installation of 5 number of distribution transformers. The pole erection work of the 11 kV line and 0.4/0.230 kV distribution line has been completed. The project is scheduled to be completed in FY 2010/11.

Belkot Kumari Chauthe Electrification Project, Nuwakot

This electrification project is financed by GoN to electrify Belkot, Kumari, Chauthe VDC of Nuwakot district. The scope of the project includes construction of 9 km of 11 kV line, 10 km of 0.4/23 kV line and installation of 4

number of distribution transformers. The pole erection work of the 11 kV line and 0.4/0.230 kV distribution line has been completed. The project is scheduled to be completed in FY

2010/11.

Technical Services/Commercial Department

The Technical Services/Commercial Department is responsible for planning, preparation of distribution system expansion programs and supporting DCS Business group in the technical and commercial matters. The Department identifies potential RE projects and substation rehabilitation projects for implementation in phase wise manner. The Department also carries out management of TOD energy meter & metering equipment and develops and implements programs for reduction of distribution system losses. In addition, the Department carries out impact studies for evacuation of power from IPPs to distribution substation.

Loss Reduction Activities

Loss reduction activities are conducted each year in distribution centers and branches identified as having high level of loss. The Loss Reduction Committee was formed in many distribution centers. The Committee is headed by the concerned Chief District Officer.

Monitoring, data downloading and analysis of the consumption of large industrial and commercial consumers have been increased. Use of Ariel Bundle Conductor, ABC has been encouraged in high non technical loss prone areas. Upgrading of overloaded conductors and transformers has been carried out to reduce the non technical losses.

In FY 2009/10, the activities carried for loss reduction included the installation of 300 km of ABC cable, up-gradation of 400 number of overloaded transformer and removal of 5000 unauthorized tappings (direct hooking).

Despite continued efforts and measures taken to control non technical losses, the desired result could not be achieved. This is mainly due to the adverse local work environment especially in terai.

Demand Side Management Deparment

This Department established in FY 2009/10 is responsible for formulating, developing and implementing the DSM policies and programs. The DSM activities envisage in order to slow down to control, influence and reduce electricity demand. The Department is also responsible

for launching public awareness program for the energy conservation and use of energy efficient electrical equipments and lighting.

In FY 2009/10, about 765,000 CFL lamps were distributed to the consumers. Public awareness campaign was carried out through advertisements in various news magazines and other electronic media to encourage the use of CFL lamps and efficient electrical appliances. The program was concluded successfully.

The DCS has initiated the program to install the capacitor bank on the secondary side of transformer especially to areas where CFL lamps has been distributed. This will improve the power factor and voltage level. Upon the results obtained from the field, this program will be extended further to other areas. It is also planned to install the capacitor bank on the 11 kV feeders where there is voltage drop far below than the prescribed level.

Improvement in Service Delivery

In FY 2009/10, two new regional offices and five ne branch offices were created to improve the service delivery. The two new regional offices created are Janakpur-Sagarmatha Regional Office and Mid-Far Western Regional Office. Similarly, the Eastern Regional Office, Central Regional Office and Mid-far Western Regional offices have been renamed as Koshi-Mechi Regional Office, and Nepalgunj Regional Office respectively. The five branch offices created are Belbari, Rangeli, Mahendranagar, Tulsipur and Kathmandu East.

Queue Management System (QMS)

As a continuous effort to provide better service and comfort to our valued consumers, QMS has been implemented in 5 branches and improvement in physical infrastructure at these locations has also been made to provide comfort to consumers.

E-biddingsystem

DCS continues to explore various modes to utilize technological developments for operational efficiency. This F.Y. DCS has introduced e-bidding with co-ordination from MIS Department of NEA. This will further help in ensuring fair, transparent and more competitive bidding procedure.

Human Resource Development

In FY 2009/10, about 153 technical and non-technical staffs participated in various training program and seminars organized by NEA and other agencies to enhance the technical and managerial skill of employees. The outcome of such trainings will certainly help in increasing the operational efficiency of employees.

Future Plans and Programs

NEA is planning to improve the quality of the services through the use of new technologies and capacity building to meet the challenges of new environment of utility business. Consumer complaints shall be addressed without delay and the procedure for new connection related works shall be made simple and user friendly. Centralized customer care center shall be established to ensure single point of contact for all consumer related activities, timely service, less processing time for new connection and centralized control and monitoring over the entire customer care process.

NEA is planning to implement Automatic Meter Reading, AMR system. Payment and billing information shall be made available in internet so that consumer can access information on line. A system will be implemented for consumers to pay the electricity bill either through bank or in NEA's revenue collection center. Payment KIOSK shall be installed in major branches to facilitate bill payment outside office hours.

Electrification Business Group

The Government of Nepal (GoN) has an objective of extending electricity services to rural areas for the socio-economic development. Electrification Business Group, headed by the General Manager, is mainly responsible for rural electrification in Nepal. Rural electrification is one of the basic pre-requisites for rural development. By promoting rural electrification we can stimulate agricultural production; expedite rural economic growth which yields in better living condition of the rural population.

Besides rural electrification, the Business Group also oversees distribution and consumer service functions of 17 small/micro hydro plants located at different districts. These centers serve 80,860 consumers in total.

Small Hydro Plants and Branches under Small Hydro and Rural Electrification Department		
S.No.	Name of Center	No of Consumers
1	Achham	2385
2	Arughat	28
3	Baglung	17798
5	Baitadi	7153
6	Dolpa	1001
7	Doti	5697
8	Heldung	435
9	Helambu	783
10	Kalikot	837
11	Khandbari	8499
12	Myagdi	7114
13	Okhaldhunga	1200
14	Ramechhap	6325
15	Rupalgad	279
16	Tatopani	884
17	Terathum	4987
	Total	66105

Small Hydro Plants Leased to Private and Communities		
S.No.	Name of Center	No of Consumers
1	Bajhang	1033
2	Bajura	803
3	Bhojpur	1183
4	Chame	218
5	Chaurjahari	611
6	Darchula	1320
7	Jomsom	1783
8	Jumla	1233
9	Manang	549
10	Phidim	1300
11	Syarpudaha	1850
12	Taplejung	790
13	Tehrathum	2082
	Total	14755

The above mentioned centers and branches sold 3,50,32,672 kWh of energy and earned revenue of Rs. 210,338,185 during FY 2009/10. Apart from these, 13 more small/micro hydro plants located at various districts have been leased to private companies or communities.
Presently, several projects are being implemented under this Business Group. The ongoing donor assisted projects are: Rural Electrification, Distribution and Transmission Project with loan assistance from Asian Development Bank & Distribution and Rural Electrification Project financed by the World Bank. Apart from these, many rural electrification projects are also under implementation with financing from GoN. The synopsis of the work accomplished under this Business Group is presented below:

Small Hydropower and Rural Electrification Department (SHPRED)

This Department is responsible for construction,

operation and maintenance of isolated small hydropower plants, implementation of rural electrification projects, and extension of the National Grid to remote hilly regions to provide electricity to rural population. Under this Department, 26 small hydropower plants and 7 distribution branch offices carry out various activities related to operation & maintenance of power generation, distribution & consumer service and so forth, covering 27 districts in 12 zones of the country. Out of 26 Small Hydropower Plants(SHP) in operation, 14 are leased to private firms and 4 are leased to the user communities, which operate under the guidelines set forth by NEA. A number of 33 kV transmission lines and 33/11 kV substation projects are under construction. The status of projects carried out by SHPRED in FY 2009/10 is summarized below.

Gamgad Small Hydropower Project (Mugu District)

The construction of Gamgad Small Hydro Project (400 kW) was started in FY 2001/02. Construction of most of the civil structures has been completed. Electro-mechanical equipment has already been transported to the site. The Project is expected to be completed in within FY 2010/11.

Buipa-Okhaldhunga 33 kV Transmission Line Project (Khotang and Okhaldhunga Districts)

The scope of this project includes the construction of 32.5 km of 33 kV transmission line, 35 km of 11 kV and 30 km of LV distribution line and two 33/11 kV, 1.5 MVA substations each at Okhaldhunga and Khotang districts. Construction of 33/11 kV, 1.5 MVA substation at Buipa is nearing completion. Overall, 30 km of 33 kV transmission line, 6.5 km of 11 kV transmission line and 7 km of LV distribution line have been completed.

Ilam-Phidim-Taplejung 33 kV Transmission Line Project (Panchthar and Taplejung Districts)

The scope of this project includes the construction of 90 km of 33 kV transmission line and 33/11 kV, 1.5 MVA substation each at Phidim and Taplejung districts. Out of 90 km long 33 kV transmission line, stringing of conductor for 60 km & erection of poles for 80 km have been completed. The project is scheduled to be completed by FY 2010/11.

Sitalpati-Musikot 33 kV Transmission Line Project (Salyan and Rukum Districts)

The project includes the construction of 50 km of 33 kV transmission line, 50 km of 11 kV line, 40 km of LV distribution line and two 33/11 kV substations of 1.5 MVA capacity one each at Sitalpati and Musikot. Out of 50 km long 33 kV transmission line, stringing of 32 km line & pole erection has been completed. Construction of 33/11 kV, 1.5 MVA substation at Sitalpati and 33 kV bay extension at Tulsipur are in progress and are expected to be completed by FY 2010/11.

Chhinchu-Rakam-Jajarkot 33 kV Transmission Line Project (Surkhet and Jajarkot Districts)

The scope of the project consists of the construction of 70 km of 33 kV transmission line, 100 km of 11 kV, 100 km of LV distribution line and two 33/11 kV substations at Surkhet and Jajarkot districts. Out of 70 km long 33 kV transmission line, pole erection and stringing of conductor for 40 km and 9 km of 11 kV line has been completed. Construction of 33/11 kV, 750 KVA substation at Rakam is in progress and expected to be completed by FY 2010/11. Contract for procurement of 33 kV & 11 kV Protection Scheme of Rakam substation has been awarded.

Ghorahi-Holeri 33 kV Transmission Line Project (Rolpa District)

Scope of this project consists of the construction of 45 km of 33 kV transmission line, 50 km of 11 kV, 50 km of LV distribution line and two 33/11 kV substations at Holleri & Ghorahi. Construction of 33 kV transmission line and 6 km of 11 kV line & 6 km of distribution line has been completed. Construction of 33/11 kV, 750 KVA substation at Holleri and 33 kV bay extension at Ghorahi are in progress and expected to be completed by FY 2010/11. Contract for procurement of 33 kV & 11 kV Protection Scheme of Holleri substation has been awarded.

Udipur-Besisahar-Manang 33 kV Transmission Line Project (Lamjung and Manang Districts)

The project includes the construction of 90 km of 33 kV transmission line, 53 km of 11 kV , 53 km of LV distribution line and one 33/11 kV, 1.5 MVA substation in Manang and 33 kV bay extension in the existing Udipur substation. Out of 70 km long 33 kV transmission line, pole erection for 66 km and stringing of conductor for 35 km have been completed.

Dadeldhura-Baitadi 33 kV Transmission Line Project

The scope of the project includes the construction of 14 km of 33 kV transmission line, 15 km of 11 kV & LV distribution line, one 33/11 kV 3 MVA substation at Baitadi and 33 kV bay extension in the existing Dadeldhura substation. Construction of 33/11 kV, 3 MVA substation at Baitadi has been completed in FY 2009/10.

Dhankuta-Hile-Leguwa-Bhojpur 33 kV Transmission Line Project

The project includes the construction of 35 km of 33 kV transmission line, 52 km of 11 kV , 50 km of LV distribution line and one 33/11 kV substations in Bhojpur district. Out of 35 km long 33 kV transmission line, pole erection for 34 km and stringing of conductor for 28 km have been completed. Construction of 33/11 kV, substation at Bhojpur is ongoing and expected to be completed by FY 2010/11. Contract for procurement of 33 kV & 11 kV Protection Scheme of Bhojpur substation has been awarded.

Tumlingtar-Dingla-Bhojpur 11 kV Transmission Line Project

The project includes the construction of 30 km of 11 kV, 25 km of LV distribution line in Sankhuwasabha and Bhojpur districts. Pole erection for 27 km & stringing for conductor in 19 km have been completed. Similarly, 16 km of LV distribution line has also been completed.

Rasuwaghat-Khotang 33 kV Transmission Line Project

Major works to be performed under this project include the construction of 14 km of 33 kV transmission line, one 33/11 kV, 1.5 MVA capacity substation at Rasuwaghat of Khotang district, 90 km of 11 kV and 90 km of LV distribution lines in Khotang district. Out of these, 6 km of 33 kV transmission line, 14 km of 11 kV line and 21 km of LV distribution line construction have been completed. Construction of 33 kV bay extension at Jaljale substation is nearing completion.

Dipayal-Sanfebagar-Manma-Jumla 33 kV Transmission Line Project

Major components of the project include the construction of 155 km of 33 kV, 15 km of 11 kV & 3 nos. of 33/11 kV substations at Sanfebagar, Manma and Jumla. Out of 155 km long 33 kV transmission line, pole erection for 20 km has been completed.

Dailekh Substation Project

The project includes the construction of 25 km of 33 kV, 15 km of 11 kV, 10 km of LV distribution line & one 33/11 kV, 1.5 MVA substation at Dailekh and 33 kV Bay extension at Surkhet. The project is expected to be completed in FY 2010/11.

Galkot Substation Project

This project is being implemented to provide electric supply to Galkot area in Baglung district. Bay extension at Baglung substation has been completed.

Rake Ravi-Chisapani-Dashami Bazaar 33 kV Transmission Line Project

The project includes the construction of 25 km of 33 kV, 40 km of 11 kV, 40 km of distribution line in Panchthar district. Procurement of poles for 12 km of 33 kV transmission line has been completed.

Manthali-Sangutar 33 kV Transmission Line Project

The Project includes the construction of 30 km of 33 kV, 40 km of 11 kV, 40 km of LV distribution line in Ramechhap district. Line survey is ongoing & procurement of poles for 10 km of 33 kV transmission line has been completed. The construction of 10 km of line was also completed.

Kapurkot-Koilachaur 33 kV Transmission Line Project

The project includes the construction of 15 km of 33 kV, 25 km of 11 kV, 25 km of LV distribution line in Salyan & Rolpa districts & 33/11 kV substation one each at Koilachaur & Kapurkot, The procurement of poles for 12 km of 33 kV transmission line was completed .

Furkot-Nepalthok 33 kV Transmission Line Project

Major components of the project include the construction of 25 km of 33 kV, 25 km of 11 kV, 40 km of LV distribution line in Kavrepalanchowk district & 33/11 kV, 1.5 MVA substations at Nepalthok. The procurement of poles for 12 km of 33 kV transmission line has been completed.

Aathrai VDC-Sankranti Bazaar 33/11 kV Substation Project

Major components of the project include the construction of 25 km of 33 kV, 25 km of 11 kV, 40 km of LV distribution line in Tehrathum district & one 33/11 kV substation at Sankranti Bazaar. The procurement of poles for 12 km of 33 kV transmission line and construction has been completed.

Saphebagar(Achham)-Martadi (Bajura)33 kV Transmission Line Project

The project includes the construction of 48 km of 33 kV, 40 km of 11 kV, 40 km of distribution line in Achham and Bajura district , 33/11 kV substations at Martadi and 33 kV Bay extension at Saphebagar. Procurement of poles for 12 km of 33 kV transmission line and its construction has been completed

Martadi (Bajura)- Gamgadi(Mugu)33 kV Transmission Line Project

The project includes the construction of 90 km of 33 kV, 40 km of 11 kV, 40 km of LV distribution line in Bajura and Mugu district , 33/11 kV substations at Martadi and 33 kV Bay extension at Saphebagar. Procurement of poles for 10 km of 33 kV transmission line and construction of 10 km of line has been completed

Sanghutar-Okhaldhunga33 kV Transmission Line Project

The Project includes the construction of 40 km

of 33 kV, 40 km of 11 kV, 40 km of LV distribution line in Ranechhap and Okhaldhunga districts , 33 kV Bay extension at Sanghutar. Procurement of poles for 10 km of 33 kV transmission line has been complete. The construction of 10 km of line construction has also been completed.

Khorpe (Baitadi)-Chainpur(Bhajang) 33 kV Transmission Line Project

The scope of this Project includes the construction of 90 km of 33 kV, 40 km of 11 kV, 40 km of LV distribution line in Baitadi and Bajura district , 33/11 kV substations at Chainpur and 33 kV bay extension at Baitadi Substation. Procurement of poles for 10 km of 33 kV transmission line and construction of 10 km of line were completed.

Okhaldhunga-Salleri 33 kV Transmission Line Project

The project includes the construction of 40 km of 33 kV, 40 km of 11 kV, 40 km of LV distribution line in Solukhumbu district , 33/11 kV substations at Salleri. The procurement of poles for 10 km of 33 kV transmission line and construction of 10 km of line were completed.

Khimti-Manthali 33 kV Transmission Line Project

The project includes the construction of 15 km of 33 kV, 33 kV bay extension at Khimti. Procurement of poles for 10 km of 33 kV transmission line and construction of 10 km of line were completed.

Bokhim Lekharka (Bhojpur) Electrification Project

The project includes the construction of 70 km of 11 kV, 100 km of LV distribution line in Bokhim, Khawa, Sidheswor, Gupteswor, Nagi, Lekharka, Gogane, Timma, Kot, Chinamakhu, and Annapurna VDC of Bhojpur district. The procurement of poles for 22 km of 11 kV transmission line and construction of 22 km of 11 kV line were completed.

Dhankuta-Hile-Ranibas-Bhojpur 33 kV Transmission Line Project

The project includes the construction of 27 km of 33 kV, 50 km of LV distribution line in different V.D.C. of Bhojpur district. Procurement of poles for 13 km of 33 kV transmission line and construction of 13 km of line were completed.

Panchthar 33/11 kV Substation Project

The scope of this project includes the construction of 11 kV line from 33/11 kV 1.5 MVA substation at Phidim to Panchthar district. The route alignment survey is in progress.

Community Rural Electrification Department

Community Rural Electrification Department (CRED) was established in February 2003 following the enactment of the "Community Distribution Regulation-2065"to carry out community based electrification works in an organized way. As part of the government policy to promote community participation in rural electrification, the government provides 80% of the capital cost of electrification , and the remaining 20 percent of the capital cost is borne by the Community. NEA is responsible for maintenance of HT line where as Community/ Users' Group is responsible for maintenance of LV distribution system.

The public response to this initiative of NEA has been overwhelming. Altogether, about 185,000 households have been provided with electricity by the end of FY 2009/10.

CRED Status as of July 16, 2010

Details of Works accomplished under CRED and KKREP program from 2004/05 to 2009/10	
HT Line length	1,781 km
LT Line Length	5,792 km
Distribution Transformer	2,905 Nos.
33/11 kV, 3 MVA Substation	11 Nos.

Description	CBRE	CBOM	CBG	Total
Applications registered	279	197	4	480
Applications approved	220	48	-	268
Agreements signed	216	25	-	241
Currently in operation	107	25	-	132

Note: CBRE: Community Based Rural Electrification Program; CBOM: Community based Operation and Maintenance, CBG: Community based generation
KKREP:Kailai Kanchanpur Rural Electrification Project

Rural Electrification and Distribution System Reinforcement Project

This project is jointly funded by ADB, GoN and NEA. The scope of this project includes rural electrification (RE) in 22 districts and distribution system reinforcement (DSR) in additional 5 districts. For the purpose, altogether 35 number of 33/11 kV substations were constructed which included construction of 14 new construction, up-gradation of 8 substations and rehabilitation of 13 substations.
RE and DSR works executed under 14 contract packages have been completed in FY 2009/10. The construction of substations has also been completed except for Phikkal substation in Ilam district. The problem identified in 33/11 kV 3 MVA power transformer at Phikkal substation has been rectified and the substation will be in operation within first quarter of FY 2010/11.

The project has been completed. As built drawing/document preparation and capitalization of assets is in progress.

Distribution and Rural Electrification Project

The Distribution and Rural Electrification Project is one of the component projects of the Power Development Project, Part-C, NEA Transmission and Distribution. The scope of project includes reinforcement of distribution systems and electrification in Lalitpur, Bhaktapur, Kavre, Dhading and Nuwakot districts. The specific scope includes electrification of 34 load centers in Dhading , 24 load centers in Nuwakot and 36 load centers in Lalitpur districts, and the construction of two numbers of 33/11 kV, 3 MVA substations in Dhading and one number of 11 kV switching station in Lalitpur district.
The construction of Devighat substation has been completed. The construction of other substations is in the final stage of completion. The electrification and distribution system reinforcement work in Bhaktapur and Kavre districts have been completed and electrification works in Lalitpur, Dhading and Nuwakot are nearing completion.

Sindhu Dolakha Distribution Line Extension Project

Started in FY 1999/2000, this project is under implementation with funding from the Government of Nepal. The Project is expected to benefit about 50,000 households, and some small and medium industries in Dolakha and Ramechhap districts. The scope of the project includes the construction of 82 km of 33 kV line, 200 km of 11 kV line and 460 km of low voltage line, installation of 278 number of distribution transformers and construction of 4 number of 33/11 kV, 1.5 MVA substations at Makaibari, Jiri, Kirnetar and Singati

The construction of 1.5 MVA substations at Jiri, Makaibari & Kirnetar has been completed. Likewise, construction of 60 km of 11 kV and 100 km of 400 volts lines has also been completed.

Engineering Services Business Group

The construction of Singati Substation is in progress. The project is scheduled to be completed by FY 2010/11

The mandate to carry out the consulting and other engineering services within Nepal Electricity Authority (NEA) is reserved with the Engineering Services (ES) business group. This business group, headed by a General Manager, consists of four departments and a division to look into services such as the preparation of projects from their identification stage up to its implementation phase including all the environmental study requirements, field investigations, manpower training and other works related to electromechanical services. With over several decades of sound experience in these fields, Engineering Services also caters to the private sector in providing services related to numerous technical fields. These services are provided by the following four departments and one division.

- Project Development Department
- Environmental and Social Services Department
- Soil, Rock and Concrete Laboratory
- NEA Training Centre
- Electromechanical Division

Ongoing Projects

Rahughat Hydroelectric Project

Rahughat Hydroelectric Project with an installed capacity of 32 MW and located in Myagdi District is entering the construction phase. The project is being initiated with the partial financial assistance (US$ 31 Million) from the EXIM Bank of India. PDD carried out an Upgraded Feasibility Study for this project in the Fiscal Year 2007/08 and increased the installed capacity from 27 MW to 30 MW. Subsequently, a Detailed Project Report was prepared in the Fiscal Year 2008/09 by PDD, using its indigenous resources of NEA and increased the installed capacity from 30 MW to 32 MW.

The prequalification of bidders for construction of main civil works of the project has already been completed. Financial bid from the pre-qualified bidders was invited on 9th July 2010 and pre-bid meeting was concluded on 25th July 2010. The last date for submission of the bids is on 5th September 2010.

Financial bid from the pre-qualified bidders for the construction of the camp facilities was invited on 1st July 2010 and the bids were opened on 31st July 2010. Invitation for the expression of interest (EoI) for the consulting services of the project from local, international or/and the joint venture of both from the interested consulting firms was invited on 11th February 2010. The evaluation for the short listing of the consultants is in progress.

Rahughat Hydroelectric Project - A view of Headworks

The acquisition of land required for the project is in progress. As the capacity of the project is less than 50 MW, only an IEE study needs to be conducted for this project. This study has already been completed and submitted for approval. The construction period of the project is estimated as 3.5 years after the start of its construction. The project will generate annual energy of 188.54 GWh with 6 hours of peaking capacity energy. The estimated cost of the project is 72 Million US $ as per Detail Project Report (July 20l0). The EXIM bank of India has provided a soft loan of US$ 31 Million which shall be used for the construction of main civil works. For the remaining US$ 41 Million deficit fund, NEA has requested the Ministry of Energy to arrange the deficit fund required for electro-mechanical, hydro-mechanical, transmission and engineering works for which the Korean Government is known to have shown interest.

Upper Seti (Damuli) Storage Project

The proposed 127 MW Upper Seti (Damauli) Storage Hydroelectric Project is located in Tanahun District of Gandaki Zone. In order to enhance the peaking capacity in the Nepal power system and to minimize the seasonal deficit in energy supply, Nepal Electricity Authority had identified and carried out the feasibility study of this project in the year 2001. Subsequently, the Upgrading Feasibility Study of this project was carried out by JICA. The JICA study was completed in June 2007.

The project shall consist of a 140 m high dam which will create a reservoir with a gross storage capacity of 295 million cubic meters. The water will be diverted to an underground power house through a 1 km long headace tunnel to generate 484 GWh of energy on an annual basis. The project cost is estimated at USD 341 million. A 220 kV, Damauli-Bharatpur Transmission Line of 39 km length is planned for power evacuation.

The survey and design of the project road, bridges, camp facilities was initiated in the year under review, and will continue into the next fiscal year. Field investigation for detailed engineering designed has also been initiated and will be completed in FY 2010/11.

The detailed engineering design of the project and other related studies for the preparation of the project will be carried out with the assistance of the Asian Development Bank. A grant negotiation with ADB has been recently concluded for the detailed engineering design study of the project. The procurement of the consulting services is currently underway, and consultants for the detailed engineering design are planned to be in place by October 2010.

Project Development Department

The Project Development Department (PDD) looks into the identification and the subsequent development of hydropower projects through several levels of studies. This department has had ample experience in identifying, carrying out pre-feasibility studies, feasibility studies, detailed engineering studies, preparation of EPC (Engineering, Procurement and Construction) and BOQ (Bill of Quantities) related tender documents and also the supervision of the construction activities of hydropower projects. Construction supervision of Chameliya HEP, preparation of detailed engineering design for Kulekhani III HEP, preparation of the feasibility study for Upper Tamakoshi HEP, are some of the works that have been carried out by PDD in the past. PDD is currently involved with the following projects.

Upper Trishuli 3 B Hydroelectric Project

Upper Trishuli 3 B Hydroelectric Project with an installed capacity of 37 MW is a cascade development of Upper Trishuli 3 A Hydroelectric

Project. Project Development Department recently completed the preparation of draft Tender Documents and Tender Drawings for the civil works of the project. The project is estimated to cost 68 Million US Dollars and will generate 296 GWh of annual energy. As a cascade development to Upper Trishuli 3 A Hydroelectric Project, it is envisaged that this is a very attractive project.

In order to involve local people belonging to areas within the vicinity of the project, the NEA has decided to develop Upper Trishuli 3 B Hydroelectric Project, UT3B under Public-Private-Partnership, PPP model. Several rounds of talks have already been carried out to decide the allotment of shares. Necessary permissions from the NEA management as well as the Government of Nepal have already been received for the development of this project in this manner. PDD is currently in the process of forming an NEA Subsidiary Company along with the involvement of the people from the project area and other government bodies as equity partners.

Tamakoshi-V HEP

Tamakoshi-V Hydroelectric Project is located just downstream of the Upper Tamakoshi Hydroelectric Project, being implemented by Upper Tamakoshi Hydroelectric Company. This project is conceptualized to operate in tandem with Upper Tamakoshi HEP utilizing the design discharge from the tailrace of Upper Tamakoshi HEP.

This project is located approximately 170 km north east of Kathmandu and approximately 42 km away from Charikot Bazar. Topographical survey, hydrological study and surface geological study were completed in the previous fiscal year. In this fiscal year, a high flood level measuring gauging station has been installed, construction material survey, seismic refraction study of 2000m and 90 m of core drilling has been completed as a part of feasibility study. Feasibility design of this project for the 87 MW of installed capacity is expected to complete by this fiscal year 2067/68.

Nalsyaugad Storage Project

Nalsyaugad Storage Hydropower Project was conceived as one of the most attractive storage projects among the 93 storage projects screened and ranked during the "Identification and Feasibility Study of Storage Projects-2001". This project is located in Jajarkot District in Mid Western Development Region of Nepal. Nalsyaugad is a small tributary of Bheri River in Karnali River Basin. An access road of approximately 20 km is required to reach the powerhouse site from the district headquarter and additional 15 km of project road is required before the construction of this project. An alternative access, a seasonal motorable road, from the Rukum airport to the powerhouse site is available.

The present study has established the dam site location approximately 9.25 km upstream from the confluence of Nalsyaugad and Bheri River towards Nalsyaugad River on the left bank of Nalsyaugad River.

The topographical survey, reservoir mapping, hydrological study and surface geological study were completed. Similarly, seismic refraction survey of 8050 m has been completed and the drilling work is being initiated at the site. The Reservoir Full Supply Level Optimization has been completed which corresponds to the installed capacity of 390 MW. The installed capacity and FSL will again rectify during the further study.

Budhi Gandaki Storage Hydropower Project

Budhi Gandaki Storage Hydroelectric Project is situated in Gorkha district of Western Development. It is proposed to store the water of Budhi Gandaki river by constructing a rockfill dam at a distance of 2 Km from its confluence with Trishuli River. Budhi Gandaki River is a perennial river and flows from North to South as a border river of Gorkha District (Western Development Region) and Dhading District (Central Development Region). The project has been found very attractive as per prefeasibility study completed in April 1984 due to closeness to the load center and high potential of power.

Government of Nepal, as its initiative to augment power generation and to end the prevailing mismatch between demand and supply tried to develop Budhi Gandaki through private initiatives. For this, proposals were invited through public notice but the government failed to receive response. The Government of Nepal decided and instructed NEA to develop the project in association with some appropriate/suitable partner.

NEA immediately took up the task seriously to prepare Feasibility Report and to come up with latest updated cost of the Project. NEA started the Feasibility Study in the fiscal year 2066/067 with following targets:

1. To prepare a report to go for viability of PPP finance model
2. To conduct topographic survey of the area.
3. To conduct hydrological studies
4. To conduct geological drilling and geological studies
5. To conduct environmental studies
6. To proceed with the activities of selecting foreign consultant for detailed design and feasibility studies
7. To conduct survey works for the access road and bridge.
8. To conduct detailed study of the project by the consult.

Due to resource constraints and limitations of finance, item no.1, no.6 and no.8 are on-hold. The selection of a suitable partner for association is in progress.

In FY 2009/10; Project Development Department (PDD) of Engineering services (ES) concentrated on following activities:

1. Topographical survey: Topographical survey works altogether 41 ha has been completed and maps prepared for the Dam site, powerhouse site and camp area.

2. Hydrological studies: Since there was no gauging station at the dam site so, hydrological studies of the project has been done during its prefeasibility studies by simulation with other gauging stations and studies. To be realistic and to make more detailed hydrological studies a gauging station has been established in the vicinity of the Dam in January 2010 and studies are continued to take staff readings, to measure the discharge and to take samples to find the sediment loads.

3. Environmental studies: Preliminary studies has been made during fiscal year 2009/10 by Environmental and social Studies Department, NEA, according to which, 21 VDCs (11 VDC in Gorkha District and 10 VDC in Dhading district), 42 settlement, 3242 households (nearly 17000 population), 67 infrastructures will be affected by the construction of project components and formation of reservoir.

Transmission Line Projects

As in the past, Project Development Department

has been extending its consulting services, especially in the survey of transmission line alignment surveys. During the Fiscal Year 2009/10, PDD was involved with the study of 16 transmission line projects. Most of these have already been completed. The status of these projects is as follows.

S.No	Name of the Project	Project Status
1	Syagnja Substation	Work completed
2	New Marsyangdi-Kathmandu 220 kV T/L	Final report is in progress.
3	Singati-Lamasangu 132 kV T/L	Completed
4	Sunkoshi -Dolkha 132 kV T/L	Completed
5	Kabeli -Damak 132 k/V T/L	Completed
6	Phidim Hub in the proposed Kabeli -Damak 132 kV T/L	Completed
7	Kaligandaki 220/132 kV T/L	Final report is in progress.
8	Dhankuta- Tirtire T/L	Completed
9	Marsyangdi Transmission Line corridor	Final report is in progress.
10	Hetauda-Dhalkebar-Duhabi 400 kV T/L	Final report is in progress.
11	Kohalpur- Surkhet 132 kV T/L	Completed
12	Maruwa- Katari Cement Industry	Desk study and walkover survey has been completed
13	Mamane -Laxmipur 33 kV T/L	Detailed survey has been finished and the final report has been submitted to TLSCD.
14	Raxual- Parwanipur 132 kV T/L	Completed
15	Singti 132 kV Sub-station	Completed
16	Pathlaiya 132 kV Substation	Completed
17	Hetauda-Dhalkebar 400kV, 400 km long Transmission Line	Final report is in progress.
18	Dhalkebar-Duhabi 400 kV, 160 km long Transmission Line	Final report is in progress.
19	Raxaul-Parwanipur 132 kV, 20 km long Transmission Line	Completed
20	Gulmi-Argakhanchi-Chanauta 132 kV, 60 km long Transmission Line	Completed
21	Modi-Lekhnath 132 kV, 45 km long Transmission Line	Final report is in progress.
22	Madi-Lekhnath 132 kV, 22 km long Transmission Line	Final report is in progress.
23	Samundratar-Naubise 132 kV, 50 km long Transmission Line	Final report is in progress.
24	Ramechhap-Garlyang-Khimti 132 kV, 50 km long Transmission Line	Completed
25	Middle Marshyangdi-Manang 132 kV, 60 km long Transmission Line	Final report is in progress.
26	Kohalpur-Surkhet 132 kV, 50 km long Transmission Line	Completed
27	Kaski-Bhurjung-Parbat-Kusma 132 kV, 45 km long Transmission Line	Final report is in progress.

Other Activities

Apart from the regular works of carrying out studies at different levels for different projects, PDD has involved itself in various other activities which have been very instrumental in developing the institutional strength of Nepal Electricity Authority in the field of consulting services. Other activities that were carried out during the Fiscal Year 2009/10 are as follows.

- Continuation of the construction supervision of Chameliya Hydroelectric Project in association with the Joint Venture of three local consulting firms (Shah Consult. SILT and ICON).
- Conduction of the annual sediment survey at Kulekhani Reservoir.
- Initiation for the design of three new NEA Office Complexes based on the new master plan within the premises in Ratna Park.
- Construction supervision of the following substation buildings
    - o Unichaur substation building in Lalitpur District (11kV-33kV)
    - o Salyantartar substation building in Dhading District (33kV-66kV)

- Chaughada substation building in Nuwakot District (33kV-66kV)

Environmental and Social Studies Department

The Environmental and Social Studies Department (ESSD) of Nepal Electricity Authority is one of the integral Departments of Engineering Services. This Department executes activities related to all aspects of environmental studies of hydropower and transmission line projects being planned, designed, constructed or operated by NEA. This Department is a commercial unit of NEA with more than a decade of experience in conducting Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), SIA, ACRP, VCDP studies and monitoring and auditing of hydroelectric, transmission line and distribution line projects.

During this fiscal year 2009/2010, ESSD completed three cross border 400 kV T/L projects of National Priority which was approved by Ministry of Energy. The IEE report of Dumre-Damauli 132 kV T/L project was also approved this year. Similarly, the EIA/IEEs of two hydroelectric and a sub-distribution project of National importance namely Upper Trishuli 3 "A" HEP, Rahughat HEP and Madi-Jagtapur 33 kV T/L project are at the last stage of approval.

Currently, the Department is carrying out the following assignments and their status is as follows::

1. The IEE study of Hetauda-Dhalkebar-Duhabi 400 kV T/L project has commenced.
2. The IEE study Upper Seti (Damauli)-Bharatpur 220 kV Transmission Line Project is at the last stage of approval.
3. The ToR and Scoping Document of Upper-Trishuli HEP (3A)-Matatirtha 220 kV T/L project is at the last stage of approval
4. The Environmental Monitoring and Mitigation work in Khimti- Dhalkebar 220 kV Transmission Line Project is on-going
5. Environmental Monitoring and Mitigation work in Chameliya Hydroelectric Project is on going
6. The IEE of Sunkoshi 132 kV Transmission Line Corridor has commenced
7. The IEE of Koshi Corridor T/L project has commenced
8. The Scoping Document and Terms of reference of Upper Trishuli Hydropower Project (UT-3B) is in the process of approval.
9. The EIA study of Tamakoshi V HEP is on going.
10. The IEE study of Rahughat–Modi 132 kV is on going.
11. The IEE study Marsyandhi-Kathmandu 132 T/L Project.

Soil Rock and Concrete Laboratory

Soil, Rock and Concrete Laboratory (SRCL) provides services in material testing, geological and geotechnical investigations for the different phases of a hydroelectric project development.

It provides services like geological mapping, various types of geophysical surveys, core drilling and construction material investigation at different levels to the different departments of NEA and the private sector. In the field of soil and rock engineering, it also provides services of carrying out in-situ tests and laboratory tests viz. determination of index properties, tri-axial tests, consolidation tests, point load tests, direct shear tests, uniaxial compressive strength tests etc. on a regular basis for clients

inside and outside NEA. SRCL also provides drilling machines and their accessories for hire on a commercial basis.
The following works were undertaken by this laboratory during the FY 2066/067

1. Core Drilling Works
   - Core drilling works for Bheri Babai Diversion Project has been completed.
   - Core drilling works for Nalsyaugad Storage Project is ongoing.
   - Core drilling works for Rasuwagadi Project has been completed.
   - Core drilling works for Tamakoshi V Project has been completed.
   - Core drilling works for Tamakoshi III Project is ongoing.

2. Similarly, seismic refraction works for Bheri Babai Project, Nalsyaugad Storage Project and Tamakoshi V project has been completed.
3. Construction material survey works for Nalsyaugad and Tamakoshi V Projects are ongoing.
4. Laboratory tests of soil samples for Kabeli Damak 132 kV Transmission Line Project has been completed.
5. Similarly, SRCL has completed the laboratory tests on soil samples for many projects from the private sector.

NEA Training Center

The term training refers to the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific useful competencies. As Human Resource is one of the most important ingredients of any Organization, its development is indispensable for the survival and advancement of the Organization. So, investment in training is treated as corporate assets of organization.

For upgrading and enhancing the skill, knowledge and attitudes of human resources, NEA Training Center (NEA TC) is another important department under the Engineering Services business group, which has been providing need-based short term trainings covering 3 days to 23 days for NEA employees with an objective to upgrade their professional knowledge, skills and attitudes of manpower at operational and managerial levels involved in the power sector. In addition, NEATC also provided three months (90 days) training for 39 participants from the project affected area of Dolkha district on the request of Upper Tamakoshi HEP. The training types involve induction, in-services or refreshers and custom designed as per request/requirement. The training programs are designed as per training needs assessment (TNA) of an organization and at the personnel level after discussion has been held with the management and as feedbacks provided by trainees respectively.

These trainings are conducted on contract with corporate and GM office levels of NEA. Since last year, with the view to expand its training programs for clients outside of NEA, upon their request, NEATC has conducted various programs to non NEA staff. Altogether 31 training programs were conducted during the fiscal year 2009/10 as given below.

S.N.	Types of Training	Officer	
		Technical	No Tech

1	No. of Participants in On the job Training according to contract with business group and private hydropower Company (Short-term courses)	18	29	149	56	412
2	No. of Participants in Induction training for the newly recruited employees of NEA.	0	0	0	159	159
3	Upper Tamakoshi HEP	0	0	39	0	39
	Total number of Participants	18	29	188	215	450

These training were conducted according to the contract agreement with the different corporate and business offices of NEA.

In addition to regular training programs, the NEATC facilitated the following programs in FY 2009/10.

1. Provided Seminar Halls, class rooms, hostel and ground space on rental facilities to different users, groups/organizations etc on their request. Engineering colleges, Scout, political parties and various organizations used the facilities available in the training center for various purposes. The total income generated from these activities amounted to Rs 2,240,000.00
2. Assisted and Provided space to Human Resource Department for collection of examination forms, reports preparation etc. A total sum of Rs. 10,370,700 was earned from these activities in FY 2009/10.
3. A training program on General Electrical and General Mechanical Training (3months) was provided to 39 participants from the project affected area of Dolakha District on request of Upper Tamakoshi HEP. This was conducted on the basis of rechargeable work through joint agreement and amounted to Rs. 4,774,344.22.

Following table provides the details of trainees from different corporate offices and business groups in the F/Y 2009/10.

S.N.	Name of DMD,GM or Other offices	No. of Traine	
		Contracted	A
1	Distribution & Consumers Services	257	121	102
2	Generation	176	76	73
3	Transmission & System Operation	56	31	23
4	Electrification	16	7	4
5	Engineering Services	83	33	28
6	Planning, Monitoring & IT	8	6	5
7	Administration, Finance and Internal Audit	92	26	17
8	Upper Tamakoshi HEP	39	39	39
9	Induction (Human Resource Department)	159	159	159
	Total:	886	498	450

Apart from regular training program, various training programs on Time, Chang and Stress

Management were also conducted in FY 2009/10.

In the last 16 years, NEA Training Center has trained a total of 11,183 employees form different business groups within Nepal Electricity Authority and other organizations as well..

Electromechanical Design Division

This Division handles all of the electromechanical issues arising within Engineering Services. These issues range from the design of electromechanical equipment of projects that are under various stages of study to the transmission line and evacuation studies for private sector projects. The jobs that have been completed or are currently being undertaken by this division are as follows.

- System Study required for power evacuation of Tama Koshi Sub Basin Projects.
- System study required for power evacuation of Nyadi and Marshyangdi III Hydropower Projects
- Study of different transmission line projects.

Apart from the above mandate, this Division also runs and maintains a central workshop in Hetauda and manufactures concrete poles from its two concrete pole manufacturing plants, one in Kotre and another one in Amalekhgunj. During FY 2009/10, a total of 11348 concrete poles were manufactured at the Concrete Pole Plant in Amalekhgunj. Similarly, a total of 1704 concrete poles were produced from Kotre Pole Plant in Tanahun. Likewise, approximately one hundred power and distribution transformers were repaired and tested at the Central Workshop in Hetauda.

rainees	No. atten P
Allocated	

(33/11 kV, 1.5 MVA Substation at Bhiman of Sindhuli Distric)

NEA's Subsidiary and Joint Venture Companies

Upper Tamakoshi Hydropower Limited

Upper Tamakoshi Hydropower Limited(UTKHPL) was formed as a subsidiary company of NEA on March 9, 2007 (Falgun 25, 2063) with the primary aim of developing and managing 456 MW Upper Tamakoshi Hydroelectric Project (UTKHEP) utilizing the financial and the technical resources from within the country. NEA is the major shareholder of the Company with 40% stake. Employees' Provident Fund (EPF) will contribute 18%, Nepal Telecom (NT) 6%, Citizen Investment Trust (CIT) 2% and Rastriya Beema Sanathan (RBS) 2% of the equity. The rest of the equity capital will be raised from general public (15%), natives of Dolakha District (10%), NEA and Company staff (4%), and staff of financial institutions providing the debt for the Project (3%). NEA Board has constituted a five-member Board of Directors for the Company on March 12, 2008 (Falgun 29, 2064). A shareholder agreement between UTKHPL and NEA, NT, CIT and RBS was signed on 26 July, 2010 (Shravan 10, 2067). A repatriate loan agreement between NEA, EPF and UTKHPL was signed on 30 July, 2010 (Shravan 14, 2067) for Rs 10 billion. The new Board with representatives from all the shareholders will be constituted after shareholder agreement with all the other stake holders. The Company also has plans to develop other hydropower projects in Nepal.

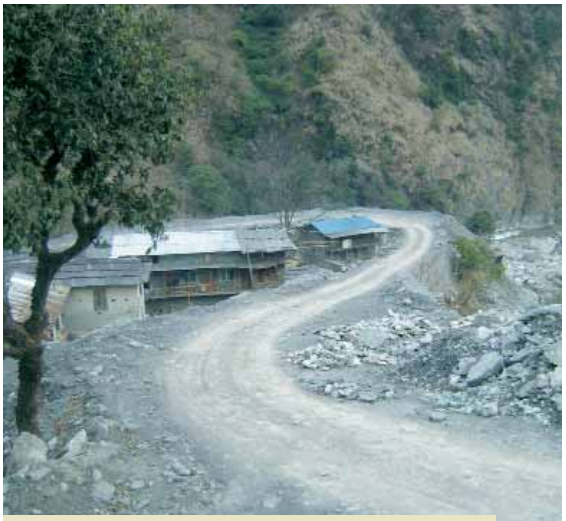
Project Features

Upper Tamakoshi Hydroelectric Project (UTKHEP) is located in Lamabagar Village Development Committee of Dolakha District and is a peaking run-of-river type of project with 820 m gross head, design discharge of 66 m3/s and Installed capacity of 456 MW. The Project will generate about 2,281.2 GWh of energy annually. The major components of this Project are: an intake, a 22.0 m high concrete dam, twin desanding basins, 7.86 km long headrace tunnel, 360 m high surge shaft, 495 m long penstock pipe, underground powerhouse with six units of pelton turbines, 2.9 km long tailrace tunnel and 47 km long 220 kV transmission line to Khimti substation.

Project Status

A Memorandum of Understanding, MoU was signed between NEA and EPF on January 29, 2008 (Magh 15, 2064) where the latter pledged to provide NRs. 12 billion for the project; NRs. 10 billion will be as debt and Rs. 2 billion as debenture, In another MoU signed on July 16, 2008 (Shravan 1, 2065) between NEA and Himalayan Bank Ltd. (HBL), the lead bank for the consortium of commercial banks of Nepal, the latter has pledged to provided Rs. 6 billion as debt for the Project. A MoU between NEA and the Citizen Investment Trust was signed on December 5, 2008 (Mangsir 20,2065) for a loan investment of Rs. 2 billion. Siomilarly, Rastriya Beema Sansthan has pledge to arrange Rs. 2 billion loan. The Government of Nepal has also pledged to invest upto Rs. 11.8 Billion in case of shortfall of the fund required. The Project is estimated to cost US$ 441 Million without IDC, 70% of which is structured as debt and the rest as equity.

Detailed engineering design for Tender Document preparation of the Project has been completed on December, 2008 (Mangsir/Poush,



(Access Road construction in progress , Upper Tamakoshi HEP)

2065). International Contractor Sino Hydro Corporation Limited, China has been awarded LOT-1 Civil works and the contract was signed with Sino Hydro Corporation Limited, China on August 1, 2010 (Sravan 16, 2067) for LOT-1 Civil works. A contract negotiation meeting with the International Consultant Norcosult / Lahmeyer JV for the Consultancy services for Construction supervision works is underway. The Company has pre-qualified 3 contractors for LOT-2 Hydro-mechanical and 7 contractors for LOT-3 Electromechanical works. Evaluation of the LOT-4 Transmission line and Substation works is in progress. The last 28.5 km stretch of the 68 km long access road and upgrading of 35 km long Dolakha-Singati section of access road are underway and at final stage. As the contract for LOT-1 Civil Works has been awarded to Sino Hydro Corporation, the remaining works of access road construction and upgrading works will be handed over to selected civil contractor. A MoU was signed between NEA and UTKHPL on 26 April,2010 (Baisakh 13, 2067) for Power Purchase Agreement with NEA. Regarding funding of the project discussion with CIT, NT and RBS are underway and at final stage. Local Construction Company Himal Hydro was awarded the contract for the construction of the 700 m long access tunnel and the work has been completed recently.

Chilime Hydropower Company Limited

Chilime Hydropower Company Limited (CHPCL), a subsidiary company of NEA with 51% equity ownership was established in 1996 with an objective of promoting the utilization of resources within the country for the development of hydropower. As a first step towards its objective Chilime hydropower plant (CHPP) located in Rasuwa district with installed capacity 22.1MW was built and commissioned on August 25, 2003. The plant is now in the seventh year of commercial operation and has delivered 792.171 GWh of electrical energy to NEA till date. In FY 2008/09 the project had successfully delivered 108.8% of Contract energy to NEA. CHPCL has distributed 10%, 20%, 35%, 30%, 35% and 45% dividend to its shareholders from FY 2003/04 to FY 2008/09 respectively.

CHPCL is equally devoted towards fulfilling the social obligations part of Corporate Social Responsibility. The company provides Rs. 2.5 million annually to the affected VDCs of Rasuwa district through Sarokar Samiti for development in the sectors like education, health, drinking water, irrigation and electrification. The support is not only limited to the Sarokar Samiti as the company has also been involved in the development activities of the affected and other remote VDCs of Rasuwa district independently.

Now striving towards the goal and objective, CHPCL has four projects in pipeline which are in various stages of development. Two projects namely, Sanjen (Upper) and Sanjen Hydroelectric Project located in Rasuwa district in the upstream of existing CHPP with installed capacity of 14.6MW and 42.5 MW

respectively are planned to be developed in cascade. The other projects in the pipeline are Middle Bhotekoshi HEP in Sindupalchowk district and Rasuwagadhi HEP in Rasuwa district with installed capacity 96MW and 100MW respectively.

Sanjen and Sanjen (Upper) HEP

For successful construction and operation of hydropower projects, it is essential to maximize the participation of local people

(Weir site of Sanjen (Upper) HEP)

in the project's ownership. So with this objective a new subsidiary company of CHPCL, named Sanjen Jalvidyut Company Limited has been established on 2010/02/01. The promoters of this company are CHPCL (53%), Nepal Electricity Authority (14%) and District Development Committees (DDC) and all 18 Village Development Committees (VDC) of Rasuwa (3%). A Memorandum of Understanding (MoU)) has been signed with NEA for Power Purchase Agreement, PPA for the sale of enrgy to be generated from Sanjen and Sanjen (Upper) HEPs. Land acquisition, access road construction, infrastructure works and finalization of major civil contracts of the projects are planned for the F.Y.2010/11. Upper Sanjen and Sanjen HEPs are scheduled to be completed on F.Y.2013/14, F.Y 2014/15 respectively.

Middle Bhotekoshi HEP

For the development of Middle Bhotekoshi HEP, Madhya Bhotekoshi Jalvidyut Company Limited has been formed on 2010/07/29. The promoters of this company are CHPCL (50%), Nepal Araniko Hydropower Pvt. Ltd (10%), Sindhu Investment Private Ltd (5%) and Sindhupalchowk Hydropower Company Limited (5%). The feasibility study of the project has been completed and Scoping Document and Terms of Reference (ToR) of EIA are in the stage of approval. Detail Engineering Design, 100 m Test Adit, land acquisition and access road construction for construction adit, process for PPA and EIA and Public hearing are scheduled to be carried out in FY 2010/11. The project is scheduled to be completed on FY 2015/16.

Rasuwagadhi HEP

Rasuwagadhi HEP project is located in Rasuwa district in the Bhote Koshi (Trishuli) river which enters Nepal at Rasuwagadhi flowing down from Tibet, China and ultimately converges into Trishuli in Rasuwa district. The feasibility study of this project has been completed and the EIA is in the process of approval. The formation of a separate company for the development of this project is in progress. Detail Engineering Design, Test Adit construction and finalization of EPC contract prequalification are planned for the FY 2010/11. The project is scheduled to be completed in FY 2015/16.

Power Transmission Company Nepal Limited

The need for development of cross border transmission lines has been felt for some time as a link to facilitate power exchange and trade between Nepal and India. With increased interest shown by Indian IPPs to develop hydropower projects in Nepal in the last few years, there has been renewed interest to implement such interconnections. Considering this fact, NEA and IL&FS has formed a joint venture company under the name "Power Transmission Company Nepal Limited (PTCN)" on September 16, 2007 for taking up the

development of transmission projects in Nepal including cross border transmission links. The investors in PTCN are NEA (50%), IL & FS (26%) and Banks/ IPPs of Nepal 24%. Similarly, "Cross Border Power Transmission Company Limited (CPTC) has been incorporated in India on December 19, 2006 to undertake line construction activities in India.

Under Cross-Border transmission Line Project, following three cross border Indo_Nepal transmission interconnections have been identified.

- Dhalkebar-Mujaffarpur 400kV Transmission Interconnection
- Duhabi-Purnia 400kV Transmission Interconnection
- Butwal-Gorkhapur 400kV Transmission Interconnection

The Dhalkebar (Nepal)-Mujaffarpur (India) 400kV Transmission Interconnection has been prioritized under phase-I and all the efforts are underway to realize the project. Approximately 45 km of transmission line from Dhalkebar to Bitthamod near Indo-Nepal border falls under the Nepalese territory and around 100 km falls under Indian Territory. This interconnection is envisaged to be initially energized at 220kV and would be operated in synchronous mode between the Nepalese and Indian grids. The Nepalese portion of the project cost includes NRs 1.28 billion (USD 20.0 million) out of which USD 13.2 million is to be funded by government of India through soft loan as a line of credit to GoN and for the remaining part government of Nepal has approached the World Bank for the financial assistance. The funding of Indian portion would be through domestic sources by Indian JV Company named "Cross Border Power Transmission Company" in Indian rupees.

The Duhabi-Purnia 400 kV Transmission Interconnection consists of about 22 km of transmission line section from Duhabi in Nepal to Jogani near Indo-Nepal border in the Nepalese territory and the remaining section of about 99 km in the Indian territory.

The Butwal- Gorakhpur 400 kV Transmission Interconnection consists of about 25 km of transmission line section from Butwal in Nepal to Sunauli near Indo-Nepal border in the Nepalese territory and remaining section of about 100 km in the Indian territory.

Planning, Monitoring and Information Technology

The Planning, Monitoring and Information Technology, a corporate wing of NEA is responsible for power purchase agreements, coordination of cross border power exchange and trading, load forecast, generation and transmission systems plans, grid impact studies and periodical monitoring, evaluation of NEA projects, coordination of development project works. This wing is headed by a Deputy Managing Director.

Power Trade Department

Power Trade Department is responsible for coordinating the trading of power both within the country and across the border. It is the single window interface of NEA with Independent Power Producers (IPPs) for processing their application for Power Purchase Agreement (PPA). Power Trade Department performs its responsibilities in three broad functions:

a. PPA Processing and Execution function:

This function includees following activities:

i. Verification of documents submitted by applicant IPP.

ii. Review of technical and financial aspects of the project

iii. Coordination for execution of Connection Agreement of applicant IPP with concerned department of NEA

iv. Negotiation of energy prices (in case of projects with capacity above 25 MW)

v. Preparing and getting approval of draft PPA with terms and conditions acceptable to both NEA and IPP

vi. Executing the PPA

b. PPA Implementation Monitoring Function

The activities under this function include:

i. Monitoring timely achievement of financial closure and necessary action

ii. Monitoring timely achievement of Generation License and necessary action

iii. Monitoring actual physical progress at site and necessary action

iv. Monitoring validity of performance guarantee and necessary action

v. Handling complains and claims by IPPs during construction

vi. Coordinating commissioning of project by commissioning committee

vii. Monitoring test operation of project and declaring commercial operation

c. PPA Operational Administration Function

This function covers activities after the commercial operation of project and includes:

i. Facilitation for smooth operation of power plant

ii. Facilitation for any issues during operation

iii. Facilitation for processing monthly invoices and their payments

iv. Facilitation during force majeure or any other kind of disturbance.

During FY 2009/10, apart from 50 MW import under Power Exchange Agreement, additional 20 MW power was imported under short term trading agreement with PTC India for the months of January, February, March and April, 2010.

Three new projects with total capacity of 6.491 MW were successfully commissioned during FY 2009/10. Such newly commissioned projects include Ridikhola, Gulmi (2400 k W);

Upper Handkhola, Sindhupalchowk (991 kW) and Mardikhola, Kaski (3100 k W). With the inclusion of these three projects, the number of IPPs in operation has reached 22 and the installed capacity of IPP owned hydropower plants has reached 166.801. Similarly, 8 IPPs projects with installed capacity of 47.308 MW are under construction.

During FY 2009/10, the Department has concluded 20 Power Purchase Agreements with installed capacity of 126.84 MW and amended PPAs of 7 projects to accommodate the capacity increase of these projects by a total of 10.38 MW. The PPA for 3 projects is ready for signing while draft agreements for 11 projects worth 589.05 MW are in progress.

System Planning Department

The System Planning Department, SPD is responsible for planning of system expansion in the generation and transmission sectors of Nepal Electricity Authority. In the environment of a national utility, it is responsible for preparing the generation expansion plan that will deliver the energy demand as forecast in the planning horizon and prepare the transmission network plan that will be necessary to evacuate power from those generating stations to the load centers. However, in the context of increased private sector participation in the generation sector, and the government's policy and plan of 10,000 MW in 10 years and 25,000 MW in 20 years made public in recent years, the role of centralized generation planning by NEA has become minimal. Hence, a reassessment of the planning criteria and adjustment in the Least Cost Generation Expansion Plan for the purposes of NEA is needed in the emerging scenario. Similarly, a program for national grid expansion and power evacuation has been decided by NEA in this F.Y.2066/67 which is in line with the government's earlier decision to build 29 transmission lines as part of the National Power Crisis Mitigation Action Plan on March 3, 2009. Under this program, there are now 52 sub-stations and transmission lines and corridors planned for construction, which will cater to the power evacuation and transmission needs in the coming years. In this context, the criteria for another transmission line expansion plan also need to be reassessed.

The SPD has focused on carrying out the Grid Impact Studies (GIS) of Power projects applying for Grid connection. This study seeks to ensure that all applicants to Grid connection for eventual Grid use will adhere to the requirements of Grid Code and there is no adverse impact on the Grid and system operation with their entry. In the year under review, GIS of 31 projects with a total capacity of 509.38MW were accomplished, out of which three projects were of size 50MW or larger requiring Stability analysis.

In addition to the GIS, the Department also assists other line agencies of NEA in providing necessary data and recommendations regarding planned generation, transmission and load-forecasts as well as providing power system information and necessary support in planning to the NEA management. Notable amongst the inter-departmental supports provided, the SPD carried out the transmission line studies of Dhalkebar-Muzaffarpur (DM line) and Duhabi-Dhalkebar-Hetauda (DDH line) transmission lines for Transmission and System Operation and power evacuation and transmission line study of Tamakoshi-V project for the Engineering Business.

System Planning Department (SPD) completed Grid Impact Study of following projects in FY 2009/10.

S.N.	Name of Projects	Capacity (MW)	Connection S/S
1	Radhi Kh ola	4.40	Proposed Udipur Hub
2	Baramchi (Upgraded)	4.20	Lamosanghu s/s
3	Naugarh Gad	8.50	Chamelia
4	Andhikhola	9.40	Proposed Syangja s/s
5	Midim Khola	3.00	Damauli S/S
6	Mristi Khola	42.00	Proposed Dana Hub
7	Mai Hydropower (Upgraded)	15.60	Proposed Ilam (Godak)
8	Nyadi Hydropower	20.00	Proposed Khudi Hub
9	Upper Khmiti HEP	12.00	Proposed Gorjang S/S
10	Khani Khola	25.00	Proposed Singati S/S
11	Khani Khola (Dolakha)	30.00	Proposed Singati S/S
12	Chaku Upgraded	3.00	Lamosangu
13	Middle Chaku	1.80	Lamosangu
14	Tadi Khola	5.00	Samundratar
15	Bhairab Kunda	3.00	Lamosangu
16	Hewa Khola	12.00	Proposed Phidim S/S
17	Rudi Khola –A	6.00	Lekhnath s/s
18	Rudi Khola	3.00	Lekhnath s/s
19	Sardi Khola	3.50	Proposed Bhurjung
20	Upper Ingwa	9.70	Kabeli S/S
21	Upper Mailung-A	5.00	Proposed Upper Trishuli 3B Hub
22	Tungun-Thosne	4.30	Kulekhani-I
23	Khani Khola	2.00	Kulekhani-I
24	Madi Bhorletar	10.00	Damauli S/S
25	Bagmati SHEP	17.00	Kulekhani-I
26	Handi Khola	2.00	Indrawati
27	Balephi	50.00	Lamosangu
28	Pakhar Khola	0.98	Lamosangu
29	Likhu-IV	120.00	Proposed 220/132 kV Khimti S/S
30	Upper Marsyangdi	50.00	Proposed Khudi Hub
31	Dordi Upgraded	27.00	Proposed Udipur Hub
	Total	509.38	

Information Technology Department

The Information Technology Department headed by a Director has completed a fruitful year with the introduction of new, innovative IT services, continuous ICT maintenance / support and further enhancements and expansions of its network infrastructure and server systems.

Despite many challenges, the Department has achieved to implement E-bidding system, within a short span; NEA has floated more than 20 tenders using this service and has received a significant number of e-submissions. With the introduction of this service, procurement process of NEA can now be considered as transparent, trustworthy and up-to-date.

IT Department this year was able to establish itself as a service provider and has signed a service contract with Chillime Hydropower Ltd. for providing email, e-bidding and computer server / network based services.

The Department has also made significant progress in the area of Intranet expansion with the laying of fiber optics cable to newer locations. The intranet reach is now expanded upto Hetauda Regional Office and central workshop. Within Kathmandu valley, Bagmati grid- Minbhawan, Kathmandu East Distribution Center and Chahabil DCS office were added to the intranet network.

During this fiscal year, accounting system of NEA was also revamped; this was necessitated by the change in the organizational structure. The accounting system now is capable of consolidating its data on regional office and business unit wise. Several changes and enhancements were also made to Payroll system to accommodate the changes in the taxation regulation.

The Department has also made a contributing role towards the implementation of computerized billing systems. A team of engineers was assigned this year to take up the task of implementing the billing system at several billing locations. This has greatly assisted the computerized billing project in its stride to computerize more and more revenue accounting units. The team of engineers and computer operators from the department has successfully completed the billing system installation at six revenue accounting units.

Monitoring Department

The Monitoring Department is responsible for periodical monitoring and evaluation of projects implemented by NEA. The Department collects and evaluates monthly, quarterly and annual progress reports of the projects implemented by NEA and conducts internal review. The Department also participates in the ministry-level quarterly progress review meeting.

During FY 2009/10, this Department reviewed the progress of a total of 133 (80 priority 1 and 53 priority 2) projects being implemented under various business groups of NEA. The Department also furnishes required data and reports to Ministry of Energy (MoEn), National Planning Commission (NPC) and other concerned authorities of Nepal Government.

Corporate Planning Department

Corporate Planning Department undertakes various tasks involving plans and programs at corporate level. The Department assists the National Planning Commission, Ministry of Energy and Ministry of Finance in the preparation of national budget by providing data related to projects undertaken by NEA. Besides, the Department also provides necessary support to NEA management and data input for studies undertaken by various organizations on topics related to NEA. The Department provided the necessary input for preparing the country's second three year Plan (2010/11-2012/13) for electricity sector.

This Department also assists in obtaining new licenses and any extension there of as required of for development of power projects. During the year under review, NEA obtained 2 survey licenses for transmission and renewed one survey license for distribution.

The Department also plays coordinating role in the development of hydropower projects under different financing modes. Recently, NEA decided to develop 600 MW Budhi Gandaki storage hydroelectric project in joint venture with a suitable associate for which request for proposal was issued to 6 companies and evaluation of proposals received is in final stage.

Administration

Administration wing of NEA is responsible for management of human resources, logistic support, legal advice and arbitration, property management and promotion of public relations functions. Timely amendment of Personnel Administration Regulation and Financial Administration regulation also falls under the purview of this wing. This wing is headed by a Deputy Managing Director and supported by three departments, namely, Human resources Department, General Services Department and Legal and Grievances Handling Department each headed by a Director.

Human Resource Department

This Department is responsible for executing manpower planning, recruitment, employees training and development, disciplinary actions, implementation of staff welfare activities and other human resources related functions.

By the end of FY 2009/10, there are 10,314 approved positions. However the total number of staff persons employed is 9168. During the year under review, 152 employees were retired while 14 employees took voluntary retirement. Similarly, 14 employees resigned and 38 staff passed way During the year under review, 498 employees of different levels were promoted to higher levels based on performance evaluations and 181 employees were promoted to higher level under 12 year time bound promotion scheme. Further, the 162 employees were promoted to higher level under internal competition scheme. During the year, the Department invited applications for 657 vacant posts. These vacant posts included 151 posts for officer level and 506 posts for non-officer level. In the year under review, 4 staff persons were cautioned and 2 staff persons were suspended under disciplinary action. Similarly, the promotion of 3 staff was halted and yearly increment in the salary of 2 staff was decresed.

As part of staff welfare activities, financial support was provided to 14 employees for different causes. Similarly, under the staff welfare loan, a total sum of Rs 164,878,196.80 was disbursed as loan to employees for purchase, construction and maintenance of house/land, social event/ rituals and so forth. Similarly, a sum of Rs 11,294,371.00. was disbursed to various employees under the accidental insurance and medical facility scheme and a sum of Rs 13,0432,382.85 was disbursed to different employees under the life insurance scheme.

In fiscal year 2009/10, as part of human resource development activities, arrangements were made for 256 staff persons of various levels to participate in trainings, seminars, workshops, and study and inspection tours abroad. Similarly, 112 staff persons received training in NEA Training center while 11 staff persons participated in study tours and 163 staff persons participated in workshops in the country.

At the end of the fiscal year 2009/10, the status of manpower employed was as given below in the table.

Employees Status FY 2009/2010
July 16, 2010

Level	Service	Approved Position			Total	Existing situation			Total
		Regular	Project	Pool		Permanent	Periodical	Daily wages	
Managing Diretor		1	0	0	1	1	0	0	1
GM/DMD (Level-12)	9	9	0	0	9	9	0	0	9
Officer Level (Leve l6-11)	Technical	1005	64	2	1071	822	8	1	831
	Non.Tech.	487	19	1	507	403	1		404
	Total	1502	83	3	1588	1235	9	1	1245
Assistant Level (Level 1-5)	Technical	5285	0	172	5457	4282	857	0	5139
	Non.Tech.	2978	0	291	3269	2433	346	5	2784
	Total	8263	0	463	8726	6715	1203	5	7923
	Grand Total	9765	83	466	10314	7950	1212	6	9168

General Services Department

General Services Department is entrusted with the responsibility of vehicle management, repair and maintenance works of NEA's corporate office buildings, property management, logistic support for corporate offices and security management of NEA's corporate offices. During the year under review, the Department has completed the recording of land owned by NEA for various uses and submitted the records to Managing Director. The Department also deals with the media, organizes press conferences and releases and various ceremonial activities. The Department also brings out "Vidhyut", a biennial magazine, covering a wide spectrum of activities. The Department has also been entrusted with the responsibility of providing conducive environment for staff to develop and excel in sports activities. This has yielded a plethora of medals in various sports. NEA came first in the recently concluded Inter Corporation Badminton Tournament .

Legal and Grievances Handling Department

Legal and Grievance Handling Department deals with all legal matters of NEA. The Department defends court cases for NEA in different courts of the country. Generally, cases to be resolved are related to theft of electricity, land acquisition, employees' service termination, staff promotion and so forth. The department defends cases of dispute resolution in the courts in Nepal and abroad also. The Department also provides legal advice to the different departments of NEA and the top management on various issues and participates in negotiations for power purchase agreements.

During the fiscal year under review, 108 cases were registered in different courts and arbitration tribunals, out of which the courts have given verdict in favor of NEA in 29 cases and against NEA in 3 cases. The rest of the cases remained sub judice. Some cases of disputes were resolved through arbitration.

In FY 2009/10, the Department also provided legal advice to various departments and top management on 148 cases. The Department also organized legal workshops in the branch and regional offices of Distribution & Consumer Services in Hetauda, Pokhara, Butwal & Biratnagar.

Internal Audit

Internal Audit, headed by the Deputy Managing Director (DMD) is responsible for carrying out the function of internal control using the tools of audit observation and field visit. The Deputy Managing Director is supported by a Director with four Divisions namely Financial Audit Division, Management Audit Division, Technical Audit Division and Energy Audit Division.

The internal audit has the annual audit plan covering the areas of revenue, expenditure and project accounting. It performs the auditing of various budget centers on quarterly and half- yearly basis. It also audits management activities, energy balance and technical aspects carried out by various business groups. As part of internal control, it discloses non compliance to the rules and regulations, circulars and directives issued by the corporate office. It also brings to the notice of the Managing Director the issues raised in auditing and recommendations for appropriate rectification and reforms.

Activities of Internal Audit with respect to financial audit coverage during the FY 2009/10 (B.S.2066/2067) are listed below:

S.N.	Business group and corporate office	Audit plan	Audit coverage (Quarterly/half yearly)	Audit Coverage %age (Quarterly/half yearly)
1	Corporate Office	5	3	60.00%
2	Distribution& Consumer Service	85	75	88.23%
3	Rural Electrification	29	23	79.31%
4	Engineering	9	8	88.88%
5	Transmission	14	8	57.14%
6	Generation	15	14	93.33%
7	Project	5	3	60.00%
	Total	162	134	82.71%

Financial Audit was carried out in 134 budget centers out of 162 budget centers and Annual Internal Audit of 127 budget centers is scheduled to be completed by November, 2010.

Shortage of adequate technical staffs constrained the coverage of technical audit function. To enhance the professional skill for internal audit officers, intensive training programmed was conducted for 24 audit officers in association with Indian Costs and works Accountants Association (ICWA) in New Delhi from 6-12 July 2010.

Finance

Finance, a corporate wing of NEA is responsible for the overall finance and accounting functions. This office is headed by a Deputy Managing Director and is supported by Corporate Finance Department and Finance & Accounts Department, each headed by a Director.

Corporate Financial Performance

FY 2009/10, remained a mixed year in terms of achievement and difficulties for NEA. On one hand, the conclusion of the complete framework for financial closure and confirmation of the same by its lenders and investors from within the country for Upper Tamakoshi Hydroelectric Project (the largest project in Nepal in terms of its capacity and energy) with a capacity of 456 MW is a remarkable achievement. On the other hand, the financial health of NEA continues to deteriorate. The year under review has proved to be yet another year of weakening financial health for NEA.

Given the deteriorating financial health, NEA encountered severe difficulty in managing deficit budget and power shortage problem in FY 2009/10. Not withstanding these challenges, NEA registered a growth of 21.47% in total sales over previous year's figures. Internal sales increased by 20.63% to reach 2,603.35 GWh. Similarly export also increased from 46.38 GWh to 74.48 GWh, an increase of 60.59% over previous year's export.

Net Income from sale of electricity amounted to Rs. 17,586.91 million in FY 2009/10 as against Rs. 14,405.93 million in the previous year thereby registering an increase of 22.08%. Income from other services such as surcharge, dividend, interest income, lease rent etc. amounted to Rs. 1,124.44 million, a decrease of 29.80% over previous year's figure. The contribution of income from other services to the total income was 6.01%. Rebate given to the consumer for early payment of bill amounted to Rs. 383.55 million, with an increase of 14.42% over the previous year's figure. Total income after rebate stood at Rs. 18,711.35 million, an increase of 16.89% over the total income of FY 2008/09.

Power purchase expense is the largest component of the total expenditure and is equivalent to 37.81% of the total expenditure and 50.52% of the total sales revenue. Power purchase expenses increased by 18.04% to reach Rs. 9,078.76 million in FY 2009/10. Additional power import from India at higher commercial rate and annual escalation provisions in PPA rates have resulted in an increase in power purchase cost.

Interest expenditure, the second largest component of total expenditure increased by 28.54% over the previous year's figure to register a total amount of Rs.3,204 million. Interest on loan of Middle Marsyangdi Hydro Electric Project (MMHEP) contributed Rs 711.45 million to the increment in the interest expenses.

Staff cost standing at 12.91% of the total expenditure amounted to Rs. 3,099.23 million in FY 2009/10, an increase of 15.38% over previous year's staff cost. Main reasons behind this increase are raise in staff salary, annual increment in grade and recruitment of additional employees.

Operation and maintenance expenses stood at Rs. 2,386.10 million, an increment of 40.87% over the figure of previous year. The O & M cost is 9.94% of the total expenditure. Necessary preventive and corrective maintenance of machines, equipment and plant of generation,

transmission and distribution facilities as well as general rise in market price of various construction materials contributed to increase in the operation and maintenance expenses. Depreciation expense amounted to Rs. 2,498.26 million, an increase of 5.80 % over the previous year's figure.

In FY 2009/10, royalty stood at Rs.888.08 million, an increase of 11.55% over previous FY figure, The royalty expense represents 3.70% of the total expenditure in FY 2009/10. This increase in the royalty expanse is mainly contributed by the addition of MMHEP in the INPS. At the end of FY 2009/10, Nepalese currency weakened against Japanese Yen. As a result, translation loss on foreign exchange loan in Japanese Yen for the Kulekhani Disaster Prevention Project further added a loss of Rs. 809.23 million. Based on actuarial valuation report, a sum of Rs.1,550 million was provided to cover up the expenses for future liabilities for the retirement benefits to employees on account of gratuity, pension, medical facilities and accumulated leave for the FY 2009/10.

Revenue collection in FY 2009/10 was 90.45 % of the total sales as against 94.07% in the previous year. The public sector dues and VDCs dues still remain a serious problem in revenue collection. The outstanding receivable against municipalities, government offices and public Institutions stood at approximately Rs. 1930 million at the end of FY 2009/10. This is about 29.54% of the amount of total receivables. Total receivable in FY 2009/10 stood at Rs. 6,533.13 million, which is equivalent to 3.94 months' sales revenue.

There has been no adjustment in electricity tariff rates since 2001. This has compelled NEA to conduct its business at loss for past few years. In this context, NEA has filed a petition with Electricity Tariff Fixation Commission (ETFC) for upward adjustment in electricity tariff to adjust mismatch between sales revenue and cost of service. Currently, this tariff petition is under consideration in ETFC.

In FY 2009/10, the cost of service for providing electricity to consumers reached Rs. 8.97 per kWh whereas average sales tariff rate realized after rebate remained only Rs.6.57 per kWh. NEA incurred a net loss of Rs.2.40 on every kWh of energy sold. The net loss incurred in FY 2009/10 amounted to Rs. 5,350.92 million. At the end of FY 2009/10, accumulated loss reached Rs. 19,469.75 million.

Despite the difficult cash flow situation and the financial losses, NEA continued to invest in generation, transmission and distribution projects in order to improve the supply situation and provide quality service. Necessary arrangement for funding of Upper Tamakoshi HEP has been made. Under the arrangement made, Employees Provident Fund, Nepal Telecom, Rastriya Beema Sansthan, Citizen Investment Trust and consortium of banks lead by Himalyan bank Limited will provide loan. Similarly, funding for Upper Trishuli-3A (60MW) and Rahughat (30MW) has been arranged from Exim Bank of China and Exim Bank of India respectively. Exim Bank of India, ADB, the World Bank and Exim Bank of Korea are extending their support in other areas of distribution, generation, transmission and institutional strengthening.

During FY 2009/10, GoN invested Rs.4,293.70 million in generation, transmission and distribution projects as equity. At the end of FY 2009/10, GoN investment as equity has reached Rs. 37,953.16 million. The balance of accumulated reserve and surplus stood at a negative figure of Rs. 17,951.90 million. This has eroded the net worth of NEA. Total long term borrowing stood at Rs. 60,381.19 million at the end of FY 2009/10. In FY 2009/10, NEA paid Rs. 372.78 million for interest, Rs. 648.95 million for repayment of loan to government

and Rs. 581.69 million for royalty.
During FY 2009/10, property, plant and equipment worth about Rs 6,000 million was capitalized. At the end of 2009/10, property, plant and equipment valued at historical cost reached Rs. 84,740.24 million in comparison to Rs 81,238.50 million at the end of FY 2008/09.

In FY 2009/10, NEA invested Rs. 11,900.61 million in projects out of which Rs. 10,726.16 million was received as Government equity and Rs. 1,174.45 million was mobilized from NEA's internal sources.

NEA has adopted the policy of developing new projects on Private Public Partnership (PPP) model. Chilime Hydropower Plant, already in operation and Upper Tamakoshi Hydroelectric Project under construction provide good examples of PPP model. At the end of FY 2009/10, NEA's total investment in subsidiaries and other companies reached Rs 3,189.92 million. Of the total investment, Rs. 2,122.01 million has been invested in Upper Tamakoshi Hydro Power Limited (UTKHPL), and Rs. 489.60 million has been invested as equity investment in Chilime Hydro Power Co. Limited (CHPCL). Other investments of NEA include equity investment in Nepal Engineering Consultancy (Rs. 2.28 million), Khumbu Bijuli Company (Rs. 20.65 million), Salleri Chaylsa Hydro Electric Company (Rs. 11.63 million) and Butwal Power Company (Rs. 8.86 million). In addition to the above investment, NEA deposited Rs. 50 million in Citizen Investment Trust (CIT) towards gratuity and pension liabilities. Total amount invested in CIT reached Rs. 534.89 million at the end of FY 2009/10. In FY 2009/10, NEA received dividend from CHPCL (45 % cash) and BPCL (20% cash and 10% bonus share).

The significant gap between average revenue rate and cost of service had adverse impact on NEA's payment obligations towards GoN. Consequently, about Rs. 4,743.25 million on account of interest and royalty payable to GoN, and payment to creditors for goods and services remained outstanding in FY 2009/10. During the fiscal year under review, NEA borrowed short term loan from local banks amounting to Rs. 1,280 million at prevailing market interest rate to meet working capital requirement.

In the review period, a high level committee was formed by the Ministry of Energy following the Energy Crisis Mitigating Action Plan 2008 approved by GoN to study and recommend the financial restructuring of NEA to improve its weakening financial health. The committee has recommended the financial restructuring plan along with Action Plan. Major recommendations proposed in the Action Plan include writing off accumulated losses, conversion of IDC and interest payable to GoN into equity, treatment of grants as grants to NEA instead of loan, reduction of interest rate to 5% and automatic tariff adjustment. NEA Board and Ministry of Energy has endorsed this report and recommended to Ministry of Finance for approval. This report is currently under consideration in the Ministry of Finance.

In FY 2009/10, remarkable success was achieved in settling the pending audit remarks related to very old projects. During FY 2009/10, out of the total outstanding Rs.21.14million of pending audit remarks for the period FY 1973/74 to FY 1993/94, Rs.16.56 million was settled. The statutory audit for the FY 2008/09 carried out by the office of the Auditor General was completed within 9 months of the FY 2009/10. Tax return for the Income year 2008/09 under self assessment procedure was also filed with the relevant Tax Authority at the end of FY 2009/10.

NEA has to achieve a number of covenants in respect of borrowing from the donor agencies. Major covenants related to finance include Rate of Return (RoR), Self Financing Ratio

(SFR), Debt Service Coverage Ratio (DSCR), Average Collection Period (ACP) and Average Payment Period (APP). NEA has not been able to achieve the above loan covenants due to the weakening financial health. Considering the declining financial position of NEA, the World Bank revised these covenants while granting the additional financing to Power Development Project. Accordingly, NEA has to comply with only ACP and APP for World Bank financing. The Bank has agreed to revise benchmark target for RoR(2.5%) and DSCR(1 time) and removed SFR for the time being. However, there is no revision in financial covenants for ADB financing. In FY2009/10, NEA achieved (2.53)%, 0.52 times, 3.94 months and 6.02 months in respect of RoR, DSCR, ACP and APP respectively.

NEA has successfully computerized its financial accounts and inventory in the platform of Oracle Based Customized Accounting and Inventory System (CAIS) in major budget centers. In FY 2009/10, Oracle based payroll software developed by NEA, was installed at more than 55 budget centers to automate Payroll computation. By the end of FY 2009/10, financial module has been used by most of the budget centers while inventory module has been used only by 110 budget centers. NEA is planning to adopt ERP module from the financial assistance of International Development Association under Institutional Strengthening Program.

A Technical Assistance (TA) has been approved by the World Bank to strengthen the accounting system and internal audit system as recommended in the study under the first phase of NEA Institutional Strengthening Project. The main activities under this TA include reforming accounting framework, design, development, procurement, installation and rolling out of a new Financial Accounting System (FAS) along with required capacity building. The selection of consultant is in progress.

NEA Board Matters

Dr. Prakash Sharan Mahat, Honorable Minister, Ministry of Energy has been the Chairman of Board of Directors of NEA since July 1, 2009. Likewise, Mr. Shankar Prasad Koirala, Secretary, Ministry of Energy; Mr. Krishna Hari Banskota, Secretary, Ministry of Finance, Mr. Lekh Man Singh Bhandari, and Mr. Ananda Raj Batas continued as Board Member. Dr. Jivendra Jha, Managing Director, NEA serves as Member Secretary of the Board. In the fiscal year under review, Mr. Mukesh Raj Kafle has been appointed as Board Member by the decision of Government of Nepal.

During the year under review, altogether twenty nine Board meetings were convened to deliberate and decide on various agenda. Scores of important and far reaching decisions were made. Furthermore, various by-laws relating to personnel, financial and consumer management were amended to impart greater degree of efficiency and effectiveness on the functioning of NEA.

Nepal Electricity Authority

Highlights of FY 2009/10

Description	FY 2010 *	FY 2009	Increase (Decrease)	
			Amount	%
Revenue:				
Net Sale of Electricity (M.Rs.)	17,586.91	14,405.93	3,180.98	22.08
Income from Other Services (M.Rs.)	1,124.44	1,601.67	(477.23)	(29.80)
Total Revenue (M.Rs.)	**18,711.35**	**16,007.60**	**2,703.75**	**16.89**
Operating Expenses:				
Generation Exps. (M.Rs.)	1,823.22	1,119.71	703.51	62.83
Power Purchase (M.Rs.)	9,078.76	7,691.28	1,387.48	18.04
Royalty (M.Rs.)	888.08	796.12	91.96	11.55
Transmission Expenses (M.Rs.)	345.16	328.16	17.00	5.18
Distribution Expenses (M.Rs.)	2,867.58	2,575.09	292.49	11.36
Administration Expenses (M.Rs.)	797.98	651.69	146.29	22.45
Depreciation Expenses (M.Rs.)	2,498.26	2,361.20	137.06	5.80
Deferred Revenue Expenditure (M.Rs.)	150.00	96.68	53.32	55.15
Total Operating Expenses (M.Rs.)	**18,449.04**	**15,619.93**	**2,829.11**	**18.11**
Operating Surplus (M.Rs.)	**262.31**	**387.67**	**(125.36)**	**(32.34)**
Interest on Long-Term Loans (M.Rs.)	3,204.00	2,492.55	711.45	28.54
Foreign exchange translation losses	809.23	813.96	(4.73)	(0.58)
Municipalities street light dues written off	-	863.00	(863.00)	(100.00)
Provision for Employee benefits	1,550.00	1,246.00	304.00	24.40
Other Exps. (income) including prior year's Adj.	50.00	65.38	(15.38)	(23.52)
Net Income/(Loss) (M.Rs.)	**(5,350.92)**	**(5,093.22)**	**(257.70)**	**5.06**
Longterm Loans (M.Rs.)	60,381.19	53,788.45	6,592.74	12.26
Net Property, Plant & Equipment (M.Rs.)	84,740.24	81,238.50	3,501.74	4.31
Number of Consumers	1,854,275	1,670,610	183,665	10.99
Total Sales of Electricity (GWh)	2,677.83	2,204.59	473.24	21.47
Internal Sale/Utilised (GWh)	2,603.35	2,158.21	445.14	20.63
Annual Average Consumer's Consumption (kWh)+	1,403.97	1,291.87	112.10	8.68
Average Price of Electricity (Rs./kWh)	6.71	6.69	0.02	0.36
Peak Load Interconnected System (MW)	885.28	812.50	72.78	8.96
Total Available Electric Energy (GWh)	3,689.27	3,130.77	558.50	17.84
NEA Hydro Generation (GWh)	2,104.52	1,839.52	265.00	14.41
Thermal Generation (GWh)	13.12	9.06	4.06	44.81
Purchased Energy (GWh)-India	612.58	356.45	256.13	71.86
-Nepal(Internal)	959.05	925.74	33.31	3.60
Exported Energy (GWh)	74.48	46.38	28.10	60.59
Self Consumption (GWh)	30.90	30.70	0.20	0.65
Net System Losses (Percentage)	**26.58**	**28.60**	(2.02)	(7.06)

Note:

* Provisional figures; Subject to final audit.

+ on Internal sales.

Nepal Electricity Authority

Balance Sheet as of July 16, 2010

(Rs. in million)

Particular	2010*	2009	2008	2007	2006	2005	2004	2003	2002	2001
Capital and Liabilities										
Capital and Reserve										
Share Capital	37,953.16	33,659.46	28,609.97	26,382.18	23,113.10	20,161.80	18,215.85	16,976.87	16,601.30	15,360.30
Reserve and Accumulated Profit	(17,951.90)	(12,600.98)	(7,577.78)	(5,651.12)	(5,545.32)	(4,294.14)	(2,997.69)	(1,269.87)	696.51	1,626.96
Secured Long Term Loan	60,381.19	53,788.45	51,368.84	47,616.15	46,487.91	44,537.51	41,103.14	39,637.11	37,325.61	36,707.50
Deferred Tax	693.21	693.20	791.01	848.40	-	-	-	-	-	-
Grand Total	**81,075.66**	**75,540.13**	**73,192.04**	**69,195.61**	**64,055.69**	**60,405.17**	**56,321.30**	**55,344.11**	**54,623.42**	**53,694.76**
Asset										
Property, Plant & Equipment	84,740.24	81,238.50	52,030.28	51,781.76	51,743.38	52,166.56	51,415.14	50,094.75	51,080.91	28,238.26
Capital Work in Progess	19,511.07	13,550.46	35,699.71	29,145.19	21,991.50	16,060.40	10,619.55	8,655.48	4,837.80	23,640.00
Investment	3,189.92	2,139.92	1,620.19	882.05	819.90	777.00	713.01	613.01	553.00	517.10
Sub Total	**107,441.23**	**96,928.88**	**89,350.18**	**81,809.00**	**74,554.78**	**69,003.96**	**62,747.70**	**59,363.24**	**56,471.71**	**52,395.36**
Current Asset										
Inventories	2,635.88	2,159.12	1,800.13	1,498.45	1,354.80	1,372.70	1,048.01	1,017.22	1,058.10	960.90
Sundry Debtors and Other Receivable	6,533.13	4,854.02	5,721.08	5,151.41	4,088.00	3,697.70	3,735.71	3,380.20	2,284.90	1,678.50
Cash and Bank Balance	643.45	1,724.76	1,337.15	1,447.58	1,258.60	1,322.60	1,036.42	1,076.15	664.60	1,039.30
Prepaid,Advance, Loan and Deposits	2,789.10	2,495.13	2,319.72	2,225.53	2,293.90	2,098.60	2,063.27	2,216.91	3,314.40	2,634.90
Total Currents Asset	**12,601.56**	**11,233.03**	**11,178.08**	**10,322.97**	**8,995.30**	**8,491.60**	**7,883.41**	**7,690.48**	**7,322.00**	**6,313.60**
Less: Current Liabilities and Provision										
Sundry Creditors and Payables	34,056.46	29,221.35	25,482.01	22,119.00	19,144.39	16,768.69	13,856.61	11,593.69	8,852.79	5,070.80
Provision	4,880.78	3,330.78	2,085.38	693.13	709.80	697.70	681.48	753.31	1,244.20	1,042.90
Total Currrent Liabilities and Provision	**38,937.24**	**32,552.13**	**27,567.39**	**22,812.13**	**19,854.19**	**17,466.39**	**14,538.09**	**12,347.00**	**10,096.99**	**6,113.70**
Net Currents Assets	**(26,335.68)**	**(21,319.10)**	**(16,389.31)**	**(12,489.16)**	**(10,858.89)**	**(8,974.79)**	**(6,654.68)**	**(4,656.52)**	**(2,774.99)**	**199.90**
Deferred Expenditures (To be Written Off)	361.22	361.22	423.33	130.94	32.40	126.70	250.01	506.82	916.50	978.60
Inter Unit Balance(Net)	(391.11)	(430.87)	(192.16)	(255.17)	327.40	249.30	(21.73)	130.57	10.20	120.90
Total Def. Exp.& Inter.	**(29.89)**	**(69.65)**	**231.17**	**(124.23)**	**359.80**	**376.00**	**228.28**	**637.39**	**926.70**	**1,099.50**
Grand Total	**81,075.66**	**75,540.13**	**73,192.04**	**69,195.61**	**64,055.69**	**60,405.17**	**56,321.30**	**55,344.11**	**54,623.42**	**53,694.76**

Note : * Provisional figures; subject to final audit.

Nepal Electricity Authority

Income Statement for the FY ending July 16, 2010

(Rs. in million)

Particulars	2010*	2009	2008	2007	2006	2005	2004	2003	2002	2001
Sales	17,586.91	14,405.93	15,041.49	14,449.73	13,331.90	12,605.20	11,874.70	11,012.60	9,476.20	8,160.80
Cost of sales	**12,135.22**	**9,935.27**	**9,530.83**	**9,034.55**	**8,332.70**	**7,462.41**	**6,765.40**	**5,348.00**	**5,886.70**	**4,480.70**
Generation	1,823.22	1,119.71	979.76	855.64	811.12	642.06	544.18	422.17	478.33	431.77
Power Purchase	9,078.76	7,691.28	7,437.04	6,967.57	6,391.95	5,760.31	5,415.62	4,087.01	4,659.32	3,348.92
Royalty	888.08	796.12	839.18	970.46	897.50	844.11	606.10	660.22	591.05	562.71
Transmission	345.16	328.16	274.85	240.88	232.13	215.93	199.50	178.60	158.00	137.30
Gross profit	**5,451.69**	**4,470.66**	**5,510.66**	**5,415.18**	**4,999.20**	**5,142.79**	**5,109.30**	**5,664.60**	**3,589.50**	**3,680.10**
Other income	1,124.44	1,601.67	934.66	1,016.61	639.90	617.50	671.40	512.50	459.60	593.10
Distribution Expenses	2,867.58	2,575.09	2,110.01	1,834.39	1,703.70	1,484.20	1,376.10	1,308.60	1,174.40	982.22
Administrative Expenses	797.98	651.69	683.98	479.59	419.50	622.40	489.10	536.10	447.40	850.08
Profit from operation	**2,910.57**	**2,845.55**	**3,651.33**	**4,117.81**	**3,515.90**	**3,653.69**	**3,915.50**	**4,332.40**	**2,427.30**	**2,440.90**
Interest	3,204.00	2,492.55	2,274.37	2,385.41	3,050.90	3,079.80	2,991.50	2,973.40	1,395.50	1,188.20
Depreciation	2,498.26	2,361.20	1,895.17	1,856.47	1,816.90	1,733.50	1,686.00	1,656.70	1,420.10	1,119.30
(Profit) loss on foreign Exchange	809.23	813.96	484.10	(493.39)	42.70	(230.00)	59.10	-	271.60	-
Street light dues written off	-	863.00	-	-	-	-	-	-	-	-
Provision for losses on property, plant & equipment	-	-	60.00	60.00	65.00	40.00	-	191.50	37.00	-
Provisions (including employee retirement beneits)	1,550.00	1,246.00	1,354.00							
Deferred revenue expenditure writen off	150.00	96.68	108.51	42.56	105.40	123.30	320.10	411.10	512.50	426.90
Sub total	**8,211.49**	**7,873.39**	**6,176.15**	**3,851.05**	**5,080.90**	**4,746.60**	**5,056.70**	**5,232.70**	**3,636.70**	**2,734.40**
Profit (loss) from operation in the current year	***(5,300.92)***	***(5,027.84)***	***(2,524.82)***	***266.76***	***(1,565.00)***	***(1,092.91)***	***(1,141.20)***	***(900.30)***	***(1,209.40)***	***(293.50)***
Prior years (Income) Expenses	50.00	163.19	(151.96)	(47.26)	(297.20)	219.90	344.90	444.40	492.00	291.60
Net profit (loss) before tax	**(5,350.92)**	**(5,191.03)**	**(2,372.86)**	**314.02**	**(1,267.80)**	**(1,312.81)**	**(1,486.10)**	**(455.90)**	**(717.40)**	**(1.90)**
Provision for Tax	-	-	-	-	-	-	274.20	1,497.80	143.30	49.10
Deferred Tax Expenses (Income)	-	(97.81)	(57.39)	73.42	-	-	-	-	-	-
Net profit (loss) after tax	**(5,350.92)**	**(5,093.22)**	**(2,315.47)**	**240.60**	**(1,267.80)**	**(1,312.81)**	**(1,760.30)**	**(1,953.70)**	**(860.70)**	**(51.00)**
Balance of profit as per last account	(14,098.83)	(8,985.61)	(6,650.14)	(6,095.81)	(4,808.01)	(3,475.20)	(1,694.90)	278.90	1,159.60	1,230.60
Prior years Deferred Tax Expenses	-	-	-	774.93	-	-	-	-	-	-
Total profit Available for appropriation	(19,449.75)	(14,078.83)	(8,965.61)	(6,630.14)	(6,075.81)	(4,788.01)	(3,455.20)	(1,674.80)	298.90	1,179.60
Insurance fund	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Profit (loss) transferred to balance sheet	**(19,469.75)**	**(14,098.83)**	**(8,985.61)**	**(6,650.14)**	**(6,095.81)**	**(4,808.01)**	**(3,475.20)**	**(1,694.90)**	**278.90**	**1,159.60**

Accounting Policies

1. Basis of Preparation of Financial Statements

The financial statements have been prepared on the basis of historical cost convention in accordance with the generally accepted accounting principles The financial statements comply with Nepal Accounting Standards (NAS) and presentational requirement of the Companies Act 2063.

2. Revenue from Sale of Electricity

(i) Revenue from sale of electricity is recognized at the time of raising of bills on the customers as per the billing cycle. Revenue from the billing cycle date up to 32 Ashad (16 July) has been accrued taking average rate. Revenue from sale of electricity is shown net of rebate.

(ii) Rebate and surcharge for delayed payments are accounted on cash basis.

3. Income from Other Services

(i) Interest on investments and lease rent are recognized on accrual basis.

(ii) Dividend on investment in shares is recognized when received.

(iii) Revenue from other services is recognized on cash basis.

(iv Revenue from services provided by Engineering Services are accounted for on cash basis on the completion of the relevant job.

4. Property, Plant and Equipment

Property plant and equipment are stated at cost of acquisition or cost of construction less accumulated depreciation. The cost of acquisition, construction/ erection include interest on loans related to the period of construction/erection up to the date of completion of the project, along with other incidental costs and charges attributable to bringing the asset to its working condition for its intended use. The incidental costs include proportionate overheads relating to the following offices at the rates given below:

(a)	Planning	50%
(b)	Distribution and Consumer	10%
(c)	Engineering	50%
(d)	Finance and Administration	10%

5. Foreign Currency Loans

Liabilities on foreign currency loans which remained unpaid at the year end are converted at the year end exchange rates. The profit/loss arising there from is recognized as income or expenses in the Income Statement.

6. Depreciation

Depreciation is provided on all categories of

S.N	Assets	Depreciation Rate (p.a)
(a)	Land	-
(b)	Buildings	2.00%
(c)	Hydro Electric Structures	2.00%-3.00%
(d)	Hydro Electric Plant & Machinery	3.00%
(e)	Internal Combustion on plant & machinery	2.50%
(f)	Transmission lines	
(66	KV, 132 KV and above)	3.00%
(g)	Transmission lines (33 KV)	3.00%
(h)	Transmission Substations	3.00%
(i)	Distribution system (including below 11 KV Transmission lines)	3.00%-4.00%
(j)	Solar Power	3.00%
(k)	Meter & metering equipment	10.00%
(l)	Consumer Services	7.00%
(m)	Public lighting	3.00%
(n)	Vehicles, tools and instruments, furniture and fixtures.	20.00%
(o)	Office Equipment	15.00%
(p)	Miscellaneous properties	50.00%
(q)	Additions during the year	At applicable rates

property, plant and equipment on straight line basis which reflects the estimated useful lives of the assets.

The rate of depreciation on property, plant and equipment is given above in the Table.

7. Grant – in- Aid, Contribution from Customer / Local Authority

Grants-in-Aid received from the GoN or other authorities towards capital expenditure as well as consumers' contribution to capital work are treated initially as Capital Reserve and subsequently adjusted as income in the same proportion as the depreciation written off on the assets acquired out of the grants/ consumer contribution.

8. Investments in Shares

Investment in the shares of subsidiary and other companies held for long term are stated at cost.

9. Inventories

Inventories are valued at cost, using the weighted average method.

10. Accounts Receivable

Accounts receivable are stated at book values, less provision as may be considered appropriate by the management.

11. Deferred Revenue Expenditure

Certain expenditure incurred on training, investigation, survey, software development, feasibility studies of infrastructure projects and major overhauling etc. which are expected to generate benefits over a period of time, are treated as deferred revenue expenditures and written off over a period of five years, including the year in which the said expenditures are incurred.

12. Employees Benefits

The employee benefits are accounted for as per the provisions of NAS 14 on the basis of categories in which the employees are covered namely defined contribution plan & defined benefits plan. In respect of benefits covered under the defined contribution plan namely the provident fund, the employer contribution paid with the PF is recognized as the expenditure of the year. In respect of the benefits covered under the defined benefit plan namely pension, gratuity, leave encashment and medical facilities etc, the expenditure is recognized on the basis of present value of obligations as on the date of balance sheet as per the actuarial valuation.

13. Insurance Fund

Insurance fund is created by setting aside a sum of Rs. 20 million every year irrespective of profit/loss for the year to cover any loss of property, plant and equipment, in case of any eventuality.

14. Prior year's figures/ Regrouping

Previous year's figures have been reclassified/ regrouped, where necessary, to make them comparable with current year's figures.

15. Taxes on income

Current tax is determined as the amount of tax payable in respect of taxable income for the year. Deferred tax is recognized on temporary difference; being the difference between tax base of assets and liability and carrying amount thereto. Where there is carry forward losses, deferred tax asset are recognized only if there is virtual certainty of realization of such assets. Other deferred tax assets are recognized only to the extent there is reasonable certainty of realization in future.

16. Provisions

Provisions involving substantial degree of reliable estimation in measurement are recognized when there is a present obligation as a result of past events and it is probable that there will be an outflow of resources to settle the obligations. Provisions are determined based on the best estimate required to settle the obligation at the year end date. These are reviewed at each year end date and adjusted to reflect the best current estimate.

TARIFF RATES

(Billing Effective since September 17, 2001)

1:	DOMESTIC CONSUMERS			
	A	**Minimum Monthly Charge: METER CAPACITY**	**Minimum Charge (Rs.)**	**Exempt (kWh)**
		Up to 5 Ampere	80.00	20
		15 Ampere	299.00	50
		30 Ampere	664.00	100
		60 Ampere	1394.00	200
		Three phase supply	3244.00	400
	B	**Energy Charge:**		
		Up to 20 units	Rs. 4.00 per unit	
		21 - 250 units	Rs. 7.30 per unit	
		Over 250 units	Rs. 9.90 per unit	
2:	TEMPLES			
	Energy Charge		Rs. 5.10 per unit	
3:	STREET LIGHTS			
	A	With Energy Meter	Rs. 5.10 per unit	
	B	Without Energy Meter	Rs. 1860.00 per kVA	
4:	TEMPORARY SUPPLY			
	Energy Charge		Rs. 13.50 per unit	
5:	COMMUNITY WHOLESALE CONSUMER			
	Energy Charge		Rs. 3.50 per unit	
6:	INDUSTRIAL		**Monthly Demand Charge**	**Energy Charge**
	A	Low Voltage (400/230 Volt)		
		(a) Rural and Cottage	45.00	5.45
		(b) Small Industry	90.00	6.60
	B	Medium Voltage (11 kV)	190.00	5.90
	C	Medium Voltage (33 kV)	190.00	5.80
	D	High Voltage (66 kV and above)	175.00	4.60
7:	COMMERCIAL			
	A	Low Voltage (400/230 Volt)	225.00	7.70
	B	Medium Voltage (11 kV)	216.00	7.60
	C	Medium Voltage (33 kV)	216.00	7.40
8:	NON-COMMERCIAL			
	A	Low Voltage (400/230 Volt)	160.00	8.25
	B	Medium Voltage (11 kV)	180.00	7.90
	C	Medium Voltage (33 kV)	180.00	7.80

9:	**IRRIGATION**			
	A	Low Voltage (400/230 Volt)	-	3.60
	B	Medium Voltage (11 kV)	47.00	3.50
	C	Medium Voltage (33 kV)	47.00	3.45
10:	**WATER SUPPLY**			
	A	Low Voltage (400/230 Volt)	140.00	4.30
	B	Medium Voltage (11 kV)	150.00	4.15
	C	Medium Voltage (33 kV)	150.00	4.00
11:	**TRANSPORTATION**			
	A	Medium Voltage (11 kV)	180.00	4.30
	B	Medium Voltage (33 kV)	180.00	4.25

TIME OF DAY (TOD) TARIFF RATES

Consumer Category & Supply Level			Monthly Demand Charge (Rs./kVA)	Energy Charge (Rs./unit)		
				Peak Time	Off-Peak	Normal
				18:00-23:00	23:00-6:00	6:00 - 18:00
A:	**High Voltage (66 kV and Above)**					
	1	Industrial	175.00	5.20	3.15	4.55
B:	**Medium Voltage (33 kV)**					
	1	Industiral	190.00	6.55	4.00	5.75
	2	Commecial	216.00	8.50	5.15	7.35
	3	Non-Commercial	180.00	8.85	5.35	7.70
	4	Irrigation	47.00	3.85	2.35	3.40
	5	Water Supply	150.00	4.55	2.75	3.95
	6	Transportation	180.00	4.70	2.95	4.15
	7	Street Light	52.00	5.70	1.90	2.85
C:	**Medium Voltage (11 kV)**					
	1	Industiral	190.00	6.70	4.10	5.85
	2	Commecial	216.00	8.65	5.25	7.55
	3	Non-Commercial	180.00	9.00	5.45	7.85
	4	Irrigation	47.00	3.95	2.40	3.45
	5	Water Supply	150.00	4.60	2.80	4.10
	6	Transportation	180.00	4.80	3.00	4.25
	7	Street Light	52.00	6.00	2.00	3.00

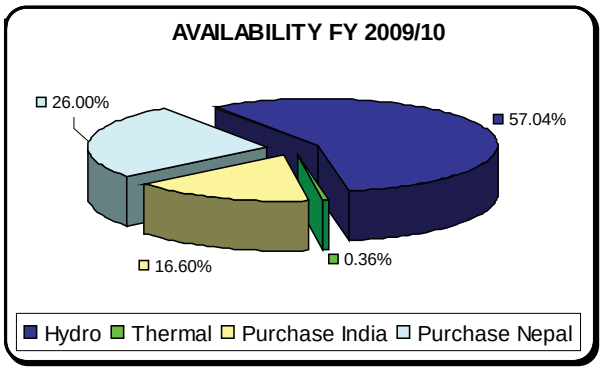
Note:

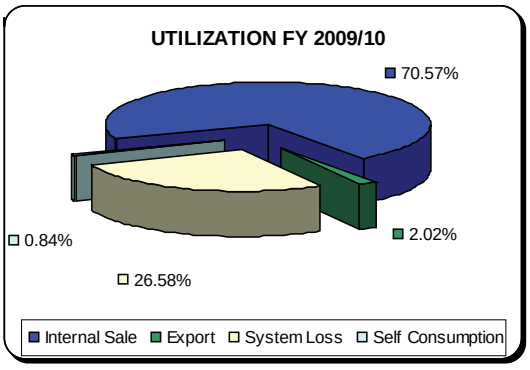
a) If demand meter reads kilowatts (kW) then kVA = kW/0.8

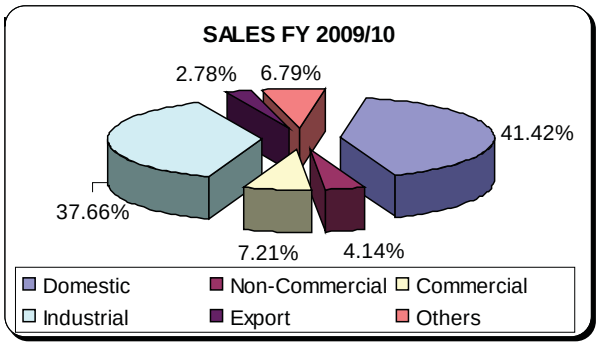
b) 10% discount in the total bill amount will be given to the Government of Nepal approved Industrial District

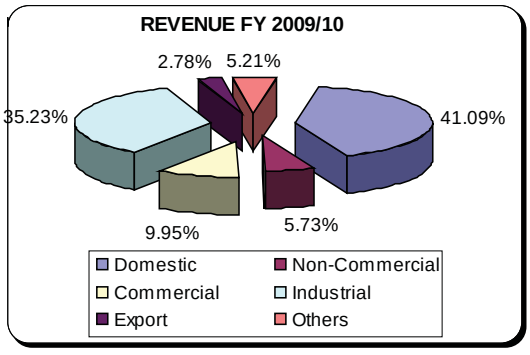
c) 25% discount in the total bill amount will be given to the Nepal Government Hospital and Health Centers (except residential complex)

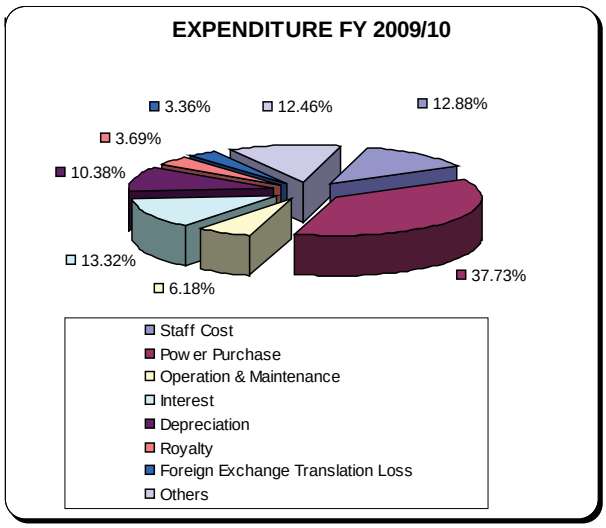
Statistics, Schematics and Maps

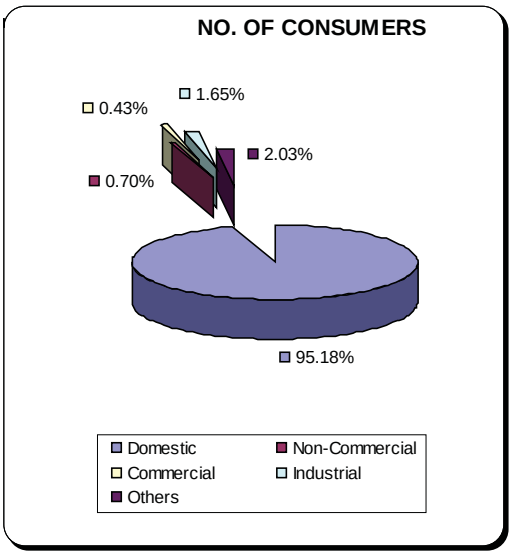




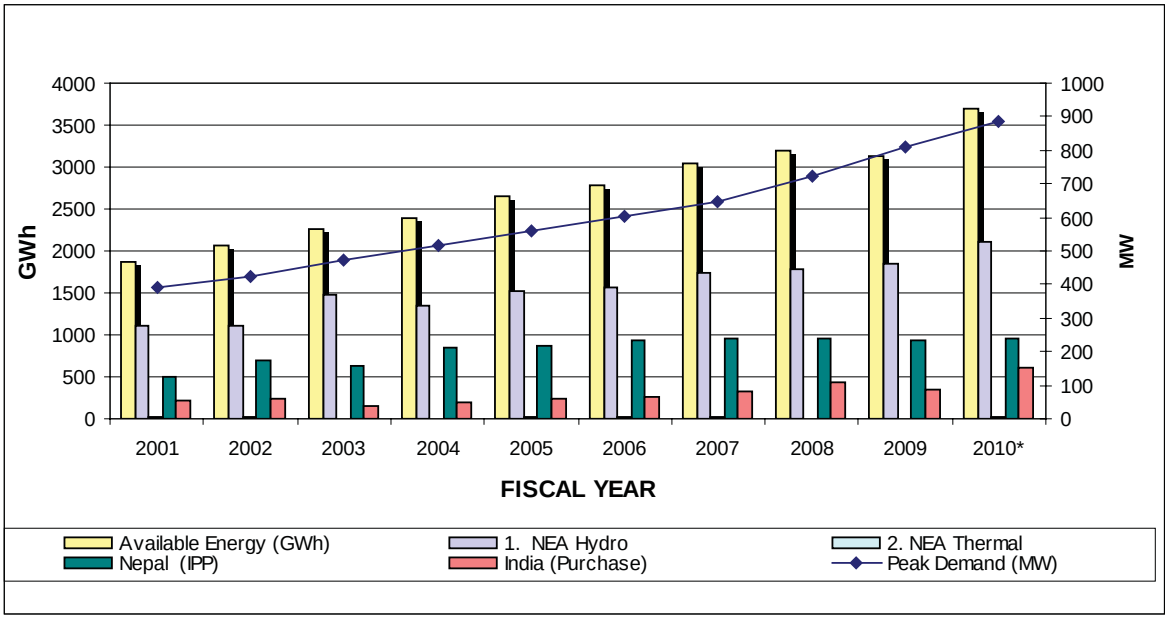








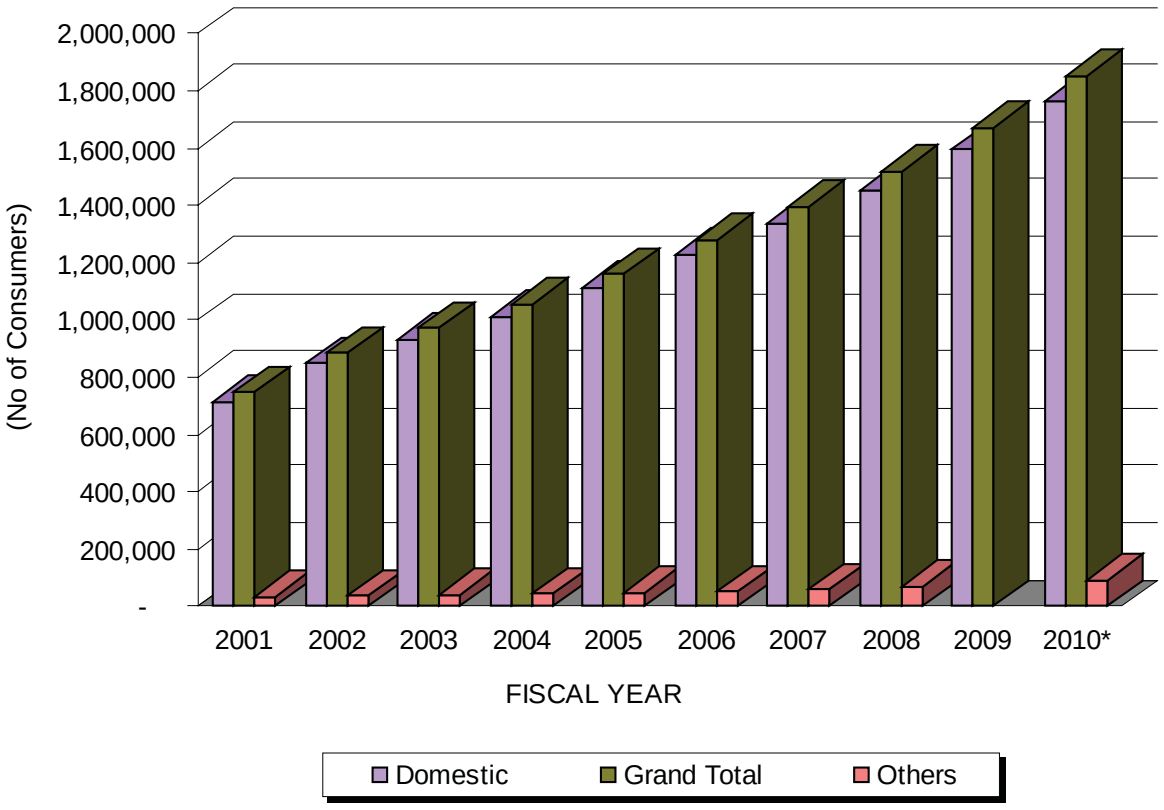
Total Energy Available & Peak Demand



Particulars	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Peak Demand (MW)	391	426	470.33	515.24	557.53	603.28	648.39	721.73	812.50	885.28
Available Energy (GWh)	**1868.42**	**2066.45**	**2261.13**	**2380.89**	**2642.75**	**2780.92**	**3051.82**	**3185.95**	**3130.79**	**3689.27**
1. NEA Hydro	1113.36	1113.13	1478.04	1345.46	1522.9	1568.55	1747.42	1793.14	1839.53	2104.52
2. NEA Thermal	27.14	17.01	4.4	9.92	13.669	16.1	13.31	9.17	9.06	13.12
3.Purchase (Total)	727.93	936.31	778.69	1025.519	1106.184	1196.27	1291.09	1383.64	1282.20	1571.63
India (Purchase)	226.54	238.29	149.88	186.675	241.389	266.23	328.83	425.22	356.46	612.58
Nepal (IPP)	501.38	698.02	628.81	838.844	864.795	930.04	962.26	958.42	925.74	959.05

Note :- Peak demand is for all areas covered by integrated system including supply to India
* Provisional figures; Subject to final audit

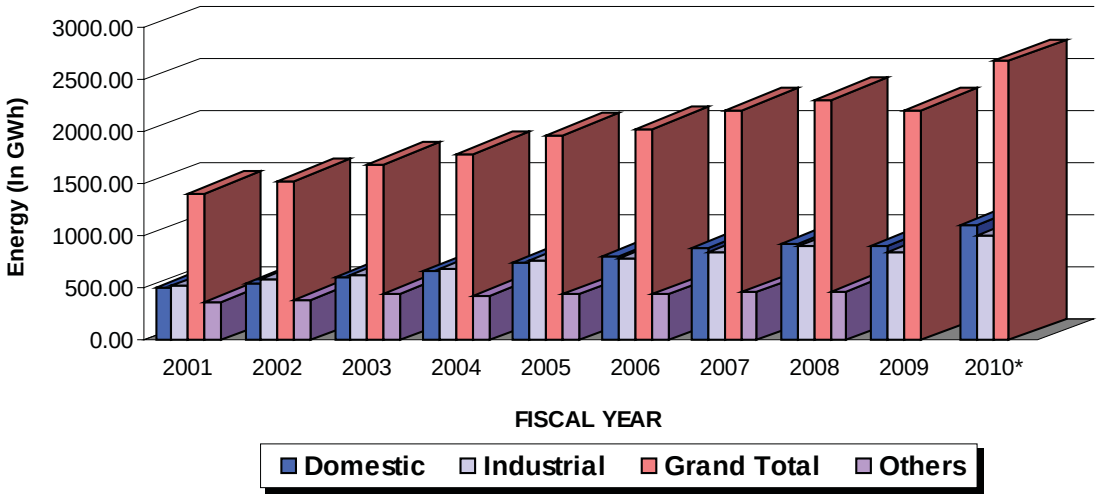
Growth of Consumers



Particulars	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Domestic	713,307	848,540	930,554	1,010,719	1,113,740	1,227,295	1,339,253	1,450,254	1,595,015	1,764,954
Non-Commercial	7,643	8,629	9,722	9,865	9,950	10,010	10,215	10,556	10,518	13,025
Commercial	3,386	3,898	5,317	5,454	6,000	6,170	6,000	6,052	7,305	8,063
Industrial	17,701	18,789	19,833	21,374	22,500	23,020	24,089	25,548	28,559	30,567
Water Supply	236	251	305	352	370	380	414	434	584	665
Irrigation	1,083	1,353	1,721	2,557	3,400	6,450	13,183	18,614	22,335	30,003
Street Light	1,012	1,048	1,229	1,437	1,500	1,550	1,608	1,961	2,339	2,256
Temporary Supply	141	172	138	150	155	165	210	300	403	601
Transport	37	49	48	48	50	54	39	38	42	40
Temple	1,441	1,800	1,738	1,959	2,150	2,290	2,628	2,746	2,911	3,161
Community Sales	-	1	1	15	35	58	169	375	594	935
Total (Internal Sales)	745,987	884,530	970,606	1,053,930	1,159,850	1,277,442	1,397,808	1,516,878	1,670,605	1,854,270
Bulk Supply (India)	5	5	5	5	5	5	5	5	5	5
Grand Total	**745,992**	**884,535**	**970,611**	**1,053,935**	**1,159,855**	**1,277,447**	**1,397,813**	**1,516,883**	**1,670,610**	**1,854,275**

Note : * Provisional figures; subject to final audit.

Electricity Sales

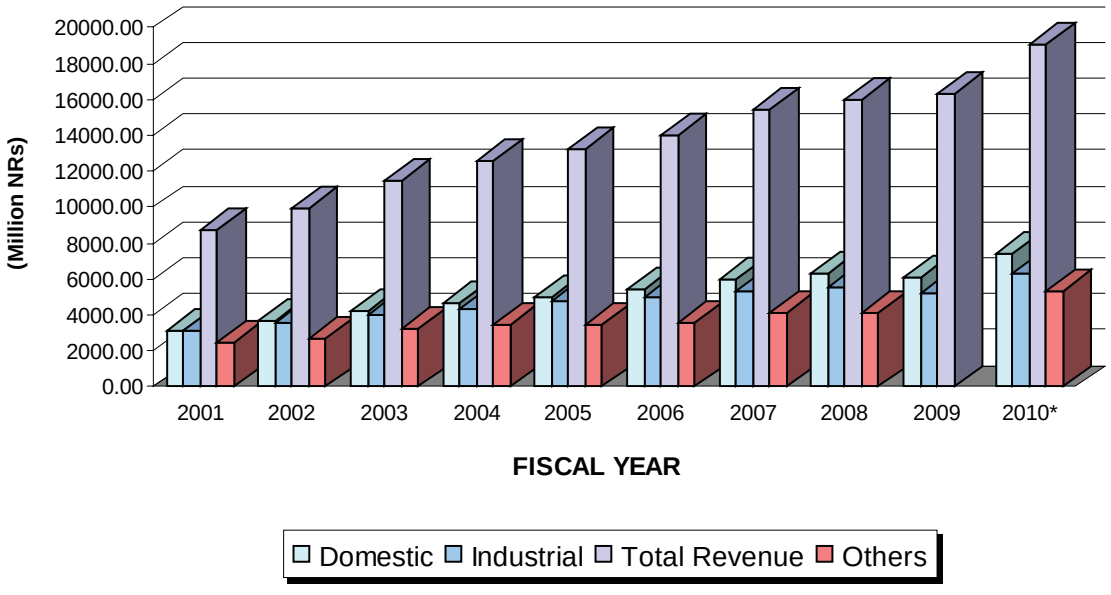


(in GWh)

Category	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Domestic	518.36	552.22	612.37	670.78	758.19	805.72	893.27	931.35	908.67	1109.29
Non-Commercial	73.16	78.22	80.74	83.01	100.54	95.29	100.52	109.93	98.89	110.78
Commercial	94.17	90.43	92.74	108.12	109.31	120.30	141.69	154.38	146.29	193.12
Industrial	520.63	596.68	629.51	689.80	764.00	785.55	849.13	901.09	845.68	1008.37
Water Supply & Irrigation	28.60	29.28	29.98	31.67	49.98	45.50	47.96	46.86	48.14	57.05
Street Light	36.98	39.52	45.80	55.20	54.86	63.24	66.90	70.26	67.51	68.04
Temporary Supply	0.83	0.28	0.35	0.25	0.39	0.87	1.26	0.70	1.04	1.05
Transport	5.89	5.64	5.53	5.47	5.80	5.65	6.31	5.88	5.22	5.82
Temple	2.51	2.48	2.81	4.11	4.58	4.77	4.78	5.12	4.76	4.08
Community Sales	-	5.72	4.74	5.58	6.03	9.18	15.51	24.65	32.01	45.75
Total (Internal Sales)	1281.13	1400.46	1504.57	1654.00	1853.69	1936.07	2127.33	2250.22	2158.21	2603.35
Bulk Supply (India)	126.00	133.86	192.25	141.23	110.70	96.55	76.87	60.10	46.38	74.48
Grand Total	**1407.13**	**1534.32**	**1696.82**	**1795.23**	**1964.39**	**2032.62**	**2204.20**	**2310.32**	**2204.59**	**2677.83**

Note : * Provisional figures; subject to final audit.

Revenue

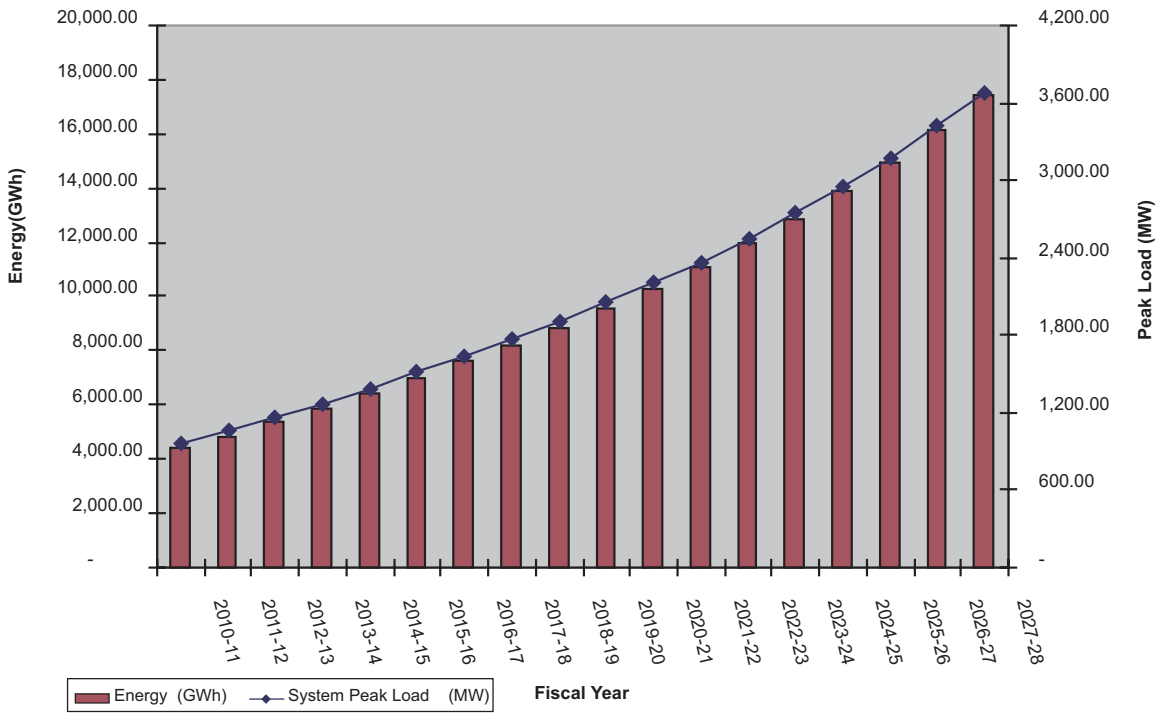


(in million Rs)

Category	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Domestic	3161.38	3641.43	4249.81	4701.07	4987.04	5405.12	6021.40	6297.65	6100.65	7384.84
Non-Commercial	835.78	722.12	783.99	816.03	862.37	881.73	940.20	982.08	900.75	1030.47
Commercial	555.62	818.75	894.91	986.32	1012.66	1081.26	1288.05	1399.51	1384.67	1788.46
Industrial	3086.10	3608.13	4039.65	4380.89	4799.74	4978.69	5300.91	5544.80	5264.33	6330.66
Water Supply & Irrigation	120.90	138.68	148.53	154.91	171.57	197.96	214.18	204.67	215.62	253.06
Street Light	176.05	200.74	246.79	329.31	354.10	422.35	454.85	467.31	445.96	453.96
Temporary Supply	6.77	3.63	4.74	3.46	5.06	11.18	17.36	10.51	12.20	14.28
Transport	27.73	27.90	29.29	28.92	30.72	29.78	31.65	33.70	26.95	29.23
Temple	11.45	12.16	14.24	26.38	29.17	24.42	26.03	26.38	24.41	22.03
Community Sales	-	-	16.59	20.09	24.03	23.94	53.70	64.22	70.10	163.89
Total (Internal Sales)	7981.78	9173.53	10428.53	11447.39	12276.46	13056.43	14348.33	15030.83	14445.64	17470.88
Bulk Supply (India)	396.06	514.12	808.96	673.93	609.51	579.33	428.93	361.14	295.49	499.57
Gross Revenue	**8377.83**	**9687.65**	**11237.49**	**12121.32**	**12885.97**	**13635.76**	**14777.26**	**15391.97**	**14741.13**	**17970.45**
Net Income from Other Services	376.09	248.17	287.64	424.75	336.70	336.09	689.08	584.18	1601.66	1124.44
Total Revenue	**8753.92**	**9935.82**	**11525.13**	**12546.07**	**13222.67**	**13971.85**	**15466.34**	**15976.15**	**16342.79**	**19094.89**

Note : * Provisional figures; subject to final audit.

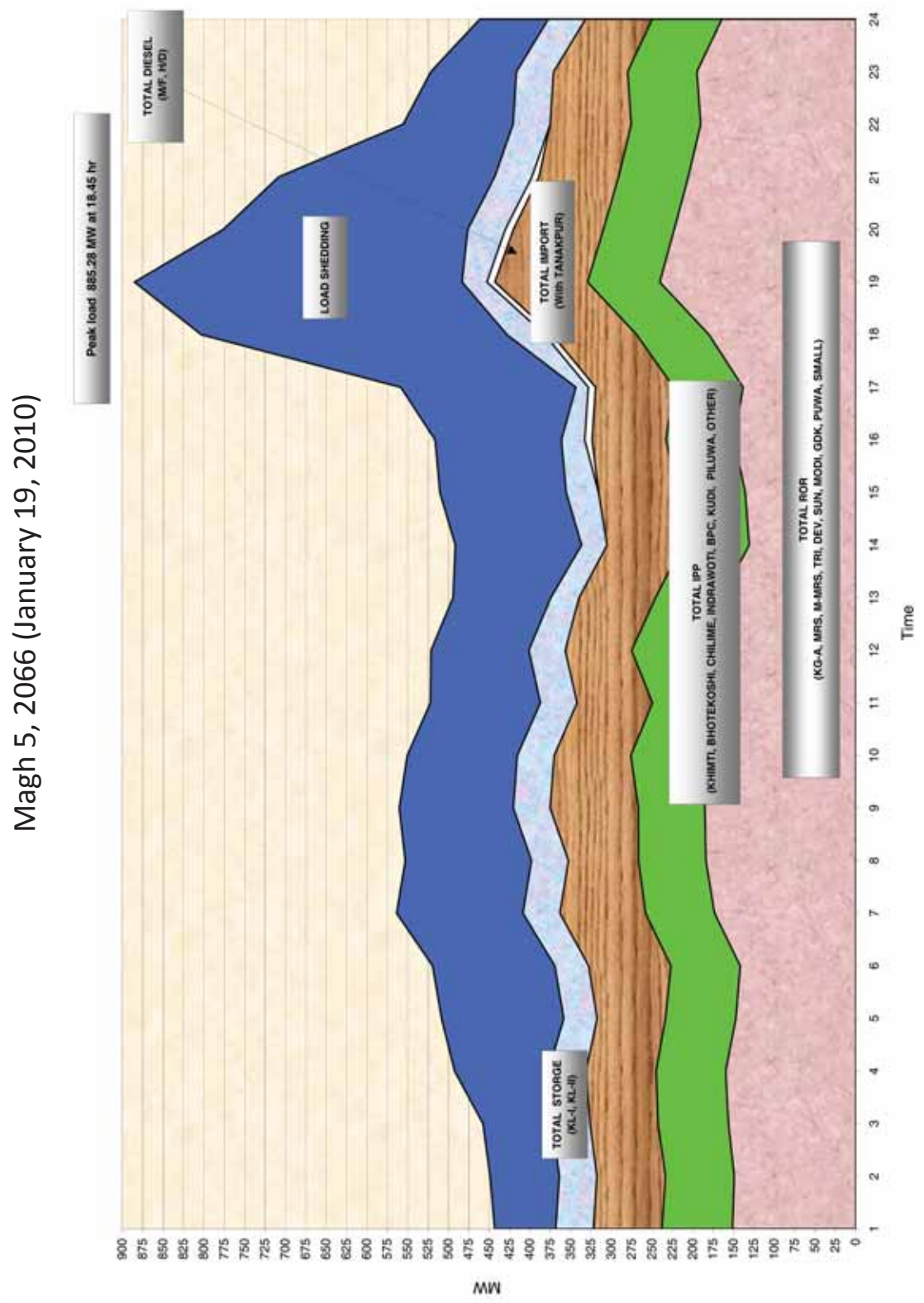
Load Forecast



Fiscal Year	Energy (GWh)	System Peak Load (MW)
2010-11	4,430.70	967.10
2011-12	4,851.30	1,056.90
2012-13	5,349.60	1,163.20
2013-14	5,859.90	1,271.70
2014-15	6,403.80	1,387.20
2015-16	6,984.10	1,510.00
2016-17	7,603.70	1,640.80
2017-18	8,218.80	1,770.20
2018-19	8,870.20	1,906.90
2019-20	9,562.90	2,052.00
2020-21	10,300.10	2,206.00
2021-22	11,053.60	2,363.00
2022-23	11,929.10	2,545.40
2023-24	12,870.20	2,741.10
2024-25	13,882.40	2,951.10
2025-26	14,971.20	3,176.70
2026-27	16,142.70	3,418.90
2027-28	17,403.60	3,679.10

System Load Curve of Peak Day of the Year

Magh 5, 2066 (January 19, 2010)



POWER DEVELOPMENT OF NEPAL

POWER PROJECTS

EXISTING

Major Hydropower Stations

1	Middle Marsyangdi	70,000	kW
2	KaliGandaki "A"	144,000	kW
3	Marsyangdi	69,000	kW
4	Kulekhani No. 1	60,000	kW
5	Kulekhani No. 2	32,000	kW
6	Trisuli	24,000	kW
7	Gandak	15,000	kW
8	Modi Khola	14,800	kW
9	Devighat	14,100	kW
10	Sunkosi	10,050	kW
11	Puwakhola	6,200	kW
TOTAL		459,150	kW

Small Hydropower Stations

12	Chatara	3,200	kW
13	Panauti	2,400	kW
14	Tatopani/Myagdi(i) & (II)	2,000	kW
15	Seti (Pokhara)	1,500	kW
16	Phewa (Pokhara)	1,000	kW
17	Tinau (Butwal)	1,024	kW
18	Sundarijal	640	kW
19	Pharping***	500	kW
20	Jomsom**	240	kW
21	Baglung	200	kW
22	Khandbari**	250	kW
23	Phidim**	240	kW
24	Surnaiyagad (Baitadi)	200	kW
25	Doti	200	kW
26	Ramechhap	150	kW
27	Terhathum**	100	kW
TOTAL		13,844	kW
GRAND TOTAL		**472,994**	**kW**

Small Hydropower Stations

Existing (Isolated)

1	Dhankuta***	240	kW
2	Jhupra (Surkhet)***	345	kW
3	Gorkhe (Ilam)***	64	kW
4	Ju mla **	200	kW
5	Dhading***	32	kW
6	Syangja***	80	kW
7	Helambu	50	kW
8	Darchula (I) & (II)**	300	kW
9	Chame**	45	kW
10	TapleJung**	125	kW
11	Manang**	80	kW
12	Chaurjhari (Rukum)**	150	kW
13	Syarpudaha (Rukum)**	200	kW
14	Bhojpur**	250	kW
15	Bajura	200	kW
16	Bajhang**	200	kW
17	Arughat Gorkha	150	kW
18	Okhaldhunga**	125	kW
19	Rupalgad (Dadeldhura)	100	kW
20	Achham	400	kW
21	Dolpa	200	kW
22	Kalikot	500	kW
23	Heldung (Humla)	500	kW
TOTAL		**4,536**	**kW**

Diesel Power Stations

Existing

1	Duhabi Multifuel	39,000	kW
2	Hetauda	14,410	kW
TOTAL		53,410	kW

Solar Power Stations

Existing

1	Simikot	50	kW
2	Gamgadhi	50	kW
TOTAL		**100**	**kW**

Total Majr Hydro (NEA) - Grid Connected	472,994	kW
Total Small Hydro (NEA) - Isolated	4,536	kW
Total Hydro (NEA)	477,530	kW
Total Hydro (IPP)	166,806	kW
Total Hydro (Nepal)	644,336	kW
Total Thermal (NEA)	53,410	kW
Total Solar (NEA)	100	kW
Total Installed Capacity (Including Private & Others)	697,846	kW

Under Construction

1	Upper Tamakoshi	456,000	kW
2	Chamelia	30,000	kW
3	Kulekhani III	14,000	kW
4	Gamgad	400	kW
TOTAL		**500,400**	**kW**

Planned & Proposed

1	Upper Trishuli-3'A'	60,000	kW
2	Upper Trishuli-3'B'	37,000	kW
3	Budhi Gandaki	600,000	kW
4	Rahughat	27,000	kW
5	Upper Seti (Storage)	128,000	kW
6	Seti Trishuli (Storage)	128,000	kW
7	Upper Modi 'A'	42,000	kW
8	Nalsyagu Gad (storage project)	400,000	kW
TOTAL		1,422,000	kW

NOTE

* Line length within Nepal portion

** Leased to the Private sector

*** Not in normal operation

TRANSMISSION LINES

EXISTING	Length (KM)	Type of Ckts
132 kV Transmission Line		
1 Anarmani-Duhabi	85	Single
2 Kusha-Katiya(India)	19	Single
3 Duhabi-Hetauda	282	Double
4 Hetauda-KL2 P/S	8	Single
5 Bharatpur-Marsyangdi P/S	25	Single
6 Marsyangdi P/S-Suichatar	84	Single
7 Suichatar-KL2 P/S	34	Single
8 Suichatar-New Bhaktapur	26.9	Single
9 New Bhaktapur-Lamosangu	48	Double
10 Lamosangu-Khimti P/S	46	Single
11 Hetauda-Gandak P/S	154	Single
12 Bharatpur-Pokhara	97	Single
13 Bardghat-Butwal	43	Double
14 Butwal-KGA P/S	58	Double
15 KGA P/S-Lekhnath	48	Single
16 Pokhara-Modikhola P/S	37	Single
17 Butwal-Tanakpur P/S	407	Single
18 Pathalaiya-New Parwanipur	17	Double
19 Marsyangdi -M. Marsyangdi	44	Single
TOTAL	**1,562.9**	
66 kV Transmission Line		
1 Chilime P/S-Devighat P/S	43.56	Single
2 Trisuli P/S-Balaju	29	Double
3 Devighat P/S-Balaju	30	Single
4 Devighat P/S-New Chabel	33	Single
5 Balaju-Lainchor	2.3	Single
6 Balaju-KL1 P/S	36	Double
7 KL 1 P/S-Birgunj	72	Double
8 Suichatar-Teku	4.1	Single
9 Suichatar-New Patan	4	Double
10 Teku-K3 (underground)	3.5	Singlecore
11 Suichatar-K3	6.9	Single
12 New Patan-New Baneswor	2.8	Single
13 Bhaktapur-New Chabel	12	Single
14 New Baneswor-Sunkoshi P/S	61	Single
15 Devighat-Trishuli	4.56	Single
16 Indrawati- Panchkhal	10	Single
TOTAL	354.72	

Under Construction

220 kV Transmission Line

1	220 kV Khimti-Dhalkebar	75	Single
2	220 kV Hetauda-Bharatpur	72	Double
TOTAL		**147**	

132 kV Transmission Line

1	132 kV Thankot-Chapagaon	28.5	Double
2	132 kV Chameliya-Attaria	129	Single
TOTAL		157.5	

Planned & Proposed	Length (KM)	Type of Ckts
1 220 kV New Marshyangdi-Matatirtha	85	Double
2 132 kV Singati-Lamosangu	40	Double
3 132 kV Kabeli-Damak	90	Double
4 132 kV Middle Marshyangdi-Dumre- Marshyangdi	44	Double
5 133 kV Dumree-Damauli	18	Single
6 132 kV Butwal-Kohalpur Second Circuit	208	D/C Tower
7 220 kV Bharatpur-Bardghat	73	Double
8 132 kV Hetauda-Kulekhani-II-Siuchatar Second Circuit	44	D/C Tower
9 220 kV New Hetauda-Dhalkebar-Duhabi	283	Double
10 220 kV New Hetauda-Matatirtha	45	Double
11 220 kV Bardghat-New Butwal	30	Double
12 220 kV Trishuli-Thankot	54	Double
13 132 kV Kohalpur-Attariya Second Circuit	200	D/C Tower
TOTAL	**1,214**	

NEA Joint Venture under

Public Private Partnership Program

Under Construction

1	400 kV Dhalkebar-Muzzaffarpur Cross Border Line*	45	Double

Planned & Proposed

1	400 kV Duhabi-Purnia Cross Border Line*	22	Double
2	400 kV New Butwal- Gorakhpur Cross Border Line*	25	Double
3	66 kV Sanjen-Chilime	12	Double
TOTAL		59	

Sub-Station Capacity Existing

1	132/11 kV	186.00	MVA
2	132/33 kV	470.50	MVA
3	132/66 kV	248.40	MVA
4	66/33 kV	25.00	MVA
5	66/11 kV	485.20	MVA
TOTAL		1415.10	MVA

Under Construction

1	132/11 kV Matatirtha	22.5	MVA
	Total	22.5	MVA

Planned & Proposed Sub-Stations

1	132/33 kV Syangja	15	MVA
2	132/33 kV Anbukhaireni	15	MVA
3	132/33 kV Damak	30	MVA
4	132/11 kV Chapali	30	MVA
5	132/33 kV Matatirtha	32	MVA
6	132/33 kV Kusum	30	MVA
7	132 kV Hapure	30	MVA
8	132 kV Hetauda (Kamane)	30	MVA
9	132 kV Pathlaiya	22.5	MVA
		235	MVA

Planned & Proposed

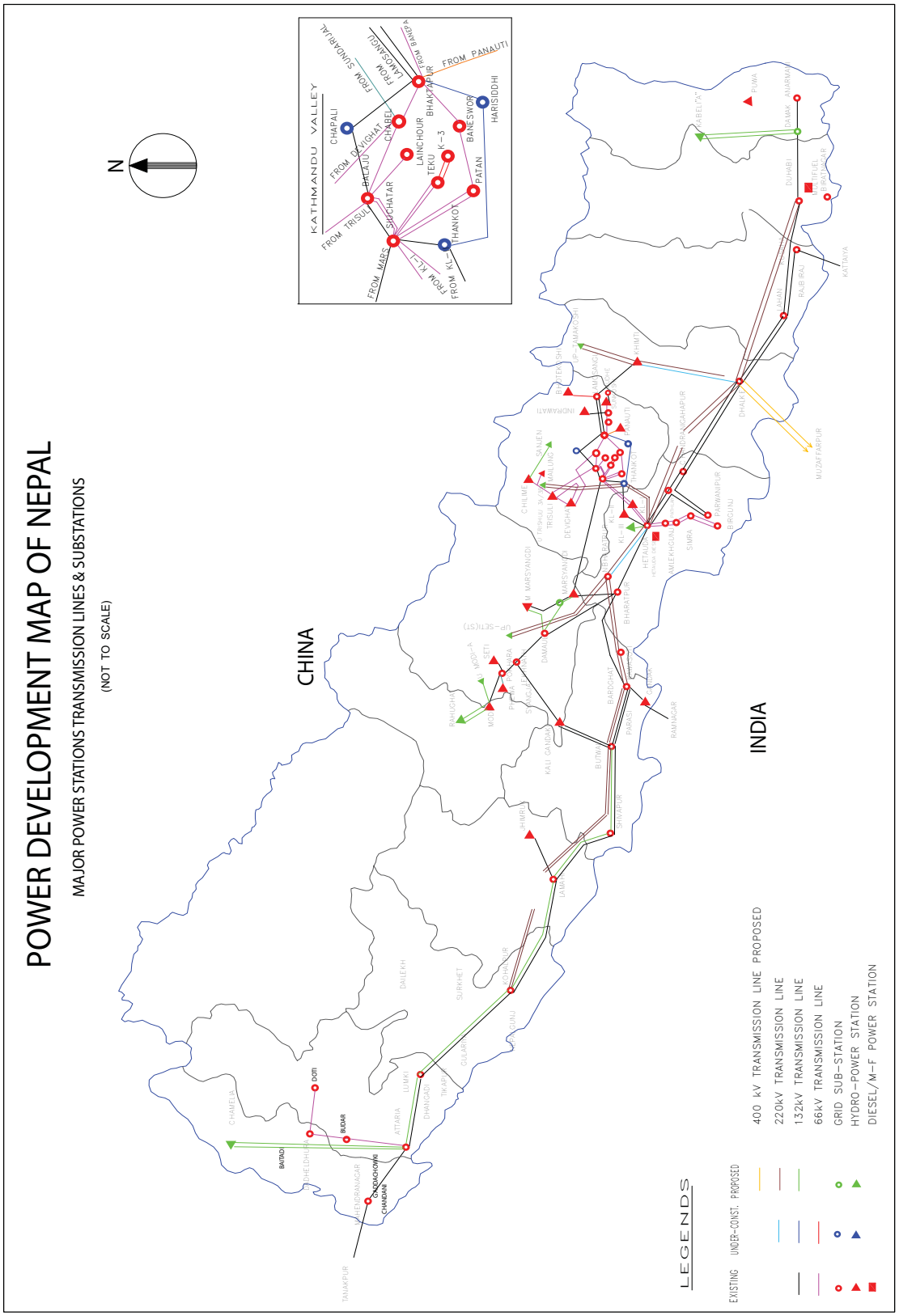
1 New Butwal Switching Station

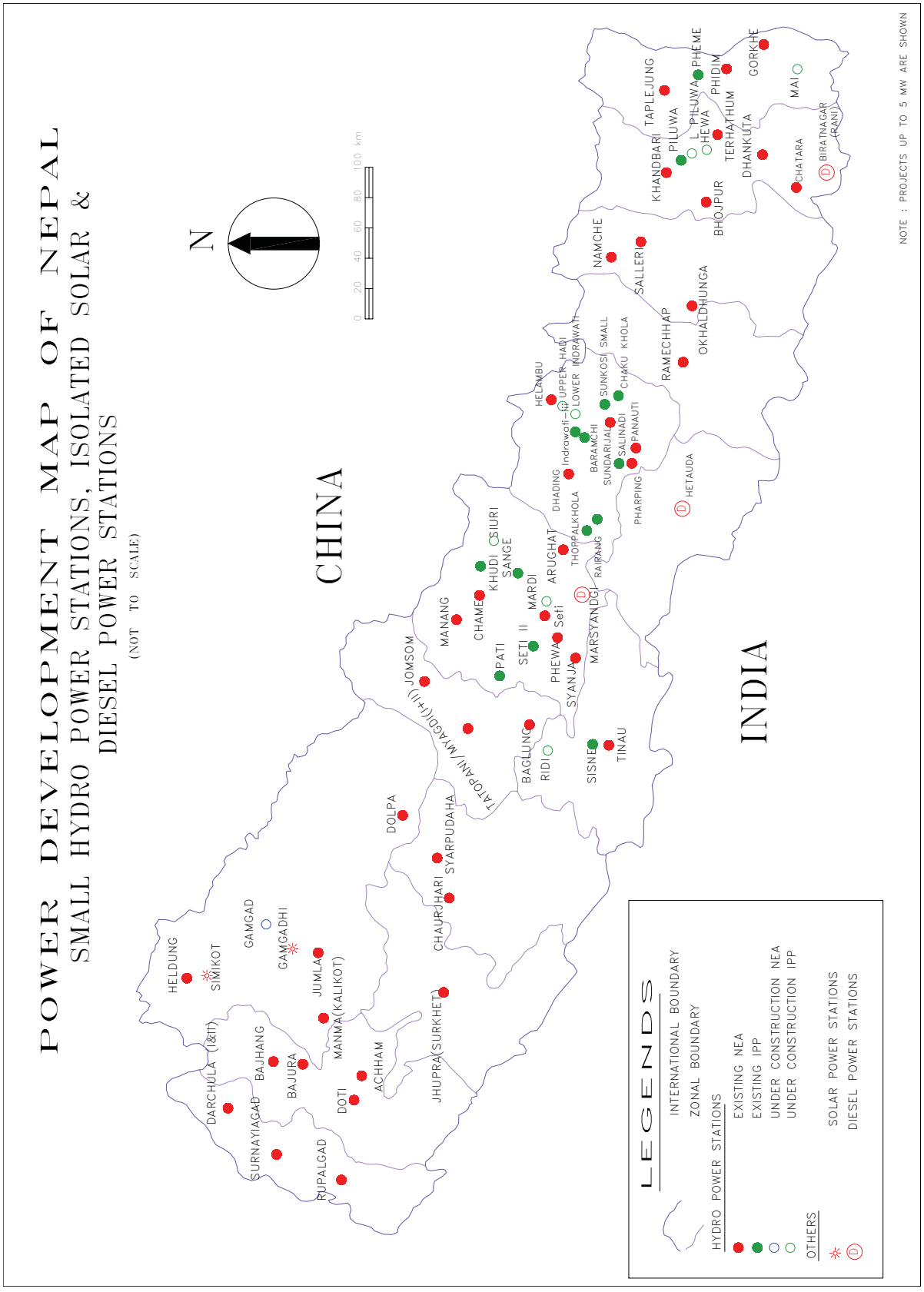
2 New Bharatpur Switching Station

3 Pathlaiya Switching Station

Power Development in Nepal
(Private Sector)

IPP Projects Connected to INPS				PPA Concluded			
				PPA Concluded for New Projects in FY 2009/10			
S.No.	Name of Company	Name of Project	Capacity (KW)	S.No.	Name of Company	Name of Project	Capacity (KW)
1	Himal Power Ltd.	Khimti Khola	60,000	1	Madi Power Pvt. Ltd.	Upper Madi	19,008
2	Bhotekoshi Power Company Ltd.	Bhotekoshi Khola	36,000	2	Himalayan Hydropower Pvt. Ltd.	Namarjun Madi	11,880
3	Chilime Hydro Power Company Ltd.	Chilime	22,000	3	Welcome Energy Development Company (P.) Ltd.	Lower Balephi	18,514
4	National Hydro Power Company Ltd.	Indrawati - III	7,500	4	Ruru Hydropower Project (P) Ltd.	Upper Hugdi Khola	2,599
5	Butwal Power Company Ltd.	Jhimruk Khola	12,000	5	Eastern Hydropower (P.) Ltd.	Pikhuwa Khola	2,475
6	Butwal Power Company Ltd.	Andhi Khola	5,100	6	Shreeup Hydropower Co. (P.) Ltd.	Seti Khola	465
7	Syange Bidyut Company Limited	Syange Khola	183	7	Sikles Hydropower (P) Ltd.	Madkyu Khola	9,968
8	Arun Valley Hydro Power Company Ltd.	Piluwa Khola	3,000	8	Baishno Devi Hydro Power (P.) Ltd.	Lower Sunkoshi -III	9,900
9	Rairang Hydro Power Development Co. (P) Ltd.	Rairang Khola	500	9	Radhi Bidyut Company Ltd.	Radhi Khola	4,400
10	Sanima Hydro Power Company Ltd.	Sunkoshi Khola	2,500	10	Triyog Energy & Development Pvt. Ltd.	Middle Gaddigad	2,970
11	Alliance Power Nepal Pvt.Ltd.	Chaku Khola	1,500	11	Jumdi Hydropower Pvt. Ltd.	Jumdi Khola	1,750
12	Khudi Hydro Power Ltd.	Khudi Khola	3,450	12	Laughing Buddha Power Nepal (P.) Ltd.	Middle Chaku	1,800
13	Unique Hydel Co. Pvt.Ltd.	Baramchi Khola	980	13	Barahi Hydropower Pvt.ltd	Theule Khola	1,500
14	Thoppal Khola Hydro Power Co. Pvt. Ltd.	Thoppal Khola	1,650	14	Sanima Hydro Power P.Ltd.	Mai Khola	15,600
15	Gautam Buddha Hydropower (Pvt) Ltd	Sisne Khola	750	15	Hira Ratna Hydropower P.ltd	Tadi Khola	5,000
16	Kathmandu Small Hydropower Systems Pvt. Ltd.	Sali Nadi	232	16	Nepal Hydro Dev Co.Ltd	Charanawati Khola	3,520
17	Khoranga Khola Hydro Power Co. Ltd.	Pheme Khola	995	17	Api Power Company Pvt.Ltd	NauGad Gad Khola	8,500
18	Unified Hydropower (P) Ltd.	Pati Khola	996	18	Eklekunda Hydropower Co.Pvt.Ltd	Dorkhu Khola	990
19	Task Hydropower Company (P.) Ltd.	Seti-II	979	19	Electro-com and Research Centre Pvt.Ltd	Jhyadi Khola	998
20	Ridi Hydropower Development Co. (P.) Ltd.	Ridi Khola	2,400	20	Emerging Energineering Pvt.ltd	Upper Mailun A	5,000
21	Centre for Power Dev. And Services (P.) Ltd.	Upper Hadi Khola	991			Sub Total	126,837
22	Gandaki Hydro Power Co. Pvt. Ltd.	Mardi Khola	3,100	PPA Concluded for Capacity Upgradation			
	Sub Total		166,806	1	TMB Energietechnik	Narayani Shankar Biomass	100
Under Construction				2	Barun Hydropower Development Co. (P.) Ltd.	Hewa Khola	2,055
1	Sunkoshi Hydro Power Co. Pvt. Ltd.	Lower Indrawati Khola	4,500	3	Unique Hydel Co. Pvt.Ltd.	Baramchi Khola	3,178
2	Baneshor Hydropower Pvt. Ltd.	Lower Piluwa	990	4	Prime Hydropower Company (Pvt.) Ltd.	Belkhu Khola	198
3	Himal Dolkha Hydropower Company Ltd.	Mai Khola	4,455	5	Bhairabkunda Hydropower Pvt.Ltd	Bhairab kunda	1,150
4	Barun Hydropower Development Co. (P.) Ltd.	Hewa Khola	4,455	6	Alliance Power Nepal Pvt.Ltd	Chaku Khola	1,500
5	United Modi Hydropwer Pvt. Ltd.	Lower Modi I	9,900	7	Bojini Company Pvt.Ltd	Jiri Khola	1,210
6	Synergy Power Development (P.) Ltd.	Sipring Khola	9,658				
7	Nyadi Group (P.) Ltd.	Siuri Khola	4,950			Sub Total	9,391
8	Ankhu Khola Jal Bidhyut Co. (P.) Ltd.	Ankhu Khola - 1	8,400			Total Capacity	136,228
	Sub Total		47,308	Under Termination Process			
				1	Gitec Nepal Pvt. Ltd.	Upper Modi Khola	14,000
				2	Kantipur Hydro Power Co. Pvt. Ltd.	Langtang Khola	10,000
				3	Bavarian Hydopower Nepal(Pvt.) Ltd.	Lower Nyadi	4,500
				4	The Gorkha Hydro Power Pvt.Ltd.	Daram Khola	5,000
						Sub Total	33,500


POWER DEVELOPMENT MAP OF NEPAL
MAJOR POWER STATIONS TRANSMISSION LINES & SUBSTATIONS
(NOT TO SCALE)
N
KATHMANDU VALLEY
CHAPALI
FROM DEVIGHAT
CHABEL
FROM TRISULI
SHIVCHATAR
LAINCHOUR
TEKU
K-3
BHAKTAPUR
FROM SUNDARIJAL
FROM LAMOSANGU
FROM BARHABISE
FROM PANAUTI
BANESWOR
PATAN
HARISIDDHI
FROM MARS
FROM KL-1
FROM KL-2
THANKOT
CHINA
INDIA
LEGENDS
EXISTING
UNDER-CONST.
PROPOSED
400 kV TRANSMISSION LINE PROPOSED
220kV TRANSMISSION LINE
132kV TRANSMISSION LINE
66kV TRANSMISSION LINE
GRID SUB-STATION
HYDRO-POWER STATION
DIESEL/M-F POWER STATION


POWER DEVELOPMENT MAP OF NEPAL
SMALL HYDRO POWER STATIONS, ISOLATED SOLAR & DIESEL POWER STATIONS
(NOT TO SCALE)
N
0 20 40 60 80 100 km
CHINA
INDIA
LEGENDS
INTERNATIONAL BOUNDARY
ZONAL BOUNDARY
HYDRO POWER STATIONS
EXISTING NEA
EXISTING IPP
UNDER CONSTRUCTION NEA
UNDER CONSTRUCTION IPP
OTHERS
SOLAR POWER STATIONS
DIESEL POWER STATIONS
NOTE : PROJECTS UP TO 5 MW ARE SHOWN
HELDUNG
SIMIKOT
GAMGAD
GAMGADHI
JUMLA
MANMA(KALIKOT)
DARCHULA (Tit)
BAJHANG
BAJURA
DOTI
ACHHAM
SURNAYAGAD
RUPALGAD
JHUPRA(SURKHET)
CHAURJHARI
SYARPUDAHA
DOLPA
JOMSOM
TATOPANI/MYAGDI(I+II)
MANANG
CHAME
PATI
KHUDI
SIURI
SANGE
SETI II
MARDI
Seti
PHEWA
SYANJA
MARSYANGDI
ARUGHAT
THOPALKHOLA
RAINAS
BAGLUNG
RIDI
SISNE
TINAU
DHADING
Indrawati-I
UPPER HADI
LOWER INDRAWATI
HELAMBU
BARAMCHI
SUNDARIJAL
SUNKOSI SMALL
CHAKU KHOLA
SALINADI
PANAUTI
PHARPING
HETAUDA
NAMCHE
SALLERI
RAMECHHAP
OKHALDHUNGA
BHOJPUR
KHANDBARI
PILUWA
TAPLEJUNG
L. PILUWA
HEWA
PHEME
PHIDIM
TERHATHUM
DHANKUTA
CHATARA
GORKHE
MAI
BIRATNAGAR (RANI)