NEPAL ELECTRICITY AUTHORITY

A YEAR IN REVIEW-FISCAL YEAR-2022/2023

AUGUST-2023 (BHADRA-2080)

DURBAR MARG, KATHMANDU, NEPAL

Tree Plantation Programme at Pharping HEP

Khimti-Barhabise 400 kV Transmision Line

COMPLIMENTARY COPY

CONTENTS

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CONTENTS

Front Cover Photo : **Headworks of Rasuwagadi HEP**

Back Cover Photo : **New Bharatpur 220 kV Substation**

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Hon'ble Shakti Bahadur Basnet
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Government of Nepal
Ministry of Energy, Water Resources & Irrigation

Letter No.
Ref. No.

Message from the Minister

I am pleased to extend my sincere greetings and congratulations on the auspicious occasion of the 38th anniversary of Nepal Electricity Authority. I am personally impressed with the way NEA has been continually improving its performance in fulfilling its commitment of serving the people with affordable and reliable electricity.

The proper utilization of hydropower, which Nepal possesses abundantly, is imperative for our nation's overall development. Hydropower, as the backbone of economic progress, plays a pivotal role in the overall national growth, fostering industrialization, creating employment opportunities and reducing dependence on petroleum imports. With due consideration of its importance in overall economy of the country, the proper development of hydropower has been a top priority of the Government of Nepal. We aim to generate 20,000 MW of hydropower within the next ten years, which looks realistic considering the amount of generation additions to the national grid every year. Moreover, it is my pleasure to reveal that MOEWRI has been formulating an Action Plan for the Energy Development Decade so as to develop energy infrastructures and overcome the challenges of the power sector from the perspectives of energy security and the clean energy transition.

In addition to the generation of electricity from hydropower, our first priority shall remain in the use of such clean and green energy within the country. The GoN has set a target to provide an access to electricity to the entire population in the next two years with a strong emphasis on maximizing the use of electricity. It is crucial to devise and implement a comprehensive action plan, which shall prioritize increasing internal energy consumption through industries, promotion of electric vehicles, agricultural growth facilitated by irrigation and adoption of electric cooking. It is also required to put immense efforts in strengthening the transmission and distribution facilities with the adequate investment such that the reliable and quality electricity could be ensured to all categories of consumers.

In parallel, a new horizon of opportunities in cross-border electricity market, which started a few

years ago, is being gradually expanded to manage our ever increasing surplus electricity during the wet season. The recent state visit of the Rt. Honorable Prime Minister to India has paved the way for long term power export of 10,000 MW in the next ten years and, at the same time, created a conducive environment of expanding power market to Bangladesh in the near future.

Increasing the consumption within the country, reducing the import of fossil fuel and exporting surplus energy to our neighbors shall be the way for rapid economic development of the country. In all these aspects, NEA has to play a major role in the overall development of power sector and the Government of Nepal stands committed to provide all the necessary supports in accomplishing the set goals.

I expect NEA to continue its unwavering dedication and commitment towards its services of providing reliable and affordable electricity to its valued consumers in the days ahead. I once again extend my hearty congratulations to the entire NEA team for adding another successful year and look forward for greater achievements in the yearsto come.

Hon'ble Shakti Bahadur Basnet
Minister
Ministry for Water, Resources and Irrigation

Shakti Bahadur Basnet
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Message from the Secretary

As we commemorate the 38th anniversary of Nepal Electricity Authority, I feel privileged to extend my best wishes and congratulations to the entire family of NEA. I also express my sincere appreciation to NEA for making continuous efforts for the last thirty-eight years to become an efficient public entity in providing its long-term vision of clean, reliable and affordable electricity to the people of Nepal.

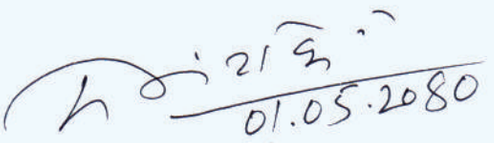
NEA has been playing a major role in achieving the goals set by the Ministry of Energy, Water Resources and Irrigation with the aim of making the country self-sustained in the electricity sector, which will ultimately help in its overall development and prosperity. While significant progress has been achieved in the recent past, there remains a scope for improvement to fulfill the mission effectively. It is crucial to focus on developing large scale storage hydropower projects for the seasonal balance of electricity generation as well as on necessary infrastructure for efficient electricity transmission and distribution to ensure quality, reliable and affordable electricity to the valued consumers.

NEA has been gradually increasing its consumers over the years, with the numbers reaching 5.65 million households, including the consumers under Community Rural Electrification. NEA has to move forward in the expansion of distribution networks in order to meet the GoN's target of providing the electricity access to the entire population across the country within a couple of years. For this purpose, I would like to assure that the Ministry is fully committed in supporting NEA's action plan and facilitating its successful implementation.

We have come a long way from hours of load shedding to the present condition of seasonal surplus for export. After becoming the first country in South Asia to participate in Indian Energy Exchange (IEX), NEA is currently exporting up to 452 MW of power from 10 hydropower projects and it is anticipated that the quantum will increase in the near future following the approval of more hydropower projects from the Designated Authority of India. The recent state visit of Rt. Honorable

Prime Minister to India has opened further avenues of cooperation in the medium and long term cross border electricity trade including grid connectivity infrastructures and the possibility of expansion of electricity market to the BBIN level. However, our first goal still remains to boost the domestic consumption by promoting industries consuming large quantum of energy, encouraging the use of electric vehicles, emphasizing and supporting agricultural development and encouraging e-cooking for households. Moreover, we shall continue to explore innovative avenues to minimize greenhouse effects and take encouraging steps for producing green hydrogen fuel, ammonia, chemical fertilizers and oxygen for industrial and medical purposes. I firmly believe that by converting these challenges into opportunities, we will significantly contribute to the overall welfare of the society and at the same time to the economic growth of the country.

As we look ahead to a brighter future, I believe that NEA will continue in its successful journey of generating, transmitting and distributing efficient, reliable and affordable energy to its consumers with an improved customer service through the effective use of information technology. I again express my sincere gratitude to the dedicated team of NEA for their continued efforts and commitment in fulfilling their responsibilities and wish for every success in the years to come.



Dinesh Kumar Ghimire
Secretary

Board of Directors

Shakti Bahadur Basnet
Hon'ble Minister
Ministry of Energy, Water Resources and Irrigation
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Mr. Dinesh Kumar Ghimire
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Secretary, (Revenue) Ministry of Finance,
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Prominent Person in Power Sector
Member

Mr. Bhakta Bahadur Pun
Member from Consumer Group

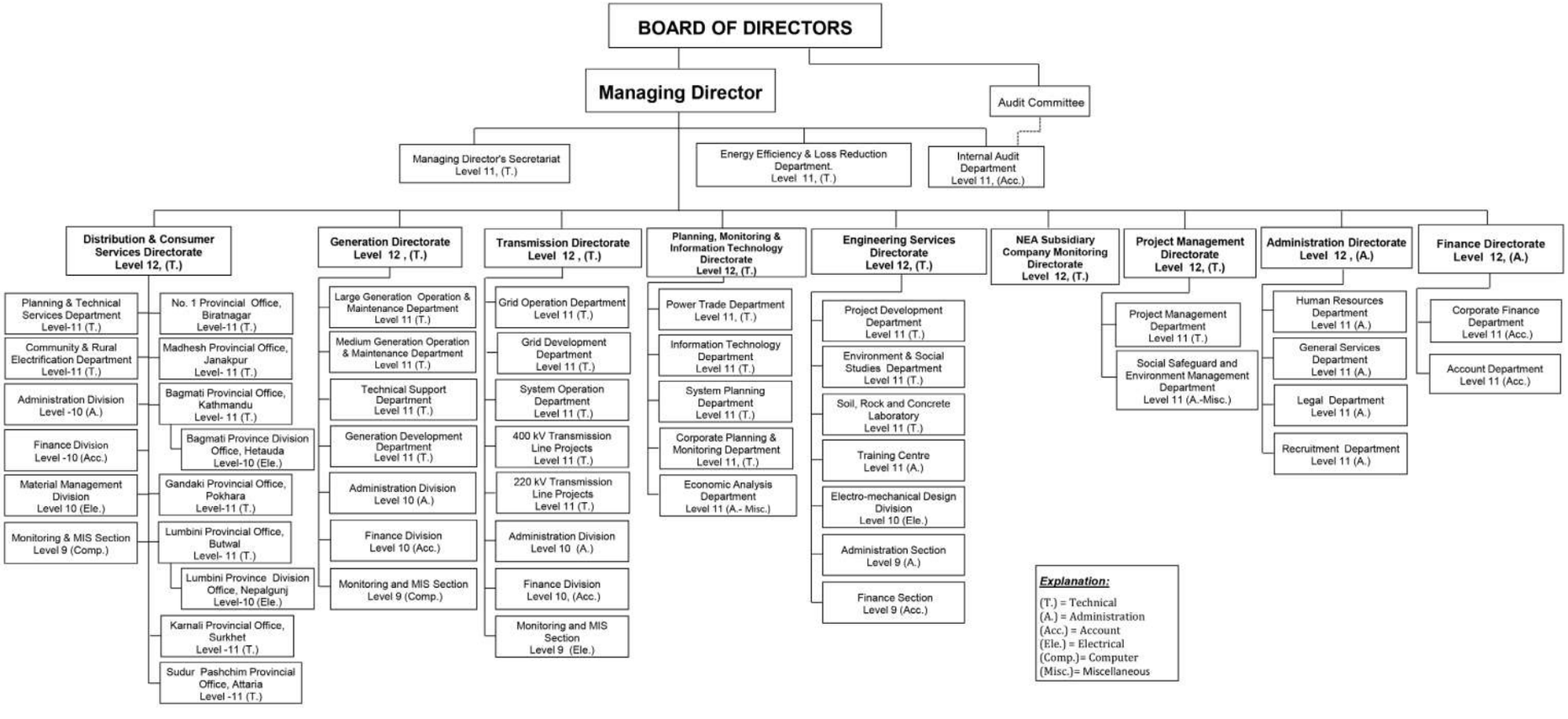
Mr. Kapil Acharya
Prominent Person in Power Sector
Member

Mr. Bharat Acharya
Prominent Person in Commerce,
Industry and Financial Sector
Member

Mr. Kul Man Ghising
Managing Director, NEA
Member Secretary

Nepal Electricity Authority

Organization Structure



Deputy Managing Directors

Mr. Lok Hari Luintel
Deputy Managing Director
Finance Directorate

Mr. Ramji Bhandari
Deputy Managing Director
Engineering Services Directorate

Mr. Manoj Silwal
Deputy Managing Director
Distribution and Consumer Services Directorate

Mr. Pradeep Kumar Thike
Deputy Managing Director
Planning,Monitoring & IT Directorate

Mr. Dirghayu Kumar Shrestha
Deputy Managing Director
Transmission Directorate

Mr. Tularam Giri
Deputy Managing Director
Administration Directorate

Mr. Madan Timsina
Deputy Managing Director
Generation Directorate

Mr. Tara Prasad Pradhan
Deputy Managing Director
Project Management Directorate

Mr. Fanendra Raj Joshi
Deputy Managing Director
NEA Subsidiary and Associate Companies
Deputed to Upper Arun Hydro Electric Ltd.

MANAGING DIRECTOR'S REPORT

Nepal Electricity Authority (NEA) feels privileged and honored of having fulfilled its commitment of availing reliable, affordable and quality power to its esteemed consumers for the past 38 years. On behalf of NEA, on this auspicious occasion of its 38th anniversary, I express my sincere gratitude to all concerned for standing with us along the way and at the same time emphasize our continued determination in improving the quality of service and ensuring electricity access to all in the days ahead.

This Annual Report is a reflection of the achievements of the previous year and, at the same time, the targets to be met in the coming years. As in the last few years, the previous year has also witnessed increase in generation capacity and, in particular, the expansion of transmission and distribution system, enhancement of domestic consumption, export of surplus electricity and profit earning. The year under review also achieved the record low T&D losses in NEA's history.

The recent state visit of the Right Honorable Prime Minister to India has paved the way for long term power export to India and, at the same time, created a conducive environment for the hydropower development in the country along with the possibility of expanding power market to the BBIN level in the near future.

A total generation capacity in the last FY reached 2,684 MW with the commissioning of new projects equivalent to the capacity of 491 MW. The previous year recorded significant reduction in energy generation of NEA and IPP projects due to severely dry winter resulting in increased import at a relatively higher market price.

Nepal entered into the era of power surplus during the wet season months a couple of years ago. This trend will continue to grow with the commissioning of more generation projects in the years to come. At present, a total of around 452 MW of hydropower is being exported to India on the Day-Ahead basis through the Indian Energy Exchange (IEX). This export quantum will increase after obtaining the approval for more hydropower projects submitted to Government of India. This increase in power export will not only enhance NEA's financial health but also play a significant role in helping the nation increase foreign currency reserves.

Currently, surveillance activities are being conducted by International Credit Rating Association (ICRA) to assess the credit rating of NEA. In FY 2022/23, NEA submitted a Financial Restructuring Plan III to the Ministry of Energy Water Resources and Irrigation with the aim of enhancing existing financial management and operating performance of NEA. This will open avenues for issuing IPO at a premium value which will further enhance NEA's investment capability for the development of major

infrastructure projects in future.

NEA has recognized the potential of digital technologies to revolutionize its operations and enhance the efficiency and reliability of its services. Recognizing the strength of Information and Communication Technology (ICT), NEA has taken significant strides to embrace digital innovation. Guided by the recently approved "NEA IT Policy 2023", we are determined to modernize our operations and deliver state-of-the-art electricity services to our consumers. Through online portals and mobile applications, customers can now easily pay bills, report complaints, and access information related to power supply and outage schedules. Additionally, NEA has introduced Centralized Call Center, allowing customers to receive timely assistance and support, thus reducing response times and improving consumer satisfaction.

The Centralized Payroll and Pension System has been successfully deployed through the centralized system from the year under review. This will ease the process of payment of NEA for income tax, provident fund, citizen investment trust, retirement payments and other staff deductions.

In line with the national commitment on Gender Equality and Social Inclusion (GESI), NEA has adopted the "Gender Equality and Social Inclusion strategy and Operational Guidelines" for mainstreaming GESI consideration within the organization. NEA has been prioritizing the GESI principles throughout its operation supporting women and marginalized communities to participate in its activities.

Despite the high priority given to safety measures by NEA, some unfortunate cases of injuries and casualties were recorded due to electrical accidents. I, on behalf of the entire organization, would like to pay homage to the departed souls and assure greater vigilance and awareness to minimize accidents in the days ahead.

The performances and achievements of NEA in the year under review, 2022/23, are highlighted below:

Operational Performance

The number of consumers has been increasing gradually over the years and, in FY 2022/23, it has reached 5.13 million, an increase by 7.76 % against 4.77 million in the previous year. The figure does not include the consumers under Community Rural Electrification, which is currently serving about 0.51 million consumers across the country. As in the past, the domestic consumer category remained the largest sector with 92.32% share of the total consumers. Industrial and other consumers accounted for 1.31 % and 6.37 % respectively. The total population with access to grid connected electricity has reached 95.03% in FY 2022/23.

NEA's hydropower plants generated 2,930 GWh of electricity in the year, a decrease by 10.10 % compared to the highest recorded annual energy of 3,259 GWh in FY 2021/22. This was mainly due to the unexpected reduction in river discharge during the dry season months.

The energy purchased from Independent Power Producers (IPPs) and NEA's subsidiaries was 5,118 GWh and 2,488 GWh, an increase by 19.41 % and 25.91 % from the figure of 4,286 GWh and 1,976 GWh in FY 2021/22 respectively. The total energy imported from India was 1,833 GWh in FY 2022/23 as compared to 1,543 GWh in FY 2021/22, an increase by 18.79 %. The total available energy in the system increased by 11.80 % to 12,369 GWh in FY 2022/23 over the corresponding figure of 11,064 GWh in FY 2021/22. Out of the total available energy, NEA and its subsidiaries contributed 43.80%, whereas import from India and purchase from domestic IPPs accounted for 14.82% and 41.38% respectively. The contribution of the domestic generation to the total available energy has remained approximately the same with a slight decrease from 86% in FY 2021/22to 85.18% in FY 2022/23.

The total domestic consumption in FY 2022/23 was 9,358 GWh, an increase by 5.50 % over the corresponding figure of 8,870 GWh in FY 2021/22. The total export to India soared to 1,346GWh in FY 2022/23 against the previous year's figure of 493 GWh only. Likewise, the net import of energy was 487 GWh, which accounted for 3.94 % of the total available energy in FY 2022/23 as compared to the corresponding figure of 9.49 % in FY 2021/22.

NEA has again been successful in reducing the system loss from 15.38 % in FY 2021/22 to 13.46 % in FY 2022/23.

Financial Performance

As compared to the previous year, NEA's net profit has marginally decreased by 7.76 % to NRs. 12,334 million in 2022/23 from NRs. 13,371 million in FY 2021/22 due to the reduced generation from domestic hydropower projects and increase in import from India.

The gross revenue generated from energy sales in the FY 2022/23 reached NRs. 100,032 million, with an increase of 14.77 % over the figure of NRs. 87,155 million in FY 2021/22. Revenue from other sources in FY 2022/23 increased to NRs. 17,436 million from NRs. 14,997 million in FY 2021/22. NEA's operating expenses including power purchase cost stood at NRs. 80,263 million, an increase by 26.16% from NRs. 63,619 million of the previous year. The amount spent for power purchase alone was NRs. 61,564 million in FY 2022/23, an increase by 28.14 % from NRs. 48,045 million in FY 2021/22.

Other operating expenses for generation, transmission, distribution and royalty in FY 2022/23 amounted to NRs 2,254 million, NRs 2,269 million, NRs. 11,540 million and NRs 1,632 million respectively.

The interest expenses in FY 2022/23 have been calculated as NRs. 6,252 million against NRs. 5,977 million in FY 2021/22, an increase by 4.60 %. Similarly, depreciation and amortization expenses amounted to NRs. 8,789 million in FY 2022/23, an increase of 17.20% from NRs. 7,499 million in FY 2021/22. Foreign exchange loss decreased to NRs. 1,124 million from NRs. 1,721 million in the previous year. The accumulated investment in Capital Works in Progress (CWIP) reached to NRs. 187,727 million with the net addition of NRs. 47,496 million for the year 2022/23.

NEA estimated a provision of NRs. 1,000 million towards the long-term employee liabilities in respect of gratuity, pension, medical facilities and accumulated leave facilities under employees' benefit scheme.

Ongoing Projects

There are several hydropower projects at various stages of development under the Engineering Services Directorate. In FY 2022/23, NEA identified various projects, namely, Upper Mustang Storage Project, Jawa Tila Hydropower Project, Bharbhung Hydroelectric Project and potential pumped storage projects for future development. The studies of Chainpur Seti HEP, Aandhi Khola Storage HEP and Begnas Rupa Pump Storage HEP are being continued. NEA has signed MOU with Sutlez Jalvidyut Nigam (SJVN), India, for the formation of a Joint Venture Company to develop Arun 4 HEP with an indicative capacity of 490.2 MW.

NEA completed many transmission line projects, namely, Marsyangdi – Kathmandu 220 kV, New Modi -Lekhnath 132 kV, Butwal-Lumbini 132 kV, Mainhiya-Sampatiya 132 kV, Lekhnath-Pokhara 132 kV, Dordi Corridor 132 kV, Ramechhap (Gariyang)-Khimiti 132 kV, Kushaha-Kataiya 132 kV and Chameliya – Syaule-Attariya 132 kV Second Circuit Transmission Lines. Likewise, Sunwal 132 kV sub-station was also completed in the last year.

The total length of transmission lines of 66 kV and above in operation has increased from 5,329 circuit kilometer (ckt.km) to 5,742 ckt.km. and those constructed in FY 2022/23 is 413 ckt. km. The last eight years have seen a significant increase in the completed transmission lines

to a total of 3,118ckt.km. Similarly, a total of 1,718MVA substation capacity has been added to the system in FY 2022/23. This has increased the total substation capacity to 8,867 MVA, with 6,735MVA being added in the last eight years. Similarly, the total Capacitor Bank capacity at present is 748 MVAr, an increment of 367 MVAr over the last eight years.

The total lengths of under-construction transmission lines at 132 kV, 220 kV and 400 kV levels are 1,111 ckt. km, 988 ckt. km and 754 ckt. km respectively, with the total of 2,852 ckt. km. Similarly, the total capacity of substations under construction is 10,469 MVA. The total of 1,141 ckt.km, 1,752 ckt.km and 3,858 ckt. km of 132 kV, 220 kV and 400 kV transmission lines respectively are planned and proposed. Similarly, 15,565 MVA of additional substation capacity is also planned to be built within the next few years.

NEA plans to achieve hundred percent electrification within the next two years after electrifying 22 additional districts in addition to the 55 districts already electrified in the previous years. NEA commissioned 15new distribution substations of 33/11 kV corresponding to the capacity of 140MVA in FY 2022/23 to bring the total number to 187 corresponding to the total capacity of 2,204 MVA. Likewise, the total line lengths corresponding to 33 kV, 11 kV and 0.4/0.23 kV voltage levels completed as of FY 2022/23were 7,237 ckt. km, 47,733 ckt. km and 145,270 ckt. km respectively, whereas the line lengths commissioned in FY 2022/23 alone were 617 ckt. km, 2,892 ckt. km and 8,675 ckt. km respectively. A total of 42,185 distribution transformers with the total capacity of 4,113 MVA has been installed in the system up to the FY under review, which includes 2,824 numbers of distribution transformers of capacity 268MVA installed in FY 2022/23.

Following Government of Nepal's electricity roadmap, NEA's commitment to provide electricity access to every household by the FY2024/25 through adequate network expansion plans all over the country still remained a top priority. Enhancement of system reliability through network strengthening will continue unabated. Similarly, for safety and reliability as well as from the aesthetic point of view, underground cable laying works to upgrade the distribution system is underway in different parts of Kathmandu. Further, installation and commissioning of underground distribution network under Lagankhel, Pulchowk, Bhaktapur, Thimi, Pokhara and Bharatpur Distribution Centers are under progress.

NEA has also focused on various activities to enhance its operational efficiency, reduce electricity theft and enable itself to serve its consumers in a better way. The implementation of Smart Grid and Smart Metering System will increase efficiency and reduce losses. Kathmandu Valley Smart Metering Project has already successfully installed smart meters and AMI infrastructure for 97,000 consumers in the areas under Ratnapark and Maharajgunj Distribution Centers. The second phase of the project will start with the objective of replacing 600,000 electromechanical meters under nine distribution centers in the Kathmandu valley by smart meters and integrate them into the Advanced Metering Infrastructure System of NEA. In addition, NEA is replacing hundred percent three phase electromechanical meters by smart meters.

NEA has already initiated Revenue Management System (RMS) in distribution centers. The Distribution Command Control and Data Center is nearing completion at the Load Dispatch Center premises at Suichatar, Kathmandu.
Automation of grid substations will ensure controlled and systematic operation of the grid system. This will ultimately lead to reliable power supply and remarkable savings in the operation of the grid substations. Substation Automation System (SAS) is being installed in 13 grid substations within the valley under Kathmandu Valley Substation Automation Project. This will enable them to be remotely operated from the Master Control Center at Baneshwor Substation.

Similarly, Grid Automation Project will install infrastructures for digital control and monitoring of 39 existing grid substations outside the valley. To improve the quality of electricity supply in Madhesh Pradesh, construction of additional distribution system infrastructures including the reinforcement of existing distribution networks is under progress.

The transmission lines and substation capacities of the major cities of the country will be insufficient to meet the growing energy demand as well as the peak demand. The Power Transmission System plan for the major cities and associated industrial areas for the future growth till 2050 AD is being studied and implemented in different clusters.

The demand side management with energy efficiency program implemented in the past to reduce peak and energy demand of the system as a whole will be continued in the coming years. Capacitor Bank installation project for different substations and distribution transformers, which has helped improve voltage profile and reduce technical loss, will be implemented in all Grid and Distribution Substations as required.

Subsidiary Companies

The successful implementation of Chilime Hydropower Project under a subsidiary company of NEA encouraged the development of more projects under the company mode to ensure early decision making, public participation and mobilizing domestic fund. The major projects operating under the Company mode are as follows;

1. **Chilime Hydropower Company Limited (CHCL):** CHCL was the first subsidiary company of NEA and owns the Chilime HEP (22.1 MW). It has five subsidiary companies, namely; Rashuwagadhi Hydropower Company Limited (RGHCL) constructing Rashuwagadhi HEP (111 MW), Madhya Bhotekoshi Jalvidyut Company Limited (MBJCL) constructing Middle Bhotekoshi HEP (102 MW), Sanjen Jalvidyut Company Limited (SJCL) constructing Sanjen HEP (42.5 MW) and Upper Sanjen HEP (14.8 MW), Chilime Seti Hydropower Company to develop Seti Nadi 3 (87 MW) hydropower project and Chilime Engineering and Services Company Limited (ChesCo) to provide Engineering and Consulting Services for developing hydropower projects. All four projects under construction are nearing completion.

2. **Upper Tamakoshi Hydropower Limited (UTKHPL):** Upper Tamakoshi HEP (456 MW) started commercial generation from August, 2021 and delivered 1,945.8 GWh of energy to NEA in FY 2022/23. UTKHPL has also started the construction process of Rolwaling Khola HEP (20.66MW) under EPC mode. The construction of this Project will enhance the dry season energy of UTKHP and increase the peaking hours from 4 to 6 even in the driest months.

3. **Tanahu Hydropower Limited (THL):** Tanahu Hydropower Project (140 MW) is being developed under THL, under co-financing from ADB, JICA and EIB. The Package 1 Contractor has achieved successful breakthrough of diversion Tunnel 1, diversion Tunnel 2 and left bank access tunnel. The Package 2 Contractor has successfully completed the excavation including concrete lining of tailrace, draft tube tunnel and cable tunnel. The concreting works of powerhouse and erection bay are in progress. The Contractor for Package 3 has completed the construction of 66 out of 94 numbers of tower foundations. The Project is scheduled for completion by May 2026.

   THL further envisages developing Lower Seti Hydropower Project with an installed capacity of 126 MW in the downstream reaches of Seti River. Starting from this FY, the Project is commencing its preparatory works like, land acquisition and road/bridge construction.

4. **Trishuli Jal Vidhyut Company Limited (TJVCL):** This Company was established with NEA and Nepal Doorsanchar Company Limited (NDCL) as promoters, to develop Upper Trishuli 3B HEP (37 MW) as a cascade of Upper Trishuli 3A HEP. The construction works, stalled in March 2020 due to the lockdown, resumed after more than a year in April 2021. The overall physical progress till date is 70 % and the Project is scheduled for completion by September 2024.

5. **Raghuganga Hydropower Limited (RGHPL):** RGHPL was established to develop Rahughat Hydroelectric Project (40 MW). Civil and Hydro-mechanical Contractor, Jaiprakash Associates Limited, India, and Electro mechanical Contractor, Bharat Heavy Electrical Limited, India, are being engaged in their works. The scheduled time of completion has been extended till October 2024.

6. **Upper Arun Hydroelectric Ltd (UAHEL):** UAHEL was formed for the development of Upper Arun Hydroelectric Project (1,060MW) and Ikhuwa Khola Hydroelectric Project (40 MW). EIA report of the project in compliance with GoN's requirements is under final review of Department of Electricity Development (DOED). Consultant for Tender Design, Preparation of Bidding Documents, Construction Supervision and Post Construction Services will be selected by October 2023. Physical Model Test work has begun at Hydro Lab. A contract for the "Construction of Access Road for Upper Arun Hydroelectric Project" was signed on 12 March 2023. Similarly, a contract for "Construction Supervision and Contract Management of Access Road Construction for UAHEP" was signed on 10 April 2023. The World Bank is leading the Consortium of International Lenders for financing the project and HIDCL is the leading consortium of domestic financiers. The financing for Ikhuwa Khola will be from the GoN. The main civil works for both projects will commence from mid-2025.

7. **Tamakoshi Jalvidyut Company Limited (TKJVC):** The Company Limited has been incorporated for the development of Tamakoshi V HEP (99.8 MW), which is a cascade development of the Upper Tamakoshi HEP. A Tripartite loan agreement was signed between NEA, TKJVC and Employee Provident Fund (EPF) on 21 May 2023 for the debt funding. Contract Agreement for the Construction Management and Supervision of construction was signed with Dolsar Engineering Inc. Co., Turkey. Construction works are to be implemented in two packages; Package 1: Civil and HM works and Package 2: Electromechanical and Transmission Line works. A Re-Tender for Contract 1 was published on 26 June 2023.

8. **Dudhkoshi Jalvidyut Company Limited:** This Company has been established for the implementation of Dudhkoshi Storage HEP (635 MW). The Consultant has submitted most of the reports and is working to submit the Detailed Design Report incorporating all the comments from the Panel of Experts (POE) by the end of November 2023. ADB is leading the financing of this Project. Financial arrangement is expected to be completed by December 2024 and the actual construction will start from the beginning of 2025.

9. **Modi Jalvidyut Company Limited (MJCL):** MJCL is established to develop two projects, namely, Upper Modi A Hydroelectric Project (42MW) and Upper Modi Hydroelectric Project (19.8MW) in Kaski District. Financial Closure with NMB Bank and HIDCL is in the final stage. Tender for Civil and HM works (Package 1, EPC contract) of UMAHEP was published in July 2023 and EM tender will be published soon. Similarly, Tenders for UMHEP will be floated in the current FY.

10. **Utterganga Power Company Limited (UGPCL):** This company was established to undertake the study and development of Uttarganga Storage Hydroelectric Project (828 MW) in Baglung district of Gandaki Province. Since the Consulting Contract for the Detailed Design of the Project was terminated, the Company is preparing the documents for re-inviting Expression of Interest (EoI).

11. **NEA Engineering Company Limited (NEC):** NEA established NEC to provide complete engineering services and solutions in the development of the energy sector as well as other infrastructures. NEC is providing the consulting services for Feasibility Studies, Detailed Engineering Design, Design and Documents review, Project Management, Construction Planning and Supervision of Hydroelectric and other Infrastructure Projects in different fields such as civil, hydro-mechanical, electro mechanical, transmission lines and distribution system, plant operation, maintenance and rehabilitation works, etc.

12. **Nepal Power Trading Company Limited (NPTC):** NPTC has been established with the objective of carrying out power trading within and outside the country. The Company received the trading license and transaction approval for its operation.

13. **Power Transmission Company Nepal Limited (PTCN):** This company has been established with the objective of developing high voltage transmission interconnection system between Nepal and India. The Nepal portion of the 400kV double circuit line between Dhalkebar and Muzaffarpur was implemented by PTCN.

Private Sector Participation

NEA has been facilitating the participation of the private sector through Power Purchase Agreements (PPA) to ensure meeting the energy demand of the country.

A total of 27 new projects developed by the Independent Power Producers (IPPs) with a combined installed capacity of 491MW were commissioned in FY 2022/23. This has increased the total number of IPP-owned projects in operation to 159 with a combined installed capacity of 2,023 MW, with NEA's subsidiary company projects contributing 478 MW.

A total of 126 projects to be developed by IPPs, with a combined installed capacity of 3,103 MW, are under construction after financial closure. Similarly, 107 IPP-owned projects with a combined installed capacity of 2,632 MW are at various stages of development, with financial closure yet to be achieved.

During FY 2022/23, a total of 35 new PPAs with a combined installed capacity of 1,350 MW were concluded including a solar plant of 5 MW. This has increased the total number of PPAs signed with the various IPPs to 392 with the combined installed capacity of 7,758 MW as of FY 2022/23. So far as power purchase from domestic solar power developers is concerned, RfP was invited for the selection of developers for setting up of Grid-connected Solar PV Power Projects in Nepal for the purchase of power with the benchmark price of NRs 5.94 per kWh through tariff-based competitive bidding process.

Cross Border Power Trading

NEA experienced difficult times in the previous FY while interacting with the Indian power market. As the last winter remained much drier than the previous years, there was an unprecedented fall in the domestic hydro generation, pushing NEA onto the higher dependence on power import from India to ensure reliable supply to our valued consumers. NEA eventually decided to procure power through bids from the Indian generators and traders with the hope that competition would significantly lower the purchase price of electricity and it would culminate in positive implications on the overall financial performance of the organization.

However, since the lowest bid prices exceeded

the average price trends with the Day-ahead market of India's both Power Exchanges, NEA was bound to annul the bidding process and cling to a bilateral agreement with the Indian power traders for the months of March, April and May. Despite the certainty of losses due to higher purchase prices, NEA has provided uninterrupted supply to its consumers, affirming its strong commitment to serve the nation.

Likewise, revision of the electricity tariff under the Indo-Nepal Power Exchange Committee (PEC) mechanism from the Indian FY year 2021/22 to 2022/23 stretched upward by 5.5 percent on annual average including the tariff escalation determined for the ongoing Indian FY 2023/24 as per the decision of the 14th PEC meeting with regard to the power transaction of NEA with Bihar, Uttar Pradesh and Uttarakhand at 132 kV, 33 kV and 11 kV levels.

NEA and NVVN also signed a medium-term agreement for the sale of 200 MW of power to Haryana, India, on 23 May 2023. It was followed by another milestone Power Purchase/ Sale Agreement signed between NEA and PTC India Limited on 28 June 2023 for purchase/ sale of power up to 300 MW through Power Exchange or bilateral mechanism using Bihar's transmission infrastructure and 132 kV Nepal-Bihar transmission lines. Nepal and India had positively deliberated during the 10th Joint Working Group/ Joint Steering Committee meetings on India-Nepal Power Sector Cooperation towards Nepal's request that 132 kV lines between Nepal and Bihar be allowed for export of power from Nepal to India during the wet season months.

On the cross-border transmission infrastructure front, Indian portion of New Butwal – Gorakhpur 400 kV Transmission Line has entered into the implementation phase after NEA and Power Grid Corporation of India Limited (PGCIL) signed Joint Venture & Share Holders' Agreement (JVSHA) on 50:50 equity-sharing basis followed by signing of Implementation and Transmission Service Agreement (ITSA).

So far, Nepal has obtained approval from the Government of India (GoI) only for the 10 hydropower projects to export power of about 452 MW to the Day-ahead market of the IEX though the power transfer capacity as mutually agreed in the 10th India-Nepal JWG/ JSC meetings for the Dhalkebar-Mujaffarpur 400 kV Transmission Line is 800 MW, whereas applications submitted through NVVN for the hydropower projects, far more than the remaining transmission line capacity, are in the process of GoI's approval.

Going forward, NEA, NVVN and Bangladesh Power Development Board (BPDB) are almost in the final stage of signing a Tripartite Agreement on medium-term basis after agreeing on the tariff for the export of 40 MW of hydropower from Nepal to Bangladesh by using the Indian grid. The commencement of the said power transfer to Bangladesh through Baharampur - Bheramara 400 kV HVDC link between India and Bangladesh is expected to take place from the ongoing wet season. It may be considered as a landmark event since NEA will be marching into an era of sub-regional cross border power trading with India and Bangladesh on board.

Way Forward

NEA, as a government-owned power sector utility, has always been moving forward to meet its main objective of satisfying its consumers with reliable, quality and affordable supply of electricity as well as maintaining sound financial health for further development. Succeeding in meeting this objective has culminated in people's trust and optimism in our endeavors towards achieving the long-standing goal of becoming self-reliant in our energy uses and reducing trade deficit by exporting surplus electricity to neighboring countries.

NEA will continue its efforts in developing hydropower projects on its own and with joint venture partners, through subsidiary companies. Our focus will be more on large-size reservoir and peaking hydropower projects. NEA is initiating construction of Dudhkoshi reservoir

(635 MW), Upper Arun (1061 MW), Chainpur Seti (210 MW), Tamakoshi V (99 MW) and Upper and Lower Modi (60 MW) projects with utmost priority. Likewise, Arun 4 Hydropower Project (490.2 MW) is being developed by joint venture company between NEA and Satlej Jalvidyut Company, India. Similarly, the fourth Joint Steering Committee (JSC) meeting between Nepal and Bangladesh has agreed to form a JV company to develop Sunkoshi III HEP (683 MW) in the near future.

NEA has set a policy to purchase solar power through competitive bidding process from the prospective bidders. Recently, NEA issued the Request for Proposal (RfP) for the purchase of 100 MW of solar power with the maximum price capped at NRs 5.94 per KWh. Further, a new PPA policy is under review for power purchase by allowing developers to design hydropower projects with the optimum Probability of Exceedance (PoE) in order to generate maximum energy and eventually enhance the power export quantum during the wet season.

NEA's prime focus is to upgrade and expand transmission and distribution infrastructure for ensuring reliability and quality of supply to our consumers and enhancing the quantum of power export in coming future. More high capacity transmission interconnections are being planned between Nepal and India for commissioning in different timeframes. Indian portion of Butwal –Gorakhpur 400 kV cross border line is under implementation through the Joint Venture Company established between NEA and PowerGrid, India. Likewise, the Joint Steering Committee (JSC) meeting between Nepal and India has decided to implement two more 400 kV cross border transmission lines to connect New Inaruwa, Nepal to Purnia, India and Dodhdhara, Nepal to Bareli, India, by FY 2027/28 and 2028/ 29 respectively. Further, a high voltage transmission line from Ratamate (Nepal) to Kerung (China) will lead to Nepal-China power trading in the years to come. The feasibility study of Nepal side of transmission line has already been completed and environmental studies are being carried out. This transmission line will connect China to the South Asian Region.

NEA is constructing 400/220 kV backbone transmission lines within Nepal with the investment of GoN/NEA and the support from various donor agencies. Considering the prospects of high demand growth in Kathmandu and other major urban areas of the country, NEA has formulated plans for building transmission and distribution infrastructures to meet the growing demand of the next thirty years. Various studies in this regard are being conducted, whereas the land acquisition for 20 different substations within the Kathmandu valley is in progress. Similarly, the studies on the transmission system for 11 clusters of major cities outside the Kathmandu valley are being carried out for their early implementation. This will not only meet the power demand until 2050, but also enhance the reliability and quality of power supply. Furthermore, studies on 400 kV and 220 kV multi-circuit south corridor transmission lines, approximately 600 km, along the postal highway are underway. This will connect various industrial corridors to meet the load demand of the upcoming industries near the Indo-Nepal border. These transmission infrastructures will ultimately support cross border power trading between Nepal and the neighboring countries. NEA will manage the fund required for the implementation of these projects with its internal resources and the concessional loans from the various multilateral financing agencies including Exim Banks.

The primary objectives of NEA are to increase domestic demand and enhance the quantum of power export. Nepal has already embarked on clean energy transition in several sectors like cooking, cooling, heating, transportation and manufacturing industries. The use of Electric Vehicles (EVs) and electric cooking are now being increasingly popular day by day. This will not only help consume more electricity, but also save millions of dollars being spent on oil, gas and coal import.

NEA is committed to build robust infrastructures

to promote EVs and electric cooking. Under this mission, NEA has already completed the installation and commissioning of EV charging stations based on DC Fast Charging Technology at 51 prime locations all over Nepal and additional 13 more charging stations are being installed at different locations. At the same time, NEA has also adopted the policy to encourage the private sector to come into this business, following which, many private companies have established charging stations at various locations.

Nepal has lately transitioned from a nation of chronic electricity deficit to the changed landscape of electricity surplus. Moreover, NEA has been playing a crucial role to enhance cross border power trading with India and beyond. The recent state visit of the Rt. Honorable Prime Minister to India has paved the way for the export of 10,000 MW of power to India in the coming 10 years. Likewise, mid-term agreements have been signed with NVVN and PTC India for the export of 200 MW and 300 MW of power to India respectively. Similarly, a tripartite agreement between NEA, BPDB and NVVN is likely to be concluded soon for the export of power to Bangladesh utilizing the existing available transmission infrastructures.
As Nepal Power Trading Company, a NEA subsidiary, has recently obtained the transaction approval for its operationalization, NEA is committed to start the trading business through it in both domestic and cross border markets soon.

Green Hydrogen is becoming a major source of fuel for transportation and industrial use in near future. Green Hydrogen is not only used for transportation, but also for producing ammonia and chemical fertilizers. Nepal should focus on production of Green Hydrogen, Ammonia and Urea to ensure our energy and food security. With the abundance of water and surplus hydropower, Nepal can play a major role in this new field. In this context, NEA has carried out feasibility study for Green Hydrogen collaborating with GGGI (Global Green Growth Institute) and School of Engineering, Kathmandu University, so as to establish a Green Hydrogen Plant in Nepal as a pilot project. NEA is also looking for regional collaboration in green hydrogen initiatives in the years to come.

NEA has formulated IT Policy 2023, aiming to modernize its functions and ensure secure, stable and standard IT infrastructure. Our endeavor towards this direction will lead to Digital NEA which will be in line with the GoN's vision of Digital Nepal.

Organizational restructuring of NEA will continue to be our priority in the days to come and it will be accomplished with the adoption of a suitable modality by making necessary amendment to the NEA Act, 2041. The initial framework for restructuring has already been formulated in Corporate Development Plan, 2019, as approved by the NEA Board.

NEA has recently prepared Financial restructuring Plan III and submitted it to Ministry of Energy, Water Resources and Irrigation for approval from the cabinet. As per the Plan, NEA is going to issue its portion of shares to the general public. This will ultimately monetize the assets within NEA and open the avenues for more investments in infrastructure projects.

Capacity building programs will be continued on a larger scale for efficient operation and implementation of NEA's activities. In this regard, training for all levels of employees within the organization will be effectively conducted in the years to come.

It is our firm belief that ensuring the best service delivery with reliable, affordable and quality supply and improving morale and financial health of our organization will definitely improve our credibility and will enhance the prospects for overall development of the organization. Our every endeavor shall be focused for better and efficient NEA.

Acknowledgements

I, on behalf of NEA, would like to take this opportunity to acknowledge the contribution of everybody, directly or indirectly associated with the performance and achievements of NEA. First of all, I would like to bestow my sincere gratitude on the Right Honorable Prime Minister for his dynamic leadership in creating conducive environment for hydropower development in the country and taking remarkable initiatives in cross border power trading with the neighboring countries by reaching mutual understanding with India for long term power export. I would also like to express my gratitude to the Honorable Minister of Energy, Water Resources and Irrigation, Chairman of NEA Board of Directors, for his proactive leadership in boosting the morale of team NEA and providing the right direction to the organization. I am also grateful to the Secretary, MoEWRI, for his continuous and unwavering support and direction in meeting the targets assigned to NEA. My sincere gratitude also goes to the members of the NEA Board of Directors for their expert and valuable guidance in decision making and formulating policies for the overall organizational performance and achievements within the framework of authorities and responsibilities envisaged in the NEA Act, 1984.
I would also like to thank the Government of Nepal, Ministry of Energy, Water Resources and Irrigation, Ministry of Finance and other concerned Ministries of the GoN for their continued support, encouragement and patronage in the development of energy sector. I sincerely acknowledge the great concern shown by the parliamentary committees in our regular operation and development pursuits. I would also like to express my sincere gratitude to Electricity Regulatory Commission (ERC) for effective regulatory functions.

I am also grateful to the development partners including World Bank, ADB, JICA, EIB, AIIB, KfW, NORAD, Exim Bank of India, Exim Bank of China and Exim bank of Korea, who have always helped us in the past and are willing to continue their involvement in the coming days to achieve our goal of fulfilling the growing needs of energy. I also extend my sincere appreciation to Employees Provident Fund (EPF), Citizen Investment Trust (CIT), HIDCL and Rashtriya Beema Sangsthan for their help in fulfilling our investment needs. I sincerely appreciate the banks, auditors, IPPs, suppliers and investors for bestowing faith on us and helping us move forward. Likewise, my thank also goes to the Indian power trading companies- NTPC Vidyut Vyapar Nigam (NVVN) and PTC India Limited- for continuously trading power with Nepal.

The role of the media in disseminating factual information about the organization to the general public has always been encouraging. I look forward for similar support in the days ahead. I would also thank and express my gratitude to all my predecessors, who have contributed to NEA's growth.

The entire staff of NEA including the Employee Unions deserve appreciation for their hard work, support and cooperation for daily operation of activities and in implementing the policies even in difficult situations. Finally, I would like to express my sincere thanks and appreciation to our valued consumers and different professional organizations for bearing with us at times of extreme difficulties and boosting our morale by recognizing our untiring efforts. I would like to assure our valued consumers that every possible step will be taken to maintain a continuous, reliable and safe power supply in the coming days.

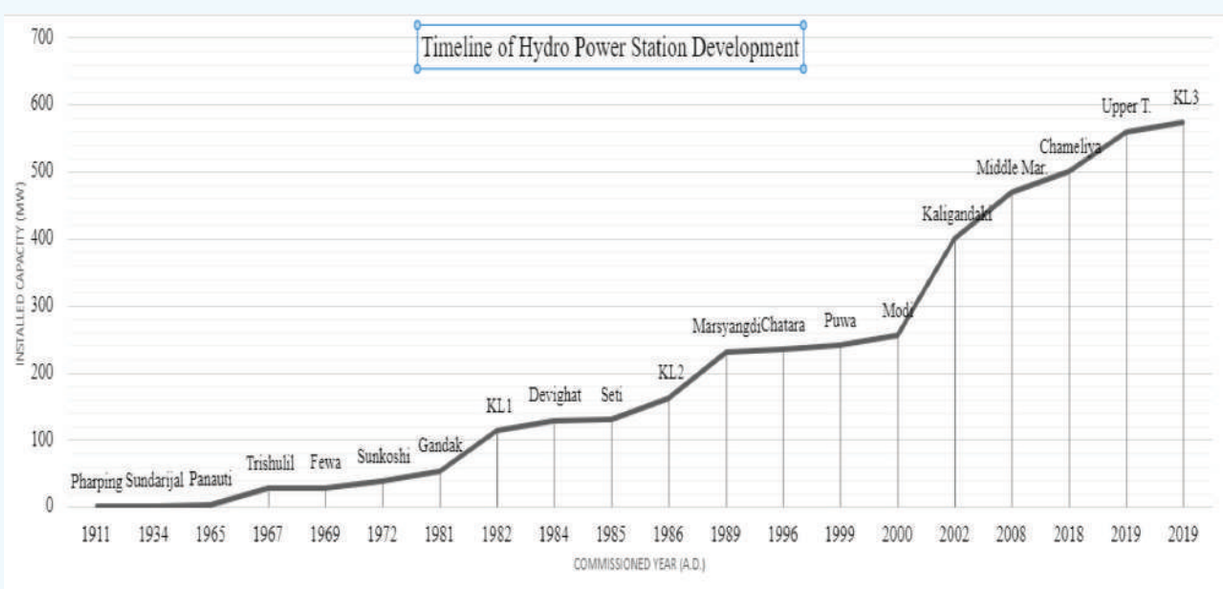
Thank You.

Kul Man Ghising,
Managing Director, NEA

GENERATION DIRECTORATE

Generation Directorate, headed by the Deputy Managing Director, is responsible for the construction of the new power generation projects along with the optimum operation and maintenance of the hydropower stations owned by Nepal Electricity Authority. Currently there are twenty generating hydropower stations and two thermal power plants under this Directorate having the total installed capacity of 626.7 MW. Hence, generation of energy by utilizing the resources available while undertaking periodic overhauling, major maintenance works and rehabilitation of the generating stations is the mission of the Generation Directorate. The Directorate is supported by four Departments, namely Large Generation Operation and Maintenance Department (LGO&MD); Medium Generation Operation and Maintenance Department (MGO&MD); Generation Development Department (GDD) and Technical Support Department (TSD) each headed by a Director. Further, there are three Divisions/Sections namely, Finance, Administration and Monitoring & IT.

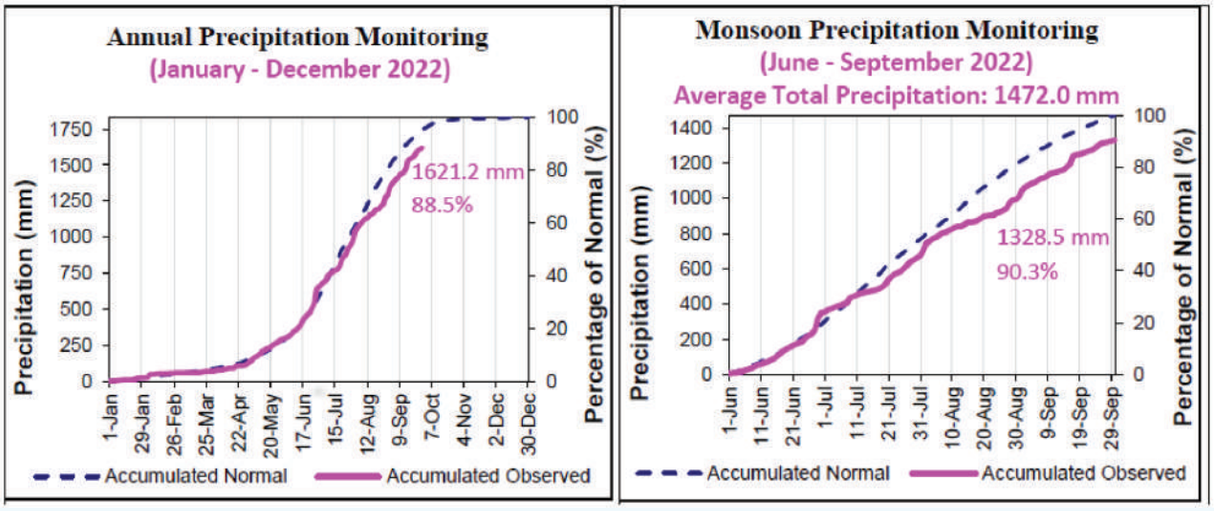
Currently, the Directorate has undertaken the rehabilitation of Seti Fewa HPS; Gandak HPS and Trishuli HPS. Chatatara Hydropower Station and Modi Khola Hydropower Station are being studied for rehabilitation by Chilime Engineering and Service Company Limited (CHESCO).



Timeline of Hydropower Development

In FY 2022/23, the total generation from all power plants under this Directorate is 2,897 GWh, whereas the generation was 3,242 GWh in FY 2021/22. The annual generation in this FY is a decrement of 10.65 % from the generation of the last year. The annual energy generation from hydropower stations could only reach 93.69 % of the target generation this year.

The main reason behind the decrement in annual energy generation compared to the last year is the reduction in rainfall, which directly affected the river discharge. As per the data of Department of Hydrology and Meteorology (DHM), the annual rainfall was around 88.5% only of normal rainfall and even in mansoon season the targeted was only 90.3% of the average precipitation. The DHM has predicted that there would be less precipitation for the year 2023 too. Middle Marsyangdi hydropower was shut down for 21 days during the month of Falgun for the left bank protection work of the reservoir. One unit of Kaligandaki "A" Hydropower Plant was shut down for the period of 18 days because of the stator earth fault, which also contributes in reduction of energy generation.



Accumulated Rainfall During 2022

Large Generation Operation and Maintenance Department

The operation and maintenance of seven hydropower plants and one multi-fuel power plant (with an installed capacity of 30 MW and above) fall under the jurisdiction of this department. The total installed capacity of these plants is 504 MW. Total generation from the power plants under this department during FY 2022/23 is 2,456 GWh, with a decrement of 10.69 % as compared to that of the last FY's generation. All the hydropower stations under this department are operated continuously throughout the year. Except Kulekhani HEP, which is a storage type, all other remaining power stations are daily peaking ROR-type plants. These plants require both scheduled/ preventive and corrective maintenance, as well as special maintenance. General regular maintenance works are carried out without the plant shutdown or within a few hours of plant shut down. Overhauling of generating units, up-gradation of control and protection system, installation of SCADA, and maintenance works in headwork site are the special maintenance works. As such works require multiple days of plant shutdown, it is the normal practice to carry out such works as far as possible during the dry season minimizing the energy loss. This ensures the availability of design capacity during the wet season.

Kali Gandaki 'A' Hydropower Station

Kali Gandaki 'A' Hydropower Station, located at Beltari of Syangja district is the largest installed power station under NEA with an installed capacity of 144 MW. The plant which was commissioned in 2002 is a six-hour daily peaking Run-of-River type power station having an annual design generation of 842 GWh. The cumulative generation of the station till F/Y 2022/23 has reached 16,415 GWh from the first run. The plant generated

832.7 GWh of energy, in the year which is 98.83% of the annual design generation and 94.7 % of the annual energy declaration.

Stator Maintenance Work

The major activities carried out in this year are as follows:

- Unit Overhauling with MIV seat Ring Replacement in Unit No. 1 and Unit No.3;
- Underwater Repair Works on Dam side;
- Repair and Maintenance of Under sluice Gates, Desander Gates and Radial Gates;
- Rotor connecting bars problem troubleshooting and copper bars replacement in Unit No. 2 Generator;
- Stator Earth Fault problem tro bleshooting and Sator Coils replacement in Unit No. 1 Generator by the use of internal resources of NEA; and
- Left bank road expansion and maintenance works in Dam side.

Middle Marsyangdi Hydropower Station

Middle Marsyangdi Hydropower Station (MMHPS) has been generating electricity by diverting the water of Marsyangdi River originating from the Tilicho Lake in Manang district. Located in the Lamjung district of Gandaki Province, MMHPS has an installed capacity of 70 MW and a design annual generation of 398 GWh. MMHPS, which is a Peaking Run-of-River (PRoR) plant with a daily peaking capacity of 5 hrs at the minimum discharge was commissioned in December, 2008. The cumulative generation of this station till this FY is 6,222 GWh and total generation during the F/Y 2022/23 is 428.4 GWh.

Left Bank Protection Works

Major repair and maintenance activities during F/Y 2022/23 are as follows:

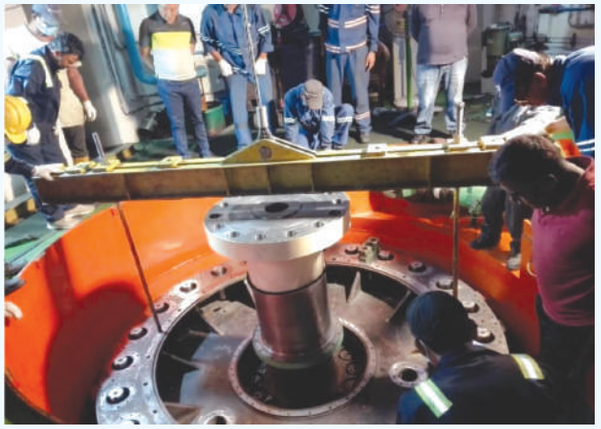
- Overhauling of Unit No.2;
- Repairing of sliding plate and the fixed plate of the flushing mechanism;
- Replacement of dry type Excitation transformer of Unit No. 1;
- Repair and improvization of 33KV ded cated line to the Damsite;
- Repairing works of spillway chutes of Spillway Radial Gate No. 1 and 3 with epoxy mortar application.

The upstream left bank and downstream left and right bank of the dam site had been heavily damaged. The left bank upstream protection and rehabilitation works was completed by the construction of RCC toe wall, RCC spur and gabion structure within the 21 days of plant shutdown from 16 Falgun to 07 Chaitra of the Year 2079. The downstream left and right bank protection of dam site was also completed by PCC works and construction of gabion with stone masonry retaining wall.

Marsyangdi Hydropower Station

Marsyangdi Hydropower station located at Aabookhaireni, Tanahun in the Gandaki

Province is a Peaking Run-of-River type power station with an installed capacity of 69 MW and annual design generation of 462.5 GWh. The cumulative generation of the station has reached 14,149 GWh until the end of FY 2022/23. In FY 2022/23, it generated 435 GWh of energy which is 94.69% of the target and 92.96 % of the annual design generation.



Overhauling of Unit No. 3

Major activities carried out in F/Y 2022/23 are as follows:

- Replacement of runner, head cover wearing ring & facing plates; bottom wearing ring with facing plate of Unit No. 3;
- Repair and maintenance of diversion weir gate, replacement of bottom rubber seal of Gate No. 1, 2 & 4 and repair of sill beam.
- Repair and maintenance of stop log type-I (Bottom Stop Log No.1), bottom rubber seal replacement; and
- Dam spillway structure maintenance and rehabilitation works on Gate No.4 & 5.

Upper Trishuli 3A Hydropower Station

Upper Trishuli 3A (UT3A) Hydro Power Station, located in Rasuwa and Nuwakot districts of Bagmati Province in Nepal, is the second largest hydropower station of NEA in terms of energy generation after Kaligandaki 'A' Hydropower Station with an annual design generation capacity of 489.8 GWh. The Run-of-River type power station, which has two Units of Vertical shaft Francis Turbine of 30MW each, was commissioned in July 2019. Upper Trishuli 3A Hydropower Station has been consistently supplying energy to the INPS in an increasing trend. During F/Y 2022/23, the total generation of the power station is 437 GWh, which is 100.99% of the generation of F/Y 2021/22. The cumulative generation till this year has reached to 1,923 GWh.

Assembly & Fitting of Repaired Pressure Reducing Valve of Unit-2

The civil sructure and mechanical components (Gates and Rail Structure) at Headworks were extensively repaired and maintained in this F/Y as the mandatory preparatory pre monsoon works. Other major activities carried out are as follows:

- Repair of Worn-out Rail Bars at dow stream and Seal Beam of Radial Gate Nos-1 & 2;
- M25 Concreting at Stilling Basin of Radial Gate-1 & 2 Appron;
- M60 Concrete at Rail Bars at downstream of Radial Gate-1&2;
- Epoxy application on the concrete stru ture of Rail Bars at downstream of Radial Gate Nos -1&2; and
- Gabion Works near to Canal Spillway.

In addition, two numbers of eroded spare runners have been repaired and kept ready for overhauling in the upcoming years. Also the repair of the eroded Pressure Reducing Valve (PRV) of Unit-2 was completed to keep the power station in a fully smooth operating condition.

Kulekhani I Hydropower Station

Kulekhani –I HP Station is the only reservoir type Hydro-electric Power Station in Nepal. It is

situated in Makwanpur District, Central region of Nepal, about 30 km to the Southwest of Kathmandu, whereas the Kulekhani Dam itself is located about 21 km Southwest of Kathmandu. It covers two basins of different river systems i.e., the Kulekhani river basin and the upper Rapti river basin neighboring to the south of Kulekhani river basin. It has an installed capacity of 60 MW with two units, each of 30 MW. Though this station was designed as a peaking power station, it is often operated to the system requirements for voltage improvement & system stability. The Power Station is designed to generate 211 GWh annually. The cumulative generation of Kulekhani-I HPS has reached 5,511.7 GWh. The plant generated 128 GWh of energy in FY 2022/023. The maximum and minimum water levels of Kulekhani reservoir in FY 2022/23 were recorded as 1529.76 masl and 1487.68 masl respectively.

Kulekhani Reservoir

The major activities in F/Y 2022/23 are as follows:

- Construction of Gabion Check wall at different Sources (Main Intake, Mahalaxmi Khola etc) of Indra Sarovar, Microtremor L-Array Test at Kulekhani dam crest;
- Installation, testing and commissioning of new 300 KVA Dry-Epoxy Type Station Transformer;
- Installation, testing and commissioning of new Blower Panel near Valve House and Damsite;
- Maintenance of 11 kV Bus Bar; Installation of 3 set 200 VA 11000/110 Volt PT in control room and VCBs;
- Testing Dissolved Gas Analysis (DGA) and BDV testing of 3 MVA, 5 MVA and Both 35 MVA Power Transformers;
- Installation of 12 Core ADSS optical fiber and CCTV works from Kulekhani Dam to Control room;
- Repair and maintenance of nozzle tip; and
- Repair and maintenance of Radial Spillway Gate, Chakhel Khola and Sim Khola Intake Gate.

Kulekhani II Hydropower Station

Kulekhani-II Hydropower Station, located at Bhimphedi Rural Municipality-4, Nibuwatar, Makwanpur is a cascade of Kulekhani-I HPS with an installed capacity of 32 MW and annual design generation of 104.6 GWh. It was commissioned in 1986 AD.

The plant is designed to generate energy utilizing the water from the tailrace of KL-I HPS, with further addition of the water of Mandu River and through Rapti pumping station. Every year Mandu intake is cleaned after the wet season to allow the filtered water into the intake pond. Likewise, Rapti Pumping Station is operated as per the requirement in the dry season with the effective maintenance works to generate the additional power. The cumulative generation of Kulekhani-II HPS has reached 2398 GWh. In F/Y 2022/23, it generated 60.1 GWh of energy. Since the station is a cascade of Kulekhani-I HPS, it is being operated as per instructions of Load Dispatch Center (LDC) to match the system.

Repairing of Power Transformer

Major activities carried out in F/Y 2022/23 are as follows:

- Installation of Digital AVR system for both Units;
- Restoration and repair work of Generator Synchronizing Vacuum Circuit Breaker (VCB);
- Installation work of new VCB of rating 4000A for Main transformer;
- Procurement of Numerical Relay-Based Generator and Transformer protection system;
- Installation of new 48 kW submersible pump for Rapti Intake;
- Procurement and installation work of Oil Cooler for Unit No.1;
- Repair of Guide vanes and Replacements of filter materials at Mandu Intake;
- Check wall & other civil structure repair, construction of plum concrete wall at Rapti intake; and
- Supply & installation of filter water system at colony and construction of Roof Truss at powerhouse.

Chameliya Hydropower Station

Chameliya Hydropower Station, a daily Peaking Run-of-River (PROR) scheme with an nearest city installed capacity of 30 MW, is located in the west of Kathmandu on Chameliya river, a tributary of Mahakali river, in Shailya-Shikhar Municipality-1, Balanch of Darchula district. The powerhouse site is located 85 km from the district headquarter, Khalanga, Darchula and is 270 km from Dhangadhi. It has been designed with an annual generation of 184.2 GWh.

Inflatable Shaft Seal Replacement

In FY 2022/23, the plant has generated 134.9 GWh of energy, which is 73.25% of the annual design generation. The cumulative energy generation to date is 814.8 GWh. Major activities carried out in F/Y 2022/23 are as follows:

- Repair and maintenance of Vertical Turbine Pumps of Dewatering System;
- Soft Coating on Repaired Turbine Runner and Guide Vanes;
- Repair and maintenance of Cooling Water Supply Line, Pressure Reducing valves, Non-Return Valves, Pressure Balancing pipes and Replacement of Worn-Out Inflatable Air Shroud (Shaft Seal) of both the units;
- Installation and charging of newly procured 132 kV SF6 breaker;
- Procurement of spare parts for Unit Control System (Programmable Logic Controllers) of Powerhouse and Damsite;
- Preventive Maintenance of 16.7 MVA Transformer at switchyard, 10MVA and 3MVA at substation transformer;
- Completion and Charging of Chameliya-Syaule – Attariya 131 km 132 kv Double Circuit Transmission Line;
- Under water repair and maintenance of Guide Frame Sill Beam of Stoplog at Dam.
- Repair and maintenance staff colony, power house, substation buildings, outside painting of staff quarter buildings and inside painting of office building; and
- Maintenance, upgradation, drain and lan slide clearance in Gokuleshwor – Bitule (18 km) access road.

Multi- Fuel Power Plant

Multifuel Power Plant, located at Bansbari, Morang in the Eastern Industrial corridor of Nepal, has an installed capacity of 39 MW. Out of the total installed capacity of 39 MW, 26 MW capacity was put into service in the F/Y 1990/91 and an additional 13 MW capacity was put into service in the FY 1997/98. Multifuel Power Plant has 6 (Six) Wartsila Diesel Engines that use furnace oil (FO) as a source of energy. There are two generator units, each of 7.5 MVA from Leroy Somer France and four units, each of 8.144 MVA from Alsthom, France.

The plant was not operated for the energy generation in F/Y 2022/23.

Medium Generation Operation and Maintenance Department

Medium Generation Operation and Maintenance Department (MGO&MD), headed by the Director, is responsible for the operation and maintenance of thirteen hydropower stations and one diesel power plant with the individual installed capacity below 30MW owned by NEA. The total installed capacity of 13 hydropower stations and 1 diesel power plant is 122.7 MW. The actual generation from the hydropower generating stations under this department in FY 2022/023 is 441.5 GWh, a decrement of 10.42 % from the generation of previous FY. The rehabilitation of Sundarijal HEP has been completed with the loan assistance from the Asian Development Bank (ADB) under Energy Access and Efficiency Improvement Project (EAEIP).

Trishuli Hydropower Station

Trishuli Hydropower Station is constructed on the banks of Trishuli River at Trishuli Bazar, Nuwakot. The plant with an installed capacity of 221 MW was commissioned in 1967 AD with the assistance of the Government of India at a cost of INR 140 millions. It was later rehabilitated in 1995 AD and upgraded to 24 MW with 6 units each 3.5 MW and one unit of 3 MW. It is a Peaking Run-of-River plant with an annual design generation of 163 GWh. The annual generation in FY 2022/23 is 123.2 GWh which is 84.69 % of the target generation and the cumulative energy generated till date is 5,817 GWh.

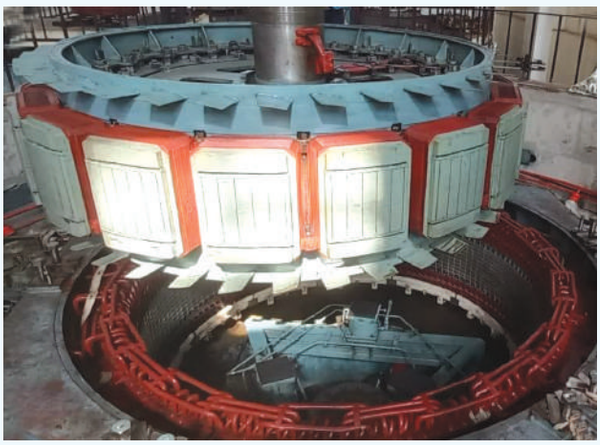
Unit No. 5 Overhauling

The major activities carried out in F/Y 2022/23 are as follows:

- Overhauling of Unit 5;
- Repair of runner and guide vane works of Unit No. 3, 5 and 7;
- Canal protection work at Aqueduct No. 2;
- Upper and lower flat seals; and
- Installation of outlet spindle shaft and worm gear in flushing gates.

Devighat Hydropower Station

Devighat Hydropower Plant is a cascade development of Trishuli Hydropower Plant with an installed capacity of 14.1 MW and the annual design generation of 114 GWh. The plant located at Devighat, Nuwakot was commissioned in 1984 AD. The capacity of the units was improved and upgraded to 15MW. The actual generation in FY 2022/23 is 88.9 GWh; which is 86.14 % of the annual generation target. The plant has generated 3,332.9 GWh of energy till date.



Repair of Rotor Pole Connector of Unit No. 2

The major activities in F/Y 2022/23 are as follows:

- Overhauling works of Unit No. 1;
- Modification of piping and flanged arrangement & replacement of Generator Air Cooler;
- Replacement of escape gate and tailrace gate seal;
- Repair works of Unit No. 2 Rotor Pole and Connector Circuit with necessary adjustment of thrust collar and bearings;
- Repair, replacement & installation of the Air Compressor System, turn buckle and pumps;

- Replacement of Rotating Diode of Unit No. 2, AVR of DG;
- Repair and maintenance of canal; and
- Construction of blacktopped bituminous road from the camp to the powerhouse.

Kulekhani III Hydropower Station

Kulekhani III Hydro Power Station (KL3) with an installed capacity of 14 MW with an annual energy generation of 40.85 GWh is a cascade scheme of Kulekhani Storage Project (Kulekhani I and Kulekhani II Hydro Power Stations). Predominantly, KL3 utilizes the regulated flow of Kulekhani II Hydro Power Station and the natural flow of Khani Khola for the generation of electricity. The headwork is located about 40 km southwest of Kathmandu and about 10 km north of Hetauda in Makwanpur district in Narayani Zone.

With the installation of gate facilities in Khani-Khola Intake, the generation has increased remarkably. The total generation of F/Y 2022/23 is 28 GWh, which is 108.70% of the annual target. The cumulative generation is 119.7 GWh from the date of operation to the F/Y 2022/23.

Repairing of Excitation System.

The major activities in FY 2022/ 23 are as follows:

- Adjustment of Upper Guide Bearing gap of Unit No. 2;
- Rectification of Unit No. 2 rotor earth fault;
- Seal changing of power transformer bush and meggaring work;
- Installing and changing work of MCB, surge protection plate earthing;
- Charging MCCB panel of Bhaise control room;
- Three phase supply transmission work from powerhouse to audit tunnel; and
- Installation of spare cooling pump and changing of broken shear pin.

Gandak Hydropower Station

Gandak Hydropower Station is located at Pratappur Gaun Palika Ward No. -7, Nawalparasi, Nepal about 235 km from Kathmandu and about 5 km North of the Indian border point called Jhulenipur, Mahrajgunj, Uttar Pradesh. The powerhouse is a part of the irrigation cum power generation scheme on Gandak River. The plant has three horizontal mounted tubular bulb turbines; low head high discharge Kaplan Turbo-Generators of 5 MW each with an aggregate capacity of 15 MW and an annual design generation of 106.4 GWh. The plant was built in 1979 AD with the assistance of the Government of India. It was handed over to NEA on 31 August 1981. Among three units, Unit No. 2 is in operation (but power generation capacity is limited up to a maximum 3 MW due to excessive sand deposition in upstream side) and Unit No.1 is out of operation for last 13 years due to problem in generator's stator coil. The actual generation of FY 2022/23 is 14.8 GWh, which is 47.97 % of its target generation.

Repairing of Runner Hub and Blades

The major activities carried out in FY 2022/ 23

are as follows:

- Maintenance overhauling of Unit No. 2 and 3;
- Installation of new lubricating oil cooler set; high pressure oil pumps in Unit No. 2 and 3;
- Repair and maintenance of water cooling system accessories, pump impellers and trash rack cleaning machine parts;
- Installation of temperature sensor and meter with alarm system for protection in thrust and turbine guide bearing of Unit No. 3 along with smoke detector;
- Construction of new staff quarter building; and
- Painting of powerhouse building and its interior surfaces, boundary wall and staff quarters.

Modi Khola Hydropower Station

Modi Khola Hydropower Station is located at Dimuwa in Parbat district, about 46 km towards west from Pokhara. It has an installed capacity of 14.8 MW with the annual design generation of 92.5 GWh. The cumulative generation of this plant since its first run has reached 1290.7 GWh. It has generated 73.9 GWh in FY 2022/23, which is 101.88% of the annual target.

Overhauling Works of Unit 2

The major activities carried out in the FY 2022/23 are as follows:

- Protection works on flushing gate downstream portion and intake area of drinking water supply tank and access road;
- Overhauling of Unit No. 2 turbine and ge erator parts and draft tube cone installation;
- Replacement of Digital Excitation Control System of Unit No. 1 and Maintenance of fuse link;
- Conductor replacement works at 132 kV switchyard and maintenance of 132 kV SF6 circuit breaker; and
- Repair and maintenance of auto filter and cooling system, degravel, flushing and purging gates of intake area.

Sunkoshi Hydropower Station

Sunkoshi Hydropower Station, located at 81 km east from Kathmandu, in Sindupalchowk district is a Run-of-River power station with an installed capacity of 10.05 MW and annual design generation of 70 GWh. The powerhouse was commissioned in January 1972 with a friendly cooperation the People's Republic of China. The cost of the project was approximately NRs. 109.4 million including the transmission line up to Kathmandu. The power station has generated 55.3 GWh of electricity in FY 2022/ 23 (86.77% of the generation target). The cumulative generation of the station till date has been 2,596.6 GWh.

Varnishing of Generator Winding

The major repair and maintenance activities carried out in FY 2022/ 23 are as follows:

- Overhauling of Unit No. 1;
- Shaft seal and Base plate change of Unit No. 2 & 3;
- Repair and maintenance of penstock gate, intake gate and tailrace gate;
- Replacement of hoisting rope of intake gate of dam site, repairing of gantry crane.

- Installation of panel board of tailrace gate, desander crane, dam control room, compressor room;
- Repair & maintenance of excitation panel, slip ring of Unit No. 1;
- Cleaning of Generator 1 winding, refilling generator insulation, repairing from busing and radiator of transformer;
- Removal of deposited sand from DraftTube floor;
- Painting work at the powerhouse; and
- Drain construction & sub-base laying work for the access road to powerhouse.

Ilam (Puwa Khola) Hydropower Station

Puwa khola hydropower station, located at Golakharka, Ilam having an installed capacity of 6.2 MW and an annual design generation of 48 GWh was commissioned in 1999AD. The RoR type plant was constructed with the joint financing from the Government of Nepal and Nepal Electricity Authority. It is the only sizeable Hydel plant of NEA in the Eastern part of Nepal. It has two identical units of 3.1 MW each and has generated 33.01 GWh of energy in FY 2022/ 23 which is 88.15 % of target generation. The cumulative generation of the plant has reached 729.9 GWh.

Penstock Rectification Work

The major repair and maintenance activities in FY 2022/ 23 are as follows:

- Rectification works at expansion Joint#03 & #04 of penstock alignment;
- Replacement of runner, nozzles with oil sealing rings during overhauling of Unit No. 2;
- Repairing and main seals replacements of spherical Main Inlet Valve (MIV) of Unit No.2;
- Repair, maintenance and cleaning of Bearing Oil coolers and Generator air coolers of Unit 2;
- Maintenance of crack line inside the tunnel and forebay;
- Repairing of 33kV line, 8MVA 6.6/33kV power transformer and in house servicing & repair of 250kVA, 33/0.4kV distribution transformer; and
- Construction of store and truss on powerhouse and office buildings.

Chatara Hydropower Station

Chatara Hydropower Station, a canal drop type hydropower station, is located at Chatara, Sunsari with an installed capacity of 3.2 MW and the annual design generation of 6 GWh. It was commissioned in 1996 AD with the assistance from Government of India at a cost of NRs. 162.6 million.

Generator Dismantling for Stator Repair

The total energy generation of the plant in FY 2022/ 23 is 3.3 GWh .Out of two units installed, only single unit is in operation. The major repair and maintenance works carried in this FY are the replacement of governor oil pump, synchronizing monitor set, AVR module, analog input and output module of governor system and the installation of new DC supply system.

Panauti Hydropower Station

Panauti Hydropower Station is the third oldest Hydropower Station in Nepal. It is a Run of River scheme hydropower plant with the intake on the right bank of Roshi Khola whereas the powerhouse is located at Khopasi, Kavre, nearly 35 km east of Kathmandu. The plant has

the installed capacity of 2.4 MW with the annual design generation of 6.97 GWh. The plant was commissioned in 1965 AD with the assistance by Soviet Union Government at a cost of 27 MNPR. The station was developed with the joint purpose of hydropower generation and irrigation. However, the water in the canal has also been used for drinking purposes as well. The cumulative generation of the station has reached 146.8 GWh till FY 2022/ 23. The station has generated 2.5 GWh in FY 2022/ 23.

Cleaning of Reservoir Area.

The major activities in FY 2022/ 23 are as follows:

- Repair and maintenance of turbine and its component of Unit No.2. and repairing of greasing housing of the bearing;
- Repair and maintenance of thrust bearing, greasing bearing, and oil-bearing;
- Seal change of MIV of Unit No.3;
- Repair and maintenance of canal; and
- Cleaning of reservoir.

Seti Hydropower Station

Seti Hydropower Station is a Run of River type plant with an installed capacity of 1.5 MW and the design generation of 9.8 GWh. The plant located at Nadipur, Pokhara was commissioned in 1985 AD with assistance from the Government of People's Republic of China. The canal for this power station is primarily used for irrigation purposes and hence, the generation from the power station is affected by irrigation as usual.

The cumulative generation of Seti HPS has reached 382.9 GWh till FY 2022/23 from its first run. The station has generated 11.8 GWh in FY 2022/ 23.

Guide Vane Assembly Works

The major activities in FY 2022/ 23 are as follows:

- Overhauling of Unit No. 1;
- Replacement of stop log seal (J seal, Flat seal);
- Repairing of cooling pipeline and replacment of coolers;
- Replacement of butterfly type turbine main inlet valve;
- Installation of control panels for trash rack and forebay gates.
- Insulation and resistance testing of power transformers; and
- Repairing of EOT crane.

Fewa Hydropower Station

Phewa hydropower station is a canal drop type power station having an installed capacity of 1.0 MW. The station located at Pardi, Birauta, Pokhara has an annual design generation of 6.5 GWh. It was commissioned in 1969 AD with the assistance of the Government of India. The public encroachment of power canal is a major concern for plant operation despite the availability of generating units.

The cumulative generation of the station has reached 102.8 GWh till FY 2022/23 from its first run. The station has generated 1.42 GWh in FY 2022/ 23.

Maintenance of Turbine

The major repair and maintenance activities in FY 2022/23 are as follows:

- Overhauling of Unit No.2;
- Replacement of ACB of Unit-1 & Unit-3 & installation of generator protection panel;
- Installation of 415V, 800A Synchronizing Breaker of Unit No.1; and
- Repairing of plant AC distribution system with new under/ overvoltage protection system.

Sundarijal Hydropower Station

Sundarijal Hydropower Station is located at Sundarijal, 15 km northeast of Kathmandu and serves twin purpose of water supply and energy. The tail-water discharge is utilized for water supply system to Kathmandu Valley. It has two turbo-generator sets with the total installed capacity of 640 kW & the annual generation 4.77 GWh. This plant was commissioned under the Colombo Plan scheme whereby the main equipment's were supplied by English Electric Company Ltd., England. It was commissioned in 1934 AD, and is the second oldest hydropower plant constructed in Nepal.

The actual generation from this plant in FY 2022/ 23 is 5.8 GWh and the cumulative generation has reached 147.5 GWh. The plant has achieved the generation of 121.29 % of the designed generation.

Modified Turbine Unit

In FY 2022/ 23, the complete repair and maintenance of flushing gate and main gate of reservoir were completed. Installation of cable trench and flooring works has been completed in the powerhouse. Old machine is kept in the museum and the old switchyard is shifted along with unmanaged poles and wires. For asthetic purpose, colouring of the structures and gardening works were carried out in the museum premises.

Pharping Hydropower Station

Pharping Hydropower Station is the first Power Station built in Nepal and it has held the legacy of hydropower development in Nepal for more than a century. It was inaugurated by the late king Prithivi Bir Bikram Shah Dev on 22 May 1911.

Pharping Powerhouse

It was constructed with a grant assistance from the British Government at a cost of 0.713 MNPR. It is situated in Pharping of Kathmandu district, nearly 12 km south from the city. There are two units each 250 kW with an aggregate installed capacity of 500 kW. As the water from the penstock has been diverted to the drinking water supply to Kathmandu by KUKL, the plant is not being operated for energy generation nowadays though it has been placed in standby mode to operate occasionally and to demonstrate to the visitors.

For this powerhouse, the Government of Bagmati Province has allocated a budget to promote the powerhouse as a hydropower museum. NEA Engineering Company has been assigned the task of performing the necessary study works.

Hetauda Diesel Powerhouse

Hetauda Diesel Power Plant, with an installed capacity of 14.41 MW is located at Hetauda, Makawanpur. The first phase with three sets of English Units was commissioned in 1963 and the second phase with four sets of Russian Units was commissioned in 1980 with the assistance from the British Government.

The plant was used to operate during the peak hours. However, the soaring fuel price has made its operation costlier compared to that of hydropower stations. Presently, the plant has been operating at a capacity of 10 MW only in the need of system peak load and for regular testing purposes.

The cumulative generation of the plant has reached 155.6 GWh from its first run. The station has generated 13.08 MWh in FY 2022/23.

Generation Development Department

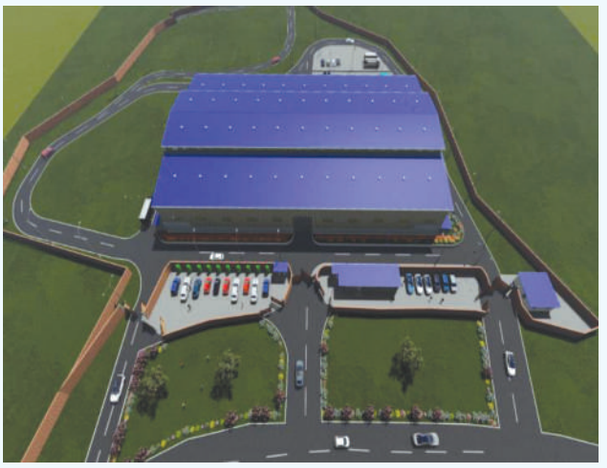
Generation Development Department (GDD) has the main objective of performing regular monitoring, inspection and resource management of under-construction projects of Generation Directorate. After the successful completion and handover of Kulekhani III Hydropower Project and Upper Trishuli-3A HEP, this department has been given the responsibility of regular monitoring and inspection of under-construction hydropower projects being executed through NEA Subsidiary Companies. A task team has been formed to monitor and inspect regularly the under-construction projects. This team updates the progress of the projects on the monthly basis.

Technical Support Department

Technical Support Department, headed by the Director, provides the expert advice for the under-construction projects and the existing generating power plants. The Deputy Managing Director coordinates between the Technical Support Department and Operation and Maintenance Department as required for such services. The department has signed an MOU with the School of Engineering, Kathmandu University for "Green Hydrogen Technologies Contributing to the Domestic Economy with Better Utilization of Hydropower Electricity" for mutual benefits of both Parties. Under this program, NEA shall provide a grant of NRs. 30 Million to School of Engineering, Kathmandu University. The prime objective of this program is to expedite the capacity development of academic institutions and NEA for better utilization of hydropower electricity, prepare a DPR for Pilot-Scale Green Ammonia Production in Nepal and provide engineering and associated services for implementation of Green Hydrogen Technologies within the broad interest of utilization of the surplus energy in the wet season.

Electromechanical Workshop Construction Project

NEA envisions the establishment of a state-of-art electromechanical workshop, capable of repairing and maintaining a wide range of electromechanical equipment installed in NEA's powerhouses. Accordingly the 'Electromechanical Workshop Construction Project,' has been initiated by the Generation Directorate. NEA plans to develop this workshop under a company model in the future.



General View of Proposed Electromechanical Workshop

The initial phase of the project aims to achieve the capability to repair turbines and associated parts for NEA-owned HPPs, fabricate small to medium hydro mechanical components (such as gates and penstocks) and implement HVOF coating. Looking ahead, the project's long-term goals include fabricating large hydro mechanical components, on-site overhauling, erection, and rehabilitation works for HPPs, testing on material properties, assessing electrical and electronic systems and components and offering human resources development related to repair and maintenance.

The progresses achieved till date can be listed as follows:

- Preparation of the detailed feasibility study report;
- Identification of the construction site at Aanboo Khaireni, Tanahun; and
- Completion of Structural Analysis & Design Drawings, Cost Estimate & Specifications of the Pre-Engineered Building (PEB)

Additionally, the work is ongoing to prepare the technical specifications for the required machineries and equipment.

Hydropower Plant Automation Project

Most of the Hydropower Plants owned by NEA are facing challenges due to aging infrastructure and obsolete technology. Many of these plants still use conventional relay logic based control systems, which are no longer supported by manufacturers and are becoming increasingly difficult to maintain. Additionally, the lack of spare parts for these systems make it difficult to repair and keep the plant running at the optimal reliability and availability. It has been realized that many hydropower plants need to be retrofitted with modern PLC based Control Systems and Numerical Relay based Protection Systems. Another major concern is the outdated gate control systems in many hydropower plants including Kulekhani First, Marsyangdi and Kaligandaki 'A' Hydropower Plant. Most of the old and outdated Gate Control Systems are non-operational, and many critical gates need to be opened manually which is slow and may cause difficulty during emergency situations.

In order to address these issues NEA has initiated "Hydropower Plant Automation Project" for modernizing its hydropower infrastructure. The project envisages to replace old and fatigued equipment with newer, more reliable components; upgrade plant and gate control systems and implement advanced automation technologies such as SCADA to improve the speed and reliability of the Plant and Gate operations.

In FY 2022/23, bids have been invited for "Plant Control and Protection System Upgration Works at Kulekhani I and Kulekhani II Hydropower Stations" as the first phase of the project. Study for upgradation of Marsyangdi Hydropower Station and Dam site Control of Kaligandaki Hydropower station are in progress. Upgradation of various Hydropower plants will be carried out in the next phase.

TRANSMISSION DIRECTORATE

Transmission Directorate, headed by the Deputy Managing Director, is fully devoted to its responsibility of planning, constructing, operating and maintaining high-voltage transmission lines and substations from 66 kV to 400 kV voltage level. Grid Operation Department (GOD), System Operation Department (SOD), Grid Development Department (GDD), Major 220 kV Transmission Line Department and Major 400 kV Transmission Line Department are the five departments under this Directorate and each of them is headed by a Director.

The main objectives of the Directorate are:

- To ensure the development and construction of efficient, coordinated and economical system of transmission lines from 66 kV to 400 kV voltage level for smooth flow of electricity from generating stations to the distant load centers;
- To operate, monitor and maintain the transmission system (66 kV to 400 kV voltage level) in an efficient manner;
- To ensure the quality and reliable power supply to consumers by reducing system outages and continuous supervision of INPS;
- To envisage, formulate, and implement short term, medium-term and long term development plans of transmission system network of 66 kV and above voltage levels to evacuate the power generated as per the GoN strategy (15,000 MW in 10 years) as well as to serve the rapidly growing demand of the country; and
- To reinforce/up-grade the existing transmision lines and substations capacity.

The Directorate operates INPS in the synchronous mode with the Indian Grid to make the system more reliable, secured and robust. Moreover, this Directorate is entrusted with the power exchange across border countries through cross border transmission lines. The first ever 400 kV Dhalkebar-Muzzaffapur Cross Border Transmission Line has played a vital role in the power trade between Nepal and India. A JV Company of NEA and Power Grid, India has been formed for the construction of the Indian portion of Butwal-Gorakhpur 400 kV Cross Border Transmission Line and the contract agreement has been signed for the construction of transmission line and substation. Millennium Challenge Account (MCA), Nepal funded by Millennium Challenge Corporation (MCC) has taken care of construction of Nepal portion of Butwal-Gorakhpur 400 kV Cross Border Transmission Line and associated substations. The bid for transmission line is under evaluation and the bid for substation is yet to be invited.

Recently Completed Projects

Sunwal 132 kV Substation

The objective of this project is to provide the adequate power supply to Palpa Cement Industry, Laxmi Steel Industry as well as the other existing industries along with the reliable power supply to the existing and newly constructed 33 kV distribution network. The contract agreement was signed with Energy Pac-Sigma Con JV in

September 2019. The scope of work includes the construction of a new substation with 132/33 kV, 2x63 MVA, 3-phase and 132/11 kV, 22.5 MVA, 3-phase power transformers and construction of 7 Nos of 33 kV feeders and 4 Nos of 11 kV feeders with the complete relay & protection system and substation automation system.

Sunwal 132kV Substation Switchyard

The Substation has been handed over to Butwal Grid Division after the completion of all the works in March 2023.

New Modi-Lekhnath 132 kV Transmission Line

The project has been initiated with the objective of improving the power supply situation in Gandaki Province and evacuating the power from hydropower plants in Modi River Basin. The project located at Parbat and Kaski districts of Gandaki province is funded by the EXIM Bank of India and GoN. The overall scope of project includes the construction of 43.3 km 132 kV double circuit transmission line with ACSR Bear conductor, which shall connect the existing Modi HEP with the Lekhnath Substation through the proposed New Modi & Lahachowk Substations.

Lahachowk Substation

With the completion of land acquisition of about 64 Ropani at Korunga, Parbat and about 62 Ropani at Lahchowk, Kaski, the project awarded the contract for the construction of substations to M/S Hitachi Energy Ltd. India (Formerly Known as ABB India Ltd.) on 21 June 2018. These substations were successfully charged on 18 January, 2022.

The transmission line contract was awarded to M/S Kalpataru Power Transmission Limited on 21 June 2018. The transmission line from the New Modi Switching Substation to the existing Lekhnath Substation via Loop-in-Loop out at the Lahachowk Substation has been charged on 14 February, 2023.

Butwal-Lumbini 132 kV Transmission Line

The objective of this project is to enhance the transmission capacity, improve power quality, reliability and reduce the line loss in Rupandehi district through the construction of 132 kV double circuit transmission line. The estimated cost of project, funded by the GoN, was 9.5 MUSD.

The scope of project is to construct 18 km double circuit 132 kV transmission line from Jogikuti substation, Butwal to Mainahiya substation with ACSR BEAR conductor including 2 km 500 sq. mm XLPE underground cable, one 132/33/11 kV substation at Mainahiya with 132/33 kV, 2x45 MVA and 33/11 kV, 16 MVA power transformers and 132 kV line bay extension at Jogikuti substation.

Mainahiya Substation

Construction of the Mainahiya 132/33/11 kV Substation and 132 kV transmission line has been completed in December, 2022.

Mainahiya - Sampatiya 132 kV Transmission Line

The objective of this project is to facilitate the cross-border power trade between Nepal and India. The Joint Steering Committee (JSC) on Nepal - India cooperation in power sector held on 24 January 2019 has agreed to proceed for the implementation of 132 kV cross border transmission line which interconnects Mainahiya substation (Nepal) and Sampatiya substation (India). The cost of project funded by the GoN is estimated to be 8.0 MUSD. The project was initiated in FY 2017/ 18.

The scope of project includes the construction of 28 km double circuit transmission line with ACSR Bear conductor in Nepal side from 132/33/11 kV Mainahiya substation to Marchawar (Shree Rampur) border point at Rupandehi district, Nepal and the bay extension works at Mainahiya substation.

The construction of Mainahiya-Sampatiya 132 kV transmission line was successfully charged on 27 May 2023.

Transmission Line in Marchawar

Lekhnath Pokhara 132kV Transmission Line Up-gradation

The objective of this project is to reinforce the existing power supply system of Pokhara by upgrading the conductor of existing 132 kV transmission lines. The scope of project includes the replacement of 7 km ACSR Wolf conductor from Pokhara substation to Lekhnath substation with High Temperature Low Sag (HTLS) conductor. The line was successfully charged on 15 March 2023. The estimated cost of the project, funded by the GoN and NEA, is 45 MNPR.

Dordi Corridor 132 kV Transmission Line

The objective of this project is to evacuate the power from IPP projects of Dordi River and its tributaries in Lamjung district. The cost of this project, funded by the GoN, is estimated to be 8.4 MUSD. The scope of works includes the construction of 10.2 km long 132 kV double circuit transmission line from Kirtipur to Udipur with ACSR Cardinal Conductor and 132/11 kV, 10 MVA substation at Kirtipur.

The construction of Kirtipur 132/11 kV Substation has been completed and is in satisfactory operation.

Regarding Kirtipur-Udipur 132 kV transmission line, foundation works as well as tower erection and stringing works of conductor and OPGW had been almost completed. But due to the heavy rainfall and devastating flood of Dordi River in 2021, four numbers of transmission tower were collapsed affecting the completion schedule of project. The structures destroyed by flood have been reconstructed and the transmission line has been successfully charged on 6 April 2023 to evacuate the power of IPP'projects of Dordi corridor.

Ramechap (Garjyang) -Khimti 132 kV Transmission Line

The scopes of works include:

- Construction of 31 km 132 kV of double circuit transmission line with ACSR Bear conductor as well as 132/33/11 V new substation with 132/33kV, 30 MVA, 3 phase power transformer and 33/11kV, 6/8 MVA, 3 phase power transformer at Garjyang and construction of 132 kV bays at New Khimti substation;
- Extension of 220 kV GIS at New Khimti substation with a 220 kV bay for connecting 220/132 kV, 200 MVA bank of auto transformers as well extension of 132 kV at New Khimti substation with 3 Nos. of 132 kV bays and construction of 33 kV Indoor system with 8 Nos. of 33 kV bays.

As of July 2023, Garjyang New Khimti 132 kV DC Transmission Line as well as 132/33/11kV Garjyang and New Khimti Substations have been in operation on all three voltage level since 07 June 2023. The addition of 220/132 kV, 200 MVA bank of auto transformers is in the final stage of completion.

Kushaha- Kataiya 132 kV Second Circuit Transmission Line

Kushaha-Kataiya 132 kV Second Circuit Transmission Line Project is proposed for further strengthening of Nepal-India power transmission line. The estimated cost of the project, funded by the GoN, is 5.5 MUSD. The contract has been awarded to M/S Sigma Con - Narendra Nirman JV on 19 September 2019.

The Scope of this project includes the construction of 16.5 km second circuit transmission line on the double circuit tower of existing Kushaha-Kataiya 132 kV transmission line and the upgradation of existing Kusaha switching station to a complete substation with 132/11kV, 22.5 MVA power transformer and necessary 132 kV line bays to connect transmission lines from Rupani, Duhabi and Kataiya substations.

Recently, Kushaha 132/11 kV Substation and Kushaha-Kataiya 132 kV Transmission Line LILO works have been completed.

Chameliya- Syaule- Attariya 132 kV Second Circuit Transmission Line

The objective of this project is to reinforce the power supply system and lay down the infrastructure for the power evacuation from different IPPs in Darchula and Bajhang districts. The scope is to construct the 131 km second circuit transmission line on the double circuit tower of existing Chameliya-Attariya 132 kV transmission line and the bays extension work at associated substations. The cost of this project, funded by the GoN, is 4.5 MUSD.

All works of the project has been completed and the second circuit from Chameliya to Attariya has been successfully charged in July 2023.

132 kV Bay Extension work at Syaule Sub-station

Grid Development Department

This department is headed by the Director and is responsible for planning, constructing, supervising and commissioning of new transmission line and substation projects up to 132 kV voltage level.

Singati-Lamosangu 132 kV Transmission Corridor

The objective of this project is to evacuate the power from hydropower projects being developed by IPP's in Tamakoshi and Singati River Basin. The project was started in FY 2008/09. The total cost of the project funded by the GoN is about 13.0 MUSD. The overall scope of the project includes the construction of 38 km double circuit Singati Lamosangu 132 kV transmission line with ACSR Bear conductor, 132/33kV, 30 MVA substation at Singati and 132 kV bay extension works at Lamosangu substation. The entire 126 tower foundations, tower erection and 1st circuit conductor stringing works have been completed. One circuit has been charged on 15 July 2021. About 36 km conductor stringing in the second circuit, major civil works, equipment installation at Singati have also been completed. Second circuit line and Singati substation will be commissioned soon.

Burtibang- Paudi Amrai- Tamghas- Sandhikharka- Gorusinghe 132 kV Transmission Line

The objective of this project is to extend the transmission line from Kapilvastu district to Arghakhachi, Gulmi and Baglung districts to improve the power supply situation, reduce faults associated due to long distribution network and decrease the technical loss. It will also provide the electrical network for the power evacuation of proposed hydroelectric projects in this region. The overall cost of the project, funded by the GoN, is around 39.5 MUSD.

The scope of project includes the construction of 86 km, 132 kV double circuit transmission line with ACSR Bear conductor and the construction of new 132/33kV, 30MVA & 33/11kV, 16 MVA substations each at Motipur (Kapilvastu district), Sandhikharka (Arghakhachi district), Tamghas & Paudi-Amarai (both in Gulmi district) and Burtibang (Baglung district). Out of these, Motipur 132/33/11 kV substation, 75.2 circuit km Motipur - Sandhikharka 132 kV transmission line and Sandhikharka 132/33/11 kV substation have been charged. Further, civil construction works and switchyard foundations in Tamghas, Paudi-Amarai and Burtibang Substations have been completed. Regarding Sandhikharka Burtibang 132 kV Transmission Line, 91 numbers of tower foundation, 64 numbers of tower erection and 10 km span conductor stringing have been completed. The project is expected to be completed by FY 2023/ 24.

Kushaha (Inaruwa) - Biratnagar 132 kV Transmission Line

The objective of this project is to reinforce the power supply system of Morang and Sunsari districts to meet the increasing power demand of domestic, commercial and industrial consumers as well as to minimize overloading problem of the existing Duhabi Grid Substation, Rani Substation and Tankisinwari Substation. The cost of the project is estimated to be 19 MUSD.

The scope of project includes the construction of 23 km, 132 kV double circuit transmission line with HTLS Cordoba Conductor from the Inaruwa 400/220/132 kV Substation to the under construction Biratnagar Substation with 132/33 kV, 2x63MVA and 33/11kV, 16MVA power transformers at Ramganj Belgachiya.

As of July 2023, the construction of 73 Numbers of tower foundations has been completed. Regarding substation works, switchyard foundation, control building and staff quarter construction works are in the final stage of completion. Switchyard equipment such as Power Transformer, Disconnecting Switches, CRP, SAS Panels, Communication Equipment,

and Capacitor Banks have been delivered to the site. The project is expected to be completed by April 2024.

Bardghat - Sardi 132 kV Transmission Line

The objective of this project is to provide the power supply to Hongshi - Shivam Cement Industry. The scope of project includes the construction of 20 km long 132 kV double circuit transmission line with ACSR Bear conductor from Bardghat Substation to Sardi and the 132 kV line bay extension at the existing Bardghat substation. The cost of the project is estimated to be 6 MUSD and is funded by the GoN through Ministry of Industry, Commerce & Supplies.

As of July 2023, all the civil construction works including staff quarter, control building and foundation works have been completed. Major substation equipments have been installed. Regarding the transmission line, 67 tower erection works and 16.5 km out of 20 km conductor stringing works have been completed. The single circuit transmission line has been charged since 13 November 2021 to supply Hongshi-Shivam Cement Industry. The delay in the approval of additional tree cutting in the RoW of transmission line has affected the overall completion of project.

Balefi-Barhabise Corridor 132 kV Transmission Line

This project has been initiated with the aim to evacuate the power from different IPP projects at Balefi Corridor. The project will construct Pangtan-Bahrabise 20 km 132 kV double circuit transmission line with ACSR Cardinal Conductor. The cost estimate of the project is 546.7 MNPR and is funded by the GoN. The contract agreement has been signed with M/S Sigma Con. Pvt. Ltd. in May 2020 and the project is expected to be completed by July 2024. As of July 2023, check survey, detail engineering, resistivity measurement and soil test works have been completed. The construction 36 numbers of tower foundation has been completed. The approval for tree cutting is under the final stage

Kohalpur- Surkhet- Dailekh 132 kV Transmission Line

The objective of this project is to meet the increasing power demand of Surkhet and Dailekh districts, improve the power supply quality and facilitate the power evacuation from hydropower projects in Bheri, Babai and Karnali River Basins of Karnali Province. The scope of project includes the construction of 52 km Kohalpur-Surkhet 132 kV double circuit transmission line with ACSR Bear conductor, 31 km Surkhet-Dailekh 132 kV double circuit transmission line with ACSR Cardinal conductor, 132 kV bay extension works at Kohalpur and 132/33 kV substation at Dailekh. The estimated project cost is 29 MUSD and is funded by the GoN. The transmission line package from Kohalpur to Surkhet has been awarded to M/S RS Infraprojects Pvt. Ltd. and this section of the line is expected to be completed by March 2024.

As of July 2023, in Kohalpur-Surkhet 132 kV Transmission Line Section, foundation works of 100 out of 162 towers have been completed and the transmission line materials and hardware fitting have been delivered to the site. Likewise, a notice for acquiring private land on Banke and Surkhet districts has been published, whereas tree cutting in Surkhet district has been almost completed. Similarly, all design and drawing have been approved and the construction of bays in Kohalpur Substation is in progress.

Further, in Surkhet-Dailekh 132 kV Transmission Line section, land acquisition for Dailekh (Chupra) Substation has been completed and the IEE has been approved. Following the signing of the contract in March 2023 the Contractor has

been mobilized to the site. The bid for Dailekh Substation will be invited soon.

Dhalkebar- Loharpatti 132 kV Transmission Line

Dhalkebar Loharpatti 132 kV Transmission Line Project has been initiated to reinforce the power supply system and enhance the quality and reliability of power supply of Mahottari and Dhanusha districts.

The scopes of project include the construction of 20 km long 132 kV double circuit transmission line with ACSR Cardinal Conductor from the existing Dhalkebar substation to the132/33 kV, 2X30 MVA and 132/11 kV, 22.5 MVA Substation at Loharpatti. The estimated cost of the project is 1,125 MNPR and is funded by the GoN. The project was started in 2021 and is expected to be completed in 2024.

As of July 2023, major transmission line equipment/ material have been delivered to the site. Moreover, outdoor switchyard equipments (Circuit Breaker, Isolator, CT, PT, LA etc.) for Substation have been delivered to the site. All other equipment/ material for transmission line and substation are in the inspection stage and will be delivered to the site soon.

Tower foundation works are almost complete, whereas 35% of towers have been erected. The construction of control room, staff quarter and store cum guard house is in the final stage.

Raxaul Parwanipur 132 kV Second Circuit Transmission Line

Raxual – Parwanipur 132 kV second circuit transmission line project has been initiated for increasing the import/export of power between India and Nepal. This line will be helpful to meet the increasing industrial demand in Birgung area.

The scope of this project includes the construction of 22 km second circuit transmission line on the double circuit tower of the existing Raxaul-Parwanipur 132 kV Transmission Line and the expansion of 132 kV bay at Raxaul and Parwanipur Substation. The estimated cost of the project is 1.5 MUSD and is funded by the GoN.

As of July 2023, all civil works and erection of electrical equipment have been completed. The project is expected to be completed by October 2023.

Dhalkebar – Balganga 132 kV Transmission Line

This project is initiated with the objective of improving the voltage and supplying the adequate and reliable power in Dhanusha district. The total project cost is about 2000 MNPR and is funded by the GoN. The project is initiated in FY 2017/18 and is expected to be completed by the end of FY 2023/ 24.

The scope of project includes the construction of about 24 km long double circuit 132 kV transmission line with Cardinal conductor and the construction of 132/33 kV, 2x63 MVA substation at Balganga, Hansapur Municipality-9.

As of July 2023, the construction of the boundary wall and guard house with store at Balganga substation has been completed. The bid for substation has been invited. For transmission line, the contract has been awarded to Sigma Con. Pvt. Ltd. and the design/drawings are in the process of approval.

Kaligandaki-Ridi 132 kV Transmission Line

The objective of this project is to increase the quality and reliability of power supply in Palpa, Gulmi, Argakhachi and Syangja districts as well as to supply power to CG Cement after the completion of Ridi 132 kV substation. The

project is initiated in FY 2017/ 18 with the funding of the GoN through Ministry of Industry, Commerce and Supplies. The cost of this project is estimated to be 1450 MNPR.

The scope of works includes the construction of about 23 km Double circuit transmission line (ACSR BEAR Conductor) on the double circuit tower and 60 MVA, 132/33/11 kV substation at Kuseni, Palpa and 132 kV GIS bay extension works at Kaligandaki 'A' HEP.

The contract for transmission line construction was awarded in April 2022. As of July 2023, 12 out of 70 numbers of tower foundations of have been completed. Transmission line materials (ACSR BEAR Conductor, Long Rod Polymer Insulators, Hardwares, Earthing materials) have been delivered to the site.

The contract agreement for the construction of sub-station, has been concluded on 30 November 2022. The construction of boundary wall and store cum guard house has been completed. Check survey and geotechnical works, design approval of Lightening Arrestor, Disconnecting Switch, XLPE cable etc. are in progress.

Bhumahi – Hakui 132 kV Transmission Line

The objective of this project is to meet the increasing industrial power demand in Bumahi – Bhairahawa Corridor of Nawalparasi (Susta Paschim), enhance the transmission capacity, improve the supply reliability, and improve the voltage profile of distribution system in Nawalparasi.

The scope of project includes construction of 14.4 km long 132 kV double circuit transmission line from Sunwal 132 kV substation to new 132 kV substation in Hakui with ACSR Cardinal Conductor in steel lattice structure. As of July 2023, the construction of boundary wall at Hakui substation is ongoing and the soil test for transmission line has been completed.

Amarpur-Dhungesaghu 132 kV Transmission Line

The objective of this project is to interconnect the Kabeli Corridor and Koshi Corridor transmission line projects so that the power from Kabeli Corridor 132 kV transmission line project can be partially diverted to the Koshi Corridor 220 kV transmission line during the normal operation. This project shall be a link for the evacuation of power effectively from the growing number of IPPs in the Kabeli River Basin. The project is initiated in FY 2018/19 and is expected to be completed by the end of FY 2024/25. The estimated cost of the project is 1,042 MPR and is funded by the GoN.

The scope of project includes construction of about 19.2 km double circuit transmission line from Amarpur, Panchthar to Dhungesaghu, Taplejung and necessary 132 kV bay extension works at respective substations. As of July 2023, the contractor has been mobilized to the site and the soil test for tower pad has been completed. The design, review of transmission line equipment is in progress.

New Khimti-Lamosanghu-Kathamandu Transmission Line Up-gradation

The objective of this project is to increase the existing power supply system of Kathmandu Valley by upgrading the conductor of existing 132 kV transmission lines from New Khimti to Bhaktapur via Lamosanghu 132 kV substation. It will help to supply the quality, reliable and uninterrupted power supply in Kathmandu Valley.

The scope of project in the first phase includes the replacement of 45 km ACSR Bear conductor

from New Khimti substation to Lamosanghu substation with High Temperature Low Sag (HTLS) conductor and the upgradation of existing 220/132 kV, 100 MVA Power Transformer to 200 MVA Auto Transformer at New Khimti Substation. Estimated cost of the project is 1,160 MNPR and is funded by the GoN. This project is initiated in FY 2078/079 and is expected to be completed by FY 2023/24.

As of July 2023, 22.5 km of reconductoring works out of 45 km from New Khimti to Lamosanghu section has been completed with the close coordination with the LDC for shutdown. Remaining works will be resumed within the end of July, 2023. Bid for upgradation of existing New Khimti Substation will be invited by the end of July 2023.

Conductor Restringing Works at New Khimti Substation

Malekhu 132 kV Substation Expansion Project

The objective of this project is to increase the reliability of the existing distribution lines in Dhading district. The scope of project includes the installation of 2x30 MVA power transformers at Malekhu Switching Station and the 33 kV line bay expansion at the existing Jahare and Dhading Besi 33 kV substation. Estimated cost of the project is 290 MNPR and is funded by the GoN. This project is initiated in FY 2021/22 and is expected to be completed by FY 2023/24.

As of July 2023, civil foundation works at Malekhu, Jahare and Dhadingbesi substations have been completed and major electrical equipment like power transformer, circuit breaker, lightening arrestor and disconnecting switch have arrived at the site.

Civil Foundation at Malekhu 132 kV Switching Station

Surkhet Substation

The objective of this project is to strengthen the power supply system and improve the power transfer capacity to meet the increasing demand of Karnali province and Surkhet. The estimated cost of project is 750 MNPR and is funded by the GoN. The project is initiated in FY 2022/23 and is expected to be completed by May 2024.

The scope of project includes the construction of Surkhet Substation with the power transformer capacity of 132/33kV 2X30 MVA. Detail drawing designs of civil works has been approved. The construction of guard house and prefab building have been completed. The construction of control building, switchyard foundation, staff quarter, drainage and boundary wall are in progress. The design and drawing of major electrical equipment have been approved. Major items like 132kV circuit breaker, LA, XLPE power cable and DS have been delivered to the site.

Thankot – Chapagaon – Bhaktapur 132 kV Transmission Line

The project is initiated with the objective of completing 132 kV ring main in Kathmandu valley to improve the power transmission capacity, power quality, reliability and reduce the line loss in the valley. The initial project cost estimate was 23 MUSD. The project is being under execution with the fund of the GoN.

About 6 km transmission line in Kathmandu district and 4 km transmission line in Bhaktapur district have been completed. The construction of remaining 18 km transmission line in Lalitpur district was stopped due to the protest by local people demanding 100% RoW compensation or complete shift of transmission line. NEA has been conducting dialogs with concerned people and authorities to complete the remaining works. However, there has been no progress in the construction of remaining works.

New Pokhara (Birauta) 132 kV Substation

The objective of this project is to reinforce the power supply system of Pokhara valley. The scope of project comprises of the construction of 132/11 kV, 2X30 MVA indoor GIS substation The substation will be powered by LILO facilities of Syangja - Lekhnath 132 kV Transmission Line by the construction of 600m underground cable from the substation to the termination tower of existing transmission line.

This project, funded by the JICA, was initiated in FY 2018/19. Land acquisition for LILO tower is completed and the IEE is approved. The Consultant selection process for the detail design and construction supervision is ongoing on.

Kushma Lower Modi 132 kV Line

The objective of the project is to evacuate the power from IPPs projects (Ghalemdi 5.5MW, Thapa Khola 13MW, Mistri Khola 42MW etc.) connected to Dana 220/132/33 kV Substation. The scope of project comprises of the stringing of 6 km long 132kV second circuit on Kusma-Lower Modi, construction of 9 km 132kV DC Transmission Line and 2 Nos. of 132kV bay expansion at New Modi Substation.

This project is initiated in FY 2021/22. The NCB tender of transmission line and associated 132kV bay works has been floated on 20 March, 2023. As all the bids were found to be technically non-responsive, a notice for re-tender has been floated on 3 July 2023. The completion period for the construction work is 21 months.

Sunkoshi 132 kV Substation

Sunkoshi 132 kV Substation Project was conceptualized to connect the existing Lamosangu 132 kV substation with the proposed Barhabise 220/132 kV substation at Sindhupalchok district. The purpose of the project is to improve the grid stability of the transmission system.

The scope of project includes 12 km single circuit stringing with Bear conductor on the existing double circuit transmission line towers, expansion of two 132 kV line bays at Barhabise substation and one 132 kV line bay at Lamosangu substation. This project, initiated in FY 2018/19, is funded by the GoN.

As per the agreement with Shiva Shree Hydropower Limited, the transmission line materials to be provided by NEA have been dispatched to the site. The stringing work to be carried out by Shiva Shree Hydropower Ltd. is yet to be started.

Prasauni Birgunj 132kV Underground Electricity Transmission Line

The project envisages to meet the growing

load demand of Birgunj area. The scope of the project includes the construction of 132/33 kV 2X100 MVA AIS Prasauni substation with the LILO arrangement of existing 132 kV Parwanipur - Raxaul double circuit line, 145KV, 1Cx1200 sqmm (XLPE) copper cable for underground line from Prasauni to Birgunj S/S and 132/66 kV 2X100 MVA GIS Birgunj substation. The contract has been awarded to M/S COVEC-CREGC-KALIKA JV for the design and construction of sub-station and underground transmission line.

As on July 2023, land acquisition works for substations and switchyard at Prasauni have been completed. The topographical survey of substations and route alignment of transmission line have been completed. The site grading works for substations are also under progress.

Godak –Soyak 132 kV Transmission Line

The project is conceptualized to make the LILO arrangement in the second circuit of Damak-Phidim transmission line and to connect with the existing Godak Substation. The purpose of the project is to improve the grid stability. This project is initiated in FY 2018/19 and is expected to be completed in 2024. The project cost is estimated to be 553.4 MNPR and is funded by the GoN.

The scope of project includes the construction of 6.61 km long double circuit 132 kV transmission line with ACSR Bear conductor. As of July 2023, The tender has been floated for the construction of the transmission line and the bid evaluation is underway.

Lalbandi-Salimpur 132 kV Transmission Line

The objective of this project is to enhance the quality and reliability of electricity supply in southern part of Sarlahi district. After the construction of substation at Chainpura, the substation will supply power to Dumariya, Malangawa and Barathawa 33/11 kV substations. The estimated cost of the project is 12 MUSD and is funded by the GoN.

The scope of project includes the construction of about 20 km long double circuit 132 kV transmission line with Bear conductor from the Nawalpur substation to proposed Salempur (Chainpura) substation as well as the construction of 132/33 KV, 2x30 MVA and 33/11 kV, 16 MVA AIS substation at Chainpura.

As of July 2023, the contract agreement for the construction of 132 KV double circuit transmission line and substation has been signed. The Contractor has mobilized to the site and the test of transmission towers and the design review of various equipment are in progress.

Major 220 kV Transmission Line Department

Koshi Corridor 220 kV Transmission Line

The objective of Koshi Corridor 220kV Transmission Line Project is to evacuate the power from various hydropower projects in Arun and Tamor River Basins and to make the transmission and distribution network of NEA more resilient in the eastern part of Nepal. This project is funded by EXIM Bank of India under the Line of Credit II.

The scopes of project are divided into the following packages:

Package KC1: This package includes the construction of 106 km long 220 kV transmission line from Tumlingtar to the Inaruwa Substation via. Baneshwar and Basantapur of Sankhuwasabha District. The contract had been awarded to Kalpataru Power Transmission Ltd., India in June, 2016. Despite the Covid -19 pandemic and the lockdown imposed by the

GoN and various RoW issues the construction of the transmission line has been completed and is in operation at the 220 kV voltage level since 04 August 2022.

Package KC2: This package includes the construction three new 220 kV level AIS substation at Tumlingtar, Baneshwar & Basantapur of Sankhuwasabha District and the two numbers of 220kV line bay extension at Inaruwa Substation. The contract had been awarded to Larsen & Toubro Ltd., India in October 2018 with the contract amount of 26.1 MUSD. Despite the Covid -19 pandemic and lockdown imposed by the GoN, the construction of the Tumlingtar, Baneshwar & Inaruwa Substations has been completed and in operation at the 220 kV voltage level since 04 August 2022. Major works at Basantapur Substation have also been completed and the project is scheduled to be charged by the end of September, 2023.

Baneshwar Substation

Package KC3: This package includes the construction of 35 km long 220 kV transmission line from Dhungesanghu to Basantapur and the construction of 132/33kV AIS substation at Dhungesanghu District. The contract had been awarded to KEC International Ltd. in June 2018 with the contract amount of 24.5 MUSD. As of now, civil works at Dhungesanghu substation have been almost complete, whereas the electrical testing and commissioning works are under progress. On the transmission line end of this package, out of 127 towers, 118 number of foundations have been cast, 108 towers have been erected, and 26 km stringing has been completed. The works under this package is scheduled to be completed by the end of December, 2023.

Transmission Line Section from Basantapur to Dhugesangu

Package KC4: This package includes the second circuit stringing of 35 km long 220 kV transmission line from Dhungesanghu to Basantapur and the construction for four numbers of 220kV line bays extension at Basantapur Substation. The contract had been awarded to Nepal Hydro & Electric Limited (NHE) in November 2022. The contract cost of this package is 24.5 MNPR. As of now, almost all design drawings of substation are finalized, civil works at Basantapur substation have been started and all the materials required for transmission line have been delivered to the site. This transmission line and substation is scheduled to be charged by the end of February, 2024.

Package KC5: This package includes the second circuit stringing of 106 km long 220 kV transmission line from Tumlingtar to Inaruwa via. Baneshwor and Basantapur of Sankhuwasabha district, the upgradation of Dhungesanghu Substation to 220 kV voltage level and the 220 kV

line bays extension at Tumlingtar & Baneshwor Substation. This packages is funded by the EXIM Bank of India under the Line of Credit IV.

Chilime-Trishuli 220 kV Transmission Line

The objective of this project is to evacuate the power generated from hydropower projects in Upper Trishuli Valley notably Upper Sanjen, Sanjen and Rasuwagadhi and hydropower projects. The project is funded by the KfW, Germany, European Investment Bank (EIB), European Union and GoN.

The scope of project includes the construction of 28 km long 220 kV transmission line from Chilime Hub to Trishuli 3B Hub substation and the construction of 2x160 MVA, 220/132 kV plus 1x50 MVA, 132/33 kV substation at Thambuchet, Rasuwa.

Conductor Stringing Works

The project is mainly divided into two contract packages and is currently under the implementation phase. An EPC contract was signed with Pinggao Group Co., Ltd, China on 13 November 2017 for the Package-1 (220kV Chilime Hub-Trishuli-3B Hub Transmission Line) and Package-2 (Chilime Hub GIS Substation & Trishuli-3B Hybrid Substation). Most of the equipment foundation has been completed and major equipment of the substation including Auto/Power Transformers, 220kV & 132kV GIS have been dispatched. The project is scheduled to be completed by October, 2023.

As of July 2023, 53 Nos. of tower foundation have been completed and 48 Nos. of towers have been erected. Except special OPGW an OPGW hardware all tower materials have been delivered to the site.

Trishuli 3B 220 kV hub Substation

The objective of Trishuli 3B 220 kV Hub substation is to accumulate and evacuate about 600 MW of power via Trishuli-Matatirtha transmission line to the INPS. The scope of this project includes the construction of 2x160 MVA 220/132 kV plus 1x50 MVA 132/33 kV substation at Kispang Rural Municipality of Nuwakot district. The project is being implemented with the joint funding of the GoN, KfW Germany and European Investment Bank (EIB). The contract was signed with M/S PINGGAO GROUP CO., LTD (China) on 13 November 2017 with the contract value of 12.5 MUSD.

Overall View of Trishuli 3B Hub

The overall physical progress of the project is about 95.35% by the end of FY 2022/23. Major challenges of the project have been

the completion of the site leveling and river/ rivulet protection works. Due to the COVID-19 Pandemic, design issues and contractor's non-performance, the project is delayed and is re-scheduled to be completed by July 2023.

Lekhnath-Damauli 220 kV Transmission Line

The objective of project is to enhance the power evacuation capacity of the Integrated National Power System in the Gandaki region of Nepal. This will be achieved through the construction of a 220 kV, 45 km long double circuit transmission line with MOOSE ACSR conductor, connecting Lekhnath Substation to New Damauli Substation. Additionally, a 220/132 kV (6x100 + spare 1x100 MVA) GIS substation will be constructed at Lekhnath, and a 220/132 kV (2x63 MVA), 132/33 kV (2x30 MVA), 33/11 kV (2x8 MVA) GIS substation will be built at New Damauli. The estimated cost of this project, jointly funded by the GoN and KfW, Germany is 90 MUSD.

M/S FICHTNER GmbH, Germany, is the Procurement and Implementation Consultant for the project. The technical evaluation of the construction of Transmission Line (Package A) and the construction of Substation (Package B) has been completed. The financial evaluation of both the packages is in the final stage. The LoI will be issued by September 2023 and the date of commissioning of the facilities is planned for the last quarter of 2025.

Tumlingtar-Sitalpati 220 kV Transmission Line

The objective of this project is to extend the reach of the INPS at the 220kV level from the existing Tumlingtar SS to the proposed Sitalpati SS, which can later function as a hub for evacuating power generated from the Arun River Basin. The estimated cost of project is 4,482 MNPR and is funded by the GoN. The project, initiated in August 2023, is expected to be completed in May 2025.

The scope of project covers the following:

- Construction of 14km long 220kV Twin Moose ACSR D/C Transmission Line from Tumlingtar SS to Sitalpati SS
- Construction of 220kV(GIS)/132kV/33/11 kV AIS substation at the Sitalpati Substation with 220/132 kV, 400 MVA single phase bank; 132/33 kV, 2X24/30 MVA three phase transformer and 33/11 kV, 2X6/8 MVA three phase transformer; and
- Construction of 2 Nos. of 220kV line-bay extensions at the existing Tumlingtar Substation.

As of July 2023, the Contractor has completed the detailed survey, check survey, cadastral survey and tree enumeration activities of transmission line tower whereas the topographical survey has been completed for the substation. The design and engineering activities for both transmission line and substation are also under progress.

Major 400 kV Transmission Line Department

Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion

Hetauda-Dhalkebar-Inaruwa 400kV Substation Expansion Project is funded by the Government of Nepal, which includes Nepal's first three major grid substations of 400kV voltage level at Hetauda, Dhalkebar and Inaruwa. The Dhalkebar 400kV substation is connected to the Muzaffarpur (India) substation via. Dhalkebar-Muzaffarpur 400kV cross border transmission line. The Dhalkebar- Muzzaffarpur cross-border link became instrumental for export/import of power the electricity between Nepal and India. All three substations aim to serve as a backbone to transmission line system in the national grid of Nepal. This project was started in FY 2016/17 AD.

The scope of project includes the construction of 400 kV six line bays for termination of 400 kV double circuit lines from Muzaffarpur (India), Hetauda and Inaruwa, 400/220 kV, 3×315MVA 3 phase transformers, 80MVAr 3 phase bus reactor and its associated bays at Dhalkebar substation, 400 kV four line bays for termination of 400 kV double circuit lines from Dhalkebar and Ratmate, 400/220 kV, 4X167 MVA 1 phase transformers, 50 MVAr 3 phase bus reactor and its associated bays at Hetauda substation and two line bays for termination of 400 kV double circuit lines from Dhalkebar, 400/220 kV, 3×315MVA 3 phase transformers, 50MVAr 3 phase bus reactor and its associated bays at Inaruwa substation.

For the construction of 400 kV GIS substation at Dhalkebar, the contract had been awarded to ABB India Limited in December 2017. The cost of project is 17.58 MUSD and 220.33 MNPR. Despite the Covid -19 pandemic and lockdown imposed by the GoN, the construction of the Dhalkebar substation has been completed and in operation since 11 November 2020.

400 KV GIS Building at Inaruwa Substation

Similarly, for the construction of 400 kV GIS substation at Hetauda and Inaruwa, the contract has been awarded to Siemens Limited, India in December 2018 with the contract amount of 28.4 MUSD and 410.5 MNPR. However, the COVID-19 pandemic and the lockdown imposed by Government of Nepal have affected the works schedule of the substation. Furthermore, due to flooding of Inaruwa Substation on19-21 October 2021, some of the parts of the GIS have been damaged leading to the re-manufacturing and reimport of those damaged GIS parts. As of July 2023, all the engineering design , civil and equipment erection works at both sites have been almost completed and 400 kV Indoor GIS works, GIS bus duct, cable laying & termination, Control Relay Panel & Substation Automation system (SAS), Online Partial Monitoring Discharge System (PDM), Visual Monitoring System (VMS) and communication system installation, testing and commissioning works are under progress. Both the sub-stations are expected to be charged by 15 September 2023.
Nepal-India Electricity Transmission and Trade Project (NIETTP)

Nepal-India Electricity Transmission and Trade

Project (NIETTP) funded by the World Bank, was started with the objective of establishing the high voltage cross-border transmission link capacity of about 1,000 MW to facilitate the exchange of power with India and to enhance the reliability of electricity supply. Furthermore, under the NIETTP additional funding, the construction of Hetauda-Bharatpur -Bardaghat 220 kV Transmission Lines and concomitant 132 kV substation at Hetadua, Bharatpur and Bardaghat. In addition, Transmission System Master Plan of Nepal, being implemented by NEA, had been prepared under this project.

Hetauda-Dhalkebar-Inaruwa 400kV Transmission Line

The objective of this project is to establish the high voltage cross-border transmission link of the capacity of about 2,000 MW to facilitate the exchange of power with India and to improve the reliability of power supply. The estimated project cost is about 170 MUSD and it was funded by the World Bank, GON and NEA. After

the closing of the World Bank loan on 31 October 2021, the project is being financed by the GoN and NEA. NEA Engineering Company Limited is appointed as a Consultant for design, check and construction supervision works. This project, initiated in 2012, is likely to be completed by the end of 2024.

The scope of project includes followings:

- Design, supply and construction of approximately 288 km of Hetauda Dhalkebar-Inaruwa 400 kV, DC Quad Moose ACSR Conductor Transmission Line;
- Design, supply and construction of Hetauda Substation: 220/132 kV, 2X160 MVA and 132/11 kV, 10 MVA Transformers and all associated bays;
- Design, supply and construction of Dhalkebar Substation: 220/132 kV, 2X160 MVA Transformers and all associated bays; and
- Design, supply and construction of Inaruwa Substation: 220/132 kV, 2X160 MVA and 220/33 kV, 2X63 MVA Transformers and all associated bays;

ACSR Quad Moose Conductor Stringing

For the construction of Hetauda-Dhalkebar-Inaruwa 400 kV DC Transmission Line, the contract has been awarded to Angelique International Limited, India – LTB Leitungsbau GmbH, Germany Joint Venture (AIL-LTB JV) on 03 February 2013. The original completion time was 30 months after the contract effective date but due to delay in the site clearance by the various issues of Right of Way (ROW) of lines, the completion schedule was revised and expected to be completed by the end of 2024. As of July 2023, Out of 792 tower pads, foundation works of 752 towers have been completed and 729 towers have been erected. The remaining parts fall in the forest area and community dispute locations. The process of tree-felling and stacking of remaining community forest along the RoW is under process in Makwanpur district.

Similarly, for the construction of 220/132 kV Substation at Hetauda, Dhalkebar and Inaruwa, the contract was awarded to Central China Power Grid International Economic & Trade Co., China in June, 2014. But due to non-performance of the contractor, the contract was terminated in 22 September 2017 and the contract for balance works has been awarded to M/S Telmos Electronics in 23 January 2018. Dhalkebar Substation charged at the 220 kV level is Nepal's first 220kV AIS substation with the capacity of 950 MVA.

Further, the contract for balance works of Hetauda and Inaruwa substation works has been awarded to M/S Consortium of Siemens Limited and Telmos Electronics on 20 December 2018. As of now, for Hetauda substation, majority of the substation equipment foundation, equipment & its structure installation, switchyard panel room and cable trench works have been completed. The Inaruwa substation has been charged at the 220kV voltage level on August 2, 2022.The other remaining civil works of substation is expected to be completed by end of October, 2023.

Hetauda – Bharatpur - Bardaghat 220kV Transmission Line

This World Bank funded project, started in 2008, aims to evacuate the power to be generated by various hydropower plants and to serve as a highway for the power flow from the western to eastern region of Nepal and vice versa. However, after the closing of funding of the World Bank from 31 October 2021, the Project is being constructed using the fund from the GoN and NEA.

Bharatpur-Bardaghat 220 kV Transmission Line

The scope of project is to construct 74 km long, 220 kV DC Transmission Line with Twin Bison ACSR Conductor (initially charged at 132 kV) from Bharatpur to Bardaghat. After the termination of contract with M/S Central China Power Grid International Economic & Trade Co. Ltd, China (CCPG) on 05 June 2017, the contract for balanced work was awarded to M/S Hengton-Optics Electric Company, China on 06 August 2018 with the contract value of 5.5 MUSD. The new Contractor has completed all works except two towers located in Dumkibas region of the corridor. Due to the stay order of Supreme Court against the construction of tower in this region, the construction work was stopped for almost 2 years. After the suspension of stay order, the dispute with public at Dumkibas was resolved and the construction has been resumed since May 2023. The project is expected to complete within August 2023.

Hetauda-Bharatpur 220 kV Transmission Line

The scope of this project is to construct 74 km long, 220 kV DC Transmission Line with twin Bison ACSR Conductor (to be charged initially at 132 kV) from Hetauda to Bharatpur. After the termination of contract with M/s ICOMM Tele Ltd, the new contract for balanced work was awarded to M/S KEC International Ltd., India on 05 June 2020 with the contract amount of 5.4 MUSD and 368.8 MNPR.

The scope also includes the construction of new 132 kV substations at Hetauda and Bharatpur and the bay extensions at Old Hetauda and Bardaghat Substations. After the termination of contract with M/S ZHONGDING INTERNATIONAL Co. LTD., CHINA, the new contract for balanced work was awarded to M/S Mahavir Shree International Pvt. Ltd., Kathmandu on 12 March 2023 with the contract amount of 237 MNPR.

Hetauda-Bharatpur 220 kV Transmission Line

As of July 2023, out of 226 tower pads, foundations of 225 tower have been casted and 224 towers have been erected. Also, about 144 circuit km stretch has been strung and all supplementary tasks have been completed. As this line connects Old Hetauda SS, New Hetauda SS and New Bharatpur SS at Aaptari, the line (circuit-II) between Old Hetauda SS to New Bharatpur SS has been charged at the 132kV voltage level. Almost all the equipment has been supplied and the installation works is about to complete. The overall progress of the construction of substation is about 96%. The project is expected to be completed within September of 2023.

System Operation Department (SOD)

The Load Dispatch Centre (LDC) located at Syuchatar, Kathmandu under the System Operation Department (SOD) of Transmission Directorate is the apex body to ensure the integrated operation of the power system in Nepal. It is the main control center, which is responsible for the smooth operation of the power system network considering all the system parameters, constraints and limits, thereby, ensuring the reliability and quality of the power supply to the consumers of the grid round the clock.

To achieve the effective and precise supervision of the power system, a SCADA (Supervisory Control and Data acquisition system) is being used in LDC. The SCADA system in the LDC uses the software called Sinaut Spectrum Power 7. The major highlights of the FY under review are presented below.

Annual System Peak Demand (11 July 2023)	2,171.15 MW
Annual System Energy Demand	12,880.56 GWh
Annual National Peak Demand (01 June 2023)	1986.39
Annual National Energy Demand	11,547.44 GWh
Annual Load Factor	66.36%
Total Exported Energy(Annual)	1,346.0 GWh

The key accomplishments of LDC in FY 2022/23 are as follows:

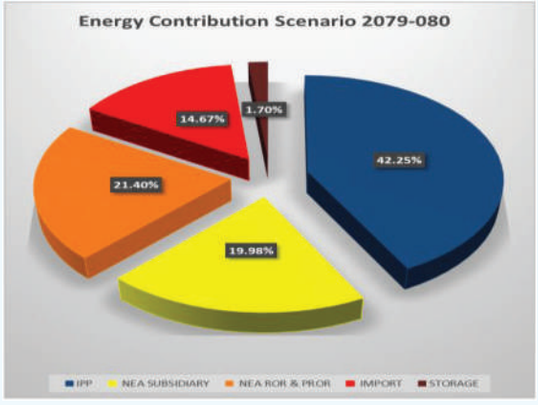
- **Power Trade through IEX DAM:** The Power Trading Unit in LDC has been given the responsibility to bid daily on IEX-DAM for selling and purchasing the power from India to balance the supply and demand in an optimum way. In FY 2022/23 1.3 BU (Billion Units) of energy has been sold to India from IEX, which helps to generate a substantial amount of revenue contributing positively to the financial health of NEA.
- **Frequency and Voltage Control:** In FY 2022/23, the system frequency was precisely maintained at around 50 Hz almost throughout the time. The voltage attained in most of the load centers' substations is in the range of permissible limit of +/- 10% at 132 and 66 kV as per NEA Grid Code.
- **Dispatching and Scheduling:** Effective short-term demand forecasting, daily energy scheduling of INPS and proficient dispatching of generation have made it possible to optimize the supply-demand situation with the available generation and the import and export of power from India. The generation from NEA ROR and PROR plants as well as all IPPs have also been optimally utilized so as to maintain the disciplined operation of the system throughout the year.
- **Shutdown Coordination:** LDC, being the focal entity for coordinating all shutdown events, is responsible to manage and carry out all the planned, scheduled, breakdown and emergency shutdowns. Many scheduled shutdown of major power plants and transmission lines were completed under the close coordination with LDC. The skillful handling of the system during the shutdown period has made it possible to supply the power with minimum interruption.
- **Partial System Tripping:** In FY 2022/23, 72 number of partial system trippings occured with the total interruption duration of 7 hours and 48minutes. The system

restoration time after each tripping event has been drastically minimized with the proficient actions.

- **Maintenance of SCADA and Communication Facilities:**
  LDC has been able to keep the data up to-date in the SCADA software, through the regular maintenance works of three primary components namely RTU, Communication Equipment and Optical Fibers, and Master Stations. A significant amount of revenue is being received annually by leasing the optical fiber cable to Nepal Telecom and other private companies.

Status of Supply and Demand

In FY 2022/ 23, the commissioning of 27 new IPP with the total installed capacity of 498.28 MW, has assisted in fulfilling the increased demand of the system and also helped to minimize power import to a certain extent during the dry season and made it possible to export during the wet season. The overall national energy demand and peak demand increased by 8.06% and 13.66% respectively compared to the last FY. The percentage of imported energy as compared to the total demand is almost equal to that of the last year, whereas the energy export during the wet season has increased from 4.4% to 10.3% in FY 2022/23.



Energy Contribution Scenario for Annual Demand Management

The contribution of different generation to meet the total annual energy demand and peak demand of the INPS for FY 2022/23 is given below.

Challenges of LDC

- Because of the addition of more and more generators in the system, the existing transmission arrangements are inadequate to evacuate power to load centers. Depending on the system scenarios, many transmission lines are being operated almost in the full capacity continuously causing the power interruption at times in some areas. In addition, transformer capacity constraints at New-Khimti Substation, Hetauda Substation, Syuchatar Substation and Balaju Substation etc. are also posing serious restrictions in the power system operation.
- In FY 2022/23, the difficulty in the smooth power supply to the western part of the country (west from Bharatpur) has been realized due to the unavailability of sufficient generation in the western part of the country to cater the growing demand in that area. Due to the transmission lines' constraints, as the surplus generation of the eastern part of the country cannot be transmitted to the west, major areas of the\ western part of the country have been supplied from the imported power from the Tanakpur (India).
- Power evacuation of the newly commissioned IPPs due to various constraints prevailing in the power system network has been the main issue for LDC.
- The frequent forced outages of power plants during and tripping of transmission lineshave created the difficulty in the smooth operation of the system, thereby influencing the export schedule intermittently.

Future Plan

The synchronization of the INPS with the Indian system is almost in the final phase of implementation. The installation of SPS (Special Protection Scheme) and a communication system within the Nepalese Power System has already accomplished. Synchronization of two grids will increase the reliability and security of the INPS system as well as creates more opportunity for the power exchange between two countries.

Grid Operation Department

The Transmission Directorate's Grid Operation Department (GOD) has the crucial responsibility of ensuring the reliable and high-quality transmission of power from remote generating stations to various load centers. Its scope of work encompasses the efficient management and oversight of substations and transmission lines, ranging from 66 kV to 400 kV. The department is also actively involved in the preventive maintenance to avert potential issues, as well as in the breakdown maintenance to quickly address any disruptions. Moreover, GOD undertakes projects for substation capacity expansion, equipment replacement, and reinforcement as well as reactive power compensation and rehabilitation initiatives.

Replacement of Power Transformer at Chapali Substation

The department plays a vital role in facilitating connections to Independent Power Producers (IPPs) and Bulk Consumers at different voltage levels, adhering to the guidelines set forth in the NEA Grid Code. In FY 2022/ 23, the Grid Connection Agreement has been signed with 59 projects of IPPs with the total capacity of 2,412.3 MW to meet the future load demand. The department carried out the transformer upgradation and reinforcement of 352.4 MVA, whereas the works are under progress for further 5,708.5 MVA. The transmission loss in the INPS for FY 2022/23 is 4.49%.

RCC Boundary Wall and Drainage System of East of Duhabi S/S

To effectively manage their responsibilities, GOD exercises supervision over three grid division offices situated in Kathmandu, Hetauda and Butwal as well as four grid branch offices located at Duhabi, Pokhara, Attariya and Dhalkebar. In essence, Grid Operation Department plays a pivotal role in the seamless functioning of Nepal's power transmission network ensuring a stable and uninterrupted power supply to meet the nation's energy needs.

DISTRIBUTION & CONSUMER SERVICES DIRECTORATE

Distribution and Consumer Services Directorate (DCSD), a prominent Directorate of Nepal Electricity Authority (NEA), is responsible for the overall management of electricity distribution network and consumer services of NEA. The major activities of this Directorate planning, expansion, operation, maintenance and rehabilitation of electricity networks including substations up to the 33 kV voltage level and consumer services activities such as new consumer connections, grievances handling, meter reading, billing and revenue collection.

Apart from these major responsibilities, DCSD has been actively engaged in the modernization of distribution system introducing the Substation Automation Systems (SAS) in its existing as well as new substations under construction. Furthermore, the Directorate is moving forward in introducing novel technologies in the energy metering and billing system adopting the smart metering and smart grid technologies. In addition, it is striving to achieve the goal of the GoN by providing electricity service to the entire population within next two years. DCSD has also been committed to provide the reliable and quality power supply to its valuable consumers. It has been massively investing in distribution infrastructure in order to improve the overall performance of the distribution system including the enhancement of reliability and quality of power supply with the reduction of losses. The Directorate has always given the highest priority to its valuable consumers for services and its employees in the means of safety.

DCSD, headed by the Deputy Managing Director, comprises of two departments at the central level, each headed by the Director. Apart from this, it is delivering the service to the consumers throughout the country via its seven Provincial Offices and two Division Offices. DCSD holds the majority, about 67.43%, of total staffs of NEA. The Directorate is in leading in front to collect the revenue for planning, expansion, operation, maintenance and growth of NEA, in overall.

Vital Performance Highlights

Customer Category	Percent of Total Consumers (%)	Sales (%)	Revenue (%)
Domestic	92.32	41.58	38.15
Non-Commercial	0.70	2.95	4.30
Commercial	0.76	7.87	11.43
Industrial	1.31	38.31	38.44
Others	4.91	9.29	7.68

In FY 2022/23, the total number of consumers reached to 5,134,058 an increase by 7.72 % from the previous FY. Similarly, the total sales in FY 2022/23 was 9,365 GWh including internal consumption. The gross revenue from energy sales reached to 89,574 MNPR, with an increase of 6,364 MNPR compared to the previous FY. The commercial and industrial categories together contribute 46.18%, whereas the domestic consumers contribute 41.58% of the total sales. The commercial and industrial consumers together represent 2.07% and the domestic consumers represent 92.32% of total consumers. The sales and revenue increment in comparison with the previous FY are 8.56 % and 7.95 % respectively.

The average collection period (ACP), reduced by 6.09 days in the reporting year, was recorded as 40.88 days excluding the Government subsidy, street light dues and dedicated/trunk line dues. As per Government's subsidy policy, NEA has provided free energy of 179,914,952 kWh to approximately 21,21,371 numbers of domestic consumers having the connection of capacity 5 Amp. Further, the average selling price was calculated as NRs. 9.66/kWh. The average sales per consumer increased from 1,809 kWh to 1,823 kWh and the collection from online payment increased to NRs. 21.54 billion from NRs.17.25 billion.

With continuous initiations and efforts of NEA's staffs, the distribution system loss has been reduced to 9.76% in F/Y 2022/23. The loss reduction activities have been closely monitored at the central level and directives were issued regularly to achieve the set loss target.

In F/Y 2022/23, 617 ckt-km of 33 kV Line, 2,985 ckt-km of 11 kV line, 7,981 ckt-km of 0.4/0.23 kV line, 2,210 numbers of distribution transformers with the total capacity of 207 MVA and 15 numbers of 33/11 kV Distribution Substation with the total capacity of 165 MVA have been added in the distribution system. Along with these distribution infrastructures, 7,237 ckt-km of 33 kV, 47,826 ckt-km of 11 kV and 144,576 ckt-km of 0.4/0.23, 187 numbers of 33/11 kV substations with the total capacity with 2,229 MVA and 41,571 numbers distribution transformers constitute in the distribution system.

Out of 753 local levels, 505 local levels are substantially electrified and 227 local levels are partially electrified so far. The remaining 21 local levels, which have no connection with the national grid, have access to electricity alternative energy sources.

Programs and Activities

DCSD has geared up its activities of construction and up-gradation of distribution network and addition of new connection in last FY. During this period, DCSD took special drives to monitor and execute the loss reduction activities, metering and billing and increasing the collection of amount receivables. The goods on stock were closely monitored, which resulted in the substantial use of the stocked material. As part of the expansion and reinforcement of distribution system, many programs, projects and activities were undertaken by departments and provincial/divisional offices in F/Y 2022/23 to expand and improve the quality of materials and service delivery.

Safety programs and trainings have been conducted at central/provincial offices as well as in distribution center to minimize the electrical accidents and to adopt the safe working practices among the staffs and consumers.

DCSD has given the top priority for the reliable and quality supply of electricity. In this regard, activities like the upgrading of the distribution network, construction of new feeders, upgrading of distribution transformers and addition of new transformers in the system have been continued. DCSD is aware of GoN' policy of reducing the fossil fuel consumption by increasing the use of electricity in cooking, transportation and in industrialization, which would stress in the distribution network reinforcement and up-gradation for the quality and reliable supply.

Further, in order to provide electricity access to all as per GoN plan and policy, the contract has been awarded to successful bidders for the electrification of all un-electrified Districts/ Municipalities/Rural Municipalities, wherever it is feasible to electrify through the national grid. NEA has also been working for alternative options to provide electricity to remote areas.

Safety

Training of Occupational Health and Safety (OHS) has been made mandatory to all the technical staffs, specially lineman and substation operators, for the first time in NEA. OHS trainings

have been conducted in provincial offices, division offices and in distribution centers. Substantial numbers of staffs have been trained during the reporting period. Training certificates of two (2) years validity have been issued to all the trained staffs authorizing them to work in NEA distribution network. Before expiry of the training certificates, the staffs need to go through the refreshment OHS training for its renewal. OHS training will be made compulsory to all personnel working in the NEA distribution network including the personnel of Contractors in coming days.

Lumbini Provincial Office observing Safety Day 2079

Giving a high priority to the safety of the personnel and to enhance safe working practices, DCSD has provided adequate safety equipment, tools and PPE (safety for head, hand, body, leg and safety against fall) to the concerned staffs. Procurement of PPE and safety gears for 3,000 staffs, along with testing and measuring instrument like relay test set, high voltage detector, insulation tester, earth resistance tester, earthing set, etc. are under progress.

As usual, NEA marked Chaitra 26 as the "Electrical Safety Day" organizing a rally program across the city for awareness among public and an interaction program at the center office in collaboration with Society of Electrical Engineers of Nepal (SEEN). Provincial offices, divisional offices and distribution center offices also marked the day as safety day organizing the interaction program with employees, displaying safety related banners, posters, pamphlets etc. to express NEA' commitment on electrical safety as well as to create awareness regarding safety for all.

Quality Control and Monitoring

Quality Control and Monitoring Unit has been established in each department, provincial office and division office to focus on the strict quality control and monitoring of increased numbers of customers, dense electrical network, reliable and quality supply and augmented electricity demand. Reliable and quality supply can be guaranteed, if the distribution infrastructures are built by adopting the appropriate standard and using materials of good quality. In this context, the Quality Control and Monitoring Unit is primarily focused for the quality control on construction of line, substation, buildings and associated civil works, monitoring of different construction activities, safe working practices and other relevant activities as required by the concerned offices.

In order to ensure the quality of the procured distribution line materials and equipment, DCSD will establish an Acceptance Testing Laboratory in Kharipati, Bhaktapur. The laboratory will be established within a year, where most of the electrical equipment / line material up to 33 kV Voltage level can be tested with the similar facility of an international accredited laboratory.

Norms, Standard and Guidelines

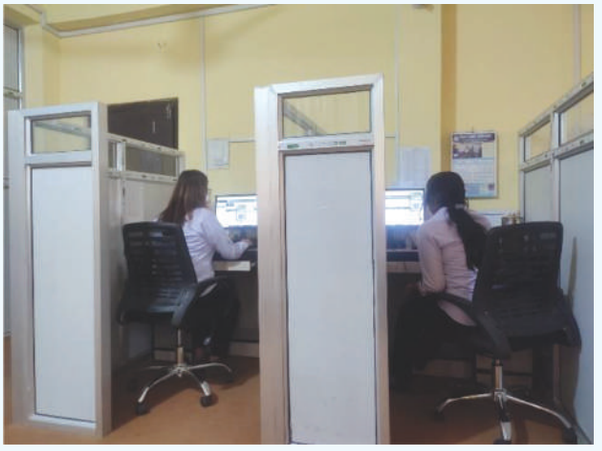
DCSD has prepared and issued the standard design and drawing of the office building for distribution centers. The standard design and drawing of these building will ease the construction works, ensure the quality of the construction, optimize the cost of the building, possess uniformity in look and remain as an icon for NEA Distribution Centers.

The Directorate is also preparing Distribution Construction Standard, Construction Guidelines, Operation and Maintenance Guidelines and Safety Guidelines. Norms for the electrical construction works as well as repair and

maintenance works have been revised with consideration of working at night and at off peak hours. Construction works and schedule maintenance works will be encouraged for the night shift in the city areas as far as possible to minimize disturbances to the public.

Grievance Handling and No-Light Service

DCSD is always committed to improve its service delivery for the satisfaction of consumers. To minimize the customer's complaints in no light services and to address the customer grievances in a speedy manner, Call Centers has been operated to take care of customers of six Provincial Offices and Hetauda Divisional Office, while works are under progress for Karnali Provincial Office and Lumbini Division Office. The Toll Free Number 1150 has been assigned for reporting the grievances. Grievances can be recorded by voice call and through messages as well. The feedback from the customers about service delivered from Call Center has been very positive.



Call Center Reporting the Customer

Reliable and Quality Supply

DCSD has set the objective of ensuring the reliable and quality supply, which is the fundamental right of our valued customer. Further, the reliable and quality supply is basic requirement for increasing the electricity demand. In order to attain this objective, two projects have been introduced namely Distribution System Reliability Project and Capacitor Bank Installation Project.

The scope of Distribution System Reliability Project includes the installation of auto re-closer and the smart load break switch in 11 kV feeders of distribution network throughout the country which would minimize the outage hours, ease maintenance work, reduce spill of energy and increase overall reliability of the distribution system. Likewise, the scope of Capacitor Bank Project includes the installation of capacitor banks in 33/11 kV substations throughout the country, which would improve the voltage profile of the electricity supply.

Similarly, the scheduled maintenance of distribution network, working at off peak hours and other initiatives to minimize the supply interruption have been adopted to improve the reliability of power supply. Instead of the bare ACSR conductor, the AAAC covered conductor will be used for the medium voltage up to 11 kV and the Aerial Bundled Conductor (ABC) will be used for 400 Voltage.

Loss Reduction Activities

DCSD made tremendous efforts for the loss reduction in the distribution system. Loss prone areas were identified and necessary actions were taken to reduce both the technical and non-technical losses. Loss reduction activities were closely monitored at the central level and directives were issued regularly to achieve the set loss target. During such operation, total of 170,147 number of line disconnections were recorded with the worth of NRs. 4.93 billion.

DCSD has been actively propelling loss reduction campaigns through the line disconnection of consumers having due payment for long term. Theft control by meter resealing, equipment confiscation, discouraging hooking activities, etc. are other activities being undertaken by the Directorate.

Provincial/Division Offices/Distribution Centers were assigned with certain loss targets to be achieved within the FY linking with the performance evaluation of Distribution Center Chief. Loss reduction, as the regular activity of DCSD, and shall be continued in coming years.

Plans and Programs

- DCSD is planning to complete the substantial electrification in 22 more districts in next two (2) years including Taplejung, Ilam, Panchthar, Solukhumbu, Okhaldhunga, Bhojpur, Sankhuwasabha, Khotang and Udaypur in Koshi Province; Kavrepalanchowk, Sindhuli, Chitwan and Makawanpur in Bagmati Province; Palpa, Pyuthan, Rolpa and Rukum East in Lumbini Province; Dolpa and Jumla in Karnali Province; and Doti, Darchula and Dadeldhura in Sudur Paschim Province.

- To address consumer grievances including the issues of No Light Services, Call centers have been expanded in six Provincial and one Division Office. DCSD is planning to expand Call Centers at Karnali Provincial Office and Lumbini Division Office in coming years.

- DCSD has started for the automation of existing 33/11 kV substations. All new 33/11 kV substations will be fully automated or unmanned type.

- Fifteen (15) Nos. of 33/11 kV substations are being upgraded with Substation Automation System (SAS) and sixty-six (66) numbers of other substation are being upgraded adopting the n-1 contingency criteria to enhance the reliability of distribution system.

- Acceptance Testing Laboratory will be established at Kharipati, Bhaktapur for testing the electrical equipment up to 33 kV voltage level.

Grid Solar and Energy Efficiency Project

The Government of Nepal (GoN) received a credit from the World Bank (WB) towards the cost of Grid Solar Energy and Energy Efficiency Project (GSEEP) under IDA Credit No. 5566-NP (Project ID P146344) for an amount of 130 MUSD under a counter financing of 8 MUSD by the GoN. The GSEEP Project comprises of following two components:

Component 1: Grid Connected Solar PV Farms Development has been completed and 25MWP has been connected to the National Grid. The contractor will carry out the operation and maintenance for 5 years.

Component 2: Under Distribution System Planning and Loss Reduction, following projects are in progress:

- Design, Planning, Engineering, Procurement, Installation, Testing and Commissioning of 8 New 33/11kV substations and 33kV lines for the development of NEA Grid. (Kapilbastu, Arghakhachi, Sindhuli, Ramechap & Gulmi);

- Design, Supply, Installation/Erection, Testing and Commissioning of 11/0.4 kV Distribution System (Taplejung, Panchthar & Ilam);

- Design, Supply and Installation of Substations and 33kV Lines in Bharatpur, Dhading, Hetauda, Kavre, Lagankhel, Nuwakot, Palung, Ramechhap, Dolakha and Sindhupalchok districts; and

- Design, Supply and Installation/Erection, Testing and Commissioning of Distribution System in Melamchi, Dolakha, Ramechhap, Rasuwa, Palung, Bharatpur and Sindhuli districts.

Nepal Distribution System Upgrade and Expansion Project (AIIB)

NEA has received a loan-financing from the Asian Infrastructure Investment Bank (AIIB) towards the cost of financing of the proposed project. The districts selected under this project are Dang, Banke, Bardia and Rolpa from Lumbini Province and Rukum West, Jajarkot, Surkhet, Salyan, Kalikot, Jumla, Mugu and Humla from Karnali Province.

This project will construct nineteen (19) new 33/11 kV substations, more than 350 km of 33 kV lines and more than 1,400 km of 11 kV distribution lines. The project will also include installation of around 2,600 km of LT lines and 850 number of distribution transformers so as

to achieve the cent percent electrification in the project implementation areas.

Nepal Distribution System Upgrade and Expansion Project (EIB)

NEA, through the GoN, has received a loan-financing from European Investment Bank (EIB) towards the cost of financing of the proposed project. The districts selected under this project are Parasi, Rupandehi, Rolpa, Dang and Rukum East from Lumbini Province and Bajhang, Bajura and Baitadi from Sudurpaschim Province.

This project will construct thirteen (13) new 33/11 kV substations, more than 112 km of 33 kV lines and more than 1,687 km of 11 kV distribution lines. The project will also include the installation of around 3,334 km of LT lines and 802 number of distribution transformers so as to achieve the cent percent electrification in the project implementation areas.

33/11 kV Substation and 33 kV Line Projects

DCSD has undertaken various 33/11 kV substations projects and 33 kV & 11 kV lines projects for connecting those substations across all over Nepal. The scope of project includes the construction of 60 numbers of 33/11 kV substations with the total capacity of 411 MVA, 1,141 km of 33 kV line from the source to those substations under construction and 11 kV line feeders for the supply to local networks and beneficiaries.

Transformer Testing Lab Construction Project

The scope of project includes the construction of Transformer Testing Labs with a full facility of transformer testing up to 10 MVA capacity at Biratnagar, Butwal and Nepalgunj. The construction of transformer testing lab and workshop building as well as the installation of transformer testing equipment have been completed at all sites.

Distribution System Reliability Project (DSRP)

The scope of this project is to install Smart Load Break Switch (LBS) and Auto Re-closer (AR) with the Feeder Management System (FMS) software in approximately 100 Numbers of 11 kV feeders under the Koshi Provincial Office, NEA. The Invitation of Bid will be issued soon and it will take one year to complete after the agreement date.

Planning and Technical Services Department

Planning and Technical Services Department (PTSD) is responsible for planning and preparation of the distribution system expansion programs and supporting DCSD in the technical and commercial matters. Under this department, two division are functional, namely Computerized Billing Division and. Technical Support Division.

Modernization of Energy Metering

Under the first phase of Smart Metering Smart Grid Project, the implementation of 72,000 numbers of 3-phase whose current smart meter is in the verge of completion. In order to expand the coverage of 3-phase whole current smart meter, the procurement process has been completed for the further supply and installation of 150,000 numbers of 3-phase whole current smart energy meters and the Contractor has supplied the first lot of smart meters. These meters are equipped with e-sim, which is the novel technology introduced in NEA. After the execution of this project, all remaining 3-phase whole current electro-mechanical meters will be replaced by 3-phase whole current smart energy meters and new 3-phase consumers will be integrated in the smart metering.

Rural Electrification Programs

To materialize GoN's announcement under its "Plan and Policy" for cent percent electrification in the country, PTSD has completed the bidding process for supply and installation of distribution network up to 11 kV voltage level. The electrification programs include the construction of 3,034 km of 11 kV lines and 7,174 km of 0.4/0.23 kV distribution networks with 1,919 numbers of distribution transformers.

Electrification programs are being implemented through eight different projects. These projects

are being funded by the GoN and NEA. This program will cover nine districts of Koshi Province, four districts of Bagmati Province, one district of Gandaki Province, One district of Karnali Province and One district of Sudur Paschim Province.

Upgrading and Rehabilitation of Substations

To enhance the quality and reliability of the distribution system, PTSD has been continuing the up-gradation and augmentation of 33/11 kV distribution substation. 33/11 kV Substation Rehabilitation Project has started the up-gradation of fifteen number of substations with the Substation Automation System (SAS) contributing the total capacity of 425 MVA up-gradation of 33/11 kV substations.

GIS Mapping

NEA originally planned to implement the GIS Mapping through GIS Smart Grid Project with the existing distribution infrastructure. However, as NEA is implementing the underground distribution system in different cities including Kathmandu, the original plan has been stalled and is being revised incorporating the infrastructure of underground cabling. Recently, it has been planned to implement this project after the updating the scope incorporating the underground distribution system.

Computerized Billing and Networking Division

Computerized Billing and Network Division (CBND) aids in the revenue collection of NEA. Mpower Billing Software System is a competent billing system with several features and modules for monitoring the entire process and transparency of the revenue system implemented in all Revenue Collection Centers of NEA.

Handheld Meter Reading Device (HHD) is currently operating in more than 145 locations, which has helped in reducing human errors during the meter reading. With the advancement in new technology, the division has also implemented the Online Meter Reading Handheld Device (Online HHD) with the GPRS function in many locations of NEA, which has helped the meter reader to directly upload the meter reading data to the concerned branch server system. This division has targeted to operate HHD in all Revenue Collection Centers within this FY with the additional feature of providing SMS facilities to the consumers.

In the Online Consumer Self Meter Reading Software System, consumers can enter their meter reading using the mobile apps and online platforms or by calling NEA Hotline Number 1150. Consumers can easily access this system via the website https:\\www.consumer.nea.org.np or via the NEA application.

Online payment system has eased the difficulty of the consumers standing in queue for long hours just to pay the electricity bill as well as spending money on transportations to pay the electricity bill. CBND has collected NRs. 21,54,15,46,530 from online transactions during FY 2022/23.

Community Rural Electrification Department

Community Rural Electrification Department (CREP) has been established to promote energy access, build consumer capacity, develop livelihood, alleviate poverty and empower Community Rural Electrification Entities (CREEs). In F/Y 2022/23, 25 numbers of CREEs with about 39,640 number of consumers returned to NEA. The actual numbers of consumers under 471 CREEs are 5,13,984 in 43 districts through communities.

CRED's major activities of the year under review are as follows:

- Twenty five (25) Rural Electrification Projects and one Substation Project in Taplejung district has been completed with the construction of 83 km of 11 kV line, 537.9 km of 400/230 V line and installation of 65 Nos. of distribution transformers.
- The replacement of 5,403 wooden poles with steel tubular poles has been completed.
- The construction of 33/11 kV substations in the rural areas of Taplejung, Sinam have

been completed, whereas 33 kV line extensions of Panchthar district are in progress.

Koshi Provincial Office, Biratnagar

Koshi Provincial Office of NEA serves 977,100 numbers of consumer through 24 Distribution Centers spread over 14 districts. The majority of the consumers, about 89.89%, belong to the domestic category. It has registered and increased the connected load of 271 MVA during FY 2022/23.

The annual energy sales were 1,552 GWh increased by 11.19% from the previous FY and contribute to 16.59% of the total sales of energy of NEA. The gross annual revenue is NRs. 14.47 billion, which is about 16.0% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 10.52% as compared to the previous FY.

The distribution loss of Provincial Office came down to 10.38% from the last FY year loss of 11.72%.

This year 41,998 consumer lines with due of NRs. 548.56 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 97.00%.

Madhesh Provincial Office, Janakpur

Madhesh Provincial Office of NEA serves 1,059,669 numbers of consumer through 23 Distribution Centers spread over 8 districts. The majority of the consumers, about 89.13%, belong to the domestic category. It has registered and increased the connected load of 348 MVA during FY 2022/23.

The annual energy sales were 2,017 GWh increased by 5.47% from the previous FY and contribute to 21.56% of the total sales of energy of NEA. The gross annual revenue is NRs. 18.04 billion, which is about 19.94% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 4.18% as compared to the previous FY.

The distribution loss of Provincial Office came down to 13.79% form the last FY loss of 14.17%. This year 28,923 consumer lines with due of NRs. 1,293.18 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 90.51%.

Bagmati Provincial Office, Kathmandu

Bagmati Provincial Office of NEA serves 8,69,909 numbers of consumer through 20 Distribution Centers spread over 10 districts. The majority of the consumers, about 95.61%, belong to the domestic category. It has registered and increased the connected load of 154 MVA during FY 2022/23.

The annual energy sales were 2192 GWh increased by 9.03% from the previous FY and contribute to 23.42% of the total sales of energy of NEA. The gross annual revenue is NRs. 23.97 billion, which is about 26.50% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 8.96% as compared to the previous FY.

The distribution loss of Provincial Office came down to 6.29% form the last FY loss of 6.97%. This year 25,000 consumer lines with due of NRs. 799.2 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 98.17%.

Bagmati Division Office, Hetauda

Bagmati Province Division Office of NEA serves 321,082 numbers of consumer through 6 Distribution Centers spread over 3 districts. The majority of the consumers, about 90.82%, belong to the domestic category. It has registered and increased the connected load of 72 MVA during FY 2022/23.

The annual energy sales were 646 GWh increased by 2.14% from the previous FY and contribute to 6.91% of the total sales of energy of NEA. The gross annual revenue is NRs. 6.21 billion, which is about 6.87% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 1.88% as compared to the previous FY.

The distribution loss of Divisional Office has been registered to 9.82% form the last FY loss of 7.38%.

This year 14,208 consumer lines with due of NRs. 274.34 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 96.97%.

Gandaki Provincial Office, Pokhara

Gandaki Provincial Office of NEA serves 480,862 number of consumers through 13 Distribution Centers spread over 11 districts. The majority of the consumers, about 95.27%, belong to the domestic category. It has registered and increased the connected load of 128 MVA during the year 2022/23.

The annual energy sales were 632 GWh increased by 6.38% from the previous FY and contribute to 6.75% of the total sales of energy of NEA. The gross annual revenue is NRs. 6.13 billion, which is about 6.78% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 7.37% as compared to the previous FY.

The distribution loss of Provincial Office came down to 8.47% form the last FY loss of 9.10%. This year 12,902 consumer lines with due of NRs. 214.17 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 99.63%.

Lumbini Provincial Office, Butwal

Lumbini Provincial Office of NEA serves 532,306 number of consumers through 11 Distribution Centers spread over 6 districts. The majority of the consumers, about 94.45%, belong to the domestic category. It has registered and increased the connected load of 174 MVA during FY 2022/23.

The annual energy sales were 1312 GWh increased by 14.30% from the previous FY and contribute to 14.02 % of the total sales of energy of NEA. The gross annual revenue is NRs. 12.44 billion, which is about 13.76% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 13.19% as compared to the previous FY.

The distribution loss of Provincial Office came down to 8.48% form the last FY loss of 12.83%. This year 22,327 consumer lines with due of NRs. 500.05 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 96.17%.

Lumbini Division Office, Nepalgunj

Lumbini Province Division Office of NEA serves 415,005 number of consumers through 10 Distribution Centers spread over 6 districts. The majority of the consumers, about 92.36%, belong to the domestic category. It has registered and increased the connected load of 192 MVA during FY 2022/23.

The annual energy sales were 605 GWh increased by 12.95% from the previous FY and contribute to 6.47% of the total sales of energy of NEA. The gross annual revenue is NRs. 5.65 billion, which is about 6.26% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 11.61% as compared to the previous FY.

11 kV HT Line Maintenance under Pyuthan DC

The distribution loss of Divisional Office came down to 8.60% form the last FY loss of 9.81%. This year 13,221 consumer lines with due of NRs. 1,041.39 million were disconnected. With

the concerted efforts of all Distribution Centers, the revenue collection has improved to 96.59%.

Karnali Provincial Office, Surkhet

Karnali Provincial Office of NEA serves 139,073 number of consumers through 10 Distribution Centers spread over 10 districts. The majority of the consumers, about 96.01%, belong to the domestic category. It has registered and increased the connected load of 36 MVA during FY 2022/23.

The annual energy sales were 73 GWh increased by 8.91% from the previous FY and contribute to 0.79% of the total sales of energy of NEA. The gross annual revenue is NRs. 713 million, which is about 0.79% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 7.73% as compared to the previous FY.

The distribution loss of Provincial Office came down to 16.20% form the last FY loss of 6.97%. This year 2,571 consumer lines with due of NRs. 45.94 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 97.08%.

Sudurpaschim Provincial Office, Attariya

Sudurpaschim Provincial Office of NEA serves 339,352 number of consumers through 12 Distribution Centers spread over 9 districts. The majority of the consumers, about 93.17%, belong to the domestic category. It has registered and increased the connected load of 54 MVA during FY 2022/23.

The annual energy sales were 327 GWh increased by 1.38% from the previous FY and contribute to 3.50% of the total sales of energy of NEA. The gross annual revenue is NRs. 2.80 billion, which is about 3.10% of the total revenue earned by NEA. It has registered the overall decrease of sales revenue by 1.38% as compared to the previous FY.

The distribution loss of Provincial Office came down to 10.99% form the last FY loss of 13.30%. This year 8,992 consumer lines with due of NRs. 212.83 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 100.10%.

PLANNING MONITORING AND INFORMATION TECHNOLOGY DIRECTORATE

Planning, Monitoring and Information Technology Directorate (PMITD), headed by the Deputy Managing Director, acts as a corporate wing of Nepal Electricity Authority. This Directorate directs and monitors the functioning of five different departments namely System Planning Department, Corporate Planning and Monitoring Department, Information Technology Department, Power Trade Department and Economic Analysis Department. Each of these departments is headed by a Director. System Planning Department is responsible for Load Forecasting, Grid Impact Study together with Generation Planning and Transmission Planning of power system of Nepal. Corporate Planning and Monitoring Department is entrusted with the responsibility of developing the Corporate Plan of NEA along with monitoring of NEA implemented projects. Information Technology Department develops innovative IT services so as to automate various activities of NEA. Power Trade Department is responsible for trading of power both in domestic as well as in cross border market as per NEA's strategy and policy. Finally, Economic Analysis Department carries out the financial analysis of the projects and proposes electricity tariff adjustments and service charge adjustments.

System Planning Department

System Planning Department (SPD) is mainly responsible for the load forecast, generation and transmission line planning of Integrated Power System of Nepal. The department also conducts the power evacuation study of generation projects to be interconnected in Integrated Nepal Power System (INPS) to identify constraints in the grid that could pose operational risk and reduce efficiency due to outages in the INPS. For this purpose, SPD develops transmission configurations and carries out different technical studies such as load flow, short circuit, steady and transient stability etc. Furthermore, SPD also supports to update the Corporate Development Plan of NEA and assists other departments of NEA by providing necessary data and suggestion regarding implementation of planned projects.

Grid Impact Study (GIS) for new generation projects as well as for bulk load industries has become the main focus of SPD in recent years. The GIS analyzes the effect of new connection to NEA grid to ensure satisfactory operation of the NEA grid in conformity with the NEA Grid Code and provides recommendations for requirement of additional transmission lines, reinforcement in the network and requirement for the installation of capacitors and reactors. In FY 2022/23, System Planning Department carried out following technical studies at the request of NEA's different departments:

- Energy Simulation for the formulation of Corporate Development Plan;
- Load Demand Forecast of Nepal until the year 2042;
- Network Analysis Study of India and Nepal;
- Grid Impact Study of 45 hydropower projects with the total installed capacity of 3,049 MW to be developed by IPPs;
- Grid Impact Study of 7 bulk load industries of the total load of 130 MVA to be connected to the INPS;

- Fault analysis of 220 kV Bharatpur substation, 220 kV Hetauda Substation, 220 kV New Butwal Substaion, 220 kV Markichowk Substation, 220 kV Basantpur Substation, 220 kV Udipur Substation, 132 kV Bharatpur Substation, 132 kV Hetauda Substation, 132 kV Dordi Substation, 132 kV New Butwal Substaion, 132 kV Markichowk Substation, 132 kV Hangpang Substation, 132 kV Basantpur Substation, 33 kV Hangpang Substation, 33 kV Basantpur Substation, 33 kV Udipur Substation and 33 kV Khudi Substation; and
- Updating of the PSS/E models of Year 2025 for Millennium Challenge Account Nepal (MCA - Nepal)

SPD has been associated in the power grid interconnection study conducted by Joint Technical Group (JTG) of State Group Corporation of China (SGCC) and Nepal Electricity Authority (NEA). The department has been providing necessary supports to the study named "Integrated Power System Development Plan of Nepal" being conducted by JICA.

Information Technology Department

Information Technology Department (ITD) plays a vital role for providing the infrastructure along with software applications for digital transformation and automation with the emergence of Internet of Things (IoT) bringing together the Information Technology and Operational Technology (IT&OT). The goal is to reduce redundancies and errors and improve workflows and efficiencies within the organization. It implements the governance for the use of network and software systems, as well as assists the operation units by providing the required IT related supports. Apart from the implementation of new Information and Communication Technologies (ICT), ITD provides continuous ICT support and trainings to all NEA offices round the clock.

In line with NEA's vision of becoming a modern utility in the power sector, the "NEA IT Policy, 2023" has been published to modernize NEA's processes through the use of Information Technology. NEA's IT Policy encompasses various aspects, addressing Information and Communication Technologies Usage; Safety and Security; Business Operations Management; IT Procurement; Asset Management and Safety Management. By leveraging the potential of technology in these areas, NEA can enhance the operational efficiency, streamline processes and improve overall service delivery. It also ensures regular policy updates to mitigate risks; enhance cyber resilience and handle any exemptions required.

NEA Mobile App has been upgraded to a newer version in Android/ Apple Version with integration of more customer related features like bill check, seamless payments, line fault information etc. The Customer Relationship Management (CRM) Software introduced in FY 2021/22, where consumers would be able to post complains and view the feeder/ transformer/ line information through NEA mobile App and web portal, has been further extended to various offices of NEA. Furthermore, ITD has introduced the online application for three phase and single phase meters, where customers can apply for new connection online. Centralized Call Center (Hotline 1150) has been introduced in all Provincial Offices of NEA, where all no light/ maintenance/ power; billing and other consumer related complaints will be handled. Furthermore, ITD has introduced the Vehicle Management Information System to bring in transparency and efficiency as well as to reduce the operation cost. ITD is planning to incorporate Global Positioning System (GPS) in the vehicles used by no light/ maintenance team for the efficient management and support.

ITD has been providing supports and maintenance to the implemented application software systems such as CAIS, Centralized Payroll and Pension Management System, Asset Management, Online Application, Vehicle Management System, Law Management System etc. Centralized E-attendance System has been in operation, where all the attendance activities can be accessed centrally for the entire NEA offices. Device Integration Application (DIA) has

also been implemented to assess the real time attendance data of the employees. E-attendance System has been interfaced with the Central Payroll System for the efficient payroll (salary) management. The Decentralized Inventory Management System has been upgraded to the Centralized Inventory Management System, where the entire inventory can be monitored in a single location. To strengthen and automate the Internal Audit Management System and to enhance efficiency in the internal audit processes and reporting, Online Audit Database Management System (IOADBMS) software has been developed. Retirement Fund Management System (RFMS) is also planned to be upgraded into a new web based centralized system.

As the use of Business-Critical Applications continues to increase in NEA, with a distributed infrastructure of remote offices, the software-defined WAN (SD-WAN) architectures has been implemented with improved user experiences, efficient operations, accelerated convergence and integrated security. Furthermore ITD plans to implement SD-Branch/ LAN at branch offices in future to secure the whole NEA Network and Application System.

As NEA embraces greater digital connectivity, it encounters heightened vulnerabilities in terms of cyber security. Acknowledging the significance of safeguarding critical infrastructure, the ITD has taken proactive steps to invest in cyber security measures and establish effective guidelines to protect these essential systems. The implementation of robust firewalls; Security Information and Event Management System (SIEM) and continuous monitoring protocols has been prioritized to fortify NEA's digital assets and proactively thwart the potential cyber threats.

ITD also plans to work in collaboration for the operation of the Data Center located in the LDC office, Syuchatar. The initiation of Data Center and Communication Network Infrastructure Backbone shall not only benefit NEA as a whole, but also can be used as a revenue generating source by leasing the bandwidth and data space to government offices and private organizations in the near future.

Corporate Planning and Monitoring Department

Under Planning Monitoring and Information Technology Directorate (PMITD), the Corporate Planning and Monitoring Department (CPMD) is established primarily to assist the NEA management in devising plans for corporate development; preparing the annual budget and monitoring of entire NEA development and operational activities. It has the responsibility of appropriation of the received ceiling of annual budget from the GoN and the mobilization of internal resources to ensure the realization of targets set forth, wherein the best tradeoff among competing activities has to be assessed. The whole process involves repeated discussion on various levels within the setup of NEA.

Monitoring of status of to be implemented and ongoing plans, projects and activities on continuous basis and reporting to the management is another vital task of the department. In addition to the need based reporting, the periodic reporting is also carried out on the month, trimester and annual basis. These reports indicate the status of various activities with reference to pre-set targets such as increase in generation capacity, transmission line length and sub-station capacity, added number of consumers, increase in per capita electricity consumption, loss reduction and coverage of rural electrification etc.

Development of suitable monitoring and evaluation directives assisting the NPC, Ministry of Energy, Water Resources and Irrigation (MoEWRI) and Ministry of Finance (MoF) in functions related to NEA and the entry of annual budget in the Line Ministry Budget Information System (LMBIS) are other works being carried out by the department.

CPMD provides necessary supports to the NEA management for carrying out various studies related to the institutional reform and development. In addition, the department provides inputs for the studies undertaken by

various organizations on the subjects related to NEA. It also plays a coordinating role in the development of projects under different financing mode.

In FY 2022/23, CPMD evaluates the progress of 6 projects of the feasibility study of storage and large/ medium hydropower projects, 2 hydropower projects under construction, 8 projects of rehabilitation and maintenance of hydropower stations, 102 projects of transmission line and 107 projects of distribution system expansion and rural electrification projects.

Power Trade Department

Power Trade Department is responsible for trading of electric power in both domestic and cross border market. It is the single window interface of NEA with Independent Power Producers (IPPs) for processing their applications for Power Purchase Agreement (PPA). Functions of Power Trade Department are broadly classified into three categories, i.e., PPA processing and signing, PPA administration after its execution till commercial operation and PPA administration after commercial operation. The department has three divisions to carry out these functions, namely, Business Development, Construction Vigilance and Commercial and Finance in the respective order. The administrative tasks are carried out by another division, namely Resource Management.

Various reform measures have been introduced in the Fiscal Year under review so as to make the processing of the PPA applications systematic and transparent. The applications are put on a processing sequence based on pre-established criteria. The different stages involved are document screening, technical review, grid impact study followed by grid connection agreement, PPA draft preparation and negotiation, seeking for NEA management's approval followed by Electricity Regulatory Commission (ERC)'s approval and finally, signing of PPA.

In FY 2022/23, 491.3 MW was connected to the national grid and PPAs were signed for for 34 hydropower projects and 1 solar project of total capacity of 1,349.50 MW. The details of the PPA conclued are as follows:

Project Status	Total as of FY 2022/23	
	No. of Projects	Installed Capacity (MW)
Operation	159	2,023.05
Under Construction	126	3,102.71
Different Stages	107	2,631.56
Total	392	7,757.32

In line with NEA Board's decision to discover the competitive tariff for Grid-connected Solar Power Projects, a RfP was invited from the prospective developers for setting up of Grid-connected Solar PV Power Projects in Nepal through the tariff-based competitive bidding process. After completion of the technical bid evaluation, the financial bids of the responsive bidders are under the evaluation and the LOI will be issued to the successful bidder soon.

Nepal has been participating in Indian Power Exchange (IEX) for power import since May 1, 2021 subsequent to the issuance of Designated Authority (DA)'s Procedure by India on February 26, 2021. From November 3, 2021 onwards, Nepal has been selling the power to India in IEX via NTPC Vidhyut Vyapar Nigam (NVVN). The status of DA approval for Sale of Power to India via Indian Energy Exchange is as follows:

DA Status	No. of Projects	Approved Quantum (MW)
DA Approved	15	451.72
DA Approval Processing (Dhalkebar-Mujaffarpur, 400 kV Transmission Line)	10	494.67
DA Approval Processing (Tanakpur-Mahendranagar, 132 kV Transmission Line)	4	100.68

For power trade in the neighboring countries, various arrangements were explored in FY 2022/23. An agreement was signed between NEA and NVVN On May 23, 2023 for supply of 200 MW of power to NVVN from 5 different hydropower projects for the months of June to November for a period of 5 years. Currently, the projects are in DA Approval process. Similarly, an agreement was signed between NEA and PTC India Ltd. on June 28, 2023 to buy and sell power up to 300 MW in the Indian market using Bihar's transmission infrastructure. The projects for the same are under scrutiny. With an attempt to move into regional power integration, discussions are ongoing between NEA, NVVN and Bangladesh Power Development Board (BPDB) for the sale of power from NEA to Bangladesh via Indian Territory.

Economic Analysis Department

As a focal unit of tariff revision, Economic Analysis Department (EAD), under the Planning, Monitoring, and Information Technology Directorate, is mainly responsible for conducting activities related to the economic and financial analysis of NEA. The department is assigned with the following tasks:

- Formulation of criteria for economic and financial analysis of NEA's projects;
- Preparation of documents for the review of electricity tariffs to be submitted to the Electricity Regulatory Commission of Nepal (ERC);
- Adherence into regulatory compliance while preparing and analyzing data;
- Submission of tariff petitions to be submitted to ERC;
- Financial/ economic, commercial and market analysis of NEA;
- Preparation of log frame of generation and transmission line projects of NEA;
- Cost analysis of services distributed by NEA;
- Comparative benefit study of hydropower generation and transmission lines of NEA; and
- Assistance to the other departments of NEA in prioritizing the selection of projects.

The department contributes to Demand Side Management (DSM) via the revision of tariff. A study has been planned for encouraging the off-peak demand and reducing the peak demand - via Time -of -Day tariff revision in addition to the periodic tariff revision. The department assists to conduct Cost Benefit Analysis related to the Generation, Transmission & Distribution activities of NEA. Its role now has been both extensive and intensive in the context of identifying factors that leads to managing the internal demand and studying avenues of improvement. EAD has been advising the financial and market analysis for NEA. The department takes initiation and plays a vital role by establishing coordination among various departments for these activities.

Main activities conducted by the department in FY 2022/23 are as follows:

Regulatory Compliance: All the work of regulatory compliance for NEA has been reported.

Study of Consumption Pattern: Consumption behavior of various consumer categories has been studied, analyzed, and used as a basis for projecting demand and growth patterns of various consumer categories. A new software has been developed for the purpose.

Retail Tariff Module Development: A module with many interconnected sheets has been developed to outline the average tariff requirements for different customer categories, considering the international standards and ground reality. The cost of service for various consumer categories has been calculated and a neutral tariff for each category has been prepared.

Update of Corporate Development Plan (CDP) of NEA: The department has taken initiation to update the CDP as a whole, along with the KPIs, to analyze whether predetermined targets have been met through ongoing regular activities.

Financial Analysis: EAD has conducted the economic and financial analysis for NEA. For FY

2022/23, after consideration of various financial parameters, the best analysis has been made in co-ordination and collaboration with various departments and related agencies.

Demand Stimulation Action Plan: The department has submitted a policy recommendation and action plan known as the Demand Stimulation Action Plan (DSAP) to the Ministry. The DSAP aims to increase the electricity consumption within the country, which will catalyze industrial and agricultural growth, create employment opportunities, improve air quality in Nepali homes and cities, reduce imports of fossil fuels, increase national energy security and turn our hydro potential into reality.

Capital Investment Plan: In accordance with the government policy of increasing internal consumption of generated energy, NEA has to enhance its existing transmission and distribution capacity. EAD has prepared the Capital Investment Plan (CIP) of NEA to estimate the capital investment required for the next 10 years.

Cost of Service: The department has updated the cost of service for FY 2022/ 23 after the collection of required data.

Strategic Action Plan: A Strategic Action Plan of NEA, including the Mission, Vision, Goals, Objectives and SWOT analysis has been submitted to the Ministry.

ENGINEERING SERVICES DIRECTORATE

Established along with the formation of NEA, Engineering Service Directorate (ESD) is headed by the Deputy Managing Director. ESD has four departments namely Project Development Department (PDD), Soil Rock and Concrete Laboratory (SRCL), Environmental and Social Studies Department (ESSD) and NEA Training Centre. There is an Electromechanical Division under the Directorate to provide EM related technical services and supports to various departments within NEA and also to the private sector.

The scopes of services provided by the Directorate are mentioned below:

- To identify hydropower projects, their screening and ranking;
- To carry out feasibility studies of hydropower projects and transmission line projects;
- To carry out geotechnical investigation;
- To carry out surveying and mapping;
- To carry out EIA/IEE study;
- To prepare tender documents and engineering norms;
- To carry out detailed design study;
- To provide construction supervision services;
- To produce local distribution pole;
- To repair and maintain distribution transformer up to 500 kVA and above; and
- To provide training and enhance human resources in related fields.

The operations and activities of different departments and divisions and projects operating under ESD are described below.

Chainpur Seti Hydroelectric Project

Chainpur Seti Hydroelectric Project (CSHEP), a Peaking Run of River Hydropower Project, is located in Saipal, Talkot and Masta Rural-Municipality of Bajhang District. The project has 40 m high concrete gravity dam with 4 radial gates, 3 Nos. of underground desanding basin of length 100 m each, 12,492 m long headrace tunnel of 5.4 m diameter, 87 m high surge shaft with 14 m internal diameter, 1,575 m of 3.5 m diameter steel lined pressure shaft and semi surface powerhouse with 3 units of Pelton turbines. The project with the installed capacity of 210 MW will generate an annual energy of 1,158.02 GWh with the 6 hours of daily peaking. The power generated from the project will evacuated to the proposed 400/132 KV Bajhang Substation via 15 km long Transmission Line.

Inlet Portal of Adit VI

The construction of access road to the powerhouse is in the final stage. The Contractor has been deployed for the construction of Adit tunnel 3, 5, and 6. Shotcrete and the anchoring work in Adit-5 and inlet portal work in Adit-6 are ongoing. Land acquisition of second stage is under process. The bidding process for camp

facilities work will be initiated shortly.

Project Development Department

Project Development Department (PDD) under Engineering Services Directorate focuses on study of hydropower and transmission line projects for future development by NEA. This includes identification of potential projects, screening and ranking, pre-feasibility, feasibility, detailed engineering studies and preparation of tender documents of various hydropower projects followed by construction supervision. There are altogether six divisions under this department i.e. Project Identification, Norms and Specification, Hydro sedimentology, Hydraulic Design, Structural Design and Survey. The Survey Licenses for Generation of Kulekhani Sisneri Pump Storage Hydroelectric Project and Begnas Rupa Pump Storage Hydroelectric Project are still being held under NEA. The department had applied for the Generation License of Andhi Khola Storage Hydroelectric Project in DOED.

Arun 4 Hydroelectric Project

Arun 4 Hydropower Project, a ROR hydropower project, is proposed to be developed on Arun River in Bhot Khola and Makalu Rural Municipality of Sankhuwasabha District. NEA obtained the Survey License of Generation of Arun 4 Hydropower Project from Department of Electricity Development in October 2021. A Memorandum of Understanding was signed between NEA and Satlej Jalvidyut Nigam, (SJVN), India on 16 May 2022 for the joint execution of the project. According to the MOU, the project will be developed in joint collaboration between NEA and SJVN by establishing a Joint Venture Company with 51% equity participation of SJVN. The JVC will provide 21.9% of generated energy from the project free of cost to GoN from the date of commencement of commercial generation of the project. SJVN has submitted the inception report after completion of the topographic survey, geological investigation and other studies. NEA and SJVN are working out for the finalization of JV agreement.

Identification and Study of New Hydroelectric Projects

The Government of Nepal has allocated the budget for the identification and study of new hydropower projects. The PDD has identified and studied following hydropower projects during FY 2022/23:

Upper Mustang Storage Hydroelectric Project

The project is situated in Dalome Rural Municipality of Mustang District, Gandaki Province. A 145 m high rockfill dam is proposed on Kaligandaki River situated in Surkhang VDC, which can accommodate a total volume of 402 MCM. The Reservoir extends up to 10 km upstream with a surface area of about 8.5 km2. With a design discharge of 73 cumecs and a gross head of 140 m, the project will have an installed capacity of 88 MW to generate an annual energy of 441 GWh with 9-10 hours of peaking facility. The preliminary cost is estimated to be about 15,309 MNPR without the financing cost. The preliminary Investigation reveals that it has less resettlement issues with a possible benefit of regulated flow to downstream projects.

Jawa Tila Hydroelectric Project

The PROR type project situated in Jumla district of Karnali Province is accessible from Karnali highway. The proposed dam is located approximately 6.1 km upstream of Nagma Bazar, which is near the confluence of the Tila-Hima River. The powerhouse area is located about 10 km downstream from the headworks area. The water conveyance system consists of 9.7 km long tunnel and an underground penstock measuring 1,400 meter. With a design discharge of 41 m3/s and a gross head of 234 m, the project will have an installed capacity of 77.60 MW with a provision of 2 hours of daily peaking. The total annual energy production is estimated to be 442.98 GWh. The preliminary cost is estimated to be 12,180 MNPR.

Syarpu Pumped Storage Hydroelectric Project

The project was identified and studied as a potential Pumped Storage Hydroelectric Project for future development of NEA. The project is

proposed on the Syarpu lake of Rukum-West District of Karnali Province. The Syarpu lake acts as an upper reservoir with about 7 m increment in water level whereas a lower reservoir is created with a concrete gravity dam of about 67 m height. The installed capacity will be 332 MW with a design discharge of 147.6 m3/s passing through the headrace tunnel of about 1,160 m length. The project will have an annual energy generation of 699.6 GWh.

Bharbhung Hydroelectric Project

The project, located on Bhargung River, in the Charka region of Dolpa District of Karnali Province, has been identified as a potential storage project. A dam of 155 m height is proposed at an elevation of about 3200 masl at Mukot, near Kakkotgau, whereas the powerhouse site is proposed at an elevation of about 2725 masl near Tachingau. A headrace tunnel of diameter 7 m and length of 8,132 m will connect the intake to the powerhouse. With the gross head of 625 m and the design discharge of 102.6 m3/s, the project of the installed capacity 547 MW will generate the total energy of 2,230 GWh annually.

Pumped Storage Hydropower Project

PDD has conducted a study on "Need Assessment of PSHP in the context of Nepal" followed by the "Finalization of Screening and Ranking Criteria for Potential PSHPS". Altogether fifteen PSHP were identified, of which following eight potential projects have been shortlisted for the further study.

Project Name	District	Capacity (MW)
Syarpu Lake PSHP	Rukum	332
Amargadhi PSHP	Dadeldhura	1,375
Madi Khola PSHP	Baglung	365
Hudi Khola PSHP	Gulmi	1,017
Gauri Khola PSHP	Dailekh	929
Sukla Gandaki PSHP	Syangja	653
Bheri PSHP	Jajarkot	928
Barahi Pokhari PSHP	Khotang	653

Building and Physical Infrastructure Construction Project (BPICP)

Building and Physical Infrastructure Construction Project (BPICP) was established for the construction of the NEA Office Building at different locations. Currently, BPICP is implementing three building projects namely Corporate Office Building at Durbarmarg, NEA office Building at Lainchaur and Office Building at Bhagwanpaau. BPICP has revised the design of corporate office building, for which Invitation for Bid will be issued shortly. The Contract Agreement between BPICP and KC-EG Infra-Hanuman JV was concluded on 03 July 2022 for the "Construction of NEA Office Buildings at Lainchaur and Bhagwanpaau". After mobilization of the Contractor to the site, the foundation works of both buildings are underway.

Proposed New Corporate Office Building

Further, BPICP has initiated the reconnaissance study of land owned by NEA in urban areas of all seven Provinces for planning of multistory buildings.

Detailed Survey of Various Transmission Lines and Substations

The Survey Division under PDD has been conducting the detailed survey of various transmission lines, substations and hydropower projects. During FY 2022/23, following survey works have been accomplished.

SN	Project	Status
1	Attariya Dhangadhi 132 kV T/L Project (Detail & Cadastral Survey)	Completed
2	Parwanipur-Raxaul 132 kV Underground TL's Detail Survey	Completed
3	Rasuwagadhi Ratmate Kerung 400 kV TL Cadastral Survey	Completed
4	Trisuli-Ratmate 220 kV TL's Feasibility Study & Cadastral Survey	Completed
5	Lower Marsayndi Plant's Bathymetric, Topo Mapping & Cadastral Survey	Completed
6	Upper Arun's TL (400 & 132 kV) Feasibility Study	Completed
7	Upper Arun HEP's Topographical Mapping	Completed
8	Palpa 220 kV TL's Substation Feasibility study	Completed
9	Central Store Building (Hetauda) of DCS Survey-Design Work	Completed
10	Dhaubadi Iron Mines 220 kV TL Feasibility Study	Completed
11	Nijgadh-Pokhariya 400 kV Cadastral Survey	Completed
12	Kohalpur-Nepalguj 132 kV T/L's Feasibility Survey	Completed
13	Dhaubadi Meghauli 132 kV T/L Feasibility Study & Cadastral Survey	Completed
14	Pathlaiya -Harniya 400 kV TL Details Study & Cadastral Survey	Ongoing
15	Kathmandu Valley System Reinforcement (220 kV) Feasibility Study	Ongoing
16	Kathmandu Valley System Reinforcement (132 kV) Project	Ongoing
17	Nepalgunj-Nanpara 132 kV T/L Cadastral Survey	Ongoing
18	Prasaran Grid Company's Sitalpati - Dhungesangu 220 kV T/L's Detail/Cadastral Survey	Ongoing

Electro-Mechanical Design Division

Electro-Mechanical Design Division (EMDD) has been monitoring the activities of pole plants located at different locations and the central workshop located at Hetauda. The division is also planning for the establishment of a concrete pole plant in the central region of Nepal, which shall ease the PSC pole supply to this region. The details of the pole production in FY 2022/23 are shown below:

Pole Plant	Location	Production (Nos.)
Lamki Pole Plant	Lamkichuha, Kailali	8,520
Kotre Pole Plant	Shuklagandaki, Kotre	13,068
Amlekhgunj Pole Plant	Amlekhgunj, Bara	19,975
Tankisinuwari Concrete Pole Plant	Tankisinuwari, Morang	19,080

Lamki Pole Plant

Amlekhgunj Pole Plant

NEA Central Workshop (NCS) was established in 2055 BS at Bhairav Road, Hetauda-5, Makwanpur. The primary objective is to provide efficient transformer repair and testing services while maintaining the highest quality standards.

During FY 2022/23, the Workshop has repaired 1,501 numbers of distribution transformers and 10 numbers of power transformers. The testing on 9251 numbers of transformers were conducted to ensure their reliability and safety and 118 units of CT/PT were tested. The total revenue generated from the auction of scrap materials during this FY amounted to NRs. 75,994,456 The auction of old power transformers proved to be a successful endeavor, generating a total income of NRs. 51,075,998.

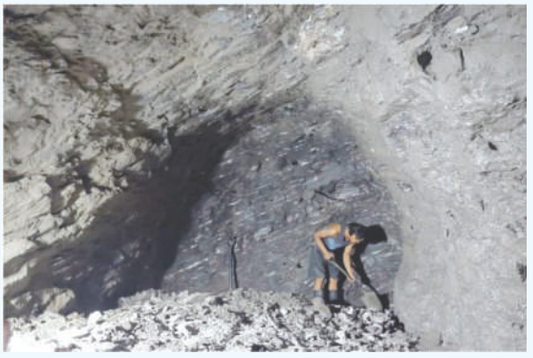
Central Workshop at Hetauda

Further, the contract was awarded to M/S Shrushti Contech Private Limited Hydbrabad, India on April 5, 2023 to enhance the capacity to test and repair of power transformers up to 60 MVA. Specialized training sessions for our technicians were conducted to enhance their skills and keep them updated with the latest advancement in the transformer technology.

Soil, Rock and Concrete Laboratory

Soil, Rock and Concrete Laboratory (SRCL) provides services in material testing and geological and geotechnical investigation for the different phases of project development. Recently SRCL has purchased new machineries and equipment and resumed the test tunnel excavation work. The laboratory is currently involved in the test tunnel excavation at powerhouse area of Upper Arun HEP.

Tele Viewer Survey at Site



Excavated Tunnel Face of Test tunnel, UAHEP.

The works executed by SRCL in FY 2022/23 are as follows:

- Geological and geotechnical investigation works of Upper Arun Hydropower Project and Chainpur Seti Hydroelectric Project;
- Geotechnical Exploration works (Core Drilling and High-Resolution Optical Televiewer Survey) of Lower Solu Hydroelectric Project (82 MW);
- Geological and Geotechnical Investigation of Kathmandu Valley Transmission System Expansion Project;
- Soil Investigation Works of Keraun 132/33 kV Substation Project, Lahan - Sukhipur 132 kV Transmission Line Project, Rupani – Bodebarsain 132 kV Transmission Line Project and Dhalkevar-Balganga 132 kV Transmission Line Project;
- Geological and geotechnical investigation works of Chandrapur- Sukadev Chowk 132 kV Transmission Line Project;
- Geological and geotechnical investigation

works of Jeevan Vigyan Dhading Project;
- Geological and geotechnical investigation works of Kulekhani I Hydropower Station; and
- Geological and geotechnical investigation works of Rapsa-Hitar 400 KV Transmission Line Project and Ratmate-Rasuwagadhi Kerung 400 KV Transmission Line Project.

Environment and Social Studies Department

Environment and Social Studies Department (ESSD) executes all activities related to environmental and social aspects of hydroelectric as well as transmission and distribution line projects. This department with its technical expertise is involved in conducting Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), Brief Environmental Study (BES), Social Impact Assessment (SIA), Vulnerable Community Development Plan (VCDP), Resettlement Action Plan (RAP), Land Acquisition and Compensation Plan (LACP), Biodiversity Impact Assessment (BIA), Cumulative Impact Assessment (CIA) along with Environmental Monitoring and Implementation of Mitigation Measures and Community

Public Hearing of Jagatpur-Madi 33kV TL Project

Public Hearing of Lamki-Chaukune 132kV TL Project

Support Programs of hydroelectric, transmission line and distribution line projects.

In FY 2022/23, ESSD was involved in the EIA/SEIA of following four projects, out of which SEIA of Naya Modi-Lekhnath 132 kV TLP has been approved by the Ministry of Forest & Environment.
- Uttarganga Storage HEP (828 MW);
- Naya Modi-Lekhnath 132 kV TL Project;
- Balach-Attariya 132 kV TL Project; and
- Jagatpur-Madi 33 kV TL Project.

During the period, ESSD was engaged in the IEE of 25 projects of which IEE of eight projects and the ToR for IEE of nine projects have been approved by the Ministry. ESSD is also being involved in the BES of Gondrang-Devnagar 33 KV TL Project.

Under the Mitigation and Enhancement Programs, ESSD has been involved in following projects:
- Hetauda-Dhalkebar-Duhabi 400 kV TL Project;
- SASEC Power System Expansion Project;
- Tamakoshi-Kathmandu 220/400 kV TL Project;
- 132/220 kV Chilime Substation Hub and Chilime-Trishuli 220 kV TL Project;
- Garjyang-Khimti 132 kV TL Project;

- New Modi-Lekhnath 132 kV TL Project;
- Dudhkoshi Storage HEP (635 MW); and
- Kohalpur-Surkhet 132 kV TL Project.

Excursion of NTFP Training at Birendranagar

Road Maintenance at Dadagaun, Rasuwa.

ESSD has also been implementing following Community support programs of under-construction projects;

- Hetauda-Dhalkebar-Duhabi 400 kV TL Project;
- SASEC Projects: Kaligandaki Corridor (New Butwal -Bardghat) 220 kV TL Project;
- Tamakoshi-Kathmandu 220/400 kV TL Project;
- 132/220 kV Chilime Substation Hub and Chilime-Trishuli 200 kV TL Project;
- Garjyang-Khimti 132 kV TL Project; and
- Naya Modi-Lekhnath 132 kV TL Project.

NEA Training Center

In FY 2022/23, NEA Training Center (NEATC) conducted 68 training programs in different fields for 2,069 trainees in total. The total numbers of officer-level and assistant-level participants were 613 and 1,456, respectively.

Training Activities of NEA Training Center

Training programs conducted in F/Y 2022/23 are as follows:

SN	Name of Training	No of Participants
1	Induction Training for different level	566
2	Administration chief gosti	27
3	TOD Meter with AMR/AMI	147
4	PPMO	240
5	ToT	26
6	Central payroll and pension	18
7	M-power Billing (Reconciliation)	251
8	Transformer Maintenance	141
9	Arc GIS	147
10	CIAS	226
11	Basic Auto Cad (2d)	19
12	PLS Tower	32
13	Office Management	114
14	Charging Station	27
15	Welding and Safety Practices	26
16	Centralized E-Attendance	35
17	Internal Audit Strengthening	27

NEATC has also proposed to conduct 70 training programs for 2,200 employees of NEA in FY 2023/24.

PROJECT MANAGEMENT DIRECTORATE

Project Management Directorate (PMD) in the Nepal Electricity Authority's organogram has a role to plan, procure, execute and facilitate projects funded by the Asian Development Bank (ADB) and the European Investment Bank (EIB). At present, PMD is executing diverse projects in the energy sector including transmission line, substation, distribution system, distribution system modernization, smart meters and substation automation systems under ADB financed (i) Electricity Transmission Expansion and Supply Improvement Project (ETESIP) (ii) SASEC–Power System Expansion Project (SPSEP) (iii) Power Transmission and Distribution Efficiency Enhancement Project (PTDEEP) (iv) SASEC Power Transmission and Distribution System Strengthening Projects (SASEC-PTDSSP) (v) Electricity Grid Modernization Project (EGMP & EGMP-AF) and (vi) Project Preparatory Facility for Energy (PPFE). PMD is also conducting the engineering and environmental study of different transmission lines up to 400 kV voltage level with the length of more than 1000 km and substations associated under the ADB Grant No. 0361: Project Preparatory Facility for Energy (PPFE).

Electricity Transmission Expansion and System Improvement Project (ETESIP)

Tamakoshi – Kathmandu 220/400 kV Transmission Line Project

This is one of the sub-projects undertaken and being executed by PMD under Loan No. 2808-NEP: Electricity Transmission Expansion and System Improvement Project (ETESIP). This project will play an important role to evacuate the power from upcoming generating stations in Tamakoshi Basin. This project includes three Packages, viz. (i) New Khimti – Barhabise 400 kV Double Circuit Transmission Line with the length of 44 km (ii) Barhabise-Lapsiphedi 400 kV Double Circuit Transmission Line with the length of 46 km & Lapsiphedi-Duwakot 132 kV Double Circuit Transmission Line with the length of14 km and (iii) Barhabise GIS substation (220/132 kV, 160 MVA & 132/11 kV, 5 MVA Power Transformers).

Package I (Khimti-Barhabise 400 kV TL): The progress status of Package I is as follows:

SN	Items	BoQ QTY	Status Progress
1	Design (%)	100	100
2	Foundation (Nos.)	118	99
3	Erection (Nos.)	118	83
4	Stringing (km)	44	22.8

Almost 97 % of land acquisition for tower pads in Dolakha district and around 75% of land acquisition for tower pad in Sindhupalchok district have been completed. Tree-cutting permission is approved from the cabinet and the contract with the Department of Forest and Soil Conservation is completed. Tree cutting in Dolakha district has been completed. The package has achieved 85% of the physical progress and 77% of the financial progress.

Khimti-Barhabise 400 kV TL

Package II (Barhabise-Lapsiphedi 400 kV TL and Lapsiphedi-Duwakot 132 kV TL): The progress status of Package II is as follows:

SN	Items	BoQ QTY	Status Progress
1	Design (%)	100	100
2	Foundation (Nos.)	122	114
3	Erection (Nos.)	122	108
4	Stringing (km)	46	14

Land acquisition process for tower pads in Sindhupalchwok and Kavrepalanchwok districts have been completed and almost 97% of respective land owners have received the compensation. Compensation amount for right of way is being distributed along the conductor stringing area. Land acquisition notice in Kathmandu has been published. This package has achieved 88.1 % of the physical progress and 88.2 % of the financial progress.

Package III (Barhabise 220kV GIS Substation): The construction of Barhabise 220kV substation is in full swing with the completion of boundary wall and retaining walls of the substation area, staff quarters, internal drain etc. Also, the foundations and erections of equipment like power transformers, 132 kV gantry, lightning arrester and CVT etc. have also been completed. Construction of Pre-Engineered Building of 220 kV, 132 kV GIS Hall and Control Building, fire-fighting pump house, substation earthing work, cable trench are undergoing. All the major 145kV and 245 kV equipment like GIS, ACDB, DCDB, CRP & SAS, power and control cable, 220/132 kV Power Transformers, 132/11kV Power Transformer, LT transformer, DG set, Earthing material, Steel Structure, PEB structure, EoT crane etc. have been delivered to the site. Some of the equipment like communication equipment, firefighting system and 12 kV switchgear are being delivered to the site. The physical and financial progresses of this package are 75% and 40% respectively.

SASEC Power System Expansion Project (SASEC PSEP)

Samundratar- Trishuli 3B 132kV Transmission Line

The project with the financing of European Investment Bank was conceptualized to evacuate the power generated from several hydropower projects being developed in the Tadi River Basin located in eastern part of Nuwakot District. The double circuit transmission line has the capacity to evacuate the 270 MW power generated from hydropower projects, which will be transmitted to Trishuli 3B Hub Substation. Two Nos. of 11kV outgoing feeders, one towards Satbise on the western side of the substation and the other towards Ghyangphedi on the eastern side of the substation, are under operation and delivering continuous electricity supply to those areas.

Aerial View of Substation

Similarly, the transformer capacity of Chaughada Substation was upgraded to 8 MVA in 33/11kV level with the replacement of instrument transformers and switchgears.

Marsyangdi Corridor 220 kV Transmission Line Project

Marsyangdi Corridor 220 kV Transmission Line Project is envisaged to evacuate approximately 1600 MW of power from upcoming hydropower stations in the Marsyangdi River Basin to the Integrated Nepal Power System (INPS). The Project is constructing 113 km long Double Circuit 220kV transmission line from Manang to Bharatpur via Khudi and Udipur with construction of 220kV substations at Dharapani, Manang (220/132 kV, 100 MVA & 132/33 kV, 30 MVA), Khudi (220/132 kV, 160 MVA & 132/33 kV, 50 MVA), Udipur (220/132 kV, 160 MVA & 132/33 kV, 50 MVA) and Aanpatari, Bharatpur, Chitwan (220/132kV, 320 MVA). The GoN and EIB have signed the loan agreement of 90 MUSD and the rest shall be managed from the GoN and NEA.

The complete scope of the project has been divided into 3 contract packages. The first package consists of the construction of about 67km of 220 kV double circuit transmission line with twin ACCC Drake conductors from Udipur to Bharatpur. The second package consists of the construction of 220/132 kV substations at Udipur and Bharatpur. The third package consists of the construction of about is 46 km of 220 kV, double circuit transmission line with twin conductors (ACCC Drake and ACSR Moose) from Dharapani, Manang to Udipur, Lamjung.

The contract for the first package was awarded to M/S Pinggao Group Co. Ltd, China, and the construction work is in progress. As of now, 90 tower foundations have been completed and 23 towers have been erected. The conductor stringing work from Udipur S/S to Middle Maysyangdi powerhouse switchyard has been completed.

The contract for the second package was awarded to M/S Larsen and Toubro Ltd., India. About 95% of work associated with supply and delivery has been completed. Similarly about 95% civil works has also been completed. The installation work of GIS equipment in Udipur 220kV Substation is going on. The Udipur substation is expected to be charged in November 2023. However, the construction work in Bharatpur 220kV Substation is complete.

The contract of the third Package has been awarded to the M/s TBEA Co., Ltd, China. About 35% of the work associated with the supply portion has been completed.

Udipur Markichowk 220 kV Line

The overall progress of the project till date is about 55%. The project is expected to be completed by the end of FY 2081/82.

Marsyangdi – Kathmandu 220 kV Transmission Line Project

Marsyangdi-Kathmandu 220kV Transmission Line Project was conceptualized to transfer the power from Marsyangdi corridor to Kathmandu

valley, which ultimately reinforces Integrated Nepal Power System (INPS) and improve the reliability of transmission system. The scope of this project includes the construction of double circuit 220kV transmission line from Markhichowk, Tanahu to Matatirtha, Kathmandu with twin MOOSE ACSR conductors and construction of two 220/132kV Substations with capacity 320 MVA (2x160 MVA) at both Markhichowk and Matatirtha substations. The substation in Matatirtha is of air insulated type (AIS) while in Markhichowk, the substation is of gas insulated (GIS) type.

The contract for first package- Marsyangdi – Kathmandu 220kV Transmission Line was concluded with M/S TATA Projects Ltd. India in June 2016. The construction of 220 kV line (length - 82.0 km double circuit) with 233 towers has been completed and in operation from 21 June 2022 at the132kV voltage level.

Section of 220 kV Line from Markichowk to Kathmmandu

The contract agreement for the second package was concluded on 30 December 2020 with China Machinery Engineering Corporation, China. Nearly 95% of work related with the supply and delivery has been completed, while about 75% of civil work and 80% of erection and installation works have been accomplished.

Kaligandaki Corridor 220 kV Transmission Line Project

The project envisages to evacuate the power generated from hydropower projects in Kaligandaki River Basin. This project has following Packages:

Package I: Dana-Kushma 220 kV Double Circuit Twin Moose Transmission Line and the associated 220/132/33 kV Substation at Dana and 220/132kV Substation at Kushma have already been charged.

Package II: The contract package of Kushma – New Butwal 220 kV Transmission Line (Design, Supply & Installation & Commissioning) was concluded with M/s Larsen & Toubro Limited, India on 05 December 2017 and the Contract has been effective from 20 December 2017.

Dead End Insulator Setting of Kushma-New Butwal Line

The status of progress is as follows:

SN	Items	BoQ QTY	Status Progress
1	Design (%)	100	99
2	Foundation (Nos.)	236	236
3	Erection (Nos.)	236	234
4	Stringing (km)	89	82

The line is in the last phase of construction.

New Butwal – Bardaghat 220 kV Transmission Line and Substation Project

The major objective of this project is to construct 21 km of 220 kV transmission line from New-Butwal to Bardaghat and a substation in Butwal, Nawalparasi.

The contract for the construction of 220/132 kV, 100 MVA New Butwal Substation had been awarded to M/S Tata Project Limited, India. The substation has been completed in November 2021. It has been put into operation by the LILO arrangement with the existing Butwal-Bardaghat 132 kV Double Circuit Line.

The contract for the design, supply, installation and commissioning of 21 km of 220 kV transmission line from New Butwal substation to Bardaghat has been undertaken by M/S Power China SEPCO1 Electric Power Construction Co. Ltd. Till date, the construction of 22 out of 55 tower foundations and the erection of 5 out of 55 number of towers have been completed. The transmission line is expected to be completed by December 2023.

Grid Substation Reinforcement and Capacity Expansion Project

The scope of this project is to reinforce and upgrade eight numbers of existing 132 grid substations of NEA at Gandak, Butwal, Bharatpur, Kawasoti, Damauli, Banepa, Dhalkebar and Lahan. Protection upgradation and addition of Substation Automation System in Gandak and Baneshwor substations have been completed successfully.

As an additional scope to this project, the upgradation of both circuits of Dhalkebar - Mujeliya 33 kV Double Circuit Line of length 23 km has been successfully completed by replacing the existing 0.10 Sq. inch ACSR conductor with ACCC “Silvassa” Conductor. Further, the addition of 33 kV 2x10 MVAr capacitor banks at Mujeliya substations has been completed.

Distribution System Augmentation and Expansion Project

This project was initiated to augment and expand the distribution system all over Nepal to improve the reliability of distribution system, enhance the quality of electricity supply and the reduce distribution system losses. The project is being executed in following 3 lots of contracts:

Lot 1: This lot of contract intends to expand the distribution network in the eastern region of Nepal. The contract was awarded to M/S A2Z Infra Engineering Limited, India on 15 June, 2016. Out of total 13 numbers of substations, 7 substations have been commissioned and have contributed to an additional capacity of 56 MVA into the system. Similarly, a total of 136.4 km of 33 kV line; 85 km of 11 kV line and 49 km of 400/230 V line have been completed and 45 number of distribution transformers have been installed till date. The contract is expected to be completed by the end of 2023.

Juropani Substation, Jhapa

Lot 2: This contract lot intends to expand the distribution network in the western region of Nepal. The contract was awarded to M/S A2Z Infra Engineering Limited, India on 15 July, 2016. Out of total 12 numbers of substations, 10 substations have been commissioned and has contributed to an additional capacity of 70 MVA into the system. Similarly, a total of 162 km of 33 kV line; 95 km of 11 kV line; 30 km of 400/230 V line have been completed and 30 number of distribution transformers have been installed till date. The contract is expected to be completed by the end of 2023.

Bojapokhari Substation, Nawalpur

Lot 3: This contract lot intends to improve the distribution network all over the country. The scope of this contract consists of the upgradation of 12 numbers of 33/11 kV existing substations and construction of 87 km of 33 kV line, 342 km of 11 kV line, 365 km of 400/230 V line and installation of 262 numbers of 11/0.4 kV distribution transformers. The contract was awarded to M/S East India Udhyog Limited, India on 22 February 2016. This contract has been completed and is under successful operation.

Rural Electrification and Distribution Network Improvement of Tanahu District

This project, financed by the ADB Loan No.2990/2991-NEP (SF): Tanahu Hydropower Project, intends to electrify and improve the networks of the nearby VDCs, which are affected by Tanahu Hydropower Project. The scope of this project consists of the construction of two 33/11 kV, 6/8 MVA SS at Saranghat and Ghiring, 40 km of 33 kV sub-transmission line, 222 km of 11 kV line, 345 km of 400/230V line and installation of seventy (70) Nos. of distribution transformers (11/0.4 kV). The contract was awarded to M/S JV of East India Udhyog and Waiba Infratech on 29 November 2018. This project has been completed and is under successful operation.

Ghiring Substation, Tanahu

Utility Scale Grid Tied Solar Project

The objective of this project is to promote the grid tied Solar PV Projects in Nepal through the Viability Gap Funding (VGF). GON has received the grant from Strategic Climate Change Fund under the ADB administration of SASEC Power System Expansion Project.

In the first phase, five (5) solar power developers had been selected through the competitive bidding process and the Power Purchase Agreement has been signed with them to procure solar energy generated from the utility scale grid tied solar power plant with the total capacity of 24 MW. Three solar power plants of total capacity of 11 MW has been commissioned and connected to the NEA grid.

Karnali Solar Energy Project

The scope of this project includes Design, Engineering, Supply, Construction, Installation, Testing, Commissioning and Operation & Maintenance support of (AC) Solar PV Power Plants with Battery Energy Storage System in Mugu (360 kW AC and 2200 MWh Battery), Dolpa (620 kW AC and 2000 MWh Battery), Jumla (950 kW AC and 3800 MWh Battery) and Humla (995 kW AC and 3000 MWh Battery) districts of Nepal. The IFB has been published and the last date of submission for bid is on 20 August 2023. The project is expected to commence by January 2024.

Power Transmission and Distribution Efficiency Enhancement Project (PTDEEP)

The purpose of this project is to strengthen the distribution system capacity of Kathmandu Valley including the modernization of distribution system to provide safe and reliable electricity supply in Kathmandu valley. The project value of 189 MUSD is jointly funded by the ADB and GON/ NEA. An additional 2.0 MUSD will be funded as a grant from the Japanese Fund for Poverty Reduction, which is being utilized (i) to strengthen the capacity of energy sector in main streaming Gender Equality and Social Inclusion in energy programs (ii) productive use of clean energy technologies and services by poor and vulnerable households and (iii) capacity development of NEA for new technology of energy.

Different sub-projects and their status under PTDEEP are as follows:

Lapsiphedi and Changunarayan Substation Construction Project

The project will play a major role to evacuate the power generated by IPPs and Upper Tamakoshi Hydro Electric Plant through Khimti–Barhabise–Kathmandu 400kV Line. The addition of these132kV substations will help to reinforce the transmission system and increasing the reliability of transmission network feeding power to Kathmandu valley.

The scope of this project is to construct 220kV GIS substation at Lapsiphedi with transformer capacity of 220/132kV, 160MVA & 132/11kV, 22.5MVA and 132kV GIS substation at Changunarayan with transformer capacity of 132/11 kV, 45 MVA. However an additional scope of the upgradation of existing 66/ 11 kV Teku Substation to 132/ 66/ 11 kV voltage level and the construction of a 2 new double circuit 132kV line bays at Suichatar Substation has been included under this project. The contract has been awarded to M/S Larsen and Toubro Limited, India in November 2020 and is expected to be completed within the end of December 2023.

Around 94% of plants and equipment to be supplied from abroad of all four substations have been delivered at the site. In Changunarayan substation, around 80% of civil works have been completed. Finishing work of control room building, FFPH, GIS building and water tank and installation and testing of the major equipment is in progress.

GIS Hall of Changunarayan Substation

At first phase works related to Teku and Suichatar substation will be completed within August 2023 and the remaining works will be completed within the end of December 2023.

Kathmandu Valley Transmission Capacity Reinforcement Project

The major objective of the project is to augment Grid Substation Capacity by constructing three new 132/11kV GIS Substations, 2x45 MVA each at Chobhar, Phutung and Thimi. The contract was awarded to M/S Pinggao Group Co. Ltd, China. Manufacturing of major equipment such as Power Transformer and GIS has already been completed and the design/ drawings of most of the civil works as well as the electrical equipment have also been concluded. Due to local protest and obstruction, works had been delayed at the Chovar. However, after the agreement among local authorities, local people and NEA, the work has been resumed from 07 November 2022. Due to the social problems at the site, the contract completion period was extended up to 31 March, 2024.

Control Room Building works under progress at Phutung Substation

Addition of these transmission substations inside Kathmandu Valley will not only increase the reliability of the distribution network but will also help to serve the qualitative electricity supply to the consumers. These new substations are very much needed to cope the growing demand in the outskirts of the valley and to reduce the burden on existing substation.

Enhancement of Distribution Network in the Central and Northern Region of Kathmandu Valley

This objective of the project is the enhancement and rehabilitation of the distribution system (11kV and 0.4kV) with the provision of automation for the areas under Maharajgunj Distribution Center in the Northern region of Kathmandu Valley. The scope of the project includes the design, supply, installation and commissioning of underground distribution network.

The contract agreement was signed on 15 March 2019 with KEI Industries Limited, India. As of now, 106 km of trench work, 551 km of pipe laying, 171 km of HT cable, 324 km of LT cable and 2,370 numbers of different foundation for feeder panels/ RMU have been completed. Due to unavailability of road cutting permission from the Department of Road, about 30% of the road section of the project is yet to be started. This project is expected to be completed by the end of FY 2023.

Enhancement of Distribution Network in the Eastern and Southern Region of Kathmandu Valley

The project intends the enhancement and rehabilitation of distribution system (11kV and 0.4kV) with the provision of automation for the areas under Ratnapark Distribution Center. The scope of the project includes the design, supply, installation and commissioning of underground distribution network using trenchless boring methodology including reinforcement and automation. The major work includes the construction of underground 11kV line with 217 km XLPE cable & underground 400-volt line with 388 km XLPE cable, laying underground optical fiber 108km, construction and upgrading of 11 kV overhead line by AB Cables.

HDD & Pipe Laying Work in Process

The contract agreement was signed on 15 March 2019 with KEI Industries Limited, India. Till date, 190 km HT cable laying, 315 km LT cable laying have been completed in Chabahil, Paniphokari, Lazimpat, Koteshwor, Nayabazar, Thamel, Garidhara, Dhobikhola Corridor, Teku, Tripureswor, Samakhusi, Lainchaur area. Cable, Pipe laying and foundation for feeder panels/ RMU for remaining area is in progress. Due to the effect of Covid-19 pandemic and inadequate road cutting permission, the project is expected to be completed by the end of FY 2023.

Kathmandu Valley Smart Metering Project

The Kathmandu Valley Smart Metering Project marks a significant milestone for Nepal Electricity Authority (NEA) as its first-ever smart metering initiative designed to cover all classes of consumers. This project signifies the beginning of a transformative journey toward modernizing the distribution business, leading to the enhanced financial health for NEA through the reduced distribution losses and the improved overall efficiency of the distribution system.

As part of a ground breaking endeavor, Kathmandu Valley Smart Metering Project has achieved the successful implementation, deploying smart energy meters and AMI

infrastructure for 97,000 consumers in the Ratnapark and Maharajgunj distribution centers- as a pilot project. Already in the early stages of rollout, the project has delivered tangible advantages, such as reduced meter reading costs and minimized Aggregate Technical & Commercial (AT&C) losses.

The project's key components include the Head End System (HES), Meter Data Management System (MDMS), Business Intelligence (BI), and Network Management System (NMS). Despite facing temporary challenges during the Covid-19 lockdown, the project has successfully completed its implementation and is currently under FMS and technology transfer phase.

Smart Meter Installation

Kathmandu Valley Substation Automation Project

NEA has strongly felt the need of a smarter and more reliable grid system that will lead not only towards the digitization and modernization but also towards the centralized supervision based process for monitoring and control of power system parameters providing uninterrupted and quality power to the end-users. Further, after completion of this project, it is expected to be a reduction of ongoing operational cost, improvement of grid reliability, lengthening the life of equipment and improvement of organizational effectiveness. Under this project, all thirteen grid substations within Kathmandu Grid Division will be fully automated such that all these s/s could be operated remotely from the Master Control Centre (MCC) located at Baneshwor Substation. The contract has been awarded to M/S GE T&D India Limited on 5 January 2020 and is expected to be completed by November 2023.

Amlekhgunj 132kV Substation Construction Project

The scope of the project includes the construction of 132/66 kV, 2x100 MVA GIS substation and 66/11 kV 2x10 MVA substation at Amlekhgunj with the LILO arrangement of the existing 132 kV Hetauda - Pathlaiya double circuit line and existing 66 kV Hetauda - Amlekhgunj - Simara double circuit line. As of July 2023, the land acquisition process of private land has been completed for the substation and the contract has been awarded to M/S TBEA Co., Ltd., China. The contractor has already been mobilized to the site. Approval of electrical and civil Designs are in progress.

SASEC Power Transmission and Distribution System Strengthening Project (PTDSSP)

Kathmandu Valley Transmission Capacity Reinforcement Project-Phase II

The project is the continuation to the Kathmandu Valley Transmission Capacity Reinforcement Project and serves the objective to augment transmission capacity of Kathmandu Valley. The primary focus of this project is to cater the growing load of the area and reduce the existing burden in Bhaktapur-Baneshwor-Patan 66 kV transmission line. The scope includes the construction of 132 kV GIS substation at Balkumari and the laying of 12km long 132kV double circuit underground transmission line from the existing Bhaktapur substation to the Balkumari substation through the Thimi substation. The project is being implemented in following three Packages:

Package I (Bhaktapur-Thimi 132kV UG TL): This

package includes the construction of 132kV double circuit underground transmission line from the existing Bhaktapur substation to the Thimi 132kV substation, which is under construction through PTDEEP. The length of the line is approximately 4km. The contract is awarded to M/S KEC International Ltd., India. At present detail engineering design work is undergoing.

Package II (Thimi-Balkumari 132kV UG TL): This package includes the construction of 132kV double circuit underground transmission line from the proposed Thimi 132kV substation to the proposed Balkumari substation, which is approximately 8km in length. At present, the estimation and bidding document preparation is undergoing.

Package III (Balkumari 132kV substation): The proposed GIS substation at Balkumari will have the capacity of 132/11kV, 2x45 MVA and 132/66 kV, 2x63 MVA transformers. The scope also includes the LILO of the existing Bhaktapur-Baneshwor-Patan 66 kV transmission line in the substation area. The estimation and bidding document preparation is undergoing.

Construction and Upgrading of Khimti, Barhabise and Lapsiphedi Substations to 400 kV

The major objective of this project is to upgrade the capacity of New-Khimti, Barhabise and Lapsiphedi Substations at the 400kV voltage level. The completion of this substation project is essential to operate the Khimti-Barhabise-Lapsiphedi 400kV transmission line at its rated voltage level in the close coordination with the transmission line project.

The scope of this project is to construct (i) New Khimti 400/220 kV substation including 2 Nos. of 400kV line bays to terminate double circuit Quad Moose ACSR transmission line along with construction of two numbers ICT bays for connecting two single phase Auto-transformer bank of 315 MVA each with 3x105 MVA plus 1x105 MVA spare unit with the total capacity of 630 MVA (ii) Barhabise 400/220 kV substation including 4 numbers of 400kV line bays to terminate two double circuit Quad Moose ACSR transmission line, construction of two numbers of ICT bays for connecting two single phase Auto-transformer bank of 160MVA (each with 3x53.33 MVA plus 1x53.33 MVA spare unit) with the total capacity of 320 MVA and construction of 1 bay for connecting 400 kV, 50 MVAR, 3-phase Shunt Reactor (iii) Lapsiphedi 400/ 220kV substation including 4 numbers of 400kV line bays to terminate two 400 kV double circuit Quad Moose ACSR transmission line along with the construction of one number of ICT bay for connecting a single phase auto-transformers bank of 315 MVA (each with 3x105 MVA plus 1x105 MVA spare unit). The contract is awarded to M/S Grid Solutions SAS, France and is expected to complete on 31 May 2024.

At New-Khimti substation, works associated with land development, retaining wall, Major equipment foundations has been completed by almost 80%, whereas the engineering design has been concluded by almost 90%. Installation of 220kV GIS Bays is going on. Major equipment including 400kV GIS, 220kV GIS, CRP SAS, and Station Transformer have been delivered to the site.

Work Progress at New Khimti S/S

At Barhabise S/S, land development work with retaining wall and major equipment foundation have been completed with the physical progress of 40%, whereas the engineering design has been completed by 90%. Equipment such as 400kV GIS, Tower parts, CT, etc. have already been delivered to the site, while other equipment like CRP, SAS, LT switchgears are on transit. Power Transformers are under manufacturing stage.

Work Progress at Bahrabise

At Lapsiphedi S/S, all the construction activities are on hold due to land related issues. The engineering works will immediately commence after the resolution of those social issues.

Kathmandu Valley West Distribution System Enhancement Project

The project intends to enhance the distribution system and rehabilitation of the existing distribution system (11kV and 0.4kV) with the provision of automation for the areas under Kirtipur, Kuleshwor, Baneshwor, Balaju and Jorpati Distribution Centers.

The project also covers the service connection work from the underground distribution works in Maharajgunj and Ratnapark Distribution Center.

The contract was awarded to M/S Larsen & Toubro Limited, India on 24 June, 2020. The contract has been effective since 20 December 2020 and the time for completion of project is 19 December 2023.

Feeder Pillar Charging

Lalitpur and Bhaktapur Urban Distribution Network Reinforcement

This project is being executed under the loan from the Asian Development Bank (ADB) for the "Design, Supply, Installation and Commissioning of Underground Distribution Network under Lagankhel, Pulchowk, Bhaktapur and Thimi Distribution Centers including Reinforcement and Automation". The Contract Agreement of the Project was concluded on 4 June 2021 and the Contract has been effective from 9 September 2021, with the project completion period of three years.

The major work includes the construction of 120 circuit km underground 11kV Line with XPLE Cable and 100 circuit km LT XLPE underground 400 Volt line, 120 km underground optical fiber Cable laying, 120 nos. of 200kVA and 180Nos of 300kVA distribution transformer installation, construction and upgrading of 11 kV overhead line with 100 circuit km HT AB Cable & 120 km of 400 Volt overhead line by AB Cable and 200 nos. of RMU (Ring Main Unit) installation.

Proposal has been submitted for the authority approval to start excavation works at Lalitpur Metropolitan, Survabinayak-Dhulikhel-Sindhuli-Bardisbas Road Project and the DoR, Bhaktapur. Approval from concerned Department has been the most challenging task for the timely project

execution.

Distribution System Reinforcement and Modernization of Bharatpur and Pokhara

The project is being executed for the "Design, Supply, Installation and Commissioning of Underground Distribution Network under Pokhara and Bharatpur Distribution Center including Reinforcement and Automation".

The Contract Agreement of the Project was concluded with M/S TATA Projects Limited, India on 10 October, 2021 with the project completion period of two years. All the survey and geo-technical investigation works have been successfully completed. The approval has been provided for both HT and LT networks of Pokhara and Bharatpur. Lot-I materials, including HDPE pipes, HT and LT XLPE cables, termination kits, and feeder pillars, have been delivered to the site. Also, some quantity of HDPE pipe under Lot-II has also been received.

33 kV Cable Laying in Bharatpur

Rural Electrification and Distribution Network Reinforcements in Province 2

In order to achieve the GoN's goal of sustainable energy access to all, NEA has emphasized on improving the quality of electricity supply by construction of additional distribution system infrastructures including the reinforcement of existing distribution networks in the Province No. 2 (Madesh Pradesh).

The contract has been awarded to M/S Tata Projects Limited on 17 March, 2021. The project has been divided into five lots viz. Lot 1, Lot 2, Lot 3, Lot 4 & Lot 5.

Lot 1: The scope of works consists of the construction of six (6) completely new 33/11 kV substations and 97 circuit km of 33 kV line at Saptari, Siraha and Dhanusha districts. Detailed survey of 33 kV line was completed and the construction of substation control building, staff quarter has been started in all 6 substations.

Lot 2: The scope of works consists of the construction of four (4) completely new 33/11 kV substations and 226 km of 33 kV line at Mahottari, Sarlahi, Rautahat, Bara and Parsa districts. Detailed survey of 33 kV line was completed and the construction of substation control building, staff quarter has been started in all 4 substations.

Lot 3: The scope of work consists of the construction of 250 circuit km of 11kV, 320 circuit km of 400/230V line and the installation of 170 Nos. distribution transformers at Saptari and Siraha districts. Almost 5500 PSC poles has been supplied to the site and the erection and stringing of almost 40 km line have been completed.

Lot 3 Electrification in Madhesh Province

Lot 4: The scope of work consists of the construction of 360 circuit km of 11kV, 350

circuit km of 400/ 230V line and the installation of 175 Nos. of distribution transformers at Dhanusha, Mahottari and Sarlahi districts. Almost 5000 PSC poles have been supplied and the erection and stringing of almost 30 km line have been completed.

Lot 4 Electrification in Madhesh Province

Lot 5: The scope of work consists of the construction of 340 km of 11kV, 330 km of 400/ 230V line and the installation of 175 Nos. of distribution transformers at Rautahat, Bara and Parsa districts. Almost 2000 PSC poles have been supplied and the erection and stringing of almost 30 km line has been completed.

Pathlaiya-Parwanipur 132 kV Double Circuit Line Upgradation and Construction of 132 kV Parwanipur-Pokhariya TL and 132 kV Substation at Pokhariya

This project basically intended for the construction of 132kV transmission line and substation to cater growing industrial loads of nearby Birgunj area. The project activity consists of following Packages.

Package I (Conductor Upgradation works of Pathlaiya-Parwanipur Transmission Line): This package includes the replacement of existing 132 kV Double-Circuit ACSR BEAR conductor from Piluwa (Pathlaiya) Substation to Parwanipur Substation (about 17 km line length) by appropriate size High Temperature Low Sag (HTLS) conductor to enhance transmission capacity of the line. Bidding process is undergoing for this package.

Package II (Construction of 132kV Parwanipur-Pokhariya Transmission Line): This package includes the construction of approximately 21 km of 132kV Parwanipur-Pokhariya four circuit transmission line. The TL is planned and designed to provide the electricity supply through 132kV transmission line especially to the industrial consumers. Also two circuits shall be connected to the proposed 132kV Pokhriya substation from the existing 132kV Parwanipur substation. The IEE report has been approved. The cadastral map of the transmission line has been prepared and the land acquisition process for the tower pads has been initiated. The bidding process for package has been initiated.

Package III (Construction of 132kV Pokhariya Substation): This package includes the construction of new 132/33/11kV substation at Pokhariya (Parsa district) and the bay extension work in existing substation at Parwanipur (Bara District) to meet the current demand of industrial growth in the area. Land acquisition work for proposed Pokhariya Substation has been completed. Bid evaluation is underway and the contract will be awarded to the successful bidder shortly.

In addition, the project has initiated the feasibility study of Nijgadh - Pokhariya 400 kV transmission line (approximately 65 km) along with the two substations at Nijgadh and Pokhariya. Till now, the detailed and cadastral survey work has been completed, whereas the IEE is under way. Land acquisition works for the Proposed Nijgadh substation and transmission tower pads have also been initiated.

Electric Vehicle Charging Infrastructure Development Project

Electric Vehicle Charging Station Infrastructure Development Project supported by the ADB has spearheaded a remarkable transformation in the country's transportation landscape by installing

51 nos. of EV charging stations. The project further plans to add 11 more charging stations. The project has been effective in meeting the surging demand for electric vehicle charging infrastructure, which will help to increase the number of EVs in Nepal.

EV Charging Station

The strategic placement of the charging stations across the country enhances convenience for electric vehicle owners, confidenc e in the reliability and accessibility of charging infrastructure. This, in turn, encourages more individuals and businesses to embrace electric vehicles, further accelerating the transition towards sustainable transportation practices.

Electricity Grid Modernization Project (EGMP)

The EGMP finances the high priority electricity grid modernization investment both in transmission and distribution system all over Nepal in order to supply the reliable and efficient electricity for all and to develop NEA as a modern and sustainable corporate entity that provides reliable services to its customers.

Distribution System Control and Data Center Project (DSCDCP)

The scope of Distribution System Control and Data Center Project (DSCDCP), a part of Electricity Grid Modernization Project (EGMP), is to construct the Distribution Control Center (DCC) for the overhead and underground electricity distribution system within Kathmandu Valley and an International Standard Tier-III Data Center for NEA. The site location for DSCDC Project is at Siuchatar Substation premise. The contract was signed with M/S Yantai Donfang Wisdom Electric Co. Ltd, China in July 2021 and the contract effective date started from 21 November 2021.

The project scope of work covers the connection of upto 30 substations and switching stations within the Kathmandu Valley to the Distribution Control Center (DCC). At present, 24 substations and switching stations are planned to be connected to the DCC and the remaining upcoming 6 substations will be connected gradually. Distribution systems can be configured, monitored and controlled remotely through SCADA/DMS/OMS systems. The RTUs, RMUs, and SCADA system will be connected in a distribution ring network using optical fiber connections, thus ensuring an error-free communication network. Outage can also be supervised/managed/maintained remotely from the control center.

DCC Building at LDC, Syuchatar

Likewise, the Data Center will support all computations, data storage, network and business applications for NEA. The physical infrastructure includes prefabricated containers with 40 racks (36 Server Racks and 4 Network Racks) and utilities like cooling, electricity, network security access, firefighting and uninterruptible power supplies meeting the requirements for Tier III standards. The Data

Center will be integrated/ interfaced along with GIS system of Electricity Distribution Cable Undergrounding Projects, GIS Smart Grid Project, SAS Project, RMS Project, Smart Metering Projects and upcoming IT projects in future. The Data Center facility has already been charged and is expected to be fully operational within the first quarter of FY 2023/24.

DC Servers at LDC, Syuchatar

Kathmandu Valley Smart Metering Project - Phase II

The Project is a component of EGMP, which is continuation of Smart Metering Project Phase-I being implemented under PTDEEP. The main objective of this Project is to install the smart meters throughout Kathmandu valley with the replacement of 600,000 electromechanical meters of the consumers of nine distribution centers (Thimi, Pulchowk, Bhaktapur, Kirtipur, Kuleshwor, Lagankhel, Baneswor, Jorpati and Balaju) inside the Kathmandu valley by smart meters and integrate them into the Advanced Metering Infrastructure (AMI) system of NEA. This Project will provide more accurate, convenient and efficient energy monitoring and management system to NEA.

Grid Substation Automation Project (Phase II)

In order to digitalize the power systems, NEA has implemented Grid Automation Project Phase II, which is basically focused in installing infrastructures for digital control and monitoring of 39 Nos. of existing grid substations outside Kathmandu valley. The project is financed under the ADB Loan No. 4014 (NEP).

The scopes of the project include the construction of 6 Master Control Centers (MCCs) at six grid division offices viz. Duhabi, Dhalkebar, Hetauda, Butwal, Pokhara and Attariya, the installation of Substation Automation System (SAS) in the 39 existing grid substations and the 15 new commissioned substations with the integration of altogether of 54 grid substations to the LDC at Siuchatar, the Backup LDC at Hetauda and at respective MCCs.

The contract has been awarded to GE T&D India Limited on 19 December 2022. The time period of completion is 900 days from the contract effective date.

Dandakhet-Rahughat 132 kV Transmission Line and Associated Substation Project

In order to improve the supply situation in the Dhaulagiri Zone and to evacuate the power from hydropower plants in Myadgi River Basin and Kaligandaki River Basin of Myadgi district. Dadakhet-Rahughat 132kV Transmission Line project has been envisaged under the ADB loan. The scope of works includes the construction of 25 km, 132 kV double circuit transmission line with CARDINAL conductor and a 132/ 33 kV, 30 MVA Substation at Dadakhet and 220/ 132 kV, 200 MVA Rahughat Substation at Rakhupiple.
Along with the land acquisition of about 64 Ropani at Dadakhet and about 92 Ropani at Rakhupiple, the project has completed the construction of staff quarter, guard house and boundary wall work at Dadakhet substation and the land development work at Rahughat substation.

The contract for the line and substation is awarded to M/S Larsen and Toubro Ltd., India. Till now, the Contractor has delivered conductor, stubs, tower parts, CT, CVT, isolator, battery charger, 220/132kV GIS module, DG etc. In transmission line, 15 Nos. of foundation have been completed. The project has achieved the physical progress of 38.9% and the financial progress of 43.3% as of today.

Construction Works at Dadakhet Substation

Ghorahi – Madichaur 132 kV Transmission Line and Associated Substation Project

This project is initiated with the funding of ADB to electrify Rolpa district with the INPS. The objective of this project is to reinforce the power supply system and evacuate power from different hydropower projects of Madi Khola and Lungri Khola of Rolpa district.

The scopes comprise of the construction of approximately around 40 km long 132 kV Double Circuit transmission line with ACSR Cardinal Conductor from Ghorahi substation (Dang) to proposed Khungri substation (Rolpa) and one 132/33/11 kV, 30 MVA AIS substation at Khungri of Rolpa along with 2 Nos. of 132 kV bay extension at Ghorahi Substation.

Along with the land acquisition, civil works at Khungri Substation have been completed. The detail survey of the transmission line and the Initial Environment Examination (IEE) of the project have been completed. The contract was signed with KEC International Limited, India on 28 December 2022. The Contractor has completed the soil investigation and check survey of the transmission line. The detail engineering design for the line and substation is being carried out. The physical progress of the project is 17.6 % and the financial progress is 14.6 %.

Borang – Lapang 132 kV, Lapang – Ratmate 220 kV Transmission Line and Associated Substation Project

The objective of this project is the evacuation of power generated by the IPP's of Aankhu Khola Corridor & Budhigandaki Corridor to INPS and to enhance the Integrated Power System of Nepal. The project site located in Dhading and Nuwakot districts is expected to be completed in March 2025.

The scopes include the construction of 24 km 220 kV Double Circuit Transmission Line with Twin MOOSE conductor from proposed Lapang substation to the proposed Ratmate substation and 24 km 132 kV Double Circuit Transmission Line with BEAR conductor from the proposed Borang substation to the proposed Lapang substation along with the Borang 132/33/11 kV AIS substation and Lapang 220/132/33/11 kV GIS substation.

As of July 2023, land acquisition has been completed for both Borang and Lapang substation. M/S JV of SEPCO1 and POWER SICHUAN has been awarded the contract for the design and construction of complete transmission line and substation works. The survey works of substations has been completed and the check survey of the transmission line is in progress. The collection of cadastral maps along the transmission route and substation has been completed. The design works of both Borang and Lapang Biharthok substation are undergoing.

132 kV Pangtan Substation Project

The purpose of this project is to evacuate power from different IPP's projects of Balefi Corridor in Sindhupalchowk district. This project includes the construction of 132kV substation with transformers of 132/33 kV, 30 MVA & 33/11

kV, 8 MVA at Pangtan and the necessary bay extension works at Barhabise substation.

Land acquisition for the Pangtan (Balefi) substation has been completed. Construction of approach road, compound wall fencing and protection works have been completed at the substation site. The Contract Agreement for the construction of the substation was concluded with M/S CQNEC-NHE JV, Nepal on 22 July 2022 with the project completion period of two year. Layout finalizations, soil test works along with design drawing finalization of most of the equipment of the substation have been completed. The overall progress of the project is about 17%.

132 kV Keraun Substation Project

The project is being executed under the loan from ADB for the Design, Supply, Installation and commissioning of 132/33kV Air Insulated Substation at Keraun, Morang District with associated 33 kV Sub-Transmission Lines.

The objective of this project is to strengthen the power supply system and improve power transfer capacity to meet increasing demand in the north-east part of Morang district. The scope of the project includes the construction of Keraun Substation with the power transformer capacity of 132/33kV, 2x63MVA and 132/11kV, 22.5MVA and 15km Keraun-Rangeli & 25km Keraun-Biratchowk Double circuit 33 kV sub-transmission line.

As of July 2023, the construction of boundary wall, staff quarter and guard house have been completed. Steel tubular pole erection work has been partially completed and the stone piling work has just been started. Most of outdoor equipment has been delivered to the site. The project is expected to be completed by the end of July 2024.

132/66 kV Transmission Line Upgradation Project

The objective of the project is to improve the power carrying capacity of the some of the 132 kV transmission lines of NEA grid by upgrading the existing ACSR conductor with HTLS (High Temperature Low Sag) Conductors.

The contract agreement was concluded on 30 May 2022 with M/S HG Power Transmission SDN BHD, Malaysia with the completion period of 900 days from the contact effective date. The Contractor has delivered the first lot of HTLS conductors, CTs, hardwares, fittings, connectors etc. to the site and upgradation of Hetauda–Kamane-Pathlaiya 132 kV Transmission Line section is ongoing.

Kohalpur – Nepalgunj 132 kV Transmission Line & Substation Project

KNTLP is a crucial project to improve the power quality and reliability of Nepalgunj area in Banke district. After the construction of a substation by the LILO of the existing Kohalpur-Mahendranagar 132 kV double circuit line at Bakaspur, Janaki Rural Municipality of Banke district, the substation will feed power to the industrial sector at Nepalgunj as well as to nearby 33/11 kV substations. This project, initiated in FY 2018/19, is funded by the ADB. The scope includes the construction of about 10 km long double in multi-circuit 132 kV transmission line towers with ACSR BEAR conductor and 2x132/33 kV, 63 MVA substation at Bakaspur along with 2 future bays which will be connected to the Indian grid for exchange power with India through the 50 km long double circuit 132 kV transmission line from Nanpara, Uttar Pradesh.

As of July 2023, statutory compliances like IEE approval, issuance of construction license have been accomplished. Land for the proposed substation has been acquired at Bakaspur, Janaki Rural Municipality. The contract has been

awarded to M/S Power China SEPCO1 Electric Power Construction Co. Ltd., China in July 2023.

Arun Khola (Dumkibas) 132 kV Substation Project

The Project is envisaged to improve the power supply quality and reliability of Nawalparasi (Bardaghat Susta-East) district. After the construction of substation by the LILO of Bardaghat-Sardi 132 kV DC transmission line at Tamang Gaun, Binayee Triveni Rural Municipality, the substation will feed power to the industries nearby as well as to upcoming 33/11 kV substations. Furthermore, the 11 kV feeders emanating from the substation will reduce the lengthy feeders from 132/11kV Bardaghat substation and 132/33/11 kV Kawasoti substation and will feed Dumkibas, Benimanipur, Arunkhola and nearby areas improving both the voltage and reliability. The project initiated in FY 2018/ 19 is funded by the ADB. The scope includes the construction of a 132 kV substation with 2x132/33 kV, 30 MVA transformers and required civil structures.

As of July 2023, the Contractor M/S Godrej & Boyce Mfg. Co. Ltd., India has completed the land survey and soil investigation works. The construction of compound wall has been initiated. The design and drawing and GTP of some electrical equipment like LT switchgear, Bus Post Insulators have been approved and of other equipment like CB, Transformers, Lighting Arrestors, Isolators are under review for approval. The project is anticipated to be completed by 2024 AD.

Mulpani Substation Construction Project

The main objective of this project is to augment the grid capacity of Kathmandu Valley with the construction of a Sub-station at Baba Chowk, Mulpani. This project intends to cater the demand growth of eastern part of the Kathmandu district and supply the reliable electricity to the consumers. The scope includes the construction of one GIS substation with 4 Nos. of 132 kV Line bays, 2x45 MVA Power Transformer, 8 Nos. of 11 kV outgoing feeder with other required facilities. LILO arrangement will be made in Bhaktapur-Chapali line by constructing new towers.

The project, initiated in FY 2021/ 22, is funded by the ADB. The Contract Agreement was concluded with M/S TBEA Co., Ltd, China on 21 August 2022 with the project completion period of 18 months from the effective date of contract. Design works related to the project are ongoing and the site construction works have been progressing.

Chobhar Patan Underground 132 kV Transmission Line Project

The project will construct 4.5 km length of 132 kV double circuit underground transmission line from the existing Patan substation at Lagankhel, Lalitpur to the 132kV Chobhar substation (under construction through Loan PTDEEP) and construct a new 132kV GIS substation at the existing 66kV Patan Substation. The IEE of the 132 kV underground transmission line from Chobhar to Patan has been completed and the bid for the construction of Chobhar to New Patan 132kV underground transmission line is under evaluation stage. Also, the bid for the construction of New Patan 132 kV GIS substation has been invited.

Institutional Strengthening Project

Information Technology (IT) is evolving in every business sector and NEA is modernizing its various operational activities to increase efficiency as well as to improve its financial accounting and management decision support

systems. Accordingly the primary goal of this project is to acquire and implement ERP-based Package 1: Integrated Financial Management Information System (IFMIS), Package 2: Revenue Management System (RMS) and Package 3: Project Management Consultant (PMC) for the supervision of implementations of IFMIS and RMS at NEA.

The budgetary estimation and bid document for "Supply and Installation of ERP based IFMIS" has been finalized and submitted to the ADB for approval.

The contract agreement for the Package "Supply and Installation of Revenue Management System" was signed with M/S Longshine Technology Group Co. Ltd, China on 9 January 2023. The contract became effective from 12 March 2023. The Project Initiation Phase has been completed with the substation of As-Is Study report, Gap Analysis and To Be Report to NEA, which is now under the review by the Project Management Consultant (PMC). The timeline for the project implementation is 18 months.

The project has also concluded the procurement of Project Management Consultant (PMC) for the supervision of Implementations of IFMIS and RMS. Deloitte Touche Tomatsu India LLP has been awarded the contract on 12 May 2023 with the commencement date from 02 June 2023.

Project Preparatory Facility for Energy (PPFE) - ADB Grant No. (0361)

The prime objective of Project Preparatory Facility for Energy (PPFE), ADB Grant No. 0361 by ADB, is to procure project preparation support consulting services from different consulting firms. The consulting firm will prepare the Detail Project Report including detail transmission line and substation design with tower spotting and demarcation in the site, safeguard studies, preparation of cost estimate and bidding documents in detail enough to provide adequate information and data to ensure that the project would be ready for procurement and construction immediately after the completion of intended project preparation support consulting services.

New Butwal- Lamahi 400 kV Transmission Line Construction Project

As a part of development of East – West backbone network of 400kV transmission line, PMD is associated with the detail due diligence study of 400 kV transmission lines and substations in the western part of the country with the ADB Grant assistance.

This New Butwal – Lamahi 400 kV transmission line originates from New Butwal Substation located in Badera of Nawalparasi West District and will pass through Motipur Substation of Kapilvastu District and will terminate at Lamahi substation of Dang district. In addition to the TL, the construction of Motipur and Lamahi 400kV Substations are also envisaged under the scope of this project.

As a part of project readiness, the DPR of the project has been finalized. In addition to that, the project has also submitted the IEE report to Department of Electricity Development (DOED) and has also applied for the Construction License for the project. Further to that, the Project has also initiated for private land acquisition for the construction of Motipur 400kV substation. Following the approval of IEE, the Invitation for Bids will be issued by shortly.

Lamahi - Kohalpur - New Attariya 400 kV Transmission Line Project

As a part of development of East – West backbone network of 400kV transmission line, PMD has also initiated the detail survey, engineering and environmental studies of 400

kV transmission lines and substations from Lamahi (Rihar) to New Attariya (Daijee) with the ADB Grant Assistance under Project preparatory Facility for Energy.

The contract has been awarded to Power Grid Corporation of India Limited for the detail engineering design of 400 kV TL of length 294 km and associated Substations at Chhinchu and New Attaria along the route. As of now, the Consultant has presented the Detail Survey Report of the transmission line and associated substation design documents. The detail study on due diligence related activities and engineering design is targeted to be completed by October 2023.

Engineering and Environmental Study of other Transmission Lines and Associated Substations

Under PPFE (Grant 0361 funded by ADB), other three 400 kV transmission lines and two 132 kV transmission lines and associated substations are also under study. Following three packages have been prepared for detail engineering and environmental studies of transmission lines and associated substations:

Package-1 (CP-01)

(i) Tingla Hub - Likhu Hub - New Khimti 400kV Double Circuit Transmission Line (approximately 55 km) and the associated substation at Likhu Hub and the bay expansion works at Tingla Hub Substation and New Khimti Substation; and

(ii) New Khimti - Tamakoshi 3 - Sunkoshi Hub - Dhalkebar 400kV Double Circuit Transmission Line (approximately 110 km) and the associated substation at Sunkoshi Hub and the bay expansion at Dhalkebar Substation.

Package-2 (CP-02)

(i) 400 kV Double circuit Budhigandaki Corridor (Philim - Gumda – Ratamate - approximately 95 km) transmission line and the associated 400 kV substations at Philim/Gumda (Gorkha District) and the bay expansion at Ratamate (Nuwakot District);

(ii) 132 kV Double circuit Dailekh - Kalikot - Jumla (approx. 80 km) and associated substations at Jumla and Kalikot and bay extension work at Dailekh substation;

(iii) Phukot - Kalikot 132 kV transmission line of approximate length of 30 km; and

(iv) 132 kV Double Circuit Lamosanghu - Kavre Ramechap (approx. 40 km) transmission line and the associated substation at the border area of Kavre/ Ramechhap and the bay extension work at Lamosanghu Substation.

Package-3 (CP-03)

(i) 400 kV Double circuit Damauli - Kusma - Burtibang - Bafikot (approximately 200 km) transmission line and the associated 400 kV substations at Kusma, Burtibang and Bafikot and the bay extension at Damauli hub substation

The Contracts for Consulting Services for Engineering and Environmental Study of Transmission Lines and associated Substations for three (3) packages have been signed between NEA and Power Grid Corporation of India Limited, India in association with Jade Consult Pvt. Ltd., Nepal (the Consultant) in November 2019. Desk Study, power evacuation study, walkover survey, detail survey, check survey, Transmission Line Planning and profiling etc. have been completed. Detailed design of substation and transmission line and IEE are at the stage of completion.

Power Transmission System Planning for Major Cities of Nepal

The existing capacity of transmission lines and substations in the city areas will be insufficient to meet the growing energy demand as well as peak demand. Hence, NEA has decided to plan the transmission infrastructure considering the future demand of electricity and develop the infrastructure in phase wise basis.

This project will prepare a power transmission system plan of major cities and associated industrial of Nepal taking into account the future load growth till 2050 AD including the feasibility study and project preparation. Cities under the scope are divided into following 7 different clusters:

a) Kathmandu Valley (Kathmandu, Lalitpur and Bhaktapur Districts) including Banepa City of Kabhrepalanchowk District;
b) Pokhara Valley (Kaski District);
c) Biratnagar, Itahari, Dharan, Biratchowk and adjacent Cities (in Morang, Sunsari and Jhapa Districts);
d) Janakpur and Bardibas Cities (in Danusha and Mahottary Districts) ;
e) Hetauda, Simara, Parwanipur and Birgunj Cities (in Makawanpur, Bara and Parsa Districts);
f) Butawal, Bhairahawa and Sunawal Cities (in Rupandehi and Nawalparasi Districts); and
g) Nepalgunj and Kohalpur Cities (in Banke District)

The contract was signed with WAPCOS Limited, India on 02 April 2021. Project planning and preparation document and feasibility study reports have been submitted so far. IEE study and detailed design of some selected transmission lines and substations are under progress. In addition following group of cities has been included further as an additional scope in the contract for the transmission system planning and feasibility study:

a) Bharatpur Metropolitan City and Ratnanagar Municipality in Chitwan District;
b) Damak, Birtamod, Bhadrapur Cities in Jhapa District;
c) Dhangadhi, Mahendranar, Attariya Cities in Kailali and Kanchanpur Districts; and
d) Birendranagar City in Surkhet District

All the tasks including the additional scope of the works is expected to be completed by December 2023.

Nijgad - Pokhariya 400 kV Transmission Line Project

PMD is also conducting feasibility and engineering study works of Nijgad-Pokhariya 400 kV Transmission Line (approximately 65 km) along with Substations at Nijgad and Pokhariya to address future load in the corridor of Birgunj, Parwanipor and Simara through its own funds.

Social Safeguard and Environmental Management Department (SSEMD)

Due to need of institutional structure under Project Management Directorate (PMD) and NEA's strong commitment to address environmental and social safeguard issues effectively, Social Safeguard and Environmental Management Department (SSEMD) has been established after the NEA board's decision on 23 February 2021. The department is headed by the Director and supported by Environmental Management Division Head (Manager) and dedicated environmentalists and sociologist, civil engineer, administrative and accounting and other support staffs.

The roles and responsibilities of SSEMD are listed as follows:

- Environmental Studies and Monitoring (internal and external), Mitigation and Reporting of Safeguard activities of TL, S/S and Distribution System Projects and implementation of CSR programs under the

PMD;
- Preparation of Quarterly and Semiannual Environmental and Social Monitoring Reports and submission to the ADB;
- Arrange meaningful Public Consultation, Public Hearing, Trainings and Awareness Programs;
- Ensure information records and data base of the safeguard implementation activities;
- Implementation to Gender Equality and Social Inclusion (GESI) related activities for mainstreaming as per ADB Manual/ Guidelines;
- Grievance redress and management (issue identification, documentation and status); and
- Other environmental and social issues along with RAP and rehabilitation.

Works completed by the department are as follows:
- Updated IEE of Kusma-New Butwal 220 kV Transmission Line Project;
- Revised Environmental Management Plan (EMP) of New Butwal Bardhaghat 220 kV Transmission Line Project of Kaligandaki Corridor;
- IEE of Chovar-Patan 132kV Underground Transmission Line Project;
- Avian Protection (Vulture) Study of Ghorahi Madichaur 132 kV TL Project;
- Third Party External Social Monitoring and Evaluation Reports of SASEC-PSEP(Fourth) and PTDEEP (fifth);
- PSA on social awareness and effective use of electricity broadcasted by Radio Nepal for 45 days under PTDEEP;
- Central Level Grievance Committee Formation for PTDEEP and grievance redress in coordination with the project;
- Trainings on occupational health and safety and wildlife awareness under safeguard implementation of Tanahun Rural Electrification Project;
- Awareness on GESI and Electrical Safety conducted for Distribution System Augmentation and Expansion project ;

OHS Training at Ghiring, Tanahu

- Environmental and Social Due Diligence Study of Hetauda-Kamane & Hetauda Pathlaiya 132 kV TL Project; and

GESI Awareness Program at Darbang, Myagdi

- Establishment of the Environment and Social Management Unit (ESMU) at Beni-8, Myagdi for safeguard implementation of Dadakhet-Rahughat 132 kV TL Project.

NEA'S SUBSIDIARY & ASSOCIATE COMPANIES

Apart from development activities, which NEA is undertaking on its own, generation projects are being executed through NEA's subsidiary companies. In addition, subsidiary companies related to consulting services, cross border power transmission and power trading have also been established. For smooth coordination between the subsidiary companies and NEA and also for the monitoring of their activities, NEA Subsidiary Company Monitoring Directorate (NSCMD), headed by the Deputy Managing Director, was incorporated in the corporate structure of NEA in February 2018.

Chilime Hydropower Company Limited

Chilime Hydropower Company Limited (CHCL), a subsidiary of Nepal Electricity Authority (NEA) was established in 1996 with the main objective of developing hydroelectric power projects in the country by utilizing the public shares. NEA owns 51% of the company's share, whereas the rest is owned by the public.

The Company commissioned Chilime Hydroelectric Project on 24 August 2003, which is located in Rasuwa district. The plant has been operating satisfactory since then. The plant generated a total of 152.28 GWh of energy in FY 2022/23 with the revenue of 1,127 MNPR. The project features are as follows:

Type of Project	:	Run-of-River
Design flow	:	7.5 m3/sec
Net Head	:	336.85 m
Number of Units	:	2 (Pelton Turbines)
Installed Capacity	:	22.1 MW (2 x 11.05 MW)
Annual Energy	:	155.7 GWh
Transmission Line	:	38 km/66 kV SC

Apart from the general maintenance, the servomotor sets of both the nozzles of one unit have been replaced during the dry season of FY 2022/23. CHCL has established five Subsidiary/ Associate Companies.

Sanjen Jalavidhyut Company Limited (SJCL)

SJCL was established in 2010 AD with the promoter shares of 10.36% and 39.36% respectively of Nepal Electricity Authority (NEA) and Chilime Hydropower Company Limited (CHCL). Remaining promotor share (1.28%) is possessed by the local level government. Remaining 49% shares have already been issued to the general public including those of the project affected area and the project affected district. All the debt portion has been arranged from the Employer's Provident Fund (EPF) of Nepal.

SJCL is developing two hydroelectric projects namely, Sanjen (Upper) Hydroelectric Project (SUHEP) and Sanjen Hydroelectric Project (SHEP) in cascade.

Sanjen (Upper) Hydroelectric Project (SUHEP)

The project is located in Chilime VDC (now Amachhodingmo Rural Municipality) of Rasuwa district. The headwork of this project is located in Tiloche and the powerhouse is located in Simbu Village. The project features are as follows:

Type of Project:	:	Run-of-River
Design flow:	:	11.07 m3/sec
Net Head:	:	156 m
Number of Units	:	3 (Francis Turbines)
Installed Capacity:		14.8 MW (3 x 5 MW)
Annual Energy:	:	82.44 GWh
Transmission Line:		5 km/132 kV SC to Chilime Hub

SUHEP Powerhouse and Switchyard

The construction of SUHEP work has been almost complete. The civil works as well as the installation of all the hydro-mechanical and electro-mechanical equipment have been completed. Testing of three units with no-load has been successfully completed. Plant synchronization is expected to commence by the end of July 2023 through the 11kV transmission line, constructed under the contingency plan.

Sanjen Hydroelectric Project (SHEP)

The project is also located in Chilime VDC (now Amachhodingmo Rural Municipality) of Rasuwa district. The headwork of this project is located in Simbu, whereas the powerhouse is located in Chilime Village. The project features are as follows:

Type of Project	:	Run-of-River
Design flow	:	11.57 m3/sec
Net Head	:	433 m
Number of Units	:	3 (Pelton Turbines)
Installed Capacity	:	42.5 MW (3 x 15 MW)
Annual Energy	:	241.86 GWh
Transmission Line	:	1.5 km/132 kV SC to Chilime

SHEP Electromechanical Equipment Installation Work

This project is in the final stage of completion. The major civil works have been completed. Installation of electromechanical and hydro-mechanical equipment is ongoing. As of the end of FY 2022/23, the overall progress of this project is 93.15 %. The project is expected to be completed by December 2023.

Madhya Bhotekoshi Jalavidyut Company Ltd. (MBJCL)

Madhya Bhotekoshi Jalavidyut Company Ltd. (MBJCL) is a public limited company promoted by Chilime Hydropower Company Ltd. and Nepal Electricity Authority for the implementation of Middle Bhotekoshi Hydroelectric Project (MBKHEP) in Sindhupalchowk district of Nepal. Of the 51 % promotor shares, Chilime Hydropower Co. Ltd., Nepal Electricity Authority and Local Companies possess 37%, 10% and 4% shares respectively. Remaining 49% shares

have already been issued to the general public including those of the project affected area and the project affected district. All the debt portion has been arranged from the Employer's Provident Fund (EPF) of Nepal. The project features are as follows:

Type of Project:	Run-of-River
Design flow:	50.8 m3/sec
Gross Head:	235 m
Number of Units	3
Installed Capacity:	102 MW (3 x 34 MW)
Annual Energy:	542.2 GWh
Transmission Line:	4 km / 220 kV Single Circuit

Headworks of MBKHEP

The project is in the last stage of completion. Installation of electromechanical equipment is in full swing. All the towers have been erected and the stringing works is ongoing. The project is scheduled to be completed by October 2023.

Rasuwagadhi Hydropower Company Limited

Rasuwagadhi Hydropower Company Limited (RGHPCL), promoted by Chilime Hydropower Company Limited (CHPCL) and Nepal Electricity Authority (NEA), was established in 2011 A.D. The company is implementing Rasuwagadhi Hydroelectric Project (RGHEP) in Rasuwa district.

Of the 51 % promotor shares, Chilime Hydropower Co. Ltd., Nepal Electricity Authority and Local Level Government possess 32.79%, 18% and 0.21% shares respectively. Remaining 49% shares have already been issued to the general public including those of the project affected area and the project affected district. All the debt portion has been arranged from the Employer's Provident Fund (EPF) of Nepal. The project features are as follows:

Type of Project	: Run-of-River (ROR)
Design Discharge (Q40)	: 80.00m3/s
Gross Head	: 167.9 m
Turbine	: Francis, Vertical Axis & 3 Nos.
Turbine Unit Capacity	: 38.50 MW each
Installed Capacity	: 111.0 MW
Annual Energy Generation	: 613.87GWh
T/L length, Voltage	: 10km, 132kV D/C to Chilime Hub

Electro-Mechanical Installation Works

The project is in the last stage of completion. Installation of electro mechanical equipment is in full swing. Tower erection and stringing works are ongoing. The project is scheduled to be completed by October 2023.

Chilime Seti Hydropower Company

The company was established in 2022 AD with the main objective of developing Seti Nadi-3 Hydropower Project in Bajhang district. Out of 51% of Promoter Share CHCL and NEA own 31% and 10% respectively, whereas 10% has been allocated to the Provincial and Local Government. Remaining 49% of shares will

be issued to the general public (33%), project affected people and people from Bajhang district (10%), TL affected people (3%) and staffs of Promoter (3%). The project features are as follows:

Type of Project	: PROR (1 hour storage)
Design flow	: 84.60 m3/s
Net Head	: 115.78 m
Number of Units	: 3
Installed Capacity	: 87 MW (3 x 29 MW)
Annual Energy	: 483.2 GWh
Transmission Line	: 12 km/220 kV SC to B jhang Substation

Headworks Location

As of the end of FY 2022/23, the detail feasibility study has been completed. The EIA report has been submitted to the concerned agency for approval. Land acquisition process is in the advanced stage. The rates of lands to be acquired have already been fixed as per the Land Acquisition Act, 2034 and the distribution of compensation amount is underway.

Chilime Engineering & Services Company Limited

Chilime Engineering and Services Company Limited (ChesCo) is promoted by Chilime Hydropower Company Limited with its 100% ownership to provide complete engineering and consulting services for the development of hydropower projects and other infrastructure works. The listing of the services and activities performed by ChesCo are as follows:

Feasibility & EIA Study

- Budhi Gandaki Prok Hydroelectric Project;
- Seti Nadi-3 Hydroelectric Project;
- Chumchet Syar Khola Hydroelectric Project; and
- Chainpur Seti Hydroelectric Project (Review & Update of FS).

Project Management and Construction Supervision

- Sanjen (Upper) and Sanjen Hydroelectric Project; and
- Tamakoshi V Hydropower Project.

Modernization and Rehabilitation

- Phewa Hydropower Station; and
- Rehabilitation of Chilime Hydropower Plant.

ChesCo has been providing services for the preparation of tender documents including technical specifications, drawings and the cost estimate for civil, hydro-mechanical and electromechanical works. Assistance is also provided during the tender evaluation stage. In addition, services for geophysical investigations-ERT, SRT, MAM and MASW and geotechnical investigation works-drilling/boring, coring works are being provided.

NEA Engineering Company Limited

NEA Engineering Company Limited, establishment on 13 July 2017, is serving its consulting services for the feasibility study, detail engineering design, environment and social safeguard study, review of the design and drawing, project management, project cost updating and financial analysis, construction planning and supervision of hydropower, transmission line and substation and other

infrastructure projects. The company is providing services in the wide range of disciplines such as civil, hydro-mechanical, electro-mechanical, geology and geo-technical, survey, environment and social safeguard etc. The major achievement of company in FY 2022/23 are as follows:

Study Completed Projects

- Detailed Engineering Design of four hydropower projects- Phukot Karnali (480 MW), Betan Karnali (439 MW), Kimathanka Arun (450 MW) and Jagdulla (106 MW);
- Field Investigation, Design, and Specification of Pre-Engineered Building at Lower Marsyangdi Power Plant;
- Design Review of Marsyangdi Hydro Power Station and Sunkoshi Marin Diversion Multipurpose Project;
- Review on study of Nalgad Storage Hydroelectric Project and Simbuwa Khola Hydroelectric Project;
- Field Investigation, Design and Bid Document Preparation of Bajhang-West Seti-New Attariya 400 kV DC Transmission Line Project;
- Detail Feasibility Study of Jhurjhure 132 kV Transmission Line and Substation Project;
- Detailed Engineering Design and Preparation of Tender Document for Upgradation of Balaju Substation; and
- Route Alignment Detailed Survey of Chobhar-Patan-Chapagaun 132 kV Double Circuit Transmission Line Project; and Thimi Balkumari 132 kV Double Circuit (Underground) Transmission Line Project.

Under Study Projects

- Construction Supervision of Upper Modi A Hydroelectric Project and Upper Modi Hydroelectric Project and Bheri Babai Diversion Multipurpose Project;
- Preparation of Master Plan of the Historical Electrical Museum Project at Pharping Hydropower Station Premises;
- Detailed Engineering Study and Tender Document Preparation of Jagdulla A Hydroelectric Project;
- Detailed Feasibility Study and Tender Document Preparation of Mugu Karnali Hydroelectric Project;
- Rehabilitation and Modernization of Trishuli Hydropower Plant (24 MW);
- Design and Supervision of Works of Hetauda Dhalkebar-Inaruwa 400 kV Transmission Line, 220/132 kV Hetauda and Inaruwa Substation and Hetauda-Bharatpur 220 kV Transmission Line Project;
- Kathmandu Valley Transmission System Reinforcement for 2000 MW;
- Detailed Engineering and Environmental Study of Haitar-Sitalpati (Arun Corridor) 400 kV Transmission Line Project;
- Site Supervision of Transmission Line and Substation Works of Chilime-Trishuli 220 kV Transmission Line Project;
- Design Review, Contract Management/ Supervision of Grid Connected Solar Farm Project;

Transformer Erection Work at Inaruwa SS

The Environmental Study Projects

- EIA of Phukot Karnali, Betan Karnali, Kimathanka Arun and Jagdulla Hydroelectric Projects;
- Environmental Study of Kimathanka Arun–Arun Hub 400 kV Double Circuit Transmission Line Project;
- EIA of Ratmate-Rasuwagadhi-Kerung 400 kV Transmission Line Project;
- Environmental and Social Studies of

Distribution System Upgrade and Expansion Project (DSUEP);
- IEE of Jhurjhure 132 kV Transmission Line and Substation Project; and
- IEE Study of Main Transmission Line of Phukot Karnali PROR Hydroelectric Project.

Upper Tamakoshi Hydropower Limited

Upper Tamakoshi Hydropower Limited (UTKHPL) was established in 2007 AD for the construction and operation of Upper Tamakoshi Hydroelectric Project (UTKHEP). The project was completed and commissioned successfully in 2021 utilizing domestic financial resources. The majority shares (51%) of the company belong to Nepal Electricity Authority (NEA), Nepal Telecom (NT), Citizen Investment Trust (CIT) and Rastriya Beema Sansthan (RBS) with stakes of 41%, 6%, 2% and 2% shares respectively. The other shareholders of the company are general public (15%), residents of Dolakha district (10%), contributors in Employees' Provident Fund (17.28%), staffs of NEA and UTKHPL (3.84%) and staffs of debtor institutions (2.88%).

Upper Tamakoshi Hydropower Plant has delivered 1945.8 GWh of energy to NEA in FY 2022/23 in comparison to 1699.4 GWh in FY 2021/22. The Plant had supplied the peak power of maximum 456 MW in the morning and evening peak of the entire last dry season and contributed to the country's power sector by the substantial reduction of the power import from India in comparison to the previous dry seasons.

Rolwaling Khola Hydroelectric Project (RKHEP)

As the second stage development of UTKHEP, UTKHPL is implementing Rolwaling Khola Hydroelectric Project (RKHEP) with the installed capacity of 20.66 MW. The Company has obtained the Generation License on 03 April 2023, whereas the Environmental Impact Assessment (EIA) Report was approved on 29 June 2022. RKHEP is located in Bigu and Gaurishankar Rural Municipality of Dolakha District. The headworks and intake lie in Gaurishankar Rural Municipality about 6.5 km north east of UTKHEP powerhouse at Gongar. The powerhouse is located in Bigu Rural Municipality on the left bank of Tamakoshi River.

Apart from 105 GWh of annual energy generation from this power plant itself, an additional 212 GWh of annual energy will be generated from Upper Tamakoshi Hydropower Plant. The project will enhance dry season energy of UTKEHP and increase the peaking hours from 4 hours to 6 hours in the driest months. The contract agreement for first package was signed with SSCE-High Himalaya JV on 04 November 2022 with the total time schedule of 54 months. The Contractor has already mobilized to the site with necessary preparatory works. A total of 125 Ropanis land required for this project has also been acquired as of today.

Tanahu Hydropower Limited

Tanahu Hydropower Limited (THL) was established as a subsidiary company of Nepal Electricity Authority (NEA) on 25 March 2012 to develop Tanahu Hydropower Project. The project is a storage type hydropower project with the capacity of 140MW with an estimated average annual energy generation of 502.58 GWh. The project is situated on Seti river of Vyas municipality near Damauli, the district headquarters of Tanahun District. The reservoir will extend about 25 km upstream inundating the low-lying land along the Seti River. The project area covers 2 municipalities (Vyas and Bhimad) and 2 rural municipalities (Rhising and Maygde). The estimated cost of the Project is

US$ 505 million. The construction work of the project is going on in full swing through three different packages.

Package 1: Headworks

Under the Package 1 Contract, the Contractor Song Da Kalika JV (Vietnam-Nepal) has made a substantial progress in establishing the essential site facilities like batching plant, crushing plant, material testing laboratory etc. The Successful breakthrough of Diversion Tunnel 1 (in heading), Diversion Tunnel 2 (both in heading and benching) and Left Bank Access Tunnel has been achieved and the lining work in Diversion Tunnel 1 is in progress. Likewise, the excavation of dam abutments on both banks is ongoing, starting from the elevation of 545 m and progressing down to 420 m as of July 2023.

Excavation of Dam Abutment (Right Bank)

Package 2: Powerhouse, Waterways & Related Equipment

The Contractor Sino Hydro Corporation Limited, China completed the excavation including concrete lining of tailrace, draft tube tunnel and cable tunnel. The concreting of powerhouse and erection bay is being continued. The Contractor is currently working at 2 underground excavation fronts, namely, the surge tank shaft excavation and the headrace tunnel. Installation of draft tubes elbow and tailrace gate have been completed. Manufacturing and fabrication of hydro-mechanical like penstocks, tailrace gantry crane and electro-mechanical works like turbine stay ring and spiral casing are in progress.

Re-bar Installation Works in Powerhouse

Package 3: 220 kV Transmission Line

The Contractor for Package 3 Contract, KEC International, India has completed the construction of foundation of 66 towers out of 94 towers. The erection of 33 towers also has been completed. Land acquisition for tower locations is almost complete, whereas the forest clearance is yet to be started.

Consultancy Service Contract

The construction work of project is being supervised by Tractebel GmbH, Germany as the Project Supervision Consultant, while the environment and social monitoring work is being monitored by ELC Electro-consult, Italy.

THL signed contracts with individual members of the Panel of Experts (POE) for dam safety, environment and social safeguards on 17 December 2018. The Third Mission of POE included a site visit in November 2022. The visit was followed by a series of discussions on dam safety, environment and social issues.

The project is expected to be completed by the end of May 2026.

Lower Seti (Tanahu) Hydropower Project

THL envisages to develop Lower Seti Hydropower Project with an installed capacity of 126 MW with the utilization of regulated discharge of Seti River from the tailrace of Upper Seti (Tanahu) Hydropower Project in addition to the flows of Madi River. The headwork of the project lies about 24 km downstream from Damauli and the powerhouse site is located at about 1.5km downstream from the confluence of Seti River and Trishuli River.

The Consultant JV of WAPCOS India Limited and Nippon Koei, Japan was appointed for the detailed design of Lower Seti Project. Following the review report of the Panel of Experts (POE), the Consultant has submitted the revised detailed design report in September 2022. The EIA study including reservoir demarcation survey and land parcel identification works are progressing. So far, the Scoping Document and Terms of Reference of EIA study work have been approved by the MoFE. It is planned to conclude the additional works (geo-technical investigation and others) along with the EIA by the end of December, 2023. The project will commence the preparatory works like land acquisition, access roads/bridge etc. in the current FY.

Raghuganga Hydropower Limited

Raghuganga Hydropower Limited was established as a subsidiary company of NEA in 2017 AD to implement Rahughat Hydroelectric Project located in Myagdi district. The Project is a Peaking Run of River (PROR) scheme with the 6-hour peaking facility. It envisages to generate 40MW of power by diverting 16.67 cumecs of water through a headrace tunnel (HRT) and pressure shaft to a surface powerhouse located at the right bank of Kaligandaki River at Galeshwor, Myagdi which is about 300m upstream of the confluence of Raghuganga River with Kaligandaki River.

The Power Purchase Agreement (PPA) has been signed with NEA on 01 April 2019. Out of total estimated project cost of 81.89 MUSD, the project is being financed by the Government of Nepal and Nepal Electricity Authority along with the loan of 67 MUSD financed by Exim Bank of India under LOC-1 and LOC-2.

The Contract Agreement on EPC contract for Lot-1 -Civil & Hydro Mechanical Work was signed with M/S Jaiprakash Associates Limited, Noida, India on 21 November 2017 and the Notice to Proceed (NTP) was issued on 24 May 2018 after obtaining the concurrence from the EXIM Bank of India. Similarly, the Contract Agreement on Plant Design - Build form of Contract for Electro-Mechanical Works was concluded with M/S Bharat Heavy Electrical Limited, India on 15 October 2019. After getting the concurrence from the EXIM Bank, the Notice to Proceed (NTP) had been issued on 04 December, 2019. The Consulting Services Contract had been concluded with M/S WAPCOS LIMITED, India on 16 Feb 2012. The Consultant has been carrying out the reviews and approval of design/drawing submitted by the Contractors as well as construction supervision and project management of both major contracts.

Project Status and Progress

Lot 1: Civil and Hydro-mechanical Works

- Access road from powerhouse to headworks has been constructed, whereas retaining structures, cross-drainage works and side drain works are under progress.
- Headrace tunnel excavation and rock support works are under progress from different 5 faces with the completion of 4,800 m out of 6,270 m.
- Pressure shaft excavation and support

works are under progress with completion of 900 m out of 1050 m.

- The excavation and rock support works of 10m dia. surge shaft with well depth 61m has been completed and the concrete lining works is under progress.
- After completion of powerhouse excavation, RCC work of super structure has been completed up to the crane beam level.
- Concreting of spillway, under sluice and stilling basin is under progress with the completion of about 85% of total works.

Lot 2: Electro-mechanical Works

- Installation of earthing in Powerhouse was completed.
- Erection of lower pit liners has been completed.
- Prototype model testing of turbine was successfully completed.
- 70 Ton Double Girder EOT Crane for powerhouse has been erected for the final testing and commissioning.
- Design and manufacturing of various electromechanical components are in progress.
- 15 Ton Single Girder EOT Crane for Valve Chamber has been delivered at the site.

Headworks Construction Status

The project is expected to be completed by the end of December 2024.

Trishuli Jal Vidhyut Company Limited

Trishuli Jal Vidhyut Company Limited (TJVCL), a JV company of Nepal Electricity Authority (NEA) and Nepal Doorsanchar Company Limited (NDCL) was established in 2011 AD with the main objective of developing Upper Trishuli 3B Hydroelectric Project in Nuwakot and Rasuwa districts. Both NEA and NDCL have equal (30% each) equity shareholding in the Company. Rest of the equity share has been allocated to the general public, natives of Nuwakot and Rasuwa districts, local governments of Nuwakot and Rasuwa districts, employees of NEA and NDCL among others.

Upper Trishuli 3B Hydroelectric Project (UT3BHEP) is a Run of River type Cascade Project with an installed capacity of 37 MW. The Project will utilize the water coming out of the tailrace tunnel of Upper Trishuli 3A Hydroelectric Project. A Headpond is being constructed at the outlet of the upstream project to divert the water through the approach pressure conduit towards the headrace tunnel of the UT3BHEP. The power produced by the project will be evacuated to the under construction Trishuli 3B Hub Sub-station through 3 km long 132kV transmission line. Though the construction of UT3BHEP has been initiated since March 2018, the project is facing significant delays due to the impact of Covid-19 and the continuous encountering of poor geological condition in the HRT. M/S Shuifa ANHE Group Co. Ltd., China is the EPC Contractor for all three components of the project.

HRT Invert Concreting

Powerhouse & Tailrace Section

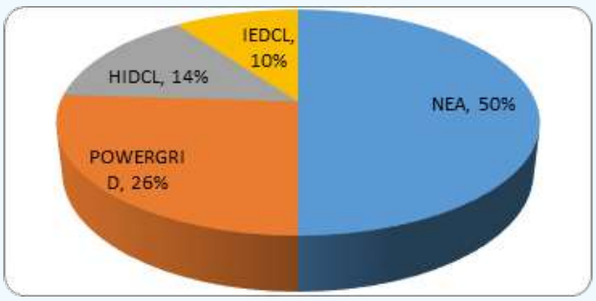
Following are the highlights of the major work completed till the end of FY 2022/23:

- About 90% concreting of the Approach Pressure Conduit and Head pond has been completed.
- About 93 % of HRT excavation with temporary support has been completed.
- After the completion of excavation, about 30% of concrete lining of Surge Tank Shaft has also been completed.
- Excavation with temporary support of Penstock Vertical Shaft and Horizontal Portion has been completed.
- After the completion of excavation with slope support, about 35% structural concreting of Powerhouse has been completed.
- About 70% structural concreting of Tailrace Conduit has been completed.
- About 95% of HM/EM related design has been completed.
- Draft tube installation has been completed.
- Manufacturing of Powerhouse Crane, Main Inlet Valve, Governor and Penstock has been completed and delivery is under progress.

The overall physical progress of the project till date is 70%. As per the latest updated construction schedule, the project is expected to be completed by September 2024.

Power Transmission Company Nepal Limited

PTCN a Joint Venture Company of Nepal Electricity Authority (NEA), Power Grid Corporation of India Limited, Hydroelectricity Investment and Development Company (HIDCL) and IL&FS Energy Development Company Limited, India (IEDCL) was established in 2007 A.D with the main objective of developing high voltage transmission interconnection system between Nepal and India. The Authorized and Paid up Capital of the Company is 450,000 MNPR. The shareholding pattern of the Company is reflected as follows:



PTCN has successfully constructed 42.1 km long of Dhalkebar-Mujaffarpur 400kV Double Circuit Transmission Line lying within the Nepalese territory. The line, which was initially charged at 132kV voltage level under contingency arrangement, has been finally charged to 400 kV level with effect from 11 November 2019 and the entire line from Muzaffarpur to Dhalkebar is running satisfactorily at 100% availability till now. The total energy import & export Via Dhalkebar 400 kV Substation through DM Line during FY 2022/23 was 584.3 GWh and 1,159.2 GWh respectively.

The annual turnover and profit after Tax of PTCN during FY 2022/23 is 329.4 MNPR and 133.3 MNPR respectively. PTCN has distributed 18% dividend to its shareholders and NEA has received NPR 40.5 MNPR as a dividend during this year.

Tamakoshi Jalvidhyut Company Limited

Tamakoshi Jalvidhyut Company Limited (TKJVC) has been registered in the Company Registration Office for development of Tamakoshi V Hydroelectric Project (TKVHEP) in a company model. The Generation License of TKVHEP has been transferred from NEA to TKJVC in 2017 AD. The Supplementary Environment Impact Assessment (SEIA) of the project has been approved from the Ministry of Forest and Environment (MoFE) to increase capacity from 87 MW to 99.8 MW.

Tamakoshi V Hydroelectric Project (TKVHEP) is a cascade development of the Upper Tamakoshi Hydroelectric project (UTKHEP) developed by Upper Tamakoshi Hydropower Limited, with tandem operation. The project area is located in Bigu Rural Municipality of Dolakha district. The project will have an annual energy generation of 543 GWh. The water from the tailrace of UTKHEP will be diverted through the inter-connection system and conveyed to a 8 km long headrace tunnel, a 152 m high drop shaft, an underground powerhouse containing four Francis turbines, and a 404 m long tailrace tunnel, from where it is released into the Tamakoshi River at about 0.7 km downstream from the confluence of Tamakoshi River and Khare Khola at Suri Dovan. The status of project is as follows:

- The necessary land for the powerhouse area, permanent camp area, and adit tunnel has been acquired. Land acquisition for transmission tower is under process.
- The construction of inter-connection system between the tailrace tunnel of UTKHEP and the headrace tunnel of TKVHEP has been completed.
- Permanent camp facility at the project site, Jamune, is under construction. It has altogether 16 numbers of buildings and is expected to be completed within the mid of FY 2023/24.
- Power purchase agreement (PPA) has been signed between TKJVC and NEA on 30 November 2022.
- It has planned to implement the project in two packages namely (i) Contract-1: Civil and Hydro-Mechanical Equipment works and (ii) Contract-2: Electromechanical and TL works. After cancellation of the bidding process, the Re-bid for Contract-1 Civil and Hydro-Mechanical Works has been floated on 26 June 2023 in accordance with the Standard EPC Tender/Contract document published by Public Procurement and Monitoring Office (PPMO).

Under Construction Permanent Camp Facility

PPA between TKJVC and NEA

- A Contract Agreement with Dolsar Engineering Inc. Co. with CSPDR has been signed on 02 December 2022 for the Construction Management and Supervision of both packages.
- A Tripartite loan agreement has been signed between NEA, TKJVC and Employee Provident Fund (EPF) on 21 May 2023 for financing the project. The project is to be developed in 65:35 (Debt/Equity) modalities. As per the agreement, 65% of the project cost will be provided by EPF as the debt portion.

Upper Arun Hydroelectric Limited (UAHEL)

Upper Arun Hydro-electric Limited (UAHEL), established on 25 January 2017, is a Subsidiary Company of the Nepal Electricity Authority. The majority of the company's shares (68%)

are held by NEA, while the remaining 32% is owned by the public. UAHEL has been granted the Survey Licenses of Generation of Upper Arun Hydroelectric Project (UAHEP) and Ikhuwa Khola Hydropower Project (IKHPP). UAHEL has also acquired the Survey Licenses for two transmission lines to evacuate the power from UAHEP (400 KV DC) and IKHPP (132 KV) to the Haitar Substation.

Upper Arun Hydroelectric Project (UAHEP)

With an installed capacity of 1063.36 MW, including 2.36 MW eco-flow plant, UAHEP is a Peaking Run-of-River (PROR) located in Bhot Khola Rural Municipality of Sankhuawasabha District. It lies approximately 15 km south from Kimathanka near Nepal-China Boarder, and 200 km east of Kathmandu. UAHEP is one of five HEPs planned on Arun River, a tributary of the Saptakoshi River, which originates in Tibet, China and enters Nepal from Kimathanka at the Nepal-China border.

The Updated Feasibility Study was conducted by the Joint Venture of Changjiang Survey, Planning, Design and Research Co. Ltd, China with Sinotech Engineering Consultants, Ltd, Taiwan in association with Soil Test (P.) Limited, Nepal (CSPDR-Sinotech JV). The report reveals the project will have a year-round peaking capacity of 697 MW for six hours and an annual energy generation of 4,512 GWh with the design discharge of 235 m3/sec. The project comprises a 100 m high dam, a 8.4 km long headrace tunnel, a 20 m diameter surge tank, a 484 m high and 7.3 m diameter pressure drop shaft, a 39 m long penstock leading to six individual penstocks feeding six units of Pelton turbines in an underground powerhouse measuring 230.05 m×25.7 m×59.43 m in size. The estimated cost of the project is 1,749 MUSD. The power from UAHEP is proposed to be evacuated to the national grid through a 5.79 km long 400 kV DC Transmission Line to the proposed Haitar Substation.

The current status of project is as follows:

- UAHEP has issued the RFP for the procurement of an Owner's Engineer for the Tender Design, Preparation of Bidding Document, Construction Supervision, and Post Construction Services for the project. The procurement is at the final stage and the Engineer is expected to be on board by October 2023. The Hydro Lab, contracted for Physical Hydraulic Model Test has begun the preparatory works.
- The project has signed a Contract with Gayatri Projects Limited (GPL), India in JV with Kankai International Builders Pvt. Ltd, Nepal (KIBPL) for the Construction of Access Road on 12 March 2023. A Contract was signed with JV of KYONG DONG Engineering Co. Ltd., Korea & Nepal Consult (P) Ltd. in association Total Management Services Pvt. Ltd. for assignment of "Construction Supervision and Contract Management of Access Road Construction for UAHEP" on 10 April 2023. Both the Consultant and the Contractor for the access road have been mobilized to the site and the initial preparatory works are ongoing.
- The contracts for construction of Employer's Camp facilities (Phase I) was also signed on 9 May 2023.
- The Environmental Impact Assessment (EIA) for the Access Road and Environmental and Social Impact Assessment (ESIA) of the project have been completed except two minor supplemental studies following the WB's ES Framework. The EIA of the project in compliance to GON's requirement is under final review by the Department of Electricity of Development (DOED).
- The Free, Prior and Informed Consent (FPIC) was achieved for the project from the local indigenous communities on 11 December 2022. A five-year Indigenous People's Plan (IPP) has been finalized and the guidelines for its implementation have also been recently formulated. This is the first project, for which, the WB implemented FPIC under the new

Environmental and Social Framework.

- As an initiative for the early implementation of the project, the project has completed land acquisition and the resettlement of the affected people is also at an advance stage. The request for tree cutting permit is under the final review by MOFE.

Camps for Access Road Construction

International Lender's Conference at MOF

The financing for the project will be arranged through a debt-to-equity ratio of 70:30, with the 70% of debt to be provided by Multilateral Development Banks (MDBs), Development Finance Institutions (DFIs), and Domestic Lenders (DLs). The equity will be raised by NEA, the public, employees of qualifying institutions, and other participating stakeholders including Koshi Province and the Local Government at Project site. The project is also part of the GoN's flagship program, "Nepal ko Paani, Janta ko Lagaani Program," aimed at ensuring the participation of all citizens of Nepal in hydropower development. The World Bank is keen on leading the Consortium of International Lenders for financing the project and HIDCL will lead the Consortium of domestic financiers for debt financing.

The main works of the project are planned to commence by the mid of 2025 with the expected commissioning by the end of 2031.

Ikhuwa Khola Hydropower Project

UAHEL is also developing the Ikhuwa Khola Hydropower Project (IKHPP), a Run-of-River Hydropower Project with an installed capacity of 40 MW. The feasibility study was conducted by Joint Venture of CSPDR-Sinotech. The proposed powerhouse site is about 2.2 km from the nearest road head of Koshi highway which passes along the left bank of Arun River near Uwa Gaun. The access road consists of 2.03 km long road and one bridge of 80m length. The headworks site can be reached by constructing about 13km long project road along the right bank of Ikhuwa Khola from the powerhouse site. The power from IKHPP is planned to be evacuated to the national grid by the construction of 2.3 km long 132 KV single circuit transmission line to the proposed substation at Haitar, Sankhuwasabha. A national Consultant, Chilime Engineering and Services Company Limited (CHesCo), has been entrusted for the responsibility of all preparatory works of the project implementation including both technical and environmental and social studies.

Modi Jalvidyut Company Limited

Modi Jalvidyut Company Limited (MJCL), a Subsidiary Company of Nepal Electricity Authority is established to implement two projects, Upper Modi A Hydroelectric Project (UMAHEP) of the installed capacity 42 MW and Upper Modi Hydroelectric Project (UMHEP) of the installed capacity 18.2 MW. MJCL has been carrying out all project activities since September 2021. Both projects are located about 250 km west of Kathmandu in Annapurna Rural Municipality of Kaski District.

The Detailed Engineering Design and Bidding Documents for both projects had been prepared by AF-Consult, Switzerland in September 2020. The Generation License for UMAHEP and UMHEP has been acquired from the DoED. Similarly, Environmental Impact Assessment (EIA) of UMAHEP, Supplementary EIA report for

UMHEP and IEE report for transmission line has been approved. Power Purchase Agreement for UMAHEP has been signed on 26 June 2023 and the financial closure with the Consortium of NMB Bank and HIDCL is in the final stage.

The bid for the construction of civil and hydro-mechanical works (Lot-1) under the EPC contract was invited in 2022 AD. However, none of the bidders has been qualified in the technical bid evaluation and the bidding process was cancelled. After modification of work packages and scopes, the bid has been again invited in July 2023.

Upper Modi A Headworks Area

The total private land to be acquired for UMAHEP and UMHEP is about 196 Ropani and 57 Ropani respectively. Till date, about 212 ropani of land for both projects has been acquired and the remaining land shall be acquired soon. The permission to utilize all the government land required for the construction of Upper Modi Hydroelectric Project has been obtained from the Government of Nepal.

Camp Facility Construction Work in Syauli Bazar, Ghandruk for both projects is under progress and till now about 40% of the physical progress has been achieved. The entire work of camp construction is expected to be completed within the next FY.

Uttarganga Power Company Limited

Uttarganga Power Company Limited, established on 30 March 2017, as a Subsidiary Company of NEA, has undertaken the study of Uttarganga Storage Hydroelectric Project. A Survey License for Generation was received for conducting Feasibility Study for 300 MW in FY 2015/16, which was upgraded to 828 MW in FY 2017/18 after carrying out the optimization study. The Survey License of Uttarganga Storage Hydroelectric Project was transferred from NEA to Uttarganga Power Company Limited in 2017 AD. The application for Generation License was submitted to DoED and other related documents have been provided to DoED upon further query.

The project site is located about 400 km west of Kathmandu in Baglung district of Gandaki Province. The dam site is located at Gaba village in Uttarganga River. The dam site is accessible through a 48 km fair weather road from Burtibang Bazar, a part of which lies on the Saljhandi-Dhorpatan road. However, upgrading and realignment of certain parts will be required for proper utilization of the road for project construction.

Major components of the project include a 200 m high rockfill dam with sloping type intake, 8.51 km long headrace tunnel, circular restricted orifice type surge shaft and 5.2 m diameter penstock pipe. The tailrace cum construction adit of Powerhouse-1 has a length of 408 m, whereas the Powerhouse-2 tailrace has a length of 2,334 m. Both Powerhouses 1 and 2 are underground consisting of four units of vertical shaft Pelton turbines. The installed capacity of powerhouse 1 and 2 are 417 MW and 404 MW respectively. Tandem control arrangement is conceptualized between powerhouses 1 and 2 during its operation. A 65 km long 400 kV DC Transmission Line is proposed to evacuate the power to the proposed Uttarganga Hub in Rukum.

New Gauge Station near Dam Axis

The overall progress in FY 2022/23 is as follows:

- The Contract Agreement with Mahab Ghodss Consulting Engineering Company, Iran for "Review of Feasibility Study Report, Preparation of Detailed Engineering Design and Bidding Documents" was terminated on 06 January 2023. The documents are being prepared to re-invite the EOI for the above task.
- The final report of Environmental Impact Assessment (EIA) is under review by the Ministry of Forest and Environment, GoN.
- The final report of Geotechnical Investigation Works Phase II A and Phase III has been submitted by the Soil, Rock and Concrete Laboratory (SRCL).
- The reading of the staff gauge height is being taken throughout the year at the dam site and at the tailrace site of the project.
- Discharge measurement works have also been carried out at the regular interval.

Dudhkoshi Jalvidyut Company Limited

Dudhkoshi Jalvidyut Company Limited has been established as a Subsidiary Company of NEA for the implementation of Dudhkoshi Storage HEP. As part of the operationalization process, First Annual General Meeting (AGM) of the company has been conducted in June 2023. NEA has also initiated the process to transfer the Survey License of Generation to Dudhkoshi Jalvidyut Company Limited. The project is a storage type hydropower project with the total installed capacity of 635 MW. The proposed dam is located close to a settlement called Rabuwa on the bank of the Dudhkoshi River, which is about 140 km east from Kathmandu.

The major components of the project are a 220 m high Concrete Face Rockfill Dam (CFRD), a spillway (gated and labyrinth overflow) located in the left abutment, a 13.3 km long headrace tunnel, an underground powerhouse with an installed capacity of 600 MW and a surface powerhouse with an installed capacity of 35 MW located in the right abutment immediately downstream of the dam site to generate energy from the release of the environmental flow. An emergency spillway (Fuse Gates) at the left side of the main spillway has been proposed to ensure the safety of the dam in the event of spillway gate failure.

The annual energy production is 3,443 GWh, with an average energy production of 1,358 GWh in dry season and 2,084GWh in wet season. The power generated from the project will be evacuated by 400 D/C kV Transmission Line connecting to the Dhalekbar Sub-station. The public notice of land acquisition in Khotang and Okhaldhunga District has been published. A Sub-committee has been formed by the Compensation Determination Committee to determine the compensation rate of Khotang and Okhaldhunga districts. The land acquisition for project is expected to be completed by the end of FY 2023/24.

The Environmental and Social Studies of the project are being carried out in compliance with the ADB's requirements including the Free Prior Informed Consent (FPIC) of the local indigenous people. With the establishment of an Environment and Social Unit, the project has initiated the Environmental and Social Implementation Program for the project affected people. With the support from the project, local Municipalities have constructed about 2 Km road to the powerhouse and also completed the improvement and maintenance of about 18 Km access road to the dam site. The project will carry out Detailed Engineering Design of Public Access Road and one permanent bridge at dam site in FY 2023/24.

Drilling at Main Powerhouse

Indigenous People Consultation at Project Area

The total cost of the Project is currently estimated to be about 2200 MUSD with the financing cost. The project is expected to be funded through an optimal mix of sovereign and non-sovereign commercial loans and direct equity. The equity portion will be invested by the Government of Nepal (GoN) and NEA. ADB has committed to lead the arrangement of financing for the project along with European Investment Bank (EIB) and Asian Infrastructure Investment Bank (AIIB). A conformation has been received from the Ministry of Finance for applying approving sovereign loan of 1300 MUSD required for the implementation of project.

The detailed design of project including tender document is expected to be completed by the end of November 2023. The financial arrangement is expected to complete by the end of December 2024 and accordingly, the construction of the project is expected to commence from the start of 2025.

CENTRAL ACTIVITIES

Internal Audit Department

The Internal Audit Department is an independent organizational unit that is accountable for its work directly to the NEA Board and is functionally and organizationally distinct from the NEA's other units. It has a role to provide independent assurance so that the organization's risk management, governance and internal control processes are being operated effectively. The purpose, authority and responsibility of the internal audit activity is formally defined by the NEA's Financial Administrative Byelaws, 2068 and Internal Audit Guidelines. Guided by the Audit Committee and headed by the Director, the department is responsible for planning, executing, monitoring & evaluation of audit as per the organizational guidelines as well as Nepal Auditing Standards.

Divisions within Internal Audit Department are as folows:

Financial Audit	• Verification of the effectiveness and efficiency of i nternal control over the financial reporting process; and • Review of the internal processess, compliance with applicable laws, accounting standards, rules and regulations, organizational policies, propriety audit.
Technical Audit	• Audit of technical norms and standards, energy balance, preventive as well as breakdown maintenance, condition monitoring and electricity loss as per the guidelines available.
Management Audit	• Review of implementation of managerial plans, policies, procedures, and targets, procurement management, organizational structure, job analysis program, accountability and monitoring & evaluation.
Risk Management Audit	• Review of internal control from risk management point of view; • To evaluate whether there is a Risk Management Framework in place which can enable the risk management process to be carried out and developed in a comprehensive manner, whereby all significant risks are identified, evaluated, controlled, monitored and reported in accordance with best practice.

Audit Committee

NEA has formed a three member- Audit Committee, headed by a member of the NEA Board and two experts each from finance and energy sector. The roles of the audit committee are:

- Facilitating communication between the Board of Directors and the Internal and External Auditors;
- Facilitating the maintenance of the independence of the External Auditor;
- Providing a structured reporting line for internal audit and facilitating the independence of the Internal Auditor; and
- Monitoring the financial reporting process and effectiveness of the company's system of internal check, internal audit and risk management.

The department performs the aforesaid audits on the trimester, half yearly and annual basis and reports to the Audit Committee and the Managing Director of NEA. The Audit Committee holds the regular meeting and interactions for providing directions on matters related to audit. The audit coverage in FY 2022/ 23 are as follows:

Offices	Financial Audit	Technical Audit	Management Audit
Central Office	2	1	10
DCS Directorate	73	36	73
Transmission Directorate	58	48	48
Generation Directorate	14	7	10
Engineering Service Directorate	7	3	3
Project Management Directorate	29	18	18
Total	183	113	162

Apart from the existing roles, the department has planned to bring innovative efforts to revamp the internal audit function to contribute within and outside the department.

NEA Board Matters

NEA Board is the policy making body of Nepal Electricity Authority. The Honorable Minister of Energy, Water Resources and Irrigation Mr. Shakti Bahadur Basnet has been chairing the NEA Board since 07 April 2023. Prior to this, the then Honorable Minister of Energy, Water Resources and Irrigation Mrs. Pampha Bhusal (Till 24 December 2022) and Mr. Rajendra Prasad Lingden (17 January 2023 to 25 February 2023) chaired the NEA Board.

Mr. Dinesh Kumar Ghimire, Secretary, Ministry of Energy, Water Resources and Irrigation, has been representing as an officio member in the NEA Board since 03 November 2022 after the transfer of officio member Mr. Shushil Chandra Tiwari. Similarly, after the transfer of officio member Mr. Krishnahari Puskar, the Secretary (Revenue) of the Minister of Finance, Mr. Rameshor Dangal became the officio member of the NEA Board and after his transfer, Dr. Ram Prasad Ghimire is representing as an officio member of NEA Board from 13 January 2023. After the end of the tenure of Mr. Vishwa Prakash Gautam as a member of Board, Mr. Bharat Acharya has been representing as the member since January 2023. Mr. Rajendra Bahadur Chhetri, Mr. Bhakta Bahadur Pun, Mr. Kapil Acharya and Mr. Kul Man Ghising, as the Member Secretary, are other board members.
A total of 32 board meetings were held in FY 2022/2023.

Gender and Social Inclusion in NEA

In line with Nepal's constitutional focus and the national commitment on Gender Equality and Social Inclusion (GESI) in 2020, NEA has adopted the "Gender Equality and Social

Inclusion Strategy and Operational Guidelines" for mainstreaming GESI considerations within the organization. An implementation manual was developed with the support of the Asian Development Bank.

ADB, through the Technical Assistance (TA) 6526, has been assisting NEA in the institutionalization of GESI priorities throughout the institution and its operations and also supporting women and excluded groups to participate in NEA activities, use electricity with safety and efficiency as well as for income generating activities. A pro-poor and gender-responsive service delivery model was demonstrated in Madhesh Pradesh, for the productive use of energy, electric cooking and employment generation. This will contribute to the national goal of 100% electricity access to the certain extent and encourages the use of electricity by the poor and disadvantaged communities for the cooking purpose.

Energy Efficiency and Loss Reduction Department

The Energy Efficiency and Loss Reduction Department is dedicated to carry out a range of activities aimed at improving the efficiency of both the supply and demand sides of the electricity distribution system. This department has been actively participating, supporting, and collaborating with other Government Organizations, NGO & INGOs in developing and implementing energy efficiency policies and programs for the Government. Additionally, the department undertakes various tasks related to data collection, analysis and the reduction of technical and non-technical losses. These endeavors are executed through two divisions namely Energy Efficiency Division and Electricity Loss Reduction Division.

Energy Efficiency Division

Smart Street Light Projects

The Energy Efficiency Division primarily focuses on the implementation of Smart Street Light Projects. Under the purview of the National Street Light Promotion Project, which operates as a separate unit, successful completion and operation of Smart Street Light has been achieved in Lalitpur Municipality, Kankai Municipality, Belaka Municipality, Bhimeshwor Municipality and Bhimdutta Municipality. Presently, the project collaborates with 23 new local bodies and institutions for the development of this initiative. The implementation of smart street light is funded jointly by NEA and the respective Municipalities.

Smart Street Light in Lakeside, Pokhara

High Mast Light in Jawalakhel, Lalitpur

The adoption of smart technology in these projects facilitates a range of functionalities, including but not limited to automatic activation of lights after sunset, automatic deactivation after sunrise, optimal illumination during peak hours, dimming of light luminaires as required during the nighttime, software-based billing, data storage and centralized control and monitoring of individual or groups of lights from a central server.

Green Hydrogen-Green Ammonia Project Study

In a joint collaboration between Global Green Growth Institute (GGGI) and NEA, a feasibility study is being conducted to implement mutually

agreed technical activities for green hydrogen, ammonia and fertilizer production and in addition to identify the potential investment into this new sector in Nepal. The study will a preliminary assessment of green hydrogen and ammonia production in Nepal and further develop the national roadmap in the sector.

Electric Mobility Research and Development Activities

Energy Efficiency and Loss Reduction Department and Institute of Engineering (IOE), Tribhuvan University are in the process of signing a Memorandum of Understanding (MOU) to develop proper guidelines and policies for converting Internal Combustion Engine (ICE) vehicles into Electric Vehicles (EVs), as well as the establishment of a research lab at the IOE, Pulchowk for various research activities. The NEA Board has already decided to collaborate with the IOE for this purpose.

Electricity Loss Reduction Division

Electricity Loss Reduction Division under the Energy Efficiency and Loss Reduction Department plays a vital role for electricity theft control. The major responsibility of the division is monitoring and controlling the loss reduction activities of distribution centers.

Meter Bypass in Inaruwa DC

This division is conducting activities like the random as well as the planned inspection of energy meters and the field raid operation with the aim of additional revenue generation by controlling the electricity theft, pilferage, CT/PT outage, wrong MF calculation and energy meter connection. It also conducts the data download and analysis of TOD meter in co-ordination with the TOD section.

Hooking under Jaleshwar DC

In FY 2022/ 23, the division had set a target to inspect 210 numbers of TOD meter consumers and 1000 consumers with the whole current/ digital meters under different provincial offices.

Hooking in Simroungarh DC

During the period, 1,578 numbers of whole current/ digital meters were inspected, which is 57.8 % more than the set target and 261 numbers of TOD meters were inspected which is 24.3% more than the set target. The total energy recovered is 5,11,935 units amounting to NRs. 63,43,167.

ADMINISTRATION DIRECTORATE

Administration Directorate, headed by the Deputy Managing Director, plans, directs and monitors the functions of four different departments namely Human Resource Department, Recruitment Department, General Service Department and Legal Department. Each of these departments is headed by a Director. This Directorate also coordinates the activities of other Directorates and works as a focal point for the government and other oversight agencies in relation to administrative activities of NEA. It also circulates the decision made by the NEA Board and Managing Director for implementation.

Human Resource Department

Human Resource Department is responsible for planning, organizing, directing and controlling of policies related to human resource management consisting of job analysis, placement, transfer, training and development, staff welfare, disciplinary actions etc. Personnel Administration Division, Employee Welfare Division and Human Resource Planning and Development Section are supporting units of Human Resources Department.

As per the record of Personal Administration Division, the statistics of employed human resource till the end of FY 2022/023 is as follows:

Level	Service	Approved Position			Existing Situation		
		Regular	Project	Total	Permanent	Periodical/ Daily wages	Total
Managing Director		1	0	1	1	0	1
DMD (Level-12)	Technical/ Non-Technical	9	0	9	9	0	9
Officer Level (Level 6-11)	Technica	1276	113	1389	1205	0	1205
	Non-tech	597	23	620	584	2	586
	Total	1873	136	2009	1789	2	1791
Assistant Level (Level 1-5)	Technical	6081	0	6081	4356	117	4473
	Non-tech	3333	0	3333	2407	94	2501
	Total	9414	0	9414	6763	211	6974
Grand Total		11297	136	11433	8562	213	8775

The total numbers of approved position in NEA stands at 11,433 whereas the total permanent working staff by the end of FY 2022/023 remained 8,562. The vacant positions are in the process of recruitment via Public Service Commission. During the year under review, 369 employees got retirement, which comprises of the compulsory retirement of 269, the voluntary retirements of 36, the resignation of 43 and the death of 21 employees during their service period.

In FY 2022/23, Human Resource Department carried out following notable activities:

- Amendment of "Nepal Electricity Authority, Employee Term and Condition Bylaws 2075";
- Promulgation of "NEA annual day Organization and Management bylaws, 2079";
- Promulgation of "NEA Employee Loan and Financial Support Procedure, 2079";
- Initiation of Merit Based Placement System;
- Organization of all employees' profile and service log;
- Induction of Transfer Management Module; and
- Testing and extension of "Centralized e-Attendance" System in provincial and branch offices.

The Employee Welfare Division provided following facilities to the employees in accordance to NEA rules and regulations in FY 2022/23:

Descriptions	Types	Nos.	Amount (Rs.)
Grant	Natural Disaster	1	20,000
	Kaj Kiriya	247	25,70,000
Medical Insurance	Accidental	49	2,72,54,549
	Medical Treatment	858	4,19,65,139
Soft Loan	Social loan	293	14650000.00
	Medical Treatment Loan	313	1,56,50,000
	Electric Vehicle Purchase Loan	61	1,82,10,000
	House Maintenance Loan	224	4,48,00,000
	House/Land Purchase Loan I	921	46,05,00,000
	House/Land Purchase Loan II	5	50,00,000

The Human Resourse Planning and Development Section has completed following works in FY 2022/23:

Action	Descriptions
Review of Organization Structure and Permanent Position of NEA	A Sub-Committee is formed by NEA Board under the coordination of a Board Member.
Addition of Office Structure	Added one Revenue Counter at Gokarna Under Baneshwor Distribution Center
Addition of Permanent Position for New Office	Upper Trishuli 3A HEP-65 positions, Chameliya HEP-58 positions

Nomination for Post Graduates Study with NEA Scholarship	Electrical - 5, Civil - 1, Mechanical - 1 , MPA - 2
Pre-approval for Self- Financing Study	PhD - 5, Master - 5, Bachelor - 1
Grant for Study Leave under Self Finance Scheme	PhD - 5, Master - 4, Bachelor - 2
Nomination for Training, Conference, Workshop, Study Visit etc. abroad	67 Employees in 8 different programs
Nomination in National Level Work-shops, Trainings, Conference etc	399 Employees in 37 different programs
Review of Temporary Positions for Projects	1,601 Temp Position for 118 Projects including Transmission Line and substations etc
Nomination for Intern Students from Various Academic Institutions	Interned 886 students for 3 to 12 months from 55 Academic Institu-tions

General Service Department

General Service Department (GSD), responsible for the vehicle management, logistic support and security management activities, record keeping and safeguarding of related documents, provides necessary support to concerned offices. It also manages the land of NEA against encroachment and misuse. The department is also responsible for the event management, public relation and public grievance handling and regular publication of "Vidyut" magazine and Mandatory Publication (Swataha Prakashan).

In FY 2022/23, GSD carried out following notable activities to fulfill its responsibilities:

- Execution of GPS system for Vehicle Management;
- Installation of Deep Boring plant for reliable water supply to the corporate office; and
- Lodging and residing of the following grievances/complaints:

Sources of Grievances	Total Complains	No. of Settled Complains
Hotline Number (1150) and CRM (Consumer relationship management system)	45,094	44,684
Hello Sarkar	681	559
Social Media (Facebook Page, Twitter)	474	470
Email	89	87
Complain Box	6	1
Letter (By mail)	1	1
Total	46,285	45,742

Stakeholders can submit their complaints and give suggestions through the social media https://www.facebook.com/nepalelectricityauthority and https://www.twitter.com/hello_nea and through the Hotline Number 1150 for necessary action.

Recruitment Department

The Recruitment Department is responsible for the recruitment and promotion of human resources of NEA. The major functions under these responsibilities are to prepare and update syllabus, vacancy announcement & application collection as per the Public Service Commission's schedule and directions. The written exam is

conducted by the Public Service Commission and the rest of the activities such as interview, final result preparation and publication are functions of the Recruitment Department. Similarly, it performs staff promotion in accordance with the prevailing Employees' Service Bylaws.

During the year in review, 327 deserving candidates for different levels have been recommended for permanent services after completing the selection procedure, whereas 598 candidates are on the process of selection. Likewise, 481 employees of different levels were recommended for promotion to the higher level. Syllabus for all levels have been revised and updated. The online application and evaluation system hsa been applied in the recruitment process.

Legal Department

The Legal Department is responsible for all legal matters of NEA. It defends all legal cases of NEA in different Courts throughout the country and abroad. It provides legal advice/ suggestion to concerned offices of the NEA. The department has implemented a separate software for archiving the corresponding legal documents as well as the cases related to NEA in a digital format.

The Legal Department also involves in arbitration, legal drafting, bid evaluation, investigation, case study and negotiations. In FY 2022/2023, the department provided 155 numbers of legal advices to the different NEA offices. During the year, 337 number of cases were registered in different Courts for and against of NEA. The different Courts have finalized 172 numbers of cases of which 127 verdicts were in favor of NEA and 45 cases were against the NEA. The remaining 165 cases are under consideration for the Court judgment. Similarly, 14 disputes on various contract of NEA have been filed for the arbitration, of which 4 cases are in favor of NEA, 1 case is against NEA and 9 cases are yet to be decided. Most of the legal cases filed by industrial consumers related to the dedicated feeder tariff have been settled by different Courts in favor of NEA.

FINANCE DIRECTORATE

Finance Directorate (FD), led by the Deputy Managing Director, is responsible for all of NEA's financial operations. Core responsibilities include the managing revenue streams, maintaining accurate books, maintaining control on expenditures and handling the organization's finances. FD is also in charge of the corporate-level financial decision making, which includes the planning, control and monitoring of the budget. The Directorate is supported by two functional departments namely Account Department and Corporate Finance Department. Physical Verification and Valuation of Assets Project have been undertaken by this Directorate for the verification and revaluation of Property, Plant and Equipment (PPE). In addition, Finance Directorates undertakes the Institutional Strengthening Project for implementation of Revenue Management System (RMS) and Enterprise Resource Planning (ERP).

Operational Performance

The total available energy in FY 2022/23 is 12,369 GWh, which includes the NEA generation of 2,930 GWh, the NEA subsidiaries generation of 2,488 GWh and the IPP generation of 5,118 GWh. The total availability of energy has been increased by 12% as compared to the total available energy of 11,064 GWh in previous FY 2021/22. NEA has imported the energy of 1,833 GWh during the dry season. The total consumption inside Nepal has increased from 8,870 GWh in previous year to 9,358 GWh in FY 2022/23, whereas the total export has been increased by approximately from 493 GWh in previous year to 1,346 GWh in FY 2022/23. The above figures show a reduction in aggregate system loss, which decreased from 15.38% in previous year to 13.46% in FY 2022/23.

Number of Consumers

By the end of FY 2022/23, the number of customers has reached 5.14 million excluding the approximately 0.51 million consumers served by the Community Rural Electrification Program (CREP), to whom NEA sells power in bulk and provides the operational and management support.

The domestic consumers continued to account of 92.32 % of the total electricity consumers in FY 2022/23, whereas the industrial and other consumers accounted for 1.31% and 6.37%, respectively.

Revenue

NEA's gross sales revenue reached to 101,096 MNPR during FY 2022/23. The net revenue was 100,032 MNPR after a rebate of 1,064 MNPR, which was given to customers paying the Electricity Bill on time in compliance with the Electricity Collection Regulations. The net sales revenue has increased by 15% as compared to the previous year net sales revenue of 87,155 MNPR.

The income from other services has been slightly increased from 10,111 MNPR in previous year to 10,256 MNPR in FY 2022/23. The finance income has increased by 46.96% from 4,886 MNPR from the previous year to 7,180 MNPR in FY 2022/23.

Cost of Sales

The overall cost of sales of NEA has increased from 63,619 MNPR in the previous FY to 80,263 MNPR in FY 2022/23. All costs involved in the generation, transmission and distribution of electricity are included into the cost of sales. The expenditures for power purchase has risen from 48,045 MNPR in FY 2021/22 to 61,564 MNPR in 2022/23. The cost of generation amounted to 2,254 MNPR, while the cost of transmission amounted to 2,269 MNPR. The distribution cost has slightly increased from 11,047 MNPR in previous year to 11,540 MNPR in FY 2022/23. The royalty fee and power export service charge of 1,632 MNPR and 1,004 MNPR respectively have been added to the total cost of sales in this year.

Other Costs

The expected interest expense for FY 2022/23 is 6,252 MNPR, increased from 5,977 MNPR in FY 2021/22. Also, the total amount on depreciation & amortization of Property Plant & Equipment and Intangible Assets amounted to 8,789 MNPR in FY 2022/23, increased from 7,499 MNPR in FY 2021/22. The foreign exchange loss has been reduced to 1,124 MNPR in FY 2022/23 from 1,721 MNPR in FY 2021/22. A provision of 1,000 MNPR has been alocated in FY 2022/23 for long-term employee liabilities including gratuity, pension, medical facilities, insurance and accumulated leave under the employees' benefit plan scheme.

Profit & Loss

The total incomes and expenditures for this year amounted to 117,468 MNPR and 105,134 MNPR respectively. Consequently, the net profit after tax amounted to 12,334 MNPR. The retained earnings had a significant growth, rising from 24,765 MNPR in the previous year to 36,676 MNPR in FY 2022/23.

Other Non-Current Assets

Non-current assets include the Property, Plant, and Equipment (PPE), Capital Work In Progress (CWIP), investments, loans and advances at amortized cost. The majority of NEA's income-generating assets are made up of physical infrastructure. NEA added the gross amount of 18,747 MNPR in the property, plant and equipment through the completion of distribution system reinforcements, rural electrification projects, substations, transmission line and distribution line projects resulting the net amount 212,137 MNPR of property plant & equipment in FY 2022/23.

NEA invested in a wide range of projects related to power generation, transmission, and distribution. The net increase in CWIP was 47,496 MNPR, resulting to the amount of 187,727 MNPR in FY 2022/23. The Government equity and loans, foreign loans and grants and NEA's internal fund were among the sources of financing. However, the financial returns on investments are not materializing as expected because most of the funds are utilized in rural electrification, transmission line and substation and hydroelectricity projects.

Investments in subsidiaries, associates, joint ventures, and others amounted to 30,631 MNPR in FY 2022/23 including a fair value reserve of 5,043 MNPR as per NFRS till FY 2021/22. During this FY, 10,253 MNPR has been invested in subsidiaries, associated and other companies.

Current Assets

Current assets include inventories, trade receivables, prepaid advances and deposits, short term loans to subsidiaries, cash and cash equivalents and current tax assets. The current assets accounted to 110,823 MNPR by the end of FY 2022/23, which is 19% of total assets. Total trade and other receivables reached to 45,741 MNPR by the end of FY 2022/23 including 24,619 MNPR from industrial consumers and 6,012 MNPR from street light consumers.

The total trade receivables from industrial consumers, dedicated and trunk line dues has raised to 17,150 MNPR. Such consumers are refusing to pay the dedicated and trunk line tariff. NEA Board has given a relaxation to pay the dues in installments but such consumers have not paid the aforesaid outstanding dues till date. NEA has claimed 4,580 MNPR to the GoN against the COVID subsidy provided by GoN to the domestic consumers, which is yet to be received.

Non-Current Liabilities

The total amount of long-term borrowings from the GoN amounted to 218,972 MNPR in FY 2022/23, compared to 203,472 MNPR in FY 2021/22. NEA has received a loan of 320 MNPR and 22,488 MNPR from GoN and donor agencies respectively in FY 2022/23. NEA has repaid a debt amounting to 4,000 MNPR during FY 2022/23. Additionally, after conducting a thorough reconciliation of shares and loans with the GoN, an approximate loan of 8,600 MNPR has been converted into shares. Donors have committed additional financing of 41,545 MNPR in FY 2023/24 for financing of new and existing projects.

Current Liabilities & Provisions

Current liabilities include trade and other liabilities and short-term borrowings. Since NEA's internal cash generation is utilized for long term construction projects, all reflected short-term borrowings as per the loan agreement with the GoN have not been paid. Current liabilities by the end of FY 2022/23 accounted to 77,734 MNPR, which is 23% of total liabilities.

Equity

Equity includes the aggregate of share capital, retained earnings, and other reserves. NEA has received 11,464 MNPR as the share capital in FY 2022/23. NEA has reinvested its retained earnings into various generation, transmission and distribution projects in order to enhance the reliability of power system. As a result, NEA has not yet distributed any dividends. Donors have committed the grant of 1,300 MNPR in FY 2023/24 for enhancing the quality and reliability of power system.

Contribution to GoN Treasury

NEA has contributed to GoN Treasury total amount of 17,760 MNPR in current FY 2022/23, with includes royalties, interest, advance tax, loan, VAT and TDS amounting to 1,632 MNPR, 7,440 MNPR, 2,830 MNPR, 4,000 MNPR, 433MNPR and 1,858 MNPR respectively.

Accounts & Audit

The Accounts Department is responsible for the management of accounts, ensuring the confidentiality of financial records, preparation of financial statements, execution of statutory audits, resolution of irregularities and interaction with tax authorities etc. The final income tax assessment for FY 2017/18 has been concluded by the Large Taxpayer's Office (LTO) and the assessment for FY 2018/19 is currently in the final stage by the LTO. NEA Board periodically assesses the qualification of audits and instructs the management to resolve issues. The resolution of policy-related audit qualifications is being addressed by the management through the implementation of a time-bound action plan.

NEA is preparing consolidated financial statements in accordance with the Nepal Financial Reporting Standards (NFRS) from FY 2018/19. Three chartered accountants Mr. Suvod Kumar Karn, Mr. Madhu Bir Pandey and Mr. Jiwan Kumar Budathoki have been designated by the Office of Auditor General to carry out statutory audits for FY 2022/23. Under their direct supervision. NEA anticipates successfully concluding the audit within the designated timeframe by the Office of Auditor General for FY 2022/23.

NEA received an institutional rating of AA+ from ICRA Nepal Ltd in FY 2021/22. Currently, the surveillance activities for FY 2022/23 are being conducted. In the present year, NEA has

submitted the Financial Restructuring Plan III (FRP-III) to the Ministry of Energy, Water Resource & Irrigation (MOEWRI) with the aim of enhancing existing financial management and operating performance of NEA.

Centralized Financial Systems

The centralized payroll and pensions system has been successfully implemented from FY 2022/23 through the Centralized Payroll and Pension Project. This system allows for the central processing of payroll and pension activities. In preceding years, the decentralization mode required more than 300 budget centers to process more than 3,600 bank transactions per month for the income tax, payroll tax, provident fund, citizen investment trust, retirement payments and other staff deductions. However, in the current system, these deductions are consolidated into a single transaction for each category per month. Separate "A" class Commercial Banks have been selected for 5 years after national bidding procedure to handle the payroll and pension payments separately.

The Centralized Accounting Project, scheduled to commence in FY 2023/24, will enhance the existing accounting system as well as streamline the inventory system and centralize the existing Assets Management System (AMS). NEA is actively engaged in ongoing efforts to enhance its financial accounting and management decision support systems.

Institutional Strengthening Project (ISP)

NEA is currently undertaking efforts to modernize its diverse operational activities with the aim of enhancing the overall efficiency. NEA is engaged to enhance the effectiveness of its financial accounting and management decision support systems. The main objective of this project is to implement the Revenue Management System (RMS) and the ERP-based Integrated Financial Management Information System (IFMIS).

The contract agreement for the implementation of RMS was signed in January 2023 and is expected to be completed within 18 months. Furthermore, the procurement of a Project Management Consultant (PMC) for overseeing the implementation of IFMIS and RMS has been concluded in this FY.

Assets Verification & Valuation Project

The main objectives of project include the conducting physical verification of NEA assets and inventories, developing a database/register, valuation, recommending adjustments based on valuation and developing standard operating procedures/manuals for PPE and inventories in accordance with the NFRS. The Consultant have completed the physical verification and valuation of Property, Plant & Equipment and submitted the final report, which is under review.

Retirement Fund

The Retirement Fund oversees the operation and management of the Contributory Retirement Fund (RF) of NEA employees hired after 17 July 2006 as well as the Employees Security Fund (ESF) of all NEA employees. At the end of FY 2022/23, 6,144 and 7,894 employees were involved in the RF and ESF respectively. At the end of FY 2022/23, the total fund balance was 5,246 MNPR, of which 763 MNPR has been provided as loan to the contributors. Investments in Treasury Funds, Fixed deposits at banks and debentures amount to NRs. 27 MNPR, 2,161 MNPR and 2,567 MNPR respectively at the end of FY 2022/23. The Retirement Fund also makes retirement payments of NEA's staff from FY 2022/23.

Nepal Electricity Authority

Highlights of FY 2022/23

Description	FY 2023*	FY 2022	Increase/(Decrease)	
			Amount	%
Revenue				
Net Sales Revenue -Nepal (M.NRs.)	89,577	83,213	6,364	7.65
Net Sales Revenue Export(M.NRs.)	10,455	3,942	6,513	165.24
Total Revenue (M. NRs.)	**100,032**	**87,155**	**12,877**	**14.78**
Cost of Sales				
Generation Expenses (M. NRs.)	(2,254)	(1,795)	(459)	25.57
Power Purchase- Subsidaries (M. NRs.)	(10,001)	(9,114)	(887)	9.73
Power Purchase- IPPs (M. NRs.)	(32,119)	(23,493)	(8,626)	36.72
Power Purchase -India (M. NRs.)	(19,444)	(15,438)	(4,006)	25.95
Royalty (M. NRs.)	(1,632)	(1,702)	70	(4.11)
Transmission Expenses (M. NRs.)	(2,269)	(2,124)	(145)	6.83
Power Service Export Charge (M. NRs.)	(1,004)		(1,004)	-
Distribution Expenses (M. NRs.)	(11,540)	(9,953)	(1,587)	15.94
Total Cost of Sales	**(80,263)**	**(63,619)**	**(16,644)**	**26.16**
Gross Profit	**19,769**	**23,535**	**(3,766)**	**(16.00)**
Income from other Services (M.NRs.)	10,256	10,111	145	1.44
Personnel Expenses (Inc Retirement Benefits (M.NRs.)	(5,922)	(5,867)	(55)	0.94
General Administration & Operating Expenses (M.NRs.)	(500)	(486)	(14)	2.79
Depreciation and Amortisation Expenses (M.NRs.)	(8,789)	(7,499)	(1,290)	17.20
Net Operating Expenses (M. NRs)	**(4,955)**	**(3,742)**	**(1,213)**	**32.42**
Operating Profit (M. NRs.)	**14,814**	**19,794**	**(4,980)**	**(25.16)**
Finance Income (M. NRs.)	7,180	4,886	2,294	46.96
Finance Cost (M. NRs.)	(6,252)	(5,977)	(275)	4.59
Forex Gain/(Loss) (M. NRs.)	(1,124)	(1,721)	597	(34.70)
Impairment (Charge)/ Reversal (M.NRs.)	(1,000)	(1,015)	15	(1.45)
Other Non Operating Expenses (M.NRs.)	-	(5)	5	(100.00)
Share of Profit/(Losses) from JV/Associates (M.NRs)	(1,225)	(904)	(321)	35.57
Net Profit/(Loss) Before Tax(M. NRs.)	**12,393**	**15,058**	**(2,664)**	**(17.69)**
Total Available Electric Energy (GWh)	**12,369**	**11,064**	**1,305**	**11.80**
NEA Generation (GWh)	2,930	3,259	(329)	(10.10)
Purchased Energy (GWh) - Subsidaries	2,488	1,976	512	25.91
Purchased Energy (GWh) - IPPs	5,118	4,286	832	19.41
Purchased Energy (GWh) - India	1,833	1,543	290	18.79
Average Power Power Purchase Rate				
Average Power Purcahse Rate- (NRs./KWh)	6.52	6.16	0.37	5.96
Total Sales of Electricity (GWh)	**10,704**	**9,363**	**1,341**	**14.32**
Internal Sold/Utilized (GWh)	9,358	8,870	488	5.50
Exported Energy (GWh)	1,346	493	853	173.02
Average Sales Rate				
Average sales Price of Electricity Overall (NRs./kWh)	9.35	9.31	0.04	0.40
Others				
Peak Load Interconnected System (GWh)	1,870.46	1,747.53	123	7.03
Self Consumption (GWh)	11	38	(27)	(71.05)
Net System Losses (Percentage)	13.46%	15.38%	-1.9%	(12.50)
Number of Consumers	**5,118,234**	**4,765,148**	**353,086**	**7.41**

Note: *Provisional figures (Subject to audit)

Nepal Electricity Authority

Statement of Financial Position

Figures (NRs Million)

Particulars	2023*	2,022	2021	2020	2019	2018	2017	2016	2015	2014
Assets										
Non Current Assets										
Property, Plant and Equipment	212,137	202,179	165,586	157,384	125,977	112,985	90,341	88,521	86,439	84,239
Capital WIP	187,727	140,231	140,484	114,300	104,841	77,607	80,272	66,684	58,052	46,994
Goodwill and Intangible Assets	38	43	48	44	-	-	-	-	-	-
Investment in Subsidaries & Associates	30,631	20,378	34,915	20,768	20,387	37,793	33,741	21,755	17,551	12,288
Deposit	1,290	1,132	992	913	912	-	-	-	-	-
Loans and Advances measured at Amortised Cost **	39,472	37,343	31,154	26,539	24,130	1,132	663	651	625	657
Total Non Current Assets	**471,296**	**401,307**	**373,178**	**319,948**	**276,247**	**229,517**	**205,018**	**177,611**	**162,667**	**144,178**
Current Assets										
Inventories	19,093	10,499	10,421	11,931	9,483	7,544	4,218	3,376	3,170	2,859
Trade and other receivables	45,741	36,533	33,488	31,492	18,854	15,951	13,955	11,187	9,927	9,016
Prepaid, Advances and Deposits	11,195	11,037	11,610	6,625	2,127	3,507	3,700	3,153	3,158	2,988
Shorterm Loan	2,380	2,680	2,435	2,226	-	-	-	-	-	-
Investment in Fixed deposit	11,237	35,884	20,800	21,950	11,450	-	-	-	-	-
Cash and Cash Equivalents	10,997	17,143	22,767	19,328	27,097	34,495	24,824	15,362	10,622	6,122
Current Tax Assets	10,180	7,350	4,444	2,946	2,412	1,909	1,611	-	-	-
Total Current Assets	**110,823**	**121,125**	**105,965**	**96,498**	**71,423**	**63,405**	**48,309**	**33,078**	**26,877**	**20,984**
Total Assets	**582,118**	**522,432**	**479,142**	**416,446**	**347,670**	**292,922**	**253,326**	**210,689**	**189,544**	**165,162**

Particulars	2023*	2,022	2021	2020	2019	2018	2017	2016	2015	2014
Liabilities										
Trade and other liabilities	71,040	59,689	53,536	52,454	56,823	59,292	54,484	51,324	45,743	37,637
Short term Borrowings**	2,000	3,000	2,658	2,116	2,087	10,711	10,619	-	-	700
Other current Liabilities	4,694	4,319	3,933	3,756	-	-	-			
Total Current Liabilites	**77,734**	**67,009**	**60,128**	**58,326**	**58,910**	**70,003**	**65,102**	**51,324**	**45,743**	**38,337**
Total Liabilities	**343,430**	**316,080**	**286,610**	**262,307**	**221,773**	**207,538**	**191,189**	**184,681**	**163,999**	**138,982**
Long Term borrowings	218,972	203,472	179,283	163,737	133,917	109,550	100,063	111,304	98,253	82,692
Deferred tax Liabilities	5,275	5,275	7,176	3,891	2,244	2,040	2,598	693	693	693
Other Non Current Liabilities	41,449	40,324	40,024	36,353	26,701	25,945	23,426	21,359	19,309	17,259
Total Non Current Liabilites	**265,696**	**249,071**	**226,482**	**203,981**	**162,862**	**137,535**	**126,087**	**133,356**	**118,256**	**100,644**
Current Liabilties										
Equity										
Share Capital	195,029	175,337	161,438	140,960	128,440	102,438	82,411	58,528	49,275	44,511
Retained Earnings	36,676	24,765	11,064	4,489	(12,182)	(25,301)	(28,424)	(34,608)	(25,751)	(20,239)
Other reserves	6,984	6,250	20,030	8,690	9,639	8,247	8,150	2,089	2,022	1,909
Non Current Liabilites										
Total equity	**238,688**	**206,352**	**192,532**	**154,139**	**125,897**	**85,384**	**62,137**	**26,009**	**25,546**	**26,181**
Total Equity and Liabilites	**582,118**	**522,432**	**479,142**	**416,446**	**347,670**	**292,922**	**253,326**	**210,689**	**189,544**	**165,162**

* Provisional Figures (Subject to audit)

**Presented as per NFRS adjustments since 2017.

Nepal Electricity Authority

Statement of Profit & Loss

Figures (NRs Million)

Particulars	2023*	2022	2021	2020	2019	2018	2017	2016	2015	2014
Sales Revenue	100,032	87,155	70,859	71,293	66,613	55,358	46,796	31,824	30,169	28,206
Less: Cost of Sales										
Power Purchase Cost- IPPs	(32,119)	(23,493)	(17,901)	(20,554)	(14,772)	(13,132)	(11,084)	(7,115)	(7,307)	(7,849)
Power Purchase Cost- NEA Subsidaries	(10,001)	(9,114)	(1,124)	(1,141)	(1,170)	(1,138)	(1,197)	(1,163)	(1,155)	(1,128)
Power Purchase Cost- India	(19,444)	(15,438)	(21,821)	(13,425)	(22,954)	(19,861)	(16,052)	(14,054)	(10,748)	(8,065)
Other Cost of Sales	(18,699)	(15,574)	(15,439)	(15,012)	(14,408)	(13,773)	(12,493)	(10,145)	(9,353)	(8,997)
Total Cost of Sales	**(80,263)**	**(63,619)**	**(56,285)**	**(50,132)**	**(52,134)**	**(46,766)**	**(39,629)**	**(31,314)**	**(27,408)**	**(24,911)**
Gross Profit	**19,769**	**23,536**	**14,574**	**21,161**	**14,479**	**8,592**	**7,167**	**510**	**2,761**	**3,294**
Other Income	10,256	10,111	7,881	4,783	4,785	3,186	2,471	1,792	1,995	1,610
Personnel Expenses Including retirement benefits	(5,922)	(5,867)	(5,178)	(6,285)	(4,944)	(4,215)	(3,374)	(3,039)	(3,189)	(4,579)
General Administration Expenses	(349)	(299)	(258)	(245)	(270)	(219)	(237)	(144)	(134)	(150)
Depreciation and Amortisation Expenses	(8,789)	(7,499)	(6,326)	(5,339)	(4,852)	(4,210)	(3,755)	(3,554)	(3,471)	(3,297)
Other Operating Expenses	(151)	(188)	(102)	(181)	(57)	(87)	(67)	(52)	(58)	(48)
Operating Profit	**14,814**	**19,794**	**10,591**	**13,894**	**9,141**	**3,046**	**2,205**	**(4,487)**	**(2,097)**	**(3,170)**
Finance Income	7,180	4,886	3,907	5,337	4,807	3,522	2,436	1,458	1,122	547
Finance cost	(6,252)	(5,977)	(5,482)	(4,537)	(3,985)	(3,283)	(3,546)	(5,080)	(4,670)	(4,235)
Other gains/(losses)/Forex	(1,124)	(1,721)	(225)	(228)	(9)	(278)	411	(746)	523	53
Impairment (Charge)/ Reversal	(1,000)	(1,015)	(2,552)	(1,139)	(172)	(30)	-	-	-	-
Other Non-operating expenses	-	(5)	(6)	(2)	(11)	(31)	(3)	(34)	(8)	(3)
Share of profit from investment in JV/Associates	(1,225)	(904)	39	41	68	29	-	-	-	-
Profit before income tax	**12,393**	**15,058**	**6,272**	**13,366**	**9,838**	**2,975**	**1,502**	**(8,890)**	**(5,130)**	**(6,808)**
Income Tax expense	(59)	(62)	(66)	(44)	(36)	(79)	-	-	-	-
Deferred Tax (Charge)/Reversal	-	(1,625)	(107)	(1,568)	9	543	-	-	-	-
Profit from discontinued operations(attributable to NEA)										
Profit for the period	**12,334**	**13,371**	**6,099**	**11,754**	**9,811**	**3,439**	**1,502**	**(8,890)**	**(5,130)**	**(6,808)**
Profit from continuing operations	**12,334**	**13,371**	**6,099**	**11,754**	**9,811**	**3,439**	**1,502**	**(8,890)**	**(5,130)**	**(6,808)**

* Provisional Figures (subject to Audit)

Nepal Electricity Authority
Ratios

Particulars	2023*	2022	2021	2020	2019	2018	2017	2016	2015	201
Profitability Ratios										
Gross Profit Ratio	20%	27%	21%	30%	22%	16%	15%	2%	9%	12
Operating Profit Ratio	15%	23%	15%	19%	14%	6%	5%	-14%	-7%	-11
Net Profit Ratio	12%	15%	9%	16%	15%	6%	3%	-28%	-17%	-24
Liquidity & Turnover Ratio										
Current Ratio	1.43	1.81	1.76	1.65	1.21	0.91	0.74	0.64	0.59	0.5
Quick Ratio	1.18	1.65	1.59	1.45	1.05	0.80	0.68	0.58	0.52	0.4
Interest Coverage Ratio	3.78	4.57	3.09	4.24	3.51	2.21	1.68	-0.18	0.29	0.0
Total Assets Turnover Ratio	0.19	0.17	0.15	0.17	0.19	0.19	0.18	0.15	0.16	0.1
Efficiency										
Inventory Turnover Ratio	4.20	6.06	5.40	4.20	5.50	6.20	9.40	9.27	8.65	8.7
Inventory Days	87	60	68	87	66	59	39	39	42	4
Accounts Receivable Ratio	2	2	2	2	4	3	3	3	3	
Accounts Receivable Days	167	153	172	161	103	105	109	128	120	11
Accounts Payable Ratio	1.13	1.07	1.05	0.96	0.92	0.79	0.73	0.61	0.60	0.6
Cash Turnover	4.50	1.64	1.63	1.73	1.73	1.60	1.89	2.07	2.84	4.6
Leverage & Solvency										
Debt to Equity	0.93	1.00	0.94	1.08	1.08	1.41	1.78	4.28	3.85	3.1
Debt to Capital	0.48	0.50	0.49	0.52	0.52	0.58	0.64	0.81	0.79	0.7
Rates of Return										
Return on Equity	5%	6%	3%	8%	8%	4%	2%	-34%	-20%	-26
Return on Assets	2%	3%	1%	3%	3%	1%	1%	-4%	-3%	-4

Significant Accounting Policies and Explanatory Notes

For the year ended Ashad 31, 2080 (July 16, 2023)

1. CONSTITUTION AND OWNERSHIP

Nepal Electricity Authority ('NEA') was incorporated on Bhadra 1, 2042 (16 August, 1985) under the Nepal Electricity Authority Act, 1984, through the merger of the Department of Electricity of Ministry of Water Resources, Nepal Electricity Corporation and related Development Boards. The merger was necessitated to remedy the inherent weaknesses associated with these fragmented electricity organizations with overlapping and duplication of works, and became necessary to achieve efficiency and reliable service.

The principal objectives of NEA include generation, transmission and distribution of adequate, reliable and affordable electric power by planning, constructing, operating such facilities in Nepal's power system both interconnected and isolated.

2. SIGNIFICANT ACCOUNTING POLICIES

2.1 Basis of preparation of Financial Statements

The financial statements of the NEA, which comprises Statement of Financial Position, Statement of Profit or Loss & Other Comprehensive In- come, Statement of Cash Flows and Statement of Changes in Equity have been prepared in accordance with Nepal Financial Reporting Standards ("NFRS") issued by the Accounting Standards Board Nepal, which are materially in conformity with International Financial Reporting Standards ("IFRS") issued by the International Accounting Standards Board (IASB).

a. The figures for the previous year are rearranged and reclassified wherever necessary for the purpose of comparison.
b. Appropriate disclosures are made for the effect of any change in accounting policy accounting estimate and adjustment of error.
c. The financial statements are prepared, generally, on accrual basis. However, some items are accounted on a cash basis, for practical reasons. Management has adopted such practice due to impracticability for recognizing those items on accrual basis and the impact of those items are not material.
d. Management has applied estimation while preparing and presenting financial statements. Such specific estimates are disclosed in individual section wherever they have been applied.
e. The NEA's management has made an assessment of NEA's ability to continue as a going concern and is satisfied that NEA has the resources to continue in business for the foreseeable future. Furthermore, the management is not aware of any material uncertainties that may cast significant doubt upon the NEA's ability to continue as a going concern.

2.2 Functional and Presentation Currency

Items included in the financial statements of the NEA are measured and presented using the currency of the primary economic environment in which NEA operates (the functional currency), which is the Nepalese Rupees (indicated as Rs. in short).

2.3 Property, Plant and Equipment

Recognition

Property, plant and equipment are tangible items that are held for use in the production or supply of services, for rental to others or for administrative purposes and are expected to be used during more than one period. Property, plant and equipment are recognized if it is probable that future economic benefits associated with the asset will flow to the entity and the cost of the asset can be measured reliably. NEA applies the requirements of the Nepal Accounting Standard - NAS 16 (Property, Plant and Equipment) in accounting for these assets.

Initial Measurement

An item of property, plant and equipment that qualifies for recognition as an asset is initially measured at its cost. Cost includes expenditure

that is directly attributable to the acquisition of the asset and cost incurred subsequently to add and replace part of an item of property, plant & equipment. The cost of self-constructed assets includes the cost of materials and direct labor, any other costs directly attributable to bringing the asset in working condition for its intended use and the costs of dismantling and removing the items and restoring the site on which they are located. Purchased software that is integral to the functionality of the related equipment is capitalized as part of such equipment. When parts of an item of property or equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Subsequent Measurement Cost Model

Property, Plant and equipment are stated at cost less accumulated depreciation and accumulated impairment in value. Such cost includes, cost of replacing part of the equipment when that cost is incurred, if the recognition criteria are met.

Revaluation Model

Revaluation model is applied for class of assets instead of particular assets. On revaluation of relating to the same class asset, which was charged to the Statement of Profit or Loss. Any decrease in the carrying amount is recognized as an expense in the Statement of Profit or Loss or debited to the Other Comprehensive income to the extent of any credit balance existing in the capital reserve in respect of that class of asset. In the case of reversal, the increased amount is recognized as income to the extent of previous written down value.

2.4 Depreciation/Amortization

Depreciation is provided on property, plant and equipment, except land, on straight-line method, based on the estimated useful lives of those assets. The rates of depreciation applied on property, plant and Equipment are as follows:

Assets Category		Depreciation Rate (per annum)
(a)	Land	-
(b)	Buildings	2%
(c)	Hydro Electric Structures	2%-3%
(d)	Hydro Electric Plant & Machinery	3%
(e)	Internal Combustion on plant & machinery	2.5%
(f)	Transmission lines (66 KV, 132 KV and above)	3%
(g)	Transmission lines (33 KV)	3%
(h)	Transmission Substations	3%
(I)	Distribution system (including below11 KV Transmission lines)	3%-4%
(j)	Solar Power	3%
(k)	Meter & metering equipment	10%
(l)	Consumer Services	7%
(m)	Public lighting	3%
(n)	Vehicles, tools and instruments, furniture and fixtures.	20%
(o)	Office Equipment	15%
(p)	Miscellaneous properties	50%
(q)	Additions during the year	Proportionate basis

Carrying amount of property, plant and equipment is kept at minimum value of 1 Rupee and is not depreciated further an asset, any increase in the carrying amount is recognized in 'Other Comprehensive Income' and accumulated in equity, under capital reserve or used to reverse a previous revaluation decrease.

2.5 Capital Work in Progress (CWIP)

All expenditures in developing property, plant and equipment not yet completed or not ready to use are categorized as CWIP. The value of capital works-in-progress includes stock of materials, equipment lying in store or in transit for the purpose of use in the construction or development. It also includes the balances with contractors and suppliers for the value yet to be received. These are capitalized upon commissioning or identified as being ready to use. Provisions are made for impairment and obsolescence, if any, in the value of such CWIP.

2.6 Investments and Other Financial assets

Classification

NEA classifies its financial assets in the following measurement categories:

- Fair value through Profit or loss (FVTPL)
- Fair value through other comprehensive

income (FVTOCI).
- Amortized Cost

The classification depends on the entity's business model for managing the financial assets and contractual terms of the cash flows. For assets measured at fair value, gains and losses will either be recorded in statement of profit or loss or other comprehensive income. For investment in debt instruments, this will depend on the business model in which investment is held.

Measurement
At initial recognition, NEA measures financial assets at fair value, which are classified as FVTOCI and Amortized cost. Transaction costs of financial assets carried at FVTPL are expensed in the statement of profit or loss.

Debt Instrument
Subsequent measurement of debt instrument depends on the NEA's business model for managing the asset and the cash flow characteristics of the asset.

Equity Investment
NEA subsequently measures all equity investments in subsidiaries at fair value. NEA's management has elected to present fair value gains and losses on equity. Equity investment may be classified as per business model of NEA in either FVTPL if such equities are Held for Trading or In FVTOCI if such assets are classified as Available for Sales. Changes in the fair value of financial assets at FVTPL are recognized in the statement of profit or loss whereas changes in fair value of any equity investments measured at FVTOCI are adjusted through fair value reserve.

2.7 Inventories
a. Inventories include goods in hand being held for use, sale or as spares.
b. Inventories are valued at lower of cost or net realizable value, using the weighted average method.
c. Net realizable value is the sale price as estimated by the management in the ordinary course of business, less estimated costs, if any, necessary to make the sale. Further, provision for losses and obsolescence are made for those inventories\ identified by management as obsolete or otherwise.

2.8 Trade Receivables
Trade receivable are stated at carrying values except for those identified by the management as being doubtful on recovery. Such estimations for doubtful recovery are reviewed by the management for impairment testing and provided as impairment allowance in case of need of impairment.

2.9 Cash and Cash equivalents
Cash and cash equivalents are carried at cost. They include cash-in-hand, cash-in-transit (bank transfers and cheques in collection which are collected in the subsequent period), and short-term deposits with banks in the various forms of deposit accounts which may or may not bear interest, but which are not of the nature of investments. Provision for loss in lieu of shortage of cash and cash equivalents are made for, if any, in the value of such cash and cash equivalents.

2.10 Share Capital
Share capital amount received in the form of cash and cash equivalent from Government of Nepal are accounted as and when received. Such amount includes initial contribution made by Government of Nepal. Eligible amounts are capitalized as share capital such as interest during construction period, grant amount received from Government of Nepal and on behalf of Government of Nepal as per the decision of Government of Nepal (Council of Ministers). Amount reflected under share allotment suspense is also categorized as Issued and Paid up share capital. Related share issue expenses incurred, if any, are deducted from Share Capital.

2.11 Reserves

Non-revenue nature incomes are presented under reserves and surplus which includes capital reserve, general reserve, insurance fund, corporate social responsibility fund and accumulated profit or losses balance. Assets created by utilizing consumer contribution are recognized at gross value corresponding amount is recognized as consumer contribution as reserve.

2.12 Corporate Social Responsibility Fund

Corporate Social Responsibility Fund is created by setting aside one percent of net profits as per the provision of Industrial Enterprises Act.

2.13 Insurance Fund

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

2.14 Provision for Employees' Bonus

Provision for employees' bonus is made at the rate of 2% of net profits as per the provision of Electricity Regulations, 2050.

2.15 Borrowings

Borrowings are subsequently carried at amortized cost and any difference between the proceeds (net of Transaction costs) & the redemption value is recognized in the statement of profit or loss over the period of the borrowings using the effective interest rate method.

Further, borrowings that are due after 12 months from the date of the financial position are classified as non-current liabilities and those less than 12 months are classified as current liabilities.

2.16 Foreign Currency Loans

Liabilities on foreign currency loans at the year- end are converted into Nepali Rupees by applying prevailing year-end exchange rate. The gain / losses arising there from such transactions are recognized in Statement of Profit or Loss.

2.17 Sundry Creditors and Other Payables

Liabilities for creditors and other payables are carried at cost which is the fair value of the consideration to be paid in the future for the goods/services received, whether or not billed to the NEA.

2.18 Provisions

Provisions are recognized when the NEA has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and the reliable estimate of the amount can be made.

Recognition of Provisions involves substantial degree of estimation in measurement. Provisions are reviewed at the end of each reporting date and are adjusted accordingly to reflect the current best estimate.

2.19 Employee Benefits

Short-term obligations

Liabilities for wages and salaries, including non-monetary benefits that are expected to be settled wholly within 12 months after the end of the period in which the employees render the related service are recognized in respect of employees' services up to the end of the reporting period and are measured at the amounts expected to be paid when the liabilities are settled. The liabilities are presented as current employee benefit obligations in the Statement of Financial Position.

Other long- term employee benefit obligations

The liabilities for earned leave and sick leave are not expected to be settled wholly within 12 months after the end of the period in which the employees render the related service. They are therefore measured as the present value of expected future payments to be made in respect of services provided by employees up to the end of the reporting period using the projected unit credit method. The benefits are discounted using the market yields at the

end of the reporting period that have terms approximating to the terms of the related obligation. Re-measurements as a result of experience adjustments and changes in actuarial assumptions are recognized in statement of profit or loss.

The obligations are presented as current liabilities in the Statement of Financial Position if the entity does not have an unconditional right to defer settlement for at least twelve months after the end of reporting period, regardless of when the actual settlement is expected to occur.

Post-employment obligations

NEA operates the following post-employment schemes:

- Defined benefit plans such as gratuity, pension, insurance, leave, medical facilities etc.
- Defined contribution plans such as provident fund, retirement fund etc.

Defined Benefit Plan Obligation

The liability or asset recognized in the Statement of Financial Position in respect of defined benefit plans are the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by actuaries using the projected unit credit method.

Re-measurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognized in the period in which they occur, directly in other comprehensive income. They are included in retained earnings in the consolidated statement of changes in equity and in the Statement of Financial Position.

Defined contribution Plan

NEA pays defined contributions to publicly administered provident funds established as per prevailing laws in force. In addition to contribution to provident fund, for staff joining NEA from Shrawan 1st 2063 B.S., NEA has established equal contributory based approved retirement fund.NEA has no further payment obligations once the contributions have been paid. The contributions are accounted for as defined contribution plans and the contributions are recognized as employee benefit expense when they are due.

2.20 Grant–in-Aid and Contribution from Customer/ Local Authority

Grants-in-Aid received from the GoN or other agencies 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 depreciation is charged on such assets.

2.21 Contingent Assets and Liabilities

Contingent assets and liabilities are disclosed in respect of possible present obligations that have arose from past events but their existence can only be confirmed on occurrence or non-occurrence of one or more uncertain future events not wholly within the control of NEA and possibility of outflow of resources is not determinable. A contingent asset is disclosed, where an inflow of economic benefit is probable.

2.22 Revenue from Sale of Electricity

Revenue from sale of electricity is recognized at the time of raising bills to the customers as per the billing cycle on accrual basis. Revenue from the billing cycle date up to Ashad End (Mid-July) has been recognized and is shown at gross amount.

2.23 Rebate

NEA allows rebate in order to motivate consumers to pay their electricity bills earlier than given credit period and accounted for on cash basis.

2.24 Other Income

a. Interest on loan investments and rental income are recognized on accrual basis.
b. Dividend on investment in shares is recognized when right to receive has been established.
c. Revenue from other services, including services provided for Engineering Services, is recognized on cash basis.
d. Penalty chargeable on late commercial operation date (COD) under power purchase agreement (PPA) are accounted for on cash basis.
e. Surcharge on delayed payment etc. are accounted for on cash basis.

2.25 Cost of Sales

Cost of Sales includes cost of generation, power purchase, royalties to Government of Nepal, transmission and transmission service charges. Cost of generation includes cost directly attributable to generation of electricity of NEA's power plants including distribution expenses. Power purchase cost comprises power purchase from independent power producers and power imports. Royalties to Government of Nepal accounted as per the provisions of Electricity Act and Regulations. Transmission and transmission service charge involves costs that are directly attributable to transmission of power within NEA transmission networks and transmission service charges for cross boarder power transmission.

2.26 Distribution Expenses

Distribution expenses include cost that are directly attributable to distribution of power &expenses relating consumer services and expenses of community rural electrification expenses. Distribution expenses also includes maintenance of low voltage transmission lines and system operation costs also.

2.27 Taxes

a. Current tax

Current Tax is determined as the amount of tax payable in respect of taxable income for the year considering the applicable provisions of Income Tax Act.

b. Deferred tax

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 assets 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.

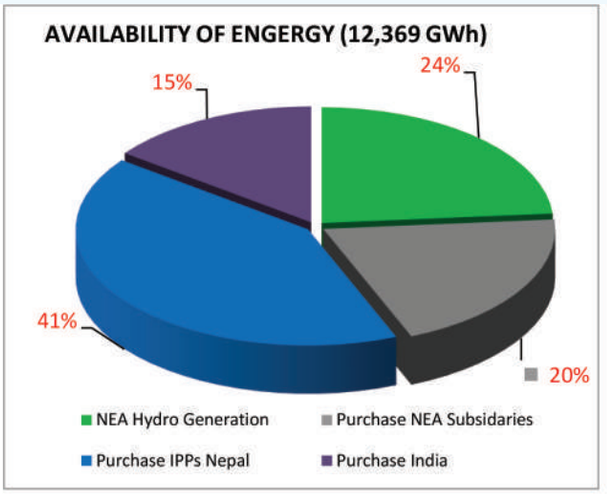
2.28 Finance Cost

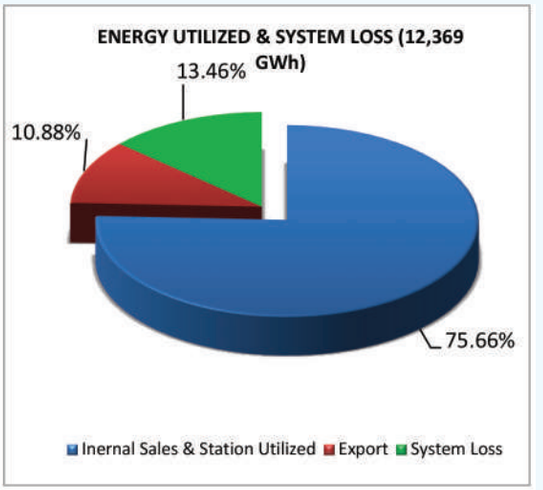
Finance costs include borrowing cost and other interest expenses & charges on borrowings. Borrowing costs that are directly attributable to the construction of a qualifying asset are included in the cost of that asset. Other interest & charges on borrowing are treated as an expense in the period in which it occurs.

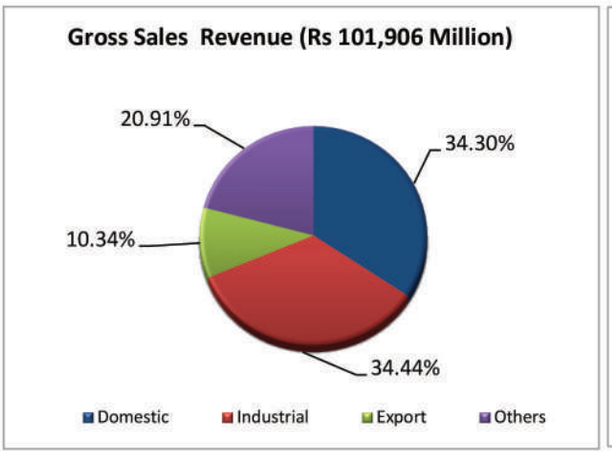
2.29 Foreign Currency Transactions

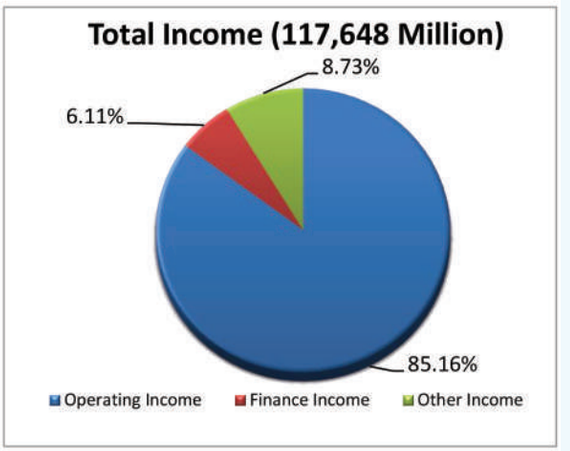
The transactions in foreign currency are recognized at the prevailing rate on transaction date. The balances of monetary assets and liabilities in foreign currencies are translated at closing rate. The resulting gain or loss due to the translation is taken to Statement of Profit or Loss.

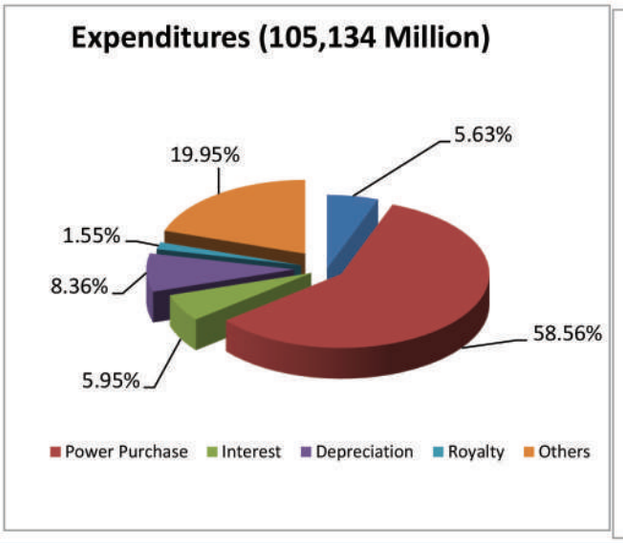
STATISTIC AND SCHEMTICS

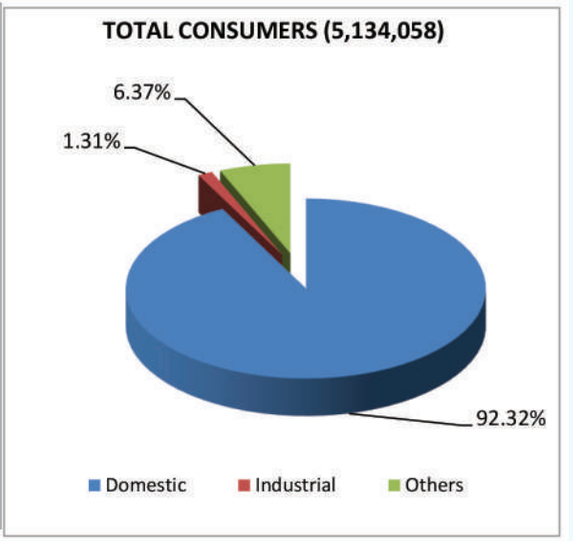






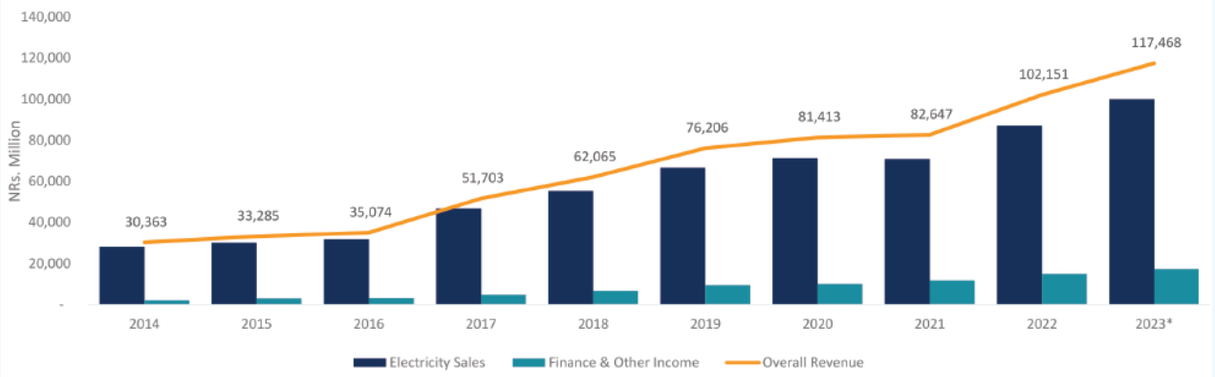




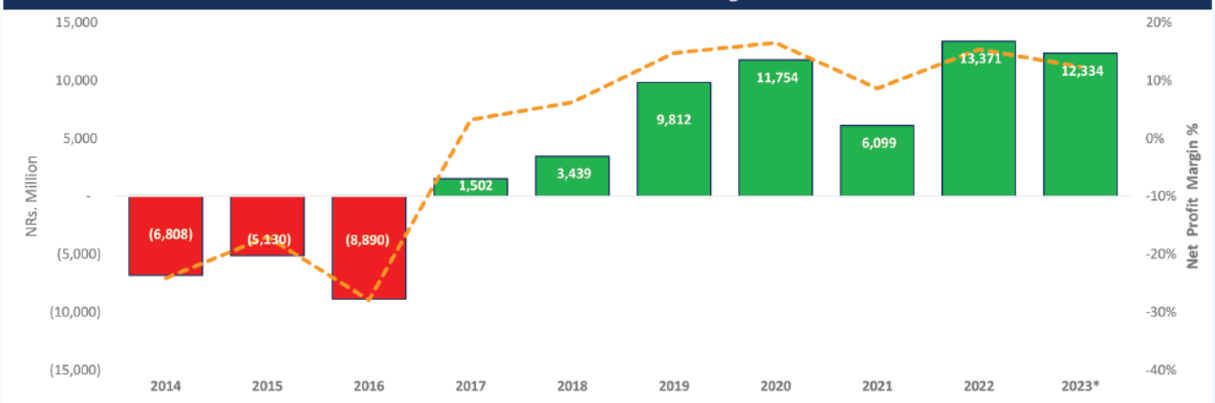


Financial Dashboard

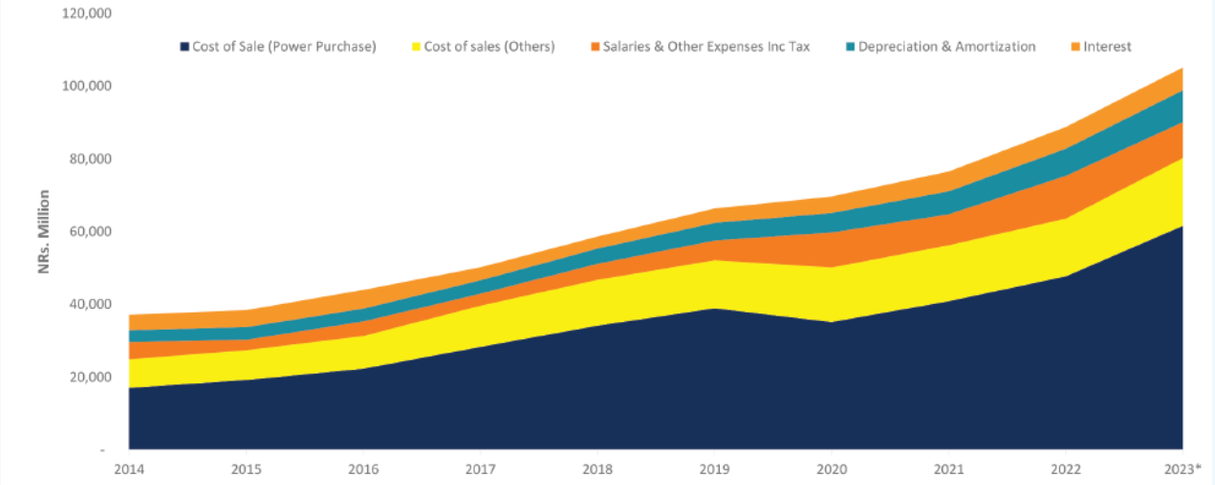
Overall Revenue Including Other Income



Profit & Loss & Net Profit Margin

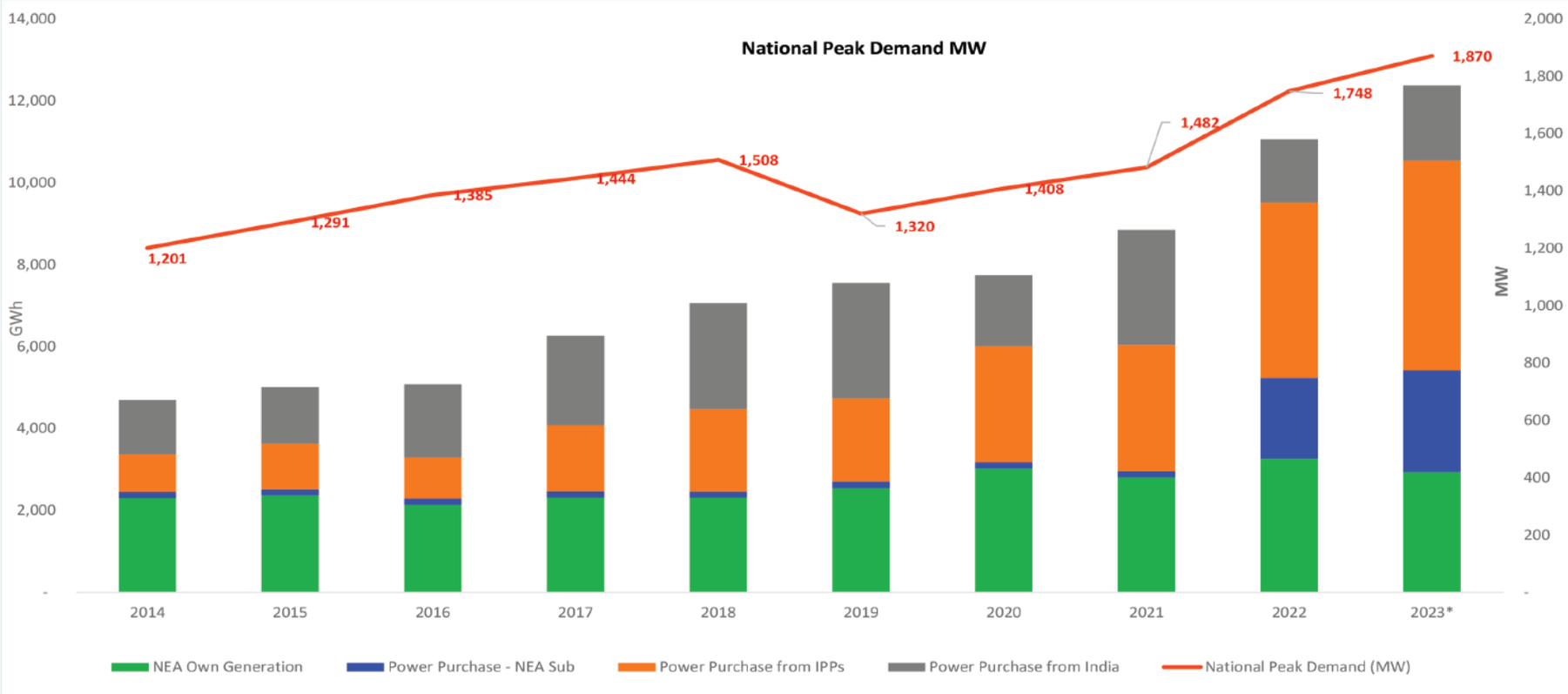


Expenses Breakup



* Provisional Figures (subject to final audit)

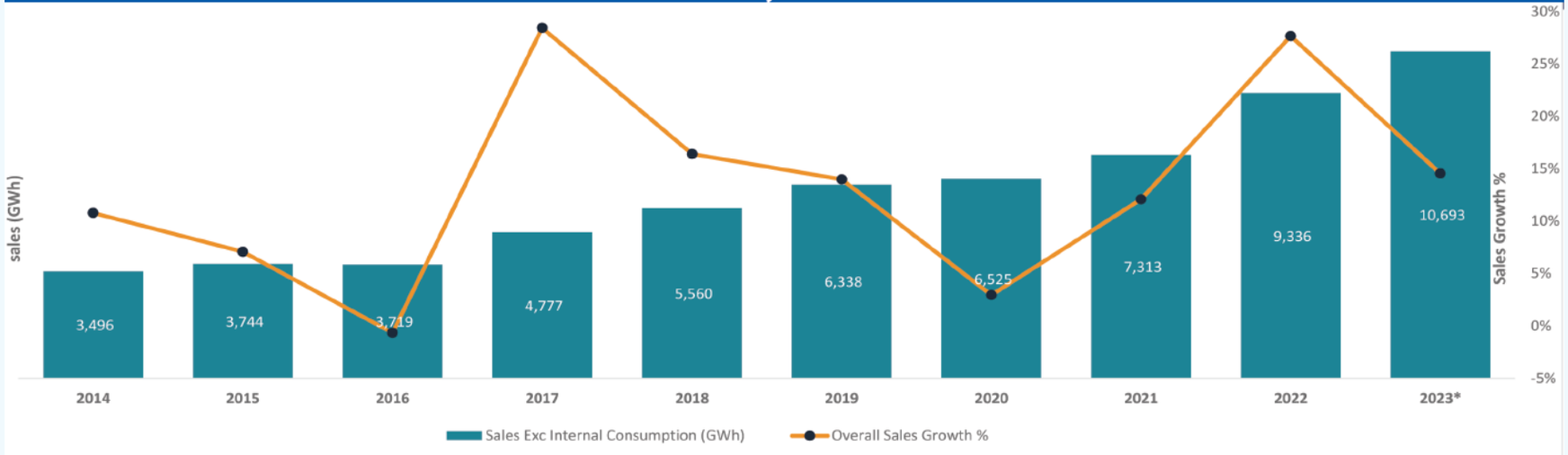
Total Energy Available & Peak Demand



Particulars	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Availability (GWh)										
NEA Own Generation	2,298	2,368	2,133	2,305	2,308	2,548	3,021	2,804	3,259	2,930
Power Purchase - NEA Sub	151	147	154	155	149	157	155	148	1,976	2,488
Power Purchase from IPPs	919	1,122	1,012	1,623	2,019	2,033	2,836	3,093	4,286	5,118
Power Purchase from India	1,319	1,370	1,778	2,175	2,582	2,813	1,729	2,806	1,543	1,833
Total Availability (GWh)	**4,687**	**5,007**	**5,077**	**6,258**	**7,058**	**7,551**	**7,741**	**8,851**	**11,064**	**12,369**
National Peak Demand (MW)	1,201	1,291	1,385	1,444	1,508	1,320	1,408	1,482	1,748	1,870
System Peak Demand Including Export (MW)									1,964	1,986

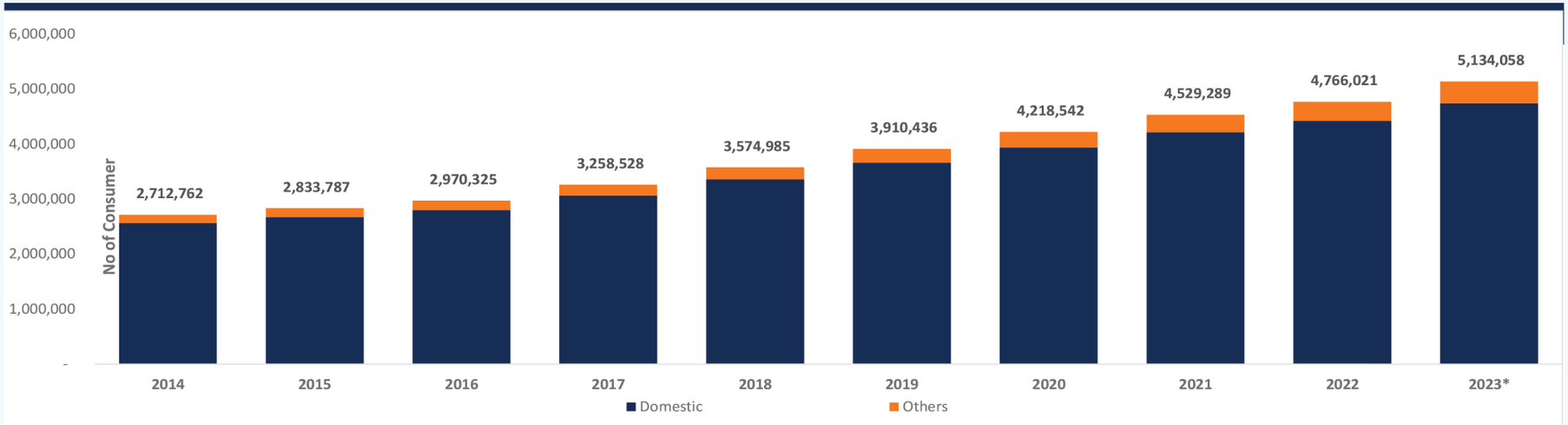
* Provisional Figures (Subject to audit)

Electricity Sales with Growth



culars	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Exc Internal Consumption (GWh)	3,496	3,744	3,719	4,777	5,560	6,338	6,525	7,313	9,336	10,693
Growth %	11%	7%	0%	28%	16.4%	14%	3%	12%	28%	15%
Category (GWh)										
nestic	1,571	1,679	1,797	2,164	2,442	2,666	2,852	3,138	3,730	3,897
Commerical	127	131	134	161	172	186	190	204	260	276
nmercial	285	300	286	351	408	466	487	511	656	737
ustrial	1,252	1,352	1,206	1,719	2,074	2,422	2,301	2,816	3,448	3,576
er Supply & Irrigation	83	87	100	116	138	176	182	211	242	315
et Light	76	76	74	76	77	79	84	88	98	103
porary Supply	1	2	2	3	3	3	3	4	4	5
nsport	6	6	6	6	5	5	3	2	4	7
nple	5	5	6	7	8	8	8	8	11	12
Domestic	-	-	-	54	103	148	151	116	187	230
ertainment	-	-	-	1	3	6	5	4	8	10
nmunity Sales	86	103	104	116	125	140	151	173	193	180
Internal Sales (GWh)	**3,493**	**3,741**	**3,716**	**4,774**	**5,557**	**6,303**	**6,418**	**7,275**	**8,842**	**9,347**
t Sales (GWh)	**3**	**3**	**3**	**3**	**3**	**35**	**107**	**38**	**494**	1,346
al Sales Growth %	11%	7%	-1%	28%	16%	13%	2%	13%	22%	6%
t Sales Growth %	-	-	-	-	-	1082%	207%	-64%	1199%	173%
ll Sales Growth %	11%	7%	-1%	28%	16%	14%	3%	12%	28%	15%
visional Figures (Subject to Final Audit)										

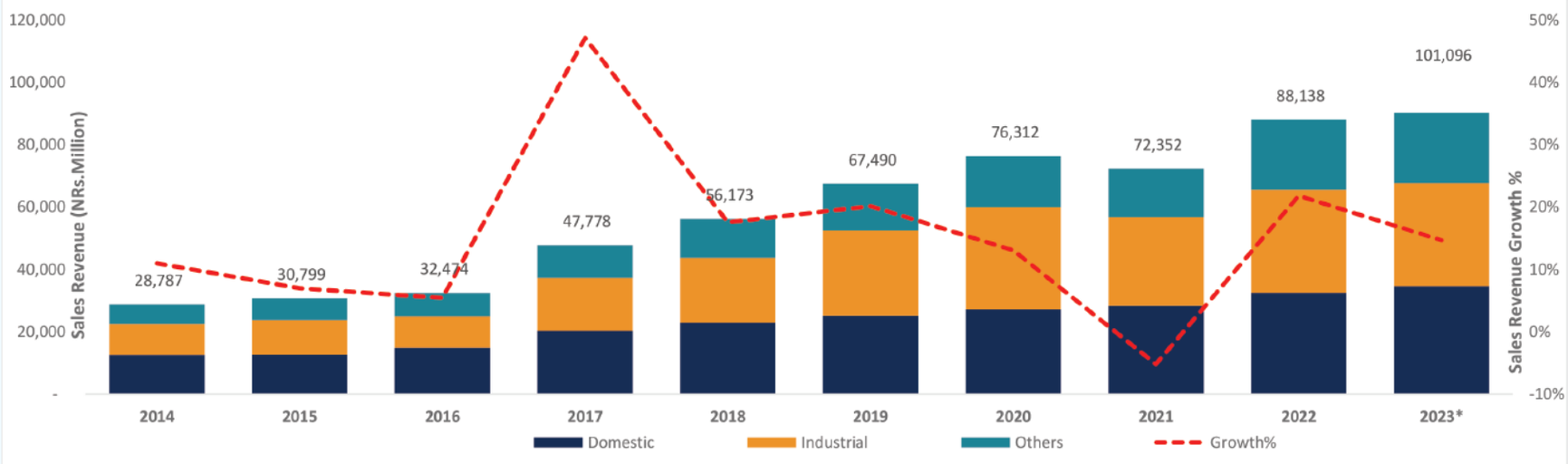
Growth of Consumers



Category	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Domestic	2,558,726	2,671,039	2,796,621	3,061,709	3,355,830	3,657,887	3,933,574	4,208,208	4,418,593	4,739,753
Non Commerical	16,155	16,717	17,732	19,257	21,094	23,493	26,011	29,010	31,756	36,136
Commercial	14,955	15,899	17,191	18,860	21,716	25,746	29,522	32,321	35,648	38,780
Industrial	40,265	41,825	43,639	46,345	48,800	52,697	55,888	60,782	64,626	67,360
Water Supply	1,141	1,266	1,426	1,675	2,063	2,460	2,960	3,494	4,035	4,643
Irrigation	71,845	77,066	83,283	98,626	111,493	131,935	152,485	174,917	189,193	223,034
Street Light	2,774	2,813	2,829	2,935	3,010	3,266	3,726	4,577	5,184	6,003
Temporary Supply	726	733	883	1,070	1,520	1,682	1,577	1,817	1,804	1,626
Transport	1	44	43	44	44	40	43	51	70	140
Temple	4,048	4,181	4,391	4,673	5,182	5,890	6,611	7,481	8,171	9,216
Non Domestic	-	-	-	977	1,735	2,735	3,260	3,678	3,955	4,467
Entertainment	-	-	-	45	107	150	170	192	212	219
Community Sales	1,377	1,459	1,537	1,597	1,631	1,659	1,882	1,882	1,901	1,808
Internal Consumption	747	744	749	714	759	795	832	878	872	872
Bulk Supply to India	2	1	1	1	1	1	1	1	1	1
Total Consumers	**2,712,762**	**2,833,787**	**2,970,325**	**3,258,528**	**3,574,985**	**3,910,436**	**4,218,542**	**4,529,289**	**4,766,021**	**5,134,058**
Growth%	**4%**	**4%**	**5%**	**10%**	**10%**	**9%**	**8%**	**7%**	**5%**	**8%**

* Provisional Figures (Subject to Audit)

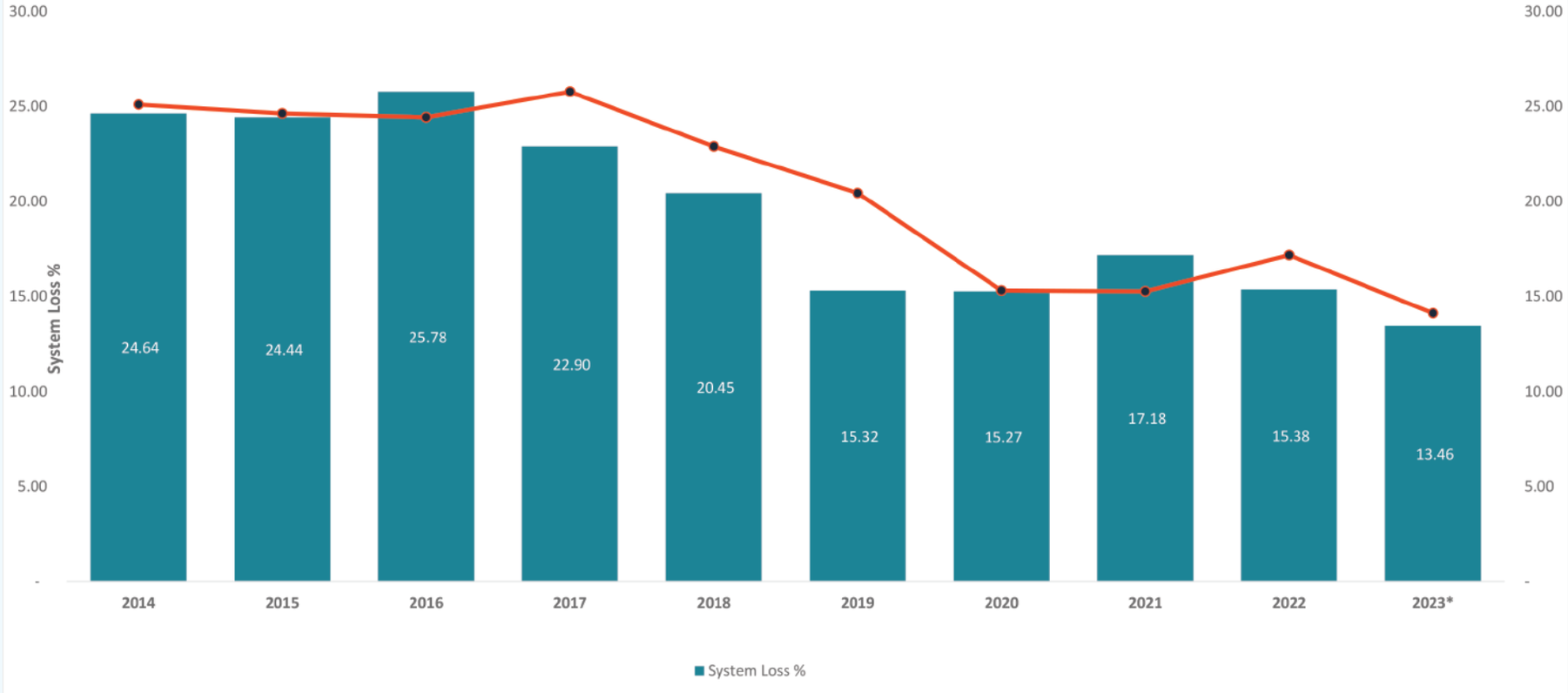
Category wise Gross Electricity Sales Revenue



Particulars	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
Domestic	12,622	12,707	14,834	20,330	22,868	25,197	27,239	28,280	32,534	34,680
Non Commerical	1,487	1,644	1,995	2,479	2,594	2,831	2,923	2,907	3,505	3,901
Commercial	3,360	3,735	3,789	5,114	5,883	6,745	7,222	7,412	9,119	10,367
Industrial	9,844	11,065	10,182	16,977	20,897	27,283	32,717	28,578	33,021	34,821
Water Supply & Irrigation	418	481	525	728	865	1,092	1,165	1,089	1,097	1,288
Street Light	602	630	602	666	702	683	765	801	841	895
Temporary Supply	23	27	29	53	61	67	64	67	76	86
Transport	39	41	40	44	38	33	24	19	30	53
Temple	26	29	34	39	51	52	52	56	73	82
Non Domestic	-	-	-	655	1,419	2,278	2,321	1,922	2,888	3,505
Entertainment	-	-	-	17	50	84	94	81	133	171
Community &Cooperative	335	400	412	631	716	734	743	824	878	792
Bulk Supply India	31	39	32	46	29	413	983	316	3,942	10,455
Total Gross Revenue	**28,787**	**30,799**	**32,474**	**47,778**	**56,173**	**67,490**	**76,312**	**72,352**	**88,138**	**101,096**
Growth%	**11%**	**7%**	**5%**	**47%**	**18%**	**20%**	**13%**	**-5%**	**22%**	**15%**

* Provisional Figures (Subject to Audit)

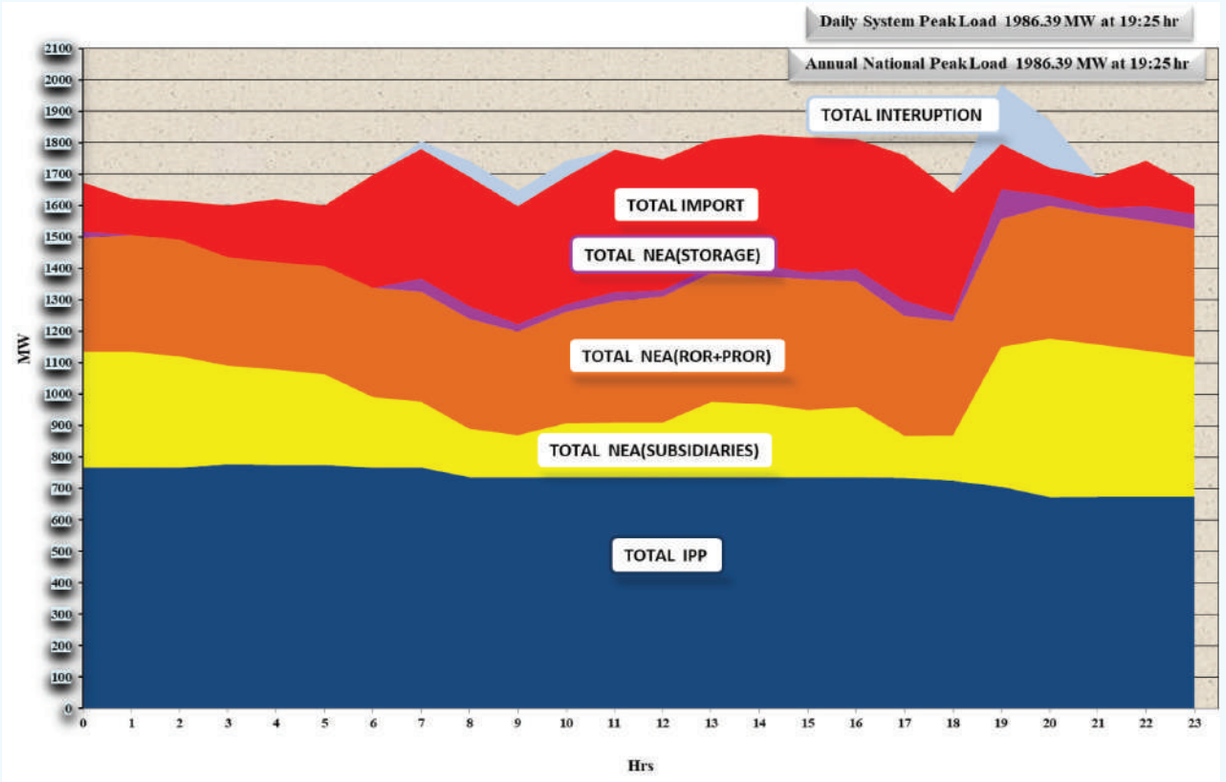
System Loss with Changes



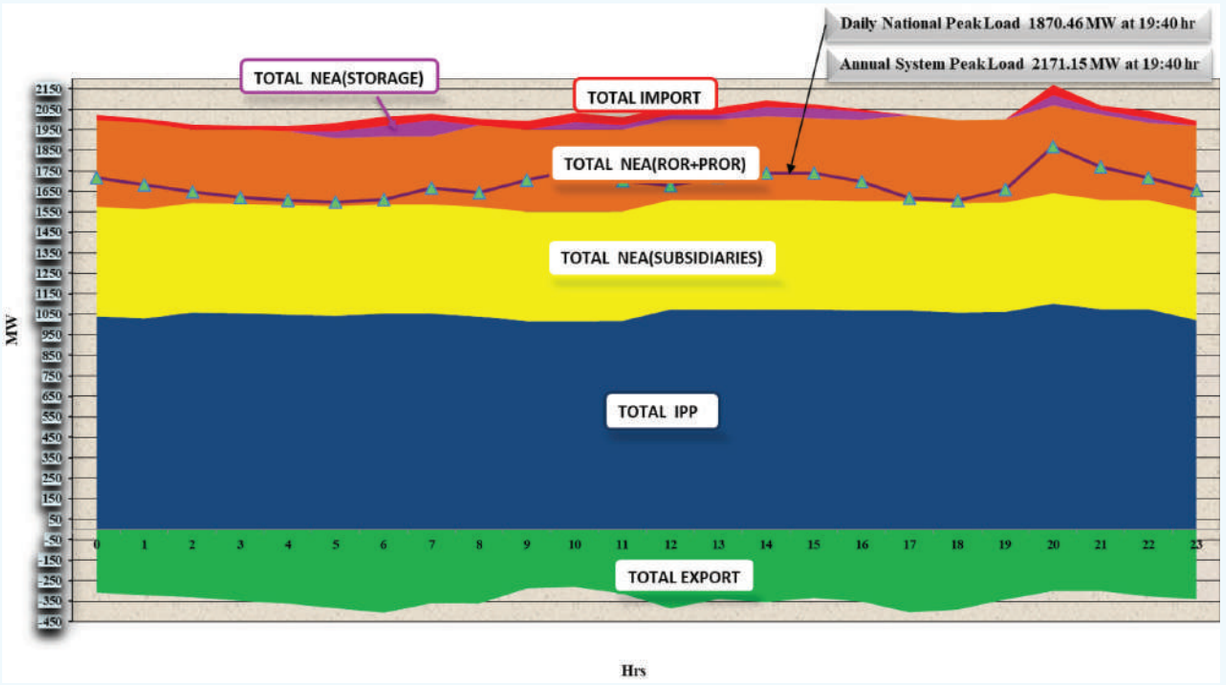
Particulars	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023*
System Loss %	24.64	24.44	25.78	22.90	20.45	15.32	15.27	17.18	15.38	13.46

* Provisional Figures (Subject to Final Audit)

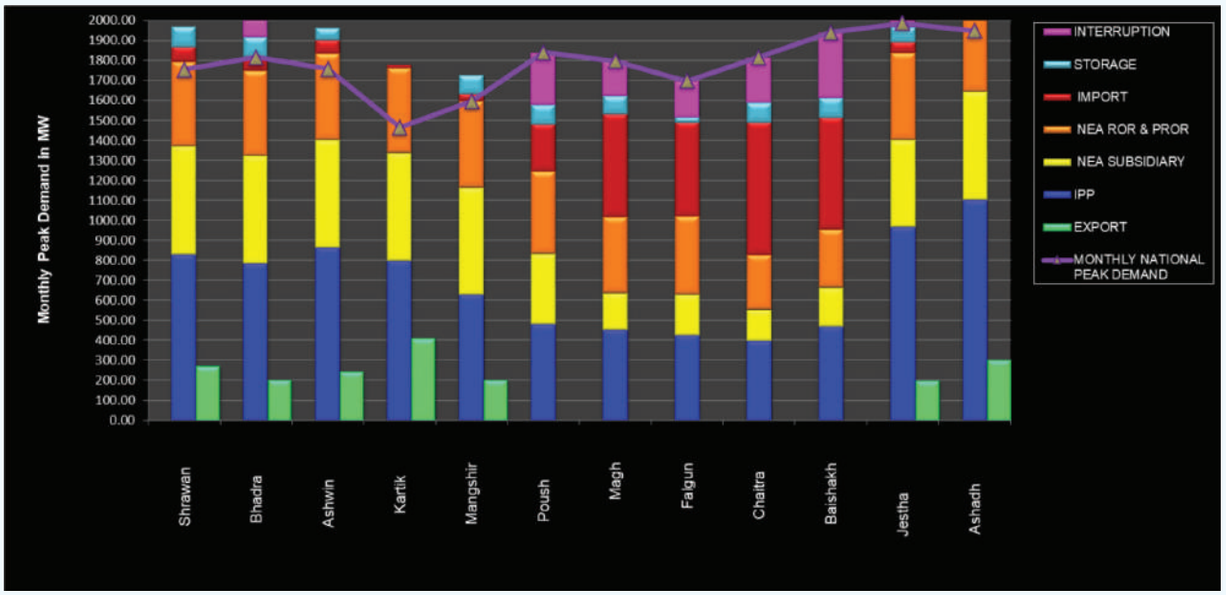
System Load Curve (Maximum Demand) Jestha 18, 2080 (June 01, 2023) Thursday



Annual System Peak Load Curve Asar 26, 2080 (July 11, 2023) Tuesday

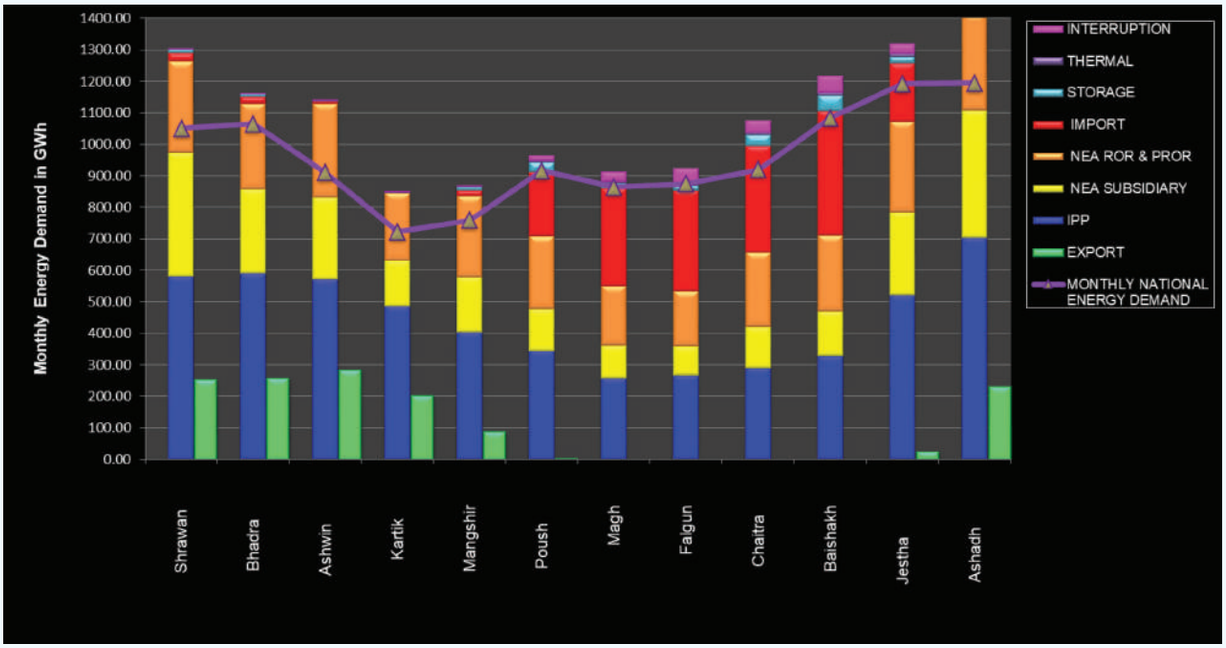


Capacity Balance (MW) in FY 2079/80(2022/23)



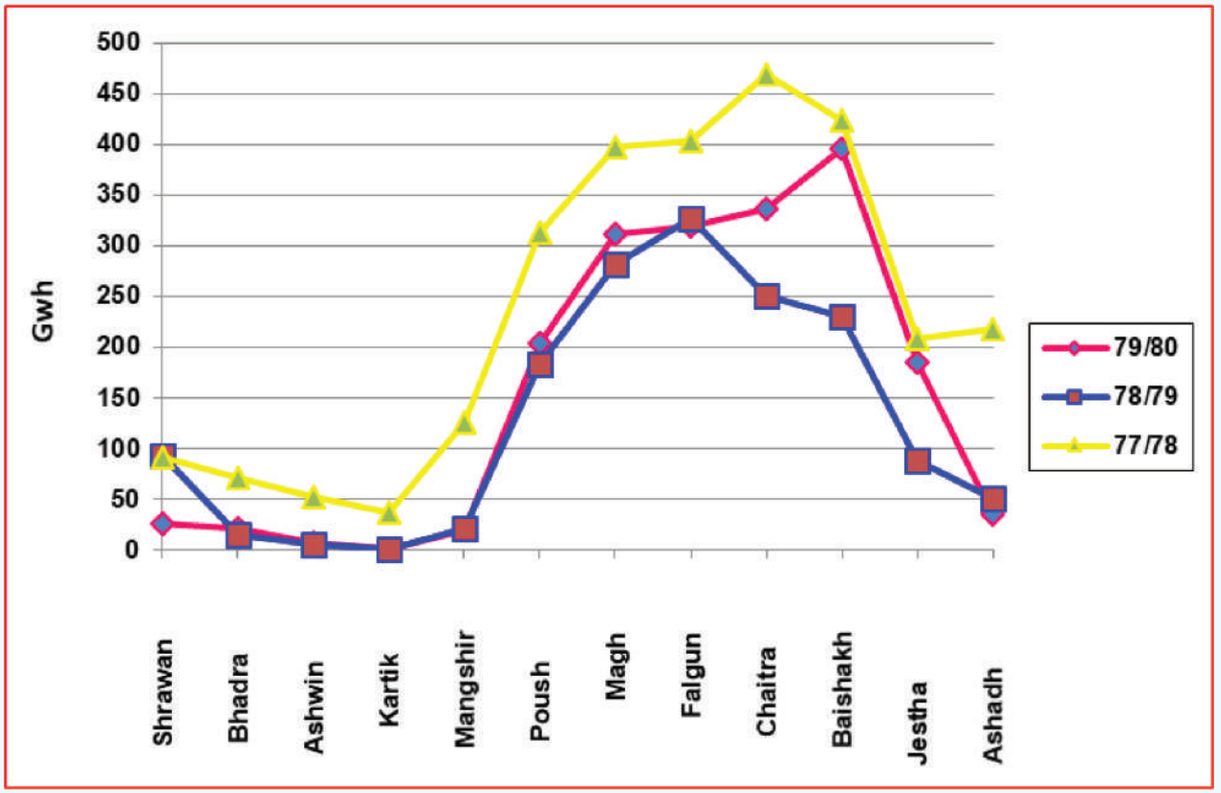
Capacity Balance in MW of FY 2079/80 (2022/23)													
Source\Month	Shrawan	Bhadra	Ashwin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashadh	Average
IPP	831.31	785.85	864.78	798.99	629.19	481.92	455.70	428.61	398.00	472.00	966.43	1103.39	684.68
NEA SUBSIDIARY	538.00	538.00	538.00	538.00	535.20	351.00	179.90	201.70	155.00	191.00	434.00	538.00	394.82
NEA ROR & PROR	421.11	421.55	428.37	422.74	428.21	408.99	379.83	390.47	272.84	289.43	433.02	428.86	393.79
IMPORT	76.70	72.80	70.20	14.30	39.10	239.69	515.70	470.00	665.00	562.00	57.00	51.00	236.12
STORAGE	101.20	99.20	60.00	0.00	97.00	98.40	94.70	26.30	98.90	100.00	75.30	49.60	75.05
INTERRUPTION	0.00	90.00	0.00	0.00	0.00	260.00	170.00	180.00	225.00	325.00	100.00	0.00	112.50
MONTHLY SYSTEM PEAK DEMAND	1968.33	2007.40	1961.35	1774.03	1728.81	1839.99	1795.83	1697.08	1815.05	1938.68	2065.65	2171.15	1896.94
EXPORT	267.80	200.00	241.00	408.00	199.00	0.00	0.00	0.00	0.00	0.00	195.00	300.00	150.90
MONTHLY_NATIONAL_PEAK_DEMAND	1754.08	1814.65	1756.87	1464.63	1594.71	1839.99	1795.83	1697.08	1815.05	1938.68	1986.39	1947.80	1783.81

Energy Balance (MW) in FY 2079/80(2022/23)



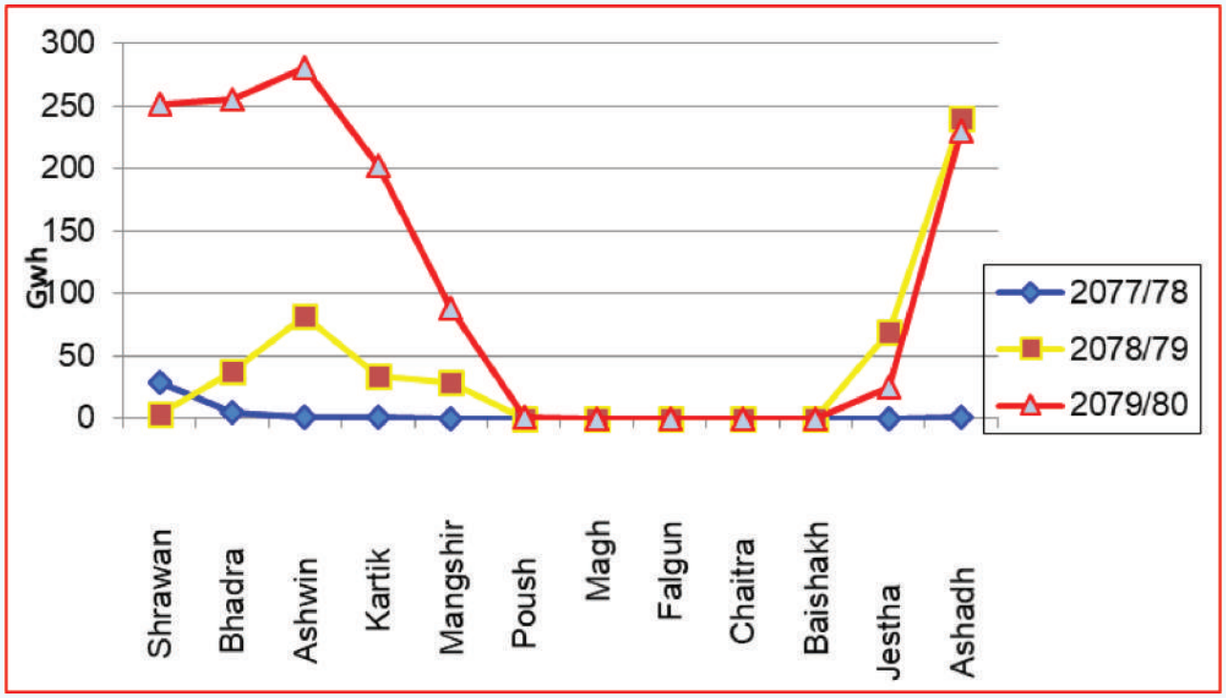
Energy Balance in GWh of FY 2079/80(2022/23)													
	Shrawan	Bhadra	Ashwin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashadh	Total
IPP	581.34	589.23	570.44	485.61	403.38	343.96	257.45	266.08	289.33	329.18	521.01	704.46	5341.46
NEA SUBSIDIARY	390.63	393.94	368.81	179.70	162.64	120.83	89.67	82.61	78.51	83.95	189.87	384.40	2525.56
NEA ROR & PROR	290.92	304.66	241.96	257.00	250.94	201.20	160.28	141.62	141.77	172.23	270.43	272.24	2705.23
IMPORT	25.46	20.86	6.12	0.52	18.69	202.88	310.99	318.47	335.54	395.73	184.40	34.88	1854.53
STORAGE	12.06	8.64	1.57	0.77	9.96	31.70	14.40	16.58	36.08	49.58	19.81	14.18	215.34
THERMAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
INTERRUPTION	1.66	2.26	1.29	0.82	1.02	15.92	30.93	48.59	38.28	52.58	30.74	14.37	238.43
MONTHLY SYSTEM ENERGY DEMAND	1302.07	1319.59	1190.19	924.41	846.62	916.49	863.71	873.95	919.50	1083.24	1216.26	1424.52	12880.56
EXPORT	251.56	255.67	280.97	202.25	87.80	0.59	0.00	0.00	0.00	0.00	24.20	230.07	1333.12
MONTHLY NATIONAL ENERGY DEMAND	1050.52	1063.92	909.22	722.16	758.82	915.90	863.71	873.95	919.50	1083.24	1192.06	1194.45	11547.44

Imported Energy from different lines in FY 2077/78(2020/21), FY 2078/79 (2021/22) and FY 2079/80 (2022/23)



Comparision of Imported Energy(Gwh) from India in different FY.													
FY	**Shrawan**	**Bhadra**	**Ashwin**	**Kartik**	**Mangshir**	**Poush**	**Magh**	**Falgun**	**Chaitra**	**Baishakh**	**Jestha**	**Ashadh**	**Total**
77/78	91.10	71.15	52.25	36.38	125.45	313.06	396.77	402.79	468.61	422.99	207.60	217.64	**1714.20**
78/79	92.00	14.32	5.37	0.39	20.82	182.76	281.34	327.19	250.85	230.16	87.23	50.87	**1543.28**
79/80	25.46	20.86	6.12	0.52	18.69	202.88	310.99	318.47	335.54	395.73	184.40	34.88	**1854.53**

Comparison of exported Energy to India in different FY



Comparision of Exported Energy(Gwh) to India in different FY.													
FY	**Shrawan**	**Bhadra**	**Ashwin**	**Kartik**	**Mangshir**	**Poush**	**Magh**	**Falgun**	**Chaitra**	**Baishakh**	**Jestha**	**Ashadh**	**Total**
2077/78	27.98	3.90	0.81	0.49	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	**33.31**
2078/79	3.02	37.67	81.23	33.38	28.18	0.00	0.00	0.00	0.00	0.00	69.66	240.47	**493.61**
2079/80	251.56	255.67	280.97	202.25	87.80	0.39	0.00	0.00	0.00	0.00	24.20	230.07	**1332.92**

ELECTRICITY TARIFF

TARIFF RATES

1. Domestic Consumers

1.1 Single Phase Low Voltage (203 Voltage)

kWh (Monthly)	5 Ampere		15 Ampere		30 Ampere		60 Ampere	
	Monthly Minimum Charge (Nrs.)	Energy Charge (Nrs./kWh)	Monthly Minimum Charge (Nrs.)	Energy Charge (Nrs./kWh)	Monthly Minimum Charge (Nrs.)	Energy Charge (Nrs./kWh)	Monthly Minimum Charge (Nrs.)	Energy Charge (Nrs./kWh)
0-20	30.00	0.00	50.00	4.00	75.00	5.00	125.00	6.00
21-30	50.00	6.50	75.00	6.50	100.00	6.50	125.00	6.50
31-50	50.00	8.00	75.00	8.00	100.00	8.00	125.00	8.00
51-100	75.00	9.50	100.00	9.50	125.00	9.50	150.00	9.50
101-250	100.00	9.50	125.00	9.50	150.00	9.50	200.00	9.50
Above 251	150.00	11.00	175.00	11.00	200.00	11.00	250.00	11.00

Note: If 5 Ampere consumer use more than 20 units, they have to pay NRs. 3.00 per unit

1.2 Three Phase Low Voltage (400 Volt)

kWh (Monthly)	Up to 10 KVA			Above 10 KVA		
	Monthly Minimum Charge (Nrs.)	Month	Energy Charge (Nrs./kWh)	Monthly Minimum Charge (Nrs.)	Month	Energy Charge (Nrs./kWh)
All Consumers	1100.00	Ashad -Kartik	10.50	1800.00	Ashad -Kartik	10.50
		Marg-Jestha	11.50		Marg-Jestha	11.50

1.3 Three Phase Medium Voltage (33/11 KV)

kWh (Monthly)	Monthly Minimum Charge (Nrs.)	Month	Energy Charge (Nrs/kWh)
All Consumers	10,000.00	Ashad-Kartik	10.50
		Marg-Jestha	11.00

Billing Method (For Single Phase 5 Ampere)

S. No.	kWh (Monthly)	Energy Charge (Nrs./kWh)	Billing Method
1	Up to 20 units	0.00	Monthly Minimum Charge Rs. 30.00 for up to 20 units and Energy Charge Rs. 0.00 per unit
2	21 to 30 units	6.50	Monthly Minimum Charge Rs. 50.00 and Energy Charge per unit Rs. 3.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units
3	31 to 50 units	8.00	Monthly Minimum Charge Rs. 50.00 and Energy Charge per unit Rs. 3.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units
4	51 to 100 units	9.50	Monthly Minimum Charge Rs. 75.00 and Energy Charge per unit Rs. 3.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 100 units
5	101 to 250 units	9.50	Monthly Minimum Charge Rs. 100.00 and Energy Charge per unit Rs. 3.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 250 units
6	Above 251 units	11.00	Monthly Minimum Charge Rs. 150.00 and Energy Charge per unit Rs. 3.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 250 units and Rs. 11.00 per unit for above 251 units

Billing Method (For Single Phase 15 Ampere)

S. No.	kWh (Monthly)	Energy Charge (Nrs./kWh)	Billing Method
1	Up to 20 units	4.00	Monthly Minimum Charge Rs. 50.00 for up to 20 units and Energy Charge Rs. 4.00 per unit (e.g.: 5 unit: Rs. 50 + 5 × 4 = Rs. 70.00)
2	21 to 30 units	6.50	Monthly Minimum Charge Rs. 75.00 and Energy Charge per unit Rs. 4.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units (e.g.: 25 unit: Rs. 75 + 20 × 4 + 5 × 6.5 = Rs. 187.50)

3	31 to 50 units	8.00	Monthly Minimum Charge Rs. 75.00 and Energy Charge per unit Rs. 4.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units (e.g.: 35 unit: Rs. 75 + 20 × 4 + 10 × 6.5 + 5 × 8 = Rs. 260.00)
4	51 to 100 units	9.50	Monthly Minimum Charge Rs. 100.00 and Energy Charge per unit Rs. 4.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 100 units (e.g.: 55 unit: Rs. 100 + 20 × 4 + 10 × 6.5 + 20 × 8 + 5 × 9.5 = Rs. 452.50)
5	101 to 250 units	9.50	Monthly Minimum Charge Rs. 125.00 and Energy Charge per unit Rs. 4.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 250 units (e.g.: 105 unit: Rs. 125 + 20 × 4 + 10 × 6.5 + 20 × 8 + (50 + 5) × 9.5 = Rs. 952.50)
6	Above 251 units	11.00	Monthly Minimum Charge Rs. 175.00 and Energy Charge per unit Rs. 4.00 for per unit up to 20 units and Rs. 6.50 per unit for 21 units to 30 units and Rs. 8.00 per unit for 31 units to 50 units and Rs. 9.50 per unit for 51 units to 150 units and Rs. 10.00 per unit for 151 units to above 250 units and Rs. 11.00 per unit for 251 units to 400 units. (e.g.: 255 unit: Rs. 175 + 20 × 4 + 10 × 6.5 + 20 × 8 + (50 + 150) × 9.5 + 5 × 11 = Rs. 2435.00)

Billing Methods will be similar for Single Phase 30 and 60 Ampere.

2. Other Consumers

2.1 Low Voltage (230/400 V)

Consumer Category	Demand Charge Nrs./KVA/ month	Energy Charge (Nrs./kWh)
1. Industrial		
a) Rural and Domestic	60.00	7.80
b) Small Industry	110.00	9.60
2. Commercial	325.00	11.20
3. Non-Commercial	215.00	12.00
4. Irrigation	-	2.25
5. Water Supply		
a) Community Water Supply	-	4.20
b) Other Water Supply	160.00	7.20
6. Transportation		
α) Public Transportation (Charging Station)	200.00	5.75
β) Other Transportation	220.00	8.90
7. Religious Place	-	6.10
8. Street Light		

a) Metered	-	7.30
b) Non-Metered	2475.00	-
9. Temporary Connection	-	19.80
10. Non-Domestic	350.00	13.00
11. Entertainment Business	350.00	14.00

2.2 High Voltage

Consumer Category	Demand Charge Nrs./KVA/month	Energy Charge Nrs./kWh
A. High Voltage		
1. Industrial (132 kV)	230.00	8.20
2. Industrial (66 kV)	240.00	8.30
B. Medium Voltage (33 KV)		
1. Industrial	255.00	8.40
2. Commercial	315.00	10.80
3. Non-commercial	240.00	11.40
4. Irrigation	-	2.50
5. Water Supply		
a) Community Water Supply	-	4.60
b) Other Water Supply	160.00	6.60
6. Transportation		
a) Public Transportation (Charging Station)	230.00	5.60
b) Other Transportation	255.00	8.60
7. Non-Domestic	350.00	12.55
8. Entertainment Business	350.00	13.50
C. Medium Voltage (11 KV)		
1. Industrial	255.00	8.60
2. Commercial	315.00	11.10
3. Non-commercial	240.00	11.50
4. Irrigation	-	2.60
5. Water Supply		
a) Community Water Supply	-	4.80
b) Other Water Supply	150.00	6.80
6. Transportation		
a) Public Transportation (Charging Station)	230.00	5.60
b) Other Transportation	255.00	8.80

7. Religious Place	220.00	9.90
8. Temporary Connection	330.00	12.00
9. Non-Domestic	350.00	12.90
10. Entertainment Business	350.00	13.90

3. Time of Day (ToD) Tariff Rate

3.1 Tariff Rate from Baishakh to Mangsir

Consumer Category	Demand Charge Nrs./ KVA/ month	Peak Time (17.00-23.00)	Off Peak Time (23.00-5.00)	Normal time (5.00-17.00)
A. High Voltage				
1. Industrial (132 kV)	230.00	10.00	4.65	8.20
2. Industrial (66 kV)	240.00	10.10	4.75	8.30
B. Medium Voltage (33 KV)				
1. Industrial	250.00	10.20	5.25	8.40
2. Commercial	315.00	12.30	6.75	10.80
3. Non-Commercial	240.00	13.20	7.00	12.00
4. Irrigation	-	6.30	2.00	3.00
5. Water Supply				
a) Community Water Supply	-	6.20	3.10	4.60
b) Other Water Supply	150.00	10.20	5.25	8.40
6. Transportation				
a) Public Transportation (Charging Station)	230.00	7.00	3.70	5.50
b) Other Transportation	255.00	9.35	3.70	8.40
7. Street Light	80.00	8.40	3.50	4.20
C. Medium Voltage (11 KV)				
1. Industrial	250.00	10.50	5.40	8.55
2. Commercial	315.00	12.60	6.90	11.10
3. Non-commercial	240.00	13.50	7.15	12.25
4. Irrigation	-	6.40	2.00	3.10
5. Water Supply				
a) Community Water Supply	-	6.30	3.40	4.70
b) Other Water Supply	150.00	10.50	5.40	8.50
6. Transportation				
a) Public Transportation (Charging Station)	230.00	7.15	4.20	5.60
b) Other Transportation	255.00	9.65	4.20	8.50

7. Street Light	80.00	8.80	3.75	4.40
8. Religious Place	220.00	11.30	5.15	9.10
9. Temporary Connection	330.00	14.40	6.60	11.75
D. Low Voltage (230/400 V)				
Transportation				
a) Public Transportation (Charging Station)	200.00	7.25	4.30	5.75
b) Other Transportation	220.00	9.75	4.30	8.60

3.2 Tariff Rate from Paush to Chaitra

Consumer Category	Demand Charge Nrs. /KVA/ month	Peak Time (17.00 - 23.00)	Normal Time (23.00 - 17.00)
A. High Voltage			
1. Industrial (132 kV)	230.00	10.00	8.20
2. Industrial (66 kV)	240.00	10.10	8.30
B. Medium Voltage (33 KV)			
1. Industrial	250.00	10.20	8.40
2. Commercial	315.00	12.30	10.80
3. Non-Commercial	240.00	13.20	12.00
4. Irrigation	-	6.30	3.00
5. Water Supply			
a) Community Water Supply	-	6.20	4.60
b) Other Water Supply	150.00	10.20	8.40
6. Transportation			
a) Public Transportation (Charging Station)	230.00	7.00	5.50
b) Other Transportation	255.00	9.35	8.40
7. Street Light	80.00	8.40	4.20
C. Medium Voltage (11 KV)			
1. Industrial	250.00	10.50	8.55
2. Commercial	315.00	12.60	11.10
3. Non-commercial	240.00	13.50	12.25
4. Irrigation	-	6.40	3.10
5. Water Supply			
a) Community Water Supply	-	6.30	4.70
b) Other Water Supply	150.00	10.50	8.50

6. Transportation			
a) Public Transportation (Charging Station)	230.00	7.15	5.60
b) Other Transportation	255.00	9.65	8.50
7. Street Light	80.00	8.80	4.40
8. Religious Place	220.00	11.30	9.10
9. Temporary Connection	330.00	14.40	11.75
D. Low Voltage (230/400 V)			
Transportation			
a) Public Transportation (Charging Station)	200.00	7.25	5.75
b) Other Transportation	220.00	9.75	8.60

3.3 Transportation for Automatic Swap Card Users without Demand Charge

3.3.1 Public Transportation (Charging Station)

Description	Energy Charge Nrs./kWh		
	Peak Time (17.00-23.00)	Off Peak Time (23.00-5.00)	Normal Time (5.00-17.00)
Tariff Rate from Baisakh to Mangsir			
Medium Voltage (33 kV)	8.40	4.45	6.60
Medium Voltage (11 kV)	8.60	5.05	6.70
Low Voltage (230/400 V)	8.70	5.05	6.90
Tariff Rate from Paush to Chaitra			
Description	**Peak Time (17.00-23.00)**	**Normal Time (23.00-17.00)**	
Medium Voltage (33 kV)	8.40	6.60	
Medium Voltage (11 kV)	8.60	6.70	
Low Voltage (230/400 V)	8.70	6.90	

3.3.2 Other Transportation

Description	Energy Charge Nrs./kWh		
	Peak Time (17.00-23.00)	Off Peak Time (23.00-5.00)	Normal Time (5.00-17.00)
Tariff Rate from Baisakh to Mangsir			
Medium Voltage (33 kV)	11.20	4.45	10.10
Medium Voltage (11 kV)	11.60	5.05	10.20
Low Voltage (230/400 V)	11.70	5.15	10.30

Tariff Rate from Paush to Chaitra		
Description	**Peak Time (17.00-23.00)**	**Normal Time (23.00-17.00)**
Medium Voltage (33 kV)	11.20	10.10
Medium Voltage (11 kV)	11.60	10.20
Low Voltage (230/400 V)	11.70	10.20

Note: Charging Station Operators will be able to get maximum 20 percent additional charge in given tariff proving charging service to electric vehicles.

4. Community Wholesale Consumer:

Consumer Category	Minimum Charge (Nrs.)	Energy Charge (Nrs./kWh)
1. Medium Voltage (11KV/33KV)		
Upto (N x 20) units, monthly	N × 30.00	0.00
Above (N x 20) units, monthly		6.00
2. Lower Voltage Level (230/400 Volt)		
Upto (N x 20) units, monthly	N × 30.00	0.00
Above (N x 20) units, monthly		6.25

N= Total Number of Consumers of a Community Group

Electricity Generation Power Plants and Projects

Major Hydropower Stations		
S.N.	**Power Plants**	**Capacity(KW)**
1	Kaligandaki A	144,000
2	Middle Marsyandi	70,000
3	Marsyandi	69,000
4	Kulekhani I	60,000
5	Upper Trishuli 3A HEP	60,000
6	Kulekhani II	32,000
7	Chameliya	30,000
8	Trishuli	24,000
9	Gandak	15,000
10	Devighat	15,000
11	Modi Khola	14,800
12	Kulekhani III HEP	14,000
13	Sunkoshi	10,050
14	Puwa Khola	6,200
	Sub Total	**564,050**

Small Hydropower Plants		
S.N.	**Power Plants**	**Capacity(KW)**
1	Chatara	3,200
2	Panauti	2,400
3	Tatopani	2,000
4	Seti (Pokhara)	1,500
5	Tinau	1,024
6	Fewa	1,000
7	Sundarijal	970
8	Pharping***	500
9	Gamgad	400
10	Khandbari**	250
11	Jomsom**	240
12	Phidim**	240
13	Baglung***	200
14	Surnaiyagad	200
15	Doti***	200
16	Ramechhap	150
17	Terhathum**	100
	Sub Total	**14,574**
	Total	**578,624**

Small Hydropower Plants (Isolated)		
S.N.	**Power Plants**	**Capacity (KW)**
1	Kalikot	500
2	Heldung(Humla)	500
3	Achham	400
4	Jhupra(Surkhet)***	345
5	Darchula**	300
6	Bhojpur**	250
7	Dhankuta***	240
8	Jumla**	200
9	Syaprudaha (Rukum)**	200
10	Bajura**	200
11	Bajhang**	200
12	Dolpa	200
13	Chaurjhari (Rukum)**	150
14	Arughat (Gorkha)	150
15	Taplejung**	125
16	Okhaldhunga	125
17	Rupalgad(Dadeldhura)	100
18	Syangja***	80
19	Manang**	80
20	Gorkhe (Illam)***	64
21	Helambu	50
22	Chame**	45
23	Dhanding***	32
	Total	**4,536**

Thermal Power Plants		
S.N.	**Power Plants**	**Capacity(KW)**
1	Duhabi Multifuel	39,000
2	Hetauda Diesel	14,410
	Total	**53,410**

Total Major Hydro(NEA) - Grid Connected	**578,624**
Total Small Hydro(NEA) - Isolated	**4,536**
Total Hydro (NEA)	583,160
Total Hydro (NEA Subsidiary)	478,100
Total Hydro(IPPs)	1,477,013
Total Hydro (Nepal)	**2,538,273**
Total Thermal(NEA)	53,410
Total Solar(NEA)	25,000
Total Solar(IPPs)	61,940
Total Bagasse (IPPs)	6,000
Total Installed Capacity - Grid Connected	2,680,087
Total Installed Capacity	2,684,623

Under Construction Capacity (KW) - NEA Subsidiary		
S.N.	**Power Plants**	**Capacity(KW)**
1	Tanahu	140,000
2	Rasuwagadi	111,000
3	Madhya Bhotekoshi	102,000
4	Sanjen	42,500
5	Rahuganga	40,000
6	Upper Trishuli 3B	37,000
7	Upper Sanjen	14,800
8	Tamakoshi-V	86,067
9	Upper Modi 'A'	42,000
	Total	**615,367**

Planned and Proposed Capacity (KW)		
S.N.	**Power Plants**	**Capacity (KW)**
1	Upper Arun	1,061,000
2	Uttar Ganga Storage	828,000
3	Dudhkoshi Storage	635,000
4	Arun-4 HEP	490,200
5	Chainpur Seti	210,000
6	Aadhikhola Storage	180,000
7	Begnas Rupa Pump Storage	150,000
8	Upper Modi	18,200
	Total	**3,572,400**

** Leased to Private Sector
***Not in Normal Operation

Nepal Electricity Authority
Generation Directorate
Generation Related Statistics and Performance Factors of of FY 2079/80 (FY2022/23)

S.No.	Power Stations	Total Installed Capacity	Design Generation (MWh)	Actual Generation (MWh)			Percentage generation change from last year (%)	Max. generation in a year till date (MWh)	Generation Target in FY 2078/79 (MWh)	Import to Power Station Bus Bar (MWh)	Power Station Available Energy (MWh)	Energy Transmission to Grid (MWh)	Net Energy Transmission to Grid (MWh)	Local Distribution (MWh)	Station/ Internal Consumption (MWh)	Total Power Utilization (MWh)	Energy Loss (MWh)	Power Station Loss (%)	Loss/ Energy generation	Plant Factor (%)	Actual Generation/ Design Generation ratio (%)
		P	a			A			b	B	C=A+B	D	D-B	E	F	G=D+E+F	L=C-G	(C-G)/C	L/A*100	A/(Installed capacity*365*24)*100	(A/a)*100
1	Kaligandaki 'A'	144	842,000.00	871466.00	974,83197	832,678.79	-14.58%	974,83197 (2078/79)	879,66186	616,61101	1,449,289.80	1444,249.24	827,638.23	1,034.42	2,037.66	1447,32132	1968.48	0.14%	0.24	66.01	98.89
2	Mid-Marsyangdi	70	398,000.00	446,624.75	468,270.00	428,402.10	-8.51%	471322.51 (2075/76)	435,779.50	707,635.69	1,136,037.79	1,117,935.02	410,299.33	394.70	428.48	1,118,758.20	17,279.59	1.52%	4.03	69.86	107.64
3	Marsyandi	69	462,500.00	443,852.10	464,27150	434,558.70	-6.40%	483,928.20 (2052/53)	459,695.11	383,024.00	817,582.70	802,669.40	419,645.40	0.00	4,551.14	807,220.54	10,362.16	1.27%	2.38	7189	93.96
4	Upper Trishuli 3A	60	489,760.00	407,551.15	432,832.50	437,117.00	0.99%	432,832.5 (2076/77)	473,667.20	12,674.67	449,79167	254,304.00	241629.33	0.00	448.16	254,752.16	195,039.51	43.36%	44.62	83.17	89.25
5	Kulekhani I	60	211,000.00	162,972.00	172,753.00	127,76100	-26.04%	249,680.00 (2056/57)	108,569.33	159,952.83	297,713.83	285,972.84	116,020.01	10,682.22	1,124.95	297,780.01	-66.18		-0.05	24.31	60.55
6	Kulekhani II	32	104,600.00	81,483.40	82,69146	60,093.37	-27.33%	122,757.00 (2056/57)	57,903.64	848.14	60,94151	60,124.39	59,276.25	0.00	270.79	60,395.18	546.33	0.90%	0.91	2144	57.45
7	Chameliya	30	184,200.00	160,81164	153,98104	134,932.46	-12.37%	161395.54(2075/76)	177,834.01	137,472.57	272,405.03	249,167.99	111695.42	2,826.92	265.17	252,260.08	20,144.95	7.40%	14.93	5134	73.25
8	Trishuli	24	163,000.00	128,973.11	137,113.27	123,152.48	-10.18%	154,423.75 (2053/54)	139,728.25	159,765.90	282,918.38	251619.73	91853.83	28,465.71	255.50	280,340.94	2,577.44	0.91%	2.09	58.58	75.55
9	Gandak	15	106,380.00	10,337.60	15,18170	14,848.80	-2.19%	52,272.70 (2043/44)	28,780.18	241618.18	256,466.98	140,729.30	-100,888.88	107,309.76	552.24	248,591.30	7,875.68	3.07%	53.04	11.30	13.96
10	Modi	14.8	92,500.00	66,913.20	79,60190	73,902.50	-7.16%	79,6019 (2078/79)	77,874.51	336,504.86	410,407.36	404,507.89	68,003.03	5,558.70	112.07	410,178.66	228.70	0.06%	0.31	57.00	79.89
11	Devighat	15	114,000.00	92,053.14	98,389.60	88,913.59	-9.63%	106,277.70 (2056/57)	97,543.68	73,370.82	162,284.41	142,169.18	68,798.36	19,240.61	184.00	161593.79	690.62	0.43%	0.78	67.67	77.99
12	Kulekhani III	14	40,850.00	20,365.20	36,243.80	27,536.40	-24.02%	36,243.8 (2078/79)	25,332.84	122.40	27658.80	25,185.60	25,063.20	0.00	260.60	25,446.20	2,212.60	8.00%	8.04	22.45	67.41
13	Sunkoshi	10.05	70,000.00	62,245.94	63,524.08	55,277.02	-12.98%	66,383.10 (2068/69)	63,465.60	4,033.17	59,310.19	57,670.67	53,637.50	1,229.96	262.47	59,163.10	147.09	0.25%	0.27	62.79	78.97
14	Puwa	6.2	48,000.00	34,914.55	37,715.20	33,010.30	-12.47%	37,715 (2078/79)	37,71169	3134	3304164	0.00	-3134	0.00	99.63	99.63	32,942.01			60.78	68.77
15	Chatara	3.2	6,000.00	1,822.00	2,878.58	3,305.87	14.84%	5,219.75 (2063/64)	3,698.57	312.85	3,618.73	0.00	-312.85	219.17	5.66	224.83	3,393.90			11.79	55.10
16	Panauti	2.4	6,970.00	2,886.76	3,25128	2,512.06	-22.74%	4,654.80 (2058/59)	3,473.71	65140	3163.46	3065.90	2,414.50	0.00	19.84	3,085.74	77.72	2.46%	3.09	11.95	36.04
17	Seti	1.5	9,800.00	11,158.29	10,954.65	11,824.18	7.94%	11,682.18 (2077/78)	10,878.79	3.68	11,827.86	11,565.58	11,561.90	0.00	74.44	11,640.02	187.83	1.59%	1.59	89.99	120.65
18	Fewa	1	6,500.00	2,126.54	1,863.37	1416.77	-23.97%	3,919.47 (2034/35)	3,867.67	5.40	1422.17	1372.47	1367.07	0.00	6.61	1379.08	43.09	3.03%	3.04	16.17	21.80
19	Sundarijal	0.64	4,770.00	2,814.76	6,10162	5,785.47	-5.18%	6,10162 (2078/79)	6,752.78	0.00	5,785.47	2,247.51	2,247.51	0.00	6.62	2,254.13	3,531.35	0.00%	61.04	103.19	121.29
20	Pharping	0.5	-	-		-	-	48.65(2064/65)				-	0.00	-	-	-	-	-	-	-	-
	Total (Hydro)	**573.29**	**3,360,830.00**	**3,011,372.13**	**3,242,450.52**	**2,897,028.86**	**-10.65%**	**-**	**3,092,218.93**	**2,844,638.92**	**5,741,667.78**	**5,254,556.71**	**2,409,917.79**	**176,962.17**	**10,966.03**	**5,442,484.91**	**299,182.87**	**5.21%**	**10.33**	**57.69**	**86.20**
21	Multifuel	39	-	2.52		0.00	-	86,215.07 (2055/56)	-	-	-	-	0.00	-	-	-	-	-	-	**0.00**	-
22	Hetauda Diesel	14.41	-	57.09	32.51	13.08	-59.78%	24,203.64 (2055/56)	-	0.00	0.00	0.00	0.00	0.00	6.25	6.25	-		-	**0.01**	-
	Total (Thermal)	53.41	-	59.61	32.51	13.08	-59.78%	-	-	0.00	13.08	3.61	3.61	0.00	6.25	9.86	3.21	24.57%	24.57	0.00	-
	Grand Total	**626.7**	**3,360,830.00**	**3,011,431.74**	**3,242,483.03**	**2,897,041.94**	**-10.65%**	-	**3,092,218.93**	**2,844,638.92**	**5,741,680.86**	**5,254,560.32**	**2,409,921.40**	**176,962.17**	**10,972.29**	**5,442,494.77**	**299,186.08**	**5.21%**	**10.33**	**52.77**	**86.20**

Nepal Electricity Authority
Generation Operation and Maintenance
Actual Monthly Generation of FY 2079/80

S.No.	Power Stations/ Month		Shrawan	Bhadra	Ashwin	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashad	Total
1	Kaligandaki 'A'	KGA	99,853.66	100,564.43	69,084.35	84,542.69	80,773.34	56,792.25	43,147.26	41,101.24	40,785.06	51,505.00	83,493.07	81,036.44	**832,678.79**
2	Mid-Marsyangdi	MMHPS	49,954.00	51,253.00	46,901.20	44,962.60	38,877.90	28,565.80	21,573.70	10,787.10	15,757.40	26,234.80	44,900.80	48,633.80	**428,402.10**
3	Marsyandi	MHPS	43,312.00	45,495.30	35,849.60	41,898.00	43,724.60	33,495.70	25,798.10	23,775.80	23,099.10	26,966.30	45,769.90	45,374.30	**434,558.70**
4	Kulekhani I	KLI	6,816.00	4,722.00	512.00	34.00	5,781.00	19,301.00	8,651.00	9,850.00	21,938.00	30,172.00	11,841.00	8,143.00	**127,761.00**
5	Kulekhani II	KLII	3,393.22	2,321.12	270.80	192.55	2,784.96	8,914.44	3,941.49	4,496.36	10,015.15	14,177.28	5,579.58	4,006.42	**60,093.37**
6	Upper Trishuli 3A	UT3A	38,177.50	42,307.50	38,270.00	32,889.50	41,007.50	41,505.00	32,265.00	29,240.00	26,847.50	31,215.00	44,615.00	38,777.50	**437,117.00**
7	Chameliya	CHEPS	18,242.43	19,419.59	14,646.08	13,020.26	7,527.02	5,353.09	6,774.94	6,545.15	6,284.33	8,058.98	11,662.68	17,397.91	**134,932.46**
8	Trishuli	THPS	10,859.62	11,590.67	7,376.70	9,059.63	11,994.74	11,999.89	9,916.69	9,161.90	8,790.52	9,755.64	11,764.27	10,882.21	**123,152.48**
9	Gandak	GHPS	1,666.00	1,843.70	1,743.30	585.40	-	1,383.10	1,994.00	2,344.20	882.70	-	297.00	2,109.40	**14,848.80**
10	Modi	MKHPS	8,424.50	9,126.90	8,704.10	8,141.80	5,933.30	4,460.40	3,134.60	3,201.50	3,158.80	4,621.20	7,820.20	7,175.20	**73,902.50**
11	Devighat	DHPS	7,466.23	8,193.43	4,178.93	6,494.76	9,086.45	9,122.80	7,409.17	6,889.91	6,583.99	7,206.22	8,499.75	7,781.95	**88,913.59**
12	Kulekhani III	KLIII	1,858.80	1,527.60	793.20	553.20	1,411.20	3,739.20	1,770.00	1,947.60	4,111.20	5,512.20	2,400.00	1,912.20	**27,536.40**
13	Sunkoshi	SKHPS	4,978.18	6,115.61	6,560.07	6,530.46	5,350.90	3,928.92	2,800.53	2,795.18	2,885.65	2,949.43	4,572.52	5,809.58	**55,277.02**
14	Puwa	PKHPS	4,427.01	4,389.53	4,131.41	4,181.06	2,771.00	1,534.19	1,593.00	1,457.00	1,829.81	1,305.28	1,722.72	3,668.29	**33,010.30**
15	Chatara	CHPS	546.17	481.74	462.97	309.98	-	152.21	0.31	339.88	360.50	150.54	173.45	328.13	**3,305.87**
16	Panauti	PHPS	315.52	324.02	283.10	260.53	251.97	255.28	166.66	154.59	178.92	116.04	61.19	144.26	**2,512.06**
17	Seti	SHPS	979.31	968.60	1,049.33	1,063.19	1,010.08	1,018.92	935.58	895.11	956.02	1,033.04	1,060.66	854.34	**11,824.18**
18	Fewa	FHPS	196.06	209.21	200.48	95.63	6.46	152.42	156.82	94.76	62.51	65.98	83.54	92.90	**1,416.77**
19	Sundarijal	SJHPS	670.28	655.37	642.02	649.89	575.12	382.37	420.31	338.56	314.20	235.22	304.68	597.45	**5,785.47**
	Total (Hydro)		**302,136.48**	**311,509.32**	**241,659.64**	**255,465.12**	**258,867.53**	**232,056.98**	**172,449.17**	**155,415.84**	**174,841.35**	**221,280.15**	**286,622.01**	**284,725.28**	**2,897,028.86**
20	Multifuel	MFPS	-	-	-	-	-	-	-	-	-	-	-	-	**-**
21	Hetauda Diesel	HDPS	1.87	2.32	0.96	0.98	1.72	1.13	0.76	1.34	1.24	0.76	-	-	**13.08**
	Total (Thermal)		1.87	2.32	0.96	0.98	1.72	1.13	0.76	1.34	1.24	0.76	-	-	**13.08**
	Grand Total		**302,138.36**	**311,511.64**	**241,660.59**	**255,466.10**	**258,869.25**	**232,058.11**	**172,449.93**	**155,417.18**	**174,842.59**	**221,280.91**	**286,622.01**	**284,725.28**	**2,897,041.94**

Nepal Electricity Authority
Power Trade Department
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Operation) as of FY 2079/80

S.N.	Developer	Projects	Location	Installed Capacity (kW)	PPA Date	Commercial Operation Date
Hydropower Projects (NEA's Subsidiary Companies)						
1	Chilime Hydro Power Company Ltd.	Chilime	Rasuwa	22100	2054.03.11	2060.05.08
2	Upper Tamakoshi Hydropower Ltd.	Upper Tamakoshi	Dolkha	456000	2067.09.14	2078.05.04
			SUB-TOTAL	**478100**		
Hydropower Projects (IPPs)						
1	Himal Power Ltd.	Khimti Khola	Dolakha	60000	2052.10.01	2057.03.27
2	Bhotekoshi Power Company Ltd.	Upper Bhotekoshi Khola	Sindhupalchowk	45000	2053.04.06	2057.10.11
3	Syange Electricity Company Limited	Syange Khola	Lamjung	183	2058.10.03	2058.10.10
4	National Hydro Power Company Ltd.	Indrawati - III	Sindhupalchowk	7500	2054.09.15	2059.06.21
5	Butwal Power Company Ltd.	Jhimruk Khola	Pyuthan	12000	2058.03.29	1994
6	Butwal Power Company Ltd.	Andhi Khola	Syangza	9400	2058.03.29	2071.12.22
7	Arun Valley Hydropower Development Co. (P.) Ltd.	Piluwa Khola Small	Sankhuwasabha	3000	2056.10.09	2060.06.01
8	Rairang Hydro Power Development Co. (P) Ltd.	Rairang Khola	Dhading	500	2059.08.27	2061.08.01
9	Sanima Hydropower (Pvt.) Ltd.	Sunkoshi Small	Sindhupalchowk	2500	2058.07.28	2061.12.11
10	Alliance Power Nepal Pvt.Ltd.	Chaku Khola	Sindhupalchowk	3000	2056.11.03	2062.03.01
11	Khudi Hydropower Ltd.	Khudi Khola	Lamjung	4000	2058.03.04	2063.09.15
12	Unique Hydel Co. Pvt.Ltd.	Baramchi Khola	Sindhupalchowk	4200	2058.12.14	2063.09.27
13	Thoppal Khola Hydro Power Co. Pvt. Ltd.	Thoppal Khola	Dhading	1650	2059.11.23	2064.07.13
14	Gautam Buddha Hydropower (Pvt.) Ltd.	Sisne Khola Small	Palpa	750	2061.04.29	2064.06.01
15	Kathmandu Small Hydropower Systems Pvt. Ltd.	Sali Nadi	Kathmandu	250	2062.04.24	2064.08.01
16	Khoranga Khola Hydropower Dev. Co. Pvt. Ltd.	Pheme Khola	Panchthar	995	2057.12.31	2064.08.05
17	Unified Hydropower (P.) Ltd.	Pati Khola Small	Parbat	996	2062.10.28	2065.10.27
18	Task Hydropower Company (P.) Ltd.	Seti-II	Kaski	979	2063.06.08	2065.11.14
19	Ridi Hydropower Development Co. (P.) Ltd.	Ridi Khola	Gulmi	2400	2063.05.08	2066.07.10
20	Centre for Power Dev. And Services (P.) Ltd.	Upper Hadi Khola	Sindhupalchowk	991	2064.04.07	2066.07.22
21	Gandaki Hydro Power Co. Pvt. Ltd.	Mardi Khola	Kaski	4800	2060.07.07	2066.10.08
22	Himal Dolkha Hydropower Company Ltd.	Mai Khola	Ilam	4500	2063.11.19	2067.10.14
23	Baneswor Hydropower Pvt. Ltd.	Lower Piluwa Small	Sankhuwasabha	990	2064.07.21	2068.04.01
24	Barun Hydropower Development Co. (P.) Ltd.	Hewa Khola	Sankhuwasabha	4455	2061.04.02	2068.04.17
25	Bhagawati Hydropower Development Co. (P.) Ltd.	Bijayapur-1	Kaski	4410	2066.03.30	2069.05.04
26	Nyadi Group (P.) Ltd.	Siuri Khola	Lamjung	4950	2064.04.17	2069.07.30
27	United Modi Hydropwer Pvt. Ltd.	Lower Modi 1	Parbat	10000	2065.10.20	2069.08.10
28	Synergy Power Development (P.) Ltd.	Sipring Khola	Dolakha	9658	2065.10.20	2069.10.03
29	Laughing Buddha Power Nepal (P.) Ltd.	Middle Chaku	Sindhupalchowk	1800	2066.11.03	2069.11.15
30	Aadishakti Power Dev. Company (P.) Ltd.	Tadi Khola (Thaprek)	Nuwakot	5000	2061.12.15	2069.12.14
31	Ankhu Khola Jal Bidhyut Co. (P.) Ltd.	Ankhu Khola - 1	Dhading	8400	2066.02.22	2070.05.05
32	Nepal Hydro Developer Pvt. Ltd.	Charanawati Khola	Dolakha	3520	2067.01.13	2070.02.24
33	Laughing Buddha Power Nepal Pvt. Ltd.	Lower Chaku Khola	Sindhupalchowk	1800	2063.07.02	2070.04.24
34	Bhairabkunda Hydropower Pvt. Ltd.	Bhairab Kunda	Sindhupalchowk	3000	2065.08.02	2071.02.22
35	Radhi Bidyut Company Ltd.	Radhi Khola	Lamjung	4400	2066.10.18	2071.02.31
36	Pashupati Environmental Eng. Power Co. Pvt. Ltd.	Chhote Khola	Gorkha	993	2067.11.09	2071.03.09
37	Mailung Khola Hydro Power Company (P.) Ltd.	Mailung Khola	Rasuwa	5000	2058.04.09	2071.03.19
38	Joshi Hydropower Development Company Limited	Upper Puwa -1	Illam	3000	2066.01.23	2071.10.01
39	Sanima Mai Hydropower Limited	Mai Khola	Ilam	22000	2067.01.08	2071.10.14
40	Bojini Company Private Limited	Jiri Khola Small	Dolakha	2200	2065.10.23	2071.11.01
41	Ruru Hydropower Project (P) Ltd.	Upper Hugdi Khola	Gulmi	5000	2066.04.04	2071.12.09
42	Prime Hydropower Co. Pvt. Ltd.	Belkhu	Dhading	518	2064.04.04	2071.12.30

43	Api Power Company Pvt. Ltd.	Naugadh gad Khola	Darchula	8500	2067.01.19	2072.05.02
44	Kutheli Bukhari Small Hydropower (P).Ltd	Suspa Bukhari	Dolakha	998	2069.04.32	2072.06.03
45	Sanima Mai Hydropower Ltd.	Mai Cascade	Ilam	7000	2069.10.12	2072.10.29
46	Chhyangdi Hydropower Limited	Chhandi	Lamjung	2000	2068.12.23	2072.12.13
47	Panchakanya Mai Hydropower Ltd. (Previously Mai Valley and prior to that East Nepal)	Upper Mai Khola	Ilam	9980	2061.12.19	2073.03.09
48	Sayapatri Hydropower Private Limited	Daram Khola A	Baglung	2500	2068.12.19	2073.03.12
49	Electro-com and Research Centre Pvt. Ltd.	Jhyadi Khola	Sindhupalchowk	2000	2067.01.30	2073.05.31
50	Khani Khola Hydropower Company Pvt. Ltd.	Tungun-Thosne	Lalitpur	4360	2069.04.05	2073.07.09
51	Daraudi Kalika Hydro Pvt. Ltd.	Daraudi Khola A	Gorkha	6000	2068.05.19	2073.08.13
52	Khani Khola Hydropower Company Pvt. Ltd.	Khani Khola	Lalitpur	2000	2069.04.05	2073.08.20
53	Sapsu Kalika Hydropower Co. Pvt. Ltd.	Miya Khola	Khotang	996	2069.08.10	2073.09.03
54	Sinohydro-Sagarmatha Power Company (P) Ltd.	Upper Marsyangdi "A"	Lamjung	50000	2067.09.14	2073.09.17
55	Madi Power Pvt. Ltd.	Upper Madi	Kaski	25000	2066.05.21	2073.09.25
56	Panchthar Power Company Pvt. Ltd.	Hewa Khola A	Panchthar	14900	2068.05.30	2073.10.22
57	Sanvi Energy pvt. Ltd.	Jogmai	Ilam	7600	2069.08.07	2074.01.18
58	Bhugol Energy Dev Compay (P). Ltd	Dwari Khola	Dailekh	3750	2069.12.30	2074.01.23
59	Mai Valley Hydropower Private Limited	Upper Mai C	Ilam	5100	2068.12.23	2074.04.09
60	Dronanchal Hydropower Co.Pvt.Ltd	Dhunge-Jiri	Dolakha	600	2068.09.25	2074.06.01
61	Dibyaswari Hydropower Limited	Sabha Khola	Sankhuwasabha	4000	2068.11.17	2074.06.02
62	Puwa Khola-1 Hydropower P. Ltd.	Puwa Khola -1	Ilam	4000	2070.10.09	2074.06.23
63	Shibani Hydropower Co. Pvt. Ltd.	Phawa Khola	Taplejung	4950	2063.12.01	2074.07.14
64	Mount Kailash Energy Pvt. Ltd.	Thapa Khola	Myagdi	13600	2067.10.11	2074.08.22
65	Mandakini Hydropower Limited	Sardi Khola	Kaski	4000	2068.11.11	2074.08.23
66	Garjang Upatyaka Hydropower (P.) Ltd.	Chake Khola	Ramechhap	2830	2065.11.06	2074.08.28
67	Union Hydropower Pvt Ltd.	Midim Karapu	Lamjung	3000	2069.10.28	2074.10.15
68	Syauri Bhumey Microhydro Project	Syauri Bhumey	Nuwako	23	2072.11.16	2074.10.18
69	Molung Hydropower Company Pvt. Ltd.	Molung Khola	Okhaldhunga	7000	2069.11.21	2074.12.12
70	Sikles Hydropower Pvt. Ltd.	Madkyu Khola	Kaski	13000	2066.08.03	2074.12.19
71	Himal Dolkha Hydropower Company Ltd.	Mai sana Cascade	Ilam	8000	2069.11.14	2074.12.26
72	Barahi Hydropower Pvt.ltd	Theule Khola	Baglung	1500	2066.12.16	2075.03.24
73	Leguwa Khola Laghu Jalbidhyut Sahakari Sastha Ltd.	Leguwa Khola	Dhankuta	40	2072.11.21	2075.03.28
74	Super Mai Hydropower Pvt. Ltd.	Super Mai	Illam	7800	2073.12.06	2075.07.11
75	Chimal Gramin Bidhyut Sahakari Sanstha Ltd.	Sobuwa Khola-2 MHP	Taplejung	90	2074.11.15	2075.07.14
76	Deurali Bahuudesiya Sahakari Sanstha Ltd.	Midim Khola	Lamjung	100	2070.02.20	2075.09.04
77	Bindhyabasini Hydropower Development Co. (P.) Ltd.	Rudi Khola A	Lamjung and Kaski	8800	2069.10.28	2075.12.04
78	Mandu Hydropower Ltd.	Bagmati Khola Small	Makawanpur/ Lalitpur	22000	2069.10.07	2075.12.19
79	Salmanidevi Hydropower (P). Ltd	Kapadi Gad	Doti	3330	2069.12.11	2076.02.25
80	Eastern Hydropower Pvt. Ltd.	Pikhuwa Khola	Bhojpur	5000	2066.07.24	2076.02.27
81	Mountain Hydro Nepal Pvt. Ltd.	Tallo Hewa Khola	Panchthar	22100	2071.04.09	2076.04.21
82	Pashupati Environmental Power Co. Pvt. Ltd.	Lower Chhote Khola	Gorkha	997	2072.08.04	2076.05.20
83	United Idi Mardi and R.B. Hydropower Pvt. Ltd.	Upper Mardi	Kaski	7000	2073.02.25	2076.06.20
84	Rairang Hydropower Development Company Ltd.	Iwa Khola	Taplejung	9900	2070.01.29	2076.06.20
85	Api Power Company Pvt. Ltd.	Upper Naugad Gad	Darchula	8000	2073.07.12	2076.07.13
86	Arun Kabeli Power Ltd.	Kabeli B-1	Taplejung, Panchthar	25000	2069.03.29	2076.07.23

87	Rangoon Khola Hydropower Pvt. Ltd.	Jeuligad	Bajhang	996	2071.10.20	2076.08.27
88	Dolti Power Company Pvt. Ltd.	Padam Khola	Dailekh	4800	2074.08.01	2076.09.08
89	Bindhyabasini Hydropower Development Co. (P.) Ltd.	Rudi Khola B	Lamjung and Kaski	6600	2071.4.20	2076.11.05
90	Ghalemdi Hydro Limited (Previously, Cemat Power Dev Company (P). Ltd.)	Ghalemdi Khola	Myagdi	5000	2069.12.30	2076.11.05
91	Terhathum Power Company Pvt. Ltd.	Upper Khorunga	Terhathum	7500	2073.07.29	2076.11.17
92	Sagarmatha Jalabidhyut Company Pvt. Ltd.	Super Mai 'A'	Illam	9600	2074.11.14	2077.02.32
93	Mai Khola Hydropower Pvt. Ltd.	Super Mai Cascade	Illam	3800	2074.12.07	2077.03.31
94	Century Energy Pvt. Ltd.	Hadi Khola Sunkoshi A	Sindhupalchowk	997	2074.05.05	2077.05.12
95	Rawa Energy Development Pvt. Ltd.	Upper Rawa	Khotang	3000	2073.04.24	2077.06.04
96	Himalayan Hydropower Pvt. Ltd.	Namarjun Madi	Kaski	11880	2066.05.30	2077.06.12
97	Manakamana Engineering Hydropower Pvt. Ltd.	Ghatte Khola	Dolakha	5000	2070.04.28	2077.07.23
98	Civil Hydropower Pvt. Ltd.	Bijayapur 2 Khola Small	Kaski	4500	2072.09.12	2077.11.18
99	Taksar-Pikhuwa Hydropower Pvt. Ltd.	Taksar Pikhuwa	Bhojpur	8000	2073.09.01	2078.01.01
100	Shiva Shree Hydropower (P.) Ltd.	Upper Chaku A	Sindhupalchowk	22200	2067.05.22	2078.02.01
101	Mountain Energy Nepal Ltd.(Previously Robust Energy Pvt. Ltd.)	Mistri Khola	Myagdi	42000	2067.10.20	2078.03.03
102	Singati Hydro Energy Pvt. Ltd.	Singati Khola	Dolakha	25000	2070.07.27	2078.04.17
103	Richet Jalbidhyut Company Pvt. Ltd.	Richet Khola	Gorkha	4980	2073.02.23	2078.04.28
104	Samling Power Company Pvt. Ltd.	Mai Beni	Illam	9510	2073.07.26	2078.06.01
105	Modi Energy Ltd. (Prv. Manang Trade Link Pvt. Ltd.)	Lower Modi	Parbat	20000	2068.05.20	2078.06.14
106	Asian Hydropower Pvt. Ltd.	Lower Jogmai	Illam	6200	2074.12.07	2078.07.15
107	Green Ventures Pvt. Ltd.	Likhu-IV	Ramechhap	52400	2067.10.19	2078.07.21
108	Chhyangdi Hydropower Limited	Upper Chhyangdi Khola	Lamjung	4000	2074.03.22	2078.08.24
109	Universal Power Company Ltd.	Lower Khare	Dolakha	11000	2069.10.22	2078.09.06
110	Three Star Hydropower Company Ltd.	Sapsup Khola	Khotang	6600	2075.03.25	2078.09.23
111	Numbur Himalaya Hydropower Pvt. Ltd.	Likhu Khola A	Solukhumbu Ramechap	24200	2071.11.22	2078.10.25
112	Upper Solu Hydroelectric Company Pvt. Ltd	Solu Khola	Solukhumbu	23500	2070.07.24	2078.11.08
113	Upper Syange Hydropower P. Ltd.	Upper Syange Khola	Lamjung	2400	2072.06.14	2078.11.15
114	Buddha Bhumi Nepal Hydro Power Co. Pvt. Ltd.	Lower Tadi	Nuwakot	4993	2070.12.10	2078.12.10
115	Arun Valley Hydropower Development Company Ltd.	Kabeli B-1 Cascade	Panchthar	9940	2075.08.09	2078.12.12
116	Upper Hewa Khola Hydropower Co. Pvt. Ltd.	Upper Hewa Khola Small	Sankhuwasabha	8500	2072.09.23	2078.12.19
117	Makar Jitumaya Suri Hydropower Ltd. (Prv. Suri Khola Hydropower Pvt. Ltd.)	Suri Khola	Dolakha	6400	2072.02.20	2079.01.18
118	Nyadi Hydropower Limited	Nyadi	Lamjung	30000	2072.02.12	2079.01.27
119	Himalaya Urja Bikas Co. Pvt. Ltd.	Upper Khimti	Ramechhap	12000	2067.10.09	2079.02.04
120	Himalaya Urja Bikas Co. Ltd.	Upper Khimti II	Ramechhap	7000	2069.12.09	2079.02.17
121	Himalayan Power Partner Pvt. Ltd.	Dordi Khola	Lamjung	27000	2069.03.01	2079.06.14
122	Dordi Khola Jal Bidyut Company Ltd.	Dordi-1 Khola	Lamjung	12000	2071.07.19	2079.06.14
123	Aashutosh Energy Pvt. Ltd.	Chepe Khola Small	Lamjung	8630	2075.02.15	2079.06.16
124	Saidi Power Co. (Pvt.) Ltd.	Saiti Khola	Kaski	999	2077.06.13	2079.07.01
125	Swet-Ganga Hydropower and Construction Ltd.	Lower Likhu	Ramechhap	28100	2073.09.14	2079.07.19
126	Balephi Hydropower Limited (Prv. Huaning Development Pvt. Ltd.)	Upper Balephi A	Sindhupalchowk	36000	2072.08.29	2079.08.06
127	People's Power Limited	Puwa - 2	Illam	4960	2074.05.05	2079.08.12
128	Liberty Hydropower Pvt. Ltd.	Upper Dordi A	Lamjung	25000	2069.06.02	2079.08.17

129	Middle Modi Hydropower Ltd.	Middle Modi	Parbat	15100	2069.08.21	2079.09.07
130	Mid Solu Hydropower Company Pvt. Ltd.	Mid Solu Khola	Solukhumbu	9500	2075.04.21	2079.09.15
131	Kalanga Hydro Pvt. Ltd.	Kalangagad	Bajhang	15330	2072.03.15	2079.10.27
132	Sanigad Hydro Pvt. Ltd.	Upper Kalangagad	Bajhang	38460	2072.03.15	2079.11.06
133	Hydro Venture Private Limited	Solu Khola (Dudhkoshi)	Solukhumbu	86000	2071.11.13	2079.11.17
134	Bikash Hydropower Company Pvt. Ltd.	Upper Machha Khola Small	Gorkha	4550	2075.07.11	2079.11.17
135	Menchhiyam Hydropower Pvt. Ltd.	Upper Piluwa Khola 2	Sankhuwasabha	4720	2072.05.11	2079.11.22
136	Makari Gad Hydropower Pvt. Ltd.	Makarigad	Darchula	10000	2072.08.29	2079.11.27
137	Super Madi Hydropower Ltd. (Previously Himal Hydro and General Construction Ltd.)	Super Madi	Kaski	44000	2073.10.27	2079.12.27
138	Rapti Hydro and General Construction Pvt. Ltd.	Rukumgad	Rukum	5000	2073.03.07	2079.12.28
139	Peoples' Hydropower Company Pvt. Ltd.	Super Dordi 'Kha'	Lamjung	54000	2071.11.13	2080.02.08
140	Beni Hydropower Project Pvt. Ltd.	Upper Solu	Solukhumbu	18236	2069.09.16	2080.03.01
141	Maya Khola Hydropower Co. Pvt. Ltd.	Maya Khola	Sankhuwasabha	14900	2070.08.30	2080.03.22
			SUB-TOTAL	**1477013**		
Solar Projects (IPPs)						
1	Kathmandu Upatyaka Khanepani bewasthapan Board Surya Power Company Pvt. Ltd.	Solar	Lalitpur	680.4	2069.06.12	2069.07.15
2	Ridi Hydropower Development Co. Ltd.	Bishnu Priya Solar Farm Project	Nawalparasi	960	2074.04.08	2075.08.13
3	Eco Power Development Company Pvt. Ltd	Butwal Solar Project	Rupandehi	8500	2075.06.09	2077.07.15
4		Mithila Solar PV Electric Project	Dhanusha	10000	2075.09.16	2077.11.22
5	Api Power Company Ltd.	Chandranigahpur Solar Project	Rautahat	4000	2075.04.27	2078.05.06
6	Solar Farm Pvt. Ltd.	Belchautara Solar Project	Tanahun	5000	2075.04.23	2078.07.01
7	Api Power Company Ltd.	Dhalkebar Solar Project	Dhanusha	1000	2075.05.03	2078.10.02
8	Sagarmatha Energy and Construction Pvt. Ltd.	Dhalkebar Solar Project	Dhanusha	3000	2075.06.24	2078.11.21
9	Api Power Company Ltd.	Simara Solar Project	Bara	1000	2075.05.03	2079.04.08
10	National Solar Power Co. Pvt. Ltd.	Grid Connected Solar PV Project (VGF)	Nawalparasi	5000	2076.11.23	2079.05.27
11	Nepal Solar Farm Pvt. Ltd.	Som RadhaKrishna Solar Farm Project (VGF)	Kaski	4000	2076.11.23	2079.07.14
12	G.I. Solar Pvt. Ltd.	Grid Connected Solar Project, Morang	Morang	6800	2078.08.27	2079.12.30
13	Saurya Bidhyut Power Pvt. Ltd.	Grid Connected Solar Project, Nawalparasi	Nawalparasi	2000	2077.12.20	2080.01.02
14	Pure Energy Pvt. Ltd.	Solar PV Project (1033),	Banke	10000	2078.08.12	2080.01.18
		Nainapur, Banke, Block-2	**SUB-TOTAL**	**61940.4**		
BAGASSE (IPPs)						
1	Indushankar Chini Udhyog Ltd.	Indushankar Chini Udhyog Ltd.	Sarlahi	3000	2075.06.10	2078.11.01
2	Everest Sugar and Chemical Industries Ltd.	Everest Sugar and Chemical Industries Ltd.	Mahottari	3000	2075.06.17	2077.10.26
			SUB-TOTAL	**6000**		
			TOTAL	**2023053.4**		

Nepal Electricity Authority
Power Trade Department
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Under Construction) as of FY 2079/80 (Financial Closure concluded projects)

S.N.	Developer	Projects	Location	Installed Capacity (kW)	PPA Date
Hydropower Projects (NEA's Subsidiary Companies)					
1	Sanjen Hydropower Co.Limited	Upper Sanjen	Rasuwa	14800	2068.06.23
2	Middle Bhotekoshi Jalbidhyut Company Ltd.	Middle Bhotekoshi	Sindhupalchowk	102000	2068.07.28
3	Chilime Hydro Power Company Ltd.	Rasuwagadhi	Rasuwa	111000	2068.07.28
5	Trishuli Jal Vidhyut Company Ltd.	Upper Trishuli 3B	Rasuwa	37000	2074.05.06
6	Tanahun Hydropower Ltd.	Tanahun	Tanahun	140000	2075.03.15
7	Raghuganga Hydropower Ltd.	Rahughat	Myagdi	40000	2075.12.18
			SUB-TOTAL	573367	
Hydropower Projects (IPPs)					
1	Nama Buddha Hydropower Pvt. Ltd.	Tinau Khola Small	Palpa	1665	2065.03.31
2	Jumdi Hydropower Pvt. Ltd.	Jumdi Khola	Gulmi	1750	2066.10.21
3	Hira Ratna Hydropower P.ltd	Tadi Khola	Nuwakot	5000	2067.01.09
4	Energy Engineering Pvt. Ltd.	Upper Mailung A	Rasuwa	6420	2067.03.25
5	Greenlife Energy Pvt. Ltd.	Khani khola-1	Dolakha	40000	"2067.06.24 (25 MW) 2074.02.21 (15 MW)"
6	Mathillo Mailung Khola Jalbidhyut Ltd.	Upper Mailun	Rasuwa	14300	2068.05.23
7	Water and Energy Nepal Pvt. Ltd.	Badi Gad	Baglung	6600	2068.08.13
8	Gelun Hydropower Co.Pvt.Ltd	Gelun	Sindhupalchowk	3200	2068.09.25
9	Dariyal Small Hydropower Pvt.Ltd	Upper Belkhu	Dhading	996	2068.11.28
10	Suryakunda Hydroelectric Pvt. Ltd.	Upper Tadi	Nuwakot	11000	2068.12.03
11	Sasha Engingeering Hydropower (P). Ltd	Khani Khola(Dolakha)	Dolakha	30000	2069.03.25
12	Rising Hydropower Compnay Ltd.	Selang Khola	Sindhupalchowk	990	2069.03.31
13	Lower Irkhuwa Hydropower Co. Pvt. Ltd.	Lower Irkhuwa	Bhojpur	13040	2075.02.16
14	Hydro Innovation Pvt. Ltd.	Tinekhu Khola	Dolakha	990	2069.06.08
15	Salankhu Khola Hydropower Pvt. Ltd.	Salankhu Khola	Nuwakot	2500	2069.06.14
16	Moonlight Hydropower Pvt. Ltd.	Balephi A	Sindhupalchowk	22140	"2069.07.14 (10.6 MW) 2077.09.13 (11.54 MW)"
17	Reliable Hydropower Co. Pvt. Ltd.	Khorunga Khola	Terhathum	4800	2069.08.26
18	Rara Hydropower Development Co. Pvt. Ltd.	Upper Parajuli Khola	Dailekh	2150	2069.08.28
19	Lohore Khola Hydropower Co. Pvt. Ltd.	Lohore Khola	Dailekh	4200	2069.09.08
20	Dudhkoshi Power Company Pvt. Ltd.	Rawa Khola	Khotang	6500	2069.09.26
21	Madhya Midim Jalbidhyut Company P. Ltd.	Middle Midim	Lamjung	4800	2069.10.23 (3.1 MW) 2079.05.12 (1.7 MW)
22	Volcano Hydropower Pvt. Ltd.	Teliya Khola	Dhankuta	996	2069.10.25
23	Betrawoti Hydropower Company (P).Ltd	Phalankhu Khola	Rasuwa	13700	2069.12.06
24	Dovan Hydropower Company Pvt. Ltd.	Junbesi Khola	Solukhumbu	5200	2069.12.29
25	Tallo Midim Jalbidhut Company Pvt. Ltd.	Lower Midim	Lamjung	996	2070.01.19
26	Tangchhar Hydro Pvt. Ltd	Tangchhahara	Mustang	2200	2070.02.20

27	Abiral Hydropower Co. Pvt. Ltd.	Upper Khadam	Morang	990	2070.02.21
28	Essel-Clean Solu Hydropower Pvt. Ltd.	Lower Solu	Solukhumbu	82000	2070.07.15
29	Consortium Power Developers Pvt. Ltd.	Khare Khola	Dolakha	24100	2070.07.15
30	Idi Hydropower Co. P. Ltd.	Idi Khola	Kaski	975	2070.09.01
31	River Falls Hydropower Development Pvt. Ltd.	Down Piluwa	Sankhuwasabha	10300	2071.10.18
32	Global Hydropower Associate Pvt. Ltd.	Likhu-2	Solukhumbu Ramechap	33400	2071.11.19
33	Paan Himalaya Energy Private Limited	Likhu-1	Solukhumbu Ramechap	51400	2071.11.19
34	Dipsabha Hydropower Pvt. Ltd.	Sabha Khola A	Sankhuwasabha	9990	2071.12.02
35	Research and Development Group Pvt. Ltd.	Rupse Khola	Myagdi	4000	2071.12.17
36	Hydro Empire Pvt. Ltd.	Upper Myagdi	Myagdi	20000	2071.12.17
37	Chandeshwori Mahadev Khola MH. Co. Pvt. Ltd.	Chulepu Khola	Ramechhap	8520	2071.12.23
38	Bungal Hydro Pvt. Ltd. (Previously Sanigad Hydro Pvt. Ltd.)	Upper Sanigad	Bajhang	10700	2072.03.15
39	Dhaulagiri Kalika Hydro Pvt. Ltd.	Darbang-Myagdi	Myagdi	25000	2072.04.28
40	Kabeli Energy Limited	Kabeli-A	Panchthar and Taplejung	37600	2072.06.07
41	Peoples Energy Ltd. (Previously Peoples Hydro Co-operative Ltd.)	Khimti-2	Dolakha and Ramechhap	48800	2072.06.14
42	Chauri Hydropower (P.) Ltd.	Chauri Khola	Kavrepalanchowk, Ramechhap, Sindhupalchowk, Dolakha	6000	2072.06.14 (5 MW) 2076.01.06 (1 MW)
43	Multi Energy Development Pvt. Ltd.	Langtang Khola	Rasuwa	20000	2072.09.29
44	Ankhu Hydropower (P.) Ltd.	Ankhu Khola	Dhading	34000	2073.01.30
45	Myagdi Hydropower Pvt. Ltd.	Ghar Khola	Myagdi	14000	2073.02.11
46	Siddhi Hydropower Company Pvt. Ltd.	Siddhi Khola	Illam	10000	2074.05.29
47	Nilgiri Khola Hydropower Co. Ltd.	Nilgiri Khola	Myagdi	38000	2073.11.30
48	Siuri Nyadi Power Pvt. Ltd.	Super Nyadi	Lamjung	40270	2074.02.19
49	Nilgiri Khola Hydropower Co. Ltd.	Nilgiri Khola-2 Cascade	Myagdi	71000	2074.03.05
50	Sano Milti Khola Hydropower Ltd.	Sano Milti	Ramechhap and Dolakha	3000	2073.01.13
51	Diamond Hydropower Pvt. Ltd.	Upper Daraudi-1	Gorkha	10000	2072.08.14
52	Rasuwa Hydropower Pvt. Ltd	Phalanku Khola	Rasuwa	7290	2071.08.24
53	Mount Nilgiri Hydropower Company Pvt. Ltd.	Rurubanchu-1	Kalikot	13500	2074.05.08
54	Sindhujwala Hydropower Ltd.	Upper Nyasem	Sindhupalchowk	41400	2073.07.24
55	Energy Venture Pvt. Ltd.	Upper Lapche	Dolakha	52000	2073.04.20
56	Orbit Energy Pvt. Ltd. (Previously Pokhari Hydropower Company Pvt. Ltd.)	Sabha Khola B	Sankhuwasabha	15100	2074.03.26
57	Daram Khola Hydro Energy Ltd.	Daram Khola	Baglung and Gulmi	9600	2073.10.09
58	Him River Power Pvt. Ltd.	Liping Khola	Sindhupalchowk	16260	2073.02.28
59	Madhya Tara Khola Hydropower P. Ltd. (Prv. Pahadi Hydro Power Company (P.) Ltd.)	Madhya Tara Khola Small	Baglung	2200	2073.10.26

60	Nepal Water and Energy Development Company Pvt. Ltd.	Upper Trishuli - 1	Rasuwa	216000	2074.10.14
61	Mewa Developers Pvt. Ltd.	Middle Mewa	Taplejung	73500	2075.05.04
62	Him Star Urja Co. Pvt. Ltd.	Buku Kapati	Okhaldhunga and Solukhumbu	5000	2074.10.11
63	Jhyamolongma Hydropower Development Company Pvt. Ltd.	Karuwa Seti	Kaski	32000	2074.04.20
64	Nasa Hydropower Pvt. Ltd.	Lapche Khola	Dolakha	99400	2074.07.29
65	Sanvi Energy Pvt. Ltd.	Jogmai Cascade	Illam	6000	2075.05.07
66	Sanima Middle Tamor Hydropower Ltd. (Prv. Tamor Sanima Energy Pvt. Ltd.)	Middle Tamor	Taplejung	73000	2073.09.26
67	Vision Energy and Power Pvt. Ltd.	Nupche Likhu	Ramechhap	57500	2074.11.28
68	Tundi Power Pvt.Ltd	Rahughat Mangale	Myagdi	35500	2075.03.29
69	Him Consult Pvt. Ltd.	Rele Khola	Myagdi	6000	2074.01.28
70	Parbat Paiyun Khola Hydropower Company Pvt. Ltd.	Seti Khola	Parbat	3500	2074.02.22
71	Chirkhwa Hydropower Pvt. Ltd.	Upper Chirkhwa	Bhojpur	4700	2073.03.01
72	Yambling Hydropower Pvt. Ltd.	Yambling Khola	Sindhupalchowk	7270	2072.09.29
73	Gaurishankar Power Development Pvt. Ltd.	Middle Hyongu Khola B	Solukhumbu	22900	2074.12.08
74	Upper Lohore Khola Hydropower Co. Pvt. Ltd.	Upper Lohore	Dailekh	4000	2074.12.08
75	Unitech Hydropower Co. Pvt. Ltd.	Upper Phawa	Taplejung	5800	2074.11.11
76	Omega Energy Developer Pvt. Ltd.	Sunigad	Bajhang	11050	2074.11.30
77	Gorakshya Hydropower Pvt. Ltd.	Super Ankhu Khola	Dhading	23500	2074.03.15
78	Api Power Company Ltd.	Upper Chameliya	Darchula	40000	2075.11.15
79	Vision Lumbini Ltd.	Seti Nadi	Kaski	25000	2075.08.06
80	Dolakha Nirman Company Pvt. Ltd.	Isuwa Khola	Sankhuwasabha	97200	2075.06.26
81	Kasuwa Khola Hydropower Ltd.	Kasuwa Khola	Sankhuwasabha	45000	2075.08.13
82	Apex Makalu Hydro Power Pvt. Ltd.	Middle Hongu Khola A	Solukhumbu	22000	2075.05.14
83	Tundi Power Pvt.Ltd	Upper Rahughat	Myagdi	48500	2075.03.29
84	Blue Energy Pvt. Ltd.	Super Trishuli	Gorkha and Chitwan	70000	2075.07.11
85	Mabilung Energy (P.) Ltd	Upper Piluwa Khola -3	Sankhuwasabha	4950	2075.12.12
86	Samyukta Urja Pvt. Ltd. (Prv. Sungava Foundation Pvt. Ltd.)	Thulo Khola	Myagdi	21300	2075.02.17
87	Bhujung Hydropower Pvt. Ltd.	Upper Midim	Lamjung	7500	2074.05.29
88	Shaileshwari Power Nepal Pvt. Ltd.	Upper Gaddigad	Doti	1550	2075.04.06
89	Ridge Line Energy Pvt. Ltd.	Super Chepe	Gorkha Lamjung	9050	2075.12.19
90	Makar Jitumaya Hydropower Pvt. Ltd.	Upper Suri	Dolakha	7000	2075.04.10
91	Mount Rasuwa Hydropower Pvt. Ltd.	Midim 1 Khola	Lamjung	13424	2075.10.07
92	Sewa Hydro Ltd.	Lower Selang	Sindhupalchowk	1500	2074.02.22
93	Himalayan Water Resources and Energy Development Co. Pvt. Ltd.	Upper Chauri	Kavrepalanchowk	6000	2074.07.27
94	Hilton Hydro Energy Pvt. Ltd.	Super Kabeli	Taplejung	12000	2075.11.02
95	Snow Rivers Pvt. Ltd.	Super Kabeli A	Taplejung	13500	2075.11.02
96	Dhading Ankhu Khola Hydro Pvt. Ltd.	Upper Ankhu	Dhading	38000	2075.06.14
97	Isuwa Energy Pvt. Ltd.	Lower Isuwa Cascade	Sankhuwasabha	40100	2077.09.27

98	White Lotus Power Pvt. Ltd. (Prv. North Summit Hydro Pvt.Ltd.)	Hidi Khola	Lamjung	6820	2079.11.11 2075.10.04
99	Sailung Power Company Pvt. Ltd.	Bhotekoshi-1	Sindhupalchowk	40000	
100	Orbit Energy Pvt. Ltd.	Sabha Khola C	Sankhuwasabha	4196	2075.03.15
101	River Side Hydro Energy Pvt. Ltd.	Tamor Khola-5	Taplejung	37520	2075.12.10
102	Palun Khola Hydropower Pvt. Ltd.	Palun Khola	Taplejung	21000	2075.12.04
103	Perfect Energy Development Pvt. Ltd	Middle Trishuli Ganga	Nuwakot	19410	2075.04.06
104	Silk Power (Prv. Maa Shakti Engineering & hydropower Pvt. Ltd.)	Luja Khola	Solukhumbu	24824	2075.09.03 2075.10.16
105	LC Energy Pvt. Ltd. (Prv. Chirkhwa Hydropower Pvt. Ltd.)	Lower Chirkhwa	Bhojpur	4060	2074.01.20
106	Apolo Hydropower Pvt. Ltd.	Buku Khola	Solukhumbu	6000	
107	Barpak Daruadi Hydropower Pvt. Ltd.	Middle Super Daraudi	Gorkha	10000	2070.02.02
108	Ingwa Hydro Power Pvt. Ltd	Upper Ingwa khola	Taplejung	9700	2075.11.23
109	Hydro Village Pvt. Ltd.	Myagdi Khola	Myagdi	57300	2068.03.10
110	Milke Jaljale Hydropower Pvt.Ltd.	Upper Piluwa Hills	Sankhuwasabha	4990	2075.06.04
111	Arati Power Company Ltd.	Upper Irkhuwa	Bhojpur	14500	2075.12.04
112	Union Mewa Hydro Ltd.	Mewa Khola	Taplejung	23000	2075.04.01
113	Sajha Power Development Pvt. Ltd.	Lower Balephi	Sindhupalchowk	20000	2075.10.04
114	Mewa Developers Pvt. Ltd	Siwa Khola	Taplejung	9300	2075.10.06
			SUB TOTAL	**2500342**	**2079.05.20**
Solar Projects (IPPs)					
1	Gorkha Congenial Energy and Investment Pvt. Ltd.	Lamahi Solar Project	Dang	3000	
2	Global Energy and Construction Pvt. Ltd.	Duhabi Solar Project	Sunsari	8000	2075.06.24
3	Api Power Company Ltd.	Parwanipur Solar Project	Parsa	8000	2075.06.25
4	Pure Energy Pvt. Ltd.	Solar PV Project (1032),	Banke	10000	2075.04.27
		Nainapur, Banke, Block-1			2078.08.12
			SUB-TOTAL	**29000**	
			TOTAL	**3102709**	

Nepal Electricity Authority
Power Trade Department
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Different Stages of Development) as of FY 2079/80 (Without Financial Closure)

S.N.	Developer	Projects	Location	Installed Capacity (kW)	PPA Date
Hydropower Projects (NEA's Subsidiary Companies)					
1	Modi Jalvidhyut Company Ltd.	Upper Modi 'A'	Kaski	42000	2080.03.11
			SUB-TOTAL	**42000**	
Hydropower Projects (IPPs)					
1	Balephi Jalbidhyut Co. Ltd.	Balephi	Sindhupalchowk	23520	2067.09.08
2	United Modi Hydropwer Ltd.	Lower Modi 2	Parbat	10500	2072.11.14
3	Salasungi Power Limited	Sanjen Khola	Rasuwa	78000	2072.12.02
4	Sisa Hydro Electric Company Pvt. Ltd.	Sisa Khola A	Solukhumbu	2800	2073.10.28
5	Himali Rural Electric Co-operative Ltd.	Leguwa Khola Small	Dhankuta	640	2074.02.08
6	Sabha Pokhari Hydro Power (P.) Ltd.	Lankhuwa Khola	Sankhuwasabha	5000	2074.02.21
7	United Mewa Khola Hydropower Pvt. Ltd.	Mewa Khola	Taplejung	50000	2074.02.21
8	Nyam Nyam Hydropower Company Pvt. Ltd.	Nyam Nyam Khola	Rasuwa	6000	2074.03.27
9	Saptang Hydro Power Pvt. Ltd.	Saptang Khola	Nuwakot	2500	2074.04.08
10	IDS Energy Pvt. Ltd.	Lower Khorunga	Terhathum	5500	2074.08.24
11	Langtang Bhotekoshi Hydropower Company Pvt. Ltd.	Rasuwa Bhotekoshi	Rasuwa	120000	2074.09.07
12	Upper Richet Hydropower Pvt. Ltd.	Upper Richet	Gorkha	2000	2074.09.20
13	Khechereswor Jal Vidhyut Pvt. Ltd.	Jadari Gad Small	Bajhang	1000	2074.10.12
14	Khechereswor Jal Vidhyut Pvt. Ltd.	Salubyani Gad Small	Bajhang	233	2074.10.12
15	Gaughar Ujjyalo Sana Hydropower Co. Pvt. Ltd.	Ghatte Khola Small	Sindhupalchowk	970	2074.11.11
16	Seti Khola Hydropower Pvt. Ltd.	Seti Khola	Kaski	22000	2074.11.11
17	Super Hewa Power Company Pvt. Ltd.	Super Hewa	Sankhuwasabha	6000	2074.12.27
18	Baraha Multipower Pvt. Ltd.	Irkhuwa Khola B	Bhojpur	15524	2075.02.14
19	Jhilimili Hydropower Co. Pvt. Ltd.	Gulangdi Khola	Gulmi	980	2075.02.24
20	North Summit Hydro Pvt. Ltd.	Nyadi Phidi	Lamjung	21400	2075.02.24
21	Himali Hydro Fund Pvt. Ltd.	Sona Khola	Taplejung	9000	2075.03.14
22	Jalshakti Hydro Company Pvt. Ltd.	Ilep (Tatopani)	Dhading	23675	2075.03.25
23	Mount Everest Power Development Pvt. Ltd.	Dudhkunda Khola	Solukhumbu	12000	2075.04.01
24	Him Parbat Hydropower Pvt. Ltd.	Sagu Khola-1	Dolakha	5500	2075.04.10
25	Him Parbat Hydropower Pvt. Ltd.	Sagu Khola	Dolakha	20000	2075.04.10
26	Annapurna Bidhyut Bikas Co. Pvt. Ltd.	Landruk Modi	Kaski	86590	2075.04.13
27	Madame Khola Hydropower Pvt. Ltd.	Madame Khola	Kaski	24000	2075.04.15
28	Thulo Khola Hydropower Pvt. Ltd.	Upper thulo Khola-A	Myagdi	22500	2075.04.24
29	Kalika Energy Ltd.	Bhotekoshi-5	Sindhupalchowk	62000	2075.04.25
30	Super Ghalemdi Hydropower Pvt. Ltd.	Super Ghalemdi	Myagdi	9140	2075.05.05
31	Dibyajyoti Hydropower Pvt. Ltd.	Marsyangdi Besi	Lamjung	50000	2075.05.10
32	Amar Jyoti Hydro Power Pvt. Ltd.	Istul Khola	Gorkha	1506	2075.05.13
33	Ichowk Hydropower Pvt. Ltd.	Gohare Khola	Sindhupalchowk	950	2075.05.25
34	Pike Hydropower Pvt. Ltd.	Likhu Khola	Ramechhap and Okhaldhunga	30000	2075.05.26
35	Sita Hydro Power Co. Pvt. Ltd.	Nyasim Khola	Sindhupalchowk	35000	2075.05.26
36	Sushmit Energy Pvt. Ltd.	Kunaban Khola	Myagdi	20000	2075.05.29
37	Masina Paryatan Sahakari Sanstha Ltd.	Masina	Kaski and Tanahu	891	2075.06.02
38	Shikhar Power Development Pvt. Ltd.	Bhim Khola	Baglung	4960	2075.06.10
39	Phedi Khola Hydropower Company Pvt. Ltd.	Phedi Khola (Thumlung)	Bhojpur	3520	2075.06.21
40	Sita Hydropower Co. Pvt. Ltd.	Dudh Khola	Manang	65000	2075.07.11
41	Kalinchowk Hydropower Ltd.	Sangu (Sorun)	Dolakha	5000	2075.08.09
42	Ruru Hydroelectric Company Pvt. Ltd.	Rurubanchu Khola-2	Kalikot	12000	2075.08.20

43	Gumu Khola Bhyakure Hydropower Pvt. Ltd.	Gumu Khola	Dolakha	950	2075.08.21
44	Alliance Energy Solutions Pvt.Ltd.	Upper Sit Khola	Argakhanchi	905	2075.08.23
45	Ekikrit Byapar Company Pvt. Ltd.	Brahamayani	Sindhupalchowk	35470	2075.08.24
46	Integrated Hydro Fund Nepal Pvt. Ltd.	Upper Brahamayani	Sindhupalchowk	15150	2075.08.24
47	Kabeli Hydropower Company Pvt.Ltd.	Kabeli-3	Taplejung	21930	2075.10.03
48	Sindhujwala Hydropower Ltd.	Upper Nyasem Khola A	Sindhupalchowk	21000	2075.10.06
49	Habitat Power Company Pvt. Ltd	Hewa Khola "A"	Panchthar	5000	2075.10.07
50	Ruby Valley Hydropower Company Ltd	Menchet Khola	Dhading	7000	2075.10.15
51	Dudhpokhari Chepe Hydropower Pvt. Ltd.	Dudhpokhari Chepe	Gorkha	8800	2075.10.15
52	Sankhuwasabha Power Development Pvt. Ltd.	Super Sabha Khola	Sankhuwasabha	4100	2075.10.23
53	Jal Urja Pvt. Ltd.	Nuagad	Darchula	1000	2075.11.03
54	Champawati Hydropower Pvt. Ltd	Chepe khola A	Lamjung	7000	2075.11.07
55	Helambu Construction Pvt. Ltd	Ksumti khola	Sindhupalchowk	683	2075.11.29
56	Hydro Connection Pvt. Ltd.	Rauje Khola	Solukhumbu	17712	2075.12.04
57	Ambe Hydropower Pvt. Ltd.	Upper Bhurundi	Parbat	3750	2075.12.10
58	Dhaulagiri Civil Electrical and Mechanical Engineering Pvt. Ltd.	Madhya Daram Khola A	Baglung	3000	2075.12.26
59	Dhaulagiri Civil Electrical and Mechanical Engineering Pvt. Ltd.	Madhya Daram Khola B	Baglung	4500	2075.12.26
60	Bhalaudi Khola Hydropower Pvt. Ltd.	Bhalaudi Khola	Kaski	2645	2076.01.06
61	Kalika Construction Pvt. Ltd.	Upper Daraudi B	Gorkha	8300	2076.01.09
62	Kalika Construction Pvt. Ltd.	Upper Daraudi C	Gorkha	9820	2076.01.09
63	Super Khudi Hydropower Pvt. Ltd.	Upper Khudi	Lamjung	21210	2076.01.11
64	Manang Marsyangdi Hydropower Company Pvt. Ltd.	Manang Marsyangdi	Manang	135000	2077.12.09
65	Syarpu Power Company Limited	Syarpu Khola	Rukum	3236	2078.04.11
66	Dudh koshi Hydropower Private Ltd	Dudhkoshi 2 - Jaleshwor	Solokhumbhu	70000	2078.08.06
67	Sani Bheri Hydropower Co. Pvt. Ltd	Sani Bheri 3	Rukum	46720	2078.08.06
68	Dipjyoti Hydropower Pvt. Ltd.	Khani Khola	Dolakha	550	2078.08.10
69	Melamchi Hydro Pvt.Ltd.	Ribal khola	Sindhupalchowk	998	2078.08.10
70	Puwa Khola-1 Hydropower Pvt. Ltd.	Aayu Malun khola	Okhaldhunga	21000	2078.11.01
71	Bigu Hydro Venture Pvt. Ltd.	Pegu Khola	Dolakha	3000	2079.03.30
72	Halesi Urja Pvt. Ltd.	Madhya Rawa	Khotang	2000	2079.05.15
73	Maulakalika Hydropower Company Pvt. Ltd.	Kalika Kaligandaki	Tanahu	38160	2079.05.21
74	Jurimba Hydropower Co. Pvt. Ltd.	Jurimba Khola	Sindhupalchowk	7630	2079.05.27
75	S.K Energy Development Pvt. Ltd.	Shyam Khola	Bhojpur	7200	2079.07.17
76	Terhathum Power Company Ltd.	Khorunga-Tangmaya	Terhathum	2000	2079.07.17
77	Tamor Sanima Energy Pvt. Ltd.	Upper Tamor	Taplejung	255281	2079.07.17
78	Dynamic Power Pvt. Ltd.	Manahari Khola	Makwanpur	4444	2079.08.13
79	Water Energy Solution Pvt. Ltd.	Upper Deumai	Ilam	8300	2079.08.13
80	Dynamic Hydro Energy Pvt. Ltd.	Lapche Tamakoshi	Dolakha	40000	2079.10.04
81	Dynamic Hydro Energy Pvt. Ltd.	Chepe Khola Cascade	Lamjung and Gorkha	2000	2079.10.04
82	White Flower Energy Company Pvt. Ltd.	Upper Chhujung	Sankhuwasabha	40700	2079.10.29
83	Simkosh Hydropower Pvt. Ltd.	Simkosh Khola	Myagdi	3450	2079.11.11
84	Summit Energy Solution Pvt. Ltd	Bakan Khola	Sankhuwasabha	44000	2079.11.11
85	Kali Gandaki Gorge Hydropower Co. Pvt. Ltd	Kaligandaki Gorge	Myagdi	180000	2079.11.17

86	National hydro Power Co. Ltd.	Tallo Indrawati	Sindhupalchowk	4153	2079.11.25
87	Sangrila Urja Pvt. Ltd.	Chhujung Khola	Sankhuwasabha	63000	2079.12.17
88	Yaru Hydrpower Pvt. Ltd.	Yaru Khola	Gorkha	30542	
89	Jagadulla Hydropower Co. Ltd.	Jagadulla	Dolpa	106000	2080.01.27
90	Lower Mid Rawa Khola Hydropower Project Pvt. Ltd.	Lower Mid Rawa	Khotang	4000	2080.01.28
91	Water Energy Development Pvt. Ltd.	Machha Khola	Gorkha	16000	2080.03.04
92	Hydro Support Pvt. Ltd.	Middle Kaligandaki	Myagdi	53539	2080.03.06
93	Sanima Hydropower Ltd.	Jum Khola	Dolakha	56000	2080.03.06
94	Upper Syange Hydropower Limited	Dovan khola	Gorkha	24500	2080.03.07
95	Upper Myagdi Hydropower Pvt. Ltd. (Prv. Himalayan Infrastructure Fund Ltd.)	Upper Myagdi -1	Myagdi	53500	2080.03.11
96	Milarepa Energy Pvt. Ltd.	Super Melamchi khola	Sindhupalchowk	23600	2080.03.18
97	Budhi Gandaki Hydropower Pvt. Ltd.	Super Machha Khola Sana	Gorkha	4600	2080.03.21
98	Himalayan Engineering and Energy Pvt. Ltd.	Arun Khola-2	Nawalpur	2000	2080.03.21
99	Gurkhas Himalayan Hydro Ltd.	Upper Junbesi	Solukhumbu	4700	2080.03.22
100	Happy Energy Pvt. Ltd.	Mathilllo Sankhuwa	Sankhuwasabha	40000	2080.03.25
101	Super Bagmati Hydropower Pvt. Ltd.	Super Tallo Bagmati	Lalitpur	41314	2080.03.25
102	Expert Hydro Investment Pvt. Ltd.	Sani Bheri	Rukum (East)	44520	2080.03.27
			SUB TOTAL	**2565361**	
Solar Projects (IPPs)					
1	First Solar Developers Nepal Pvt. Ltd.	Bhrikuti Grid-tied Solar Project	Kapilvastu	8000	2077.12.20
2	Jhapa Energy Limited	Saurya Bidyut Project, Shivasakti	Jhapa	10000	2078.08.12
3	G.C. Solar Energy Group Pvt. Ltd.	Grid Connected Solar Electricity Project,	Surkhet	1200	2078.09.19
4	East Solar Pvt. Ltd.	Birendranagar, Surkhet Baigundhura Solar Power	Jhapa	5000	2079.07.17
			SUB-TOTAL	**24200**	
			TOTAL	**2631561**	

Existing High Voltage Transmission Line

SN	Description	Type of Ckts	Length Circuit km	Conductor Type	Nominal Aluminium Cross Section Area (Sq.mm)
A	**132 kV Transmission Line**				
1	Anarmani-Duhabi	Single	75.76	BEAR	250
2	Kushaha (Nepal)-Kataiya(India)	Single	15.00	BEAR	250
3	Duhabi-Lahan-Chandranigahapur-Pathalaiya-Parwanipur/ Pathalaiya- Hetauda	Double	608.00	BEAR	250
4	Hetauda-KL2 P/S	Double	16.00	BEAR	250
5	Bharatpur-Marsyangdi P/S	Single	25.00	DUCK	300
6	Hetauda-Bharatpur	Single	70.00	PANTHER	200
7	Marsyangdi P/S-Suichatar	Single	84.00	DUCK	300
8	Suichatar-Matatirtha- KL2 P/S	Double	72.00	BEAR	250
9	Suichatar-Balaju	Single	5.00	BEAR	250
10	Balaju-Chapali-New Bhaktapur	Double	36.00	BEAR	250
11	New Bhaktapur-Lamosangu	Double	96.00	BEAR	250
12	Lamosangu-Khimti P/S	Single	46.00	BEAR	250
13	Lamosangu-Bhotekoshi P/S	Single	31.00	BEAR	250
14	Bharatpur-Damauli	Single	39.00	WOLF	150
15	Bharatpur-Kawasoti-Bardghat	Single	70.00	PANTHER	200
16	Bardghat-Gandak P/S	Double	28.00	PANTHER	200
17	Bardghat-Butwal	Double	86.00	BEAR	250
18	Butwal-KGA P/S	Double	116.00	DUCK	300
19	KGA P/S-Lekhnath	Double	96.00	DUCK	300
20	Lekhnath-Damauli	Single	45.00	WOLF	150
21	Lekhnath-Pokhara	Single	7.00	ACCC Co-penhegan	150
22	Pokhara-Modikhola P/S	Single	37.00	BEAR	250
23	Butwal-Shivapur-Lamahi-Kohalpur	Double	430.00	BEAR	250
24	Lamahi-Jhimruk P/S	Single	50.00	DOG	100
25	Kohalpur-Bhurigaun-Lumki	Double	176.66	BEAR	250
26	“Lamki-Pahalwanpur-Attariya-Mahendranagar (Lalpur)”	Double	203.12	BEAR	250

27	Mahendranagar-Gaddachauki	Single	12.00	BEAR	250
28	Marsyangdi -M. Marsyangdi	Double	80.00	CARDINAL	420
29	Damak-Godak	Double	70.00	BEAR	250
30	Kusum-Hapure	Single	22.00	BEAR	250
31	Bhulbhule- Middle Marsyangdi P/S	Single	22.00	BEAR	250
32	Chameliya- Syaule- Attaria	Double	262.00	BEAR	250
33	Raxual-Parwanipur (Cross Border-Nepal Portion)	Single	16.00	BEAR	250
34	Kusaha-Kataiya (Cross Border-Nepal Portion)	Double	26.00	BEAR	250
35	Dumre Damauli	Double	46.00	BEAR	250
36	Lamahi Ghorahi	Double	25.00	BEAR	250
37	Kushma -Lower Modi	Single	6.20	BEAR	250
38	Godak- Phidim-Amarpur (Kabeli II & III)	Double	113.13	BEAR	250
39	Trishuli 3A-Trishuli 3B Hub	Double	6.00	BISON	350
40	Samundratar - Trishuli 3B Hub	Double	52.00	AAAC Upas	300
41	Singati-Lamosangu	Single	40.00	BEAR	250
42	Solu Corridor (Tingla-Mirchaiya)	Double	180.00	CARDINAL	420
43	New Modi -Lahachwok -Lekhnath	Double	84.00	BEAR	250
44	Motipur-Sandhikharka	Double	74.00	BEAR	250
45	Butwal-Lumbini	Double	32.00	BEAR	250
		Double UG	4.00	1C, XLPE Cu Cable	500
46	Dordi (Kirtipur-Udipur)	Double	20.00	CARDINAL	420
47	Ramechap-Garjyang-Khimti	Double	62.00	BEAR	250
48	Mainahiya Sampatiya (Cross Border-Nepal Portion)	Double	56.00	BEAR	250
	Total (132 kV)		**3873.87**		
B	**400/220 kV Transmission Line**				
1	Dhalkebar-Muzzaffarpur 400 kV Cross Border Line	Double	78.00	MOOSE	500
2	Khimti- Dhalkebar 220 kV Transmission Line	Double	150.00	BISON	350
3	Trishuli 3B Hub-Matatirtha 220 kV Transmission Line	Double	98.00	BISON	350
4	Marsyandi (Markichwok)-Matatirtha 220 kV Transmission Line	Double	164.00	MOOSE	500
5	Matatirtha- Matatirtha Substation 220 kV Transmission Line	Double Ckt, Underground	2.50	1C, XLPE Cu Cable	1200
		Double Ckt, Underground	2.50	1C, XLPE Cu Cable	1600

6	Dana-Kushma 220 kV Line	Double	79.6	MOOSE	500
7	Koshi Corridor (Inaruwa-Basantapur-Baneshwor-Tumlingtar)	Single	106	MOOSE	500
8	New Bharatpur-Old Hetauda	Single	72.5		
	Total (220 kV)		**675.10**		
C	**66 kV Transmission Line**				
1	Chilime P/S-Trishuli P/S	Single	39.00	WOLF	150
2	Trisuli P/S-Balaju	Double	58.00	DOG	100
3	Trisuli P/S-Devighat P/S	Single	4.56	WOLF	150
4	Devighat P/S-Okhaltar	Double	53.00	DOG	100
5	Okhaltar-Chapali	Double	5.60	XLPE Cable	500
6	Chapali-New Chabel	Double	10.00	ACCC Silvasa	100
7	New Chabel-Lainchaur	Single	7.00	XLPE Cable	500
8	Balaju-Lainchor	Single	2.00	PANTHER	200
9	Balaju-Siuchatar-KL1 P/S	Double	72.00	WOLF	150
10	KL 1 P/S-Hetauda-Simara	Double	104.00	WOLF	150
11	Simara-Parwanipur-Birgunj	Double	40.00	HTLS INVAR	150
12	Suichatar-Teku	Double	8.20	BEAR	250
13	Suichatar-New Patan	Double	13.00	ACCC Copenhegan	150
14	Teku-K3 (underground)	"Double, Single Core"	5.60	XLPE Cable	400/500
15	Bhaktapur- Baneshwor-Patan	Single	16.50	ACCC Silvasa	123
16	Bhaktapur-Banepa-Panchkhal-Sunkoshi P/S	Single	48.00	LGJ 120	120
17	Indrawati- Panchkhal	Single	28.00	PANTHER	200
	Total (66 kV)		**514.46**		

Comparison of Transmission Line Length in last Nine Fiscal Years

S.N.	FY	Cicuit km				Total	Total Increment (ckt. Km)
		66 kV	132 kV	220 kV	400 kV		
1	2071/072	494	2130			2624	
2	2072/073	494	2417			2911	287
3	2073/074	494	2596	75	78	3243	332
4	2074/075	514	2717	75	78	3384	141
5	2075/076	514	3143	255	78	3990	606
6	2076/077	514	3240	437	78	4269	280
7	2077/078	514	3541	741	78	4874	605
8	2078/079	514	3817	897	102	5329	455
9	2079/080	514	3979	1101	148	5742	413
Total Increment in Eight Years							**3118**

Comparison of Substation Capacity in last Nine Fiscal Years

S.N.	FY	Total Capacity (MVA)	Total Increment (MVA)
1	2071/072	2132	
2	2072/073	2223	92
3	2073/074	2618	394
4	2074/075	3198	580
5	2075/076	3935	738
6	2076/077	4300	364
7	2077/078	6434	2134
8	2078/079	7149	715
9	2079/080	8867	1718
Total Increment in Eight Years			**6735**

Comparison of Capacitor Bank Capacity in last Nine Fiscal Years

S.N.	FY	Total Capacity (MVAr)	Total Increment (MVAr)
1	2071/072	443.644	
2	2072/073	463.644	20
3	2073/074	473.644	10
4	2074/075	473.644	0
5	2075/076	516.144	42.5
6	2076/077	546.144	30
7	2077/078	643.644	97.5
8	2078/079	656.144	75
9	2079/080	748.644	92.5
Total Increment in Eight years			**367.5**

Summary of under construction/planed & proposed Transmission Lines /Substations

Transmission Line

S.N	Description	Voltage Level	Transmission Directorate	Project Management Directorate	Total
1	Under construction Transmission Line (Circuit km)	132 kV	810	301	1111
		220 kV	496	492	988
		400 kV	576	178	754
Total (Circuit km)			**1861**	**971**	**2852**
2	Planed and Proposed Transmission Line (Circuit km)	132 kV	851	290	1141
		220 kV	1752	0	1752
		400 kV	1938	1920	3858
Total (Circuit km)			**4541**	**2210**	**6751**

Substation

S.N	Description	Transmission Directorate	Project Management Directorate	Total
1	Under construction (MVA)	5346.50	5123.00	10469.50
2	Planed and Proposed (MVA)	9654.50	5910.00	15564.50

Under Construction High Voltage Transmission Line

SN	Transmission Line	Type of Ckts	Length (Circuit km)			Conductor Type	Nominal Aluminium Cross Section Area (Sq.mm)	Expected Completion Year (FY)
			Total	Constructed till FY 79-80	Constructed in FY 79-80			
I	**Transmission Directorate**							
A	**132 kV Transmission Line**							
1	Singati-Lamosangu 2nd Circuit	Single	40	40	5	BEAR	250	2023/24
2	Bardaghat-Sardi	Double	40	33	5	BEAR	250	2023/24
3	Thankot-Chapagaon	Double	56	16		BEAR	250	
4	"Raxual-Parwanipur Second Circuit (Cross Border-Nepal Portion)"	Single	16			BEAR	250	2023/24
5	Burtibang-Paudi	Double	96	16		BEAR	250	2023/24
	Amarai-Tamghas-Sandhikharka							
6	Kushaha- Biratnagar	Double	46			BEAR	250	2023/24
7	Dhalkebar-Loharpatti	Double	40			CARDINAL	420	2023/24
8	Kohalpur-Surkhet-Dailekh	Double	168			BEAR	250	2024/25
9	Balefi Corridor	Double	40			CARDINAL	420	2023/24
10	Dhalkebar- Balganga	Double	48			CARDINAL	420	2024/25
11	Kaligandaki- Ridi	Double	44			BEAR	250	2024/25
12	Nawalpur (Lalbandi) Salimpur	Double	40			BEAR	250	2024/25
13	Bhumahi-Hakui	Double	32			BEAR	250	2024/25
14	Kabeli (Amarpur) Dhungesangu	Double	40			BEAR	250	2024/25
15	Godak Soyak	Double	16.00			BEAR	250	2025/26
16	Kushma -Lower Modi -Modi	Double	30.00			BEAR	250	2025/26
17	Birgunj-Parsauni UG	Double	5.60			1C, XLPE Cu Cable		
18	"Barhabise Lamosaghu 2nd Circuit(Sunkoshi 132 kV SS)"	Single	12.00			BEAR	250	2024/25 2023/24
	Total		**809.6**	**105**	**10**			

B	**220 kV Transmission Line**							
1	Bharatpur-Bardghat	Double	148	148	10	BISON	350	2023/24
2	Hetauda-Bharatpur	Single	79.5	79.5	3.5	BISON	350	2023/24
3	Chilime-Trishuli	Double	72	14	14	BISON	350	2023/24
4	Koshi Corridor (Basantapur-Dhungesangu)	Double	70	14	14	MOOSE	500	2023/24
5	Tumlingtar-Sitalpati	Double	36			MOOSE	500	2025/26
6	Lekhnath-Damauli	Double	90.00			MOOSE	500	2025/26
	Total		**496**	**256**	**42**			
C	**400 kV Transmission Line**							
1	Hetauda-Dhalkebar-Inaruwa	Double	576			MOOSE	500	2023/24
	Total		**576**					
II	**Porject Management Directorate**							
A	**132 kV Transmission Line**							
1	Lapsifedi - Changunarayan - Duwakot	Double	28	0	0	BEAR	250	2024/25
2	Parwanipur - Pokhariya **	Double	42	0	0	ACCC Amsterdam	376	2024/25
3	Bhaktapur - Thimi - Balkumari**	Double	24	0	0	Single Core XLPE	800 sq. MM Cu	2024/25
4	Dandakhet - Rahughat	Double	50	0	0	CARDINAL	420	2024/25
5	Ghorahi - Madichaur	Double	80	0	0	CARDINAL	420	2024/25
6	Borang - Lapang	Double	48	0	0	BEAR	250	2024/25
7	Chobhar Patan **	Double	9	0	0	Single Core XLPE	800 sq. MM Cu	2024/25
8	Kohalpur Nepalgunj	Double	20	0	0	BEAR	250	2024/25
	Total		**301**					
B	**220 kV Transmission Line**							
1	Kushma - New Butwal TL	Double	176	164	104	ACCC Drake	519.7	2023/24
2	New Butwal - Bardaghat TL	Double	42	0	0	BISON	350	2023/24
3	Dharapani - Khudi TL	Double	56	0	0	Moose	500	2024/25
4	Khudi - Udipur TL	Double	36	0	0	ACCC Drake	519.7	2024/25
5	Udipur - Bharatpur TL	Double	134	6	0	ACCC Drake	519.7	2024/25
6	Lapang - Ratmate TL**	Double	48	0	0	Twin Moose	500	2024/25
C	**Total**		**492**	170.0	104.0			
	400 kV Transmission Line							
1	New Khimti - Barhabise	Double	85.76	42	30	MOOSE	500	2023/24
2	Barhabise - Kathmandu	Double	92	28	16	MOOSE	500	2023/24
	Total		**178**	**70**	**46**			

(Note : ** - In the process of Procurement)

Planned and Proposed High Voltage Transmission Line

S.N.	Description	Type of Ckts	Length Circuit km	Conductor Type	Nominal Aluminium Cross Section Area (Sq.mm)
I	**Transmission Directorate**				
A	**400 kV Transmission Line**				
1	Kerung-Chilime Hub-Ratmate	Double	140.00	MOOSE	500
2	Bheri Corridor	Double	50.00	MOOSE	500
3	Arun Inaruwa Anarmani	Double	460.00	MOOSE	500
4	Arun-Dudhkoshi-Tingla	Double	230.00	MOOSE	500
5	Dudhkoshi-Dhalkebar	Double	170.00	MOOSE	500
6	New Butwal Gorakhpur	Double	40.00	MOOSE	500
7	Nijgadh -Harniya	Multi	140.00	MOOSE	500
8	Harnaiya-Bodebarsain	Multi	708.00	MOOSE	500
Total			**1938.00**		
B	**220 kV Transmission Line**				
1	Koshi Corridor (Inaruwa-Basantapur-Baneshwor-Tumlingtar)	Single	106	MOOSE	500
2	Galchhi - Ratmate	Double	34.00	MOOSE	500
3	Dhaubadi Iron Mine	Double	16.00	BISON	350
4	Gandak Nepalgunj	Multi	1276.00	MOOSE	500
5	Kathmandu Valley Transmission System Expansion	Multi, Double	320.00		
Total			**1752.00**		
C	**132 kV Transmission Line**				
1	Godak -Anarmani	Double	70.00	BEAR	250
2	Kamane-Faparbari (Jhurjhure)	Double	90.00	BEAR	250
3	Shyaule-Safebagar	Double	160.00	BEAR	250
4	Attariya- Dhangadi	Double	36.00	BEAR	250
5	Auraha-Simara	Double	12.00	BEAR	250
6	Dhaubadi-Meghauli	Double	30.00	BEAR	250
7	Damak-Keraun-Biratnagar (Barju)	Double	130.00	BEAR	250
8	Rupani-Bodebarsain	Double	36.00		
9	Lahan Sukhipur	Double	34.00		
10	Chandrapur-Sukhdevchaur (Rajpur)	Double	70.00		
11	Nepalgunj-Nanpara Cross Border	Double	33.00		
12	Bafikot-Madichaur (Khungri)	Double	150		
Total			**851.00**		
II	**Project Management Directorate**				
A	**400 kV Transmission Line**				
1	Nijgadh - Hetaunda	Double	150.00	MOOSE	500
2	New Butwal-Lamahi	Double	300.00	MOOSE	500

3	Lamahi-New Kohalpur	Double	180.00	MOOSE	500
4	New Kohalpur-Dododhara	Double	190.00	MOOSE	500
5	Dododhara(New Lamki)-New Attariya (Daiji)	Double	180.00	MOOSE	500
6	Tingla Hub-Likhu Hub- New Khimti	Double	110.00	MOOSE	500
7	New Khimti-Tamakoshi 3-Sunkoshi Hub-Dhalkebar	Double	220.00	MOOSE	500
8	Budhigandaki Corridor (Philim-Gumda-Ratamate)	Double	190.00	MOOSE	500
9	Damauli-Kusma-Burtibang-Bafikot	Double	400.00	MOOSE	500
	Total:		**1920.00**		
B	**132 kV Transmission Line**				
1	Chhinchu - Surkhet	Double	50.00	BEAR	250
2	Dailekh - Kalikot - Jumla	Double	160.00	BEAR	250
3	Lamosangu - Kavre/Ramechhap	Double	80.00	BEAR	250
Total			**290.00**		

Existing High Voltage Grid Substations

S.N.	Substation	Voltage Ratio kV	" Capacity FY 078-79" MVA	" Capacity FY 079-80" MVA	"Total Increment in FY 079-80" (MVA)
A	**Kathmandu Grid Division**				
1	Balaju	132/66	45	45	0
		66/11	22.5	22.5	0
		66/11	22.5	22.5	0
		66/11	22.5	22.5	0
2	Chapali	132/11	45	45	0
		132/66	49.5	49.5	0
		132/66	49.5	49.5	0
3	Siuchatar	132/66	37.8	37.8	0
		132/66	37.8	37.8	0
		132/66	37.8	37.8	0
		132/11	30	30	0
		66/11	18	18	0
		66/11	18	18	0
4	New Chabel	66/11	22.5	22.5	0
		66/11	22.5	22.5	0
		66/11		22.5	22.5
		66/11	22.5	22.5	0
5	Lainchour	66/11	22.5	22.5	0
		66/11	22.5	22.5	0
6	New Patan	66/11	18	18	0
		66/11	18	18	0
		66/11	18	18	0
		66/11	22.5	30	7.5
7	Teku	66/11	22.5	22.5	0
		66/11	22.5	22.5	0
8	K3	66/11	22.5	22.5	0
		66/11	22.5	22.5	0
9	Baneshwor	66/11	30	30	0
		66/11	30	30	0
10	Bhaktapur	132/66	49.5	49.5	0
		132/66	49.5	49.5	0
		132/11	22.5	45	22.5
		132/11	22.5	22.5	0
		132/11	22.5	22.5	0
11	Banepa	66/11	22.5	22.5	0
		66/11			0
12	Panchkhal	66/11	10	10	0

13	Lamosanghu	132/33	30	30	0
14	Matatirtha	132/33	30	30	0
		132/11	22.5	22.5	0
15	Indrawati	66/11	10	10	0
16	Bagmati	66/33	10	10	0
		66/11	6	6	0
17	Samundratar	132/33	30	30	0
		132/33	30	30	0
		33/11	8	8	0
		33/11	8	8	0
18	Singati	132/33	30	30	0
19	Garjyang	132/33	30	30	0
		33/11		8	8
B	**Hetauda Grid Division**				0
20	Hetauda	132/66	45	45	0
		132/66	20	20	0
		66/11	10	10	0
		66/11	10	30	20
21	Kamane	132/33	63	63	0
		132/33	30	30	0
		33/11		24	24
		33/11	16.6	16.6	0
22	Bharatpur	132/33	30	30	0
		132/33	30	30	0
		132/11	22.5	22.5	0
		132/11	22.5	22.5	0
23	New Bharatpur	220/132		160	160
		220/132		160	160
		132/11	30.0	30.0	0
24	Birgunj	66/33	30	30	0
		66/33	12.5	12.5	0
		66/11	30	30	0
		66/11	30	30	0
25	Parwanipur	132/11	22.5	22.5	0
		132/11	22.5	22.5	0
		132/11	22.5	22.5	0
		132/66	63	63	0
		132/66	63	63	0
		132/66	63	63	0
		132/33		63	63
26	Simra	66/11	15	15	0

		66/11	15	15	0
27	Amlekhgunj	66/11	7.5	10	2.5
28	Pathlaiya	132/11	22.5	22.5	0
		132/33	30	30	0
29	Purbi Chitwan	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
C	**Dhalkebar Grid Branch**				
30	Lahan	132/33			0
		132/33	63	63	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
31	Chapur	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
32	Dhalkebar	400/220	315	315	0
		400/220	315	315	0
		400/220	315	315	0
		220/132	315	315	0
		220/132	315	315	0
		220/132	160	160	0
		220/132	160	160	0
		132/33	63	63	0
		132/33	63	63	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
33	Mirchaiya	132/33	30	30	0
		33/11	16.6	16.6	0
34	Nawalpur	132/33	63	63	0
		33/11	16	16	0
35	Rupani	132/33	63	63	0
36	Tingla	132/33	30	30	0
		33/11	8	8	0
37	New Khimti	220/132	100	100	0
		132/33		30	30
D	**Duhabi Grid Branch**				
38	Duhabi	132/33	63	63	0
		132/33	63	63	0
		132/33	63	63	0
		132/33	63	63	0
		33/11	16.6	16.6	0

		33/11	16.6	16.6	0
39	Anarmani	132/33	30	30	0
		132/33		63	63
		132/33	30	30	0
		33/11	16.6	24	7.4
		33/11	16.6	16.6	0
40	Damak	132/33	63	63	0
		132/33		63	63
		33/11	16.6	16.6	0
41	Godak	132/33	63	63	0
		33/11	8	8	0
42	Phidim	132/33	20	20	0
		33/11	3	3	0
43	Amarpur (Kabeli)	132/33	30	30	0
		33/11	3	3	0
44	Kushaha	132/11		22.5	22.5
45	Inaruwa	220/132		160	160
		220/132		160	160
		220/33		63	63
		220/33		63	63
46	Tumlingtar	220/132		100	100
		220/132		100	100
		132/33		30	30
		132/33		30	30
47	Baneshwor	220/33		30	30
		220/33		30	30
48	Butwal Grid Division				0
49	Butwal	132/33	63	63	0
		132/33	63	63	0
		132/33	63	63	0
		33/11	24.0	24.0	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
50	Bardghat	132/11	22.5	22.5	0
		132/11	22.5	22.5	0
51	Chanauta	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
		33/11	8	8	0
52	Lamahi	132/33	63	63	0
		132/33			0

		33/11	16.6	16.6	0
		33/11	8	8	0
53	Ghorahi	132/33	63	63	0
		132/33	30	30	0
		33/11	16.6	16.6	0
54	Kawasoti	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
55	Gandak	132/33	30	30	0
		132/33		30	30
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
56	Motipur	132/33	30	30	0
		33/11	16	16	0
57	Sandhikharka	132/33	30	30	0
		33/11	16	16	0
58	Mainahiya	132/33	45	45	0
		132/33		45	45
		33/11		16	16
58	New Butwal	220/132	100	100	0
60	Sunwal	132/33		63	63
		132/33		63	63
		132/11		22.5	22.5
E	**Pokhara Grid Branch**				
61	Damauli	132/33		30	30
		132/33	15	15	0
		33/11	16.6	16.6	0
		33/11	3	3	0
62	Pokhara	132/11	30	30	0
		132/11	30	30	0
63	Lekhnath	132/33	30	30	0
		132/11	22.5	22.5	0
		132/11			0
64	Markichowk	132/33	30	12	-18
65	Syangja	132/33	30	30	0
		33/11	8	8	0
66	Dana	220/132	100	100	0
		132/33	25	25	0
67	Kushma	220/132	100	100	0
68	Lahachowk	132/33	30	30	0
		33/11	8	8	0

69	Kirtipur	132/11		10	10
G	**Attaria Grid Branch**				0
70	Kusum	132/11	12.5	12.5	0
71	Hapure	132/33	30	30	0
		33/11	8	8	0
72	Attaria	132/33	30.0	30.0	0
		132/33	30.0	30.0	0
		33/11	16.6	16.6	0
73	Kohalpur	132/33	63	63	0
		132/33	63	63	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
74	Lamki	132/33	15	15	0
		132/33	15	15	0
		33/11	16.6	16.6	0
75	Mahendranagar	132/33	30	30	0
		132/33	15	30	15
		33/11	16.6	16.6	0
76	Bhurigaon	132/33	30	30	0
		33/11	8	8	0
77	Pahalmanpur	132/33	30	30	0
		33/11	8	8	0
78	Syaule	132/33	30	30	0
		33/11	8	8	0

Summary of High Voltage Grid Substation

S.No	Voltage Rating (kV)	Transformer No.	Total Capacity FY 078-79 (MVA)	Total Capacity FY 079-80 (MVA)	Total Increment (MVA)
1	400/220	**3**	945	945	0
2	220/132	14	1350	2190	840
3	220/33	4		186	186
4	132/66	13	610.40	610.40	0
5	132/33	77	2487.00	2994.00	507
6	132/11	23	470.00	547.50	77.5
7	66/33	3	52.50	52.50	0
8	66/11	33	608.50	661.00	52.5
9	33/11	49	625.2	680.6	55.4
	Total	**219**	**7148.60**	**8867.00**	**1718.4**

Under Construction High Voltage Grid Substations

S.No	Name of Project	Substation	Voltage Level (Ratio)	Capacity	Total Capacity	Expected Completion Year
			kV	MVA	MVA	AD
I	**Transmission Directorate**					
1	Chilime Trishuli 220 kV Transmission Line	Chilime	220/132 132/33	1 Ø, 7x53.33 Bank 3 Ø, 50	370	2023/24
2	Trishuli 3B Hub Substation	Trishuli 3 B Hub	220/132 132/33	1 Ø, 7x53.33 Bank 3 Ø, 50	370	2023/24
3	Ramechhap Garjyang Khimti 132 kV Transmission Line	New Khimti	220/132	1 Ø, 4x66.67 Bank	200	2023/24
4	Koshi Corridor 220 kV Transmission Line	Basantapur	220/132 132/33	1 Ø 7x33.33 Bank 3 Ø, 30	230	2023/24
5	Burtibang Paudi Amarai Tamghas Sandhikharka Gorusinghe 132 kV Transmission Line	Burtibang	132/33 33/11	3 Ø, 30 16	46	2023/24
		Paudi Amarai	132/33 33/11	3 Ø, 30 16	46	2023/24
		Tamghas	132/33 33/11	3 Ø, 30 16	46	2023/24
6	Kushaha Biratnagar 132 kV Transmission Line	Biratnagar	132/33 33/11	3 Ø, 2x63 3 Ø, 16	142	2023/24
7	Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project	Hetauda	400/220	1 Ø, 4x167 Bank	500	2023/24
		Inaruwa	400/220	3 Ø, 3x315	945	2023/24
8	Nepal India Electricity Transmission and Trade Project (Hetauda-Dhalkebar-Inaruwa 400 kV Transmission Line)	Hetauda	220/132 132/11	3 Ø, 2x160 3 Ø, 10	330	2023/24
9	Koshi Corridor 220 kV Transmission Line	Dhungesanghu	132/33	1 Ø, 7x5 Bank	30	2023/24
10	Dhalkebar Loharpati 132 kV Transmission Line	Loharpatti	132/33 132/11 33/11	3 Ø, 2x30 3 Ø, 22.5 3 Ø, 16	98.5	2023/24
11	Tumlingtar Sitalpati 220 kV Transmission Line	Sitalpati	220/132 132/33	1 Ø, 7x33.33 Bank 1 Ø, 4x8 Bank	224	2024/25
12	Dharan 220/33 kV substation	Dharan	220/33 33/11	3 Ø, 63 3 Ø, 10	73	2026/27
13	Kaligandaki Ridi132 kV Transmission Line	Ridi	132/33 33/11	3 Ø, 30 3 Ø, 8	38	2024/25
14	Lalbandi Salimpur 132 kV Transmission Line	Salimpur	132/33 33/11	3 Ø, 2x30 3 Ø, 1x24	84	2024/25
15	Dhalkebar Balganga 132 kV Transmission Line	Balganga	132/33	3 Ø, 2x63	126	2024/25
16	Bhumahi Hakui132 kV Transmission Line	Hakui	132/33	3 Ø, 2x100	200	2024/25
17	Malekhu 132 kV Substation Expansion	Malekhu	132/33	3 Ø, 2x30	60	2023/24
18	Lekhnath Damauli 220 kV Transmission Line	Lekhnath	220/132	1 Ø, 7x100 Bank	600	2025/26
		Damauli	220/132	3 Ø, 2x63	126	2025/26
			132/33	3 Ø, 2x30	60	2025/26
			33/11	3 Ø, 2x8	16	
19	Birgunj Parsauni 132 kV UG Transmission Line	Parsauni	132/33	3 Ø,2x63	126	2024/25
20	New Khimti - Lamosanghu Kathmandu Transmission Line Upgradation	New Khimti	220/132	1 Ø, 3x66.67 Bank	200	2024/25
21	Surkhet 132 kV Substation	Surkhet	132/33	3 Ø,2x30	60	2024/25
Total					**5,346.50**	

II	Project Management Directorate					
1	220 kV Bahrabise Substation	Barhabise	220/132 132/11	1 Ø, 4x53.33 3 Ø, 1x5	165	2023/24
2	Kathmandu Valley Transmission Capacity Reinforcement Project	Chobhar	132/11	3 Ø, 2x45	90	2023/24
		Futung	132/11	3 Ø, 2x45	90	2023/24
		Thimi	132/11	3 Ø, 2x45	90	2023/24
3	Marsyangdi-Kathmandu 220 kV TL Project	Markichowk	220/132	1 Ø, 7x53.33	320	2022/23
		Matatirtha	220/132	1 Ø, 7x53.33	320	2022/23
4	Marsyangdi Corridor 220 kV TL Project	Udipur	220/132 132/33	1 Ø, 4x53.33 3 Ø, 1x50	210	2023/24
		Khudi	220/132 132/33	1 Ø, 4x53.33 3 Ø, 1x50	210	2023/24
		Dharapani	132/33 132/33	1 Ø, 4x33.33 3 Ø, 1x30	130	2023/24
5	Lapsiphedi and Changunarayan SS Project	Lapsiphedi	220/132 132/11	1 Ø, 4x53.33 3 Ø, 1x22.5	182.5	2023/24
		Changunarayan	132/11	3 Ø, 1x45	45	
		Teku	132/11 132/66	3 Ø, 2x45 3 Ø, 1x63	90 63	2023/24
6	New Khimti - Barhabise - Lapsiphedi 400 kV SS Project	New Khimti	400/220	1 Ø, 7x105	630	2023/24
		Barhabise	400/220	1 Ø, 7x53.33	320	2023/24
		Lapsiphedi	400/220	1 Ø, 4x105	315	2023/24
7	Parwanipur - Pokhariya 132 kV TL Project**	Pokhariya	132/33 132/11	3 Ø, 2x63 3 Ø, 1x45	171	2024/25
8	Kathmandu Valley Transmission Capacity Reinforcement Project	Balkumari	132/66 132/11	3 Ø, 2x63 3 Ø, 2x45	216	2024/25
9	Borang-Lapang 132 kV and Lapang-Ratmate 220 kV Transmission Line and Substation project	Borang	132/33	3 Ø, 30	30	2024/25
		Lapang	220/132 132/33	1 Ø, 7x33.33 3 Ø, 30	230	
10	Ghorahi Madichaur 132 kV Transmission Line	Madichaur	132/33	3 Ø, 30	30	2024/25
11	Dadakhet Rahughat132 kV Transmission Line	Dadakhet	132/33	3 Ø, 30	30	2023/24
		Rahughat	220/132 132/33	1 Ø, 7x33.33 3 Ø, 30	230	
12	132 kV Pangtang Substation	Pangtang	132/33	3 Ø, 30	30	2023/24
13	132 kV Keraun Substation	Keraun	132/33 132/11	3 Ø, 2x63 3 Ø, 22.5	148.5	2023/24
14	132 kV Mulpani Substation	Mulpani	132/11	3 Ø, 2x45	90	2023/24
15	132 kV Dumkibas Substation	Dumkibas	132/33	3 Ø, 2x30	60	2024/25
16	132 kV Amlekhgunj Substation	Amlekhgunj	132/66	3 Ø, 2x100	200	2024/25
17	132 kV Bakaspur Substation	Bakaspur, Nepalgunj	132/33	3 Ø, 2x63	126	2024/25
18	132 kV New Patan substation **	New Patan	132/66 132/11	3 Ø, 2x63 3 Ø, 3x45	261	2024/25
Total					**5123**	
** Under procurement process						

Planned and Proposed High Voltage Grid Substations

S.No	Name of Project	Substation	Voltage Level (Ratio)	Capacity	Total Capacity
			kV	MVA	MVA
I	**Transmission Directorate**				
1	Bheri Corridor 400 kV Transmission Line	Bafikot	400/132	1 Ø, 7x33.33 Bank	200
2	Dhaubadi Iron Mine 220 kV Transmission Line	Dhaubadi	220/132 132/33	3 Ø, 2x160 3 Ø, 2x63	446
3	Palpa 220 kV Substation	Palpa	220/132 132/33 33/11	1 Ø,7x53.33 3 Ø,2x63 3 Ø,2x16	478
4	Godak Anarmani 132 kV Transmission Line	Anarmani	132/33	3 Ø, 2x63	126
6	Lahan - Sukhipur 132 kV Transmission Line	Sukhipur	132/33	3 Ø,2x30	60
7	Rupani - Bodebarsain 132 kV Transmission Line	Bodebarsain	132/33	3 Ø,2x30	60
8	Chandrapur - Sukhdevchaur 132 kV Transmission Line	Sukhdevchaur	132/33	3 Ø,2x63 3 Ø,25	151
9	Birauta 132 kV Substation	Birauta	132/11	3 Ø,2x30	60
10	Syaule-Safebagar 132 kV Transmission Line	Safebagar	132/33 33/11	3 Ø,2x30 3 Ø,1x16	76
11	Khimti- Rakathung (Ramechhap) 132 kV Transmission Line	Rakathung	132/33 33/11	3 Ø,2x30 3 Ø,1x16	76
12	Jhurjhure 132 kV Transmission Line	Faparbari	132/33 33/11	3 Ø,1x63 3 Ø,1x16	79
13	Bafikot-Khungri (Madichaur) 132 kV Transmission Line	Ghartigaun	132/33 33/11	3 Ø,1x30 3 Ø,1x16	46
14	Kathmandu Valley System Reinforcement	Thapathali	132/11	3 Ø,2x45	90
		Raj Durbar	132/11	3 Ø,2x45	90
		Maharajgunj	132/11	3 Ø,2x45	90
		Sirutar	132/11	3 Ø,2x30	60
15	Attariya Dhangadhi 132 kV Transmission Line	Dhangadhi	132/33 33/11	3 Ø,2x63 3 Ø,1x22.5	148.5
16	Auraha Simara 132 kV Transmission Line	Auraha	132/33 33/11	3 Ø,2x63 3 Ø,2x22.5	171
17	Dhaubadi-Meghauli 132kV Transmission Line	Gaidakot	132/33 33/11	3 Ø,2x30 3 Ø,1x22.5	82.5
		Meghauli	132/33 33/11	3 Ø,2x63 3 Ø,1x22.5	148.5
18	Kohalpur - Surkhet-Dailekh 132 kV Transmission Line	Dailekh	132/33 33/11	3 Ø,2x30 3 Ø,2x22.5	105
19	Kathmandu Valley Transmission System Expansion	Agreegate	220, 132 and 66 kV		4129
20	Nijgadh 400 kV Substation	Nijgadh	400/220 220/132 132/33	3 Ø,2x500 3 Ø,2x200 3 Ø,2x63	1526
21	Nijgadh-Harnaiya 400 kV Transmission Line	Harnaiya	220/132 132/33	3 Ø,2x200 3 Ø,2x63	526
22	Harnaiya-Bodhebarsain 400 kV Transmission Line	Bodebarsain	400/132	3 Ø,2x315	630
Total					**9654.5**

II	Project Managment Directorate				
1	Kohalpur - Nepalgunj 132 kV Transmission Line	Nepalgunj	132/33	3 Ø, 2x63	126
2	Arun Khola (Dumkibas) 132 kV Substation	Dumkibas	132/33/11	3 Ø, 2x30	60
3	Mulpani Substation	Mulpani	132/11	3 Ø, 2x45	90
4	New Butwal - Lamahi - Kohalpur - New Lamki - New Attariya 400 kV Transmission Line	Lamahi	400/220/132	630	720
			132/11	90	
		New Kohalpur	400/220/132	630	720
			132/11	90	
		New Attariya	400/220/132	630	720
			132/11	90	
5	Tingla Hub-Likhu Hub- New Khimti 400 kV Transmission Line	Likhu Hub	400/220/132	630	630
6	New Khimti-Tamakoshi 3-Sunkoshi Hub-Dhalkebar 400 kV Transmission Line	Sunkoshi Hub	400/220/132	630	630
7	Budhigandaki corridor 400 kV Transmission Line	Philim / Gumda	400/220/132	630	
8	Dailekh - Kalikot - Jumla 132 kV Transmission Line	Kalikot	132/33	63	108
			132/11	45	
		Jumla	132/33	63	108
			132/11	45	
9	Damauli - Kushma - Burtibang - Banfikot 400 kV Transmission Line	Kushma	400/220/132	630	630
		Burtibang	400/220/132	630	630
		Banfikot	400/220/132	630	630
10	Lamosangu - Kavre / Ramechhap 132 kV Transmission Line	Kavre/Ramechhap	132/33	63	108
			132/11	45	
Total					5910

Distribution System Data for F/Y 2079/80

S.No.	Provincial Office	Number of 33/11 kV Substations	Substation Capacity (MVA)	Line Length (km)			Distribution Transformers	
				33 kV	11 KV	0.4/0.23 kV	Quantity	Capacity (MVA)
1	Koshi PO	35	531.70	1,119.70	9,673.77	26,357.95	7,846.00	764.91
2	Madesh PO	26	418.70	773.04	6,851.03	23,271.59	6,577.00	641.19
3	Bagmati PO	22	162.60	537.40	7,481.16	24,829.51	8,380.00	816.97
4	Bagmati DO	9	103.80	253.46	3,324.62	8,870.38	2,897.00	282.43
5	Gandaki PO	24	212.00	769.80	5,483.32	14,053.47	3,916.00	381.77
6	Lumbini PO	23	340.40	1,384.26	4,417.11	13,895.89	4,352.00	424.28
7	Lumbini DO	13	178.20	1,227.37	3,418.10	11,424.12	3,016.00	294.03
8	Karnali PO	11	54.50	468.00	3,074.42	7,238.14	1,865.00	181.82
9	Sudurpaschim PO	24	202.00	703.69	4,008.99	15,328.98	3,336.00	325.23
F/Y 2079/080 Total		**187**	**2,204**	**7,237**	**47,733**	**145,270**	**42,185**	**4,113**

POWER DEVELOPMENT MAP OF NEPAL

EXISTING / UNDER CONSTRUCTION TRANSMISSION LINES / SUBSTATIONS

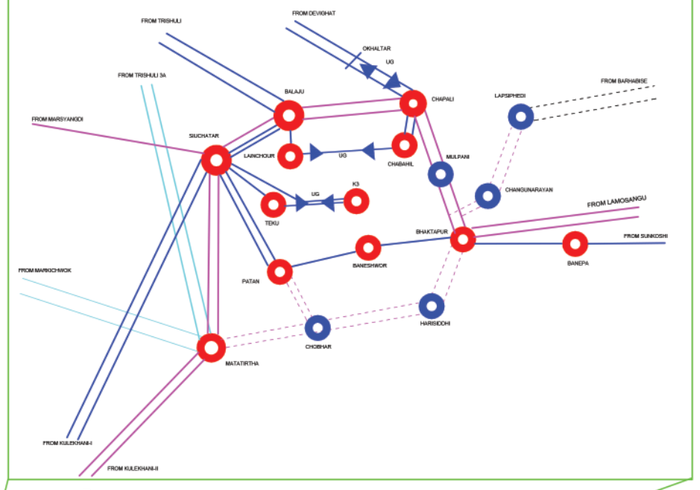
(NOT TO SCALE)

N

CHINA

INDIA

220,132 and 66 kV Network Feeding Kathmandu Valley



LEGENDS

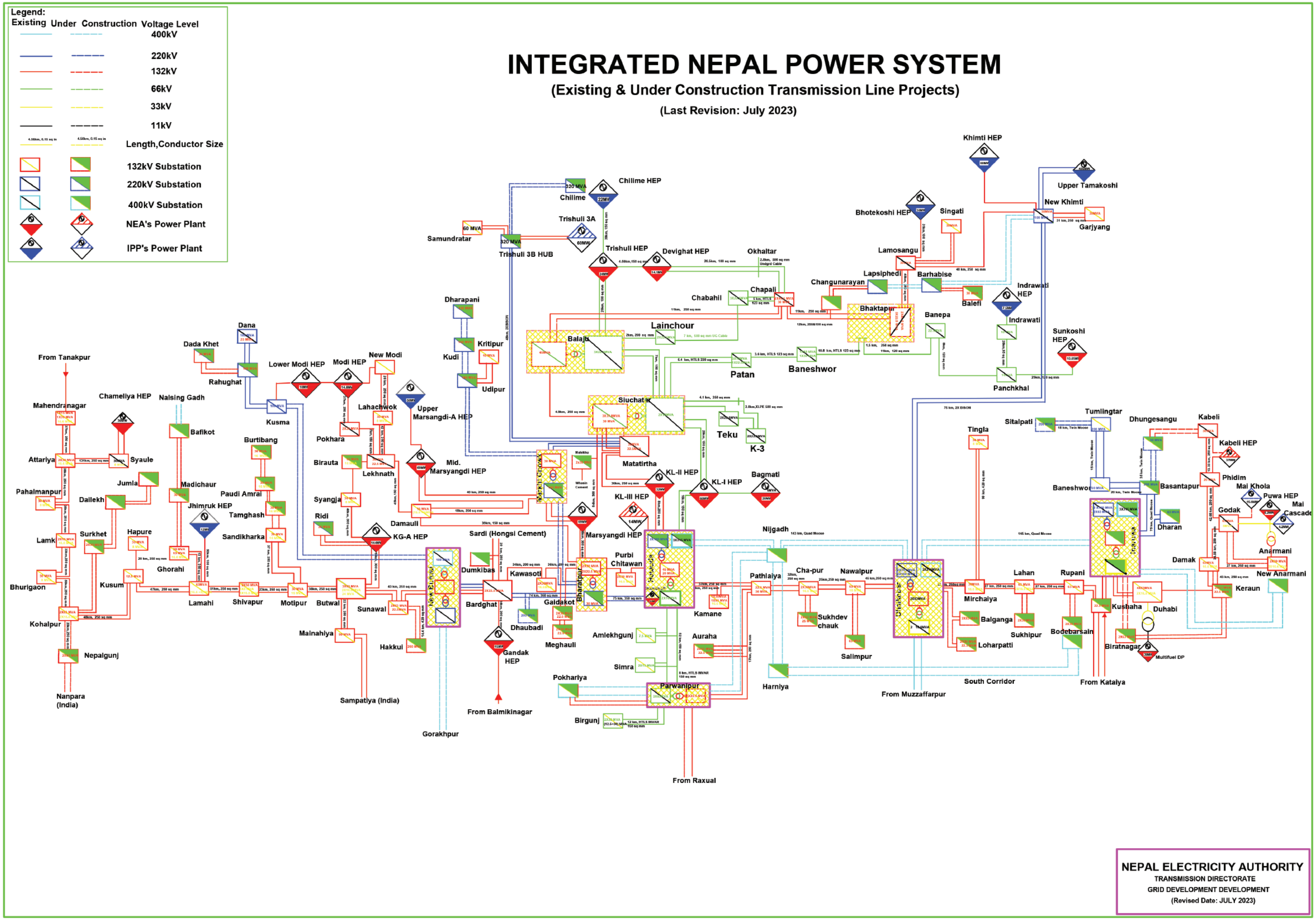
EXISTING	UNDER-CONST.	PLANNED	
———	- - - - -	~~~~~	400 kV TRANSMISSION LINE
———	- - - - -	~~~~~	220 kV TRANSMISSION LINE
———	- - - - -	~~~~~	132 kV TRANSMISSION LINE
———			66 kV TRANSMISSION LINE
○	○	○	GRID SUB-STATION

NEPAL ELECTRICITY AUTHORITY
TRANSMISSION DIRECTORATE
GRID DEVELOPMENT DEPARTMENT
(Revised Date: AUGUST 2023)

INTEGRATED NEPAL POWER SYSTEM

(Existing & Under Construction Transmission Line Projects)

(Last Revision: July 2023)



Legend:
Existing Under Construction Voltage Level
400kV
220kV
132kV
66kV
33kV
11kV
Length,Conductor Size
132kV Substation
220kV Substation
400kV Substation
NEA's Power Plant
IPP's Power Plant
Khimti HEP
Upper Tamakoshi
New Khimti
Garjyang
Singati
Bhotekoshi HEP
Chilime HEP
Chilime
Trishuli 3A
Samundratar
Trishuli 3B HUB
Trishuli HEP
Devighat HEP
Okhaltar
Lamosangu
Barhabise
Lapsiphedi
Changunarayan
Chapali
Chabahil
Bhaktapur
Balefi
Indrawati HEP
Indrawati
Banepa
Lainchour
Balaju
Patan
Baneshwor
Sunkoshi HEP
Panchkhal
Dharapani
Kritipur
Kudi
Udipur
Dana
Dada Khet
Rahughat
Lower Modi HEP
Modi HEP
New Modi
Upper Marsangdi-A HEP
Lahachwok
Kusma
Pokhara
Siuchatar
Teku
K-3
Matatirtha
KL-II HEP
KL-I HEP
Bagmati
KL-III HEP
Marsyangdi HEP
Mid. Marsyangdi HEP
Biruata
Lekhnath
Syangja
Ridi
Damauli
KG-A HEP
Sardi (Hongsi Cement)
From Tanakpur
Mahendranagar
Chameliya HEP
Nalsing Gadh
Bafikot
Burtibang
Attariya
Syaule
Jumla
Pahalmanpur
Dailekh
Madichaur
Paudi Amrai
Jhimruk HEP
Tamghash
Sandikharka
Lamki
Surkhet
Hapure
Ghorahi
Bhurigaon
Kusum
Lamahi
Shivapur
Motipur
Butwal
Sunawal
New Butwal
Dumkibas
Kawasoti
Bardghat
Gaidakot
Bharatpur
Purbi Chitawan
Hetauda
Kamane
Kohalpur
Nepalgunj
Nanpara (India)
Mainahiya
Hakkui
Dhaubadi
Gandak HEP
Meghauli
Sampatiya (India)
From Balmikinagar
Gorakhpur
Amlekhgunj
Simra
Auraha
Pokhariya
Parwanipur
Birgunj
From Raxual
Nijgadh
Pathlaiya
Cha-pur
Sukhdev chauk
Nawalpur
Salimpur
Harniya
Dhalkebar
From Muzzaffarpur
Tingla
Mirchaiya
Balganga
Loharpatti
Lahan
Sukhipur
Rupani
Bodebarsain
South Corridor
Sitalpati
Tumlingtar
Dhungesangu
Kabeli
Kabeli HEP
Phidim
Mai Khola
Puwa HEP
Mai Cascade
Baneshwor
Basantapur
Dharan
Godak
Inaruwa
Anarmani
Damak
New Anarmani
Keraun
Kushaha
Duhabi
Biratnagar
Multifuel DP
From Katalya

NEPAL ELECTRICITY AUTHORITY
TRANSMISSION DIRECTORATE
GRID DEVELOPMENT DEVELOPMENT
(Revised Date: JULY 2023)

Tanahu HEP Dam Construction

EV Charging Station at Mulkot

NEPAL ELECTRICITY AUTHORITY

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