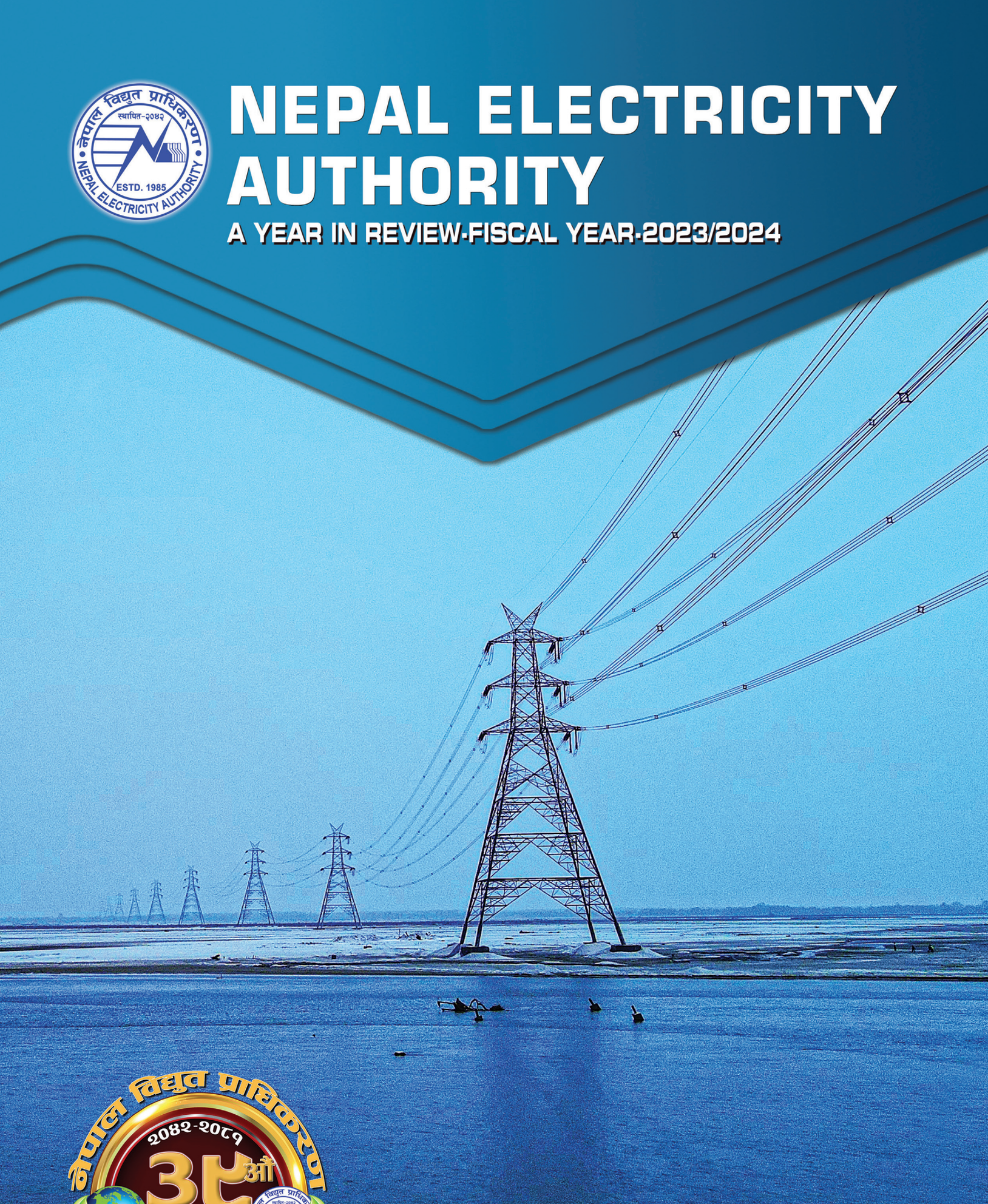
NEPAL ELECTRICITY AUTHORITY

A YEAR IN REVIEW-FISCAL YEAR-2023/2024



AUGUST-2024 (BHADRA-2081)

DURBAR MARG, KATHMANDU, NEPAL

Upper Tamakoshi Dam

Kulekhani Reservoir and Dam

COMPLIMENTARY COPY

Contents

1.	Message from the Minister	
2.	Message from the State Minster	
3.	Message from the Secretary	
4.	Board of Directors	
5.	Organization Structure	
6.	Deputy Managing Directors	
7.	Managing Director's Report	1
8.	Generation Directorate	13
9.	Transmission Directorate	30
10.	Distribution and Consumer Services Directorate	64
11.	Planning, Monitoring and Information Technology Directorate	79
12.	Engineering Services Directorate	83
13.	Project Management Directorate	92
14.	Business Development Directorate	118
15.	Central Activities	143
16.	Administration Directorate	146
17.	Finance Directorate	152

Appendix

Statistics and Schematics	169
Financial Dashboard	170
Electricity Tariff	182
Electricity Generation Power Plants and Project	189
Generation Related Statistics and Performance Factors	190
Status of IPP's and NEA Subsidiary Company Projects	192
Status of High Voltage Transmission Line and Grid Substation	197
Distribution System Data and loss percentage	224
Power Development Map of Nepal	225
Integrated Nepal Power System (INPS)	226

Front Cover: 400 kV Transmission Towers in Koshi River
Back Cover up: Hetauda 400/220/132 kV Substation
Back Cover down: Sunwal 132 kV Substation

NEPAL ELECTRICITY AUTHORITY
Head Office: Durbar Marg, Kathmandu, Nepal
Phone: +977-1-4153051, Fax: +977-1-4153009
Email: neamd@nea.org.np
Website: www.nea.org.np

Hon'ble Dipak Khadka
Minister
Ministry of Energy, Water Resources & Irrigation

Singhdurbar, Kathmandu, Nepal
www.moewri.gov.np

Government of Nepal
Ministry of Energy, Water Resources & Irrigation

Letter No.
Ref. No.

Government of Nepal
Ministry of Energy
Water Resources and Irrigation
2074

Message from the Minister

It is my pleasure to extend sincere greetings to the entire NEA family on the jubilant occasion of the 39th anniversary of Nepal Electricity Authority. Further, I am impressed with NEA's relentless efforts for providing affordable and reliable electricity to its consumers. Notably, I would like to express my appreciation to the entire NEA team for what has been collectively achieved so far despite rooms to improve further.

Harnessing water resources for hydropower is highly important for ameliorating the country's economy and raising the living standards of our people. However, the issue of climate change cannot be ignored at all. In this regard, we would focus on creating more enabling environment for sustainable hydropower development in the country in the days ahead.

So far, our total installed capacity of power generation has surpassed 3,200 Megawatts, with around 463 Megawatts of power added to the national grid in the last fiscal year. To meet this increase in domestic generation, we should prioritize boosting internal energy consumption through industries, promoting electric vehicles, facilitating agricultural growth with irrigation, and adopting electric cooking by adhering to necessary policy changes and network expansion. However, it is high time that we displayed our ability to complete the energy infrastructure projects within the stipulated time by removing the bottlenecks being faced in project execution.

The successful generation, distribution, and consumption of energy within the country have significantly improved. Additionally, cross-border electricity trading opportunities are expanding, allowing us to sell seasonal surplus energy. A long - term agreement to export power up to 10, 000 MW to India within a timeframe of ten years and preparations for a tripartite agreement to sell 40 MW to Bangladesh through existing Indian infrastructure are noteworthy milestones. Increasing domestic consumption, reducing dry season power import, and exporting surplus energy of wet season to neighbors are key aspects to be accomplished. With the full support from the Government, I believe that NEA will be successful in playing a proactive role towards spearheading meaningful changes in such key areas.

The Government of Nepal is committed to supporting the accelerated development of necessary infrastructures for high-quality electricity supply to every Nepali household. Impactful collaborations at various levels, realistic planning and timely development of this sector are crucial for our country's social and economic advancement.

Hon'ble Dipak Khadka
Minister
Ministry of Energy, Water Resources & Irrigation

Singhdurbar, Kathmandu, Nepal
www.moewri.gov.np

Government of Nepal
Ministry of Energy, Water Resources & Irrigation

Letter No.

Ref. No.

I expect NEA to continue its fundamental duty of generating, transmitting, and distributing reliable and affordable power to its valued customers. I would like to extend my hearty congratulations and best wishes to the entire NEA team for another successful year of dedication and achievement. Meanwhile, I feel delighted to express my thankfulness to all stakeholders concerned including IPPs, and esteemed customers of NEA. On this occasion, I would also like to thank NEA Board of Directors for their meaningful roles in decision making to enhance the overall performance of NEA and maximizing the customers' welfare.

Indeed, I appreciate the continued support from all stakeholders for exploring the avenues to grow higher and wider in our future pursuits while working towards the creation of a resilient and sustainable power sector.

.....

Dipak Khadka
Minister
Ministry of Energy, Water Resources and Irrigation

मा. पूर्णबहादुर तामाङ
राज्य मन्त्री
ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय

नेपाल सरकार
ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय

सिंहदरबार, काठमाडौं, नेपाल
www.moewri.gov.np

पत्र संख्या: २०८१/४/२८
चलानी नं.: ०५

ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय नेपाल सरकार २०७४

Message from the State Minister

I would like to extend my sincere appreciation and gratitude on this momentous occasion of NEA celebrating its 39th anniversary. We are all aware of the difficult times NEA and the nation has had to go through in the past, combatting long load shedding hours. Those days look a distant nightmare as today we are enjoying continuous and efficient power supply. Even then NEA still is not in a position to sit back and enjoy its achievements till date as we still have energy deficits duting the dry season.

The urgent need of developing of storage type projects is well understood and an accepted fact. In this regard NEA is constructing Tanahu Storage Project and at the same time has a few projects for early development. Similarly, it is endearing to hear that NEA is also looking at the possibilities of developing Pumped Storage type projects which can always be helpful to fill in at times of power shortage.

Similarly, utilizing another natural resource of solar power for lighting up and at the same time fill up short term power shortages has to be and has been considered as additional source of clean energy. It is also heartening to see the interest shown by private investors for the development of solar generated energy.

Moreover, we must continue to explore innovative avenues to minimize greenhouse effects and take encouraging steps. The world is talking about Green Hydrogen and with the abundance of surplus energy we are in a position 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 environment and at the same time to the economic growth of the country.

I can assure NEA that MoEWRI is fully committed to ensuring its support in all the activities that can only lead to a better future for NEA itself and the ultimately the entire nation. Similarly, GoN's "Electricity Road Map" to provide access of electricity to its entire population by 2024/25 is still very much on line with NEA's commitment and hard work.

Finally I once again congratulate the entire NEA team for the hard work and dedication they have put in to get NEA to the respectable position that it is in today and look forward for a even better year ahead with greater achievements that the nation can be proud of.

Hon. Purna Bahadur Tamang
State Minister

.....
Purna Bahadur Tamang
honorable State Minister
Ministry of Energy Water Resources and Irrigation

Government of Nepal
Ministry of Energy, Water Resources and Irrigation

Government of Nepal
Ministry of Energy
Water Resources and Irrigation
2074

977-1-4211516
977-1-4211531
Fax: 977-1-4211510
Singha Durbar, Kathmandu, Nepal

Ref.

Message from the Secretary

As we celebrate the 39th anniversary of the Nepal Electricity Authority (NEA), I am honored to extend my heartfelt congratulations and best wishes to the entire NEA family. Over nearly four decades, NEA has steadfastly worked towards becoming a beacon of efficiency in delivering clean, reliable, and affordable electricity to the people of Nepal.

NEA's tireless efforts have played a pivotal role in advancing the objectives set by the Ministry of Energy, Water Resources, and Irrigation. Our collective aim is to achieve self-sufficiency in the energy sector and contribute to the nation's overall development and prosperity. The progress we have made in recent years is commendable, yet there remains room for growth.

To sustain and enhance our progress, it is vital to continue developing robust infrastructure for electricity generation, transmission, and distribution. Maintaining a positive relationship with our valued customers and ensuring a balance between service quality, reliability, and affordability are also essential.

NEA has seen a remarkable increase in its consumer base, now reaching 5.94 million households, including those under Community Rural Electrification, which represents 99% of the total households. Following the Government of Nepal's Electricity Roadmap, NEA is on track to electrify 100% of households within this fiscal year. To achieve this, it is crucial to manage and expand the necessary infrastructure effectively.

Additionally, to balance demand and supply and enhance our country's energy security, the development of more reservoir and semi-reservoir projects is imperative. Expanding transmission and distribution infrastructure is equally essential. The Ministry of Energy, Water Resources, and Irrigation is fully committed to supporting NEA's action plan and ensuring its successful execution.

Looking forward, our goals include not only regional energy exports but also boosting internal consumption. This can be achieved by promoting energy-intensive industries, supporting the use of electric vehicles, advancing agricultural development through irrigation, and encouraging E-cooking in households.

As we envision a brighter future, I am confident that NEA will continue its successful journey of generating, transmitting, and distributing efficient, reliable, and affordable energy. Effective demand-side management and improved customer service through the use of information technology will be key.

I extend my deepest gratitude and appreciation to the dedicated "team NEA" for their unwavering efforts and commitment. Your contributions are fundamental to our organization's progress and prosperity. Here's to a successful and promising year ahead.

Gopal Prasad Sigdel
Secretary

Board of Directors

Mr. Dipak Khadka
Hon'ble Minister
Ministry of Energy, Water Resources and Irrigation
Chairman

Mr. Gopal Prasad Sigdel
Secretary, Ministry of Energy,
Water Resources and Irrigation
Member

Mr. Dinesh Kumar Ghimire
Secretary, (Revenue) Ministry of Finance
Member

Mr. Bhakta Bahadur Pun
Member from Consumer Group

Mr. Kapil Acharya
Prominent Person in Power Sector
Member

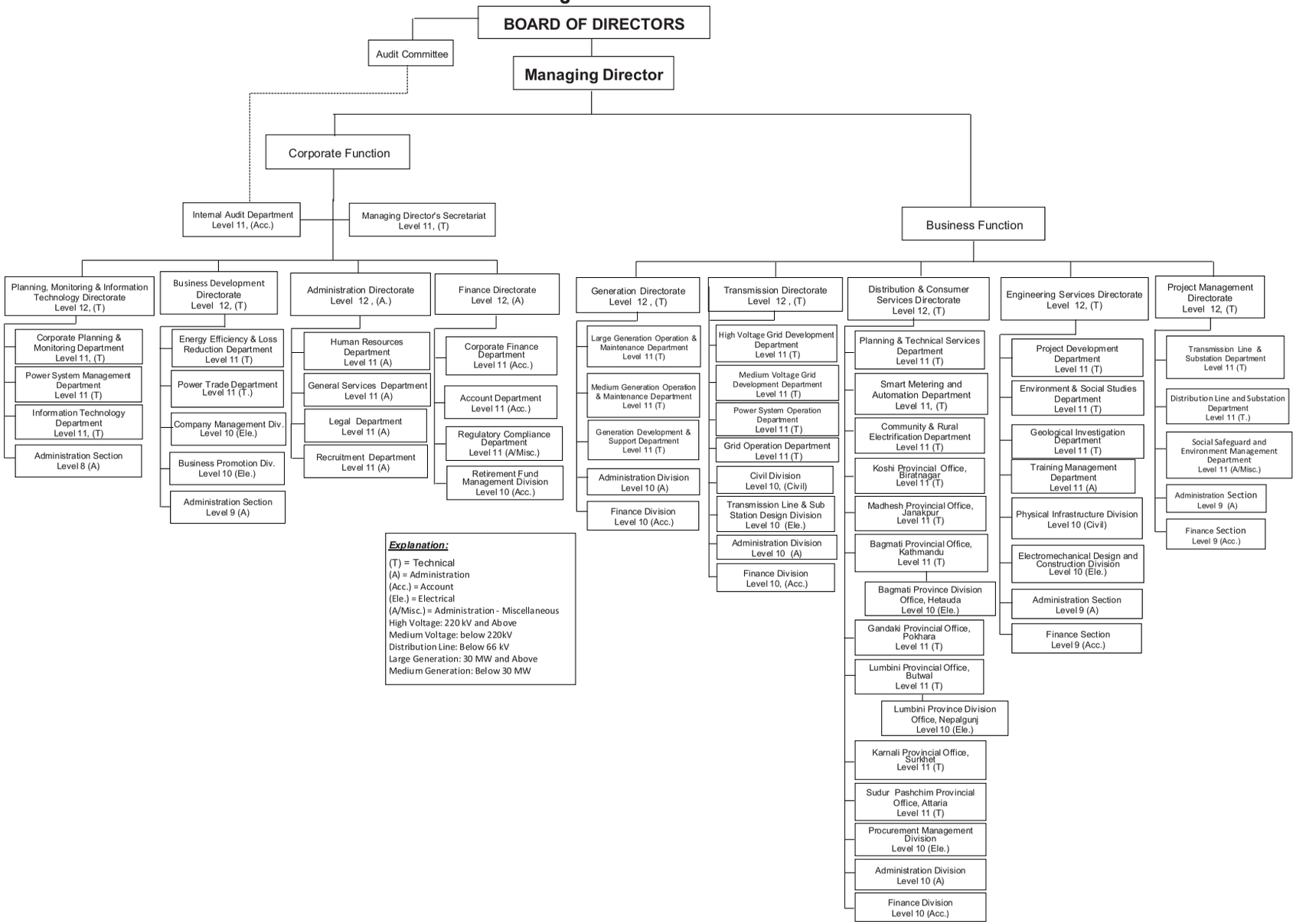
Mr. Bharat Raj Acharya
Prominent Person in Commerce,
Industry and Financial Sector
Member

Mr. Ratan Bahadur Ayer
Prominent Person in Power 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. 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
Deputed to Upper Arun Hydro Electric Ltd

Mr. Durga Nanda Bariyait
Chief
Planning, Monitoring and IT Directorate

Mr. Rajan Dhakal
Deputy Chief
Business Development Directorate

MANAGING DIRECTOR'S REPORT

Nepal Electricity Authority (NEA) has been fulfilling its obligation of generating, transmitting and distributing reliable, quality and affordable power to its esteemed consumers for the last 39 years. I personally feel privileged and honored of having had the opportunity to present this annual report summarizing the difficulties and hurdles overcome to achieve the yearly targets set for the last eight years. These recent past years, after the successful abolition of the dreaded "load shedding" have seen NEA achieve ground breaking results in all fronts; be it reducing system losses, increase in generation, grid expansion, electrification and export of surplus electricity. All these positive results have converted NEA to a profit-making public utility. On behalf of NEA, on this auspicious occasion of its 39th 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 strengthen the financial capacity. The year under review also achieved the record low Transmission and Distribution losses in NEA's history.

A total generation capacity in the last FY reached 3,157 MW with the commissioning of new projects equivalent to the capacity of 473 MW. The previous year recorded a severely dry winter, however, NEA managed to meet the demand during the dry period.

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. Indian authorities have permitted the sale of around 700 MW of electricity through Indian Energy Exchange Limited (IEX) and bilateral contracts.

NEA has achieved the long cherished dream of becoming a net exporter of electricity from the last fiscal year. 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 thus reducing the trade deficit.

NEA has continuously received an institutional rating of AA+ (ICRA NP Issuer Rating Double A Plus) from International Credit Rating Association (ICRA) Nepal Ltd since FY 2021/22. Currently, the surveillance activities for the fiscal year 2024/25 is being undertaken.

Despite decreasing the tariff by around 25 %, NEA has been able to make profit continuously for the last eight years. Profit earned is due to operational and managerial efficiency, reduction in system loss and increase in export of surplus energy. With increased profit each year, NEA has been able to invest over NRs 100 Billion in the last eight years in various projects of generation, transmission and distribution. Further NEA has invested an additional NRs 56 Billion in its subsidiary and associate companies. NEA's total asset increased from NRs 211 Billion to 632 Billion in the last eight years.

Digital transformation has empowered NEA to enhance the overall customer experience by providing convenient and user-friendly services. 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 automated customer support systems, allowing customers to receive timely assistance and support, thus reducing response times and improving consumer satisfaction. The recently introduced Customer Relationship Management Software helps customers link directly with NEA.

As the functioning of NEA becomes more digitized, cyber security becomes paramount. Acknowledging the significance of safeguarding critical infrastructure, NEA has already taken proactive steps to invest in cybersecurity measures to protect against cyber threat and ensure the security and reliability of the grid.

NEA has adopted Gender Equality and Social Inclusion (GESI) and 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 future.

The performances and achievements of NEA in the year under review, 2023/24, are highlighted below:

a) Operational Performance

The number of consumers has been increasing gradually over the years and, in the FY 2023/24, it has reached 5.46 million, an increase by 6.33 % against 5.14 million in the previous year. The figure does not include the consumers under Community Rural Electrification, which is currently serving about 0.48 million consumers across the country. As in the past, the domestic consumer category remained the largest sector with 91.54% share of the total consumers. Industrial and other consumers accounted for 1.26 % and 7.20 % respectively. The total population with access to electricity has reached 99 % in FY 2023/24.

NEA's hydropower plants generated 2,911 GWh of electricity in the year, a slight decrease from the previous years' 2,930 GWh. The energy purchased from Independent Power Producers (IPPs) and NEA's subsidiaries was 6,564 GWh and 2,597 GWh, an increase by 28.25 % and 4.37 % from the figure of 5,118 GWh and 2,488 GWh in FY 2023/24 respectively. The total energy imported from India was 1,895 GWh in FY 2023/24 as compared to 1,833 GWh in FY 2022/23, a slight increase by 3.38 %. The total available energy in the system increased by 12.91 % to 13,966 GWh in FY 2023/24 over the corresponding figure of 12,369 GWh in FY 2022/23.

Out of the total available energy, NEA and its subsidiaries contributed 39.43%, whereas import from India and purchase from domestic IPPs accounted for 13.57% and 47.00% respectively. The contribution of the domestic generation to the total available energy has remained approximately the same with a slight increase from 85.18% in FY 2022/23 to 86.43% in FY 2023/24.

The total domestic consumption in FY 2023/24 was 10,243 GWh, an increase by 9.46 % over the corresponding figure of 9,358 GWh in FY 2022/23. The total export to India soared to 1,946 GWh in FY 2023/24 against the previous year's figure of 1,346 GWh only, an increase of 44.57%. Likewise, the import of energy was 1,895 GWh, which accounted for 13.57 % of the total available energy in FY 2023/24. Nepal has become net exporter of electricity with the export surpassing the import by 51 GWh.

NEA has again been successful in reducing the system loss from 13.46 % in FY 2022/23 to 12.73 % in FY 2023/24.

b) Financial Performance

As compared to the previous year, NEA's net profit before tax stood at NRs. 13,307 million in 2023/24 from NRs. 12,077 million in FY 2022/23, an increase by 10.19 %.

The gross revenue generated from energy sales including the revenue from power export of NRs 17,066 million in the FY 2023/24 reached NRs 115,798 million, with an increase of 15.40 % over the figure of NRs 100,346 million in the FY 2022/23. Revenue from other sources in FY 2023/24 increased to NRs 10,911 million from NRs 10,321 million in FY 2022/23. NEA's operating expenses including power purchase cost stood at NRs 88,529 million, an increase by 9.92 % from NRs 80,538 million of the previous year. The amount spent for power purchase alone was NRs 69,054 million in FY 2023/24, an increase by 11.64 % from NRs 61,855 million in FY 2022/23.

Other operating expenses for generation, transmission, distribution and royalty in FY 2023/24 amounted to NRs 2,210 million, NRs 2,376 million, NRs 12,268 million and NRs 1,636 million respectively.

The interest expenses in FY 2023/24 have been calculated as NRs 6,130 million against NRs 5,720 million in FY 2022/23, an increase by 7.17%. Similarly, depreciation and amortization expenses amounted to NRs 8,871 million in FY 2023/24, an increase from NRs 8,148 million in FY 2022/23. Foreign exchange loss decreased to NRs 1,528 million from NRs 1,542 million in the previous year. The accumulated investment in Capital Works in Progress (CWIP) reached to NRs. 221,631 million with the net addition of NRs. 45,207 million for the year 2023/24.

At the end of FY 2023/24, the total Retirement Fund balance was NRs 6,824 million of which NRs 1,045 million has been provided as loan to the contributors.

c) Ongoing Projects

There are several hydropower projects at various stages of development under the Engineering Services Directorate (ESD). In FY 2023/24, NEA identified various projects with more impetus being given to Storage type projects. Numerous storage type projects have been identified and after screening and ranking, the more attractive ones will be studied further for future development.

Similarly, 42,000 MW of Pumped Storage Projects have been identified throughout the country and further studies of the better options will be carried out for development. Projects under various stages of study, at present, are Syapru Lake PSP (332 MW) and Jawa Tila PROR project (73 MW).

ESD is also reviving the Karnali Chisapani Multipurpose Project (10,800 MW). An EOI notice has been published for Detailed Engineering Design and preparation of Tender Documents. RfP has been called to shortlisted Consulting firms for Detailed Engineering Design and preparation of Tender Documents of Sunkoshi-3 (683 MW).

NEA has signed MOU with Sutlej 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 numerous major substations and transmission line projects in the year gone

by. Nepal's first three major grid substations of 400kV voltage level at Hetauda, Dhalkebar and Inaruwa has been completed. Dhalkebar 400kV substation is connected to Muzaffarpur (India) substation via Dhalkebar- Muzaffarpur 400kV cross border transmission line. This cross-border link is instrumental for exporting/ importing power between Nepal and India. Dhalkebar substation is also connected to Inaruwa substation via Dhalkebar-Inaruwa 400kV Transmission Line. The 400kV transmission from Dhalkebar to Hetauda is under construction and shall be completed soon. Once completed, Hetauda-Dhalkebar-Inaruwa 400kV transmission line will serve as backbone of the national grid.

Recently completed Raxaul – Parwanipur 132 kV Second Circuit Transmission Line has augmented import/ export of power between Nepal and India.

Kaligandaki Corridor 220 kV transmission line is completed and helping evacuation of power from Kaligandaki basin to NEA grid through New Butwal 220kV Substation. Similarly, 220 kV Trishuli 3B Hub and Chilime Hub substations were completed and transmission line from Chilime to Trishuli 3B Hub is in the final stage of completion. These line and substations will be helpful to evacuate power from the numerous hydro power projects being developed in Trishuli river basin. 220kV Matatirtha substation has recently been completed and 220kV Markichowk substation is in the final stage of completion. With this, Marsyangdi – Kathmandu 220 kV transmission line will be operated in 220kV voltage level which will play a vital role to meet the increased electricity demand and ensure reliable power supply in the Kathmandu valley.

The total length of transmission lines has increased from 5,742 circuit kilometer (circuit km) to 6,508 circuit km and total substation capacity increased from 8,867 MVA to 13,050 MVA in FY 2023/24. Total 3,597 circuit km transmission line and substation capacity of 10,826 MVA has been added in national grid within last eight years which can be marked as a significant achievement of NEA.

The total lengths of under-construction transmission lines at 132 kV, 220 kV and 400 kV voltage levels are 2,281 circuit km. Similarly, the total capacity of substations under construction is 7,502 MVA. The planned and proposed transmission lines of total 6,334 circuit km and additional substation capacity of 15,750.5 MVA of different voltage levels will be built within the next few years.

NEA is implementing Substation Automation System (SAS) in 13 existing grid substations within Kathmandu valley and 39 existing grid substations outside the valley for remote operation.

The existing transmission system of the major cities of the country will be insufficient to meet the growing energy demand as well as the peak demands. The study project "Power Transmission System Plan for the Major Cities and associated Industrial areas" for the future growth till 2050 AD has been completed and will be implemented in different clusters.

NEA commissioned 9 new 33/11 kV distribution substations of total capacity 91 MVA in FY 2023/24. Including this total number of 33/11 kV distribution substations under operation has reached 196 with total capacity 2,524 MVA. Likewise, the total line lengths corresponding to 33 kV, 11 kV and 0.4/0.23 kV voltage levels under operation are 7,576 ckt. km, 50,676 ckt. km and 150,477 ckt. km respectively. In FY 2023/24 alone 339 ckt. km of 33 kV Line, 2,943 ckt. km of 11 kV Line and 5,207 ckt. km of 400/230 V Line were completed and 3,289 numbers of distribution transformers of capacity 86 MVA added in the distribution system. Total 45,474 nos. of distribution transformers with capacity 4,199 MVA are connected in the distribution network.

Following Government of Nepal's electricity roadmap, NEA is committed to provide access of electricity to every household by FY

2024/25. Rural Electrification and Distribution Network Expansion works are being executed throughout the country to meet the set target of electricity access to all. In order to improve safety and reliability of distribution system and to have better aesthetic look of the City, distribution system underground project has been implemented in major cities like Kathmandu, Lalitpur, Bhaktapur, Pokhara and Bharatpur. 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.

NEA has also conducted various activities to enhance its operational efficiency, reduce electricity loss and to improve service delivery. The implementation of Smart Grid and Smart Metering System will increase efficiency and reduce losses. Kathmandu Valley Smart Metering Project (first phase) has successfully implemented the installation of smart meters and AMI infrastructure for 98,000 consumers in the areas under Ratnapark and Maharajgunj Distribution Centers.

The second phase of the project with the objective of replacing 600,000 electronic/ electromechanical meters by smart meters in nine distribution centers of Kathmandu valley is in advance stage of procurement. In addition, NEA is also replacing all three phase electromechanical meters and non-smart TOD meters by smart meters. The replacement of electronic/electromechanical meters by smart meters in Koshi Pradesh and Madhesh Pradesh are under study.

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

d) 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. Of the four projects under construction Sanjen (Upper) has been generating since October 2023 and the other three are ready for generation.

2. **Upper Tamakoshi Hydropower Limited (UTKHPL):** Upper Tamakoshi HEP (456 MW) started commercial generation from August, 2021 and delivered 2,058.63 GWh of energy to NEA in FY 2023/24.

   UTKHPL has also started the construction of Rolwaling Khola HEP (20.66 MW) 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. The Project is scheduled to be completed in 54 months.

3. **Tanahu Hydropower Limited (THL):** Tanahu

Hydropower Project (140 MW) is being developed under THL, a subsidiary company of NEA, under co-financing from ADB, JICA and EIB. The Package 1 Contractor Song Da Kalika JV (Vietnam-Nepal) has substantially completed the establishment of essential site facilities like aggregate cooling plant, ice plant etc. A major milestone was achieved on November 6, 2023, with the diversion of the Seti River through Diversion Tunnel 2, enabling the construction of the main dam. The construction of both diversion tunnels, including the cofferdam, was completed in June 2024. The excavation of dam abutments on both banks is largely completed, starting from elevation 545 m and progressing down to the foundation level at 282 m.

The Package 2 Contractor Sinohydro Corporation Limited, has substantially completed the excavation and concreting of underground powerhouse. A successful breakthrough of headrace tunnel in heading was made on 31 March 2024. The installation of the tailrace gate, tailrace gantry crane, and powerhouse overhead traveling crane has been completed. The installation of the generator and power transformer is underway.

The Contractor for Package 3, KEC International, India has completed the construction of foundation of 78 of 94 the towers. Erection of 69 towers has also been completed. 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. The Consultant, JV of WAPCOS Limited, India and Nippon Koei Co. Ltd, Japan has submitted the final Detailed Design Report in June 2024. EIA study is in approval process. Starting from this fiscal year, the project is commencing its preparatory works like land acquisition, road/bridge construction etc.

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. After the termination of the whole package EPC contract in February 2023 with nearly 60% of the works completed, the remaining works have been divided into Lot 1 for Civil works and Lot 2 for Electromechanical and Hydromechanical. Contract for Lot 1 will be signed soon and the contract for Lot 2 will be signed by October 2024. The project is planned to be completed by April 2026.

5. **Raghuganga Hydropower Limited (RGHPL):** RGHPL was established to develop Rahughat Hydroelectric Project (40 MW) with EXIM Bank of India financing. Civil and Hydro-mechanical Contractor, Jaiprakash Associates Limited, India, and Electro-mechanical Contractor, Bharat Heavy Electrical Limited, India, are being engaged in their works. At present the overall progress is approximately 79%. The tunnel breakthrough was achieved very recently on 30 June 2024. Due to the different natural calamities as well as the effect of global pandemic, the completion date of the project has been pushed to July 2025.

6. **Upper Arun Hydroelectric Ltd (UAHEL):** UAHEL was established for the development of Upper Arun Hydroelectric Project (1,063.36 MW) and Ikhuwa Khola Hydroelectric Project (40 MW). Consulting Contract for Tender Design, Preparation of Bidding Document, Construction Supervision and Post Construction Services was awarded on 14 February 2024. The company aims to prepare Tender Document by April 2025. Similarly, the Physical Hydraulic Model of the project being constructed is set to be completed by December, 2024. The Construction and Consulting works relating to access road of UAHEP are ongoing with estimated time for completion by February 2026. Likewise,

the employer's camp is scheduled for completion within this Fiscal Year. The EIA report of the project is under review at MoFE. The company aims for financial closure of the project by October 2024 under the aegis of the World Bank involving international lenders.

UAHEL has finalized the detailed project report of IKHPP and aims to complete the geotechnical and geological investigation by the end of 2024. Land acquisition scheduled to be completed by the next Fiscal Year and the project is set to start construction from 2026.

7. **Tamakoshi Jalvidyut Company Limited (TKJVC):** TKJVC 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 has been awarded to Sinohydro – KSNS JV and Tender has been floated for Package 2: Electromechanical and Transmission Line works.

8. **Dudhkoshi Jalvidyut Company Limited:** This Company has been established for the implementation of Dudhkoshi Storage HEP (670 MW). The revised final reports are expected to be submitted by July 2024. A decision has been taken to use the Tunnel Boring Machine (TBM) for excavating the 13.2 km Headrace Tunnel instead of the Drill and Blast Method (DBM). The Consultant is currently integrating the modifications, addressing the comments and suggestions provided by the Client and working in consultation with the Panel of Experts (PoE).

9. **Modi Jalvidyut Company Limited (MJCL):** MJCL is established to develop and implement two projects, namely, Upper Modi A Hydroelectric Project (42MW) and Upper Modi Hydroelectric Project (19.8 MW) in Kaski District. MJCL has signed a loan agreement with NMB Bank and HIDCL to finance the project. Lot 1 (Civil and Hydromechanical works) was awarded to JV of Sichuan Shutian Construction Engineering General Contracting Co Ltd., China and High Himalaya Hydro Construction Pvt. Ltd, Nepal on 8 May 2024 and Tenders for Lot 2 (Electromechanical works) and 132 kV Transmission Line will be published within this fiscal year.

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. A Contract with NEA Engineering Company has been signed for study and analysis of two options; namely inter basin and in basin. EIA Report for inter basin option has been approved by MoFE.

11. **Chainpur Seti Jalbidhyut Company Limited (CJCL):** This is a company established to undertake the construction of the PROR type Chainpur Seti Hydroelectric Project (210 MW). The project is designed to generate an Annual Energy of 1,206 GWh. Access Road to the Powerhouse site has been completed. Adit III and Adit IV are being excavated with support works. The Detailed Design and Bidding Document preparation work has been completed. Land acquisition for project has been completed. The process for the Connection Agreement is underway.

12. **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, Financial Analysis 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.

13. **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.

14. **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 400 kV double circuit line between Dhalkebar and Muzaffarpur was implemented by PTCN. PTCN also developed the Nepal section of the 400 kV Double Circuit Transmission Line from Bhittamod to NEA substation at Dhalkebar.

e) 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 23 new projects developed by the Independent Power Producers (IPPs) with a combined installed capacity of 463.255 MW were commissioned in FY 2023/24. This has increased the total number of IPP-owned projects in operation to 182 with a combined installed capacity of 2,496 MW, with NEA's subsidiary company projects contributing 492.9 MW.

A total of 137 projects to be developed by IPPs, with a combined installed capacity of 3,906 MW, are under construction after financial closure. Similarly, 136 IPP-owned projects with a combined installed capacity of 3,899 MW are at various stages of development, with financial closure yet to be achieved.

During FY 2023/24, a total of 55 new PPAs with hydropower plants with a combined installed capacity of 2286.3 MW and 8 solar plants totaling 90 MW were concluded. This has increased the total number of PPAs signed with the various IPPs to 455 with the combined installed capacity of 10,301 MW as of FY 2023/24. Building on the interest shown by developers on solar power, NEA issued another RfP in 2023/24 for 800 MW of grid-connected solar PV power projects through a tariff-based competitive bidding process.

f) Cross Border Power Trading

In FY 2023/24, NEA achieved a significant milestone by becoming a net exporter of electricity. Total imports were 1,895 GWh, while exports reached 1,946 GWh, translating to NPR 16.93 billion in imports and NPR 17.06 billion in exports. This marks a major turnaround for a country that used to rely solely on electricity imports just a few years ago. Despite challenges during the dry season, which saw a drop in domestic hydro generation and increased reliance on power imports from India, NEA managed to ensure a reliable power supply for its consumers.

NEA engaged in electricity trading through various channels including the Power Exchange Market (Day-ahead Market/Real-time Market), Medium-term Bilateral Agreements, and the Indo-Nepal Power Exchange Committee (PEC). For FY 2024/25, the tariff under the PEC mechanism increased by 4.5% compared to the previous year, following the 15th PEC meeting's decision concerning power transactions with Bihar, Uttar Pradesh, and Uttarakhand at various voltage levels.

NEA also entered into two medium-term agreements: supplying 200 MW to Haryana Discom and exporting up to 200 MW to Bihar State Power Holding Co. Ltd. via the Nepal-

Bihar 132 kV transmission infrastructure. As of FY 2023/24, NEA exported up to 700 MW and imported around 750 MW. The export volume is expected to increase significantly in the coming years.

Looking ahead, a finalized draft Tripartite Agreement between NEA, NVVN, India and the Bangladesh Power Development Board (BPDB) for the sale of 40 MW of power from Nepal to Bangladesh through Indian Territory will be signed soon and this will represent a significant step towards regional power integration for Nepal.

g) 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, with joint venture partners and 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 (1063 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 Satlaj 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. Understanding the need of developing storage type projects to meet the seasonal demands, NEA has identified numerous storage and PSP projects for further development Similarly, in order to cater to the demand fluctuations at different times of the day, we have initiated the study of Pumped Storage Projects, which will be ideal in meeting these varying needs. PSP that has been included for development in the coming years is Syarpu PSP (334 MW).

NEA has set the policy to purchase solar power, which are ideal to meet short term fluctuations, through competitive bidding process from the prospective bidders. Recently, NEA issued Request for Proposal (RfP) for the purchase of 800 MW of grid-connected solar PV power through a tariff-based competitive bidding process. Further, a new PPA policy is under review for power purchase by allowing developers to design hydropower projects with the optimum Probability of Exceedence 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 years. More high capacity transmission interconnections are being planned and executed 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 decided to implement two more 400 kV cross border transmission lines to connect New Inaruwa, Nepal to Purnia, India and Dododhara, Nepal to Bareli, India, the implementation modalities for these projects will be finalized soon. Further, a 220 kV transmission line from Chilime (Nepal) to Kerung (China) planned to be constructed, will lead to Nepal-China power trading in the years to come.

We aim to enhance the capacity of transmission and distribution systems, automate the transmission and distribution systems, digitize and ultimately strengthen NEA. We are also proceeding with detailed engineering, environment and social studies of various transmission lines up to 400 kV voltage with combined line length of more than 1000 km and associated substations.

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 for the next thirty years. Studies for Power Transmission System Plan have been completed, whereas the land acquisition for 20 different substations within the Kathmandu valley is in progress. As per the plan, NEA has started the implementation of some of the projects with financial support from JICA and ADB.

Similarly, the studies on the transmission system in 11 different clusters covering the major cities outside the Kathmandu valley are also completed and will be implemented in different stages. 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 NEA has been able to provide electricity access to 99 % of total population. Rural Electrification and Distribution Network Expansion works are under way to provide electricity access to all within FY 2024/25 which is aligned with the GoN set target.

The primary objectives of NEA are to increase domestic demand and at the same time 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. With the continuous and uninterrupted supply of quality power, the use of Electric Vehicles (EVs) and electric cooking are now gaining popularity with the masses. 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 62 prime locations all over Nepal. At the same time, NEA has also adopted the policy to encourage private sector to come into this business, following which, private companies importing EVs 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 understanding reached, last year, to export up to 10,000 MW to India in the coming 10 years is another milestone in this regard. Similarly, a tripartite agreement between NEA, Bangladesh Power Development Board (BPDB) and NVVN, India to sell 40 MW from Nepal to Bangladesh through Indian territory, utilizing existing transmission infrastructure, is likely

to be concluded soon. This is an important achievement of exporting power beyond India and the volume is definitely likely to grow in the coming years. To enhance the power trade with India and Bangladesh, construction process of a 400 kV Transmission Line from Inaruwa to Anarmani has been initiated.

A major achievement of NEA in the last eight years is the massive expansion of high voltage Transmission Line network. The target here is to achieve a transmission line network capable of dealing with up to 20,000 MW for export by 2035. NEA 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.

As Nepal Power Trading Company, a NEA subsidiary, has already obtained the transaction approval for its operation, NEA is committed to start the trading business through it in both domestic and cross border markets soon.

Green Hydrogen has attracted the imagination of the entire world, in view of the degrading environment resulting in drastic climate changes, as a major source of fuel for transportation and industrial use in the coming days. 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 needs. With the abundance of water and surplus hydropower, Nepal can and should take the initiative to play a major role in this new field. In this context, NEA has carried out feasibility study for Green Hydrogen collaborating with Global Green Growth Institute and 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. NEA has committed itself to harness the potential of IT with the necessary infrastructure along with Software Applications for digital transformation and automation with the emergence of Internet of Things (IoT) bringing together IT and Operation Technology (IT & OT). NEA is paving the way for a more efficient, resilient and sustainable power sector by embracing ICTs for safety and security, optimized business operations and adopting best practices in procurement and asset management. The recently established modern Distribution Control Center and Data Center in Syuchatar will play a significant role in digitization of NEA. Our endeavor towards this direction will lead to Digital NEA which will be in line with the GoN's vision of Digital Nepal.

NEA, in the last eight years has been successful in more than halving its system losses to 12.73 % this year. We still have not achieved our target of reducing these losses down to single digits. Hence our endeavor in this regard still continues till the set target is met.

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 framework for restructuring has been formulated in the updated Corporate Development Plan.

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.

h) 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. 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 grateful to the honorable State Minister of Energy, Water Resources and Irrigation for his valuable support and guidance.

Likewise, 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, EU, EIB, AIIB, KfW, NORAD, USAID, Saudi Fund, OPEC Fund, 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 thanks also go to the power utilities of Bihar and Uttar Pradesh, 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.

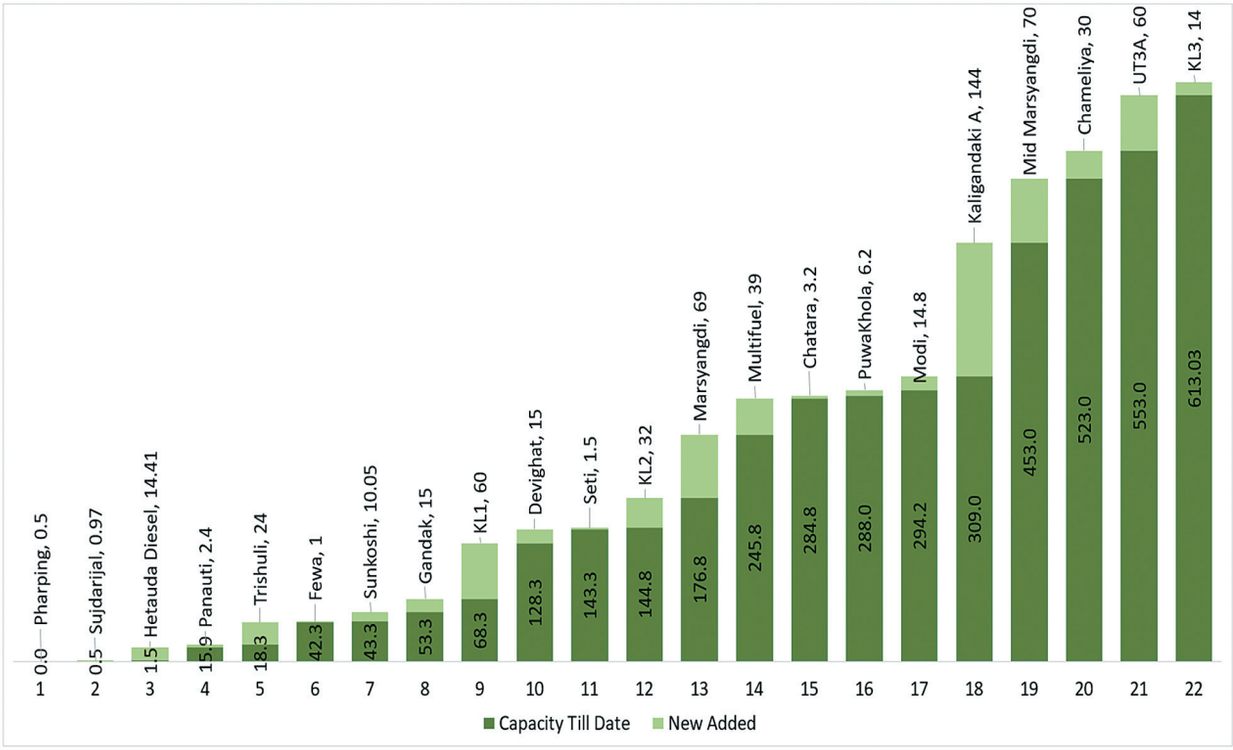
Kul Man Ghising
Managing Director

GENERATION DIRECTORATE

The Generation Directorate, under the leadership of the Deputy Managing Director ensures the efficient operation and maintenance of hydropower stations owned by NEA. It manages twenty hydropower stations and two thermal power plants with a total installed capacity of 627 MW. The Directorate's mission is to maximize energy generation through optimal resource utilization, including periodic overhauls, preventive maintenance, and rehabilitation programs at the generating stations.

Under this Directorate, there are three departments and two divisions

1. Large Generation Operation and Maintenance Department
2. Medium Generation Operation and Maintenance Department
3. Generation Development and Support Department
4. Finance Division
5. Administration Division



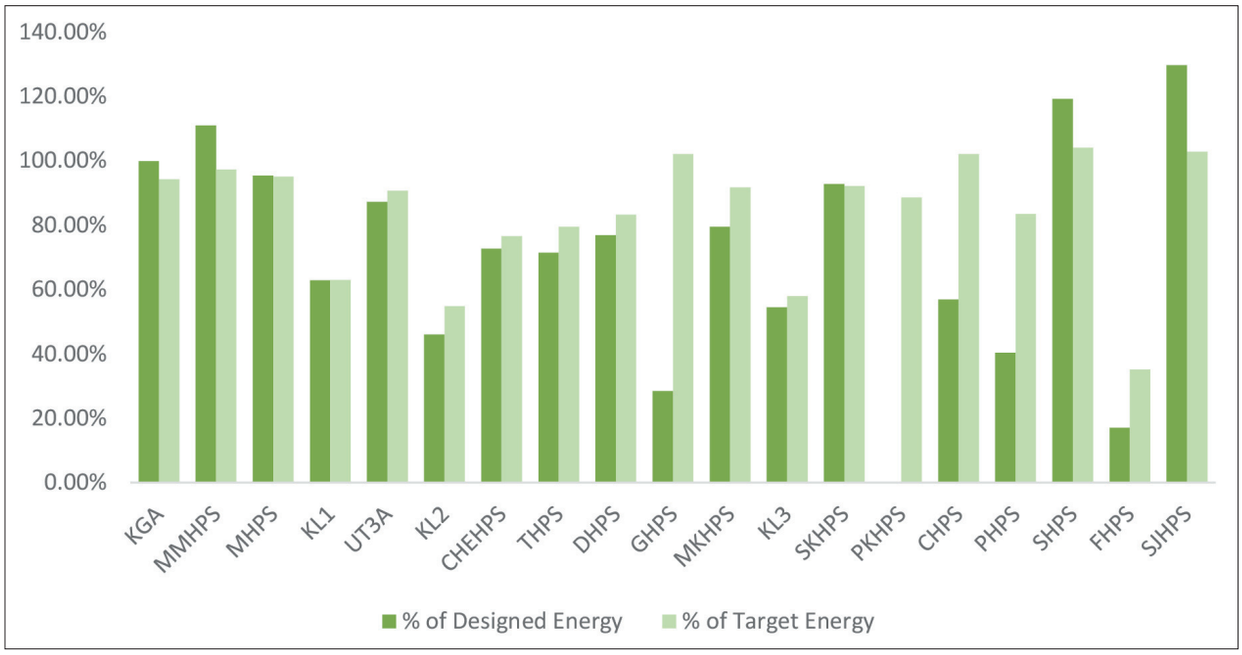
Timeline of Hydropower Development by NEA

Major Achievements

For the Fiscal Year 2080/81 (2022/23) Gandak, Chatara, Seti and Sundarijal HPS achieved generation more than 100 % of target. Whereas Kaligandaki 'A', Middle Marsyangdi, Marsyangdi, Upper Trishuli 3A, Modi, Devighat, Sunkoshi HPS have achieved more than 90% of target generation.

significant milestone in Nepal's power sector development highlights another achievement for the Generation Directorate.

In the case of the storage power plant, the maximum and minimum water level of Kulekhani reservoir in FY 2080/81 was recorded as 1523.31 and 1483.94 MASL. With effective utilization, altogether the combined generation

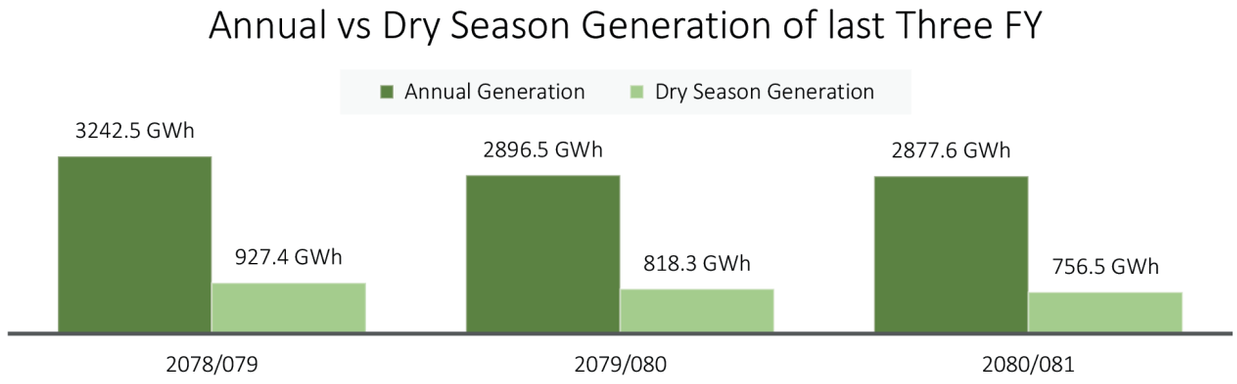


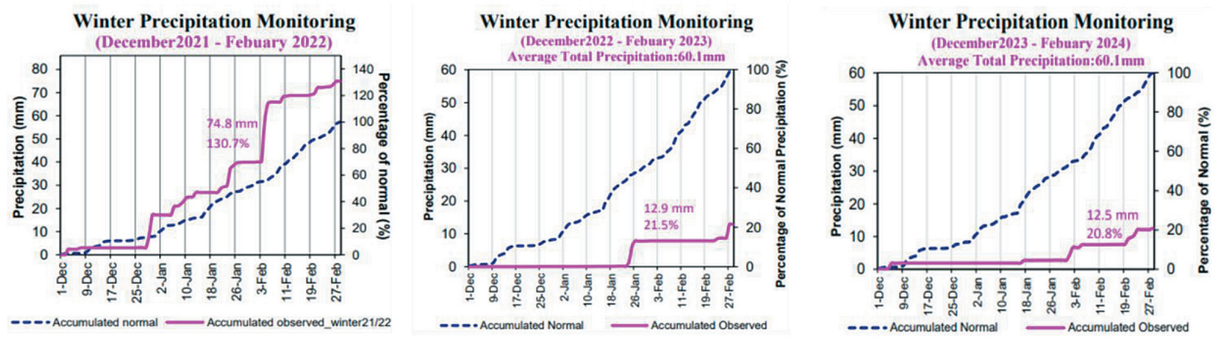
Comparison between Achievement of Designed generation and Target generation

Indian authorities have permitted the NEA to sell a total of 690.5 MW of electricity through Indian Energy Exchange Limited (IEX) and bilateral afreement. This electricity is generated by NEA's power plants, including Kaligandaki 'A', Middle-Marsyangdi, Marsyangdi, Trishuli, Devighat, Chilime (a subsidiary of NEA), and other Independent Power Producers (IPPs). This

of KL1, KL2 and KL3 reached 174 GWh in this fiscal year.

The aggregate output from the hydropower plants for the current fiscal year amounted to 2877.6 GWh. Specifically, during the dry season (December to February), the generation totaled 755.6 GWh. Both figures represent a slight decrease compared to the previous





Source: Department of Hydrology and Meteorology, Climate Division

year. Several factors contribute to this decline, among which the overall discharge of rivers throughout the year and precipitation levels during dry months are particularly noteworthy.

According to the Department of Hydrology and Meteorology, this winter's precipitation was 12.5mm, only 20.8% of the expected norm. This compares to 21.5% and 130.7% in the last two fiscal years. Hydropower generation totaled 756 GWh, slightly less than the previous year due to lower precipitation. However, generation by the end of the dry season shows an increasing trend over the past three years, and post-dry season generation exceeds last year's levels. In addition, with the late arrival of monsoon, the wet season (April-May-June) received less precipitation compared to the previous year resulting in decreased energy generation.

Large Generation Operation and Maintenance Department

Power plants with installed capacity of 30 MW and above, including seven hydropower plants totaling 465 MW, fall under this department. In fiscal year 2080/81, these plants generated 2441.6 GWh, about 85% of the total annual generation, meeting 89.9% of the 2714 GWh target and slightly less than the previous year by 0.57%.

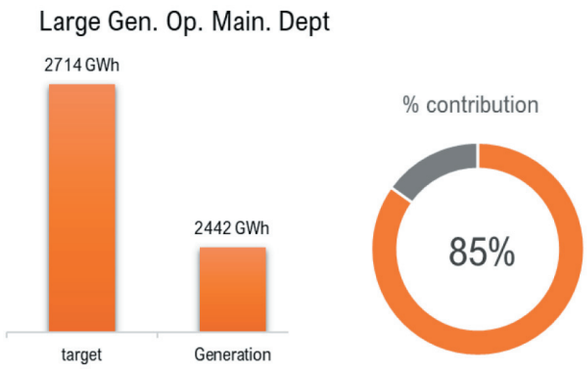
All plants operate year-round, except Kulekhani I, Kulekhani II and Kulekhani III HEP, which are of operating seasonal storage type. Among

ENERGY GENERATION PATTERN OF ROR AND STORAGE (GWH): 2080/81

	Shrawan	Bhadra	Aswin	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Baisakh	Jestha	Ashad
GEN: STORAGE	3.0	4.2	11.1	3.5	8.2	10.4	17.8	1.7	23.6	48.8	31.6	10.2
TAR: STORAGE	42.8	19.1	13.6	12.0	18.3	28.5	23.3	13.5	31.1	27.8	27.8	33.1
TAR: PROR	287.6	295.6	292.5	247.9	257.2	211.0	170.8	159.4	193.1	237.0	289.5	298.9
GEN: PROR	276.8	279.7	288.3	250.7	237.0	188.6	152.7	140.2	147.4	193.5	272.3	276.3

Energy from Run-of-River (ROR) and storage facilities is used seasonally. ROR energy dominates during the monsoon and post-winter seasons, while storage energy maintains balance. Generation rises from Chaitra to Aswin, then declines until Falgun, with peak storage use in Baisakh.

seven power plants, four (Kaligandaki, Middle Marsyangdi, Marsyangdi, Chameliya) are PROR, two (KL1 and KL2) are storage cum cascade and



one (UT3A) is ROR type. Kulekhani I collects water year-round, mainly from monsoon rainfall, and operates to meet seasonal load demand, especially in dry season.

Kali Gandaki 'A' Hydropower Station

Located in Syangja district of Gandaki Province, Kali Gandaki 'A' Hydropower Station is the largest power station of the department with an installed capacity of 144 MW and with 3 units each having capacity of 48 MW. It is a six-hour daily peaking run-of-river type power station having an annual design generation of 842 GWh and it was commissioned in 2002 AD.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 17,257 GWh from the first run. The plant generated 841.6 GWh of energy this year which is 1.07% more compared to the previous year. This value is 94.2% of target generation this year and 99.88% of design generation.

Major activities this year

- Unit No. 2 was overhauled, with the bottom ring, balancing pipes, and Governor servomotor replaced.
- GIS substation (Lekhnath Bay) was maintained, including the 132 kV SF6 Circuit Breaker's hydraulic mechanism and auxiliary components.
- Medium Voltage 17.5 kV Generator VCB in Unit No. 3 was retrofitted.
- Condition monitoring of the Power Transformer was completed.
- Damaged portions of the sill beam, sill plate and rubber seal of Diversion Gates were replaced.
- The reservoir was flushed to clear sand deposition during the Ashad 2081 flood.
- Auction of scraps and unwanted Materials stored from project construction time.

Guide Bearing Repair/Replacement work

Middle Marsyangdi Hydropower Station

Located in the Lamjung District of Gandaki Province, Middle Marsyangdi Hydroelectric Station (MMHPS) is a peaking run-of-river hydroelectric plant with an installed capacity of 70 MW designed to produce 398 GWh a year. This is a peaking run-of-river (PRoR) plant with a daily peaking capacity of 5 hrs. at minimum discharge. The plant was commissioned in December 2008.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 6663.2 GWh from the first run. The plant generated 441.1 GWh of energy this year which is 2.97% more compared to the previous year. This value is 97.2% of target generation this year and 110.95% of design generation.

Major activities this year

- Overhauled Unit No. 1 was carried out, including replacing various eroded parts.
- Major overhaul of De-sanding Basin No. 3 was done, including replacing and maintaining plates.
- Repair of spillway chute on gate No. 2 using M60 grade concrete and epoxy coating.
- Successfully auctioned over 1000 tons of steel and other scraps.

Replacement of Eroded plates of Desander Basin

Marsyangdi Hydropower Station

Marsyangdi Hydropower station is a peaking run-off-river type power station, located in Tanahun district in the Gandaki province. With installed capacity of 69 MW and annual design generation of 462.5 GWh, this plant has 4 hours of peaking capacity. It was commissioned in 1989 AD.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 14595 GWh from the first run. The plant generated 446.1 GWh of energy this year which is 2.65% more compared to the previous year. This value is 95% of target generation this year and 95.43% of design generation.

Major activities this year

- Overhauling of Unit No. 1 along with replacement of runner, wicket gates, head cover wearing ring & facing plate, bottom wearing ring with facing plate
- Repair and maintenance of diversion weir gate, replacement of bottom rubber seal of gate no. 3, 5 & 2 and repair of respective sill beam.
- Repair and Maintenance of eroded surfaces of flushing Gates No. 1 and 2 as the activity was performed for first time since project commissioning.
- Replacement of filling valve of Unit No. 3.
- Insulation resistance testing, Oil BDV testing and oil filtration of all three transformers (11/132 kV, 10MVA) of Unit No. 1.
- Pole and stator winding of Unit No. 1.
- Replacement of punctured 11kV, 800mm2, Copper XLPE cable in Unit No. 1, L2 transformer.
- A portion of land near the powerhouse area, previously at risk of flooding, was acquired by NEA to safeguard against potential future damage.

After assembly photo of runner shaft and runner during overhauling of Unit No-1

Upper Trishuli 3A Hydropower Station

Located in Rasuwa and Nuwakot districts of Bagmati Province in Nepal, Upper Trishuli 3A

(UT3A) Hydro Power Station is a run-of-river type power plant with an installed capacity of 60 MW and design is based on 70% exceedance flow with an annual design generation capacity of 489.76 GWh.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 2035.5 GWh from the first run. The plant generated 427.1 GWh of energy this year which is 2.3% more compared to the previous year. This value is 90.4% of target generation this year and 87.2% of design generation.

Major activities this year

- In house in site welding repair of eroded runners of Unit No.1 & 2.
- Repair of eroded upper guide bearing oil cooler and its associated pipeline of Unit No. 2.

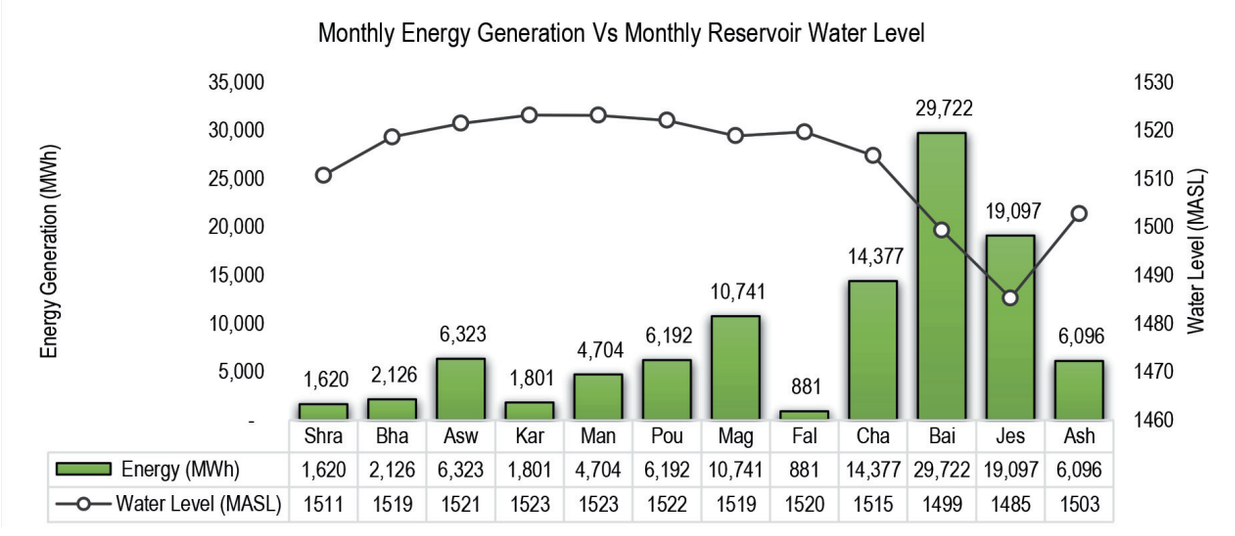
Repair of eroded upper guide bearing oil cooler

- Replacement of bottom seal, repair and painting of damaged skin plate and fabrication and installation of 6 meters of seal beam of Radial Gate No. 3.
- Repair of broken shaft of Screw hoist of Desander flushing gate No. 1&2.
- The Civil Structure at Headworks underwent extensive repair works
- Plum concreting at cross river near Canal spillway.
- Gabion Works in the downstream of Radial Gate No. 3 & 4 Stilling basin.

Kulekhani I Hydropower Station

Kulekhani –I, located at Dhorsing, Makwanpur is the only reservoir type Hydro-electric Power Station in Nepal. It has installed capacity of 60 MW with two units, each of 30 MW. This station was designed as a peaking power station, but it is often operated to the system requirements for voltage improvement & system stability. The power station is designed to generate 165 GWh as primary energy and 46 GWh as secondary energy.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 5615.3 GWh from the first run. The plant generated 103.7 GWh of energy this year which is 18.8% less compared to the previous year. The maximum and



	Shra	Bha	Asw	Kar	Man	Pou	Mag	Fal	Cha	Bai	Jes	Ash
Energy (MWh)	1,620	2,126	6,323	1,801	4,704	6,192	10,741	881	14,377	29,722	19,097	6,096
Water Level (MASL)	1511	1519	1521	1523	1523	1522	1519	1520	1515	1499	1485	1503

Response of reservoir water level with corresponding monthly generation

minimum water level of Kulekhani reservoir in FY 2080/81 was recorded as 1523.31 MASL (2080/08/17) and 1483.94 MASL (2081/03/14).

Major activities this year

- Clearance of Chakhel Intake, sim intake and Waterway Tunnel to regulate flow which was fully blocked by debris due to the massive flood during rainy season.
- Construction of gabion check walls at different sources of Kulekhani reservoir.
- 35 MVA power transformer oil filtration and DGA test.
- Installation of Hetauda double circuit, 66 kV line side Capacitor Voltage Transformer (CVT).
- Insulation testing of Generator (IR Test), Φ200 sq. mm 66 kV power cable
- Installation of chiller plant at powerhouse
- Bathymetric survey was carried out to monitor the live storage capacity of the reservoir

Sand blasting for surface preparation at Penstock Pipeline

Kulekhani II Hydropower Station

Kulekhani-II Hydropower Station, a 32 MW plant commissioned in 1986, is a cascade of Kulekhani-I HPS with an annual design capacity of 104.6 GWh. It uses water from KL-I HPS's tailrace, the Mandu River, and the Rapti Pumping Station. Mandu Intake is cleaned post-wet season, and Rapti Pumping Station is maintained and operated as needed during the dry season.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 2350.7 GWh from the first run. The plant generated 48.1 GWh of energy this year which is 19.9% less compared to the previous year. This value is 54.8% of target generation this year and 45.98% of design generation.

Major activities this year

- Installation of a numerical relay-based protection system for the generators and the main transformer.
- Dismantling of old control cables and installation of new control cables at the switchyard.
- Condition monitoring and maintenance of CMCC Panels, MCC Panels, GCB panels, Isolator Panels, Battery Charger Panel, VCB Panel, Exciter Panel, and Generator Lower Bracket area.
- Repair and maintenance of Unit No. 2 MIV.
- Installation of new valves for surge tank drainage system and Rapti Intake.
- Construction, repair and maintenance of Check Wall at Mandu & Rapti Intake.
- Extension of pond with gabion wall and temporary earth fill dam at Rapti intake for increasing the ponding capacity.

Montoring of Exciter

Chameliya Hydropower Station

Chameliya Hydropower Station, a daily peaking run-of-river (PROR) scheme with an installed capacity of 30 MW is in Darchula district in far western province. It has a designed annual generation of 184.21 GWh. The Powerhouse is located at Shailya-Shikhar Municipality, Ward No. 1, Balanch, Darchula, and the Dam site is in Marma Rural Municipality, Bitule, Darchula. The powerhouse site is located 85 km from the district headquarter, Khalanga, Darchula, and is 270 m from the nearest city, Dhangadhi.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 948.8 GWh from the first run. The plant generated 134 GWh of energy this year which is 0.7% less compared to the previous year. This value is 76.6% of target generation this year and 72.7% of design generation.

Major activities this year

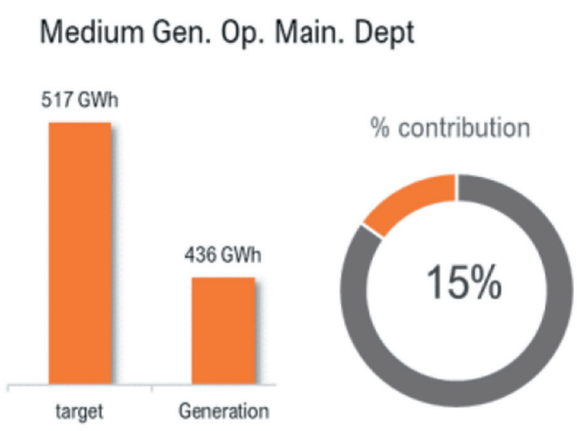
- Overhauling of Unit No.1 along with repair and replacement of Turbine Runner, Wicket Gates, Turbine Guide Bearing and Seal Ring MIV Bypass Valve of Unit No 1.
- Repair and maintenance of Cooling Water Supply System, Pressure Reducing valves, Duplex Filters, Non-Return Valves and Pressure Balancing pipes of both the Units, Vertical Turbine Pumps of Dewatering System.
- Installation of Outdoor 36 kV 1250 A VCB at 33/11 kV Substation.
- Under Water Repair and Maintenance of Guide Frame Sill Beam (I – Beam) of Stoplog of Both the Spillway Radial Gates at Damsite.

Medium Generation Operation and

Overhauling of Unit No.1

Maintenance Department

Power Plants with an installed capacity of less than 30 MW are categorized under this department. As such, Medium Generation Operation and Maintenance Department, headed by Director, is responsible for the operation and maintenance of one (1) PROR, twelve (12) ROR, one (1) diesel power plant and one (1) Multifuel power Plant. Diesel Plant and Multifuel Power plant are overseen by Chatara HPS and Kulekhani III HPS respectively. With and increasing use of hydropower, thermal plants are not in normal operation nowadays.



The combined installed capacity of the hydropower and thermal plants associated with this department totals 123.03 MW. While there is no generation associated with Hetauda Diesel Plant and Multifuel Power Plant, actual combined generation from 15 power plants contribute to about 15% of the total generation, which sums to 436 GWh for fiscal year 2080/81. This value is about 84.3% of the accumulated target of 517 GWh and is 1.26% less compared to that of the last fiscal year's generation under this department.

Trishuli Hydropower Station

Trishuli Hydropower Station is constructed on the bank of Trishuli River at Trishuli Bazar, Nuwakot. It was commissioned in 1967 AD in assistance with the Government of India at a cost of INR 140 million with its initial installed capacity of 21 MW having 7 units of 3 MW each. It was later rehabilitated in 1995 AD and upgraded to 24 MW installed capacity with 6 units each 3.5 MW and one unit of 3 MW. Being a peaking run-of-river plant with a peaking capacity of 21 MWh and annual design generation of 163 GWh. It's one unit is designed for standby purpose and only 6 units can run for full capacity. The annual Generation in FY 2080/81 is 137.1 GWh which is 106.38% of target and the cumulative energy generated till date is 5693.956 GWh.

Major Activities

- Overhauling of unit No. 3 and 7 was done including repair of MIV for both and guide vane servomotor for unit no.7
- Replacement of Guide Bearings, Thrust Bearings and Thrust Pads was done on Unit No. 2,3 4, 5 & 6
- Replacement of PT (Potential Transformer) in Unit No. 4 Switchgear Panel was performed.
- Replacement of 6.6kV VCB Synchronizing Breaker of Unit No. 6 has been done.
- Repair of rotor pole connection for unit no.1
- Gravel Trap Cleaning near Balancing Reservoir was performed.

Reinstallation of MIV for unit No.7

Renovation and Modernization work of Trishuli Hydropower Station is in progress. The construction of bypass canal has been completed which inturn has helped to enhance the generation performance. Extensive rehab works are being carried out on upgrading and replacing critical infrastructure. The major activities related to rehab work includes installation of Various Panels (UAB, CT, NGT, DG etc.)

Devighat Hydropower Station

Devighat Hydropower Plant is a cascade development of Trishuli Hydropower Plant with installed capacity of 15 MW and annual design generation of 114 GWh. It is located at Devighat, Nuwakot. The capacity of the units was improved and upgraded from an initial 14.1 MW which was initially commissioned in 1984.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 3419.19 GWh from the first run. The plant has generated 86.8 GWh of energy this year which is 2.34% less compared to the previous year. This value is 83.3% of target generation this year and 76.8% of design generation.

Major Activities

- Overhauling Works of Unit No. 2 including repair and replacement of Francis Runner, Guide Vanes, Turbine Nut Guard and other turbine parts
- Replacement of Hydraulic Operated Turbine Inlet Bypass Valve of all units of Sluice Valves of Bearing Oil Coolers of Unit No. 1.
- Repair Works of Rotor Pole and Connector Circuit for unit no.2
- Replacement of Current Transformer for Devighat Chapali Transmision Line Circuit 2.
- Replacement of 66kV Surge Arrestor for 66/33kV Transformer.
- Replacement of Rotating Diode of Unit No. 3.

Installation of Rotor Pole after repair of rotor pole connector of Unit No. 2

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 cumulative generation of the plant till the end of F/Y 2080/81 reached 141.9 GWh from the first run. The plant has generated 22.3 GWh of energy this year which is 19.1% less compared to the previous year. This value is 58% of target generation this year and 79.5% of design generation.

The major activities this year

- Repair and Servicing of SDMO 250kVA diesel generator at powerhouse (replacement of AVR card, speed controller, servicing of radiator) and make it operational
- Installation of three phase cooling fan on radiators of Power transformer.
- Installation of 2 numbers of intelligent multi-channel inspection display controller (Temperature Scanner)
- Installation, testing and commissioning of numerical line protection relay on 132 kV Line protection panel Hetauda side.
- Construction of retaining on way to adit 3 and head pond

Repair and maintenance of Main Inlet Valve servomotor

Gandak Hydropower Station

Gandak Hydro Power Station is located at Pratappur Gaun Palika ward no. -7, Nawalparasi. The powerhouse is a part of the irrigation cum power generation scheme on Gandak River.

The plant has three Horizontal mounted tubular bulb turbines (one being Standby unit); low head high discharge Kaplan Turbogenerators of 5 MW each with an aggregate capacity of 15 MW and annual design generation of 106.38 GWh. The project was built in1979 AD with the assistance of the Government of India and the Government of Nepal with the total cost of NRs. 170 million. It was handed over to NEA on 31st, Aug 1981.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 1099 GWh from the first run. The plant has generated 20.2 GWh of energy this year which is 36% more compared to the previous year. This value is 102.1% of target generation this year and 28.4% of design generation.

Major activities this year

- Installation of repaired Turbine Guide Bearing and its components of Unit No. 2.
- Repair and maintenance of all four runner blades and Oil divider rings (four sets) of Unit No. 2.
- Installation of repaired Impeller and repair and maintenance of housing of both units of Cooling Water System.
- Overhauling works of Unit No.2.
- Installation of 132 KV SF6 Breaker at Bardaghat bay at Switchyard and 132 KV Capacitive Voltage Transformer (CVT) at Ramnagar bay at Switchyard.
- Installation of temperature sensor & meter with alarm system for protection in Thrust and Turbine Guide Bearing of Unit No. 2.

Dismantling and Lifting of Runner Blade

Modi Khola Hydropower Station

Modikhola Hydropower Station is located at Dimuwa in Parbat district. It has installed capacity of 14.8 MW with two vertical shaft Francis Turbines, 7.4 MW each and annual design generation of 92.5 GWh. The cumulative generation of the plant till the end of F/Y 2080/81 reached 1363 GWh from the first run. The plant has generated 72.3 GWh of energy this year which is 2.14% less compared to the previous year. This value is 91.8% of target generation this year and 79.5% of design generation.

Major Activities this year

- Overhauling works of unit no 1
- Repair and maintenance of degravel, flushing and purging gates of intake area.
- Repair and maintenance work of auto filter and cooling system.
- Replacement of aggregate of 132 KV switchyard area.

MIV of unit No.2

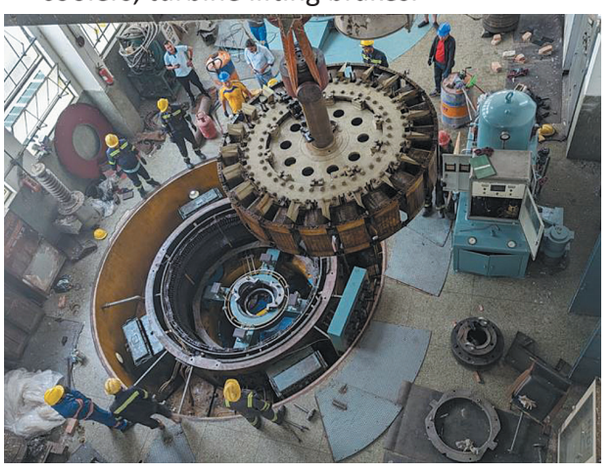
Sunkoshi Hydropower Station

Sunkoshi Hydropower Station located 81 km east from Kathmandu, in Sindupalchowk district is a run-of-river daily pondage power station with an installed capacity of 10.05 MW and annual design generation of 70 GWh. This station has 3 units of 3.35 MW each. The powerhouse was commissioned in January 1972 with a friendly cooperation of the Water Conservancy and Electric Power Ministry of the People's Republic of China and Government of Nepal.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 3259.5 GWh from the first run. The plant has generated 58.2 GWh of energy this year which is 5.2% more compared to the previous year. This value is 92.2% of target generation this year and 92.7% of design generation.

Major activities this year

- Overhauling of unit-2 and unit-3
- Replacement of new set of arms on Barrage gate 3.
- Installation of new Gallery Gate-1 (gravel trap gate), 3-sets of penstock intake gate, 2-sets of forebay gallery gate, 3-sets of trash rack panels and supporting beams on penstock intake gates.
- Installation of new auxiliaries like HP and LP compressors, HP VT Pump, air coolers, oil coolers, turbine lifting brakes.



Overhauling of Unit No.3

- Installation, testing and commissioning of 7 MVA, 66/11 kV power transformer and control and relay panel including XPLE Cable and accessories
- Repair and maintenance of 6 Barrage gates and 2 sets of service gates (high strength concreting, application of epoxy, H-beam and SS plate change, de-rusting, painting, rubber seal and bolts change).
- Deep boring for drinking water.

Illam (Puwa Khola) Hydropower Station

Ilam (Puwakhola) hydropower station, run-off river type plant, located at Golakharka, Ilam having an installed capacity of 6.2 MW and annual design generation of 48 GWh was commissioned in 1999 AD. It was jointly commissioned and constructed with the in-house management of the Nepal Electricity Authority and the source of fund was the Government of Nepal and Nepal Electricity Authority, the total cost of which was US$ 15.7million dollars.

The cumulative generation of the plant till the end of F/Y 2080/81 reached 149.6 GWh from the first run. The plant has generated 2.8 GWh of energy this year which is 11.9% more compared to the previous year. This value is 83.5% of target generation this year and 40.35% of design generation.

Major activities this year

- Replacement of Runner, Needles, Nozzles with its assembly along with oil sealing rings during overhauling of Unit No. 1.
- Repairing and main seals replacement of spherical main Inlet Valve (MIV) of Unit No.2.
- River protection Works including Repairing of Weir of Intake

Chatara Hydropower Station

Chatara Hydropower Station, a canal drop type hydropower station, is located at Chatara,

Turbine Overhauling Works of Unit #01

Sunsari with an installed capacity of 3.2 MW (2 units, each of capacity 1.6 MW) and 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.

The operation of Multi Fuel Power Plant (which is non-operational) is now under the management of Chatara Hydropower Station.

The cumulative generation of the Chatara Hydropower Plant till the end of F/Y 2080/81 reached 68.5 GWh from the first run. The plant has generated 3.4 GWh of energy this year which is 3.29% more compared to the previous year. This value is 102% of target generation this year and 56.9% of design generation

Major activities this year

- Installation of 2 set of Disconnecting Switches and Lightening Arrestors in Switchyard.
- Replacement of oil header Seals of Runner Hub.

Chatara HPS with Intake and Gates

- Installation of Potential Transformers in Common Bus Bar.

Panauti Hydropower Station

Panauti Hydropower Station is the third oldest Hydropower Station in Nepal. It is run of river scheme hydropower plant with intake on the right bank of Roshi Khola and Powerhouse is located at Khopasi, Kavre, nearly 35 km east of Kathmandu. The plant has 3 units of Francis Turbine with 800kW each (one unit being standby) with annual design generation of 6.97 GWh. It was commissioned in 1965 A.D. and developed jointly by the Soviet Union Government and GON at the cost of NRs. 27 million. 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 this plant till the end of F/Y 2080/81 reached 149.6 GWh from the first run. The plant has generated 2.8 GWh of energy this year which is 11.9% more compared to the previous year. This value is 83.5% of target generation this year and 40.3% of design generation

Major activities this year

- Repair and Maintenance of Rotor-Shaft of Unit-2
- Repair and Maintenance of Exciter Coupling of Unit-3
- Bladder Replacement of Unit-2 and 3

Overhauling of Unit-1

- Replacement of 33kV Lighting arrester at switchyard

Seti Hydropower Station

Seti Hydropower Station is a run off river type with an installed capacity of 1.5 MW and design generation of 9.8 GWh consisting of 3 units each of 0.5 MW. It is located at Nadipur, Pokhara, 03 and was commissioned in 1985 AD with assistance from Government of People's Republic of China and Government of Nepal. The canal for this power station is primarily used for irrigation purposes, looked after by Irrigation Division Office, Pokhara and hence, the operation of this power station is affected by irrigation as well.

The cumulative generation of this plant till the end of F/Y 2080/81 reached 383 GWh from the first run. The plant has generated 11.7 GWh of energy this year which is 1.13% less compared to the previous year. This value is 104% of target generation this year and 119.3% of design generation.

Major activities this year

- Overhauling of Unit no.1 including major repair and Maintenance of Turbine parts
- Replacement of Generator Guide Bearing (DE) Oil Cooler (1 no.) and Turbine Combined (Guide & Thrust) Bearing Oil Cooler (1 no.) on Unit no. 2.
- Replacement of Slip rings for rotor excitation of Unit no. 1.
- Repair and maintenance of Unit 3 MIV driving gear and installation.
- Repair and Maintenance of Desander Intake Gates 2 nos. (Gearbox housing repair, Motor replacement, Seal replacement, Spindle straightening and Control panel repairing).
- Replacement of Rubber bladder of compressor tank and nitrogen gas filling of Unit no. 3 OPU.

Fewa Hydropower Station

Reinstallation of MIV during overhauling of unit no. 1

Phewa hydropower station is a canal drop type power station having an installed capacity of 1.0 MW and located at Pardi, Birauta, Pokhara with an annual design generation of 6.5 GWh. It consists of 4 units each 0.25 MW. It was commissioned in 1969 AD and developed jointly by Government of India and Government of Nepal. The public encroachment of power canal leading to power house is a concern for normal operation regardless of the availability of generating units.

The cumulative generation of this plant till the end of F/Y 2080/81 reached 103.9 GWh from the first run. The plant has generated 1.1 GWh of energy this year which is 21.97% less compared to the previous year. This value is 35.2% of target generation this year and 17% of design generation.

Major activities this year

- Installation and Commissioning of New DC Battery charger with Battery having capacity 110 V DC total.
- Overhauling of Unit no. 1.
- Repair and Maintenance of 50 KVA Transformer and Installation for Station Service.
- Installation of 11 KV Link switch and Repair of 11 KV line with changing Lightning Arrester/ Disc/ Pin.
- Repairing by Welding of Penstock pipe leakage area.

Overhauling of unit no. 1

Sundarijal Hydropower Station

Sundarijal Hydropower Station is located at Sundarijal, 15 km northeast of Kathmandu and serves twin purposes 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 total installed capacity of 970 kW This plant was erected under Colombo Plan scheme whereby the main equipment was supplied by The English Electric Company Ltd., England. It was commissioned in 1934 AD and is the second oldest hydropower plant constructed in Nepal.

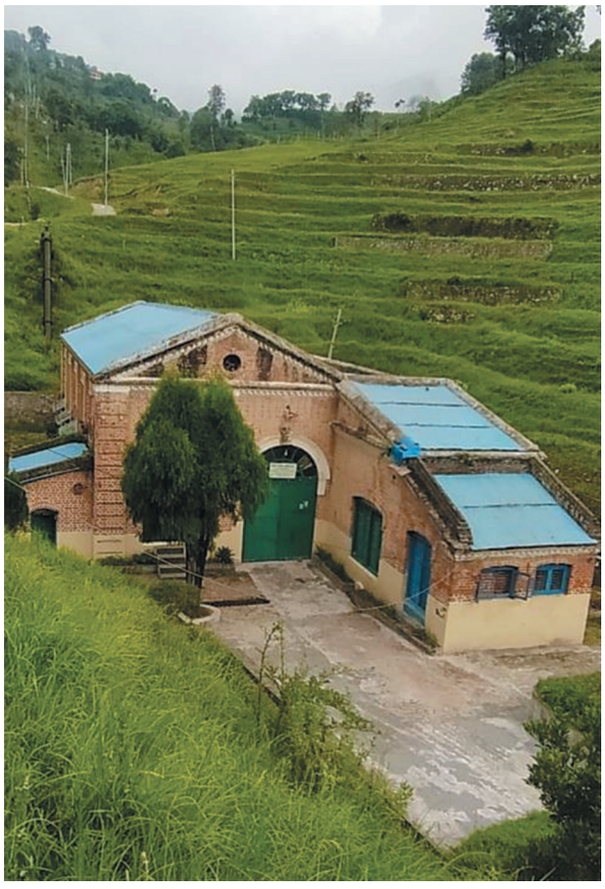
The cumulative generation of this plant till the end of F/Y 2080/81 reached 153.7 GWh from the first run. The plant has generated 6.2 GWh of energy this year which is 6.94% more compared to the previous year. This value is 102.8% of target generation this year and 129.7% of design generation.

Turbine Floor and generating units at Sundarijal HPS

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 Monday, 22 May 1911 (B.S. 1968, 9th Jestha).

It was constructed with a grant from British Government at a cost of NRs. 0.713 million. It is in Pharping of Kathmandu district, nearly 12 km south of 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 drinking water supply to Kathmandu by KUKL, the plant is not being operated for generation nowadays though it has been placed in standby mode to operate occasionally and to demonstrate to the visitors. NEA Engineering Company has been assigned the task of performing the necessary study



Pharping Powerhouse

works and making a masterplan to develop this historical plant as a hydroelectric museum and tourist attraction center.

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 in assistance from British Government and Government of Nepal. Over the recent years, the use of this thermal plant has been very nominal and only operated for testing purposes only and is managed by Kulekhani III HEP. To this day, the cumulative generation of the plant has reached 155.53 GWh from its first run.

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 total installed capacity of 39 MW, 26 MW capacity was put into service in fiscal year 1990/91 and an additional 13 MW capacity was put into service in fiscal year 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 Alstom, France.

Multifuel Power Plant

The major overhauling of all the six units was concluded in 2013 A.D. Till date, the plant has generated about 593GWh of energy. Currently this thermal plant is not in normal operation and is managed by Chatara HPS.

Generation Development and Support Department

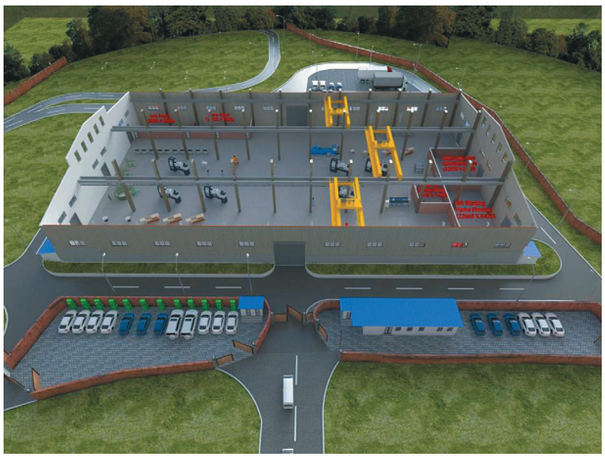
This is a newly formulated Department by NEA Board by merging two departments (Generation Development Department and Technical Support Department). Its objective is to develop and construct new power projects and support various O & M issues of the plant under operation. After successful completion of Upper Trishuli 3A and Kulekhani III project, however, NEA hasn't undertaken any new projects.

NEA 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" in last Fiscal Year. The prime objective of this program is to expedite the capacity development of academic institutions and NEA for better utilization of hydropower electricity for the promotion of industrial development in Nepal. The present status of the project seems to be a submission of “Desk Study Report” by KU till now and further work is under progress.

Electromechanical Workshop Construction Project

NEA has envisioned an electromechanical workshop capable of repair and maintenance of almost all types of electromechanical equipment used in powerhouses of NEA. For this purpose, the Generation Directorate has commenced the 'Electromechanical Workshop Construction Project’.



Design Plan of Electromechanical Workshop

For the initial phase, the project has set a target to build the capability for, repair of turbine and associated parts for NEA owned HPP, fabrication of smaller to medium components, fabrication of hydro mechanical components (gate, penstock etc) for IPPs and HVOF coating. While, in the long run the project has planned to extend project for fabrication of large hydro mechanical components, on site overhauling, erection and rehabilitation works of HPPs, testing of material properties, testing of electrical and electronic systems and components, human resources development related to repair and maintenance.

Hydropower Automation Project

Most of NEA's hydropower plants face challenges due to aging infrastructure and obsolete technology, particularly conventional relay logic control systems that are hard to maintain and lack manufacturer support. The scarcity of spare parts further complicates repairs. Retrofitting these plants with modern PLC-based control and numerical relay protection systems would improve reliability, availability, and allow integration with advanced automation technologies like SCADA and DCS.

Key plants such as Kulekhani First, Kulekhani Second, and Marsyangdi are affected by outdated relays, sensors, and transducers, leading to unnecessary shutdowns and increased safety risks. Many gate control systems, including those at Kulekhani First, Marsyangdi, and Kaligandaki 'A', are non-operational, requiring manual operation that slows emergency responses and increases the risk of structural damage.

The Hydropower Automation Project aims to modernize infrastructure by upgrading or replacing old equipment, improving plant and gate control systems, and implementing advanced automation technologies. The contract agreement has been made with Andritz Hydro for upgrading control and protection systems at Kulekhani First and Second, with further studies and upgrades planned for other plants in the next phase. Currently works related to automation are being carried out at KL1 and KL2.

Contract agreement ceremony for Automation Project

TRANSMISSION DIRECTORATE

Transmission Directorate headed by the Deputy Managing Director is fully devoted to its responsibility of planning, constructing, upgrading,operating and maintaining high-voltage transmission lines and substations from 66 kV to 400 kV voltage level across the country.The transmission network bridges an important link between various power plants and distribution networks ensuring the reliable and quality power to the consumers.

High Voltage Grid Development Department (HVGDD), Medium Voltage Grid Development Department (MVGDD), Power System Operation Department (PSOD) and Grid Operation Department (GOD) are the four 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 network 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 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.
- To reinforce/up-grade the existing transmission lines and substations capacity.

The Directorate is responsible for operating INPS in synchronous mode with Indian Grid to make the system more reliable, secured and robust. Moreover, this Directorate is also taking the responsibility for 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 flow between Nepal and India. Joint Venture Company between NEA and Power Grid, India for the construction of Indian Portion of the New Butwal-Gorakhpur 400 kV cross-border transmission line has been formed and contractor has been mobilized to construct 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.

Recently Completed Projects

1. Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion

Hetauda-Dhalkebar-Inaruwa 400 kV Substation Expansion Project was funded by the Government of Nepal which includes Nepal's first three major grid substations of 400 kV voltage level at Hetauda, Dhalkebar and Inaruwa. The Dhalkebar 400 kV substation is connected to the Muzaffarpur (India) substation via. Dhalkebar- Muzaffarpur 400 kV cross border transmission line and is also connected to Hetauda and Inaruwa via. Hetauda-Dhalkebar-Inaruwa 400kV Transmission Line. The Dhalkebar- Muzzaffarpur cross-border link is the key for exporting/importing 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 the fiscal year 2073/74 BS.

The scope of project included 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, 3×315 MVA,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.

All three substations are 400 kV gas insulated switchgear (GIS) type with one and half breaker busbar scheme. These substations are equipped with a state-of-the-art control, protection and automation system based on IEC 61850 open standards to facilitate communication between numerous devices within the substation and beyond. NEA Engineering Company has been appointed as a design check and construction supervision Consultant for this project.

For the construction of 400 kV GIS substation at Dhalkebar contract had been awarded to ABB India Limited on December 2017 (latter on assignment of the project had been transfer to Linxon India Pvt. Limited on July 2020). The cost of project is US$17.58 million and NPR 220.33 million. Despite covid -19 pandemic and lockdown imposed by GoN the construction of the Dhalkebar substation was completed and in operation since November 11, 2020. Honorable Prime Minister of Nepal KP Sharma Oli inaugurated the substation on February 1, 2021 (BS 2077-10-19).

Similarly, for the construction of 400 kV GIS substation at Hetauda and Inaruwa, contract was awarded to Siemens Limited, India on December 2018 with contract price of US$ 28.41 million and NPR 410.54. But,

Inaugration of 400 KV Inaruwa GIS Substation

315 MVA Transformers at Inaruwa substation

COVID-19 pandemic and lockdown imposed by Government of Nepal 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 were damaged leading to the re-manufacturing and reimport of those damaged GIS parts.

Despite various challenges, both the Inaruwa and Hetauda substations have been completed. The Inaruwa substation has been operational since October 16, 2023, and the Hetauda substation since June 7, 2024. The Honorable Prime Minister of Nepal Pushpa Kamal Dahal 'Prachanda' inaugurated the Inaruwa substation on December 22, 2023 (BS 2080-09-06), and the Hetauda substation on June 14, 2024 (BS 2081-02-32).

2. Dhalkebar-Inaruwa 400kV Transmission Line and Hetauda 220/132 kV Substation

Dhalkebar-Inaruwa is one of the section of Heatuda-Dhalkebar-Inaruwa 400 kV Transmission Line. Objective of this project was to establish high voltage cross-border transmission link capacity of about 2,000 MW to facilitate exchange of power with India and to improve the reliability of power supply. The estimated project cost was around US$ 170 million and it was funded by World Bank,GON and NEA. After the closing of the World Bank loan on October 31, 2021, the project was financed by GON and NEA. NEA Engineering Company Limited is appointed as a design check and construction supervision consultant for 400kV Hetauda-Dhalkebar-Inaruwa Transmission Lines and Hetauda-Dhalkebar-Inaruwa 220kV substations construction works. This project was started in AD 2012 and completed on June 2024.

The scope of this parts of project included followings:

- Design, supply and construction of approximately 153 km of Dhalkebar-Inaruwa 400 kV, double circuit 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 its associated bays, 2 nos. of 220 kV lines bays for termination of 220 kV Hetauda-Dhalkebar D/C Lines and 220 kV line bays for the termination of 220 kV Double Circuit lines from Bharatpur.

QUAD ACSR Moose Conductor Stringing

Inauguration of 400/220/132/11kV Hetauda Substation by Rt. Hon'ble Prime Minister

Dhalkebar-Inaruwa section, a part of Hetauda-Dhalkebar-Inaruwa 400kV Transmission Line, was completed and charged on June 25, 2024. Dhalkebar-Inaruwa 400kV Transmission Line is the NEA's first 400kV transmission line with a capacity of about 4000 MW. The ROW indentification, compensation fixation and compensation payment of land parcel under ROW are in progress.

Further, the 220/132 kV Hetauda and Inaruwa substation balance works was awarded to M/s Consortium of Siemens Limited and Telmos Electronics on December 20, 2018.

220/132/11kV Hetauda Substation

The 220/132/11 kV Hetauda substation is charged at 220kV voltage level on June 5, 2024. 400/220/132/11 kV Hetauda substation was inaugurated by Rt. Hon'ble Prime Minister Pushpa Kamal Dahal 'Prachanda' on June 14, 2024. Initially, Hetauda-Bharatpur 220kV Transmission Line was charged at 132 kV and connected to Old Hetuada Substation. After successfully charging of 220 kV Hetauda substation, Hetauda-Bharatpur 220 kV Transmission Line will be charged at 220 kV voltage level. The other remaining civil works of the substation is expected to be completed by end of December, 2024. The capacity of 220/132/11 kV Hetauda substation is 330 MVA.

3. Trishuli 3B 220 kV HUB Substation

In the Trishuli basin, numerous hydropower projects are in their advanced phases of construction, and many new projects are being constructed, namely: Upper Trishuli 3A, Upper Trishuli-1, Upper Trishuli 3B, Sanjen, Rasuwagadhi, Upper Mailung HPP, and other IPPs. The objective of the Trishuli 3B 220 kV Hub substation is to accumulate about 600 MW of power generated in the Trishuli, Chilime, and neighboring river basins and evacuate that power via the 220 kV Trishuli-Matatirtha transmission line to the INPS.

The scope of this project includes the construction of a 2x160 MVA 220/132 kV substation plus a 1x50 MVA 132/33 kV substation at Kispang Rural Municipality in the Nuwakot district. The 220/132 kV transformer includes two banks of 160 MVA autotransformers formed with seven 220/132 kV, 53.33 MVA single-phase auto transformers. The 132/33 kV transformer includes a 50 MVA, 132/33 kV, 3-phase power transformer. The 220 kV bays are of the Hybrid GIS type, which are the first in Nepal at the 220 kV voltage level, while the 132 kV and 33 kV bays are of AIS type.

The project cost is estimated to be US$ 16.5 million with joint funding from the Government of Nepal, Germany (KfW), and the European Investment Bank (EIB). A contract was signed with M/s PINGGAO GROUP CO., LTD (China) on November 13, 2017, with a contract value of US$ 12.5 million, and the contract became effective on December 20, 2017.

By the end of the fiscal year 2080/81 B.S., the overall physical progress of the project is about 98%. Final finishing work, including PCC/RCC and internal road and boundary wall work, is ongoing. Major challenges of the project were completing the site leveling and river/rivulet protection works. About 99% of site leveling and 99% of the river/rivulet protection have been completed. Preliminary works like the quarter building and boundary walls

Overall View of the Project

Inauguration Program May 17, 2024

were completed in the last six years. 99% of equipment and structures have been supplied to the site and installed in the substation. Lighting mast structures are in the process of being dispatched.

Since this is a very urgent project to evacuate power from various IPPs (around 600 MW in the near future), the project is given high priority. Due to the COVID-19 pandemic, design issues, and the contractor's non-performance, the project has been impacted. However, the substation was inaugurated on May 17, 2024, by higher officials from EIB, KfW, and the Minister from the Government of Nepal. The punch-out works, such as switchyard PCC, stone spreading, and internal road RCC/PCC, are underway, with the completion of these punch-out works rescheduled for September 30, 2024.

4. Raxual- Parwanipur 132 kV Second circuit Transmission Line

Raxual – Parwanipur 132 kV second circuit transmission line project was initiated to increase import/export of power between India and Nepal. This line will be helpful to meet increasing industrial demand of Birgung corridor.

Scope of this project included construction of 22 km second circuit transmission line on same double circuit tower of existing Raxaul-Parwanipur 132 kV transmission line and expansion of 132 kV bay at Raxaul and Parwanipur substation. Estimated cost of the project was US$ 1.5 Million and was funded by GoN.

NEA had signed contract agreement with M/s Sigma Con on August 05, 2021 (12 month Contract) for all the works and the second circuit was charged on January 4, 2024.

5. Bardghat - Sardi 132 kV Transmission Line

Objective of this project was to provide power supply to Hongshi - Shivam Cement Industry. Scope of the project included construction of 20 km long 132 kV double circuit transmission line with ACSR Bear conductor from Bardghat substation to Sardi and 132 kV line bay extension at existing Bardghat substation. The cost of the project was estimated to be USD 6 Million and was funded by GoN through Ministry of

Narrow Based Tower no.54 after the completion at Daunne Danda

Industry, Commerce & Supplies. The project was initiated in FY 2073/074 (2016/17).

As of July 2024, in substation all the civil construction works including staff quarter, control building and foundation works have been completed. Major substation equipments have been installed excluding communication equipments. Regarding the transmission line, all tower foundations, erection, conductor and OPGW stringing works have been completed. Both the double circuit transmission line was charged on 17 March, 2024 .

The details of existing, under construction, plan and proposed high voltage transmission lines and substations that are being executed by different Departments under this Directorate are presented in Annexure.

I. Medium Voltage 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.

Brief summary of the projects being executed by this department are presented below:

Projects under Construction

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

This project aims to extend the transmission line from Kapilvastu district to Arghakhachi, Gulmi and Baglung districts to improve power supply, reduce outages due to long distribution networks, and decrease the overall technical loss. The project will provide the electrical network for power evacuation of proposed hydroelectric projects in this region. The project's overall cost is around US$ 39.5 Million and is funded by GoN and NEA.

This project was initiated in FY 2065/066 (2008/09) and is expected to be completed by 2023/24. Complete scope of the project includes construction of 86 km, 132 kV double circuit transmission line with ACSR Bear conductor and 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, 37.605 km (75.21 circuit km) Motipur - Sandhikharka 132 kV transmission line and Sandhikharka 132/33/11 kV substation has been charged on 2078/08/09, 2078/12/11 and 2078/12/12 respectively. 15 km (30 circuit km) Sandhikharka -Tamghas 132 kV transmission line was charged on 2081/03/03 and Tamghas 132/33/11 kV substation was charged on 2078/03/05. Equipment Erection works in both of remaining Paudi-Amarai and Burtibang substations have been completed and power and control cabling works are being carried out. Regarding Tamghas Burtibang 132 kV transmission line, only 16 tower foundation works are left which was delayed due to the case filed by the public in the Supreme Court. The complete transmission line associated with two remaining substations are expected to be completed by 2081 Mangsir.

2. 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.

Conductor Stringing Works on going

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, 2x63 MVA and 33/11 kV, 16 MVA power transformers at Ramganj Belgachiya.

As of July 2024, the construction of 78 tower foundations has been completed. In the last fiscal year, there were two towers that not allowed to be constructed by the local people and five towers that were yet to be constructed on the foundation located on the banks of the Sunsari River. Out of these seven towers; two have been completed. The construction of disputed towers is now agreed, to be initiated after the meetings with Inurwa District Administration Office. Out of about 23 km of 132 kV transmission line, 8 km of line stringing work from Biratnagar substation to Chimdi has been completed; additionally, 18 km of OPGW stringing work has been completed.

Regarding substation works, staff quarter is completed, the foundation work of the 33/11 K.V. Rani substation has been completed and the foundation work of the 33/11 kV. Tankisinwari substation is 80 percent completed. Switchyard foundation of 132/33 kV Biratnagar substation and control building 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 will be completed within the fiscal year 2081/082.

3. Balefi-Barhabise Corridor 132 kV Transmission Line

This project has been initiated with the aim to evacuate power from different IPP projects at Balefi Corridor. Project will construct

132 kV DC Tower

Pangtan-Bahrabise 20 km 132 kV double circuit transmission line with ACSR Cardinal Conductor. Initial cost estimate of the project is Nrs 546.69 Million and funded by GoN. The contract agreement has been signed with M/s Sigma Con. Pvt. Ltd. and the project is expected to be completed by February 2025.

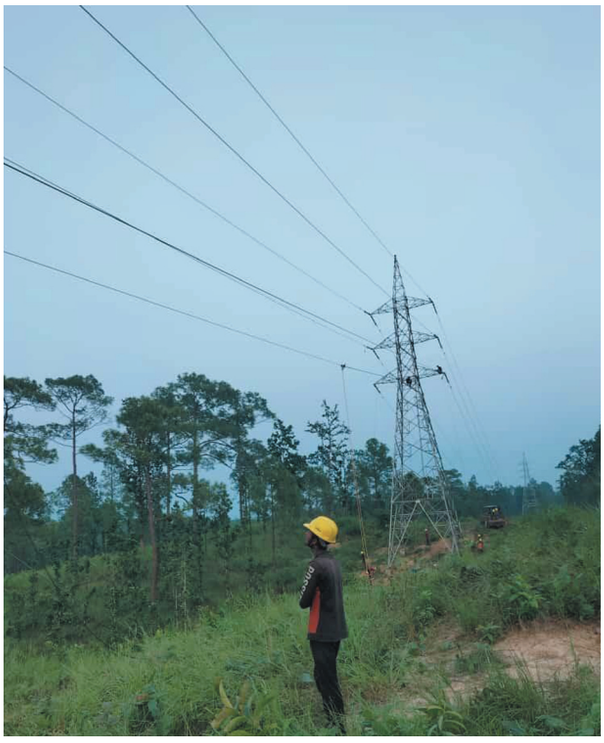
As of July 2024, check survey, detail engineering, resistivity measurement, soil test works are completed. Tower design, foundation design, tower schedule works has been completed. Construction of 57 out of 62 number of tower foundation has been completed. 28 tower erection works has been completed. Most of the tower parts, conductor, and insulators/ hardware have been delivered at site. OPGW along with its hardware and accessories is also expected to be site delivered within September, 2024. Due to change in number of trees to be removed within RoW, NEA has been advised to conduct revised IEE (RIEE) for getting final approval for removal of trees. NEA has already initiated the process of conduction RIEE. Conductor stringing works shall be initiated immediately after the monsoon.

4. Kohalpur-Surkhet-Dailekh 132 kV Transmission Line

Objective of this project is to meet the increasing power demand of Surkhet and Dailekh districts, improve power supply quality and facilitate power evacuation from hydropower projects in Bheri, Babai and Karnali river basins of Karnali Province. The line passes mainly through Banke-Bardiya National parks at Banke District and traverses through Surkhet and Dailekh district mainly throughout the middle mountainous and high hill side region.

Scope of project includes 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. Estimated project cost is US$ 29 Million and is funded by GoN. The transmission line package from Kohalpur to Surkhet has been awarded to M/S 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; 120 tower foundation out of 162 has been completed and in 100 location tower erection has been completed. 25 km conductor stringing has been completed. Transmission line materials (Conductors,Insulators and Hardware fitting, Tower parts and OPGW) have been delivered at site. Likewise, notice for acquiring private lands in Banke and Surkhet districts has been published and for few locations, land



Conductor stringing works ongoing

compensation is already provided, Tree cutting in Surkhet Division forest has been almost completed and in soon to be started in Banke & Bardiya National Park.

For Surkhet -Dailekh 132 kV TL Section contract has been signed in March 2023 with M/S MSPL-Sigma Con. JV and Check survey,Detail survey and soil investigation works has been completed. Tower design has been approved. Conductor and stub have been delivered to the site. Tree Counting works in Surkhet and Dailekh section has been completed.

Similary, for the Dailekh Chupra 132/33/11 kV Substation, Land for Dailekh Substation has been acquired. Construction of boundary wall and guard house at the Chupra Substation has been completed. The contract for constructing the Dailekh Chupra Substation was signed on May 1, 2023, with M/S Mahavir Shree International Pvt. Ltd. The contractor has been mobilized to the site.

5. Dhalkebar- Loharpatti 132 kV Transmission Line

The project aims to enhance the power supply in the region by constructing a 132 kV Double Circuit Transmission Line from Dhalkebar to Loharpatti and a 132/33/11 kV Substation at Loharpatti. This infrastructure will enable reliable power delivery to Mahottari and Dhanusha Districts, improving power quality. Upon completion, residents and businesses will experience a more stable and efficient power supply, with reduced system losses, leading to a more robust and sustainable electricity distribution network.

Scope of project includes construction of 20

Loharpatti Substation

km long 132 kV double circuit transmission line with ACSR Cardinal Conductor from existing Dhalkebar substation to Loharpatti with 132/33 kV, 2*30 MVA and 132/11 kV, 22.5 MVA substation at Loharpatti. The estimated cost of the project is NRs 1125 Million and is funded by GoN. The project was started in February 2021 and expected to be completed in August, 2024.

As of July 2024, significant progress has been made in enhancing the region's power infrastructure. The 132 kV Line Bays extension at Dhalkebar Substation is almost complete, and the construction of the new 132/33/11 kV Substation at Loharpatti and the 132 kV transmission Line from Dhalkebar to Loharpatti is in its final stages. All outdoor substation equipment has been successfully tested, and the testing of the Control and Relay Panel (CRP) and Substation Automation System (SAS) is nearing completion. However, there is a major challenge with a Right of Way (ROW) issue in one span of the Transmission Line in Dhalkebar, Ward No. 6 of Mithila Municipality, which has halted stringing activity for about three months. Resolving this issue is crucial for the timely completion of the project and the improvement of the region's power supply system.

6. Dhalkebar–Balganga 132 kV Transmission Line

This project is initiated with the objective of improving voltage and supplying adequate and reliable power in Dhanusha district. The total project cost is about NRs. 2136 Million and is funded by Government of Nepal. The project is initiated in fiscal year 2075/076 and is expected to be completed by the end of fiscal year 2025/026.

Tower Erection works ongoing

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.

The proposed line will originate from AP 13 of under construction Dhalkabar Loharpatti 132 kV transmission Line and will be connected to the proposed Balganga substation. The Balganga substation will feed Mujeliya, Yadukoha, Dhanusha Dham, Birendra Bajar, Lohna and Nagrain 33/11 kV substations.

As of July 2024, all transmission line equipment/ material have been delivered to the site. Out of 77 tower, 59 tower foundation works are completed. 18 numbers of towers have been erected.

Regarding substation, the contract has been awarded and the design/drawings are in the process of approval.

7. Kaligandaki-Ridi 132 kV Transmission Line

The objective of this project is to supply power to CG Cement following the completion of the Ridi 132 kV substation. Additionally, the project aims to improve the quality and reliability of power supply in the Palpa, Gulmi, and Syangja districts. Initiated in FY 2075/076 (2018/19) and funded by the Government of Nepal through the Ministry of Industry, Commerce, and Supplies, the estimated project cost is NRs 1450 million.

The project scope of works includes construction of about 22.45 km double circuit transmission line using ACSR BEAR Conductor and 60 MVA, 132/33/11 kV substation at Kuseni, Palpa and 132 kV GIS bay extension works at Kaligandaki 'A' HEP.

Switchyard Foundation works at Ridi 132/33/11 KV Substation

The contract for transmission line construction was awarded in April 2022. As of July 2024, 61 numbers of tower foundation works out of 70 have been completed and 54 towers have been errected. Transmission line materials, including ACSR BEAR Conductor, Long Rod Polymer Insulators, Hardwares, Earthing materials and counterpoise have reached the site.

Regarding Ridi 132/33/11 kV substation, The contract agreement was done on November 30, 2022. As of July 2024, construction of boundary wall, store cum guard house, check survey, Geotechnical works, design drawing approval of, Control and Relay Panel and SAS etc. equipment have been completed. Power Transformers, Circuit Breakers, Instrument Transformers,etc. are manufactured and Factory Acceptance test at manufacturers have been completed. Foundation work of 132 kV incomer gantry and slope cutting of the hill have been completed.

8. Bhumahi – Hakui 132 kV Transmission Line

Bhumahi-Hakui 132 kV transmission line project aims to address the growing industrial power demands in the Bumahi-Bhairahawa

2x100 MVA Transformers at Hakui Sub-station

Ariel View of Hakui Substation

Corridor of Nawalparasi (Susta Paschim), enhance transmission capacity, improve supply reliability, reduce losses, and improve the voltage profile of the distribution system in Nawalparasi. The project encompasses the construction of a 14.36 km long, 132 kV double-circuit transmission line from the Sunwal 132 kV substation to a new 132 kV substation in Hakui, utilizing ACSR Cardinal Conductor on steel lattice structures. A new 132/33 kV substation will be established in Hakui, equipped with 132/33 kV, 2x100 MVA three-phase power transformers, seven 33 kV feeders, and two 25 MVAR capacitor banks. The contract for constructing the Hakui substation was awarded to Nepal Hydro and Electric Limited in November 2022, with a completion timeline of 21 months. The contract for constructing the 132 kV double-circuit transmission line was signed with Mudhbary and Joshi Construction Pvt. Ltd. in February 2023, with a duration of 24 months.

As of July 2024, the control building, 132 kV switchyard, transformer foundations, and guard house structures have been completed. 100 MVA transformers have been transported to their respective foundations. Soil testing for the transmission line towers has been completed, and cadastral surveys along with land acquisition for private lands and approval of Forest land use is underway.

9. Amarpur-Dhungesaghu 132 kV Transmission Line

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 project during normal operation. This project shall be a link for evacuation of power effectively from the growing number of IPPs in the Kabeli river basin. Also, in case of any fault in the Kabeli Corridor in the lower sections this project intends to improve the reliability by diverting the power into koshi corridor transmission line. The project was initiated in FY 2075/76 (2018/19) and expected to be completed by end of the year 2024/25. The estimated cost of the project is NRs. 1042 Million and funded by GoN.

Scope of project includes construction of

Chimney Casting

about 19.2 km double circuit transmission line from Amarpur, Panchthar to Dhungesaghu, Taplejung and necessary 132 kV bay extension works at respective substations.

The contract for the transmission line has been awarded to Cosmic Electrical Limited, and the foundation works are progressing well, with 9 (nine) foundation works: 5 in Panchthar district and 4 in Taplejung district already completed. The foundation work is under progress at different site. Additionally, the project will construct two 132 kV line bays each at Amarpur and Dhungesaghu substations, along with a 33/11 kV transformer bay and an 11 kV indoor switchyard. As of July 2024, tendering process for these line bay extension and substations are currently underway and is expected to be completed within nine months from the date of the initiation.

10. New Khimti-Lamosanghu-Kathamandu Transmission Line Up-gradation

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 also helps to supply quality, reliable and uninterrupted power supply in Kathmandu Valley.

Conductor stringing at New Khimti Substation

The scope of project in the first phase includes replacement of 45 km ACSR Bear conductor from New Khimti substation to Lamosanghu substation with High Temperature Low Sag (HTLS) conductor and 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 NRs 1160 Million and funded by GoN. This project is initiated in FY 2078/079 and expected to be completed by the end of year 2026.

As of July 2024, reconductoring of 45 km from New Khimti to Lamosanghu section has been completed in December 07, 2023 and put into operation. Technical Bid Evaluation for Upgradation of existing New Khimti Substation is in progress.

11. Malekhu 132 kV Substation Expansion Project

Objective of this project is to increase the reliability of the existing distribution lines in the Dhading district by expansion of the existing 132 kV Malekhu switching station.

The scope of project includes construction,

installation of 2x30 MVA power transformers at Malekhu switching station and 33 kV line bay expansion at existing Jahare and Dhading Besi 33 kV substation. Estimated cost of the project is NRs 290 Million and is funded by GoN. This project was initiated in FY 2078/079 and is expected to be completed by 2081/82.

As of July 2024, Major electrical equipments like Power Transformer, Circuit Breaker, Lightening Arrestor, Discoonecting Switch, CT, CVT, Steel Structures have erected at site and Control Relay Panels are in process of factory inspection and design drawing of SAS is ongoing.

12. Surkhet Substation

Objective of this project is to strengthen the power supply system and improve power transfer capacity to meet increasing demand of Karnali province and Surkhet.The estimated cost of project is Nrs. 750 million and is funded by GoN. NEA has signed the contract agreement with NHE (Nepal Hydro& Electric Limited.). The project was initiated in FY 2079/80 and is expected to be completed by December 2024.

The project scope includes the construction of the Surkhet Substation with a power transformer capacity of 132/33kV, 2*30 MVA. Detailed drawings and designs for all civil works have been approved. The construction of the guard house, prefab building, control building, switchyard foundation, staff quarters, drainage, and boundary wall are nearly complete. Most major electrical equipment, including the power transformer, has been delivered to the site.

13. 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 line loss in the valley. The initial project cost estimate was US$ 23 million. Recently the project is being under execution with the fund of government of Nepal (GoN).

About 6 km transmission line in Kathmandu district and 4 km transmission line in Bhaktapur district have been completed. Construction of remaining 18 km transmission line in Lalitpur district was stopped due to protest by local people demanding 100% right of way (RoW) compensation or complete shift of transmission line and consequently previous contract was terminated. NEA is taking initiations and conducting dialogs with concerned people and authorities to complete the remaining works.

As of July 2024, contract agreement for construction of line bay at Matatirtha substation along with the Testing and Commissioning of 132 kV double circuit Transmission Line (Matatirtha Chobhar Section) has been signed on April 22, 2024 with M/s Vector Group Private Limited, Kupondole, Lalitpur. Contractor has been mobilized at site and design, drawing and GTP review of major equipments are in progress.

14. Sunkoshi 132 kV Substation

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

Scope of the project includes 12 km single circuit stringing with Bear conductor on 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 is initiated in FY 2075/076 (2018/19) and funded by GoN.

The transmission license of the existing substation being in the name of Shiva Shree Hydropower ltd., the project had no progress since a long time. The meeting in presence of

Managing Director of NEA on 2079/07/23 has clarified the scopes of Shiva Shree Hydropower Ltd. and NEA. As per the decision of the meeting, the transmission line materials to be provided by NEA has been dispatched to the site. The stringing work to be carried out by Shiva Shree Hydropower Ltd. is yet to be started.

15. Prasauni Birgunj 132kV Underground Electricity Transmission Line

Presently, the electrical demand has drastically increased due to the establishment of new industries at Birgunj area. In order to meet the growing load demand of Birgunj area, NEA has decided to construct 132/33 kV AIS substation at Prasauni, LILO of Parwanipur Raxaul 132 KV Transmission Line to Prasauni substation and extension of 132 kV line to Birgunj substation through underground cable and construction to 132/66 kV GIS Birgunj substation and interconnection with existing 66/33/11 kV Birgunj substation.

The scope of the project includes the construction of 132/33 kV 2*100 MVA AIS Prasauni substation with 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 2*100 MVA GIS Birgunj substation.

As on July 2024, land acquisition for substations and switchyard at Prasauni has been completed. M/s COVEC-CREGC-KALIKA JV has been awarded the job to design and construct substations and underground transmission line. The topographical survey of substations and route of transmission line has been completed by the contractor.

The soil investigation works at Birgunj substation and tower location of Prasauni substation is completed. Drawing and design of most of substation electrical equipments have been complete and are in the phase of factory inspection.

16. Lalbandi-Salimpur 132 kV Transmission Line

Objective of this project is to enhance the quality and reliability of electricity supply in Sarlahi district. After construction of substation at Chainpura, the substation will supply power to Dumariya, Malangawa and Barathawa 33/11 kV substations. The estimated cost for the project is about US$ 12 million and funded by GoN. This project is initiated in FY 2074/075 and expected to be completed in FY 2082/083.

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

As of July 2024, contract agreement for construction of 132 KV double circuit transmission line and substation has been signed on April 10, 2023. Contractor has been mobilized at site and foundation of transmission line towers has been started and design review of most of the equipments has been completed.

17. Kushma - Lower Modi – New Modi 132 kV Transmission Line

In Dhaulagiri Zone, the Kaligandaki corridor project aims to evacuate power generated from Dana and Myagdi via Kusma, Parbat to the New Butwal Substation in Nawalparasi district. The Dana-Kusma 220 kV line is already operational, and the Kusma-New Butwal section has recently been completed and charged at 132 kV. Previously, Independent Power Producers (IPPs) had no connection to the national grid, prompting the construction of a 6 km, 132 kV double circuit (DC) transmission line between Kusma 220/132 kV substation and Lower Modi IPP substation switchyard with a single circuit. This allowed the evacuation of power from IPPs connected to the Dana 220/132/33 kV Substation, providing an emergency evacuation option for IPP power. However, the

Kushma 132 kV Bay

single circuit line between Kusma and Modi PH switchyard has created a bottleneck, causing line flow constraints. Therefore, a new 132kV DC transmission line connection between Kusma substation and New Modi substation is proposed to form a ring line for better reliability and system stability.

Scope of the project comprises of stringing of 6.2 km, 132 kV 2nd circuit on existing Kusma-Lower Modi line and also construction of 8.6 km, 132 kV DC transmission line and 2 Nos. of 132 kV bay expansion at New Modi substation.

The contract of Transmission line and associated 132 kV bay works has been awarded to M/s Cosmic Electrical Limited and contract agreement was done on 2nd November, 2023. The Contract value is NPR 349.2 Million The effective date started from date 28th November, 2023 with completion time of 21 months. As of July 2024, the check survey, soil investigation & soil resistivity test, switchyard foundation and supply of 132kV equipments like; circuit breaker, instrument transformer, lightning arrestor, isolator, ACSR conductor, CRP/SAS, & communication equipment has been completed. The cadastral survey and tree enumeration work is under progress.

18. Nepalgunj-Nanpara Cross-Border 132 kV Transmission Line

The goal of the project is to facilitate the exchange (import/export) of power with India. Currently, UPPTCL is supplying approximately 12 MW of power to Nepalgunj via a 33 kV feeder from the Nanpara (India) substation. This line, which is metered at Nanpara Substation, has significant losses. The planned 132 kV double circuit transmission line—32 km on the Indian side and 17 km on the Nepalese side—will connect to the New Nepalgunj 132/33/11 kV substation which is under construction. The transmission line on the Indian side is nearly completed. Once finished, the 132 kV double circuit line will provide power to Nepalgunj's industrial, domestic, and irrigation needs, as well as to nearby cities such as Kohalpur and Guleriya.

Scope of the project includes construction of about 17 km long double circuit 132 kV transmission line with ACSR Bear conductor and upgradation of existing 33/11 kV Nepalgunj Substation to 132/33/11 kV, 2*63 MVA.

The Contract was awarded on February 28, 2024 to M/s Mudhbary & Joshi Construction Pvt. Ltd.

As of July 2024, the contractor is on site. Check surveys and tower spotting are complete, and the review of equipment, including OPGW, CB, LA, DS, CT PT, CLRI, and associated fittings and accessories, is underway. Land acquisition will commence soon after landowners are identified.

19. 132 kV Transmission Line Upgradation Project

Objective of this project is to improve reliability, voltage profile and quality of supply and enhance the transmission line capacity by upgrading the conductor of existing 132 kV transmission lines i.e New Butwal –Sunwal- Butwal (Package A), Damauli Bharatpur (Package B) and Kushaha-Inaruwa-Duhabi (Package C).

The scope of project in the Package A and C includes replacement of 25 and 28 km ACSR Bear conductor with its equivalent High Temperature Low Sag (HTLS) conductor respectively. Similarly, the scope of project in the Package B includes replacement of 43 km ACSR Wolf conductor with its equivalents High Temperature Low Sag (HTLS) conductor. Estimated cost of the project is NRs 983.5 Million and funded by GoN. This project was initiated in FY 2080/081 and is expected to be completed by the end of FY 2081/082.

As of July 2024, Check Survey of above existing transmission lines has been completed by the contractor. Design drawing approval of HTLS Conductor, Insulator, Hardware Fittings and Disconnection Switches have been completed by project. Factory Inspection of Hardware Fittings and Wolf Equivalent HTLS Conductor have completed and in the verge of dispatch from respective factories.

20. 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 was 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. The tender has been awarded to Vector Triple S. JV. Foundation works of 5(five) tower pads has been completed so far and others are in progress. The preliminary works of land acquisition process are ongoing and is expected to complete soon. However, the delay in approval from the Community Forest User Group and locals had hindered the timeline of the project.

21. Pokhara Biruta 132/11 kV Substation

Nepal Electricity Authority is going to construct new 132/11 kV Substation in Biruta at Pokhara Metropolitan -17 of Kaski district to reinforce

Contract signing ceremony with consultant Nippon Koei Co. Ltd, Japan

the power supply system, cater increasing demand and enhance the reliability and quality of power system of Western part of Pokhara City. After construction of substation at Biruta, the substation can feed power to the commercial load at Lakeside and western part of Pokhara city.

The project includes the construction of around 600 m loop in loop out UG 132 kV transmission line from tower no 159 of existing Syangja -Lekhnath 132 kV line, construction 132/11 kV indoor GIS substation at Birauta and undergrounding of some part of western city of Pokhara. The project is being funded by JICA. The soft loan (NE-P13) for "Urban Transmission and Distribution System Improvement Project "was signed on 21 September 2022. The consultant Nippon Koei Co. Ltd, Japan is designing the project and is preparing tender document. The approximate cost is around 14 million USD.

22. Bafikot-Khungri 132 kV Transmission Line

Objective of this project is to reinforce the power supply system and power evacuation from different IPP's at Rolpa, Rukum (east) and (west) districts and its tributaries and it will also interconnect Rolpa and Rukum district with Interconnected Nepal Power System (INPS).

The project comprises of construction of about 75 km long 132 kV double circuit Transmission Line from Khungri substation (Rolpa) to Uttarganga substation Hub, Bafikot (Rukum) along with one 132/33/11 kV, 16/20 MVA substation at Ghartigaun, Rolpa. Which crosses various municipality/ VDC's of Rolpa, and Rukum (west).

Detail survey of the line route as well as the Initial environmental examination (IEE) works has been completed. Land acquisition for the substation at Ghartigaun, Rolpa is completed. The construction of the boundary wall, access road, and store building is completed. The international competitive bidding (ICB) for the construction of transmission line has been invited and bidding evaluation is under progress and projected to be completed soon.

The expected completion Date is FY 2084/85. The initial project cost is US $ 35 Million.

List of Projects under Planned and Proposed

1. Lahan - Sukhipur 132 kV Transmission Line
2. Rupani–Bode Barsain 132 kV Transmission Line
3. Chandrapur - Sukhdevchauk 132 kV Transmission Line
4. Kathmandu Valley System Reinforcement
5. Syaule Sanfebagar 132 kV Transmission Line
6. Auraha Simara 132kV Transmission Line
7. Damak Keraun Biratnagar 132kV Transmission Line
8. Attariya-Dhangadi 132 kV Transmission Line Project
9. Dhaubadi–Meghauli 132kV Transmission Line
10. Godak – New Anarmani Transmission Line

II. High Voltage Grid Development Department

Projects under Construction

1. Koshi Corridor 220 kV Transmission Line

The objective of Koshi Corridor 220kV Transmission Line Project is to evacuate power from various hydropower projects in Arun and Tamor river basins mainly Sankhuwasabha, Bhojpur, Taplejung, Panchthar and Terhathum districts of Koshi Province 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 its Line of Credit II- 250 MUSD to Government of Nepal, whereas 90 MUSD shall be utilize under this project.

Balance Cost of the Project shall be jointly financed by Government of Nepal and NEA. M/s WAPCOS Limited, India is the Consultant for this Project.

The scope of project are divided to the following packages:

Package KC1: This package included the construction of 106 km long 220 kV transmission line from Tumlingtar, Sankhuwasabha to the Inaruwa Substation via. Baneshwar and Basantapur of Sankhuwasabha District. All towers are designed for 220 kV double circuit vertical configuration where the section from Tumlingtar-Basantapur is designed for carrying double circuit Twin ACSR Moose conductor, and the section from Basantapur-Inaruwa is designed to carry double circuit Quad ACSR Moose conductors. However, scope under this package is limited to single circuit stringing only. For execution of these works, Contract had been awarded to Kalpataru Projects International Limited (Erstwhile Kalpataru Power Transmission Ltd.), India on June, 2016. The contract cost of this packages was US$ 39.227 million. Despite covid -19 pandemic, GoN imposed lockdowns, lingering issues in forest clearance, and numerous challenges in the right-of-way the construction of the Transmission Line was completed and is in operation at 220 kV voltage level since August 4, 2022. Works related to disbursement of remaining compensation are ongoing.

Package KC2: This package includes the construction three new 220 kV level AIS substation at Tumlingtar, Baneshwar & Basantapur of Sankhuwasabha District and two numbers of 220 kV line bay extension at Inaruwa Substation. The scope included the construction of 220/132/33 kV substation at Tumlingtar, Sankhuwasabha District with two banks of 100 MVA, auto transformers formed with 7 numbers of 220/132 kV, 33.33 MVA single phase auto transformers and two numbers of 30 MVA, 132/33 kV, 3 phase power transformers; construction of 220/33 kV substation at Baneshwar, Sankhuwasabha District with two numbers of 30 MVA, 220/33 kV, 3 phase power transformers, construction of 220/132/33 kV substation at Basantapur, Sankhuwasabha District with two banks of 100 MVA, auto transformers formed with 7 numbers of 220/132 kV, 33.33 MVA single phase auto transformers and one numbers of 30 MVA, 132/33 kV, 3 phase power transformer and construction for two numbers of 220 kV line bay extension at Inaruwa Substation. For the construction of this package contract had been awarded to Larsen & Toubro Ltd., India on October 2018. The contract cost of this package is US$ 26.0908 million. Despite Covid -19 pandemic, GoN imposed lockdowns, extreme climatic conditions and tough terrain, and the construction of the Tumlingtar, Baneshwar & Inaruwa Substations were completed and in operation at 220 kV voltage level since August 4, 2022; and the Basantapur Substation since December, 2023. However, some defects stand and are being corrected by the Contractor.

Package KC3: This package includes the construction of approximately 35 km long 220 kV transmission line from Dhungesanghu Substation, Taplejung to Basantapur Substation, Sankhuwasabha District and construction of 132/33 kV AIS substation at Dhungesanghu, Taplejung District which includes two banks of 15 MVA, power transformers formed with 7 numbers of 132/33 kV, 5 MVA Single phase power transformers. All towers are designed for 220 kV double circuit Twin ACSR Moose conductor vertical configuration, however, scope under this package is limited for single circuit stringing only. For the construction of this package contract had been awarded to KEC International Ltd., India on June 2018. The contract cost of this package is US$ 24.527 million. On the substation end, the most prominent problems were its remote location, terrible road conditions, and topography. Located in the remote hills of Taplejung, this substation was not just difficult to get to during winter or monsoon seasons, but it was also difficult to get the works going because of the substantial quantity of earthworks involved in formation of benches and the difficulty in keeping those cut and filled slopes stable.

The transmission section passes through altitudes up to 3,000 m through thick forests that are difficult to traverse and clear. The difficulty in acquiring forest clearance, and physical access to some locations had posed significant problems during execution. The Covid-19 pandemic and the lockdown made things more difficult. Presently, however, the substation works are almost entirely completed barring a few minor civil works, and the substation is tested ok for commissioning. On the transmission line end of this package, all of 127, 220 kV double circuit towers have been erected and the 34.3 km circuit strung. The commissioning of the substation will be performed after completion of second circuit stringing of the Dhungesanghu-Basantapur line (under Package KC-4). The transmission line, on the other hand, is operational since April, 2024 and evacuating approximately 73 MW of power.

KC-3 Dhungesanghu Substation

KC-3: Transmission Line Stretch from Basantapur to Dhugesanghu Section

Package KC4: This package includes the second circuit stringing of the Basantapur-Dhungesanghu line (see Package KC-3) and construction for four numbers of 220 kV line bays and 2 tie bays at the Basantapur Substation (see Package KC-2). For the construction of this package contract had been awarded to Nepal Hydro & Electric Limited (NHE) on November 2022. The contract cost of this package is NRS 666.401 million (sans VAT & Custom Duties). As of now, supply works is nearly complete, design is complete, 1 of 4 line bays is commissioned, and foundation of only 1 tie bay is remaining. On the transmission line side, approximately 23 km out of 34.3 km is strung.

Package KC5: This package includes the second circuit stringing of 106 km long 220 kV transmission line from Tumlingtar, Sankhuwasabha to the Inaruwa Substation via. Baneshwar and Basantapur of Sankhuwasabha District, upgradations of Dhungesanghu Substation to 220 kV voltage level and 220 kV line bays extension at Tumlingtar & Baneshwar Substation. This package is proposed to be funded by EXIM Bank of India under its Line of Credit IV- 750 MUSD to Government of Nepal, of which 35 MUSD is proposed to be earmarked for this package.

2. Chilime-Trishuli 220 kV Transmission Line

The objective of this project is to evacuate power generated from hydropower projects in Upper Trishuli Valley being constructed by Chilime Hydropower Company Limited notably Upper Sanjen, Lower Sanjen and Rasuwagadhi and other Independent Power Producers (IPPs). The project is funded by German Development Cooperation through (KfW), European Investment Bank (EIB), European Union and GoN.

Contract was signed with M/s PINGGAO GROUP CO., LTD (China) on November 13, 2017 and the contract became effective from December 20, 2017 for the construction of both the substation and transmission line. Contract price for construction of 72 km Circuit length of 220 kV transmission line with total of 76 nos. of towers is US$ 6,432,900.92 + NRS 547,472,116.35 and Contract price for construction of 320MVA capacity 220/132/33 kV Chilime Hub New

GIS Substation is US$ 6,884,897.67 + NPR 722,555,332.49. The Power Grid Corporation of India has been awarded the consultancy service contract for the project supervision on 6th July 2016.

The scope of the project includes construction of 28 km long 220 kV transmission line from Chilime Hub to Trishuli Hub substation and construction of 2x160 MVA 220/132 kV plus 1x50 MVA 132/33 kV substation at Thambuchet, Rasuwa. The line has two sections, one section (Chilime Hub substation to Mailung) is 20 km line of double circuit twin Bison ACSR conductor and the other section (Mailung to Trishuli 3B Hub) is 8 km line of four circuit twin Bison ACSR conductor. The 220/132 kV transformer includes two Banks of 160 MVA Auto transformers formed with 7 numbers of 220/132 kV, 53.33MVA Single phase auto transformers and 132/33 kV transformer includes 50 MVA, 132/33 kV, 3 Phase Power Transformer.

Chilime Hub GIS SS

The project has achieved overall physical progress of about 95%. Regarding substation progress as of July 2024, all the testing works has been completed. The 132 kV side (Bays) of the substation is charged on July 14, 2024. The 33 kV and 220 kV side (Bays) shall be charged shortly.

Stringing work by using drone

As of July 2024, regard to the transmission line construction 76 out of 76 tower foundation have been completed with 68 nos. of tower erected. Out of 72 circuit km 50 circuit km stringing work have been completed. Besides OPGW and Hardware combine type test, all the test and supply works have been completed.

Various studies like feasibility study, IEE, LACP were completed in different phases of the project and technical, social & environmental monitoring & implementation is under progress with support of ESSD, NEA and the Consultant POWERGRID, India.

The major challenges to the project are the terrain, accessibility of road, protection works. Due to COVID-19 Pandemic, project is impacted and is re-scheduled to be complete all the pending works by September, 2024.

3. Lekhnath-Damauli 220 kV Transmission Line

The objective of this 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 (6x105 + spare 1x105 MVA) GIS substation will be constructed at Lekhnath (Pokhara, ward no 27), 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 (Byas, ward no 13).

The estimated cost of this project is US$ 90 million. The project is jointly funded by the Government of Nepal (GoN) and Germany (KfW). Forty-nine (49) million Euros will be supported by the German Development Bank (KfW) as a grant, while the remaining expenditure will be borne by GoN/NEA. The project is expected to be completed in the Fiscal Year 2083/84.

As of July 2024, construction works for the access road to New Damauli Substation and the bridge over the Chhabdi River are in the final stage of completion. The contractor, M/S Kirateshwor Construction & Drilling Company Pvt. Ltd., has completed most of the works and is currently finishing the culvert and drain part of the road. Additionally, the contractor Kaya-Deepdarshan-Green Tara JV has completed the staff quarter building/transit camp at New Damauli Substation.

M/S FICHTNER GmbH, Germany, is the Procurement and Implementation Consultant (PIC) for the project. The contract agreement was signed with contractor KEC International Ltd. for the construction of the 45 km double circuit transmission line on 25 March 2024. KEC has already started the check survey works. The bidding for the construction of the substation (package B) is in process and is expected to float the tender within August 2024.

4. Tumlingtar-Sitalpati 220 kV Transmission Line

The objective of this project is to extend the reach of the INPS at 220 kV 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

Control Room Building at Sitalpati Substation

AP17 ofTumlingtar-Sitalpati Transmission Line

River basin at Sankhuwasabha and Bhojpur district. Additionally, the Sitalpati SS will also pool the power of local IPPs, transmit it to Tumlingtar SS which can readily evacuate that power using the transmission infrastructure laid down under Koshi Corridor 220 kV TLP. This project's estimated total cost is NPR 4482 million and is funded by the Government of Nepal. The project is initiated on August 2022 and expected to be completed on May 2025.

The scope of Tumlingtar-Sitalpati 220 kV Transmission Line Project covers the following:

- Construction of ~14km long 220 kV 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 (6*66.67 MVA+ 1*66.67 MVA) single phase bank; 132/33 kV, 2*24/30 MVA three phase transformer and 33/11 kV, 2*6/8 MVA three phase transformer
- Construction of 2 nos. of 220 kV line-bay extensions at the existing Tumlingtar Substation

For the construction of above scope, the Contract has been signed with M/s Kalpataru Projects International Limited (Formerly Kalpataru Power Transmission Ltd.), India, effective from 7th November, 2022. The duration of Contract is 30 months. As of July 2024, the Contractor has completed the Design of Transmission Line and out of total 39 Nos. of towers, 20 Nos. of foundation have been completed and 7 Nos. of tower have been erected. The remaining foundations have been delayed due delays in approval of updated IEE and Forest clearance. Whereas in the substation part, the topographical survey, Soil Investigation, civil activities like Terrace formation, RCC work in Ground floor of Control Room Building, Switchyard Panel Rooms have been completed; RCC work in Retaining Walls, Brick works of Buildings and Gantry and Equipment Foundations are under progress at Sitalpati; and foundations of Gantry and Equipment have been completed at Tumlingtar Substation. The remaining Design and Engineering activities for Sitalpati substation is also under progress.

5. Galchhi – Ratmate 220 kV Transmission Line

The goal of this project is to enhance power evacuation capacity. This line will upgrade the capacity and reliability of the Integrated Nepal Power System (INPS). The project is situated in the Nuwakot and Dhading Districts.

The scope of the project includes construction of :

i) 8.5 km Four circuit 220 kV transmission line with Twin MOOSE conductor that will Loop-in-Loop-out the Marsyangdi Kathmandu 220 kV transmission line (Galchhi) at the Ratmate Substation and 220 kV bay extensions at Ratmate Substation. Ratmate 400/220 kV substation is under construction.

ii) 24 km long Double circuit 220 kV transmission line with Twin MOOSE conductor from Trishuli 3B Hub Substation

to Ratmate 400/220 kV Substation and 220 kV bay extensions at Trishuli 3B 220 kV Hub Substation.

As of July, 2024, Contract Agreeement was signed for construction of 220 kV Transmission Line from Galchhi to Ratmate with M/s SIGMA CON.-KRRTPPL JV on 27 May, 2024 with contract value of US $ 9.23 Million. For the second portion of 24 km line survey license has been applied at the Department of Electricity Development.

List of Projects under Planned and Proposed

1. Dhaubadi Iron Mines Electricity Transmission Line
2. Dharan 220/33 kV Substation
3. Palpa 220 kV Substation
4. Kathmandu Valley Transmission System Expansion Project
5. Gandak-Nepalganj Transmission Line
6. Chilime-Kerung 220 kV Transmission Line
7. Nijgadh–Harnaiya 400 kV Transmission Line
8. Harnaiya - Inaruwa Transmission Line
9. Arun-Inaruwa-Tingla-Mirchaiya 400 kV Transmission Line
10. Inaruwa-Anarmani 400 kV Transmission Line
11. Nijgad 400 kV Substation Project

Nepal-India Electricity Transmission and Trade Project (NIETTP)

Nepal-India Electricity Transmission and Trade Project (NIETTP) funded by World Bank was started with the objective of establishing high voltage cross-border transmission link capacity of about 2,000 MW to facilitate exchange of power with India and to enhance the reliability of electricity supply. Furthermore, under NIETTP additional funding,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 had been prepared under this project and which is now being implemented by NEA. All substations are Air insulated switchgear (AIS) type with double main and transfer bus bar scheme for 220 kV and double main bus bar scheme for 132 kV.

PROJECTS UNDER CONSTRUCTION

1. Hetauda-Dhalkebar-Inaruwa 400kV Transmission Line

Objective of this project is to establish high voltage cross-border transmission link capacity of about 2,000 MW to facilitate exchange of power with India and to improve the reliability of power supply. The estimated project cost is around US$ 170 million and it is funded by World Bank,GON and NEA. After the closing of the World Bank loan on October 31, 2021, the project is being financed by GON and NEA. NEA Engineering Company Limited is appointed as a design check and construction supervision consultant for 400kV Hetauda-Dhalkebar-Inaruwa Transmission Lines and Hetauda-Dhalkebar-Inaruwa 220kV substations construction works. This project was started in AD 2012 and likely to be completed by the mid of 2025.

The scope of the project includes followings:

- Design, supply and construction of approximately 288 km of Hetauda-Dhalkebar-Inaruwa 400 kV, double circuit 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 its associated bays, 2 nos. of 220 kV lines bays for termination of 220 kV Hetauda-Dhalkebar D/C Lines and 220 kV line bays for the termination of 220 kV Double Circuit lines from Bharatpur.
- Design, supply and construction of Dhalkebar substation: 220/132 kV, 2X160 MVA Transformers and its associated bays, 2X315 MVA , 220/132 kV Transformer bays,

2 nos. of 220 kV lines bays for termination of 220 kV Khimti-Dhalkebar D/C Lines, 2 nos. of 220 kV lines bays for termination of 220 kV Hetauda-Dhalkebar D/C Lines, 2 nos. of 220 kV lines bays for termination of 220 kV Dhalkebar-Inaruwa D/C Lines and 2 nos. of 220 kV lines bays for termination of 220 kV Dhalkebar-Muzzaffarpur D/C Lines.

- Design, supply and construction of Inaruwa substation: 220/132 kV, 2X160 MVA and 220/33 kV, 2X63 MVA Transformers and its associated bays; 132 kV, 25 MVAr Bus Reactor and its associated bay; 2 nos. of 220 kV line bays for the termination of 220 kV double circuit lines from Basantapur (Koshi Corridor transmission line), 4 nos. 132 kV line bays for loop in loop out of existing 132 kV double circuit lines from Lahan to Duhabi and 6 nos. of 33kV line bays.

All substations are Air Insulated Switchgear (AIS) type with double main and transfer bus bar scheme for 220 kV and double main bus bar scheme for 132 kV. These substations will be equipped with a state-of-the-art control, protection and automation system based on IEC 61850 open standards to facilitate communication between numerous devices within the substation and beyond.

400 kV Tower at Koshi River

Crossing of Dhalkebar Inaruwa and Arun III 400 kV Transmission Line

For the construction of Hetauda-Dhalkebar-Inaruwa 400 kV Double circuit Transmission lines, contract has been awarded to Angelique International Limited, India – LTB Leitungsbau GmbH, Germany Joint Venture (AIL-LTB JV) on February 3, 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 mid of 2025.

As of July 2024, Out of 792 tower pads, 771 foundation have been completed, 769 towers have been erected and 410 ckt km of conductor stringing have been completed. The remaining parts fall in the forest area and balance with community dispute locations. The process of tree-felling and stacking of remaining community forest along the right-of-way of the route is under process in Makwanpur district. There is public dispute at some location which is also hindering the progress. Dhalkebar-Inaruwa section, a part of Hetauda-Dhalkebar-Inaruwa 400kV Transmission Line, is completed and charged on June 25, 2024. Dhalkebar-Inaruwa 400kV Transmission Line is the NEA's first 400kV transmission line with a capacity of about 4000 MW. The ROW indentification, compensation fixation and compensation payment of land parcel under ROW are in progress. The quad ACSR Moose conductor stringing work is under progress in Hetauda-Dhalkebar section.

Similarly, for the construction of 220/132 kV Substation at Hetauda, Dhalkebar and Inaruwa, Contract was awarded to Central China Power Grid International Economic & Trade Co., China on 12 June, 2014 but due to non-performance of the contractor, contract was terminated on September 22, 2017. After termination of the

contract, 220/132 kV Dhalkebar substation balance works has been awarded to M/s Telmos Electronics on January 23, 2018. Initially, Dhalkebar-Muzzaffaur 400 kV Transmission Line was charged at 132 kV importing 100 MW power from India. After successfully charging of 220kV Dhalkebar substation at 220 kV voltage level on August 16, 2018, power in the tune of 260 MW power is being imported during peak hours through Dhalkebar-Muzzaffaur 400 kV transmission line charged at 220 kV level. Dhalkebar substation is the Nepal's first 220kV AIS substation. The capacity of 220/132kV Dhalkebar substation is 950 MVA.

Further, the 220/132 kV Hetauda and Inaruwa substation balance works has been awarded to M/s Consortium of Siemens Limited and Telmos Electronics on December 20, 2018. The 220/132/11 kV Hetauda substation was charged at 220kV voltage level on June 5, 2024. 400/220/132/11 kV Hetauda substation was inaugurated by Rt. Hon'ble Prime Minister Pushpa Kamal Dahal 'Prachanda' on June 14, 2024. Initially, Hetauda-Bharatpur 220kV Transmission Line was charged at 132kV and connected to Old Hetuada Substation. After successfully charging of 220kV Hetauda substation, Hetauda-Bharatpur 220kV Transmission Line will be charged at 220kV voltage level. The other remaining civil works of the substation is expected to be completed by end of December, 2024. The capacity of 220/132/11kV Hetauda substation is 330 MVA.

The 220/132/33kV Inaruwa substation is charged at 220kV voltage level on August 2, 2022 .The other remaining civil works of the substation is expected to be completed by end of December, 2024. Two nos. of 33kV line bay is supplying power to 33/11 kV Inaruwa substation which help to improve the voltage & reliability of Inaruwa. Two nos. of 33 kV line bay is supplying power to 33/11 kV Khanar Substation which reduces the load of Duhabi Substation. The capacity of 220/132/33 kV Inaruwa substation is 446 MVA.

2. Hetauda-Bharatpur-Bardaghat 220 kV Transmission Line

This World Bank funded project started in 2008 with the objective of enhancing the transmission capacity and bolstering the reliability of the Integrated Nepal Power System (INPS). However, the funding of the World Bank has been closed since 31st October 2021. Now, the project is being constructed using fund from the Government of Nepal and NEA's internal budget. With its 220 kV transmission line the project 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.

2.1 Bharatpur-Bardaghat 220 kV Transmission Line

Scope of the project is to construct 74 km long, 220 kV double circuit 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 June 5, 2017, new contract for balanced work (contract No. NIETTP/BB/AF/5/ICB) was awarded to M/S Hengton-Optics Electric Company, China on August 6, 2018 with the contract value of US$ 5.5 Million. The new contractor has completed all works and the line was charged at 132 kV and both circuit are in operation since 2023 August.

2.2 Hetauda-Bharatpur 220 kV Transmission Line

The scope of this project is to construct 74 km long, 220 kV double circuit transmission line with twin Bison ACSR conductor (to be charged initially at 132 kV) from Hetauda to Bharatpur. The contract with M/s ICOMM Tele Ltd, India for the same was signed on March 9, 2009 with the contract value of US$ 15.3 Million was terminated on 29th April, 2019. After the termination of contract, new contract for

balanced work (contract No. NIETTP/AF/HB/ICB/02) was awarded to M/S KEC International Ltd., India on 5th June, 2020 with the contract value of US$ 5.4 Million and NPR 368.8 Million.

The scope of Hetauda-Bharatpur 220 kV Transmission Line Project also includes construction of new 132 kV substations at Hetauda and Bharatpur and bay extensions at Old Hetauda and Bardaghat Substations. The contract with M/S ZHONGDING INTERNATIONAL Co. LTD., CHINA for the same was signed on December 16, 2009 with the contract value of US$ 5.8 Million

The overall progress of the construction of substation is about 98%. Three subsations (New Hetauda SS, New Bharatpur SS and Bardaghat SS) have been charged out of four substations. Almost all the equipment has been supplied and the installation works is about to complete for the Old Hetauda SS. The Contract with the Contractor M/S Zhongding International Engineering Ltd. of this substation project has been terminated on 17th April 2022. After contract signing for the balanced work of the SS, M/s Mahavir Shree International Pvt. Ltd. is working in all sub-stations and expected to complete the whole scope till September 2024.

III. Power System Operation Department (PSOD)

The Power System Operation Department (PSOD), under the Transmission Directorate of the Nepal Electricity Authority, is the apex body responsible for ensuring the integrated operation of Nepal's power system. Commonly known as the Load Dispatch Centre (LDC), it serves as the main control center for the power system, ensuring the smooth operation of the national Grid by considering all system parameters, network constraints, and the operating limits. PSOD ensures reliable and high-quality power supply to consumers around the clock.

The PSOD safeguards the fair operation of Independent Power Producers (IPP) in accordance with standard agreements and operational procedures. It also optimally schedules PRoR and Storage power plants and manages energy requirement through domestic generation and cross-border exchanges,,ensuring prudent practices of power dispatching. Additionally, it has been instrumental in maintaining reliable data communication among the grid users and with the National Load Dispatch Centre (NLDC) ofIndia for facilitating cross border power trading

The main functions of LDC:

- The Load Dispatch Centre (LDC) supervises and controls the national grid and cross-border transmission lines to ensure a continuous and quality power supply to consumers via its robust Optical Ground Wire (OPGW) communication network across the country by keeping reliabledata acquisition of the network and setting targets for improvement.
- LDC is responsible for real-time operations related to grid control and the dispatch of electricity within Nepal and to India through cross-border links, ensuring secure and economic operation of the national grid as per the prevailing Grid Code and standards.
- It plans, schedules, coordinates, and executes the shutdown of grid elements and generators as required.
- The LDC plans and schedules the import and export of power within the network. It also executes bidding in the power exchange market of India via the Day Ahead Market (DAM) and Real Time Market (RTM) platforms by near real time forecasting of energy surplus and deficit scenario
- It schedules and executes bilateral contracts of power trade between the Nepal Electricity Authority (NEA) and India under various modalities such as Government-to-Government, Power Exchange Corporation (PEC) mechanism, ,medium term bilateral

contracts like power export to Haryana state of India, free power import from Tanakpur-Mahendranagar line, etc.

- The LDC restores the normal functioning of the power system as quickly as possible after faults or unforeseen events occur.
- It devises emergency network plans in case of disasters and natural calamities and advises on necessary actions to enhance protection system of the network.
- Additionally, it maintains a backup of its system data and manages alternative control center for disaster driven emergency situations, ECC located at Hetauda,
- LDC is managing reliable and smooth supply to the facilities within LDC permises as well as to the communication equipment installed throughout its Grid Substation.

To achieve effective and precise supervision of the power system, a SCADA (Supervisory Control And Data Acquisition) system is being used in LDC. SCADA system in the LDC is the combination of software called Sinaut Spectrum Power 7 from SIEMENS and its hardwares. It facilitates collecting the real-time data of the power system elements like generators, transmission lines, power transformers, feeders, etc. which is then processed and converted into a usable format by SCADA software enabling the operator to take timely and decisive action for the competent operation of the power system including remote operation of the elements.

The major highlights of this fiscal year are presented below:

The key accomplishments of LDC in this Fiscal Year

- **Cross Border Electricity Trade**

Nepal has been importing/exporting power from India through Bilateral contracts and Day-Ahead Market (DAM) & Real-Time Market (RTM) of Power Exchange Market (IEX) of India. Nepal imports some power through PEC Mechanism from India. NVVN is acting as nodal agency (SNA) for the cross border power trades with India.. Three portfolios are assigned for import from Bihar, Muzaffarpur and Tanakpur seperately whereas sixteen powerhouses with total capacity of 690.5 MW have been approved for export of power through Dhalkebar-Muzaffarpur and Mahendranagar-Tanakpur lines.

The Energy Management Division in LDC is responsible to bid daily on IEX-DAM/RTM for selling and purchasing power from India to balance the supply and demand and to optimize the resources. Depending upon the national demand and availability of various PRoR and Storage Plants, selling more and purchasing less quantum during the high price and vice-versa and filling the resorviors by utlising off peak cheap power has been practised regularly. So far around 1.92 BU(billion units) of energy has been sold to India from IEX in this FY 80 /81,which has helped to generate a substantial amount of revenue contributing positively to the financial health of NEA while making the

1	Annual System Peak Demand	2467 MW	2081-03-31
2	Annual System Energy Demand	14624 GWh	
3	Annual National Peak Demand	2212 MW	2081-02-16
4	Annual National Energy Demand	12681 GWh	
5	Annual Load Factor	65.56 %	
6	Total Exported Energy (Annual)	1946 GWh	
7	The Maximum Exported Energy in a Single Day	17.92 GWh	2081-03-28
8	Per Capita Electricity Consumption	400 kWh	

*Provisional figures based on LDC data

country a net-exporter of energy.

- **Frequency and voltage control:**

  Frequency and voltage are the crucial parameters of the power system as they determine the quality of power supply to the customers. The average system frequency was precisely maintained at around 50 Hz almost throughout the time during this fiscal year. The voltage attained at most of the load centers' substations fell in the range of the permissible limit of +/- 10% upto 132 kV and +/- 5% of its nominal value for 220 kV and above as per the present Nepal Electricity Grid Code and the electricity regulations, 2050 . However, in the some of the Central Terai, Mid-Western and Eastern regions, occasionally during summer season, the system voltage were recorded lower than the permissible limit at some of the substations. Strategically located Capacitor banks and reactors at various substations by Grid Operation Department contributed in combatting the low voltage issues to some extent. However, those were not sufficient enough during the peak summer times and need to be upgraded to maintain the voltage at the desired level.

- **Dispatching and scheduling:**

  Effective short-term demand forecasting, daily energy scheduling of INPS, and proficient dispatching of generation have made it possible to mangage the varying supply and demand balance situation with the available domestic generation and the import and export of power from India. This has enabled LDC to realize the economic dispatch of power keeping the voltage and frequency of the system within a standard limit. The tactical planning of the water usage of the Kulekhani reservoir power plant supported in fulfillment of domestic loads during critical times of need, minimization of line congetion, emergency restoration supports as well as grid voltage supports whenever required .wFurther strategic operation plans of the plant by concisely determining correlation between power generation and maintenance of the reservoir level through out the year has been best and optimally utilized in this fiscal year. Similarly, the generations from NEA ROR and PROR plants as well as all IPPs have also been optimally utilized and hence LDC was able 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. This fiscal year, many scheduled shutdown of the major power plants and transmission lines were completed under the close coordination with LDCwithout causing any major instabilities in the system. Likewise, different grid divisions also managed the shutdown of major transmission lines for routine maintenance and also during emergency breakdown situations. Similarly, the approved shutdown schedule and emergency shutdown of NEA's Power plants as well as IPPs were implemented successfully with the grid parameters being tactfully managed during such events.The skillful handling of the power system by the operators during the shutdown period has made it possible to supply power with minimum interruption.

- **Partial system tripping:**

  The vigilant monitoring of the system and the prompt decision of the system operator during abnormal situations and fault conditions have helped significantly in controlling the partial tripping of the power system in this fical year. The number of partial system tripping events reduced to 66 in this fiscal year (as compared to 72 partial system tripping events last fiscal year) with

the total partial system interruption duration of 7 hours and 38 minutes. The duration of system interruption has also reduced as compared to the last fiscal year. The partial system trippings in most of the cases were caused mainly due to the transmission line constraints prevailing in many parts of the country at present and also due to the lack of sufficient contingency arrangement in the system. However, the system restoration time after each tripping event has been drastically minimized with the proficient actions taken by the system operators.

- **Maintenance of SCADA and communication facilities:**

  For the continued smooth functioning of the INPS, the data acquisition from the power stations and substations must be updated according to the latest changes/ modifications in the respective stations. In FY 2080/081, 19 numbers of stations including power station and high voltage substations were integrated in existing Siemens Power 7 SCADA system installed at LDC. Similarly, IP based telephone services has been also established at different station for the verbal communication during the emergency conditions. The communication network of the INPS is optical fiber based system and to enhance the availability and reliability of communication system, LDC has been upgrading and planning to instal latest high capacity communication equipment at power stations and high voltage substations.

  The trained manpower in the LDC has been able to keep the data up-to-date in the existing SCADA system installed at LDC, through the schedule maintenance works carried in three major components of SCADA system.

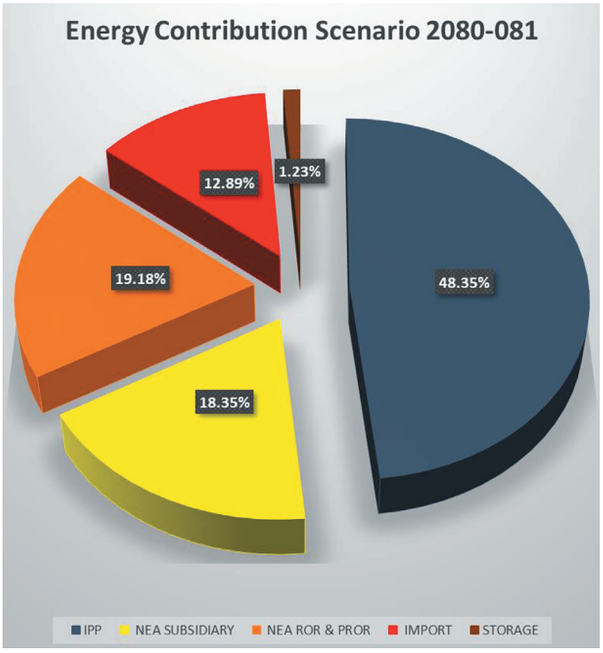
- Master Station/RTU/SAS/Local SCADA
- Communication equipment and Telephone Exchange and
- Optical fiber cable (OPGW/ADSS/UG)

  OPGW installed in the high voltage transmission lines, which has been serving as the active ground wire, is also effectively used for the reliable telecommunication network simultaneously. NEA has been receiving a significant amount of revenue by leasing the optical fiber to telcom utilities and internet service provider (ISPs). In the near future, LDC is planning to empower its technical staff for consultancy services in SCADA and communication sector.

- **Status of Supply and Demand:**

  In this fiscal year, with the commissioning of 23 new IPP generators, 463.26 MW of installed capacity was added to the INPS which includes few major power plants such as Likhu 1 (77 MW), Likhu 2 (52.4 MW), Nilgiri khola 1 & 2 (71 MW), Middle Tamor (73 MW) etc. This assisted in fulfilling the increased demand of the system and also helped to minimize power import to a certain extent in the dry season and made it possible to export a substantial quantum of energy during the wet season. The overall national energy demand and peak demand increased by 9.99 and 11.34 percent respectively in this FY as compared to the last FY. This year observed a decrease in import energy by 0.57% as compared to the last year ensuring the country as a net exporter. The percentage of imported energy as compared to the total demand this year is 14.68% which is 8.57% lesser than that of the last year which is mainly due to the addition of significant generation this year. Meanwhile, the increment of nearly 44% in the exported energy as compared to the previous FY marks a remarkable achievement in the NEA history with Nepal being the net exporter of energy for the very first time.

  The contribution of different generation to meet the total annual energy demand of the INPS for the fiscal year 2080/81 is given below.



III. Challenges

- With the continuous addition of substantial generators in the system, the existing aging transmission arrangements are inadequate to evacuate power to load centers. Even if the transmission line expansion is going on at the rapid scale, it is lagginng behind the required schedule of operation to address the present generation as well as load growth scenario. Depending on the season, temperature and precipitation patterns, system scenarios are most likely to vary, thereby affecting loadings of various transmission lines, power transformers and their performance cababilities at different times. Matatirtha-Hetauda 132 kV, Damauli-Bharatpur 132 kV, Marsyangdi-New Bharatpur 132 kV, Duhabi-Damak 132 kV, Dhalkebar-Nawalpur-Chapur 132 kV, Bhaktapur-Lamosanghu 132 kV etc have to be operated almost in full capacity continuously during certain periods which have caused the frequent overloading issues and subsequently became the reasons for the partial power interruption at times. In addition to those challenges, transformer capacity constriants at New-Khimti Substation, Hetauda Substation, Syuchatar Substation, Balaju Substation etc are also posing serious restrictions in the power system operation. With the lack of proper and adequate n-1 contingency arrangements in the system, the power system operation department is constantly facing numerous challenges in a regular basis and this needs to be addressed timely so as to ensure the quality and reliability of supply to the consumers.
- The western part of the country is still facing difficulty in the smooth power supply due to the unavailability of sufficient generation to cater the growing demand in that area. In this fiscal year, some new generators are added in that region but are still insignificant as compared to the load growth and needs a rapid generation addtion. Due to the transmission lines' constraints, surplus generation of the eastern part of the country cannot be transmitted to the west and the voltage has also become a major issue there at times.
- Power evacuation of the newly commissioned IPPs due to various constraints prevailing in the power system network is also one of the biggest challenges faced by LDC.
- The frequent unplanned abrupt emergency and forced outages of power plants during the rainy season and the frequent tripping of transmission lines has created difficulty in the smooth operation of the system, thereby influencing the export-import schedules intermittently as well as providing seamless power supply to its consumers.
- The undeclared fluctuations in the load consumption pattern of the large and bulk power consumers have imposed a major challenge to the system operators to maintain the export-import schedules as well as transmission line loadings and hence burdened NEA with penalty under the Deviation Settlement Mechanism (DSM).

- Data and voice communication from many IPPs and large and key consumers are still not in place causing huge impact on the system operation.
- With the rapid augmentation of the power system network including generators, load centres and cross-border links, the existing taskforce involved in carrying out these crucial roles in LDC appears inadequate and needs to be expanded aptly.

IV. 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 preventive maintenance to avert potential issues, as well as 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. This ensures that the transmission infrastructure remains robust and can cope with increasing demands.

Furthermore, 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. To effectively manage their responsibilities, GOD exercises supervision over seven grid division offices situated in Kathmandu, Hetauda, Butwal, Duhabi, Pokhara, Attariya, and Dhalkebar as well as two grid branch offices located at Khimti and Kohalpur.

In essence, the 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.

A. Major reinforcement/upgradation works performed

This department has executed numbers of transformer reinforcement/upgrading works at various substations. Up-gradation, reactive power compensation and rehabilitation of power system equipment are being carried out to meet increasing power demand and reduce voltage drop problem. The replaced transformers are reused at other substations after necessary overhauling and maintenance. Relocations of such power transformers are cost effective and immediate solution for load management.

Various works executed by this department have supported to reduce power interruption due to inadequate substation capacity. The department has carried out and completed various up-gradation and reinforcement works in FY 2080/081 with the increment of 785.4 MVA substation capacity.

B. Major reinforcement/upgradation works in progress

The major up-gradation and reinforcement works for various substations have been initiated and these works are under progress with the increment of substation capacity and capacitor bank capacity by 2025.3 MVA and 387.5 MVAr respectively.

C. Grid Connection Agreement

The Department has successfully signed the Grid Connection Agreement with 31 Independent Power Producers (IPPs) for 2473.879 MW power to meet the future load demand. Among those 27 IPPs will produce total of 2413.879 MW hydro power and remaining 4 IPPs will produce total of 60 MW solar power.

D. Transmission Loss Status

Comparison of Transmission Line Loss of different F/Y.

S.N.	F/Y	Total Import Energy(MWh)	Total Export Energy(MWh)	Transmission Line Loss Energy(MWh)	Transmission Line Loss in Percentage
1	2068/69	3736805.66	3520922.32	215883.34	5.78%
2	2069/70	3772905.51	3574865.1	198040.41	5.25%
3	2070/71	4120153.81	3889823.1	230330.71	5.59%
4	2071/72	4394005.17	4193004.03	201001.14	4.57%
5	2072/73	3097302.02	2934259.90	163042.12	5.26%
6	2073/74	5552927.57	5275058.79	277868.78	5.00%
7	2074/75	6347849.13	5980995.92	366853.21	5.78%
8	2075/76	7005397.48	6700648.12	304749.36	4.35%
9	2076/77	7149391.47	6826833.47	322558.00	4.51%
10	2077/78	8170175.54	7791266.07	378909.47	4.64%
11	2078/79	10111556.74	9659983.88	451572.86	4.47%
12	2079/80	11708172.92	11182998.99	525173.92	4.49%
13	2080/81	13353198.82	12761130.64	592068.18	4.43%

E. Projects under Execution

Grid Operation Department is executing various projects to increase the capacity of the Grid substations to cater the increasing load demand and to buy spare power transformers necessary for immediate replacement.

DISTRIBUTION AND CONSUMER SERVICES DIRECTORATE

Distribution and Consumer Services Directorate (DCSD) led by Deputy Managing Director, is entrusted for the planning, expansion, operation, maintenance and rehabilitation of distribution networks including substations up to the 33 kV voltage level and consumer services activities such as new consumer connections, meter reading, billing, revenue collection and consumer's grievances handling.

DCSD has been engaged in maintaining and upgrading the distribution network to ensure reliable and quality power supply. DCSD has also given its priority on minimizing the technical and commercial losses in the distribution network through the measures such as infrastructure upgradation and reconfiguration, optimization of transformer, power factor correction, control of electricity pilferage and so on. DCSD is also involved in expansion and upgrading of the distribution network to cater the growing electricity demand and new consumer connections. All these activities are being done adhering to service standards, tariff regulations, and other policies as per the regulatory framework set forth by the governing law of the country.

Further, Advance Metering Infrastructure (AMI) has been adopted using the novel technologies in energy metering and billing system using smart metering and smart grid technologies. DCSD also has introduced Substation Automation Systems (SAS) in its existing as well as new substations under construction. In addition, it is striving to achieve the goal of the GoN by providing electricity service to the entire population within next two years. Furthermore, 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 enhance the reliability and quality of power supply with the reduction of losses. Highest priority has been given to its valuable consumers for safe, reliable and quality services.

As per the recently implemented Organization and Management Structure, DCSD comprises of three departments at the central level, namely Planning & Technical Services Department, Community Rural Electrification Department and Smart Meter & Automation Department, 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 65.53%, of total staffs of NEA. The Directorate is in leading front to collect the revenue for planning, expansion, operation, maintenance and growth of NEA, in overall.

Vital Performance Highlights

Consumer Category	Percent of Total Consumers (%)	Sales (%)	Revenue (%)
Domestic	91.54%	42.13%	38.56%
Non-Commercial	0.71%	3.15%	4.56%
Commercial	0.75%	8.08%	11.63%
Industrial	1.26%	36.12%	36.78%
Others	5.73%	10.51%	8.47%

In FY 2023/24, the total number of consumers reached to 5,459,275 an increase by 6.33% from the previous FY. Similarly, the total sales in FY 2023/24 were 10,227 GWh including internal consumption. The gross revenue from energy sales reached to 99.636 billion rupees, with an increase of 9.172 billion rupees compared to the previous FY. The commercial and industrial categories together contribute 44.20%, of the total sales whereas the domestic consumers contribute 42.13%. The commercial and industrial consumers together represent 2.01% and the domestic consumers represent 91.54% of total consumers. The sales and revenue increment in comparison with the previous FY are 9.25 % and 10.14% respectively.

The average collection period (ACP) was recorded as 56.39 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 176,874,846 kWh to approximately 21,09,146 numbers of domestic consumers having the connection of capacity 5 Amp. Further, the average selling price was calculated as NRs. 9.74/kWh. The average sales per consumer increased from 1,823 kWh to 1,873 kWh and the collection from online payment increased to NRs. 27.438 billion from NRs. 21.54 billion.

With continuous initiations and efforts of NEA's staffs, the distribution system loss has been reduced to 9.59% in F/Y 2023/24. 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 2023/24, 339 ckt-km of 33 kV Line, 2,943 ckt-km of 11 kV line, 5,207 ckt-km of 0.4/0.23 kV line, 3,289 numbers of distribution transformers with the total capacity of 86 MVA and 9 numbers of 33/11 kV Distribution Substation with the total capacity of 91 MVA have been added in the distribution system. Likewise, 229 MVA substation capacity has been added though the upgradation of the substation across the country. Along with these distribution infrastructures, 7,576 ckt-km of 33 kV, 50,676 ckt-km of 11 kV and 150,477 ckt-km of 0.4/0.23, 196 numbers of 33/11 kV substations with the total capacity with 2,524 MVA and 45,474 numbers distribution transformers constitute in the distribution system.

Out of 753 local levels, 539 local levels are substantially electrified and 196 local levels are partially electrified so far. The remaining 18 local levels, which have no connection with the national grid, have access to electricity via alternative energy sources.

Programs and Activities

DCSD has continued its activities of construction and up-gradation of distribution network and addition of new connection in F/Y 2023/24. During this period, DCSD took special drives to monitor and execute the loss reduction activities, metering & 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 2023/24 to expand and improve the quality of materials and service delivery.

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 industrialization, which would accentuate 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 construction work continued to electrify through the national grid in un-electrified areas. 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, especially lineman and substation operators. OHS trainings has been organized to express NEA' commitment on electrical safety as well as to create awareness regarding safety for all.

Safety Day organized by Tatopani Distribution Center

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 construction works of distribution infrastructure. 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, 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.

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

In order to minimize the consumer's complaints in no light services and to address the consumer grievances in a speedy manner, Call Centers has been operated to take care of consumers 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.

Reliable and Quality Supply

Reliable and quality power supply is one of the main objectives of DCSD, and also the fundamental right of our valued consumer. Since, the reliable and quality supply is basic requirement for increasing the electricity demand, two projects have been introduced namely Distribution System Reliability Project and Capacitor Bank Installation Project with the objective of enhancing the reliability and quality of power supply.

The scope of Distribution System Reliability Project includes the installation of auto re-closers and the smart load break switches 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.

Furthermore, to ensure the reliable power supply, DCSD has been using the AAAC covered conductor for the medium voltage up to 11 kV and the Aerial Bundled Conductor (ABC) for 400 Voltage instead of the bare ACSR conductor.

Loss Reduction Activities

DCSD has given top priority for the loss reduction in the distribution system. Loss target has been fixed to each distribution center. 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 188,275 number of line disconnections were recorded with the worth of NRs. 3.584 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 25 MWP 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 33/11 kV substations and 33 kV 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 411.56 km of 33 kV lines and approximately 1,800 km of 11 kV distribution lines. The project will also include installation of around 3,150 km of LT lines and 1,045 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 1,314 km of 11 kV distribution lines. The project will also include the installation of around 2,813 ckt-km of LT lines and 621 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 58 numbers of 33/11 kV substations with the total capacity of approximately 400 MVA, 1,123 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.

Some of the major highlights of work executed by various departments under DCSD are listed in the following pages.

Planning and Technical Services Department (PTSD)

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 divisions are functional, namely Loss Analysis Division and Technical Support Division.

Loss Analysis Division under PTSD scrutinize the losses occurring in the distribution system. Advanced metering infrastructure (smart meters integrated in MDMS) has been introduced for measuring the energy at the receiving point as well as at interlink between two distribution centers in order to measure the energy transactions across the distribution network. The objective of this division is to conduct rigorous analysis of distribution system loss, resulting in improved energy efficiency, reduced operational costs, and enhanced overall system performance.

Likewise, Technical Support Division under PTSD is responsible to develop and maintain technical standards, specifications, and design guidelines for the distribution system infrastructure. This division also provides engineering support for the design of new distribution system projects, including substation layouts and optimization of the infrastructure. This division also assists the DCSD on technical matters regarding the ensuring compliance with relevant codes, regulations, and industry best practices.

Some of the projects under monitoring of PTSD are listed below.

33/11 kV Substation Rehabilitation Project

The "33/11 kV Substation Rehabilitation Project" under PTSD has been entrusted to implement the upgradation and rehabilitation of 33/11 kV substations. This project has accomplished rehabilitation of more than 57 substations out of 82 distribution substations from all over Nepal by replacement or addition of new power transformers rated 33/11 kV, 6/8 MVA, 10/13.3/16.6 MVA or 20/24 MVA capacity along with other necessary substation equipment. Among them, 15 substations are to be upgraded under Substation Automation System (SAS) so as to operate these substations from local control center at individual substation as well as from remote control center located at the respective distribution office. This project has enhanced substation capacity of 315.6 MVA by upgradation/addition of 33/11 kV Power Transformers during the reported year.

Rehabilitation of 33/11 kV, 6/8 MVA Lamosanghu Substaion under construction

Distribution System Voltage Improvement Project

The scope of the project includes installation of capacitor bank at 33/11 kV substations in order to improve the voltage in distribution line. Currently, capacitor banks are being installed in 11 substations and is will be expanded to other substations as per the requirement.

Khotang-Bhojpur-Udayapur- Sankhuwasabha 33 kV Transmission line and Substation Construction Project

The project will construct two substations in Udayapur district (Basaha of Chaudandigadi Municipality and Ghurmi of Katari Municipality), one substation in Sankhuwasabha district (Chichila Rural Municipality) and required 33 kV and 11 kV lines respectively. Land acquisition process for all three substations has been completed. The tender for construction of substations and 33 & 11 kV line will be floated in the starting of FY 2081/82 and the project is scheduled to be completed by FY 2082/83.

Madankudari-Makaibaari-Singati 33kV Line and Substation Project

The scope of the Project includes the construction of 33/11 kV, 6/8 MVA substation at Majhifeda of Kavre district with interconnection facilities. Substation construction work and 11/0.4 kV distribution line work have been completed. Pole erection work of 33 kV transmission line has also been completed. The contract is terminated due to non-performance of the initial contractor and new contract has been signed with another contractor to complete the remaining work of 33 kV line. The Project is scheduled to be completed by FY 2081/82.

Chautara-Sidhupalchowk 33kV Line and Substation Project

The scope of the Project includes the construction of 33/11 kV, 6/8 MVA substation, 33 kV line from Lamosanghu to Chautara and 11/0.4 kV distribution line. 33/11 kV, 6/8 MVA Chautara substation has been charged and handed over to Sindhupalchowk DC for

operation. Guanghar Ujyalo Sana Hydropower Company Pvt. Ltd. having a generation capacity of 970 kW is currently dispatching their power to the national grid through this substation.

Transformer Testing Lab Construction Project

The scope of the Project includes construction of Transformer Testing Lab at Biratnagar, Butwal and Nepalgunj. The facilities provided from this project will help to reduce overall system loss by verifying the quality and confirming low loss of the transformer that will be connected to NEA's electrical grid. Similarly, small, medium and large private consumers of the nearby respective provincial NEA office will be benefitted by timely testing and unnecessary burden for transportation to another testing lab which was available only at Kathmandu and Hetauda. Transformer testing lab and workshop building including installation of transformer testing equipment have been completed. The Project has been handed over for operation to Koshi Provincial Office, Biratnagar Lumbini Provincial Office Butwal and Lumbini Province, Division Office Nepalgunj.

Reconstruction and Improvement of Electricity Distribution System (KFW funding)

Neighborhood Electrification Project

The project is entirely focused on neighborhood electrification in Kispang Rural Municipality's Salme, Bhalche, and Kaule, as well as the area of the transmission line, which benefits local residents. The project entails the construction of a 33/11 kV Sub-Station at Bhalche, a 33 kV transmission line between Bhalche and Trishuli 3B HuB Sub-Station, and an 11 kV and 0.4 kV distribution network in Nuwakot and Rasuwa Districts. The project, which was co-financed by the EU, EIB, Germany through KFW, and GoN, is now complete, providing a dependable electrical supply to over 2200 families in Nuwakot and Rasuwa districts.

Reconstruction and Improvement Project

Under the electrification component, all construction works for two 33/11 kV Ratmate and Kalikasthan substation, and accompanying 33 kV, 11 kV, and 0.4 kV electrical distribution networks have been completed. On the social component, one health post, two community hall buildings, one Temple, one Vegetable Collection Center, and a school building were built.

Promotion of Solar Energy in Rural and Semi-Urban Regions II

During the construction of hydro projects, NEA has acquired substantial land at the generation sites. These land plots already have electricity grid connections, making them ideal for establishing solar PV farms. Solar PV generation without the use of batteries will complement the hydro projects by directly feeding the generated electricity into the national grid. KFW and NEA agreed to design a project for installing solar PV farms at three locations with a total capacity of approximately 9-10 MW DC.

Rural Electrification Programs

Government of Nepal (GON) announced under its "Plan and Policy" for cent percent electrification in the country. In order to achieve the GON's above mentioned target, rural electrification programs through different projects are being executed with funding from Government of Nepal (GON) and Nepal Electricity Authority (NEA) as well as grant and loan assistance from KfW, ADB, EIB and AIIB. The electrification programs funded by GON/NEA is being implemented through eight different projects covering 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 having the scope of 15 numbers of 33/11 kV substations, 300 km of 33 kV line, 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 via following projects.

- Taplejung-Panchthar-Ilam-Jhapa Rural Electrification & Substation Construction Project
- Bhojpur-Sankhuwasbha 11/0.4 kV Rural Electrification Project
- Solukhumbu-Okhaldhunga 33 kV Rural Electrification & Substation Construction Project
- Khotang - Udayapur 11/0.4 kV Rural Electrification Project
- Kavre-Makwanpur-Ramechhap-Sindhuli Rural Electrification Project
- Nawalpur Rural Electrification and Chusang (Mustang) 33 kV Transmission and Substation Construction Project
- Darchula - Dolpa 11/0.4 kV Rural Electrification Project
- Khotang-Bhojpur-Udayapur-Sankhuwasabha 33 kV Transmission line and Substation Construction Project

Smart Metering and Automation Department

This department is newly formed under DCSD after approval of new O&M structure by NEA 965th Board Meeting. The main objectives of this department are

i) To implement smart energy meters throughout the country gradually for reliable and remote meter reading.

ii) To implement and support computerized M-power Billing system in all Distribution centers & collection centers and support ongoing RMS Billing project in terms of functional requirements, Data migration expertise, and HHD integration as needed.

iii) To implement new and easy bill payment systems like any branch payment system (ABPS) and Online payment systems

This department has two divisions namely Computerized Billing and Network Division and Metering & Automation Division. Furthermore, the department consists of two sections namely GIS & IT section and Distribution System Control Center.

Computerized Billing and Network Division

The Computerized Billing and Network Division (CBND) plays a crucial role in the Nepal Electricity Authority (NEA), continuously working to enhance NEA's revenue collection. The Mpower Billing System provides NEA with an efficient billing system, equipped with numerous features and modules to monitor the entire process and ensure transparency in the revenue management system.

The Mpower Billing System has been successfully implemented across all NEA revenue collection centers, covering 100% of both the total consumer count and total NEA revenue. The introduction of Handheld Meter Reading Devices (HHD) in over 160 locations has improved energy sales and reduced human errors during meter reading. Additionally, the division has implemented Online Meter Reading Handheld Devices (Online HHD) with wifi functionality in many NEA locations that allows meter readers to directly upload data to the branch server system, enhancing efficiency.

Consumers can enter their meter readings from home via mobile apps, online platforms, or by calling the NEA hotline number 1150. The system is accessible through the website https://www.consumer.nea.org.np or the NEA application for mobile phone as well.

Online electricity bill payment system caters to all consumer groups, allowing them to pay electricity bills through various online banking, mobile banking services, and e-wallet services. The online payment system has significantly reduced the time consumers spend in queues and the money spent on transportation to pay electricity bills. NEA has collection total amount

of NRs. 27.438 billion from 15,787,047 number of transactions during last fiscal year.

The Any Branch Payment System (ABPS), implemented within the Kathmandu Valley, allows customers to pay their electricity bills at any revenue collection center within the valley, facilitating timely revenue collection and analytical reporting for NEA. Web-based services, accessible via https://www.neabilling.com/viewonline, enable customers to view their bills. The Customer Management Information System (LAGAT) has been implemented in various revenue collection centers, helping maintain an up-to-date customer database.

To strive for excellence, CBND is enhancing the online meter reading Hand Held Device by providing SMS facilities to consumers after meter reading, promoting a paperless environment and financial savings. The migration of community consumers to the NEA billing system is ongoing.

For the convenience of NEA consumers, online payments through different merchants have now started at 8 a.m., instead of the previous start time of 10 a.m. Additionally, the daily transaction limit for each consumer through a single merchant is expected to increase upto 5 lakhs soon. Moreover, CBND, in collaboration with the IT department, has enhanced existing DCS activities by implementing the Revenue Accounting Consolidation Software System. This system provides real-time Revenue Management Information, helping in data analysis and evaluation of NEA's financial health.

Metering and Automation Division

In order to modernize the existing metering infrastructure in system with the latest technology in Nepal Electricity Authority, Smart Metering and Smart Grid Project under Metering and Automation Division, completed the replacement of 72000 Three Phase Electromechanical Whole Current Meters with Smart Whole Current Meters in first phase.

Likewise, in order to complete the coverage of three phase whole current smart meter, the Project procured 150,000 number of such meters. All the meters installed are in communication with Head End System (HES) and energy & electrical instantaneous data received from the meter through Head End System is exported to Meter Data Management (MDMS) for data analysis and reporting purpose.

The Metering and Automation Division, is also integrating Three Phase CT operated smart meter, procured by Material Management Division, into its system. All the high value consumers that are connected via Potential and Current Transformer now have Smart CT Operated smart meters. Power Trade Department also has installed 62 numbers of these smart meters in several IPP. Distribution Centers are also installing these smart meters in the 33 kV and 11 kV feeders which fed the consumers under that DC for the purpose of energy accounting.

Consumers that have smart meters installed for energy metering are integrated with billing system and configured for automated billing generation without any human intervention. Consumers receive electricity bill via SMS and email.

GIS Mapping

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

Distribution System Control Centre (DSCC):

A DSCC for supervision and control of Kathmandu valley distribution system including underground system is being built at NEA LDC premises Siuchatar under ADB loan though PMD Data center and DSCC project. After completion of this project this center will be handed over and operated under this department.

Metering Section

The Metering section, formerly known as TOD section, deals with the programming of the smart meters with the parameters typically required by DCS as well as NET Metering, Independent Power Producers and Export/ Import. The section also recalculates the arrear billing file sent by different branch offices of NEA. In Fiscal year 2080/81, 25,053,747.38kWh total units were recovered from arrear billing worth NRs. 386,878 million.

SMART Meter and Smart Grid (SMSG) Project:

- Meters of HT (11kV or above) consumers are being replaced by Smart Meters.
- Replace meters of LT TOD consumers by Smart Meters by Fiscal year 2081/82
- Assisting in formation of Head End System (HES), Advanced Meter Reading Infrastructure (AMR/AMI), Meter Data Management (MDM).

Community Rural Electrification Department

In order to expand the access to electricity services to the rural areas on people's participation approach, the Government of Nepal (GoN) has brought forward Community Rural Electrification Program (CREP) which is being executed efficiently through Community Rural Electrification Department (CRED) under DCSD, NEA.

The Community Rural Electricity Entities (CREEs) are formed under the enthusiastic participation of the community. The infrastructure for electrification is constructed with a share contribution of 10% out of the total estimated budget by the CREE, and the remaining 90% by the NEA. The CREEs regulate electricity distribution services to their consumers independently after the infrastructure is handed over to them. These CREEs buy electricity from NEA in bulk, and distribute it to remote consumers. The CREEs are responsible for operation and management of electricity distribution within their concerned areas. NEA provides services up to 11 kV line and the REC itself is responsible for 400/230 Volt line. CRED is committed to ensure future where every Nepali, irrespective of caste, gender, and position in the community has access to clean, affordable, and reliable electricity and the members benefit from its productive end-use. In the journey of 20 years, CRED has achieved a major success of providing access to electricity to around 55 districts through 516 (300 CBOs and 216 including KKREP) community. In this F.Y. 2080/081, 14 numbers of community returned to NEA with around 7,338 number of consumers. The actual number of consumers within community organizations are 4,75,539 in 43 districts through 457 communities (241 CBOs and 216 entities of Kailali Kanchanpur Gramin Bidhyut Chhata Sansthan and Rural Municipalities/ Municipalities).

CRED's major activities of this year are as follows:

- Under fifteen (15) Rural Electrification Projects, construction of 58.014 km of 11 kV line with 1354 nos. of 11-meter HT Poles installation, 107 km of 400/230 V LT line and installation of 64 Nos. of distribution transformers with different capacities have been completed.
- Similarly, replacement of 4,925 number of wooden poles with steel tubular poles has been completed.
- The construction of 33/11 kV substations in the rural areas of Panchthar, Tumbewa and

33 kV line extensions from Panchthar district are in progress.

- Total number of 14 CREEs with about 7,338 number of consumers returned to NEA
- CRED has conducted capacity building-up Technical and Management training for employees working at CREEs in Gandaki province from Poush 1 to poush 7 for 7 days, in coordination with National Assocation of Community Electrification Users Nepal (NACEUN)

This department conducted training for employees working at CREEs in Gandaki province during last fiscal year. CRED is planning to conduct capacity build-up training in other different provinces Koshi, Janakpur, Bagmati, Lumbini, Karnali and Sudurpashim for CBOs employees in future.

DCSD is operating all over the country through seven provincial offices and two divisional offices to facilitate its consumers with line connection, revenue collection and handling grievances.

Koshi Provincial Office, Biratnagar

Koshi Provincial Office of NEA attends 1,044,191 numbers of consumer through 24 Distribution Centers spread over 14 districts. The majority of the consumers, about 89.41%, belong to the domestic category. It has registered and increased the connected load of 586 MVA during FY 2023/24.

The annual energy sales were 1,716 GWh increased by 10.57% from the previous FY and contribute to 16.78% of the total sales of energy of NEA. The gross annual revenue is NRs. 16.136 billion, which is about 16.20% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 11.51% as compared to the previous FY.

The distribution loss of Provincial Office came down to 9.87% from the last FY year loss of 10.38%. This year 36,831 consumer lines with due of NRs. 754.293 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 96.21%.

Madhesh Provincial Office, Janakpur

Madhesh Provincial Office of NEA serves 1,148,674 numbers of consumer through 23 Distribution Centers spread over 8 districts. The majority of the consumers, about 86.81%, belong to the domestic category. It has registered and increased the connected load of 489 MVA during FY 2023/24.

The annual energy sales were 2,138 GWh increased by 5.96% from the previous FY and contribute to 20.91% of the total sales of energy of NEA. The gross annual revenue is NRs. 19.527 billion, which is about 19.60% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 8.24% as compared to the previous FY.

The distribution loss of Provincial Office has been registered to 15.29% from the last FY loss of 13.79%. This year 39,407 consumer lines with due of NRs. 1.574 billion were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 89.70%.

Bagmati Provincial Office, Kathmandu

Bagmati Provincial Office of NEA attends 8,98,202 numbers of consumer through 20 Distribution Centers spread over 10 districts. The majority of the consumers, about 95.47%, belong to the domestic category. It has registered and increased the connected load of 175 MVA during FY 2023/24.

The annual energy sales were 2406 GWh increased by 9.80% from the previous FY and contribute to 23.53% of the total sales of energy of NEA. The gross annual revenue is NRs. 26.310 billion, which is about 26.41% of the total revenue earned by NEA. It has registered

the overall increase of sales revenue by 9.73% as compared to the previous FY.

The distribution loss of Provincial Office came down to 5.60% from the last FY loss of 6.29%. This year 31,793 consumer lines with due of NRs. 792.732 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 97.99%.

Bagmati Province Division Office, Hetauda

Bagmati Province Division Office of NEA serves 339,795 numbers of consumer through 6 Distribution Centers spread over 3 districts. The majority of the consumers, about 90.39%, belong to the domestic category. It has registered and increased the connected load of 144 MVA during FY 2023/24.

The annual energy sales were 710 GWh increased by 9.84% from the previous FY and contribute to 6.94% of the total sales of energy of NEA. The gross annual revenue is NRs. 6.858 billion, which is about 6.88% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 10.35% as compared to the previous FY.

The distribution loss of Divisional Office came down to 7.19% from the last FY loss of 9.82%. This year 12,022 consumer lines with due of NRs. 225.611 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 95.03%.

Gandaki Provincial Office, Pokhara

Gandaki Provincial Office of NEA attends 498,132 number of consumers through 13 Distribution Centers spread over 11 districts. The majority of the consumers, about 95.19%, belong to the domestic category. It has registered and increased the connected load of 243 MVA during the year 2023/24.

The annual energy sales were 687 GWh increased by 8.69% from the previous FY and contribute to 6.72% of the total sales of energy of NEA. The gross annual revenue is NRs.

33 kV Line construction works by Lamjung Distribution Center

6.708 billion, which is about 6.73% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 9.38% as compared to the previous FY.

The distribution loss of Provincial Office came down to 7.96% from the last FY loss of 8.47%. This year 16,837 consumer lines with due of NRs. 255.175 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 99.64%.

Lumbini Provincial Office, Butwal

Lumbini Provincial Office of NEA serves 551,836 number of consumers through 11 Distribution Centers spread over 6 districts. The majority of the consumers, about 94.03%, belong to the domestic category. It has registered and increased the connected load of 365 MVA during FY 2023/24.

The annual energy sales were 1459 GWh increased by 11.18% from the previous FY and contribute to 14.27 % of the total sales of energy of NEA. The gross annual revenue is NRs. 13.917 billion, which is about 13.97% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 11.79% as compared to the previous FY.

The distribution loss of Provincial Office came down to 7.67% from the last FY loss of 8.48%. This year 21,322 consumer lines with due of NRs. 3.625 billion were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 96.47%.

Lumbini Province Division Office, Nepalgunj

Lumbini Province Division Office of NEA serves 443,548 number of consumers through 10 Distribution Centers spread over 6 districts. The majority of the consumers, about 91.90%, belong to the domestic category. It has registered and increased the connected load of 207 MVA during FY 2023/24.

The annual energy sales were 648 GWh increased by 6.98% from the previous FY and contribute to 6.34% of the total sales of energy of NEA. The gross annual revenue is NRs. 6.124 billion, which is about 6.15% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 8.21% as compared to the previous FY.

The distribution loss of Divisional Office came down to 8.59% from the last FY loss of 8.60%. This year 15,775 consumer lines with due of NRs. 2.060 billion were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 98.99%.

Karnali Provincial Office, Surkhet

Karnali Provincial Office of NEA attends 162,385 number of consumers through 10 Distribution Centers spread over 10 districts. The majority of the consumers, about 96.09%, belong to the domestic category. It has registered and increased the connected load of 87 MVA during FY 2023/24.

The annual energy sales were 83 GWh increased by 13.99% from the previous FY and contribute to 0.82% of the total sales of energy of NEA. The gross annual revenue is NRs. 809 million, which is about 0.81% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 13.43% as compared to the previous FY.

The distribution loss of Provincial Office has been registered 21.79% from the last FY loss of 16.20%. This year 5,979 consumer lines with due of NRs. 65.799 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 98.36%.

Sudurpaschim Provincial Office, Attaria

Sudurpaschim Provincial Office of NEA serves 372,512 number of consumers through 12 Distribution Centers spread over 9 districts. The majority of the consumers, about 92.74%, belong to the domestic category. It has

registered and increased the connected load of 225 MVA during FY 2023/24.

The annual energy sales were 376 GWh increased by 14.98% from the previous FY and contribute to 3.69% of the total sales of energy of NEA. The gross annual revenue is NRs. 3.243 billion, which is about 3.26% of the total revenue earned by NEA. It has registered the overall increase of sales revenue by 15.71% as compared to the previous FY.

The distribution loss of Provincial Office has been registered 11.50% from the last FY loss of 10.99%. This year 8,309 consumer lines with due of NRs. 148.162 million were disconnected. With the concerted efforts of all Distribution Centers, the revenue collection has improved to 98.05%.

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 is responsible for the directing and monitoring the functioning of three departments namely Power System Management Department, Corporate Planning and Monitoring Department and Information Technology Department. Each of these departments is headed by a director. Power System Management 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 responsible for developing the Corporate Plan of NEA along with monitoring of NEA implemented projects financed by Nepal Government, NEA and foreign investment. Information Technology Department develops innovative IT services so as to automate various activities of NEA.

Power System Management Department

Power System Management Department (PSMD) is mainly responsible for the load forecast, generation and transmission line planning with balancing the need for reliability, efficiency, sustainability and regulatory compliance of Integrated Power System (INPS) of Nepal.

PSMD identifies constraints in the grid that could pose operational risk and that reduces efficiency due to outages in the Integrated Nepal Power System. It also develops transmission configurations for evacuating power from planned generation projects through different technical studies such as load flow, short circuit, steady state and transient stability.

PSMD also provides advisory services to the power sector stakeholders upon their request. It also assists the directorates and departments within NEA by providing necessary data and suggestions regarding implementation of planned projects.

The department is also diligently involved to prepare Corporate Development Plan of NEA to achieve NEA vision of becoming “An efficient modern utility that provides clean, reliable, quality and affordable electricity of global standards while being responsible to Government imperatives and creating value for its shareholders.”

Grid Impact Study (GIS) for new generation projects is also one of the main focus of Power System Management Department (PSMD). The Grid Impact Study (GIS) analyzes the effect of new connection of load and generating plant. NEA Grid ensures satisfactory operation of the NEA Grid in conformity with the Nepal Electricity Grid Code; requirement for additional

transmission lines, reinforcement in the network, and requirement for the installation of capacitors and reactors are recommended.

In FY 2023/24, Power System Management Department carried out following technical studies at the request of NEA's different departments. Notable among them are:

- Closely collaborated with the Joint Technical Team (JTT) of India and Nepal to study the possibilities and requirements of power exchange between India and Nepal.
- Grid Impact Study of 41 hydropower projects developed by IPPs with the total installed capacity of 2154.179 MW was performed.
- Grid Impact Study of 7 bulk load industries of the total load 70.9 MVA to be connected to the INPS was conducted.
- Load flow analysis of INPS for upcoming wet season has been conducted and the various recommendations has been mentioned.
- Contingency Load flow analysis for the power plants of the Dordi Corridor had been conducted as per the request.
- Fault analysis of Chilime –Trishuli 220 kV Transmission Line, Koshi 220 kV Transmission Line Corridor, Marsyandi-Kathmandu 220 kV Transmission line and Loharpatti-Dhalkebar 132 kV Transmission Line was performed.
- Updating of the PSS/E models of Year 2025 for Millennium Challenge Account Nepal (MCA - Nepal) has been done.
- Coordinated with JICA to study on Integrated Power System Development Plan for preparation of the report - "Project on Integrated Power System Development Plan in The Federal Democratic Republic of Nepal".
- Associated with grid interconnection study conducted by Joint Technical Group (JTG) of State Group Corporation of China (SGCC) and Nepal Electricity Authority (NEA).

Information Technology Department

The Information Technology Department (ITD) plays a pivotal role in enabling digital transformation and enhancing operational efficiencies within the organization. Here are some key aspects and initiatives highlighted:

1. Digital Transformation and Automation:

- Information Technology Department focuses on leveraging Information Technology (IT) and Operational Technology (OT) to reduce redundancies, errors, and improve workflows across NEA.
- Emphasis on implementing new Information and Communication Technology (ICT) systems, providing continuous support, and offering training to all NEA offices.

2. NEA IT Policy (2023):

- 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 operational efficiency, streamline processes, and improve overall service delivery.
- The IT Policy establishes an IT Management Committee which plays a pivotal role in providing recommendations on new technologies, assessing their necessity and potential impact on NEA's operations. It also ensures regular policy updates to mitigate risks, enhance cyber resilience, and handle any exemptions required.
- Regular updates ensure cyber resilience and compliance with evolving IT standards.

3. Enhanced Customer Interaction:

- Upgraded NEA Mobile App and CRM

software offer features like bill checking, seamless payments, fault information, and complaint management, improving customer service and engagement.

4. Operational Efficiency and Management:

- Introduction of online applications for new connections and a centralized call center (hotline 1150) streamline consumer-related operations.
- Vehicle Management Information System with GPS integration enhances transparency and efficiency in operations.
- Upgradation of different application system software (Customized Accounting System (CAS), Centralized E-Attendance System, Employee Information Portal etc..) is in process to enhance the functionality, security, and user satisfaction while ensuring seamless integration and minimal disruption to business operations.
- Private Cloud for employee has been implemented for enhanced security, control, and customization in their cloud computing environment.

5. Infrastructure and Security Enhancements:

- Implementation of software-defined WAN (SD-WAN) and plans for SD-Branch/LAN strengthens network security and improves operational efficiency.
- Access Point devices with broad transmission range are deployed to cater to diverse user needs across NEA premises.

6. Data Center:

- NEA has built its own Data Center, which plays a vital role in ensuring the availability, reliability and security of digital services and information. NEA also plans to extend its Communication Network backbone countrywide which shall enhance the availability of information centrally,
- The Near Line Data Center at NEA Head Office is equipped with Precision Air Conditioners (PAC) and backup generators to ensure operational continuity and equipment safety.

7. Cyber security Measures:

- As NEA embraces greater digital connectivity, it encounters heightened vulnerabilities in terms of cyber security. Acknowledging the significance of safeguarding critical infrastructure, NEA has taken proactive steps to invest in cyber security measures and establish effective guidelines to protect these essential systems. The implementation of robust firewalls, intrusion detection systems, WAF (Web Application Firewall), DDoS (Distributed Denial of Services), NDR (Network detection and Response System), SIEM/SOAR (Security Information and Event Management System), and continuous monitoring protocols has been prioritized to fortify NEA's digital assets and proactively thwart potential cyber threats.
- PAM (Privileged Access Management) will be implemented to set cyber security strategies and technologies designed to secure, manage, and monitor privileged access within an organization's IT environment.

8. Future Initiatives:

- Collaboration for operating the Data Center at Syuchatar aims to generate revenue by leasing bandwidth and data space to government offices and private organizations.

With the IT Policy 2023 as its guiding framework, NEA is committed to harnessing the potential of Information Technology to modernize its processes and deliver reliable,

clean electricity services to consumers. By embracing ICTs, ensuring safety and security, optimizing business operations, and adopting best practices in procurement and asset management, NEA is paving the way for a more efficient, resilient and sustainable power sector.

Corporate Planning and Monitoring Department

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. The responsibility of appropriation of the received ceiling of annual budget from GoN and mobilization of internal resources to ensure the realization of targets set forth is wherein best tradeoff among competing activities has to be assessed. The whole process involves repeated discussion on various levels within the setup of NEA.

Monitoring status of to be implemented and ongoing plans, projects and activities on continuous basis and reporting to the management is another vital responsibility of the department. In addition to the need-based reporting, periodic reporting is also carried out on monthly, trimester-wise and annual basis. These reports indicate the status of various activities with reference to the 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 entering of annual budget in the Line Ministry Budget Information System (LMBIS) are the other works being carried out by the department.

CPMD provides necessary supports to the NEA management for carrying out various studies related to institutional reform and development. In addition, the department provides inputs for the studies undertaken by various organizations on the topics related to NEA. It also plays a coordinating role in the development of projects under different financing mode.

CPMD also furnishes the necessary indicators to the Office of the Prime Minister and the Council of Ministers (OPMCM) such as the updates of installed capacity, per capita consumption of electricity, loss, electrification ratio, MVA capacity of the substations, the transmission line lengths, etc.

ENGINEERING SERVICES DIRECTORATE

Engineering Services Directorate (ESD) is entrusted to carry out engineering studies beginning from the identification to feasibility study, Geological and Geotechnical Study, Detailed Engineering Design and Environmental Study for the development of hydropower and transmission line projects. Apart from providing related trainings, the directorate is mandated to provide consulting and advisory services in the hydropower and transmission line sectors and other infrastructure projects of NEA. Headed by the Deputy Managing Director, ESD has four departments namely Project Development Department (PDD), Environment and Social Study Department (ESSD), Geological Investigation Department and Training Management Department. This directorate consists of two divisions namely Physical Infrastructure and Electromechanical Design & Construction division.

Project Development Department

Project Development Department (PDD) under Engineering Services Directorate focuses on study and design of hydropower and transmission line projects. The major functions of the department includes identification of potential projects, screening and ranking, prefeasibility, feasibility Study, detailed engineering design of hydropower projects and preparation of tender documents. The five divisions under this department are Project Identification, Hydro Sedimentology, Survey, Norms and Specification and Design Division. Status of different projects studied under the department are as follows:

Syarpu Lake Pumped Storage Hydroelectric Project

Syarpu Lake Pumped Storage Hydroelectric Project (332 MW) is identified as a Pumped Storage type hydroelectric project situated at Bafikot Rural Municipality, Rukum West District of Karnali Province. The source of this project is Tharkhola and Syarpu Lake. The upper reservoir will be the Syarpu Lake with 7 m increment in reservoir level and the lower reservoir will be created by constructing a Dam of about 67 m high and the Lake drains to Bheri River. Survey License was obtained from Department of Electricity Development in 2023 AD for two years validity period.

For the Feasibility study of the project's hydrological study, topographical survey and detail engineering geological mapping has been completed during the fiscal area 2023/24. Similarly, optimization of layout and capacity optimization has been done.

Jawa Tila Hydroelectric Project

Jawa Tila hydropower is a PROR type project located in the Jumla District of Karnali Province. The headworks is located near to Rara Lihi village and the powerhouse is located near

Nagma Bazar of Tila rural municipality. The survey license for Jawa Tila HEP was obtained from DoEd on 5th October 2023 for two years. The installed capacity is 72.86 MW with total annual energy 339.38 Gwh. During this fiscal year, Hydrological study, Topographical survey, Detail engineering geological mapping, Layout and capacity optimization has been completed. ERT survey and Environmental study are in progress.

Proposed Power House Area of Jawa Tila Project

Identification of Pumped Storage Hydropower Project

PDD of NEA is working for the study and development of Pumped Storage Hydropower Project (PSHP). Screening and ranking criteria is developed for the selection of best available projects. Best PSHP in 3 basin viz Koshi, Gandaki and Karnali basin are identified, screened, ranked and thus recommended one best project in each basin for the further study.

Altogether 50, 58 and 46 number of PSHPs are identified in Koshi, Gandaki & Karnali basin respectively. After Screening and ranking of those projects basin-wise three best projects are summarised in the table below.

Identification of Storage Hydropower Projects

Storage-type Hydropower Projects Identification was conducted during the fiscal year 080/81 in 4 stages: (i) Project Identification (ii) Screening (iii) Ranking (iv) Selection. Out of the 15 identified storage projects, Lower Badigad Storage Project, Gulmi is ranked first and Kaligandaki Storage Project, Parbat is ranked second. Further identification study on the top two projects were conducted and the installed capacity was found to be 284 MW for Lower Badigad Storage Project and 432 MW for Kaligandaki Storage Project.

Karnali Chisapani Multipurpose Project

The Karnali (Chisapani) Multipurpose project (KCMP) is the proposed 10,800 MW multipurpose project to be developed in the Karnali River, immediately upstream of Karnali bridge in the boundary among Sudurpachim Province (Kailai, Doti, Achham district), Karnali Province (Surkhet district) and Lumbini Province (Bardia district). The EOI has been published on 2080/10/12 for Consulting Service of Detailed Engineering Design and Preparation of Tender Documents of the project.

The possibility of pump storage concept by utilizing the reservoir created by KCMP (lower reservoir) and upper reservoir at bowl shaped valley about 900 meters above it in Chaukune Rural Municipality has been studied. The study

Basin wise selected top three best projects:

S.N	Basin	Project Name	District	Capacity in MW (6hr peaking	Remarks
1.	Koshi	Chautara- Sukute PSP	Sindhupalchowk	951	
2.	Gandaki	Hulingtar-Dumkim PSP	Chitwan/Dhading	1712	Started Prefeasibility
3.	Karnali	Karnali Chisapani PSP	Surkhet	5375	Started Prefeasibility

illustrates that storage scheme could generate 5,374 MW of power and 11,769 GWh of energy, for 6 hours daily with the construction of a 100-meter-high dam.

Sunkoshi -3 Hydropower Project

Sunkoshi-3 Hydropower project (683 MW) is located in the Kavre and Ramechhap districts of Nepal in Bagmati Province. The dam site is located at the boundary between Temal Rural Municipality of Kavre District and Khadadevi Rural Municipality of Ramechhap District. The proposed project area lies at an elevation between 535 m to 700 m above mean sea level.

The EOI has been published for Detailed Engineering Design and Preparation of Tender Documents of the project. The EOI evaluation process is completed. The Request for Proposal (RFP) has been called to all shortlisted Consulting Firms for Detailed Engineering Design and Preparation of Tender Documents of the project.

Identification and Pre-feasibility study of Jhiku Khola Pumped Storage Project

As per the study the project could be developed with a capacity of 686.44 MW with 6 hrs peaking. For this a dam of 45.5m has to be built in Jhiku Khola in order to create a reservoir with Live storage of 11.28 MCM at FSL of 810 masl. Reservoir of Sunkoshi-3 HEP with FSL of 700 masl will act as lower reservoir for the system. In order to generate energy water will be discharge through 2 numbers of Headrace tunnel with each length of 2.05 km and 2 numbers of penstocks with each length of 239.70 m. The project will have maximum gross head of 115m between two reservoirs.

Arun -4 Hydropower Project

Arun-4 Hydro Electric Project is a run of the river type project proposed on Arun River in Bhot Khola and Makalu Rural Municipality of Sankhuwasabha District. The project envisages construction of a 18.5m high (from foundation level) concrete weir across river Arun, four numbers underground desilting chambers, 9.1 km long and 9.5m dia Horse Shoe shaped HRT, 5.8 m dia circular twin pressure shafts bifurcating to four-unit pressure shafts, butterfly valve chamber and an underground power house on the right bank of Arun River.

The Feasibility and Environmental Impact Assessment Study of Arun-4 hydropower project was prepared by DoED (Department of Electricity Development). On 25/10/2021 the project was allotted to NEA (Nepal Electricity Authority) for its development. As per MOU between NEA and Satlej Jalvidyut Nigam (SJVN) the project will be developed in joint collaboration between NEA and SJVN with 51% equity of SJVN and 21.9 % of energy will be provided to GON for free of cost. Till now Topographical survey, Geological mapping Lineament study and Bathymetric Survey of the project has been completed.

Similarly, PDD has also studied different small hydro projects for maintenance and upgradation. During this fiscal year Kailashkhola, Surnaiyagad and Potmara small hydropower are studied and recommended for rehabilitation and seems viable for upgradation. Detail Cost estimation and design has been prepared and submitted.

Professional works done by Survey Division, Project Development Department

PDD has been conducting detailed survey and feasibility study of various transmission lines and substations. During this fiscal year 2080/081 following works have been accomplished by the Survey Division.

S.N.	Projects	Status
1.	Sitalpati - Dhungesangu 220 kV T/L's Detail/ Cadastral Survey	Completed
2.	Attariya Dhangadhi 132 kV T/L Project (Feasibility Study)	Completed

3.	Nijgadh Harnaiya 400 kV T/L Project (Feasibility Study)	Completed
4	Pathlaiya -Harniya 400 kV TL Details Study & Cadastral Survey	Completed
5	Kathmandu Valley System Reinforcement (132 kV) Project (Feasibility Study)	Completed
6	Nepalgunj-Nanpara 132 kV T/L Cadastral Survey	Completed
7	Detail Survey of Java Tila Hydroelectric Power	Completed
8	Detail Survey of Syarpu Pump Storage Hydroelectric Power	Completed
9	Kathmandu Valley System Reinforcement (220 kV) Feasibility Study	Ongoing
10	Damak-Keraun-Biratnagar 132 kV T/L Feasibility and Cadastral Survey	Ongoing
11	GIS Data Base Mapping Work for existing high Voltage Transmission Line, Substations and Hydropower Plants	Beginning

Environment and Social Studies Department (ESSD)

ESSD executes all the activities related environmental and social aspects of hydroelectric Projects (HEPs) and transmission line projects (TLPs) which are being planned, designed, constructed or operated by NEA. This department is a commercial wing of NEA and with its technical expertise involved in conducting Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), Baseline Environmental Study (BES), Social Impact Assessment (SIA), Biodiversity Impact Assessment (BIA), Cumulative Impact Assessment (CIA), Vulnerable Community Development Plan (VCDP), Resettlement Action Plan (RAP), Land Acquisition and Compensation Plan (LACP) studies along with environmental monitoring and implementation of mitigation measures and community support programs of hydroelectric, solar, transmission line and distribution line projects.

During the Fiscal Year 2080/081, different tasks carried out by ESSD are presented below:

1. Study Projects

a. Projects Requiring Environmental Impact Assessment (EIA)

In the FY 2080/081, ESSD was involved in the EIA/EMP update of following projects, out of which EIA of one project has been approved by MoFE.

1. Uttarganga Storage HEP (828MW): **EIA report approved by MoFE on Jan. 16, 2024**
2. Jagatpur-Madi 33kV sub-Transmission Line Project: **SEIA submitted to MoFE for approval.**

b. Projects Requiring Initial Environmental Examination (IEE)

In the FY 2080/081, ESSD was engaged in IEE of 19 projects and was able to get approval for IEE of following 8 projects from concerned ministry.

1. Gandak Solar Project (5.8MW): **IEE approved**
2. Jhupra Solar Project (2.5MW): **IEE approved**
3. Palpa 220/33/11kV Substation Project: **IEE approved**
4. Dhaubadi-Phalamkhani TL Project: **IEE approved**
5. Tamakoshi V 220kV TL Project: **IEE approved**
6. Galchhi-Ratmate 220kV TL project: **IEE approved**
7. Lamki-Chaukune 132kV TL Project: **IEE approved**
8. Burtibang-Paudi Amrai - Tamghas-Sandhikharka - Gorusinghe 132kV TL Project: **R-IEE approved**

Similarly, ToR for IEE of following 7 projects has been approved.

1. Attariya Dhangadi 132kV TL Project: **ToR approved**
2. Balaju-Singhadurbar 132kV underground TL Project: **ToR approved**
3. Nepalgunj-Nanpara 132kV cross-border TL Project: **ToR approved**
4. Dhaubadi Meghauli 132kV TL, Auraha-Simara 132kV TL Project: **ToR approved**
5. Teku-Thapathali 132kV Underground TL Project: **ToR approved, and,**
6. Lekhnath-Damauli 220kV LILO TL Project: **ToR approved**

Further, the IEE reports of 7 projects have been submitted to Department of Electricity Development of the Ministry for Approval.

2. SASEC Project: Semi-Annual Report (January-June, 2024) submitted

a. Kaligandaki Corridor (Kushma-New Butwal) 220kV TL Project

b. Kaligandaki Corridor (New Butwal-Bardaghat) 220kV TL Project

c. Marsyangdi Corridor (Udipur-Markichowk-Bharatpur) 220kV TL Project

3. Tamakoshi-Kathmandu 400kV TL Project: Semi Annual report (Jan-June, 2024) submitted.
4. Chimile-Trishuli 220kV TL Project: 27th quarterly Report submitted.
5. Kohalpur-Surkhet 132kV TL Project: 9th Quarterly Report Submitted
6. Dudhkoshi Storage Project: 3rd Quarterly Report Submitted

Public Hearing Program for IEE of Nijgadh-Pokhariya 400 kV TL Project

c. Projects Requiring Brief Environmental Study (BES)

In the FY 2023/24, BES of Gondryang-Devnagar 33kV TL Project was approved.

2. Monitoring Projects

The status of different monitoring projects is as follows;

1. Hetauda-Dhalkebar-Duhabi 400kV TL Project: 41st Quarterly report submitted
7. Samundratar-Trishuli 3B Hub 132kV TL Project: Final completion report submitted to the project.
8. Trishuli 3B Hub Substation Project: Final completion report submitted to the project.
9. Access Road of Upper Arun HEP: 1st Monthly report submitted.

ESSD has also been implementing the community support programs in different

Renovation of community water spout (Dhunge Dhara), Bhimeshwor-5, Dolakha under the CSP

Construction of Kauleshwori Temple at Bhimeshwor-7, Dolakha District under the Community Support Program (CSP) of Tamakoshi-Kathmandu 400kV TL Project

under-construction project along with the monitoring and mitigation works.

Geological Investigation Department

The Geological Unit under Engineering Services Directorate of Nepal Electricity Authority named as Soil, Rock and Concrete Laboratory (SRCL) was established in 1986 AD as to provide services in material testing, geological and geotechnical investigations for the different phases of project development which is named recently as Geological Investigation Department (GID).

Following are the major works executed by SRCL in fiscal year 2080/81

A. Geological, geotechnical and geophysical investigation works

- Geological and geotechnical investigation works of Upper Arun Hydropower Project and core drilling works of 4503m in total length at Headworks, Tunnel Alignment and Powerhouse site are about to complete.
- Soil investigation works of New Butwal Lamahi-400 KV Transmission Line.

- High-Resolution Optical Televiewer Survey at Dudhkoshi SHEP and at Sindhupalchok for Research purpose.
- Soil Investigation Works of Dhaubadi-Meghuali 132kV Substation Project, Nijgad-Harnaiya 400kV Transmission Line Project
- Engineering Geological Mapping of Java-Tila HEP and Syarpu Lake Pump storage HEP
- Test Adit Tunnel Construction Works at Powerhouse Area Upper Arun Hydropower Project.

B. Laboratory Works

Following are the major works carried out in this fiscal year.

- Compressive strength tests on stabilized earth brick products from various companies around country promoted by Build Up Nepal Engineering Pvt. Ltd., Chakupat, Lalitpur.
- Compressive strength tests on concrete cubes of Chandrapur Sukdevchauk 132 kV Transmission Line Project, Concrete Pole Plant, Amlekhgunj, NEA.
- Concentration analysis (PPM) of Dudhkoshi Storage Hydroelectric Project, Khotang, NEA.
- Laboratory tests on soil and core samples of Tanahu Hydropower Project (140 MW), Damauli, Tanahu.
- Laboratory tests on soil samples of SMEC-EMAY-JADE-CMS JV in association with ECoCoDE, Sunkoshi Marin Diversion Multipurpose Project.
- Compressive strength on cored samples collected by over Office of the Commission for the Investigation of Abuse of Authority (CIAA), Tangal, Kathmandu, Bardibas, Mahottari, Hetauda, Makwanpur.
- Various laboratory tests on soil samples of Aksha Engineering Solution Pvt. Ltd. KMC – 26, Kathmandu.
- Rock mechanical and index tests on core/ quarry samples including direct shear, density, water absorption, porosity, point load, UCS, Brazillian, ACV, AIV, flakiness/ elongation index, modulus of elasticity, soundness, alkali reactivity, specific gravity, Los Angeles Abrasion & etc. of Upper Arun Hydroelectric Project, NEA.
- Various laboratory tests on river bed material samples provided by CREGC-COVEC Joint Venture (Fast Track Project, CP-01)

Optical Televiewer Logging in Borehole

Excavated Chamber, Test tunnel, UAHEP

Training Management Department

The NEA Training Management Department (referred to as NEA-TMD) is situated at Kharipati, Bhaktapur, which has trained 27,327 employees including technical and non-technical during the last 34 years of its establishment.

Training on Welding & Safety Practice

Fire Extinguisher Demonstration

NEA-TMD occupies around 203 ropanis of land with well-equipped academic as well as hostel buildings for residential training. There are three well-managed hostel buildings with a capacity of 160 beds and a VIP Guest House. It has one administrative building for office use and a modern type of canteen building too. The main function is to prepare training, allocate resources, collect appropriate trainees, and perform other general management activities. In FY 2080–81, NEA-TMD conducted 61 training programs in different fields for 2175 trainees in total.

Physical Infrastructure Division

Building and Physical Infrastructure Construction Project (BPICP)

This project is currently implementing building construction work at two places in Kathmandu: Swayambhu and Lainchaur. The construction of the frame structure in the Swayambhu site building has almost been completed. The physical progress of Swayambhu's building work is 33%, while the financial progress is 27%. The physical progress of Lainchaur building construction work is 9% while the financial progress is 6%. In addition to this, the project studied the unused or vacant lands of the NEA in all seven provinces of Nepal and identified thirteen potential locations for the construction of commercial office buildings.

Building under construction at Swaymbhu site

Among them, selection of consultants is in progress for five sites viz. Dhangadhi, Bhairahawa, Pokhara, Birjung and Biratnagar.

Electromechanical Design and Construction Division

This division has been monitoring the activities of different four pole plants and the central workshop located at Hetauda.

Central Workshop

NEA Central Workshop (NCS) Established in 2055 BS at Bhairav Road, Hetauda-5, Makwanpur serving as a crucial hub for efficient transformer repair and testing services in Nepal. During the fiscal year 2080/81, the Workshop achieved significant milestones, repairing 1,764 distribution transformers and 10 power transformers. Additionally, it conducted testing on 4,890 transformers to verify their reliability and safety, and ensured the accuracy of 327 units of CT/PT.

Furthermore, NCS annually manages the auction of scrap materials. During the fiscal year 2080/81, two tenders for the auction of scrap items were successfully executed, generating a total revenue of NRs. 8,33,81,103.1.

Pole Plant Design and Construction Section

There are altogether four concrete pole plant under this section. The main objective of all the plants is to meet the pole demand of various DCS for electrification works. Those plants produce Prestressed Concrete (PSC) poles of size 8m, 9m and 11m. The details of the different pole plants with pole production in fiscal year 2080/81 are shown in the table below:

Pole Plant	Location	Pole Production During FY 2080/81
Amlekgunj Concrete Pole Plant	Amlekhgunj, Bara	19,574
Kotre Pole Plant	Suklagandaki, Kotre, Tanahu	13,056
Tankisinuwari Pole Plant	Tankisinuwari, Morang	21,246
Lamki Pole Plant	Lamki, Kailali	13,044

Lamki Pole Plant

PROJECT MANAGEMENT DIRECTORATE

The major responsibility of Project Management Directorate (PMD) is to execute the projects funded by the Norwegian Government, Asian Development Bank (ADB) and European Investment Bank (EIB). The aims of the projects being undertaken by PMD are to enhance the capacity of transmission and distribution systems, automate the transmission and distribution systems, digitize and strengthen NEA's institutional capacity. In addition, PMD with the financial assistance from ADB is also conducting the detailed engineering, environment and social studies of various transmission lines up to 400 kV voltage with combined line length of more than 1000 km and associated substations. At present, PMD is implementing the six different projects being assisted by ADB namely (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) and (vi) Project Preparatory Facility for Energy (PPFE). These projects are being facilitated by three different departments – Transmission Line and Substation Department, Distribution Line and Substation Department and Social Safeguards and Environment Management Department.

1. Recently Completed Projects

1.1 Kaligandaki Corridor 220kV Transmission Project

The main objective of this project is to help in the evacuation of the power generated from the hydropower projects developed in Kaligandaki basin to the New Butwal substation of east-west transmission backbone of Nepal. The project received the loan assistance from ADB under SASEC Power System Expansion Project. The project was divided into two packages.

Dana 220/132 kV Substation

Kushma- New Butwal 220 kV Double Circuit TL

In the first package, 40 km long 220 kV double-circuit transmission line with twin Moose conductors and two 220/132 kV, 100MVA substations at Dana and Kushma were constructed and put into operation in NEA's grid system. Similarly, in the second package, 90 km of 220 kV double circuit transmission line with twin Drake HTLS conductor was built from Kushma substation to New Butwal substation which is now operational. The project covered seven different districts – Myagdi, Baglung, Parwat, Syangja, Palpa, Rupandehi, and Nawalparasi. The project was completed on August 30, 2023, and was inaugurated by Honourable Minister of Energy, Water Resources, and Irrigation, Mr. Shakti Bahadur Basnet, on December 11, 2023.

2. Transmission Line and Substation Department

The Transmission Line and Substation Department (TLSD) within PMD facilitates the execution of 132 kV or higher voltage transmission line and substation projects. The department is also looking after the grid substation automation projects and carrying out the studies of several projects of transmission lines and substations.

2.1 New Butwal – Bardaghat 220 kV Transmission Line and Substation Project

This project supplements the Kaligandaki 220 kV Corridor project enabling evacuation of power generated by various NEA/IPPs generation plants along the Kaligandaki river basin. The scope of the project is to construct 220 kV New Butwal substation with transformer capacity 220/132 kV, 100 MVA at Sunwal-13 Nawalparasi and 21 km of 220 kV transmission line from New-Butwal substation to Bardaghat. ADB has provided loan assistance to this project under SASEC PSEP.

Construction of New Butwal Substation was completed in November 2021 and is in operation from then. The contract of 220 kV transmission line from New Butwal substation to Bardaghat suffered delays primarily due to COVID-19 pandemic and prolonged approvals of EIA, forest clearance. As of now, all the transmission materials have been delivered to site and the construction of transmission line is at final stage. The transmission line is expected to be completed by September 2024.

2.2 Tamakoshi-Kathmandu 220/400 kV Transmission Line Project

The objective of this project is to expand the capacity of existing transmission system of Nepal and help in evacuation of power generated in Tamakoshi and Sunkoshi basins of Nepal by constructing the new 400 kV transmission line from New Khimti substation in Ramechhap to Lapsiphedi substation in Kathmandu. The project has received the loan plus grant assistance from ADB and grant assistance from Norwegian Government under ETESIP and PTDEEP. This project was started in F.Y. 2066/67 and is expected to complete in F.Y. 2081/82. The estimated cost of the project is NRs. 14 billion in total. The project consists of following three packages:

Package 1: New Khimti – Barhabise 400 kV Transmission Line

The scope of works under this package to build 43 km long 400 kV double circuit transmission line with quad moose conductors from New Khimti substation in Ramechhap district to Barhabise substation in Sindhupalchowk district. Physical Progress of 90% and financial progress of 95% has been achieved so far in this package.

Package 2: Barhabise – Kathmandu 400 kV Transmission Line

The scope of works under this package is to build 47 km long 400 kV double circuit transmission line with quad moose conductors from Barhabise substation in Sindhupalchowk district to Lapsiphedi substation in Kathmandu

district and 14 km 132 kV double/multi circuit transmission line from Lapsiphedi substation Shankharapur Municipality to Changunarayan substation in Duwakot in Bhaktapur district. Physical and financial progress of 85% has been achieved so far in this package.

Package 3: Barhabise 220/132 kV Substation

The scope of works under this package is to construct a new 220 kV and 132 kV Gas Insulated Substation (GIS) of capacity 220/132 kV, 160 MVA at Barhabise in Sindhupalchowk district. Physical Progress of 95% and financial progress of 85% has been achieved so far in this package. The project is in the final stage of completion and will be put into operation soon.

The project is suffering a delay in the transmission line side due to public obstruction at the constructing sites in Ramechhap, Dolakha, Kathmandu and Bhaktapur. The conductor stringing of three towers in Ramechhap and erection of one tower in Dolakha is being obstructed by the landowners demanding higher compensation amount. Similarly, the locals in Kathmandu and Bhaktapur are also obstructing the construction of four 400 kV towers whereas the construction of 132 kV transmission line could not be started yet.

2.3 Lapsiphedi and Changunarayan Substation Construction Project

The objective of this project is to reinforce the transmission network and improve the reliability of electricity supply within Kathmandu valley. The scope of this project is to construct 220/132 kV, 160 MVA & 132/11 kV, 22.5 MVA capacity GIS substation at Lapsiphedi and 132/11 kV, 45 MVA substation at Changunarayan. The upgradation of existing 66/11 kV Teku substation to 132/66/11 kV voltage level and construction of two new 132 kV line bays at existing Suichatar 132 kV substation is also under the project scope to energise the existing 66 kV transmission line from Suichatar to Teku at 132 kV voltage level. The project has received the loan assistance from ADB under PTDEEP.

About 95% of equipment has been delivered to the site. In Changunarayan substation, almost all civil works has been completed and testing of the major equipment (GIS, transformer, etc.) are in progress. 50% of works of Teku and Suichatar substation has been complete and put into operation and erection of remaining 50% is in progress. The construction activities that were halted for a long time due to public hindrance at Lapsiphedi has been recently

Barhabise 220/132 kV Gas Insulated Substation

400 kV Transmission Tower

132/11 kV Changunarayan Gas Insulated Substation

resumed. Site levelling, boundary wall and foundation works has been started at the substation. The project is expected to complete within end of June 2025.

2.4 Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

The project envisages the capacity upgradation of New Khimti, Barhabise and Lapsiphedi Substations for evacuation of hydropower generation in Tamakoshi basin to INPS. Lapsiphedi substation will be the first 400 kV substation in Kathmandu valley for improving the reliability of electricity supply in Kathmandu. This project utilizes the loan assistance of ADB and grant assistance of Norwegian Government under PTDSSP.

The scope of this project is to construct (i) New Khimti 400/220 kV GIS substation with interconnecting transformer of 2x315 MVA capacity (ii) Barhabise 400/220 kV GIS substation with interconnecting transformer of capacity of 2x160 MVA (iii) Lapsiphedi 400/220 kV GIS substation with interconnecting transformer of 315 MVA capacity. These 400 kV substations are under construction and will be interconnected to the with 220kV substations which are being constructed under other ADB loan assistance. At New Khimti, major civil works including GIS hall have been completed, the installation of 400 kV GIS and transformers are under progress.

400kV GIS Building and Transformer Banks

Similarly, about 80% of the civil works has been completed at Barhabise substation and all the equipment has been delivered to the site. The construction works at Lapsiphedi substation got delayed due to public hindrance. However, now the construction activities have been

Work in progress at 400/220kV Barhabise Substation at New Khimti Substation

started at site. Major equipment have reached the site while the power transformers are being manufactured. The overall physical progress of the project stands at 63% till the end of fiscal year 2080/81. The expected completion date of the project is May 2025.

2.5 Kathmandu Valley Transmission Capacity Reinforcement Project (Phase I)

The major objective of the project is to augment grid capacity and improve the reliability of electricity supply within Kathmandu Valley. The scope of this project is to construct three new 132/11 kV GIS Substations with transformer 2x45 MVA each at Chovar, Phutung and Thimi. Loan assistance is provided by ADB under PTDEEP.

Civil and structural works of control room cum GIS hall building of Phutung Substation is

Phutung Substation Control Building Construction Work

completed and finishing works are in progress. Delivery of Power Transformer for all three substations and GIS for Phutung and Chovar Substation has been done. The works at Chovar substation got delayed due to local protest and obstruction, however, the construction has been resumed from 7 November 2022 after the agreement among the local authorities, local people and NEA. The physical and financial progress of the project till date are 40% and 38% respectively. The project is expected to complete within end of March 2025.

Chovar Substation Control Building under Construction

- **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 grid capacity of Kathmandu valley. The primary focus of this project is to reduce burden in existing Bhaktapur-Baneshwor-Patan 66 kV transmission line. The scope includes construction of 132 kV double circuit underground cable transmission line approximately 12 km from existing Bhaktapur substation to newly proposed GIS substation at Balkumari through Thimi substation which is being constructed through Phase I. Balkumari is 132kV GIS substation with transformer capacities of 132/11kV, 2x45 MVA and 132/66kV, 2x63 MVA. The scope of the project also includes LILO of existing Bhaktapur-Baneshwor-Patan 66 kV transmission line at Balkumari substation. The project has received loan assistance from ADB under PTDSSP.

The construction of 132 kV underground transmission line from existing Bhaktapur substation to to Thimi S/S is being carried by the Contractor, KEC International Ltd., India. Major materials under the contract have been delivered at site. NEA has completed IEE study for the remaining part from Thimi substation to proposed Balkumari substation. Estimation and bidding document preparation is underway for the new Balkumari substation and 132kV underground transmission line from Thimi substation to Balkumari substation.

2.6 Mulpani Substation Construction Project:

The main objective of this project is to augment power supply capacity of Kathmandu Valley. Under this project, 132 kV GIS substation will be constructed at Kageshwari-Manohara Municipality near Baba Chowk, Mulpani. The project intends to cater the demand growth of eastern part of the Kathmandu district and after completion the substation will be able to supply the quality and reliable electricity to the consumers. Scope of this project includes construction of one GIS substation with 4 nos. of 132 kV line bays and power transformers of rating 132 kV, 2x45 MVA and 8 nos. of 11 kV outgoing feeders with other required facilities. LILO arrangement of existing Bhaktapur-Chapali 132 kV line will be done by constructing new towers in order to connect the substation to the NEA grid.

This project was initiated in fiscal year 2021/22 and is sub-project of ADB financed Electricity Grid Modernization Project (EGMP). For the execution, contract agreement was concluded on 21 August 2022. As of July 2024, major equipment such as power transformer, GIS switchgears, CRP & SAS, 11kV switchgears etc. has been delivered to the site and all the other remaining equipment are at manufacturing stage. Construction of control room cum GIS Hall building is currently undergoing. The project is expected to complete by November 2024.

2.7 Chobhar-Patan-Chapagaun Underground 132 kV Transmission Line Project

The main objective of this project is to construct 132 kV GIS substation at Patan with construction of 4.5 km length of 132 kV double circuit underground transmission line from Chobhar substation to Patan substation. The new 132 kV GIS substation will be interconnected to the existing 66/11 kV Patan substation located at the same area.

Under Construction Mulpani 132/11 kV Substation

The contract for constructing the underground transmission line from Chobhar SS to New Patan substation has been awarded to M/S Ravin Infraproject Pvt. Ltd., India while the contract for constructing the New Patan GIS substation has been awarded to M/S TBEA Co, LTD, China. Currently, after completion of survey, detail design engineering for both projects is underway.

2.8 Marsyangdi – Kathmandu 220kV Transmission Line Project

This project was conceptualized to evacuate the hydropower generation in Marsyangdi basin to Kathmandu valley as well as to reinforce INPS and improve the reliability of transmission system. The scope of this project includes construction of 82 km double circuit 220kV transmission line from Markhichowk, Tanahun to Matatirtha, Kathmandu and construction

of 220/132 kV substations at Matatirtha and Markichowk. The project received the loan assistance from ADB and grant assistance from Norwegian government under SASEC PSEP.

The scope of the project was divided into two packages. The first package included the construction of 82 km double circuit 220 kV transmission line with twin MOOSE ACSR conductor from Markhichowk, Tanahun to Matatirtha, Kathmandu. The transmission line was commissioned on 21 June 2022 and is currently in operation at 132 kV voltage level. The scope under second package is to construct new 220/132 kV GIS substation at Markichowk and 220/132 kV AIS substation at Matatirtha. Both the substations will have transformer capacities 320 MVA. Nearly 99% of work related with supply and delivery has been completed under this package while about 90% of civil works and 90% of erection and installation works has been completed. Works in Matatirtha Substation has been completed and the substation was inaugurated by Rt. Hon'ble Prime Minister Pushpa Kamal Dahal 'Prachanda' on 28th April 2024 (16th Baisakh 2081). The installation of GIS is undergoing in Markichowk substation and is expected to complete soon.

2.9 Samundratar-Trishuli 3B Hub 132 kV Transmission Line Project

The project 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. This project has received the loan financing from European Investment Bank (EIB) under SASEC PSEP. The major components of the project are Samundratar Substation with 2 nos. of 132/33 kV, 30 MVA and 2 nos. of 33/11 kV, 8 MVA transformers and 26 km double circuit 132 kV transmission line (including 3 km of four circuits; two circuits to be utilized by Upper Trishuli 3B HPP). Similarly, transformer capacity of Chaughada Substation was upgraded to 8 MVA in 33/11 kV level. The double circuit

220/132 kV Substation at Matatirtha

220/132 kV Gas Insulated Substation at Markichowk

transmission line has the capacity to evacuate 270 MW power generated from hydropower projects which will be transmitted to Trishuli 3B Hub Substation, which is in the final stage of construction in Pairebeshi, Nuwakot. The total cost of the project is estimated to be NRs. 1.55 billion. The physical and financial progress of the project till date is 99% and 96% respectively.

2.10 Borang-Lapang-Ratmate 220 kV Transmission Line Project

Objective of this project is the evacuation of electric power to INPS generated by the IPP's of Aankhu Khola Corridor & Budhigandaki corridor and thus helping to enhance the Integrated Power System of Nepal. The project is located in Dhading and Nuwakot districts. Cost of this project is estimated to be US$ 39 Million and funded by GoN and ADB under EGMP.

Scope of the project includes construction of 24 km 220kV double circuit transmission line with Twin MOOSE conductor from proposed Lapang

Samundratar 132/33 kV Substation

Biharthok substation to proposed Ratmate substation and construction of 24 km 132 kV double circuit Transmission Line with BEAR conductor from proposed Borang substation to proposed Lapang Biharthok substation along with the construction of Borang 132/33/11 kV AIS substation and Lapang Biharthok 220/132/33/11 kV GIS substation.

As of July 2024, land acquisition has been completed for both Borang and Lapang Biharthok substations. The check survey for 220kV transmission line has been completed and collection of cadastral information is in progress. The survey work at Ratmate halted prior due to local issues were completed after discussion with local authority. The layout design of Lapang Biharthok substation is completed and for Borang substation is in progress. The civil design for both substations is also ongoing. The construction of retaining wall & boundary wall and earthwork excavation in Lapang substation is in progress. The design drawings for different facilities are ongoing. The manufacturer's drawing of power transformer, conductor has been completed. The project is expected to be completed in March 2025.

2.11 Marsyangdi Corridor 220 kV Transmission Line Project

The project was formulated to evacuate the hydropower generation in the Marsyangdi river basin and its tributaries like Dordi, Chepe etc. The project will construct 113 km long Double Circuit 220 kV transmission line from Manang Substation (220/132 kV, 100 MVA & 132/33 kV, 30 MVA) at Dharapani, Manang to New Bharatpur Substation (220/132 kV, 320 MVA) at Aanpatari, Chitwan via Khudi Substation (220/132 kV, 160 MVA & 132/33 kV, 50 MVA) at Khudi, Lamjung, Udipur Substation (220/132 kV, 160MVA & 132/33 kV, 50MVA) at Udipur, Lamjung and Markichowk substation. EIB has agreed to provide loan assistance of $ 90 million to this project under SASEC PSEP. Scope of the project has been divided into three packages. The scope of the first package is to construct 67 km of 220 kV double circuit transmission line with twin ACCC Drake conductors from Udipur to Bharatpur. 220/132 kV substations at Udipur and Bharatpur are being constructed under second package. The third package consists of the construction of 46 km long 220 kV double circuit transmission line with twin conductors (ACCC Drake and ACSR Moose) from Dharapani, Manang to Udipur, Lamjung. This project is expected to complete by the end of FY 2081/82 (2024/25). The overall physical progress of the project till date is about 60%.

2.12 Dandakhet-Rahughat 132 kV Transmission Line and Associated Substation Project

This project intends to enhance the capacity of INPS by evacuating power from hydropower plants in Myagdi and Kaligandaki river basins.

Recently Erected tower in Khudi-Udipur Section in Lamjung District

Under Construction Khudi Substation

The project is located at Myagdi district of Gandaki Province. The 132 kV transmission line connects the Dadakhet Substation to Kaligandaki 220 kV transmission line through proposed Rahughat 220/132 kV substation under this project. The scope of the project comprises the following components:

- Construction of 25 km, 132 kV double circuit transmission line with CARDINAL conductor.
- Construction of a 132/33 kV, 30 MVA AIS Substation at Dadakhet, 220/132/33 kV, 200 MVA GIS Substation at Rahughat.

The project estimated cost is of NRs. 4.5 billion. The project has received the loan assistance from ADB under EGMP. The project has achieved the physical progress of 55% and financial progress of 45% till date. The project is expected to complete in F.Y. 2082/83. The land geology and the approach road to the substation has been a major issue for this project. Due to high gradient topology of land on Rahughat Substation, land development works is a great challenge. The delay in forest clearance has also delayed the project progress.

2.13 Kathmandu Valley Substation Automation Project

This project aims to transform the existing grid infrastructure of Kathmandu valley by embracing digitization, modernization, and centralized supervision and control. Upon completion, the project is expected to yield operational cost reduction, enhanced grid reliability, extended equipment lifespan and

Land Development Works
at Rahughat Substation

Construction works at Dadakhet Substation

improved operational efficiency through automations of substations of Kathmandu valley. The scope of the project is to install the substation automation systems in thirteen grid substations within the Kathmandu Grid Division. These substations will be fully automated and remotely operated from the Master Control Centre located at Baneshwor Substation. The project received the loan assistance from ADB under PTDEEP. The project has achieved the physical progress of 92% and financial progress of 85% till date. The expected completion date of project is September 2024.

2.14 Grid Substation Automation Project Phase 2

NEA is implementing this project to digitize all the grid substations outside Kathmandu valley i.e. remaining 132 kV and 66 kV substations of entire Nepal. This project is continuation to Kathmandu Valley Substation Automation Project. The scope of the project includes construction of 6 Master Control Centers (MCCs) at six grid division offices viz. Duhabi, Dhalkebar, Hetauda, Butwal, Pokhara and Attariya and installation of Substation Automation System (SAS) in 39 old grid substations and 15 newly commissioned substations in Nepal. Once completed the project will integrate 54 grid substations to LDC at Siuchatar and Backup LDC at Hetauda and at respective Master Control Centers constructed under this project that will help in automation and remote control and monitoring of grid substations.

The project will install state-of-art modern substation technology at all these substations including digital surveillance of major equipment at all the substations with motorized isolators, pilot fault detector systems, hot-line communication and SCADAs. It is expected that the project will ease the control and monitoring tasks, assist in easy preventive maintenance, and provide remote control of bays in the substations and assist in data collection of power system variables for future analysis. ADB has provided loan assistance to the project under EGMP. The project commenced from fiscal year 2078-79 and is expected to be completed by 2082-83.

2.15 132 kV Transmission Line Upgrading Project

This project was designed to enhance the power carrying capacity of existing Dhalkebar – Hetauda (about 138 km), Suichatar – Matatirtha (about 4.5 km), Suichatar – Teku (about 4.5 km) and Suichatar – Balaju (about 5 km) 132 kV transmission lines by replacing the existing ACSR conductor with High Temperature Low Sag (HTLS) conductors. ADB is financing its loan proceeds to this project under EGMP.

The contract agreement was signed on 30 May 2022. The conductor upgrading works has been completed so far in Hetauda to Piluwa section and in few kilometre sections inside the Kathmandu Valley. The project has achieved a physical progress of 59% and a financial progress of 57% till the end of fiscal year 2080/81.

2.16 Amlekhgunj 132kV Substation Construction Project

NEA is constructing 132/66/11 kV GIS substation at Amlekhgunj is to cater the growing electricity demand and to improve the reliability of electricity supply in Simara area in the Pathlaiya-Birgunj industrial corridor. The scope of the project includes the construction of 132 kV GIS substation with power transformers of 132/66 kV, 2x100 MVA and 66/11 kV, 2x10 MVA capacities with LILO arrangement of existing 132 kV Hetauda-Pathlaiya double circuit line and existing 66 kV Hetauda-Amlekhgunj-Simara double circuit line. The project is financially assisted by ADB through loan proceeds under PTDEEP.

The GIS Hall main structural work, installation of EOT crane has already been completed and other civil constructions are undergoing. Major equipment like power transformers, GIS

switchgears, CRP and SAS have already been delivered to the site. Other equipment like XLPE cable, Communication system and Steel Structure are in the process of manufacturing. The physical and financial progress of the project till date stands at 61% and 54% respectively. The project is expected to be completed by January 2025.

2.17 Hetauda-Parwanipur-Pokhariya 132kV Transmission Line Project

The aim of this project is to enhance the transmission capacity in Bara and Parsa districts for catering growing industrial electricity demand and to improve the reliability of electric supply in the region. The scope of the project is divided into three packages. First

Under Construction GIS Hall at Amlekhgunj Substation

package includes the upgradation of existing ACSR Bear conductor with equivalent size of HTLS conductor from Piluwa substation to Parwanipur substation with transmission line length of 17 km which will enhance the transmission capacity of line twice than existing. The second package is construction of a new 132/33/11kV substation at Pokhariya in Parsa and bay extension works at Parwanipur substation in Bara. The third package consists of construction of 21 km long 132 kV four circuit transmission line with ACSR Bear conductor from Parwanipur Substation to proposed Pokhariya substation. The project has received the loan assistance from ADB under SASEC PTDSSP. The overall physical and financial progress of the project stands at 10% at the end of fiscal year 2081/82.

2.18 Pangtan 132 kV Substation Project

The project is envisaged to evacuate approximately 300 MW hydropower generation in Balefi river basin of Sindhupalchowk district as well as to improve the reliability of electricity supply in the region. Project's scope of works includes the construction of 132 kV substation with transformer capacities of 132/33 kV, 30 MVA and 33/11 kV, 8 MVA. The 132 kV GIS bay extension works will also be carried out at Barhabise substation for transmission line interconnection to NEA grid. The project is receiving loan assistance from ADB under EGMP.

Design of almost all the equipment have been finalized and majority of the equipment have been delivered at site. Construction of approach road, compound wall fencing, and protection works have been completed whereas other civil works including construction of control building and staff quarters are under progress. Contract for the construction of substation was awarded on 22 July 2022 and the project work is expected to be completed within the end of July 2025.

2.19 Keraun 132 kV Substation Project

Objective of this project is to strengthen the electricity supply capacity and improve reliability electricity to meet growing electricity demand in the north-east part of Morang district. Scope

Control Building under construction at Pangtan Substation

of the project includes construction of 132 kV substation with LILO arrangement of Duhabi-Padajungi 132 kV transmission line at Keraun in Morang district. The substation will be installed with transformers with capacities of 132/33 kV, 2x63 MVA, 132/33 kV, 1x22.5 MVA and 33/11 kV, 2x16.6 MVA respectively. In addition to the substation, double circuit 33 kV distribution lines will also be constructed from Keraun to Rangeli with line length of 15 km and from Keraun to Biratchowk with line length of 25 km. The project is receiving loan assistance from ADB under EGMP.

As of July 2024, construction of boundary wall, staff quarter and guard house in substation has been completed. Most of the equipment foundation has been completed and finishing works is ongoing in control room building. On the supply side, CT, PT, VCB, LA and 33kV line materials has been delivered at the site. Steel tubular pole erection work is ongoing for 33 kV distribution line. The project is expected to be completed by the end of February 2025.

2.20 Arunkhola (Dumkibas) 132kV Substation Project

The Project is being implemented to improve the power quality and reliability of Nawalparasi (Bardaghat Susta-East) district. After the construction of this substation by looping in and out of Bardaghat-Sardi 132 kV DC transmission line at Tamang Gaun, the substation will be able to feed power to the industries nearby as well as to upcoming 33/11 kV substations. Furthermore, the 11 kV feeders emanated from the substation will reduce the length of feeders coming from other substations, hence improving both the voltage and reliability and reduce the distribution losses. Scope of the project includes construction of 132 kV AIS substation with transformers having capacity 132/33 kV, 2x30 MVA. The project has received loan financing from ADB under EGMP.

Equipment Foundation Works at Keraun 132/33kV Substation

The contract period is 24 months and as of July 2024, the design of civil structures like control room building, staff quarter, guard house, parking shed, store building, boundary wall, and equipment foundation has been completed. The construction work of the foundations of the civil structures are at final stage. Similarly, the electrical equipment like power transformers, isolators, BPI, LA, CVT are delivered to the site and the other equipment are at border for custom clearance. The project is targeted to complete by fiscal year 2024.

2.21 Ghorahi-Madichaur 132kV Transmission Line Project

The objective of this project is to evacuate the hydropower generation in Madi and Lungri river basins of Rolpa district. The project will also help in improving the reliability of electricity supply in Rolpa district. The project's scope comprises of construction of approximately 40km long 132 kV double circuit transmission line with ACSR Cardinal Conductor from Ghorahi substation (Dang) to proposed Khungri substation (Rolpa) and construction of 132/33/11kV, 30MVA AIS substation at Khungri along with 132kV bays extension at Ghorahi Substation. The total project cost is estimated to be US$ 20 million. ADB is providing loan assistance to this project under EGMP.

Most of the civil structures in Khungri Substation has already been completed. The soil investigation and check survey of the transmission line is also completed. Land has been acquired in Rolpa and Pyuthan districts for the tower foundations whereas the land acquisition process is ongoing in Dang district.

The tower foundation work has also been started. The physical and financial progress of the project stands at 25% and 15% respectively as of fiscal year 2080/81. The project is expected to complete in fiscal year 2082/83.

2.22 Kohalpur-Nepalgunj 132 kV Transmission Line Project

This project is initiated to increase the power supply capacity and to improve the quality and reliability of electricity supply of Nepalgunj area in Banke district. After construction of this substation at Bakaspur, Banke by looping in and out of existing Kohalpur-Mahendranagar 132kV double circuit transmission line near Rangila Chowk, the substation can feed power

Staff Quarter and Guard house Under Construction at Khungri Substation

to the industrial sector at Nepalgunj as well as to nearby 33/11 kV substations. Scope of the project includes construction of about 9 km long 132 kV transmission line in multi-circuit towers (4 curcuit) with ACSR BEAR conductor and 132kV AIS substation at Bakaspur with transformers 132/33 kV, 2x63 MVA of capacity. The substation will be interconnected to India through the 50 km long double circuit 132 kV transmission line to Nanpara, Uttar Pradesh. along with 2 future line bays.

The project was initiated in fiscal year 2075/076. The total cost estimate of the project is US$ 12 Million. The project has received loan financing from ADB under EGMP. The contract for the construction was awarded on 5 July 2023. As of July 2024, construction boundary wall and retaining wall is going and other civil drawings are under review. The equipment drawings like LA and Switchgears have been submitted for approval. On the transmission line part, check survey, cadastral survey and tower spotting is at final stage. The land acquisition for tower pad will be initiated soon. The project is expected to complete in fiscal year 2082/83.

2.23 New Butwal- Lamahi 400 kV Transmission Line Project

As a part of planned East - West backbone network of 400 kV transmission line, this project will enhance the transmission capacity in western Nepal and enhance the cross-border power exchange with India. Scope of the project is to construct 160 km 400 kV double circuit transmission line with quad ACSR MOOSE conductor from New-Butwal substation to proposed new 400 kV Lamahi substation. The line passes through five districts - Nawalparasi West, Rupandehi, Kapilvastu, Arghakhanchi and Dang of Lumbini Province. In addition to that, construction of Lamahi 400 kV Substation are also be carried out under the scope of this project.

As of July 2024, detailed project report has been finalized and Initial Environment Examination (IEE) has been approved. The bidding documents for transmission line and substation are being prepared. Furthermore, the project office has initiated the acquisition of private land for construction of Motipur 400 kV substation for second stage. The discussions with ADB is going on for the financial assistance for this project under new loan Electricity Transmission Distribution Strengthening Project (ETDSP) and the bids are expected to be invited within 2024.

2.24 Nijgadh- Ramauli-Pokhariya 400 kV Transmission Line Project

The objective of this project is to improve the capacity of NEA's transmission system to supply the reliable electricity to the industrial load centres in the Bara and Parsa districts

Soil Investigation at site

ADB consultants with NEA representatives during public consultation

of Nepal through construction of 400 kV transmission line and 400 kV substations at Ramauli and Pokhariya which will also facilitate the electricity trade with India.

The project scope includes the construction of 65 km of 400 kV transmission line from Nijgadh to Ramauli to Pokhariya. In the first phase, 38 km of 400 kV Double Circuit Transmission Line from Nijgadh to Ramauli and a 400/132 kV substation at Ramauli has been proposed. For the first part, ADB's loan assistance under ETDSP has been discussed and is in the final stage of approval.

In the second phase remaining 27 km 400 kV Double Circuit Transmission Line from Ramauli to Pokhariya and 400 kV substation at Pokhariya is proposed. The funding for this part is yet to be arranged.

2.25 Dailekh-Jumla 132 kV Transmission Line Project

This project intends to strengthen the electricity transmission capacity and supply improvement in Jumla district of Karnali province and nearby areas. The scope of this project includes the construction of Dailekh to Jumla 132 kV double circuit transmission line (82 km) with ACSR BEAR conductor plus construction of 132/33/11 kV 60 MVA GIS substation at Jumla and Kalikot. The design and IEE study of the project has been completed and the bidding documents are being prepared. NEA intends to utilize the financial assistance of ADB under ETDSP for the implementation of this project and the contract award is expected in F.Y. 2081/82.

2.26 Okharpauwa-Tinpiple 220kV Transmission Line and Substation Project

This project aims to enhance the electricity transmission capacity of Kathmandu and improve the supply reliability in Northern part of Kathmandu valley. This project is also a part of the planned Kathmandu 220 kV ring main. The scope of this project includes construction of Tinpiple 220/132/66/11 kV substation (total transformer capacity of 586 MVA) plus LILO arrangement of Trishuli-Matatirtha line through a quad circuit 220 kV line (4 km). This project is also a part of the forthcoming ADB's financial assistance under ETDSP. The bidding documents are being prepared and the bids will be invited soon.

2.27 Nepalgunj 132kV Transmission Line LILO and Substation Project

The objective of this project is to reinforce the transmission capacity and enhance the supply reliability in Nepalgunj area. The scope includes

the construction of LILO arrangement of Nepalgunj to Nanpara 132 kV transmission line on quad circuit towers (6 km) plus construction of a new 132/33 kV GIS substation in Nepalgunj city (upgradation of existing 33/11 kV substation) with total transformer capacity of 60 MVA. Project will be financed by ADB under ETDSP. The bidding documents are prepared, and the bids will be invited soon.

2.28 New Butwal and Kushma Substation Expansion Project

This project aims to enhance the transmission capacity and reliability in Butwal and Kushma areas by expanding existing New Butwal and Kushma 220/132 kV substations. The scope in New Butwal substation includes installation of new 2 x 315 MVA 220/132 kV transformer plus new 132/33/11 kV transformers with total transformer capacity of 170 MVA. In addition, new 33 kV and 11 kV feeders will be constructed. On the Kushma substation part, new 132/33 kV 63 MVA transformer will be installed. ADB is expected to provide loan assistance to this project under upcoming ETDSP. The design and bid document preparation have been completed. The bids will be invited in 2024.

2.29 Engineering and Environmental Study New Butwal- Lamahi-Dododhara- New Attariya 400 kV Transmission Line Project

This is a study project for the development of a part of East - West backbone network of 400 kV transmission line. Under this project, NEA is conducting the detail due diligence study of 400 kV transmission lines and substations in the western part of the country i.e. from Lamahi (Rihar) to New Attariya (Daijee) with ADB Grant assistance under Project preparatory Facility for Energy (PPFE).

The focus of New Butwal - Lamahi - Kohalpur - New Attariya 400kV transmission line is to increase transmission capacity in western side of the country for both domestic use and cross-border exchange of electricity.

Power Grid Corporation of India Limited has been awarded the consulting works of the detail engineering and complete design of 400 kV transmission line and associated substations along the route. As of now, the consultant has already submitted the detailed engineering reports (Survey, geotechnical, design of tower & foundations, substation design, bidding document) of the transmission line and associated substation.

New Butwal-Lamahi Transmission Part

New Butwal – Lamahi 400 kV transmission line with approximate length 160 km which is distributed within 5 (five) districts namely Nawalparasi West, Rupandehi, Kapilvastu, Arghakhanchi and Dang of Lumbini Province. This line originates from New Butwal Substation located in Badera of Nawalparasi West District and will pass through Motipur Substation (Kapilvastu District) and will terminate at Lamahi (Rihar) of Dang district. Further to that construction of Motipur and Lamahi 400kV Substations are also envisaged under the scope of this studies.

The study of this section is completed and entered into construction phase. NEA has requested the loan assistance from ADB for implementation of this project (except Motipur 400 kV substation). For Motipur substation, the financial arrangement is yet to be finalized.

Lamahi-Dododhara-New Attariya Transmission Part

The TOR for Lamahi - Chhinchu 400 kV TL and Dododhara-New Attariya 400 kV TL has already been approved from Department of Electricity Development (DoED) and the other remaining field activities/works for the finalization of IEE are on-going.

The detail study on due diligence related activities and engineering design is targeted to be completed by September 2024. The transmission lines and substations that are being studied are as follows:

Transmission Lines:

- Lamahi (Rihar) - Chhinchu 400 kV Transmission Line (about 100 km);
- Chhinchu – Dododhara (New Lamki) 400 kV Transmission Line (about 90 km);
- Dododhara (New Lamki) – New Attariya (Daijee) 400 kV Transmission Line (about 104 km);

Substations:

- Chhinchu 400 kV substation.
- New Attariya 400 kV substation.

2.30 Engineering and Environmental Study of other Transmission Lines and Associated Substations

NEA is utilizing the grant proceeds from ADB under PPFE for detail engineering and environmental studies of three 400 kV transmission lines, two 132 kV transmission lines and associated substations. The study is divided into three following packages:

Package-1 (CP-01):

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

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

Package-2 (CP-02):

i. The 400kV Double circuit Budhigandaki Corridor (Philim - Gumda – Ratamate -approximately 95 km) transmission line and associated 400 kV substations at Philim/Gumda (Gorkha District) and 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. Phukot-Kalikot 132 kV Transmission Line (approx. 30 km) is also under study in the same package.

iii. 132 kV Double circuit Lamosanghu -Kavre/ Ramechap (approx. 40 km) transmission line and associated Substations at the border area of Kavre/Ramechhap and associated 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 associated 400 kV substations at Kusma, Burtibang and Bafikot and 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 were signed between NEA and Power Grid Corporation of India Limited, India in association with Jade Consult Pvt. Ltd., Nepal (the Consultant) in November 2019. The contracts became effective in February 2020. 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.

2.31 Engineering and Environmental Study of Dudhkoshi-Dhalkebar 400 kV Transmission Line Project

This project is currently conducting the feasibility and environmental studies of Dudhkoshi-Dhalkebar 400 kV double circuit transmission line that will help in evacuating the power generated from the Dudhkoshi Storage Hydroelectric Project and other

hydropower projects in the vicinity. ADB has provided financial support for the studies. DPR preparation and IEE study is ongoing, and the progress so far stands at 80% and 70% respectively. The transmission line will have a line length of approximately 82 km from Dudhkoshi Storage powerhouse located in Halesi Tuwachung Municipality-8, Khotang to the existing Dhalkebar Substation located in Mithila Municipality-7, Dhanusha.

2.32 Power Transmission System planning of 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. Therefore, there is no alternative to upgrading the capacity of existing transmission lines and substations as well as construction of new transmission lines and substations. The power transmission infrastructures require a lot of land and right of way along the line. It is very hard to find the land and RoW in the cities to construct transmission infrastructures which will be an evident problem in the future. Hence, NEA has decided to plan the transmission infrastructure considering the future demand of electricity till 2050 and develop infrastructure accordingly phase wise in the major cities. Similarly, it has become essential to find some alternatives to avoid land and RoW problems in transmission infrastructure by adopting modern practices like underground transmission line, compact substation, transmission system using monopoles, etc.

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

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)
g) Nepalgunj and Kohalpur Cities (in Banke District)

The contract was signed on 2nd April 2021 between NEA and WAPCOS Limited, India which became effective on 21st 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 is under progress for the original scope of works under the contract.

Following group of cities is included further as an additional scope in the Contract awarded to WAPCOS 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
d) Birendranagar City in Surkhet District

All the tasks under the scope including the additional scope of the works are planned to be completed in December 2024.

3. Distribution Line and Substation Department (DLSD)

Distribution Line and Substation Department (DLSD) within PMD facilitates the execution of 33 kV or lower voltage distribution line and substation projects. The department is also looking after the smart meter projects, data centre projects, off-grid solar plant with BESS in Karnali, solar VGF and EV charging station projects.

3.1 Distribution System Augmentation and Expansion Project

This project was initiated to augment and expand the distribution system all over Nepal to improve reliability of distribution system, enhance quality of electricity supply and reduce distribution system losses. The project is assisted financially by ADB through loan proceeds under SASEC PSEP. The project is being executed in following 3 lots of contracts:

Lot 1: This lot of contract intends to expand distribution network in the eastern region of Nepal. The scope of this contract consists of construction of 13 numbers of 33/11 kV new substations, 167 km of 33 kV line, 197 km of 11 kV line, 165 km of 400/230 V line and installation of 150 numbers of 11/0.4 kV distribution transformers. The contract was awarded to M/S A2Z Infra Engineering Limited,

Chisapani Substation, Ilam

India on 15 June 2016. Out of total 13 numbers of substations, 9 substations have been commissioned & charged and has contributed to 67 MVA additional capacity into the system. Similarly, a total of 140 km of 33 kV line, 95 km of 11 kV line and 87 km of 400/230V line has been completed and 35 number of distribution transformers have been installed till date. The project is expected to be completed by the end of 2024.

Lot 2: This contract lot intends to expand distribution network in the western region of Nepal. The scope of this contract consists of construction of 12 numbers of 33/11 kV new substations, 181 km of 33 kV line, 147 km of 11 kV line, 140 km of 400/230V line and installation of 182 numbers of 11/0.4 kV distribution transformers.

Khairenitar Substation, Tanahu

The contract was awarded to M/S A2Z Infra Engineering Limited, India on 15 July, 2016. Out of total 12 numbers of substations, 11 substations have been commissioned & charged and has contributed to 63 MVA additional capacity into the system. Similarly, a total of 160 km of 33 kV line, 97 km of 11 kV line, 65 km of 400/230 V line has been completed and 35 number of distribution transformers have been installed till date. The project is expected to be completed by the end of 2024.

Lot 3: This contract lot intends to improve the distribution network all over the country. The scope of this contract consists of 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.

3.2 Tanahu Electrification Project

This project intends to electrify and improve the networks of the nearby villages which will be affected by the Tanahu Hydropower Project and is financed by ADB through Loan No.2990/2991-NEP (SF): Tanahu Hydropower Project. The scope of this project consists of 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

Ghiring Substation

of 400/230V line and installation of seventy (70) nos. 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.

3.3 Utility Scale Grid Tied Solar Project

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

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

3.4 Karnali Solar Energy Project

This project intends to supply electric power to Mugu, Dolpa, Jumla an Humla districts in Karnali province of Nepal through grid tied solar power plants with Battery Energy Storage System (BESS). The scope of the project includes design, supply, installation, testing, commissioning and operation & maintenance support of Solar PV Power Plants with BESS at 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 project has received grant from ADB under SASEC PSEP. The topographical survey report and general plant layout of all four sites has been submitted. The contractor selection for the implementation of the project has been completed. The civil construction and installation work of the project is likely to start by September 2024.

3.5 Kathmandu Valley Central and Northern Distribution System Enhancement Project

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

Overhead termination of Underground Cables

distribution network under Maharajgunj Distribution Center including reinforcement. ADB provided loan assistance to the project under PTDEEP.

The contract agreement was signed on 15 March 2019 with KEI Industries Limited, India. As of now, 110 km of trench work, 578 km of pipe laying, 185 km of HT cable, 331 km of LT cable and 2401 numbers of different foundation for feeder panels/RMU has been completed in Maharajgunj,Bansbari,Baluwatar, Budhanilkantha, Chapali, Mandikhatar, Kapan Village Bishnumati Corridor, Baniyatar, Ranibari, Dhumbarahi, Dhapashi, Hepali Height Basundhara, Samakhushi area. Due to unavailability of road cutting permission from the road department, about 25% of the road section of the project is yet to be started. This project is expected to be completed by end of 2024.

3.6 Kathmandu Valley East and South Distribution System Enhancement Project

The project aims to enhance, rehabilitate and automate the distribution system (11 kV and 0.4 kV networks) of the areas Ratnapark Distribution Center. The scope of the project includes the construction of underground 11 kV Line with 256 km XLPE cable & underground 400 V Line with 430 km XLPE cable, underground optical fiber laying: 94 km, construction and upgrading of 11 kV overhead line by AB Cables, installation of service pillars and Ring Main Units (RMUs). Loan assistance was provided by ADB to the project under PTDEEP.

The contract agreement was signed on the 15 March 2019. Till date, 227 km HT cable laying, 345 km LT cable lying has been completed in Chabahil, Gaushala, Airport, Tinkune, Paniphokari, Lazimpat, Koteshwor, Nayabazar, Thamel, Garidhara, Dhobikhola Corridor, Teku, Tripureswor, Samakhusi, Lainchaur, Maitidevi, Dillibazaar, Putalisadak area. Cable, Pipe laying and foundation for panels/RMU for remaining

HDD Work in Process

area is in progress. The project suffered delays due to effect of Covid-19 pandemic and inadequate road cutting permission. The project is expected to be completed by end of 2024.

3.7 Kathmandu Valley Smart Metering Project

The Kathmandu Valley Smart Metering Project (Phase-I) marks the first-ever smart metering initiative designed to cover all classes of NEA consumers. This project enables the distribution business modernization leading to reduced distribution losses and improved overall efficiency of the distribution system. The scope of this project was to roll-out the smart meters to the consumers served by the Ratnapark and Maharajgunj distribution centers- as a pilot project. ADB provided loan assistance to the project under PTDEEP.

The project has successfully installed 97,000

Installation of Smart Meter at Residential Consumer

smart meters and established state-of-the-art Advanced Metering Infrastructure (AMI) infrastructure to modernize the distribution system. The project's key components on the software part 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 AMC/FMS and technology transfer phase. 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.

3.8 Kathmandu Valley West Distribution System Enhancement Project

This project intends to enhance, rehabilitate and automate the distribution system (11kV and 0.4kV distribution networks) for the consumers being served by Kirtipur, Kuleshwor, Baneshwor, Balaju and Jorpati Distribution Centres. The scope of the project includes Design, Supply, Installation and Commissioning of Underground Distribution Network using Trenchless boring methodology in the areas covered by the project. The project also covers the service connection work in Maharajgunj and Ratnapark Distribution Centres. ADB extended its loan assistance to the project under PTDSSP.

The contract was awarded on 24 June 2020. As of now 110 nos. of RMUs, 440 nos. of Feeder Pillars and 1200 nos. Service Pillars has been installed. HDPE pipe laying of 500 km., HT & LT XLPE Cable laying of 340 km and service cable laying for 14000 customers has been completed. Among the installed equipment, 70 nos. of RMU, 160 nos. of Feeder Pillars, 450 nos. of Service Pillars, 140 km of XLPE Cables and around 3000 service cables are charged and operational. The project is expected to complete on 31 March 2025.

3.9 Lalitpur Bhaktapur Distribution System Reinforcement Project

The project aims to enhance and rehabilitate the existing distribution system, incorporating automation for the areas under the Lagankhel, Pulchowk, Bhaktapur, and Thimi Distribution Centers. The major work includes constructing 120 circuit km of underground 11 kV lines and 100 circuit km of underground 400 Volt lines. Additionally, it involves laying 120 km of underground optical fiber and upgrading 100 circuit km of 11 kV overhead lines with ABC Cable. The project also focuses on constructing and upgrading 120 circuit km of 400 Volt overhead lines with ABC Cable and installing 200 Ring Main Units (RMUs). The project is loan assisted by ADB under PTDSSP.

Contract was awarded on 4 June 2021. As of

RMU Installation

July 2024, the survey of the existing network and consumer indexing has been completed. Soil investigation, source approval, and testing of civil materials are also finished. The foundation design for LT feeder pillars has been approved. The HT and LT network design (working drawings) for the approved routes in Bhaktapur and Lalitpur is completed. Network reconfiguration of the existing system has been carried out to minimize route length and reduce losses. The physical progress of the project stands at 40 percent while financial progress is 37 percent. The progress is suffering delays due to RoW issues for panels and transformer post, safety concerns from public and subsequent hindrance, hurdles from other utilities and reluctance from concerned authorities to grant the required.

3.10 Pokhara Bharatpur Distribution System Reinforcement Project

This project aims the enhancement of distribution system and/or rehabilitation of existing distribution system (33 kV, 11 kV and 0.4 kV) with the provision of automation for the areas under Pokhara and Bharatpur Distribution Center. The scope of the project is divided into two sections - Pokhara and Bharatpur. The work in Pokhara section includes construction of 127 km 11 kV and 77 km 400 Volts underground lines, underground optical fiber laying of 55 km, construction and upgrading of 5 ckt. km. 11 kV overhead line by AAA Cable, 73 nos. of RMU and 933 nos. of LT Feeder pillar installation. Work under Bharatpur Section includes underground 33 kV Line: 12 circuit km, underground 11 kV Line: 88 circuit km & underground 400 Volt Line: 48 circuit km, underground optical fiber laying: 28km, Construction and upgrading of 11kV overhead line by AAA Cable: 12 circuit km & 400 Volt overhead line by AB Cable: 4.5 km and RMU and LT Feeder Pillar installation: 60 and 371 numbers respectively.

The contract agreement was on Oct 10, 2021. As of now in Pokhara, more than 115 km of HDPE pipe and over 16 km of PLB pipe has been laid using open trench techniques, primarily around the Kudahar substation and Lakeside area. In total 40 km of the HT & LT cable has been laid. Some RMU's along with 350 LT Feeder pillar has been installed. Similarly, in Bharatpur section, laying of 130 km HDPE and around 30 km of PLB pipe has been completed. Additionally, 31 km of 33 kV XLPE cable has been laid along with over 52 km of 11 kV and LT cables. Also, 30 RMUs and over 220 LT Feeder pillar has been installed. With the overall project progress at 60%, the major tasks in both Pokhara and Bharatpur sections are anticipated to complete within the current fiscal year.

3.11 Rural Electrification and Distribution System Rehabilitation Project in Province No.2 (Madhesh Province)

This project aims to reinforce and expand the distribution networks and improve the quality and reliability of electricity supply in Madhesh Province of Nepal. The project has received the grant assistance from Norwegian Government and loan assistance from ADB under PTDSSP. The project area includes 8 districts of Madhesh Province viz. Siraha, Saptari, Dhanusha, Mahottari, Sarlahi, Rautahat, Bara and Parsa. The scope of project has been divided into following five lots:

Lot 1: The scope of works consists of construction of six completely new 33/11 kV substations and 97 circuit km of 33 kV line at Saptari, Siraha and Dhanusha districts. Construction of substation including control building, staff quarter is undergoing in all 6 substations. 90% of substation materials have been delivered at site. Construction of 33kV Distribution line is ongoing in different areas.

Lot 2: The scope of works consists of construction of four completely new 33/11 kV substations and 226 km of 33 kV line at Mahottari, Sarlahi, Rautahat, Bara and Parsa districts. Construction of substation including control building, staff quarter is undergoing in

all 4 substations. 90% of substation materials have been delivered. Route survey has been done for 33 kV transmission line.

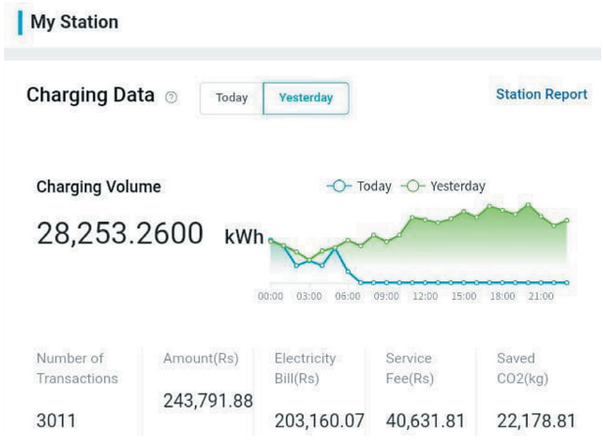
Lot 3: The scope of work consists of construction of 250 circuit km of 11kV, 320 circuit km of 400/230V line and installation of 170 nos. distribution transformers at Saptari and Siraha districts. Supply of almost 5500 nos. of concrete poles has been done. At present, stringing of almost 40km line has been completed.

Lot 4: The scope of work consists of construction of 360 circuit km of 11 kV, 350 circuit km of 400/230 V line and installation of 175 nos. of distribution transformers at Dhanusha, Mahottari and Sarlahi districts. Supply of almost 5000 concrete poles has been done. At present, stringing of almost 30km line is completed.

Lot 5: The scope of work consists of construction of 340 km of 11 kV, 330 km of 400/230V line and installation of 175 nos. of distribution transformers at Rautahat, Bara and Parsa districts. Supply of almost 2000 concrete poles has been done. At present, stringing of almost 30 km line is completed.

3.12 Electric Vehicle Charging Station Infrastructure Development Project

The objective of this project is to enable mass adoption of electric vehicles (EVs) in Nepal by establishing the EV fast charging infrastructure throughout the nation. The project received loan assistance from ADB under PTDSSP. The project has successfully installed 51 charging stations across the country. The average daily electricity sales from EV charging stations have reached 25,000 units. Additionally, 11 more charging stations are scheduled to be installed in various locations in Nepal by August 2024. These new stations will be distributed across 8 different locations, further expanding the network and accessibility of electric vehicle charging infrastructure in the country.



Snapshot of electricity sales at NEA's EV charging stations in a day

3.13 Distribution System Control and Data Center Project

This project intends to develop of a Supervisory Control and Data Acquisition System (SCADA), Distribution Management System (DMS) and Outage Management System (OMS) for underground electricity distribution system within Kathmandu valley alongside the establishment of a Tier III international standard Data Center for NEA. ADB has provided loan assistance to the project under EGMP.

Servers at Data Center

Distribution System Control Room

The project aims to integrate 30 Remote Terminal Units (RTUs) across various substations and switching stations within the Kathmandu, Pokhara and Bharatpur to the Distribution Control Center (DCC) along with associated communication equipment. Currently, there are 24 distribution substations and switching stations in the Kathmandu valley. RTU installation has been completed in 10 substations. For the remaining substations/ switching stations, the RTU installations are in progress. The Data Center facility was officially inaugurated on 28 June 2024 and is ready for operation. NEA also has a plan to build a Disaster Recovery Centre outside Kathmandu Valley as a backup to this Data Centre.

3.14 Kathmandu Valley Smart Metering Project Phase II

This project is a continuation to smart metering project Phase I and aims to modernize the remaining distribution system throughout Kathmandu valley. Through this project, NEA intends to rollout additional 5,50,000 smart meters to the consumers of remaining nine distribution centres (Thimi, Pulchowk, Bhaktapur, Kirtipur, Kuleshwor, Lagankhel, Baneswor, Jorpati and Balaju) inside Kathmandu valley and integrate them into AMI system of NEA. The project is supposed to utilize the loan proceeds of ADB under forthcoming ETDSP.

3.15 Disaster Recovery Center Project

This Project aims to fulfil the disaster recovery plan for Data Centre. If the main data centre in Syuchatar fails to operate due to natural or any other kind of disasters, this Disaster Recovery Centre (DRC) will help in recovering the data and resuming the services. NEA plans to construct the DRC building in the premises of New Butwal substation in Butwal. Redundant optical fibre connection will be arranged to establish the communication link between main data centre and DRC. Project has already completed survey of optical fibre route and civil design part. RFP document is being prepared. The financial assistance of ADB under the forthcoming ETDSP will used for the implementation of this project.

3.16 Digital NEA and SCADA Expansion Project

The objective of this project is to ensure the optimization of the existing OPGW network by using hardware and software technologies which will enable NEA to establish seamless connections between various substations, network elements, offices, data centers, disaster recovery centers, load dispatch, and distribution command control centers. The priority will be to extend the OPGW to 33 kV substations and identify nearby offices/locations, check network extension feasibility, and decide the best available telecommunication network option for NEA.

The scope of works includes optimization and extension of OPGW network, software solutions procurement, SCADA and RTU implementation at distribution substations and augment the communication network of NEA. The bidding documents are being prepared and the contract is expected to be awarded in F.Y. 2081/82. The project is expected to use ADB's loan proceeds from upcoming ETDSP.

3.17 Karnali Province Distribution Expansion Project

The objective of this project is the last mile electrification in Karnali Province. This project intends to ensure that none in Karnali is left behind in getting access to electricity. The anticipated scope of the project is construction, augmentation of 45 km 11 kV distribution line in Jumla bazaar and surrounding area, rehabilitation of Karnali distribution network including construction/ upgrading of 700 km of 33 kV, 11 kV and low voltage lines and installation of 100 distribution transformers. The contract will be awarded in F.Y. 2081/82. This project will also be assisted by ADB under ETDSP.

4. Institutional Strengthening Project (ISP)

This project was initiated with the objective of modernizing and digitizing NEA's financial operation and planning by embracing IT tools to increase operational efficiency and to help in Management Decision Support Systems. The scope of ISP is divided into three packages: (i) Supply and Installation of Revenue Management System (RMS) (ii) Supply and Installation of Enterprise Resources Planning (ERP) based Integrated Financial Management Information System (IFMIS) and (iii) Project Management Consultant (PMC) for the supervision of implementations of IFMIS and RMS at NEA. ADB has supported these packages by providing loan assistance under EGMP- Additional Financing.

Contract has been awarded to M/s LongShine Technology Group Co. Ltd, China for the "Supply and Installation of Revenue Management System (RMS)". The works commenced from 12 March 2023 and its major milestones: Requirements Gathering, Updated FRS verification, System Customization, Data Cleansing, Finalizing Data Governance List, Piloting of Data Digitization of consumers' legacy documents, pre-UAT workshops and Installation & commissioning of IT infrastructure and related software in NEA's Data Center at Syuchatar have already been completed. User Acceptance Testing (UAT) of the system is ongoing. The project is supposed to be completed within next six months.

IT infra for RMS in NEA's Data Center at Syuchatar.

On the Integrated Financial Management Information System (IFMIS) package i.e. implementation of ERP in NEA, the cost estimate and bid document is in the final stage.

The Project Management Consultant (PMC), M/s Deloitte Touche Tomatsu India LLP is already on-board and is currently assisting the Project Management Office in supervising the implementation of RMS.

5. Social Safeguard and Environment Management Department (SSEMD)

SSEMD is responsible for monitoring and implementation of the social safeguards and environmental mitigation measures in the projects undertaken by PMD. The department also prepares the environment and social monitoring reports for the projects under PMD as per the ADB requirements. Further, the department conducts the public consultation, public hearing, trainings and awareness programs in the project areas. SSEMD also implements the Gender Equality and Social Inclusion (GESI) related activities in different projects.

The major works accomplished by SSEMD in fiscal year 2080/81 are as follows:

- Avian protection (Vulture) study of Ghorahi - Madichaur 132 kV transmission line. The report of the study is cleared by ADB.
- Third party External Social Monitoring and Evaluation Reports of SASEC-PSEP and PTDEEP completed and submitted to ADB
- Establishment of Environmental and Social Management Unit (ESMU) at Dadakhet – Rahughat 132 kV Transmission Line project and Environmental and mobilization of social safeguard officers.
- Avian Protection (Vulture) Study of Tanahu Rural Electrification project. The report of the study is cleared by ADB.
- Trainings on Environmental Conservation and Awareness completed under Safeguard Implementation and Mitigation Measures of Tanahu Rural Electrification Project.
- Agreement made with consulting firm for mobilizing experts for ESMU of different projects under EGMP and mobilization of experts is in process.
- Updated IEE study of Parwanipur – Pokhariya 132 kV transmission line project. Report prepared and submitted to DoED.
- IEE of proposed PMD's office building as

per EPR 2077 and Working Guidelines of Chandragiri Muncipality 2079, report approved by Municipality.

- Environmental and Social Due Diligence Report of Syuchatar – Balaju 132 kV DC Transmission Line. Report prepared and submitted to ADB.
- Establishment of ESMU at Lapang for Borang – Naubise (Ratmate) 220 kV Transmission Line project and Environmental and Social safeguard officers have been mobilized.
- Awareness programs conducted on Occupational Health & Safety, placement of Hoarding Boards and distribution of Requested Materials to different stakeholders under community support program at Dadakhet – Rahughat 132 kV TLP.
- Distribution of Requested Materials to different stakeholders under community support program at Tanahu Rural Electrification project.
- Plantation program at Shwet Barahi temple premises on World Environment Day (June 5).
- Grievance Redress Mechanism related activities have been conducted at different project locations.
- Awareness program conducted on Safe and Efficient Energy Use at Mulpani and Chobhar under EGMP.

Training at Tanahu

BUSINESS DEVELOPMENT DIRECTORATE

The Business Development Directorate, headed by the Deputy Managing Director, manages energy efficiency, loss reduction, power trading, and renewable energy studies. It consists of two departments, Energy Efficiency and Loss Reduction, and Power Trade, each led by a Director, as well as the Company Management Division and Business Promotion Division. Administrative functions are handled by the Administration Section.

Energy Efficiency and Loss Reduction Department

The Energy Efficiency and Loss Reduction Department focuses on enhancing both supply and demand sides of electricity distribution. It collaborates with government bodies, NGOs, and INGOs to develop and implement energy efficiency policies and programs. Key tasks include data collection, analysis, and reducing technical and non-technical losses through three divisions.

A. Energy Efficiency Division

Smart Street Light Projects

This division manages the implementation of smart street lights, including projects in four Metropolitan Cities, one Sub Metropolitan City, ten Municipalities, one Rural Municipality and Arniko Highway.

A total of 11,817 smart street lights and 56 High Mast/Mini Mast Lights have been installed. Ongoing projects include a Phase-II smart street light installation in Bharatpur Metropolitan City, featuring automated lighting controls and centralized monitoring.

Future projects and initial surveys for other local bodies are underway, including research on façade lighting for Nepal's monumental and historical sites.

Completed Smart Street Lights Project

Project Location	Smart Street Lights (nos)	Mast Lighting (nos)
Metropolitan City		
Bharatpur	1865	8
Kathmandu	2090	0
Lalitpur	2045	12
Pokhara	2011	12
Sub-Metropolitan City		
Dhangadhi	432	0
Municipality		
Belaka	54	2
Bhimdutta	29	6
Bhimeshwor	75	2
Budhanilkantha	1165	0
Kankai	138	4
Madhyapur Thimi	442	0
Mahalaxmi	384	0
Manthali	265	2
Phidim	216	0
Siddharthanagar	275	5
Rural Municipality		
Sunapati	331	3
Total	**11817**	**56**

Upcoming Smart Street Lights Project

SN	Project Name
A	**Metropolitan City**
1	Lalitpur Metropolitan City
2	Ring Road (Lalitpur Metropolitan City)
B	**Sub Metropolitan City**
3	Dhangadhi Metro Politan City
4	Hetauda Sub Metro Politan City
C	**Municipality**
5	Baglung Municipality
6	Barhathawa Municipality
7	Galyang Municipality
8	Godawari Municipality , Kailali
9	Kirtipur Municipality
10	Madhyapur Thimi Municipality
11	Pyuthan Municipality
12	Ratnanagar Municipality, Chitwan
13	Resunga Municipality
14	Sainamaina Municipality
15	Sworgadwari Municipality
D	**Others**
16	TU Kirtipur
17	Araniko Highway
18	Samudayik Chikistasalaya, Nawalpur

Kathmandu: Smart Street Lighting

Pokhara: Smart Street Lighting

Lalitpur: High Mast Lighting

Bharatpur: Narayani Bridge Lighting

Public Charging Station:

The Energy Efficiency and Loss Reduction Department verifies the technical suitability of public chargers. Entities wishing to set up a public charging station must submit a request via Google Form. After inspection, the department issues a recommendation letter to the DCS, which then constructs an HT line, provides a transformer (up to 200 kVA), and installs a TOD meter as needed. This fiscal year, the department has facilitated the installation of around 163 public charging stations. Till the date, the department has facilitated deployment of 186 public charging stations.

Public Charging Station in Saptari

B. Loss Reduction Division

The division is responsible for monitoring loss reduction and demand control activities at distribution centers. It plays a crucial role in combating electricity theft using information from consumers and other sources. Activities include planned and random meter inspections, field raids, and addressing issues like theft, pilferage, tampering, demand leakage, CT/PT outages, and incorrect MF calculations. The division also downloads and analyzes TOD meter data in coordination with the TOD section.

In fiscal year 2080/081, the division aimed to inspect 370 TOD meters and 1,850 whole-current/digital meters, focusing on industrial consumers. It also carried out additional inspections as directed by the Managing Director and conducted intensive field visits, contributing to increased revenue collection.

Meter inspection during FY 2080/081

S.N.	Total Number of DCS visited	No. of Whole current/ Digital meter Inspection	TOD meters inspection	Unit Recovered kWh	Amount collected/ billed Rs.
1.	33	1,494	172	3,94,930.82	43,81,836.51

C. Safety Management Division

Established in April 2024 under the Energy Efficiency and Loss Reduction department, the Safety Management Division focuses on:

a. Electrical, Mechanical, Civil safety standard and guidelines preparation
b. Training and Development safety officer and employees
c. Safety awareness programs
d. Safety Monitoring and Evaluations

Power Trade Department

Power Trade Department oversees the trading of electric power in both domestic and across the border. It serves as the main interface of NEA with Independent Power Producers (IPPs) for handling their applications for Power Purchase Agreement (PPA).

The department's functions are categorized into three main areas: processing and signing of PPAs, administration of PPAs before and after commercial operation begins.

In the fiscal year under review, several reforms were introduced to streamline and increase transparency in the PPA application process. Applications are processed sequentially based on pre-defined criteria.

This involves stages such as document screening, technical review, grid impact studies leading to grid connection agreements, preparation and negotiation of PPA drafts, seeking approval from NEA management, approval from the Electricity Regulatory Commission (ERC), and finally, signing the PPA.

During FY 2080/81, 463.26 MW of power was connected to the national grid. PPAs were signed for a total of 2,286.3 MW across 55 hydropower projects and 90 MW for 8 solar projects. Detailed project statistics are summarized below:

	Addition in FY 2080/81		Total as of FY 2080/81	
	No. of Projects	Installed Capacity (MW)	No. of Projects	Installed Capacity (MW)
Operation	**23**	**463.26**	**182**	**2,496**
Under Construction	14	740.34	137	3,906
Different Stages	**63**	**2,376.30**	136	3,899
Total			**455**	**10,301**

The Energy Mix for signed and processing PPAs is detailed as follows:

	PPA Signed		PPA Processing	
	No.	Installed Capacity (MW)	No.	Installed Capacity (MW)
ROR	**378**	**6,491**	**164**	**3,926**
PROR	**44**	**3,458**	**39**	**6,267**
Storage	**1**	**140**	**4**	**3,080**
Bagasse	**2**	**6**		
Solar	**30**	**205**		
Total	**455**	**10,301**	**207**	**13,273**

In April 3, 2023, a RfP (Request for Proposal) was issued for the selection of developers to establish 800 MW Grid-connected Solar PV Power Projects in Nepal via tariff-based competitive bidding. The evaluation and PPA signing for these projects will occur in FY 2081/82.

Nepal has been actively participating in the Indian Power Exchange (IEX) since May 1, 2021, enabling power imports and exports. Notably, from November 3, 2021, Nepal began selling power to India through NTPC Vidhyut Vyapar Nigam (NVVN) via Indian Energy Exchange (IEX).

Significant progress was also noted in Cross Border Power Trade during FY 2080/81, with approved export quantum reaching 690.50 MW to date. Details are provided in the table below:

Status of Approval for Sale of Power to India

	No. of Projects	Approved Quantum (MW)	TL Network
Indian Power Exchange Market (DAM/RTM)	**12**	**510.89**	**Dhalkebar-Mujaffarpur, 400 kV TL**
	2	**70.00**	**Tanakpur-Mahendranagar, 132 kV TL**
Medium Term Bilateral Agreement	**2**	**109.61**	
Total	**16**	**690.50**	

Additionally, NEA has entered into medium-term agreements, including supplying 200 MW to Haryana Discoms and exporting up to 200 MW to Bihar State Power Holding Co. Ltd. via Nepal-Bihar's transmission infrastructure.

Looking towards regional power integration, NEA is finalizing a Tripartite Agreement with NVVN and Bangladesh Power Development Board (BPDB) for the sale of 40 MW of power from Nepal to Bangladesh through Indian Territory, anticipated to be signed in the upcoming FY.

Business Promotion Division

Established in April 2024 under the Business Development Directorate, the Business Promotion Division focuses on:

a. Commercializing NEA land
b. Commercializing transmission and distribution lines
c. Internet, cable carrier, and data center businesses
d. Providing consulting services by expert personnel
e. Reviewing and exploring optical fiber, cable net, and advertisement businesses
f. Ensuring regulatory compliance in related areas
g. Studying, executing, monitoring, and evaluating hydrogen development
h. Exploring new business opportunities and innovations

Company Management Division

Established in April 2024 under the Business Development Directorate, the Company Management Division oversees coordination and monitoring between NEA and its subsidiary companies involved in power generation, transmission and trade.

Chilime Hydropower Company Limited

Chilime Hydropower Company Limited (CHCL), a NEA subsidiary founded in 1996, aims to develop hydroelectric power projects using public shares. NEA owns 51% of the company, with the remaining shares held by the public.

Chilime Hydroelectric Plant

The Chilime Hydroelectric Project, commissioned on August 24, 2003, in Rasuwa district, has operated reliably since then. In FY 2080/81, it transmitted 149.4 GWh of energy and generated an expected revenue of NRs. 1.124 billion.

Project Features

Type of Project	:	Run-of-River
Design flow	:	7.5 m^3/sec
Net Head	:	336.85 m
Number of Units	:	2 (Pelton Turbines)
Installed Capacity	:	22.1 MW (2x11.05 MW)
Annual Energy	:	155.688 GWh (contract energy132.917 GWh)
Transmission Line	:	38 km/66 kV Single Circuit

During this fiscal year, major maintenance included replacing the servomotor nozzle assemblies for both units after nearly 19 years of operation. This overhaul was crucial for maintaining machinery efficiency and reliability. Routine tasks were also completed, such as oil changes, runner grinding and polishing, 11 kV line maintenance, and standard annual maintenance.

Chilime Subsidiaries/Associate companies

CHPCL has five subsidiary/associate companies as follows:

1. Sanjen Jalavidhyut Company Limited (SJCL):

Established in 2010, Sanjen Jalavidhyut Company Limited (SJCL) has promoter shares distributed as follows: 10.36% by NEA, 39.36% by Chilime Hydropower Company Limited (CHPCL), and 1.28% by local governments, totaling 51%.

The remaining 49% of shares are held by the public, including those from affected areas. Debt financing comes from the Employer's Provident Fund (EPF) of Nepal. SJCL is developing two hydroelectric projects in cascade: Sanjen (Upper) Hydroelectric Project (14.8 MW) and Sanjen Hydroelectric Project (42.5 MW).

Sanjen (Upper) Hydroelectric Project (SUHEP)-14.8 MW

The project is situated in Chilime VDC, now Amachhodingmo Rural Municipality. The headworks are in Tiloche, while the powerhouse is located in Simbu Village.

Project Features:

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 (3x5 MW)
Annual Energy	:	82.44 GWh
Transmission Line	:	5 km/132 kV Single Circuit to Chilime Hub Substation

Construction of the Sanjen (Upper) Hydroelectric Project (SUHEP) is complete, and commercial operations began on October 7, 2023, with power evacuation managed through an 11 kV line as a contingency plan.

Sanjen Hydroelectric Project (SHEP)- 42.5 MW

The Sanjen Hydroelectric Project (SHEP) is also located in Chilime VDC, now Amachhodingmo Rural Municipality. The headworks are in Simbu, and the powerhouse is in Chilime Village.

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 Single Circuit to Chilime Hub Substation
Cost estimate of SUHEP and SHEP (excluding IDC)	:	NRs.9 Arab 32 crores

The Sanjen Hydroelectric Project (SHEP) is nearing completion, with major civil works finished and electromechanical and hydromechanical equipment installation nearly complete. The project is expected to be completed and commissioned by August 2024

2. Madhya Bhotekoshi Jalavidyut Company Ltd. (MBJCL)

Madhya Bhotekoshi Jalavidyut Company Ltd. (MBJCL), a public limited company promoted by Chilime Hydropower Company Ltd. and Nepal Electricity Authority, is developing the 102 MW Middle Bhotekoshi Hydroelectric Project (MBKHEP) in Sindhupalchowk. Of the 51% promoter shares, Chilime Hydropower holds 37%, Nepal Electricity Authority 10%, and local companies 4%. The remaining 49% of shares are held by the public, including those from affected areas. Debt financing is provided by the Employer's Provident Fund (EPF) of Nepal.

Project Features:

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
Project Cost (excluding IDC)	:	NRs. 15.03 billion

The project is in the final stages of completion. By the end of FY 2080/81, civil, hydromechanical, and electromechanical works were finished. However, stringing of six spans of the transmission line to connect the power plant with the Barhabise 220/132 kV hub substation has been delayed due to local issues. Negotiations with locals are ongoing, with stringing expected to finish by September 2024 and power evacuation to start in October 2024.

3. Rasuwagadhi Hydropower Company Limited

Rasuwagadhi Hydropower Company Limited (RGHPCL), established on August 2, 2011, is developing the 111 MW Rasuwagadhi Hydroelectric Project (RGHEP) in Rasuwa district. Promoter shares are divided as follows: Chilime Hydropower Co. Ltd. holds 32.79%, Nepal Electricity Authority 18%, and the local government 0.21%. The remaining 49% of shares have been issued to the public, including those from affected areas. Debt financing is provided by the Employer's Provident Fund (EPF) of Nepal.

Project Features:

Type of Project:	:	Run-of-River (ROR)
Design Discharge (Q_{40})	:	80.00m^3/s
Gross Head:	:	167.9 m
Turbine, Type & No	:	Francis, Vertical Axis & 3 Nos.
Turbine Unit Capacity	:	38.50 MW each
Generator, Capacity & No.	:	3 Phase Synchronous AC, 3x43.75 MVA
Installed Capacity	:	111.0 MW
Annual Energy Generation	:	613.87GWh
T/L length, Voltage	:	10km, 132kV Double Circuit up to Chilime Hub
Project Cost (excluding IDC)	:	NRs.17 Arab 5 crore

All civil, hydromechanical, electromechanical, and transmission line works are complete. The company is ready to generate power and is now awaiting the completion of the Chilime hub substation and the Chilime-Trishuli 220 kV Transmission Line.

4. Chilime Seti Hydropower Company

The company, established on 2079/05/05, is focused on developing the Seti Nadi-3 Hydropower Project (87 MW) in Bajhang district

Share Structure of the company

Promoter Share (51%)

Chilime Jalavidhyut Company Limited:	31%
Provincial Government:	5%
Local Government:	5%
Nepal Electricity Authority:	10%

Public Share (49%)

Project affected people and the people from Bajhang District:	10%
Transmission Line affected people	3%
General Public except of Bajhang District	33%
Staffs of Promoters	3%

Project Features:

Type of Project:	Peaking Run-of-River (1 hour storage)
Design flow:	84.60 m3/s (35.20 % Exceedance flow)
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 Single Circuit to Bajhang Substation to be constructed by Rastriya Prasaran Grid Co. Ltd.
Project Cost:	NRs. 17 billion

As of the end of FY 2080/81, the feasibility study and EIA report are complete, and land acquisition is finalized. Financial closure is underway and expected early in the next fiscal year.

5. Chilime Engineering & Services Company Limited

Chilime Engineering and Services Company Limited (ChesCo), a wholly owned subsidiary of Chilime Hydropower Company Limited, specializes in providing comprehensive engineering and consulting services for hydropower and infrastructure projects.

Key achievements in FY 2080/81 include feasibility study, construction supervision and contract management, geological investigations, IEE/EIA, Lidar survey for transmission line and road projects.

NEA Engineering Company Limited

NEA Engineering Company Limited was established on July 13, 2017, and provides a wide range of consulting services across various disciplines related to hydropower, transmission lines, substations, and other infrastructure projects. Their expertise covers feasibility studies, detailed engineering design, environmental and social safeguards, design

reviews, project management, cost updating, and construction supervision.

Major Achievements in Fiscal Year 2023/24

- **1. Completed Projects**
- **Detailed Engineering Design:**
    - Kimathanka Arun Hydroelectric Project (450 MW)
    - BetanKarnali Hydroelectric Project (439 MW)
- **Transmission Lines and Substations:**
    - Design and supervision of Hetauda-Dhalkebar-Inaruwa 400 kV transmission line
    - Design and supervision of 220/132 kV Hetauda and Inaruwa substations
    - Design and supervision of Hetauda-Bharatpur 220 kV transmission line
- **Construction Supervision:**
    - 100 m tall tower foundation and protection work for the Hetauda-Bardhaghat 220 kV transmission line project
- **Consultancy Services:**
    - Survey design and estimation of tower foundation protection work for Khimti-Dhalkebar 220 kV double circuit transmission line (towers no. 70, 107, 122, 136, 137)
- **Environmental Impact Assessments (EIA):**
    - BetanKarnali Hydroelectric Project
    - Jagdulla Hydroelectric Project
- **Solar Farm Project:**
    - Design, review, contract management, and supervision of the EPC contract for a 25 MW grid-connected solar farm

2. Under Study Projects

- Civil and Hydropower Projects:
    - Construction supervision of Upper Modi A and Upper Modi hydroelectric projects
    - Construction supervision of Rolwaling Khola hydroelectric project
    - Construction supervision of Bheri Babai Diversion Multipurpose Project
    - Detailed engineering study and tender document preparation for Jagdulla Hydroelectric Project
    - Detailed feasibility study of Mugu Karnali Hydroelectric Project
    - Rock mechanical testing for Upper Arun Hydroelectric Project
    - Review and update of feasibility study for Uttarganga Storage Hydropower Project (828 MW)
- Transmission Line and Substation Projects:
    - Design and supervision of Hetauda-Dhalkebar-Inaruwa 400 kV transmission line
    - Consulting services for Tumlingtar-Sitalpati 220 kV transmission line and GIS/132/33/11 kV AIS substation at Sitalpati
    - Design review and construction supervision of Karnali Corridor 400 kV transmission line project
- Environmental Study Projects:
    - EIA of Phukot Karnali and Kimathanka Arun Hydroelectric Projects
    - Environmental and social studies of the Distribution System Upgrade and

Top, Transformer Erection Work at Hetauda SS

Expansion Project (DSUEP)

- IEE study of the main transmission line for Phukot Karnali Hydroelectric Project

HW of Bheri Babai Diversion Project

Upper Tamakoshi Hydropower Limited

Established on March 9, 2007, a subsidiary of Nepal Electricity Authority (NEA), Upper Tamakoshi Hydropower Limited (UTKHPL) was created to oversee the development and operation of the Upper Tamakoshi Hydroelectric Project (UTKHEP). The project was completed and successfully commissioned in 2021, utilizing domestic financial resources.

Ownership and Shareholding

UTKHPL's ownership structure includes the following major stakeholders:

- Nepal Electricity Authority (NEA): 41%
- Nepal Telecom (NT): 6%
- Citizen Investment Trust (CIT): 2%
- Rastriya Beema Sansthan (RBS): 2%

Public shareholders include:

- General Public: 15%
- Residents of Dolakha District: 10%
- Contributors to Employees' Provident Fund: 17.28%
- Staff of NEA and UTKHPL: 3.84%
- Staff of Debtor Institutions: 2.88%

Plant Overview

The Upper Tamakoshi Hydropower Plant, a source of national pride, is located in Bigu Rural Municipality, Ward No. 1, Dolakha District, Bagmati Province, Nepal. This daily peaking run-of-the-river project has an installed capacity of 456 MW. It includes a live storage volume adequate for four hours of daily peaking operation during the driest months, with an average annual energy generation of 2,281 GWh, utilizing a gross head of 822 meters and a design discharge of 66 m^3/s.

The first four units of the plant became operational on August 20, 2021, with the 5th and 6th units following on August 30 and September 10, 2021, respectively. The project was officially inaugurated by the Right Honorable Prime Minister Mr. KP Sharma Oli on July 5, 2021, with the first generating unit synchronized with the national grid on the same day. Additionally, on March 19, 2022, the Right Honorable Prime Minister Mr. Sher Bahadur Deuba inaugurated the 220/132 kV New Khimti Substation, which was constructed and commissioned under UTKHPL. This substation has a capacity of approximately 1,200 MW.

Plant Features

- **Diversion Dam:** 22 meters high and 60 meters long, integrated with a 35-meter-wide intake
- **Settling Basin:** Twin units
- **Headrace Tunnel:** 6 meters by 6 meters, 8.0 kilometers in length
- **Penstock:** 1,165 meters long
- **Powerhouse Cavern:** 142 meters by 13 meters by 25 meters
- **Tailrace Tunnel:** 3 kilometers long
- **Electro-mechanical Equipment:** 6 vertical Pelton turbines, each rated at 79.5 MW

- **Transmission Line:** 47 kilometers of double circuit 220 kV line from Gongar to the 220/132 kV New Khimti Substation

Power Generation

In the F/Y 2080/81, the Upper Tamakoshi Hydropower Plant delivered 2,058.36 GWh of energy to NEA, an increase from 1,945.83 GWh in the previous fiscal year. The plant provided peak power of 456 MW during both morning and evening peaks throughout the last dry season, significantly reducing Nepal's power import from India compared to previous dry seasons.

Rolwaling Khola Hydroelectric Project (RKHEP)

As a follow-up development to UTKHEP, UTKHPL is implementing the Rolwaling Khola Hydroelectric Project (RKHEP) with a capacity of 22 MW. The generation license for this project was obtained on April 3, 2023, and the Environmental Impact Assessment (EIA) report was approved on June 19, 2022.

RKHEP will produce an additional 105 GWh annually, with another 212 GWh expected from the Upper Tamakoshi Hydropower Plant, enhancing dry-season energy availability and extending peaking hours from 4 to 6 hours even in the driest months.

The project is located in Bigu and Gaurishankar Rural Municipalities, Dolakha District. The headworks and intake are situated in Gaurishankar Rural Municipality, approximately 6.5 kilometers northeast of the UTKHEP powerhouse in Gongar. The powerhouse is located in Bigu Rural Municipality, Lamabagar village, on the left bank of the Tamakoshi River.

The EPC construction contract was signed with SSCE-High Himalaya JV on November 4, 2022, with a total duration of 54 months. The contractor has completed the excavation of 480 meters of the Headrace Tunnel, 280 meters of the Main Access Tunnel, and 414 meters of the Adit Tunnel. Due to the lack of road access, construction equipment has been airlifted to Rikhu village in Gaurishankar Rural Municipality, Ward No. 9. Additionally, 125 ropanis of land required for the project have been acquired.

Tanahu Hydropower Limited

Tanahu Hydropower Limited (THL) was founded on March 25, 2012, as a subsidiary of Nepal Electricity Authority (NEA) to develop the Tanahu Hydropower Project, formerly known as the Upper Seti Hydropower Project. This project is a storage-type hydropower initiative with a capacity of 140 MW and an estimated average annual energy production of 502.58 GWh.

Situated on the Seti River within the boundaries of Rhising and Vyas municipalities, near Damauli in Tanahun District, the project will create a reservoir extending approximately 25 km upstream, inundating the low-lying lands at a Full Supply Level (FSL) of 415 meters. The project spans two municipalities (Vyas and Bhimad) and two rural municipalities (Rhising and Maygde). The estimated cost of the project is US$ 505 million. Construction is progressing rapidly across three main packages:

Package 1: Headworks For Package 1, the contractor Song Da Kalika JV (a Vietnam-Nepal joint venture) has made substantial progress. Key achievements include the excavation of the dam abutments and grouting tunnels, and the completion of the aggregate cooling plant. A major milestone was reached on November 6, 2023, when the Seti River was successfully diverted through Diversion Tunnel 2, allowing for the construction of the main dam. Both diversion tunnels, along with the cofferdam, were finished by June 2024.

As of June 2023, excavation work for the dam abutments on both banks was largely completed, with excavation progressing from elevation 545 meters down to the foundation level at 282 meters.

Upstream Cofferdam

Dam Slope Excavation and support works

Package 2: Powerhouse, Waterways & Related Equipment

The contractor Sino Hydro Corporation Limited of China has completed the excavation of the surge tank and intake slope. A significant milestone was achieved on March 31, 2024, with the successful breakthrough of the headrace tunnel. Concrete lining for the riser shaft at an elevation of 359 meters is currently underway, and the concreting of the powerhouse is largely finished. Structural concreting for the erection bay, machine hall units, and transformer room has been completed, and work on the GIS room slab is nearly finished. The contractor is now concentrating on benching and support work in the headrace tunnel.

The installation of the tailrace gate, tailrace gantry crane, and powerhouse overhead traveling crane has been completed. Additionally, the draft tube, draft tube flap gate, spiral case, and stay vane for both units have been installed, and the installation of other turbine components is ongoing. Work is also progressing on the installation of the generator and power transformer for Unit No. 2.

Installations in Underground Powerhouse

Assembly of Stator Frame

Package 3: 220 kV Transmission Line

KEC International of India, the contractor for Package 3, has completed the foundation

construction for 78 out of 94 towers. Additionally, the erection of 69 towers has been finished. Land acquisition for the tower locations and right of way has been completed. However, forest clearance has not yet commenced.

Consultancy Service Contract

The construction of the project is overseen by Tractebel GmbH, Germany, serving as the Project Supervision Consultant, while ELC Electro-consult, Italy, manages environmental and social monitoring.

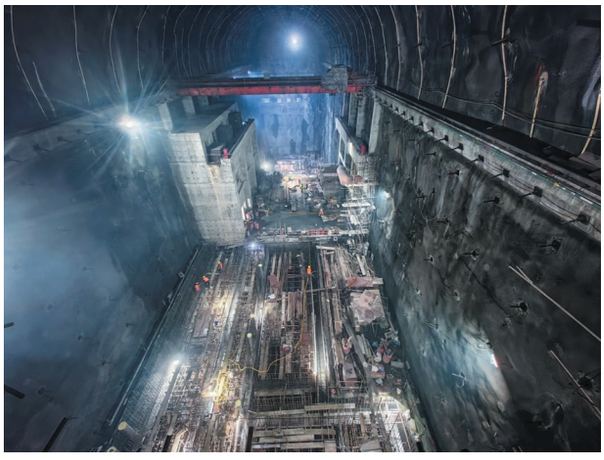
On December 17, 2018, THL entered into contracts with individual members of the Panel of Experts (POE) for dam safety, environmental, and social safeguards. The Fourth Mission of the POE, which included a site visit in November 2023, was followed by detailed discussions concerning the Environmental, Health, and Safety (EHS) management capacity and compliance of the project with EHS standards related to dam safety, environmental, and social issues.

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

Lower Seti (Tanahu) Hydropower Project

THL plans to develop the Lower Seti Hydropower Project, which will have an installed capacity of 126 MW. This project will utilize the regulated discharge from the Seti River's tailrace of the Upper Seti (Tanahu) Hydropower Project, in addition to flows from the Madi River. The headworks will be situated approximately 24 km downstream from Damauli, with the powerhouse located about 1.5 km downstream from where the Seti River meets the Trishuli River.

For detailed design, a Consultant Joint Venture (JV) of WAPCOS India Limited and Nippon Koei, Japan, was appointed. Following a review by the Panel of Experts (POE), the Consultant submitted the final detailed design report in June 2024. The Environmental Impact Assessment (EIA) study is currently under approval. The cabinet has authorized the commencement of land acquisition and appointed a preliminary officer to initiate initial actions. Preparatory work, including land acquisition and construction of access roads and bridges, will begin this fiscal year.



Powerhouse

Trishuli Jal Vidhyut Company Limited

Introduction

Trishuli Jal Vidhyut Company Limited (TJVCL), established in 2011, is a joint venture between Nepal Electricity Authority (NEA) and Nepal Doorsanchar Company Limited (NDCL). The company's primary goal is to develop the Upper Trishuli 3B Hydroelectric Project (37 MW), which spans Nuwakot and Rasuwa districts. NEA and NDCL each hold a 30% equity share in the company, with the remaining shares allocated to the general public, residents of Nuwakot and Rasuwa districts, local governments in these districts, and employees of NEA and NDCL, among others.

The Project

The Upper Trishuli 3B Hydroelectric Project (UT3BHEP) is a Run-of-the-River cascade development project. It will harness water from the tailrace tunnel of the upstream Upper Trishuli 3A Hydroelectric Project. A head pond is being constructed at the outlet of the upstream

project to channel water through an Approach Pressure Conduit into the Headrace Tunnel of UT3BHEP.

Key features of the project are summarized in the table below:

Project Location	
Districts	**Nuwakot & Rasuwa**
Headpond and Approach Pressure Conduit	
Headpond: Approach Pressure Conduit:	29m (L) x 5.2 to 11.0 m (B) x 7.4 to 14.8 m (H) 243.47m (L), 5.1m x 5.1m Box Culvert + 40m long, 5.1m dia. Steel Pipe
Headrace Tunnel (HRT)	
Total Length Excavation Diameter	3883.02 m 6.3 m
Surge Tank	
Diameter Height	15 m 43 m
Penstock	
Diameter Total Length	4.2 m (circular) 175.95 m
Powerhouse	
Type/ Length x width x height	Surface/ 55.44m×19.30m×32.37m
Tailrace	
Length and Type	115.06 m, Box Culvert
Turbine	
Turbine Type/ Rating/ number	Francis (vertical axis)/19.3 MW/2
Generator	
Rating/ No. of units	23 MVA/ 2
Power and Energy /	
Maximum Gross Head	90 m
Installed capacity	37 MW
Average annual energy	292.58 GWh
Length of Transmission line (132 kV)	3 km
Cost and Financing	
Total Development Cost (As of Bhadra 2075)	NPR 8,227 million including Interest During Construction
Mode of Financing	30% Equity from the Promoters, 70% Debt from the Consortium of Banks led by Nabil Bank Limited

Current Status

The Engineering, Procurement, and Construction (EPC) contract for the Upper Trishuli 3B Hydroelectric Project (UT3BHEP) was initially awarded to M/S Shuifa ANHE Group Co. Ltd., China, in February 2018. Due to the contractor's nonperformance, the EPC contract was terminated effective on December 16, 2023. At the time of termination, approximately 60% of the construction work had been completed.

The remaining project work is now being managed by new contractors. This work has been divided into two separate contracts: Lot 1 for Civil Works and Lot 2 for Electromechanical and Hydromechanical Works. Bids have been invited for these lots, with the contract for Lot 1 Civil Works expected to be signed by the second week of Shrawan 2081, and the contract for Lot 2 Electromechanical and Hydromechanical Works anticipated to be signed within Ashoj 2081.

The goal is to complete all remaining construction by the end of Chaitra 2082, with electricity generation anticipated in the fiscal year 2082/83. The power generated will be transmitted to the Trishuli 3B Hub Sub-station, currently under construction, via a 3 km long 132 kV transmission line. This transmission line is being constructed by Nepal Electricity Authority under a separate agreement with TJVCL.

POWER TRANSMISSION COMPANY NEPAL LIMITED

Power Transmission Company Nepal Limited (PTCN) is a joint venture company established by Nepal Electricity Authority (NEA) with the primary goal of developing a high-voltage transmission interconnection system between Nepal and India. This project aims to benefit both countries through enhanced electricity transmission capabilities. PTCN was incorporated on Bhadra 30, 2064 (September 16, 2007) to focus on developing, managing, and executing electricity transmission infrastructure.

Ownership Structure and Shareholding PTCN's shareholding structure includes contributions from several key organizations:

- Nepal Electricity Authority (NEA)
- Power Grid Corporation of India Limited (POWERGRID)
- Hydroelectricity Investment and Development Company (HIDCL)
- IL&FS Energy Development Company Limited, India (IEDCL)

Overview of Powerhouse, Surge Tank, Tailrace and Office area

The company has an authorized, issued, subscribed, and paid-up capital of NPR 450,000,000 (Nepalese Rupees four hundred and fifty million). As of 31st Ashadh 2080 (July 16, 2023), the distribution of shares is as follows:

Distribution of Shares

S. No.	Shareholder	Number of Shares Held	% Ownership
1.	NEA	2,250,000	50%
2.	POWERGRID	1,170,000	26%
3.	HIDCL	630,000	14%
4.	IEDCL	450,000	10%
Total		**4,500,000**	**100%**

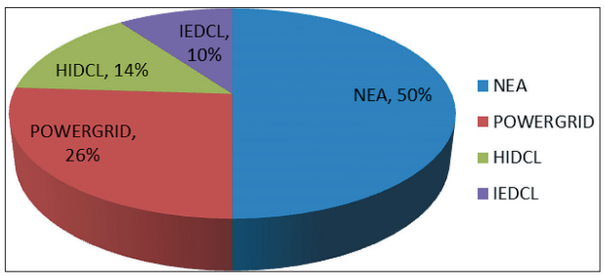
The shareholding pattern of the Company is reflected as follows:

Two Joint Venture companies - one in India and other in Nepal were incorporated for implementation of 400 kV double circuit line interconnection between Muzaffarpur in India and Dhalkebar in Nepal.

400 kV D/C Dhalkebar - Bhittamod Transmission Line

The Nepal section of the 400 kV double-circuit transmission line extends 42.1 km from the Nepal-India border at Bhittamod to the NEA Substation at Dhalkebar. This segment was developed by Power Transmission Company Nepal Limited (PTCN), a joint venture between NEA, POWERGRID, HIDCL, and IEDCL.

The final cost of the project was NPR 1,545.68 million. On September 14, 2007, the Nepal Government and EXIM Bank of India entered into a loan agreement in which EXIM Bank pledged to provide USD 100 million to the Nepal Government. NEA subsequently signed a Subsidiary Financing Agreement with PTCN on March 11, 2014 (27th Falgun 2070). According to this agreement, NEA committed to provide an equivalent of USD 13.2 million in Nepalese rupees for the execution of the 400 kV Nepal-India Cross-Border Transmission Line. The final loan disbursed to PTCN amounted to NPR 1,046.19 million.



The 42.1 km stretch of the Dhalkebar-Muzaffarpur 400 kV double-circuit transmission line within Nepal was successfully constructed by PTCN. Initially charged at 132 kV under contingency arrangements on February 19, 2016, the line was upgraded to 220 kV on August 16, 2018. It was finally energized at 400 kV on November 11, 2020, at 20:20 PM. Since then, the entire line from Muzaffarpur to Dhalkebar has been operating satisfactorily with 100% availability.

Annual Turnover and Profit After Tax of PTCN during FY 2079-80 is NRs 336.69 Million and NRs 143.29 Million respectively. PTCN has distributed 18% dividend to its shareholders and NEA has received NRs 40.5 Million as dividend during this year.

400 kV D/C Muzaffarpur - Bhittamod Transmission Line

The Indian segment of the 400 kV double-circuit transmission line extends approximately 86 km from the Muzaffarpur Substation of POWERGRID in Bihar to the India-Nepal border at Sursand/Bhittamod.

This portion is being developed by Cross Border Power Transmission Company Limited (CPTC), a joint venture between IL&FS Energy Development Company Limited (IEDCL), POWERGRID, SJVN Limited, and NEA.

The estimated cost for the Indian section is NPR 3,880 million (approximately INR 2,425 million). Debt funding of NPR 3,313 million (approximately INR 2,070 million) has been arranged through Power Finance Corporation of India Ltd.

Contracts for the Engineering, Procurement, and Construction (EPC) of both the Nepal and India sections were awarded to M/s TATA Projects Limited and M/s KEC International Limited, respectively. These contracts followed an International Competitive Bidding process conducted by POWERGRID, which is serving as the consultant for the project.

Tamakoshi Jalvidhyut Company Limited

Tamakoshi V Hydroelectric Project (99.8 MW)

The Tamakoshi V Hydroelectric Project (TKVHEP), managed by Tamakoshi Jalvidhyut Company Limited (TKJVC), is a cascade development following the Upper Tamakoshi Hydroelectric Project (UTKHEP), which was developed by Upper Tamakoshi Hydropower Limited. Located in Bigu Rural Municipality, Dolakha District, Bagmati Province, the project benefits from the infrastructure of UTKHEP. Specifically, the road linking Singati Bazaar to Lamabagar, essential for UTKHEP construction, also passes through both the powerhouse and headwork sites of TKVHEP.

The feasibility study for TKVHEP was completed by the Nepal Electricity Authority (NEA) during the fiscal year 2010/11. As a cascade development of UTKHEP, TKVHEP does not require a separate dam or reservoir. Instead, it utilizes a design discharge of 66 m^3/sec from the tailrace of UTKHEP which is transferred via an underground inter-connection to the headrace tunnel. The project will feature an underground powerhouse located at Suri Dovan, with a design discharge of 66 m^3/sec and an installed capacity of 99.8 MW. It is expected to generate approximately 543 GWh of energy annually.

The generation license for the project was initially obtained from the Department of Electricity Development (DoED) on 9th of Jestha, 2074. This license was later revised to accommodate an increased capacity of 99.8 MW on 18th of Baisakh, 2080. TKJVC has been officially registered with the Company Registration Office for the development of TKVHEP. On 5th of Poush, 2074, the generation license was transferred from NEA to TKJVC. Additionally, the Supplementary Environmental Impact Assessment (SEIA) for the project has been approved by the Ministry of Forest and Environment (MoFE), reflecting the capacity increase from 87 MW to 99.8 MW.

Project Activity

The project involves an underground inter-connection system linking the headrace tunnel of TKVHEP with the tailrace tunnel of UTKHEP. This system includes a connecting tunnel, a head pond, a spillway, and a spillway tunnel. Water from the tailrace of UTKHEP is channeled through this system into an 8 km long headrace tunnel, a 152-meter high drop shaft, an underground powerhouse equipped with

Contract Agreement for Lot 1

four Francis turbines, and a 404-meter long tailrace tunnel. The water is then discharged into the Tamakoshi River, approximately 0.7 km downstream from the confluence of the Tamakoshi River and Khare Khola at Suri Dovan.

Land acquisition for the powerhouse area, permanent camp, transmission line towers, and access tunnel has been successfully completed. TKJVC has commenced the construction of the inter-connection system with the contractor previously engaged on UTKHEP, and this phase of the work has been finished.

Construction of the permanent camp facility at Jamune, managed by Shringeshwor-Prera JV, is underway. The camp, which will include 16 buildings, is expected to be completed by mid-FY 2081/82.

Under Construction Permanent Camp Facility

Major Work Progress

a. Environmental Concerns

The Initial Environmental Examination (IEE) for the transmission line (TL) was recently approved by the Ministry of Energy, Water Resources, and Irrigation (MoEWRI) on 25th of November, 2023 (2080/08/25). Tree counting activities, in accordance with the Supplementary Environmental Impact Assessment (SEIA) requirements, were completed by the Gaurishankar Conservation Area Project (GCAP) and reviewed by the National Trust for Nature Conservation (NTNC). Following NTNC's recommendations, the report was submitted to the Department of National Parks and Wildlife Conservation. The Ministry granted permission to update the Environmental Management Plan (EMP), and the updated EMP Report is currently undergoing the approval process. It has been submitted to the Department of Electricity Development (DoED) and forwarded to MoEWRI, which has subsequently sent it to the Ministry of Forests and Environment (MoFE).

Procurement Activities

The EPC tender for Lot 1 was issued on 24th June, 2024 (2081/03/11). Three bids were

received, and the contract was awarded to Sinohydro-KSNS JV on 11th of January, 2025 (2081/01/28).

Similarly, the tender document for Lot 2, covering Electromechanical Equipment and Transmission Line Works, was prepared and issued on 1st May, 2024 (2081/02/17).

Upper Arun Hydroelectric Limited (UAHEL)

Upper Arun Hydro-electric Limited (UAHEL) is a subsidiary company of NEA, established on January 25, 2017 (2073/10/12 B.S.). The shareholding structure of the company shall comprise of 68% holding by the parent organization NEA and the remaining 32% shall be owned by the public. UAHEL has been granted the study licenses of Upper Arun Hydropower Project (UAHEP) and Ikhuwa Khola Hydropower Project (IKHPP). UAHEL has also acquired the survey licenses for two transmission lines to evacuate power from of UAHEP (400 KV DC) and IKHPP (132 KV).

1. Upper Arun Hydroelectric Project (UAHEP)

The Upper Arun Hydroelectric Project (UAHEP), with a total installed capacity of 1,063.36 MW (including a 2.36 MW eco-flow plant), is a peaking run-of-river (PROR) project situated in Bhotkhola Rural Municipality, Sankhuwasabha District, Koshi Province. Located approximately 15 km south of Kimathanka near the Nepal-China border and 200 km east of Kathmandu, UAHEP is one of five planned cascade hydroelectric projects in Arun River. This river, a tributary of the Saptakoshi River, originates in Tibet and enters Nepal at Kimathanka.

UAHEP is a key initiative under the Government of Nepal's flagship program, "Nepal ko Paani, Janta ko Lagaani" program, aimed at increasing citizen involvement in hydropower development. Classified as a Game Changer Project (GCP) under Nepal's Fifteenth Five-Year Plan, the project is central to the nation's hydropower strategy.

The Updated Feasibility Study (May 2021), conducted by the CSPDR-Sinotech JV (a partnership of Changjiang Survey, Planning, Design and Research Co. Ltd., China, Sinotech Engineering Consultant Ltd., Taiwan, and Soil Test (P.) Limited, Nepal), indicates a design discharge of 235 m^3/sec and an annual energy generation of 4,512 GWh (27.7% during the dry season). The project features a year-round peaking capacity of 697 MW for six hours. Major components include a 100 m high dam, an 8.4 km headrace tunnel, a sediment bypass tunnel, a 20 m diameter surge tank, a 484 m high and 7.3 m diameter pressure drop shaft, and a 39 m long penstock leading to an underground powerhouse housing six Pelton turbines. The project's rated head is 508.3 m. Power will be evacuated to the national grid via a 5.79 km long 400 kV double circuit transmission line to the Haitar substation in Sankhuwasabha.

Current Status

A. **Environmental and Social**

- Free, Prior, and Informed Consent (FPIC): Achieved from local indigenous communities on December 11, 2022. A five-year Indigenous People's Plan (IPP) is finalized and under implementation. This project is the first in Nepal and the World Bank to conduct FPIC consultations regarding indigenous rights.
- Environmental and Social Impact Assessments (ESIA): The ESIA is being updated, including supplemental studies on mammals and e-flow. The Environmental Impact Assessment (EIA) is in its final stage at the Ministry of Forests and Environment (MoFE).
- Protected Areas and Biodiversity: Final report by Red Panda Network Nepal (RPN Nepal) for Impact Assessment of Protected Areas and Terrestrial Biodiversity submitted on March 1, 2024.
- Environmental and Social Management: A contract with the Environment and Social Studies Department (ESSD), NEA, was signed

on March 31, 2024, for managing the Access Road and implementing the Resettlement Action Plan (RAP).

- Indigenous People's Plan (IPP): Implementation is underway with an agreement signed with the Upper Arun Hydroelectric Project Adivasi Janajati Advisory Council (AJAC) on February 1, 2024.
- Land Acquisition: 129.27 hectares of the required 232.14 hectares have been acquired. Compensation for 98% of acquired private land has been distributed, and resettlement is nearing completion. The process for leasing 21 hectares of government land for the Access Road has begun. Permission for tree cutting and land use was granted on February 18, 2024.

A. Construction and Procurement

- Design and Supervision: The JV of TRACTEBEL ENGINEERING GmbH, Germany (lead firm), TRACTEBEL ENGINEERING S.A., France, and WAPCOS LIMITED, India, is responsible for design, bidding documents, construction supervision, and post-construction services, with the contract signed on February 14, 2024. The inception report has been submitted.
- Access Road Construction: Gayatri Projects Limited (GPL), India, in JV with Kankai International Builders Pvt. Ltd., Nepal (KIBPL), has initiated site preparation, established camp, installed a crusher plant, completed ferry installation, set up laboratories, begun foundation work for Bridge-2 at Chhogryak, and started track opening at tunnel portals.
- Construction Supervision: Kyong Dong Engineering Co. Ltd., Korea, and Nepal Consult (P) Ltd. are overseeing the construction and contract management of the access road.
- Camp Facilities: Construction of Phase-I camp facility at Gola, Shankhuwasabha, is ongoing and is expected to be completed by the upcoming fiscal year.

Bridge foundation excavation at Chhongryak

Heli lifting of construction equipment for access road construction

Ferry in operation

- Hydraulic Model Study: Completed, including river model calibration and validation. Further tests will be conducted in collaboration with the Owner's Engineer.
- Detailed Engineering Design (DED): Extensive investigation works are near completion, with 4,738 meters of core drilling and further in-situ tests being conducted by NEA Engineering Company Ltd. The 1,118-meter

Test Adit tunnel at the headworks and powerhouse has been completed.

- Transmission Line Feasibility: Completed.
- Grid Connection and Power Purchase Agreement (PPA): Grid connection agreement with the Power Trade Department, NEA, has been finalized. The PPA is in progress.

B. Financials

- World Bank Assistance: The World Bank has provided financial assistance of US$6 million under the Project Preparation Facility (PPF). The total financial requirement for the project is estimated at US$2,079.4 million, including US$1,663.6 million in concessional loans and US$415.9 million in equity investment. The WB-led consortium of international lenders has expressed interest in financing US$1,890 million, covering the project's debt financing. An MoU was signed with a consortium of domestic financiers led by Hydroelectricity Investment and Development Company Limited (HIDCL) for NPR 53.341 billion.

Contract Signing-with Tractebel Germany- Tractebel France and WAPCOS Ltd India-Feb 14 2024

C. Staffing and Procurement Strategy

- Staffing: Out of 141 approved positions, 56 staff members are currently working for the company.
- Procurement Strategy: The Project Procurement Strategy for Development (PPSD) has been prepared. Communication is established with Nepal Telecom regarding site communication facilities and with the Department of Roads (DoR) concerning the Koshi Highway.
- Consultants and Advisors: Various Panels of Experts and advisors are onboard to support the Project.

The project is set to enter the construction phase by 2026, with completion anticipated by 2031. Financial closure is targeted for October 2024.

2. Ikhuwa Khola Hydropower Project

The Ikhuwa Khola Hydropower Project (IKHPP) is a run-of-river hydroelectric venture with a capacity of 40 MW. It is situated on the Ikhuwa Khola River, a tributary of the Arun River, in the Makalu Barun Rural Municipality of Sankhuwasabha District, Koshi Province, Nepal.

Feasibility and Site Details

The feasibility study, carried out by the consulting firm CSPDR-Sinotech JV, confirmed the optimal capacity for the project to be 40 MW. The proposed powerhouse site is about 2.2 km from the nearest access point on the Koshi Highway, which runs along the left bank of the Arun River near Uwa Gaun. To reach the powerhouse, a 2.03 km access road and an 80-meter bridge will need to be constructed. Additionally, a 13 km project road will be built along the right bank of the Ikhuwa Khola to access the headworks site.

Power Evacuation and Transmission

The electricity generated by IKHPP will be transmitted to the national grid via a 2.3 km long 132 kV single circuit transmission line, which will connect to the 400 kV substation at Haitar, Sankhuwasabha.

Financing and Project Timeline

The project will be financed by the Government of Nepal and is expected to be completed within four years from the commencement

of the EPC contract, including the testing and commissioning phases.

A. Current Status

- Detailed Project Report (DPR): The national consultant Chilime Engineering and Services Company Limited (CHesCo) has finalized and submitted the DPR, which includes comprehensive technical and environmental and social studies.
- Access Road Construction: Preparations for the construction of the access road to the powerhouse are underway. This includes building an 80-meter steel arch bridge and a 2.3 km road, scheduled to begin in the next fiscal year.
- Geological and Geotechnical Investigations: Additional geological and geotechnical investigations are planned to further evaluate site conditions.
- Environmental Impact Assessment (EIA): The project is in the process of preparing for the final public hearing related to the EIA.
- Generation License and Land Acquisition: An application for the generation license has been submitted. Land acquisition for the construction is also underway, with a completion target set for 2026.

Modi Jalvidyut Company Limited

Modi Jalvidyut Company Limited (MJCL), a subsidiary of Nepal Electricity Authority (NEA), is responsible for the development of the Upper Modi 'A' Hydroelectric Project (UMAHEP) with a capacity of 42 MW and the Upper Modi Hydroelectric Project (UMHEP) with a capacity of 18.2 MW. MJCL has overseen all project activities since September 2021. Both projects are located approximately 250 km west of Kathmandu in the Annapurna Rural Municipality, Kaski District, Gandaki Province.

The Detailed Engineering Designs for both projects were prepared by AF-Consult, Switzerland. NEA Engineering Company Limited has been chosen to provide consulting services throughout the implementation phases of the projects. The Environmental Impact Assessment (EIA) and Supplemental Environmental Impact Assessment (SEIA) for both projects, along with the Initial Environmental Examination (IEE) for the transmission line, have been approved by the relevant authorities. Generation licenses for UMAHEP and UMHEP have been secured from the Department of Electricity Development (DoED). Power Purchase Agreement (PPA) for both projects have been finalized, and financial closure has been achieved with a consortium including NMB Bank and Hydroelectricity Investment and Development Company Limited (HIDCL).

The contract for Lot-1 (Civil and Hydro-mechanical works) was awarded to a Joint Venture between Sichuan Shutian Construction Engineering General Contracting Co. Ltd., China, and High Himalaya Hydro Construction Pvt. Ltd., Nepal (SSCE-High Himalaya JV) on May 8, 2024. The contractor has begun mobilizing to the site. The tender for Lot-2 (Electromechanical works) was published on May 22, 2024. For UMHEP, tenders for Lot-1 (Civil and Hydro-mechanical Works) and Lot-2 (Electro-mechanical Works) are scheduled for publication within this fiscal year. Additionally, the tender for the 132 kV Transmission Line work is also planned for this fiscal year. Both projects are expected to be completed and commence generation by 2085 BS, which is the required commercial operation date.

The land acquisition process for both projects, excluding the Transmission Line, has been officially completed. So far, a total of 253.95 Ropani of private land has been acquired—206.08 Ropani for UMAHEP and 47.87 Ropani for UMHEP. Approximately 223 Ropani of private land has been purchased and transferred to the Department of National Parks and Wildlife Conservation to facilitate leasing and tree cutting in the Annapurna Conservation Area (ACA). Land acquisition for

Contract Signed with SSCE-High Himalaya JV (LoT-1: Civil and Hydro-mechanical Works of UMAHEP)

the Transmission Line is expected to begin and be completed within this fiscal year.

Construction of the camp facilities for both projects is in progress, with about 54% of the physical work completed to date. The full construction of the camp facilities is anticipated to be completed within this fiscal year.

Uttarganga Power Company Limited

Uttarganga Power Company Limited, a NEA subsidiary established on March 30, 2017, is overseeing the Uttarganga Storage Hydroelectric Project. Initially licensed for 300 MW in FY 2015/16, the project's capacity was increased to 828 MW in FY 2017/18. The project site is located about 400 km west of Kathmandu in Baglung District, Gandaki Province, accessible by a 48 km road from Burtibang Bazar.

The project features a 200 m high rock-fill dam, an 8.51 km headrace tunnel, and large underground powerhouses with a combined capacity of 821 MW. A 65 km, 400 kV DC transmission line is planned to connect to the Uttarganga Hub in Rukum.

Under Construction Camp Facilities

Key updates for FY 2023/24 include:

1. A contract with NEA Engineering Company (NEAEC) for a feasibility review was signed on February 1, 2024, with a six-month completion timeline.
2. The EIA report has been approved by the Ministry of Forest and Environment.
3. Final geotechnical reports have been submitted.
4. Staff gauge height and discharge measurements are ongoing.
5. Procurement for an automatic water level

Uttar Ganga River at dam site

recorder (AWLR) is in progress, with an automatic weather station (AWS) planned for this fiscal year.

6. Pre-construction activities will commence after receiving the detailed NEAEC report.

Dudhkoshi Jalvidyut Company Limited

Dudhkoshi Jalvidyut Company Limited (DKJVCL), a NEA subsidiary established on March 3, 2017, oversees the Dudhkoshi Storage Hydroelectric Project (DKSHEP). This 670 MW project taps into the Dudhkoshi River, which originates from Mt. Everest.

Key details of the project are as follows:

- A 220-meter high concrete-faced rock-fill dam located approximately 1 km southwest of Rabuwa Bazaar.
- A 31.5 km-long reservoir with a total capacity of 1,581 million cubic meters.

Dam Site of Dudhkoshi Storage Hydroelectric Project

- An underground main powerhouse with a 600 MW capacity situated near Dhitung village in Khotang District.
- A 70 MW Dam-Toe powerhouse located in Chisankhugadhi Municipality, Okhaldhunga District.
- The dam site is roughly 210 km east of Kathmandu. The main powerhouse will be served by a 13.15 km water tunnel and a 210-meter artificial head, with a design discharge rate of 224.4 cubic meters per second.

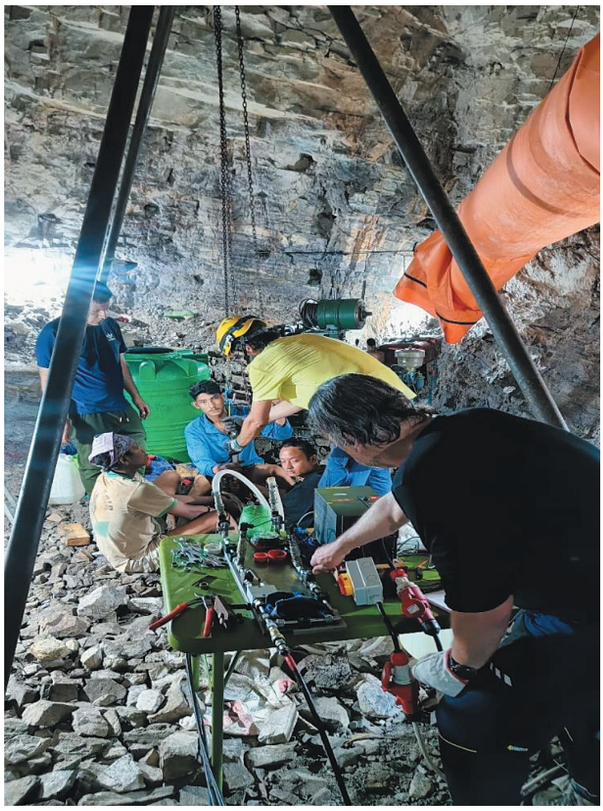
Dudhkoshi Storage Hydroelectric Project (DKSHEP) produces an annual energy output of 3,374 GWh. This includes an average of 1,252 GWh during the dry season and 2,122 GWh during the wet season. Power generated from the main powerhouse is transmitted to the National Grid via an 81 km, 400 kV double-circuit transmission line (Quad ACSR Moose Conductor) leading to the Dhalkebar substation. Additionally, the power from the 70 MW Dam Power House (formerly 35 MW) and the future 200 MW Dam Power House will be transmitted through two 400 kV lines to new 400 kV Dam Toe Switching Station, located approximately 1.5 kilometers from the power houses. Step-up transformers at the generation points will elevate the voltage directly to 400 kV.

Since 2016, the updated feasibility study, detailed design, and preparation of bidding documents, including the Environmental Impact Assessment (EIA) study, have been undertaken by ELC Electroconsult (Italy) in collaboration with NEWJEC Inc. (Japan), with grant assistance from the Asian Development Bank (ADB). The draft Detailed Design Report was submitted in January 2020, and the revised final reports are expected by the end of July 2024.

The reports and documents submitted by the consultant have been reviewed by both the Panel of Experts and ADB experts, who have provided feedback and suggestions.

Initially, the excavation of the 13.2 km Head Race Tunnel (HRT) was planned to be carried out using the Drilling and Blasting Method (DBM). However, to mitigate significant construction risks and geological uncertainties associated with DBM and to eliminate approximately 5 km of construction adits with a down slope orientation, it has been decided to use a Tunnel Boring Machine (TBM) after completing its detailed feasibility study. Additionally, the fuse gate in the Dam Emergency Spillway has been replaced with a combination of an earthen embankment and a Labyrinth Spillway, which will significantly reduce the cost of the Emergency Spillway.

The consultant is currently integrating these modifications, addressing the comments and suggestions provided by the client, and working in consultation with the Panel of Experts (PoE).



Hydrofracturing Test at Dam Site June 2024.

Contract Lots

The construction work has been divided into the following major contract lots:

1. **Lot 1:** Dam, Intake, and Spillway, including Hydraulic Steel Equipment — FIDIC Emerald Book, 2019
2. **Lot 2:** Main Tunnel and Powerhouse, including Hydraulic Steel Equipment — FIDIC Emerald Book, 2019
3. **Lot 3:** Electro-mechanical Works — FIDIC Yellow Book, 2017
4. **Lot 4:** Transmission Line — FIDIC Yellow Book, 2017

Environmental Study

The environmental impact assessment (EIA) report, prepared by the consultant ELC Electroconsult, was submitted to the Department of Electricity Development (DoED) in February 2023 for approval. The consultant is currently updating the EIA Report.

Environmental and Social studies are being conducted to comply with ADB's Safeguard Policies, including obtaining Free, Prior, and Informed Consent (FPIC) from local indigenous peoples. The project is also implementing an Environmental and Social Implementation Program during the pre-construction phase. An Environment and Social Unit has been established at the project, which has conducted Focused Group Discussions (FGD), Public Consultations, and Awareness Programs in the affected areas. The Terms of Reference (ToR) for the Initial Environmental Examination (IEE) of the Transmission Line have been approved by DoED, and the consultant is proceeding with the IEE study.

An ADB safeguard review mission took place from April 1-11, 2024, to assess the project's safeguards-related progress. The mission included a site visit covering the dam location, powerhouse site, and several affected communities. During the visit, consultations were held with various stakeholders, including members of the House of Representatives, National Assembly, Koshi Provincial Assembly, Chief and Vice Chief of the District

Public Consultation during ADB Safeguard Review Mission

Coordination Committee, Mayor and Deputy Mayor of municipalities, Chairperson and Vice Chairperson of affected rural municipalities, Chief District Officer, and Chairperson of the affected ward in Khotang, Okhaldhunga, and Solukhumbu Districts, organized in Halesi, Khotang.

On November 1, 2023, a site visit was conducted by Mr. Ramesh Subramanian, Director General of ADB; Mr. Kulman Ghising, Managing Director of NEA; and Mr. Arnaud Cauchois, ADB Country Director for Nepal. They were accompanied by the chiefs of the local affected municipalities

Land Acquisition

A public notice regarding land acquisition in the Khotang and Okhaldhunga Districts has been issued. A Sub-Committee, formed by the Compensation Determination Committee, is currently assessing preliminary compensation for land in these districts and is in the process of preparing its report.

Infrastructure Works

Contracts for key infrastructure projects have been awarded as follows:

- The design and construction of the Dudhkoshi River Motorable Bridge near BhojeGaon, which connects Okhaldhunga and Khotang Districts, was signed with Fewa/Sundar J.V., Pokhara-6, Kaski, on June 19, 2024.
- The construction of prefabricated buildings and other works at the project's camp in Lamidada, Khotang, was contracted to P.S./Mahabir/Yozan-J/V, Changunarayan-5, Bhaktapur, also on June 19, 2024.

The detailed design for approximately 100 km of Public Access Road (PAR) was completed in April 2024. Additionally, the design for the Intake, Pipeline, and Reservoir Tank for the Drinking Water Supply has been finalized at Lamidanda camp site.

Project Costs and Financial Arrangement

The total estimated cost of the project is USD 2,206 million. Funding will be secured through a combination of sovereign and non-sovereign commercial loans and direct equity. The debt-to-equity ratio is set at 80:20, with the equity portion (20%) to be invested by the Government of Nepal (GoN), NEA, and other shareholders.

At the request of the Ministry of Finance (MoF), the Asian Development Bank (ADB) is leading efforts to coordinate external financing for Dudhkoshi Storage Hydroelectric Project (DKSHEP). Local financing will also play a

Project Financiers Consultative Meeting for the project

significant role, with plans to raise investment from local financial institutions and banks.

On September 12, 2023, the MoF held a Project Financiers Consultative Meeting to present the project's technical and financial details to potential financiers and seek their feedback on financing the project. The meeting was attended by representatives from ADB, World Bank (WB), Asian Infrastructure Investment Bank (AIIB), EU delegation to Nepal, European Investment Bank (EIB), JICA, Norwegian Embassy, OPEC Fund, and SAARC Development Fund.

Second Stage Development

The designs for the common Intake and Headrace Tunnel of the Dam Toe Powerhouse have been completed to accommodate both the existing 70 MW Dam-Toe Powerhouse and the future stand-alone 200 MW Dam-Toe Powerhouse, which is planned for the second stage development. This second stage is expected to commence within 5 to 10 years following the commissioning of the initial 670 MW development. The power generated from the future 200 MW Powerhouse will be transmitted through the same New 400 kV Dam Toe Switching Station, located approximately 1.5 kilometers from the dam.

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.

Financial Audit

- Verification of the effectiveness and efficiency of internal control over the financial reporting process; and
- Review of the internal processes, 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.

Internal Audit department introduced Online Audit Software & performs the aforesaid audits on the 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 2023/ 24 are as follows:

Offices	Financial Audit	Technical Audit	Management Audit
Central Office	15	9	4
DCS Directorate	181	181	181
Transmission Directorate	76	76	73
Generation Directorate	25	10	11
Engineering Service Directorate	15	14	9
Project Management Directorate	46	46	46
Total	**358**	**336**	**324**

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 Matter

NEA Board is the policy making body of Nepal Electricity Authority. The honorable Minister of Energy, Water Resource and Irrigation Mr. Dipak Khadka has been chairing the NEA Board since 15 July 2024. Prior to this, the then Honorable Minister of Energy, Water Resource and Irrigation Mr. Shakti Bahadur Basnet (till 14 July 2024) chaired the NEA Board.

Ms. Sarita Dawadi, Secretary, Ministry of Energy, Water Resource and Irrigation has been representing as an officio member in the NEA Board Since 11 July, 2024 after the retirement of officio member Mr. Shushil Chandra Tiwari in 27 June 2024. Before that the then Secretary of Ministry of Energy, Water Resource and Irrigation Mr. Dinesh Kumar Ghimire (till 1 November 2023) and Mr. Gopal Prasad Sigdel (till 27 March 2024) had represented as an officio member in the NEA Board. Similarly, Mr. Ratan Bahadur Air has been representing as the board member since 1 January 2024, after the end of the tenure of Mr. Rajendra Bahadur Chhetri in 13 November 2023.

Dr. Ram Prasad Ghimire the secretary (revenue) of Ministry of Finance as the officio member, Mr. Bhakta Bahadur Pun, Mr. Kapil Acharya, and Mr. Bharat Acharya as the member and Mr. Kulman Ghising as the member secretary, are other board members.

A total of 32 board meetings were held in FY 2023/24.

Gender Equality and Social Inclusion (GESI)

In 2020, NEA adopted the "Gender Equality and Social Inclusion Strategy and Operational Guidelines," reflecting its commitment to national GESI principles. This strategy aims to mainstream GESI within the organization and its service delivery processes. After endorsing the Strategy and Guideline, NEA is now in the phase of its implementation via various interventions.

A GESI Coordinator is positioned within the MD's Secretariat. The GESI focal teams are appointed in each of the Directorates for the coordination and reporting amongst them. These focal teams have been provided with the capacity building orientations and trainings who then have imparted the orientations to the employees of their respective offices.

During FY 2080/81, NEA & ADB jointly have conducted eight Trainings/ workshops over NEA's workplaces/ offices related to GESI Strategy and Operational Guideline Implementation. Among them few are as follows:

- Altogether 597 staffs are trained on GESI and GESI operational guidelines out of which 46% are women.
- GESI has been promoting infrastructural changes required for providing separate rest rooms, childcare facility etc. by circulating the policy directives from the NEA management at different provincial levels.
- It has been involved in skill development and promotion of energy-based livelihoods for end users of project areas.
- It has been providing the community level awareness on safe, efficient and productive use of electricity.
- It has been working closely with DCS offices and the local government to map an un-electrified, poor and marginalized households and it has been working to electrify such last mile households in Madhesh province.
- It has collaborated itself with WePOWER Network as an institutional partner and it is reporting on GESI activities to the network regularly.

NEA is planning to enhance the capacity of NEA's GESI focal team via more focused and specific capacity building activities and endorsing workplace guidelines on SEAH, etc.

ADMINISTRATION DIRECTORATE

Administration Directorate is headed by Deputy Managing Director. This directorate 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 different directorate and works as a focal point for government and other oversight agencies in relation to administrative activities of NEA.

NEA has approved the organization and management study report to fulfill the gap of required manpower of various offices, reduce the long-term liabilities of employees and enhance the quality and performance as well as career plan of employees. As a result, organization structure and permanent position of employee has been revised. O & M Report is in the process of execution.

HUMAN RESOURCE DEPARTMENT

Human Resource Department is responsible for planning, organizing, directing and controlling NEA's policies related to human resource management. The main functions of the department are job analysis, placement, transfer, training and development, staff welfare, disciplinary actions etc. Personnel Administration Division, Employee Welfare Division, Good Governance Division and Human Resource Planning and Development Section are supporting units of Human Resources Department.

In FY 2023/24, Human Resource Department carried out number of activities related to human resource management. Notable among them are:

1. Merit base placement system has been started for the recommended candidates, who are selected on competition basis.
2. All employees' profile and service log has been digitized in HRIS System.
3. Transfer management module has been induced in HRIS and will be executed by FY 2024/025.
4. "Centralized e-Attendance" system is being updated.

1. Personnel Administration Division:

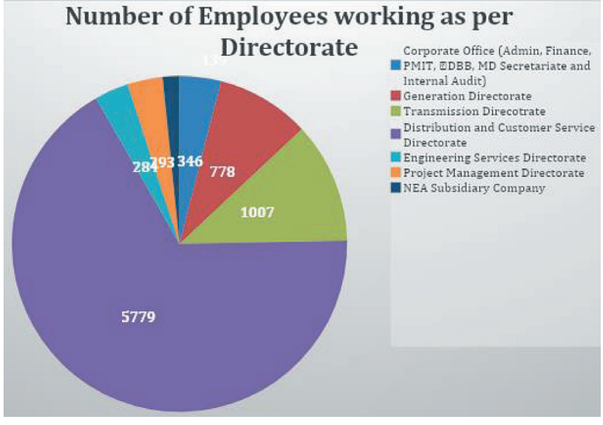
a) Central Personnel Administration Section:

Employee Status FY 2023/2024

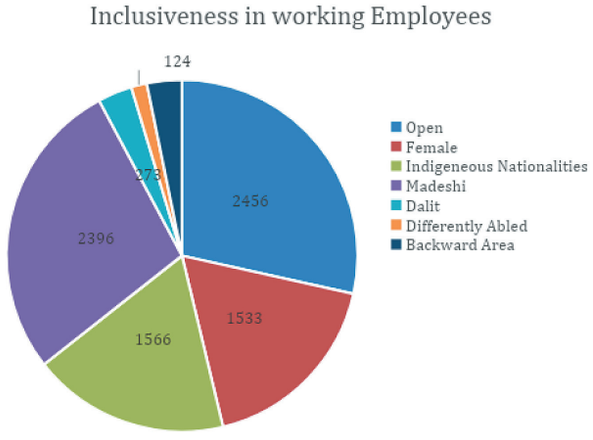
The statistics of employed human resource till the end of fiscal year 2023/024 is given in the table.

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	8	0	8
Officer Level (Level 6-11)	Technical	1758	0	1758	1249	0	1249
	Non-tech	883	0	883	599	2	601
	Total	2641	0	2641	1848	2	1850
Assistant Level (Level 1-5)	Technical	6019	0	6019	4344	116	4460
	Non-tech	2763	0	2763	2425	95	2520
	Total	8782	0	8782	6769	211	6980
Grand Total		**11433**	**0**	**11433**	**8626**	**213**	**8839**

The total number of employees working as per Directorate till the end of the fiscal year 2023/024 as in Chart



Inclusiveness in working Employees till the end of fiscal year 2023/024 is given in the chart



Similarly, Central Personnel Administration Section has accomplished the given human resource activities in the fiscal year 2023/024:

S.N.	Description	Nos.	Remarks
1.	Regular Transfer, deputation in NEA projects & NEA Subsidiary Companies	1205	By provision of NEA Service Bylaws clause 43, 46, 47
2.	Promotion& Placement	380	By provision of NEA Service Bylaws Chapter 7
3.	Special promotion	99	By provision of NEA Service Bylaws clause 67, 100
4.	New Recruitment and Placement	504	By provision of NEA Service Bylaws Clause 30
5.	Total no of Retired employees	374	Compulsory, voluntary, resignation, dismissal and deceased

b) Central Personnel Record Section:

This section maintains the record including documents of each permanent employees from appointment to retirement. This section also calculates the retirement benefit such as pension, gratuity as well as medical facility, accumulated leave facility etc. During the period, 374 employees retired and availed this facility.

2) Good Governance Management Division

This division is responsible for maintain good governance in the organization. The division receives complaints from government agencies like Commission for the Investigation of Abuse of Authority (CIAA), National Vigilance Center and Ministry of Energy, Water Resources and Irrigation as well as NEA were received and addressed as following;

S.N.	Agencies	Total Complaint	Resolved	In process
1.	Complaint received from CIAA	121	101	20
2.	National Vigilance Center	20	13	7
3.	Ministry of Energy, Water Resources and Irrigation	53	42	11
4.	Complaint within NEA	18	17	1

3. Employee Welfare Division

Employee Welfare Division provided following facilities to the employees in accordance to NEA rules and regulations in the F.Y. 2023/2024:

S.N.	Descriptions	Types	Nos.	Amount (Rs.)
1	Grant	Natural Disaster	11	4,40,000.00
		Kaj Kiriya	123	25,20,000.00
		Critical Illness	1	50,000.00
2	Medical Insurance	Accidental	26	1,78,90,849.00
		Medical Treatment	710	2,54,35,443.00
3	Group Endowment life Insurance	Payment received from Beema Corporation	309	39,40,13,624.00
		Additional payment by NEA (Difference)	315	37,23,02,306.17
		Insurance renewal	7124	79,89,64,627.12
4	Soft Loan	Social loan and Medical Treatment loan	2346	19,35,00,000.00
		Electric Vehicle Purchase Loan 300000	50	1,55,49,979.00
		House Maintenance Loan 200000	1928	38,56,00,000.00
		House/Land Purchase Loan 500000 (Additional)	331	16,55,00,000.00
		House/Land Purchase Loan 1000000	-	-

4. Human Resource Planning and Development Section

Human Resource Planning and Development Section have completed the following works in the F.Y. 2023/2024:

S.N.	Action	Descriptions	Remarks
1	Permanent Positions of NEA updated based on the Organization and Management report.	Total 11,433 positions have been approved by NEA Board on 2080/11/24	

S.N.	Action	Descriptions	Remarks
2	Nomination for Post Graduates Study in NEA Scholarship	Electrical – 5, Civil-1, Mechanical – 1, MPA - 1	
3	Leave Granted for Study Purpose in Self Finance	6 employees in different programs	
4	Nomination for Training, Conference, Workshop, Study Visit etc. in abroad	83 Employees in different programs	
5	Nomination in National Level Workshops, Trainings, Conference etc.	538 Employees in different programs	
6	Reviewed of Temporary Positions for Projects	1,843 Temp Position for 128 Projects including Transmission Line and substations etc.	
7	Nomination for Intern students from various academic institutions	Interned 715 students for 3 to 12 months of different Academic Institutions	
8	Nomination for Intern to individuals as per the recommendations of their academic institutions	Interned 36 students for 21 days to 6 months of different Academic Institutions	

GENERAL SERVICE DEPARTMENT

General Service Department (GSD) is responsible for vehicle management, logistic support and security management activities and provides necessary support to concerned offices. It also manages the land of NEA against encroachment and misuse.

The department is also responsible for events management, public relation and public grievance handling and regular publication of "Vidyut" magazine and Mandatory Publication (swatah prakashan).

In FY 2023/24, GSD carried out number of activities to fulfill its responsibilities. Notable among them are:

1. GPS system for vehicle management is in the process of execution.
2. For reliable water supply in corporate office of NEA, Deep Boring plant is installed and is on the process.
3. Construction of sophisticated toilet/washroom in corporate office premises is going on.
4. The following grievances/complaints were lodged and resolved:

S.N.	Sources of Grievances	Total Complain	No. of Settled	Remarks
1.	Hotline Number (1150) and CRM (Consumer relationship management system)	49153	48936	217 grievances are in progress to be solved.
2.	Hello Sarkar	723	620	103 grievances sent to concern office are in progress
3	Social Media (Facebook Page, Twitter)	427	426	1 complain sent to concern office is in process
4	Email/webmail	62	48	14 complains sent to concern office are in progress

S.N.	Sources of Grievances	Total Complain	No. of Settled	Remarks
5	Complain Box	10	7	2 complaints were sent to concern office and one complain received was found not to be concerned with NEA..
	Total	**50375**	**50037**	**337 complains are in progress**

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 hotline number 1150 for necessary action.

Immovable Assets

In fiscal year 2080/81, the NEA Board formed a study committee led by Board Member Ratan Bahadur Ayer to collect initial data of NEA's land and buildings. The committee submitted its report to the Board on 2081/02/30. According to the study's findings, NEA has a total of 40,297 Ropani, 2 Paisa, and 3.76 Daam of land, of which 34,326 Ropani and 11 Anna are owned by NEA. Additionally, 5,970 Ropani, 5 Ann a, 2 Paisa, and 1.47 Daam of land are not owned but are in use by NEA. Out of the total land, 347 Ropani, 2 Aana and 2.25 Daam of land are reportedly encroached upon by the public and other institutions.

NEA has successfully reclaimed the encroached land of Balaju Substation and initiated boundary construction to secure an area of 36 Ropani and 2 Anna. After prolonged efforts, NEA obtained the Land Registration Certificate for its Head Office in Ratnapark, covering 26 Ropani, 2 Anna, 1 Paisa, and 1 Daam. Similarly, the Land Registration Certificate for 8 Anna of land in Swayambhu, which was also reported as encroached upon, has been secured. NEA is planning to reclaim other identified encroached land and in case of land lacking formal ownership, correspondence to start due process of registration of such land has been made to concerned offices.

RECRUITMENT DEPARTMENT

The Nepal Electricity Authority (NEA), under the stewardship of Administration Directorate, has demonstrated notable progress in recruitment and promotions recommendations over the past year. Through continuous enhancement of recruitment strategies and robust internal talent development, NEA is well-positioned to realize its strategic objectives while actively contributing to the advancement of organization's objectives.

Recruitment Recommendations:

During the reporting period, NEA recommended a substantial number of qualified candidates for key organizational roles. These recommendations encompassed both external hires and internal transfers, strategically aligned with NEA's comprehensive workforce planning objectives.

- **Selections Made:** After a rigorous selection procedure, NEA recommended 504 qualified candidates.
- **Applications Received:** During FY 2080/81, NEA received 45,816 applications from deserving candidates for various positions announced on Kartik 24, 2080.
- **Integrated Merit List:** The Recruitment Department also finalized and released an integrated merit list for assistant-level positions in the provincial selection process of recommended candidates.

Promotion Recommendations:

NEA continued its focus on promoting deserving employees through a structured and merit-based promotions recommendation system. This system identified high-performing individuals demonstrating leadership potential and making substantial contributions to NEA's mission. Emphasizing transparency and fairness, the promotion processes underscored NEA's commitment to recognizing excellence and fostering internal career growth opportunities. Feedback from promoted employees highlighted the system's alignment with their professional aspirations.

- 64 existing employees were recommended for upper-level positions through internal competition.
- 221 personnel were promoted based on seniority and performance appraisal (Jesthata & kary-asampadana mulyankan).
- 95 personnel were promoted based on performance evaluation (Karyaksamata Mulyankan) criteria as per bylaws.

Both Open Competitions and Internal Competitions were managed by the Public Service Commission, and the results are currently being finalized. NEA remains committed to excellence in recruitment practices, continually refining its approaches to align with organizational objectives and uphold the highest standards of professionalism and efficiency in public service.

Enhancement in Performance Evaluation and Promotion System

During the review period, NEA has implemented the software-based automation system for the promotion evaluation and recommendation to deserving candidates based on objective criteria and performance metrics as per bylaws. This initiative underscores NEA's commitment to fostering a meritocratic environment where employee contributions are recognized and rewarded effectively.

Implementation of Performance Appraisal System:

NEA has introduced a new performance appraisal software to systematically assess and evaluate employee performance. This software facilitates a structured approach to performance reviews, enabling supervisors and managers to conduct evaluations based on predetermined key performance indicators (KPIs) and competencies relevant to each job role.

LEGAL DEPARTMENT

The legal department also involves in arbitration, legal drafting, bid evaluation, investigation, case study and negotiations. In the same year, the department provided 192 numbers of legal advices to the different NEA offices. During the year, 348 number of cases were registered in different courts for and against of NEA. The different courts have finalized 175 number of cases, out of them, 133 verdicts were in favor of NEA and 42 cases were against the NEA, 173 case are under consideration. 17 disputes on various contract of NEA have filed for arbitration. Among of them, only one case is on favor of NEA, 7 cases are against NEA and 9 cases are yet to decide. The administrative review committee, formed according to the Employees services bylaws, have decided 36 petitions on various dates and remaining 6 petitions are under review process.

FINANCE DIRECTORATE

Introduction

The Finance Directorate (FD), led by the DMD (Deputy Managing Director), is responsible for all of NEA's financial operations. Core responsibilities include managing revenue streams, monitoring and supervision of books of accounts, Planning & controlling budget and expenditures, handling the organization's overall finances and ensuring regulatory compliances. There are three departments under finance directorate namely Accounts, Corporate finance and Regulatory Compliance Department. Physical Verification & Valuation of Assets Project have been established under this directorate for verification & revaluation of Property, Plant & Equipment (PPE) and Institutional Strengthening Project for implementation of revenue management (RMS) & Enterprise Resource Planning (ERP) system.

Operational Performance

The total available energy in FY 2023/24 of 13,966 Million Units (MU) includes NEA generation of 2,911 MU, NEA subsidiaries 2,597 MU, IPPs 6,564 MU. NEA has imported 1,895 MU energy in dry season in this year. Total of 10,243 MU has been utilized in Nepal, and 1,946 MU was exported to India. In this fiscal year, NEA has successfully become a net exporter of energy in terms of both quantum and amount. Total availability of energy has been increased by 12.91% as compared to previous year 2022/23. Total consumption inside Nepal has been increased by 9.46% in the current fiscal year. Furthermore, Export has been increased by 44.57% as compared to previous year 2022/23 of total 1,346 MU. There has been reduction in aggregate system loss from 13.46% in previous year to 12.73% this year which is the lowest system loss observed till date.

Number of Consumers

By the end of the fiscal year 2023/24, the number of consumers has reached 5.46 million excluding around 0.48 million consumers served by the Community Rural Electrification Program (CREP). NEA sells power to CREP in bulk and provides operational and management support.

Domestic consumers accounted for 91.54% of total electricity consumers in FY2023/24, while industrial and other consumers reported for 1.26% and 7.20% respectively.

Revenue

During the fiscal year 2023/24, net sales revenue was accounted to NRs 115,798 million after a rebate of NRs 1,236 million which was provided to consumers who paid on time in compliance with the electricity collection regulations. Net sales revenue has increased by 15.40% as compared to the previous year of NRs 100,346 million.

Income from other services has been increased from NRs. 10,321 million in the previous fiscal year to NRs.10,911 million in the current fiscal year. Furthermore, due to decrease in the fixed deposit amount and reduction in the interest rate the finance income has decreased by 59.13% from NRs 6,635 million in the previous year to NRs.2,712 million in this fiscal year.

Cost of Sales

The overall cost of sales has increased from NRs. 80,538 million in the previous fiscal year to NRs. 88,529 million in the current fiscal year 2023/24. All of the costs involved in generation, transmission and distribution of electricity are included in the cost of sales. The cost of generation has slightly decreased from 2,259 million in the previous year to NRs. 2,210 million in this fiscal year, while the cost of transmission has been slightly increased by 2.10% and reached to NRs. 2,376 million in current fiscal year. Distribution costs has been increased from NRs. 11,555 million in the previous year to NRs. 12,268 million in this fiscal year. Expenditures for power purchase has risen from NRs. 61,855 million in 2022/23 to NRs. 69,054 million in 2023/24. The royalty fee and power export service charge of NRs. 1,636 Million and NRs. 984 Million respectively added to the total cost of sales in this year.

Other Costs

The expected interest expense for FY 2023/24 is NRs. 6,130 million, increased from NRs. 5,720 million in FY 2022/23. Also, the total amount on depreciation & amortization of Property Plant & Equipment and Intangible assets amounted to NRs. 8,871 million in FY 2023/24, increased from NRs. 8,148 million in FY 2022/23. Foreign exchange loss reduced to NRs. 1,528 million in FY 2023/24 from NRs. 1,542 million in FY 2022/23. Provision amounting to NRs 1,750 million has been made for employee long-term liabilities which include gratuity, pension, medical facilities, insurance, and accumulated leave in FY 2023/24.

Profit & Loss

The total incomes and expenditures for the current fiscal year were recorded at NRs 129,420 million and NRs 116,113 million respectively. Consequently, the net profit before tax amounted to NRs 13,307 million. The retained earnings had a significant growth, rising from NRs. 33,642 million in the previous year to NRs. 47,408 million in the current year.

Other Non-Current Assets

Non-current assets include property, plant, and equipment (PPE), capital work in progress (CWIP), investments, loans & advances at amortized cost. NEA added gross NRs. 19,001 million in property, plant and equipment following the completion of distribution system reinforcements, rural electrification projects, substations, transmission line and distribution line projects resulting net property plant & equipment NRs 234,505 million in FY 2023/24.

NEA invested on a wide range of projects related to power generation, transmission, and distribution. The net increase in capital works in progress was NRs. 45,207 million, resulting to NRs. 221,631 million in FY 2023/24. GON equity & loans, foreign loans & grants, and NEA's internal fund were among the sources of financing. Most of the funds are utilized in rural electrification projects, transmission line & substation and hydroelectricity projects.

Investments in subsidiaries, associates, joint ventures, and others amounted to NRs. 36,522 million in the fiscal year 2023/24 including NRs 7,775 million fair value reserve as per NFRS till 2022/23. During this fiscal year, NRs. 8,126 million has been invested in subsidiaries, associates, and other companies.

Current Assets

Current assets include inventories, trade receivables, prepaid advances & deposits, short term loans to subsidiaries, cash & cash equivalents, and current tax assets. Current

assets by the end of this fiscal year accounted to NRs. 96,947million which is 15.33% of total assets. Total trade & other receivables reached NRs. 42,279 million till the end of current year, including NRs. 27,299 million from industrial consumers, NRs. 6,895 million from streetlight consumers and NRs. 8,085 million from others. Out of total trade receivables from industrial consumers, dedicated & trunkline dues totaled NRs 21,878 million including surcharge.

NEA has claimed Rs 4,607 million to GoN against COVID subsidy provided by GoN to consumers which is yet to be received.

Non-Current Liabilities

The total amount of long-term borrowings from the GoN, amounted to NRs. 241,116 million in fiscal year 2023/24, compared to NRs. 216,295 million in the fiscal year 2022/23. NEA has received a loan of NRs. 7,336 million and NRs 23,271 million from the GoN and donor agencies in FY 2023/24 respectively. NEA has repaid NRs. 1,500 million debt during the current fiscal year. Donors have committed additional loan financing of NRs. 37,785 million in the current year 2024/25 for existing and new projects.

Current Liabilities & Provisions

Current liabilities include trade & 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 GoN are yet to be paid. Current liabilities by the end of this fiscal year accounted to NRs. 68,510 million which is 18.36% of total liabilities.

Equity

Equity includes the aggregate of share capital, retained earnings, and other reserves. NEA has received NRs. 4,721 million as share capital in FY 2023/24. NEA has reinvested its retained earnings into various generation, transmission, and distribution projects to enhance the reliability of power system. As a result, NEA has not yet distributed any dividends. Donors have committed NRs.3,800 million in the current year 2024/25 as grant for enhancing quality and reliability of power system.

Contribution to GoN treasury

NEA has contributed to GoN treasury total Rs 12,185 million in current fiscal year 2023/24 which includes royalties, interest, advance tax, loan, VAT, Tax deduction at source (TDS) amounting to NRs. 1,636 million, 6,280 million, 1,183 million, 1500 million, 360 million and 2,726 million respectively.

Accounts & Audit

The accounts department is responsible mainly 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.

For the first time in the history of NEA, audit of the financial statements for FY 2022/23 has been completed and income tax return has been filed within the time frame mandated by the Income Tax Act of 2058. Substantial amount of penalties has been saved due to timely filing of the Income tax return.

The final income tax assessment for fiscal year FY 2019/20 has been concluded by the Large Taxpayer's Office (LTO). NEA Board and audit committee periodically assesses the audit qualifications and instructs management to resolve issues. The resolution of policy-related audit qualifications is being addressed by 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 the fiscal year 2018/19. Three chartered accountants Mr. Sunir Kumar Dhungel, Mr. Jiwan Kumar Budhathoki and Mr. Prachanda

Dhoj Karki has been designated by Office of the Auditor General (OAG) to carry out statutory audit for the fiscal year 2023/24 under their direct supervision. NEA anticipates successfully concluding audit within the timeframe specified by OAG for the current fiscal year.

NEA received an institutional rating of AA+ from ICRA Nepal Ltd in FY 2021/22. Currently, the surveillance activities for the fiscal year 2023/24 has been started.

Centralized Financial Systems

Finance Directorate is leading a centralized accounting project for the centralization of Accounting, Inventory and Assets Management System (AMS). With regard to Accounting and AMS system, new system has already commenced from the start of fiscal year 2024/25 after the proper migration and verification of data since FY 2059/60. Centralization system will assist in the timely preparation of the financial statements, planning & budgeting, reporting and conducting the audit in an efficient and effective way.

Vendor centralization has been successfully completed due to which we are able to control the transactions with vendors and restrict the transactions with non-filer parties from the central level. Further due to centralization of TAX and VAT, TDS/VAT of all the offices can be deposited from the central level through a single transaction. Timely deposition of TDS/VAT could be ensured and there will be no over burden of fines/penalties to NEA because of delay deposition and conducting transactions with non-filer parties.

Moreover, NEA has planned to streamline the inventory control system and reconcile the old long time pending inter-unit transactions by fiscal year 2024/25.

Institutional Strengthening Project (ISP)

NEA is currently undertaking efforts to modernize its diverse operational activities with the aim of enhancing overall efficiency. NEA is engaged to enhance the effectiveness of its financial accounting and management decision support systems. Presently ISP is working with the procurement and implementation of three packages: (i) Supply and Installation of Revenue Management System (RMS) (ii) Supply and Installation of ERP based Integrated Financial Management Information System (IFMIS) and (iii) Project Management Consultant (PMC) for the supervision of implementations of IFMIS and RMS at NEA.

Regarding RMS, major milestones including requirements Gathering, Updated FRS verification, System Customization, Data Cleansing, Finalizing Data Governance List, Piloting of Data Digitization of consumers' legacy documents, pre-UAT workshops and Installation & commissioning of IT infrastructure and related software in NEA's Data Center have already been completed. NEA is heading for User Acceptance Testing (UAT) of the system.

Assets Verification & Valuation Project

Asset Verification and Valuation Project's main objectives include 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 NFRS. Consultant have completed the physical verification and valuation of Property, Plant & Equipment and submitted the final report which is at the final stage of review by the management.

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 2023/24, 6,653 and 9,294 employees were involved in the RF and ESF respectively. At the end of FY 2023/24, the total fund

balance was 6,824 million NPR, of which 1,045 million NPR has been provided as loan to the contributors. Investments in Fixed deposits at banks and debentures amount to 3,215 million NPR and 2,786 million NPR respectively at the end of FY 2023/24. The Retirement Fund also makes retirement payments of NEA's staff from FY 2022/23.

Regulatory Compliance Department

The Economic Analysis Department (EAD) has been converted into Regulatory Compliance Department (RCD) with more roles and responsibilities. This department is mainly responsible for conducting activities related to the economic/financial, commercial and market analysis of NEA, coordinating with Electricity Regulatory Commission (ERC), Nepal Telecom Authority (NTA) and other related regulatory bodies as a focal unit.

RCD has prepared the tariff petition to ERC via authorization of NEA Board abiding by the regulation of ERC. The preliminary tariff petition has presented to NEA board which is under review. In addition to this, the department has conducted the study of electricity consumption pattern, development of retail tariff module, study for the cost of service provided by NEA, update of Key performance indicators (KPIs) of Corporate Development Plan (CDP), economic and financial analysis for NEA and regulatory compliance reporting.

Nepal Electricity Authority
Highlights of FY 2023/24

Description	FY 2024*	FY 2023	Increase/ (Decrease)	
			Amount	%
Revenue				
Net Sales Revenue -Nepal (M.NRs.)	98,732	89,888	8,844	9.84
Net Sales Revenue Export(M.NRs.)	17,066	10,458	6,608	63.18
Total Revenue (M. NRs.)	**115,798**	**100,346**	**15,452**	**15.40**
Cost of Sales				
Generation Expenses (M. NRs.)	(2,210)	(2,259)	49	(2.16)
Power Purchase- Subsidaries (M. NRs.)	(10,732)	(10,001)	(731)	7.31
Power Purchase- IPPs (M. NRs.)	(41,393)	(32,149)	(9,244)	28.75
Power Purchase -India (M. NRs.)	(16,929)	(19,706)	2,777	(14.09)
Royalty (M. NRs.)	(1,636)	(1,537)	(100)	6.49
Transmission Expenses (M. NRs.)	(2,376)	(2,327)	(49)	2.10
Power Service Export Charge (M. NRs.)	(984)	(1,004)	20	(1.98)
Distribution Expenses (M. NRs.)	(12,268)	(11,555)	(713)	6.17
Total Cost of Sales	**(88,529)**	**(80,538)**	**(7,991)**	**9.92**
Gross Profit	**27,269**	**19,808**	**7,461**	**37.67**
Income from other Services (M.NRs.)	10,911	10,321	589	5.71
Personnel Expenses (Inc Retirement Benefits (M.NRs.)	(6,388)	(6,323)	(65)	1.02
General Administration & Operating Expenses (M.NRs.)	(765)	(626)	(139)	22.29
Depreciation and Amortisation Expenses (M.NRs.)	(8,871)	(8,148)	(723)	8.87
Net Operating Expenses (M. NRs)	**(5,113)**	**(4,775)**	**(338)**	**7.07**
Operating Profit (M. NRs.)	**22,156**	**15,033**	**7,123**	**47.38**
Finance Income (M. NRs.)	2,712	6,635	(3,924)	(59.13)
Finance Cost (M. NRs.)	(6,130)	(5,720)	(410)	7.17
Forex Gain/(Loss) (M. NRs.)	(1,528)	(1,542)	14	(0.90)
Impairment (Charge)/ Reversal (M.NRs.)	(2,802)	(632)	(2,170)	343.24
Other Non Operating Expenses (M.NRs.)	-	(8)	8	(100.00)
Share of Profit/(Losses) from JV/Associates (M.NRs)	(1,101)	(1,689)	589	(34.85)
Net Profit/(Loss) Before Tax(M. NRs.)	**13,307**	**12,077**	**1,231**	**10.19**
Total Available Electric Energy (GWh)	**13,966**	**12,369**	**1,597**	**12.91**
NEAGeneration (GWh)	2,911	2,930	(19)	(0.65)
Purchased Energy (GWh) - Subsidaries	2,597	2,488	109	4.37
Purchased Energy (GWh) - IPPs	6,564	5,118	1,446	28.25
Purchased Energy (GWh) - India	1,895	1,833	62	3.38
Average Power Power Purchase Rate				
Average Power Purcahse Rate- (NRs./KWh)	6.25	6.55	(0.31)	(4.69)
Total Sales of Electricity (GWh)	**12,189**	**10,704**	**1,485**	**13.87**
Internal Sold/Utilized (GWh)	10,243	9,358	885	9.46
Exported Energy (GWh)	1,946	1,346	600	44.57
Average Sales Rate				
Averagesales Price of Electricity Overall (NRs./kWh)	9.50	9.37	0.13	1.34
Others				
Peak Load Interconnected System (GWh)	2,211.62	1,870.46	341	18.24
Self Consumption (GWh)	11	11	-	-
Net System Losses (Percentage)	12.73%	13.46%	-0.7%	(5.45)
Number of Consumers	**5,459,275**	**5,118,234**	**341,041**	**6.66**

Note: *Provisional figures (Subject to audit)

Nepal Electricity Authority
Statment of Financial Position

Particulars	2024*	2023	2022	2021	2020	2019	2018	2017	2016	2015
Assets										
Non Current Assets										
Property, Plantand Equipment	234,505	215,504	202,179	165,586	157,384	125,977	112,985	90,341	88,521	86,439
Capital WIP	221,631	176,423	140,231	140,484	114,300	104,841	77,607	80,272	66,684	58,052
Goodwill and Intangible Assets	35	38	43	48	44	-	-	-	-	-
Investment in Subsidaries & Associates	36,522	29,725	20,378	34,915	20,768	20,387	37,793	33,741	21,755	17,551
Deposit	1,470	1,291	1,132	992	913	912	-	-	-	-
Loans and Advances measured at Amortised Cost**	41,293	41,249	37,343	31,154	26,539	24,130	1,132	663	651	625
Total Non Current Assets	535,456	464,230	401,307	373,178	319,948	276,247	229,517	205,018	177,611	162,667
Current Assets										
Inventories	18,435	18,137	10,499	10,421	11,931	9,483	7,544	4,218	3,376	3,170
Trade and other receivables	42,279	40,978	36,533	33,488	31,492	18,854	15,951	13,955	11,187	9,927
Prepaid,Advances and Deposits	8,159	11,657	11,037	11,610	6,625	2,127	3,507	3,700	3,153	3,158
Shorterm Loan	689	3,222	2,680	2,435	2,226	-	-	-	-	-
Investment in Fixed deposit	5,174	10,021	35,884	20,800	21,950	11,450	-	-	-	-
Cash and Cash Equivalents	10,951	18,885	17,143	22,767	19,328	27,097	34,495	24,824	15,362	10,622
Current Tax Assets	11,260	10,073	7,350	4,444	2,946	2,412	1,909	1,611	-	-
Total Current Assets	96,947	112,972	121,125	105,965	96,498	71,423	63,405	48,309	33,078	26,877
Total Assets	632,403	577,202	522,432	479,142	416,446	347,670	292,922	253,326	210,689	189,544

Liabilities										
Current Liabilities										
Trade and other liabilities	61,608	58,387	59,689	53,536	52,454	56,823	59,292	54,484	51,324	45,743
Short term Borrowings**	3,000	3,000	3,000	2,658	2,116	2,087	10,711	10,619	-	-
Other current Liabilities	3,902	4,335	4,319	3,933	3,756	-	-	-		
Total Current Liabilites	68,510	65,722	67,009	60,128	58,326	58,910	70,003	65,102	51,324	45,743
Non Current Liabilites										
LongTerm borrowings	241,116	216,295	203,472	179,283	163,737	133,917	109,550	100,063	111,304	98,253
Deferred tax Liabilities	11,004	8,379	5,275	7,176	3,891	2,244	2,040	2,598	693	693
Other Non Current Liabilities	52,432	45,295	40,324	40,024	36,353	26,701	25,945	23,426	21,359	19,309
Total Non Current Liabilites	304,552	269,970	249,071	226,482	203,981	162,862	137,535	126,087	133,356	118,256
Total Liabilities	373,061	335,692	316,080	286,610	262,307	221,773	207,538	191,189	184,681	163,999
Equity										
Share Capital	206,515	199,384	175,337	161,438	140,960	128,440	102,438	82,411	58,528	49,275
Retained Earnings	47,408	33,642	24,765	11,064	4,489	(12,182)	(25,301)	(28,424)	(34,608)	(25,751)
Other reserves	5,419	8,484	6,250	20,030	8,690	9,639	8,247	8,150	2,089	2,022
Total equity	259,342	241,511	206,352	192,532	154,139	125,897	85,384	62,137	26,009	25,546
Total Equity and Liabilites	632,403	577,202	522,432	479,142	416,446	347,670	292,922	253,326	210,689	189,544

*Provisional Figures (Subject to audit)
**Presented as per NFRS adjustments since 2017.

Nepal Electricity Authority
Statement of Profit & Loss

Particulars	2024*	2023	2022	2021	2020	2019	2018	2017	2016	2015
Sales Revenue	115,798	100,346	87,155	70,859	71,293	66,613	55,358	46,796	31,824	30,169
Less: Cost of Sales										
Power Purchase Cost- IPPs	(41,393)	(32,149)	(23,493)	(17,901)	(20,554)	(14,772)	(13,132)	(11,084)	(7,115)	(7,307)
Power Purchase Cost- NEA Subsidaries	(10,732)	(10,001)	(9,114)	(1,124)	(1,141)	(1,170)	(1,138)	(1,197)	(1,163)	(1,155)
Power Purchase Cost- India	(16,929)	(19,706)	(15,438)	(21,821)	(13,425)	(22,954)	(19,861)	(16,052)	(14,054)	(10,748)
Other Cost of Sales	(19,475)	(18,682)	(15,574)	(15,439)	(15,012)	(14,408)	(13,773)	(12,493)	(10,145)	(9,353)
Total Cost of Sales	**(88,529)**	**(80,538)**	**(63,619)**	**(56,285)**	**(50,132)**	**(52,134)**	**(46,766)**	**(39,629)**	**(31,314)**	**(27,408)**
Gross Profit	**27,269**	**19,808**	**23,536**	**14,574**	**21,161**	**14,479**	**8,592**	**7,167**	**510**	**2,761**
Other Income	10,911	10,321	10,111	7,881	4,783	4,785	3,186	2,471	1,792	1,995
Personnel Expenses Including retirement benefits	(6,388)	(6,323)	(5,867)	(5,178)	(6,285)	(4,944)	(4,215)	(3,374)	(3,039)	(3,189)
General Administration Expenses	(505)	(490)	(299)	(258)	(245)	(270)	(219)	(237)	(144)	(134)
Depreciation and Amortisation Expenses	(8,871)	(8,148)	(7,499)	(6,326)	(5,339)	(4,852)	(4,210)	(3,755)	(3,554)	(3,471)
Other Operating Expenses	(261)	(136)	(188)	(102)	(181)	(57)	(87)	(67)	(52)	(58)
Operating Profit	**22,156**	**15,033**	**19,794**	**10,591**	**13,894**	**9,141**	**3,046**	**2,205**	**(4,487)**	**(2,097)**
Finance Income	2,712	6,635	4,886	3,907	5,337	4,807	3,522	2,436	1,458	1,122
Finance cost	(6,130)	(5,720)	(5,977)	(5,482)	(4,537)	(3,985)	(3,283)	(3,546)	(5,080)	(4,670)
Other gains/(losses)/Forex	(1,528)	(1,542)	(1,721)	(225)	(228)	(9)	(278)	411	(746)	523
Impairment (Charge)/ Reversal	(2,802)	(632)	(1,015)	(2,552)	(1,139)	(172)	(30)	-	-	-
Other Non-operating Income	-		-	-		-	-	-	-	-
Other Non-operating expenses	-	(8)	(5)	(6)	(2)	(11)	(31)	(3)	(34)	(8)
Share of profit from investment in JV/ Associates	(1,101)	(1,689)	(904)	39	41	68	29	-	-	-
				(1,528)						
Profit before income tax	**13,307**	**12,077**	**15,058**	**6,272**	**13,366**	**9,838**	**2,975**	**1,502**	**(8,890)**	**(5,130)**

*Provisional Figures (Subject to audit)

Nepal Electricity Authority

Ratios

Particulars	2024*	2023	2022	2021	2020	2019	2018	2017	2016	2015
Profitability Ratios										
Gross Profit Ratio	24%	20%	27%	21%	30%	22%	16%	15%	2%	9%
Operating Profit Ratio	19%	15%	23%	15%	19%	14%	6%	5%	-14%	-7%
Net Profit Ratio	9%	9%	15%	9%	16%	15%	6%	3%	-28%	-17%
Liquidity & Turnover Ratio										
Current Ratio	1.42	1.72	1.81	1.76	1.65	1.21	0.91	0.74	0.64	0.59
Quick Ratio	1.15	1.44	1.65	1.59	1.45	1.05	0.80	0.68	0.58	0.52
Interest Coverage Ratio	5.06	4.05	4.57	3.09	4.24	3.51	2.21	1.68	-0.18	0.29
Total Assets Turnover Ratio	0.22	0.21	0.17	0.15	0.17	0.19	0.19	0.18	0.15	0.16
Efficiency										
Inventory Turnover Ratio	4.80	4.44	6.06	5.40	4.20	5.50	6.20	9.40	9.27	8.65
Inventory Days	76	82	60	68	87	66	59	39	39	42
Accounts Receivable Ratio	3	2	2	2	2	4	3	3	3	3
Accounts Receivable Days	133	149	153	172	161	103	105	109	128	120
Accounts Payable Ratio	1.44	1.38	1.07	1.05	0.96	0.92	0.79	0.73	0.61	0.60
Cash Turnover	7.18	3.47	1.64	1.63	1.73	1.73	1.60	1.89	2.07	2.84
Leverage & Solvency										
Debt to Equity	0.94	0.91	1.00	0.94	1.08	1.08	1.41	1.78	4.28	3.85
Debt to Capital	0.48	0.48	0.50	0.49	0.52	0.52	0.58	0.64	0.81	0.79
Rates of Return										
Return on Equity	4%	4%	6%	3%	8%	8%	4%	2%	-34%	-20%
Return on Assets	2%	2%	3%	1%	3%	3%	1%	1%	-4%	-3%

*Provisional Figures (Subject to audit)

Significant Accounting Policies and Explanatory Notes

For the year ended Ashad 31, 2081 (July 15, 2024)

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 is 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 includes 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.

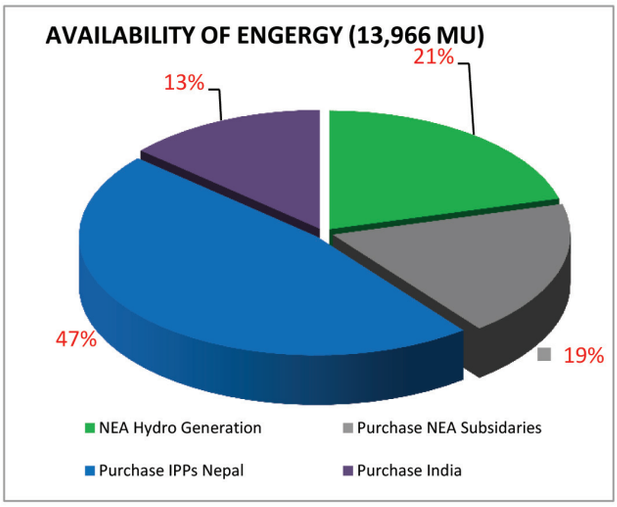
2.28 Finance Cost

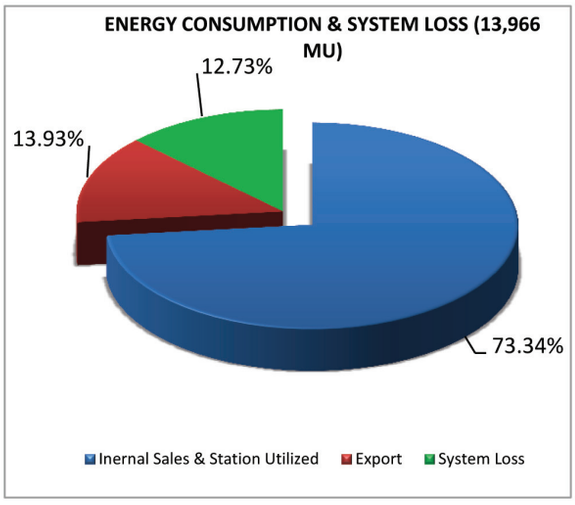
Finance costs includes borrowing cost and other interest expenses & charges on borrowings. Borrowing costs that are directly attributable to the construction of a qualifying asset are included in the cost of that asset. Other interest & charges on borrowing are treated as an expense in the period in which it occurs.

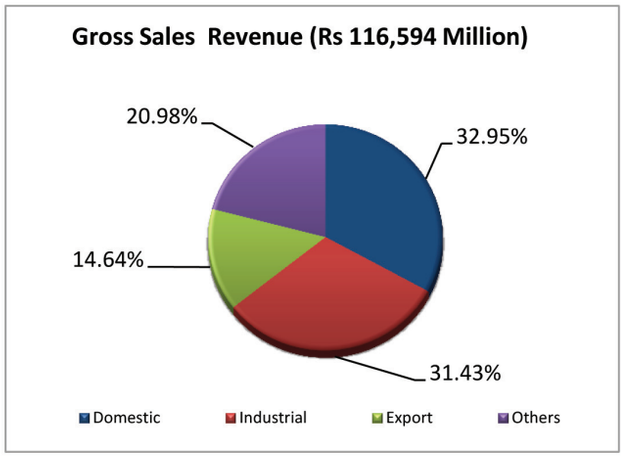
2.29 Foreign Currency Transactions

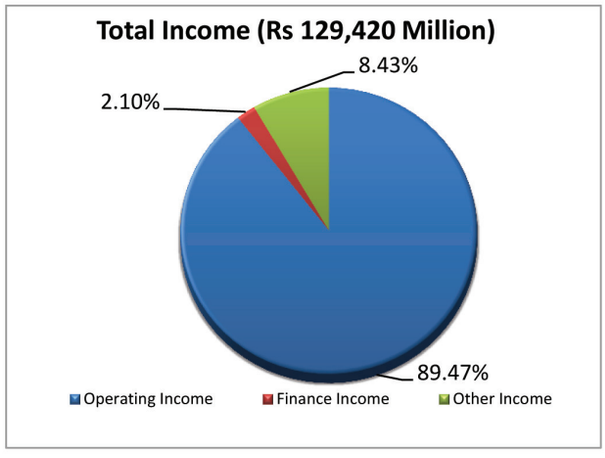
The transactions in foreign currency recognized at the prevailing rate on transaction date. The balances of monetary assets and liabilities in foreign currencies are translated at closing rate. The resulting gain or loss due to the translation is taken to Statement of Profit or Loss.

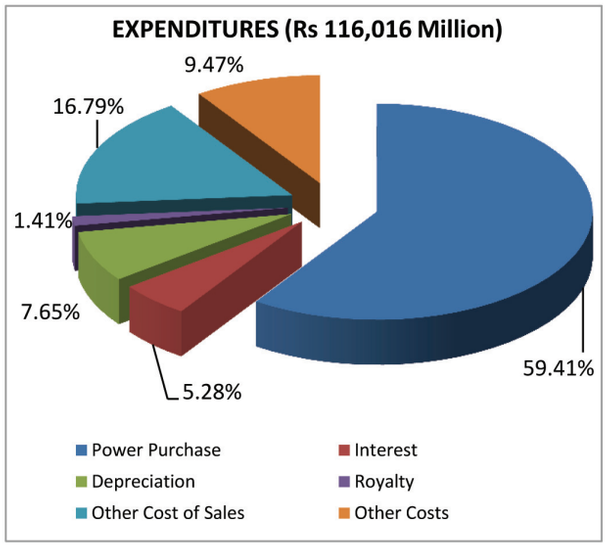
Statistics & Schematics

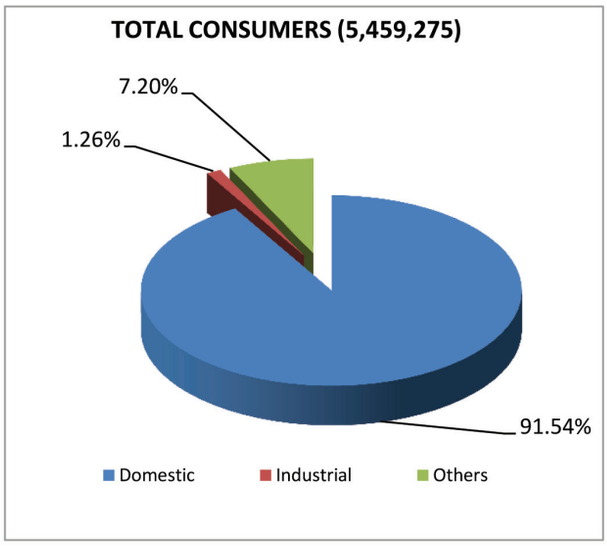






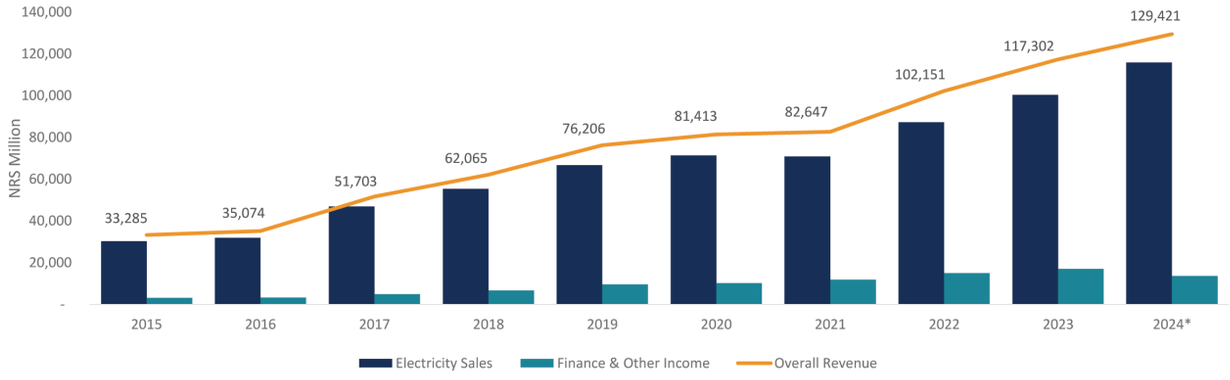




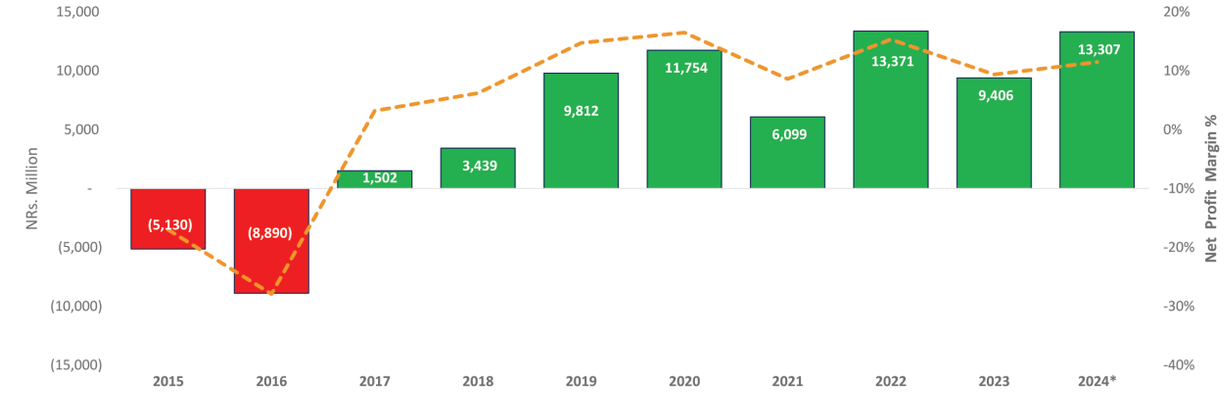


Financial Dashboard

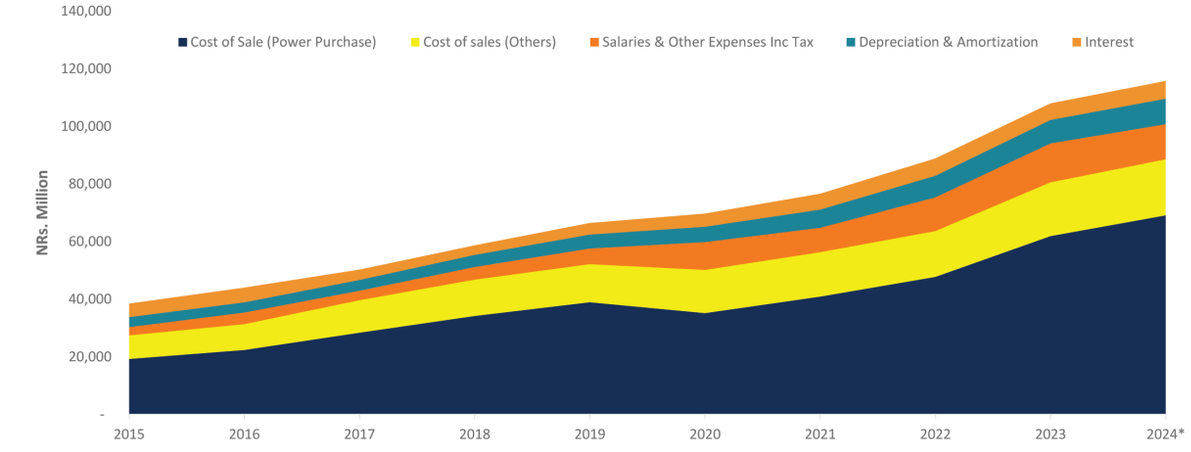
Overall Revenue Including Other Income



Profit & Loss & Net Profit Margin

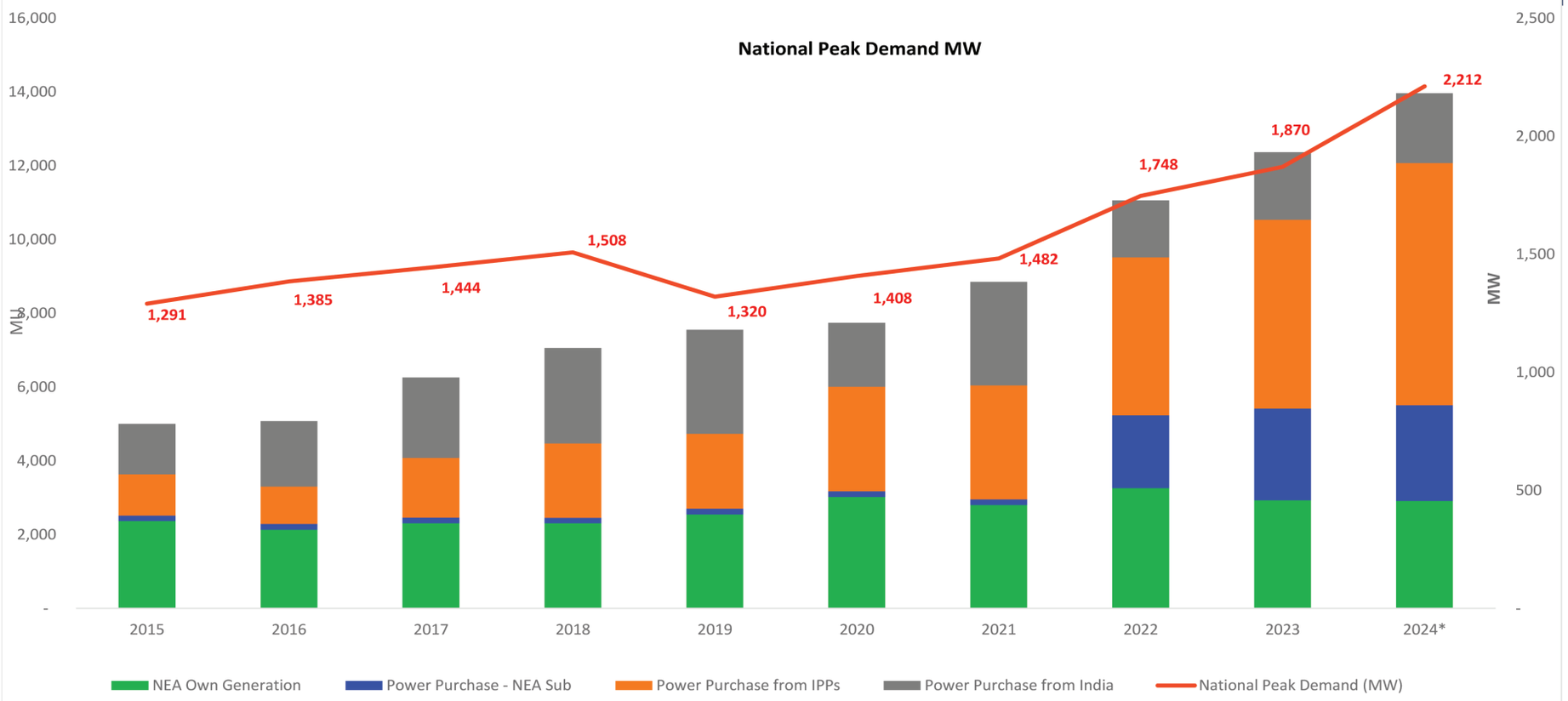


Expenses Breakup



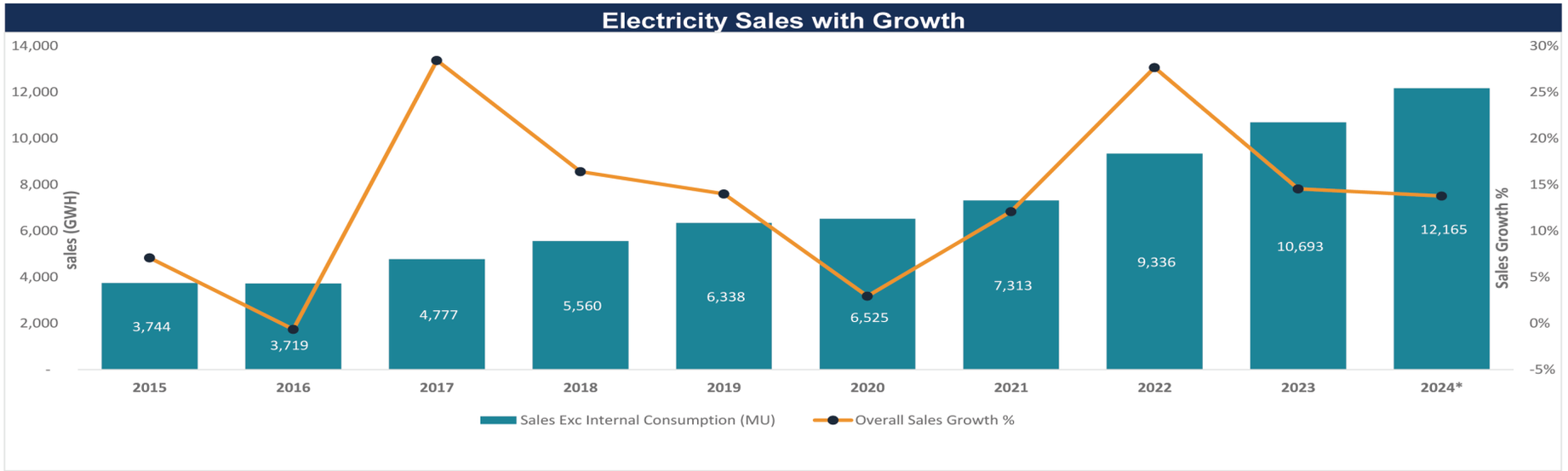
* Provisional Figures (subject to final audit)

Total Energy Available & Peak Demand



Particulars	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*
Availability (MU)										
NEA Own Generation	2,368	2,133	2,305	2,308	2,548	3,021	2,804	3,259	2,930	2,911
Power Purchase - NEA Sub	147	154	155	149	157	155	148	1,976	2,488	2,597
Power Purchase from IPPs	1,122	1,012	1,623	2,019	2,033	2,836	3,093	4,286	5,118	6,564
Power Purchase from India	1,370	1,778	2,175	2,582	2,813	1,729	2,806	1,543	1,833	1,895
Total Availability (MU)	**5,007**	**5,077**	**6,258**	**7,058**	**7,551**	**7,741**	**8,851**	**11,064**	**12,369**	**13,966**
National Peak Demand (MW)	1,291	1,385	1,444	1,508	1,320	1,408	1,482	1,748	1,870	2,212
System Peak Demand Including Export (MW)								1,964	1,986	2,467

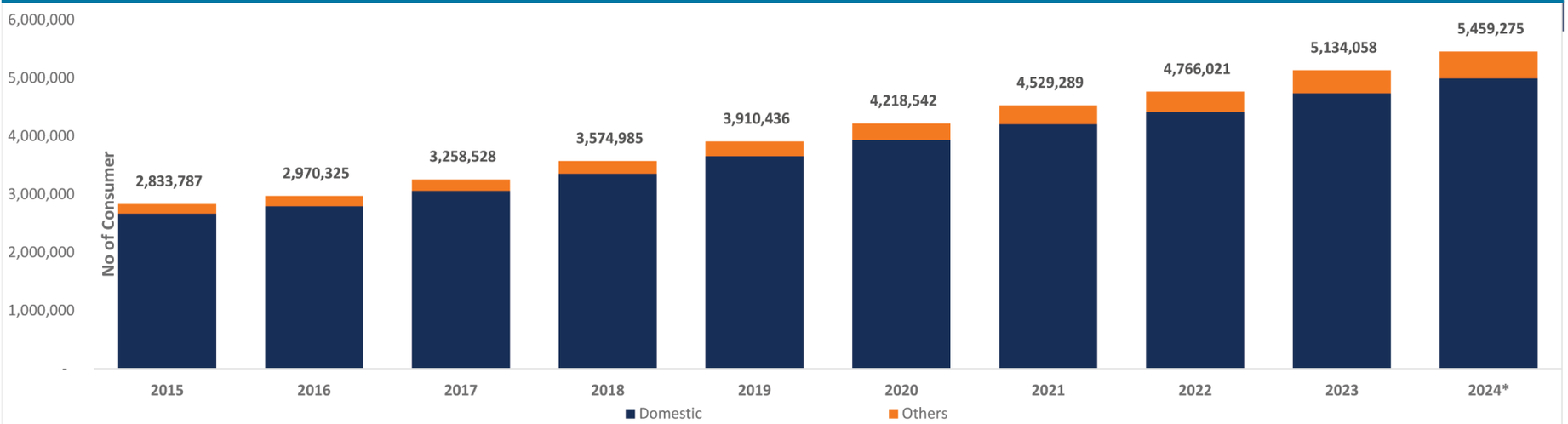
* Provisional Figures (Subject to audit)



Particulars	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*
Sales Exc Internal Consumption (MU)	3,744	3,719	4,777	5,560	6,338	6,525	7,313	9,336	10,693	12,165
								-	-	-
Sales Growth %	0%	28%	16.4%	14%	3%	3%	12%	28%	15%	14%
Sales Category (GWh)										
Domestic	1,679	1,797	2,164	2,442	2,666	2,852	3,138	3,730	3,897	4,309
Non Commerical	131	134	161	172	186	190	204	260	276	323
Commercial	300	286	351	408	466	487	511	656	737	826
Industrial	1,352	1,206	1,719	2,074	2,422	2,301	2,816	3,448	3,576	3,694
Water Supply & Irrigation	87	100	116	138	176	182	211	242	315	405
Street Light	76	74	76	77	79	84	88	98	103	139
Temporary Supply	2	2	3	3	3	3	4	4	5	10
Transport	6	6	6	5	5	3	2	4	7	21
Temple	5	6	7	8	8	8	8	11	12	15
Non Domestic	-	-	54	103	148	151	116	187	230	288
Entertainment	-	-	1	3	6	5	4	8	10	12
Community Sales	103	104	116	125	140	151	173	193	180	175
Total Internal Sales (MU)	**3,741**	**3,716**	**4,774**	**5,557**	**6,303**	**6,418**	**7,275**	**8,842**	**9,347**	**10,219**
Export Sales (MU)	**3**	**3**	**3**	**3**	**35**	**107**	**38**	**494**	1,346	1,946
Internal Sales Growth %	7%	-1%	28%	16%	13%	2%	13%	22%	6%	9%
Export Sales Growth %	-	-	-	-	-	207%	-64%	1199%	173%	45%
Overall Sales Growth %	7%	-1%	28%	16%	14%	3%	12%	28%	15%	14%

* Provisional Figures (Subject to Final Audit)

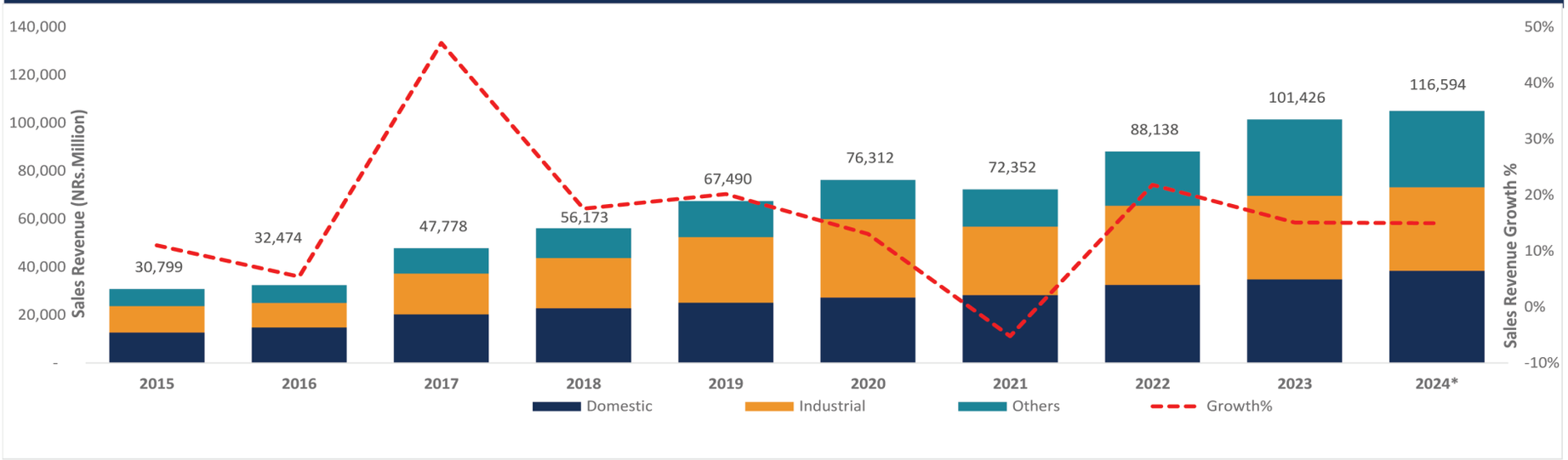
Growth of Consumers



Category	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*
Domestic	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	4,997,612
Non Commerical	16,717	17,732	19,257	21,094	23,493	26,011	29,010	31,756	36,136	38,926
Commercial	15,899	17,191	18,860	21,716	25,746	29,522	32,321	35,648	38,780	41,040
Industrial	41,825	43,639	46,345	48,800	52,697	55,888	60,782	64,626	67,360	68,831
Water Supply	1,266	1,426	1,675	2,063	2,460	2,960	3,494	4,035	4,643	5,386
Irrigation	77,066	83,283	98,626	111,493	131,935	152,485	174,917	189,193	223,034	278,195
Street Light	2,813	2,829	2,935	3,010	3,266	3,726	4,577	5,184	6,003	8,645
Temporary Supply	733	883	1,070	1,520	1,682	1,577	1,817	1,804	1,626	1,680
Transport	44	43	44	44	40	43	51	70	140	324
Temple	4,181	4,391	4,673	5,182	5,890	6,611	7,481	8,171	9,216	10,350
Non Domestic	-	-	977	1,735	2,735	3,260	3,678	3,955	4,467	5,434
Entertainment	-	-	45	107	150	170	192	212	219	245
Community Sales	1,459	1,537	1,597	1,631	1,659	1,882	1,882	1,901	1,808	1,726
Internal Consumption	744	749	714	759	795	832	878	872	872	880
Bulk Supply to India	1	1	1	1	1	1	1	1	1	1
Total Consumers	**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**	**5,459,275**
Growth%	**4%**	**5%**	**10%**	**10%**	**9%**	**8%**	**7%**	**5%**	**8%**	**6%**

* Provisional Figures (Subject to Audit)

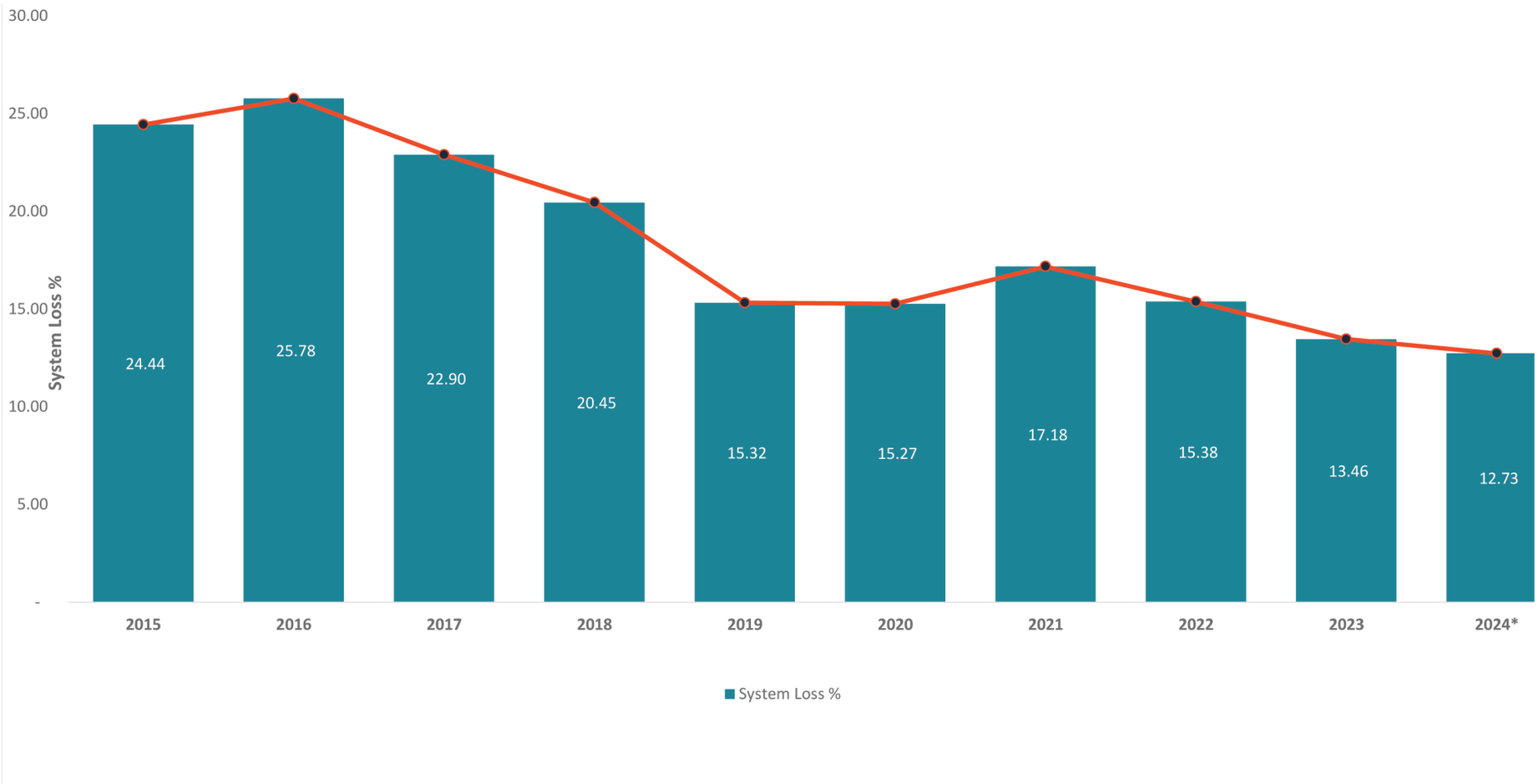
Category wise Gross Electricity Sales Revenue



Particulars	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024*
Domestic	12,707	14,834	20,330	22,868	25,197	27,239	28,280	32,534	34,877	38,418
Non Commerical	1,644	1,995	2,479	2,594	2,831	2,923	2,907	3,505	3,925	4,546
Commercial	3,735	3,789	5,114	5,883	6,745	7,222	7,412	9,119	10,438	11,589
Industrial	11,065	10,182	16,977	20,897	27,283	32,717	28,578	33,021	34,824	36,648
Water Supply & Irrigation	481	525	728	865	1,092	1,165	1,089	1,097	1,296	1,561
Street Light	630	602	666	702	683	765	801	841	894	965
Temporary Supply	27	29	53	61	67	64	67	76	89	169
Transport	41	40	44	38	33	24	19	30	54	167
Temple	29	34	39	51	52	52	56	73	82	98
Non Domestic	-	-	655	1,419	2,278	2,321	1,922	2,888	3,534	4,397
Entertainment	-	-	17	50	84	94	81	133	172	211
Community &Cooperative	400	412	631	716	734	743	824	878	783	760
Bulk Supply India	39	32	46	29	413	983	316	3,942	10,458	17,066
Total Gross Revenue	**30,799**	**32,474**	**47,778**	**56,173**	**67,490**	**76,312**	**72,352**	**88,138**	**101,426**	**116,594**
Growth%	**11%**	**5%**	**47%**	**18%**	**20%**	**13%**	**-5%**	**22%**	**15%**	**15%**

* Provisional Figures (Subject to Audit)

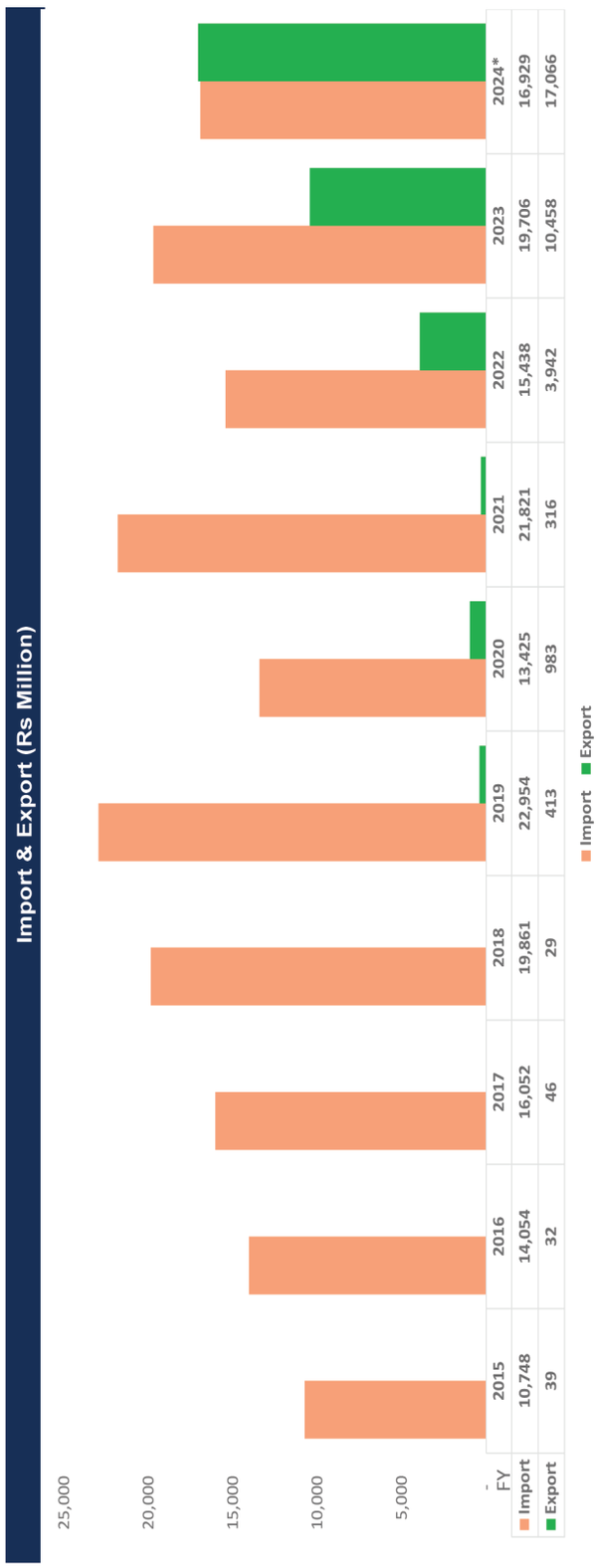
System Loss With Changes



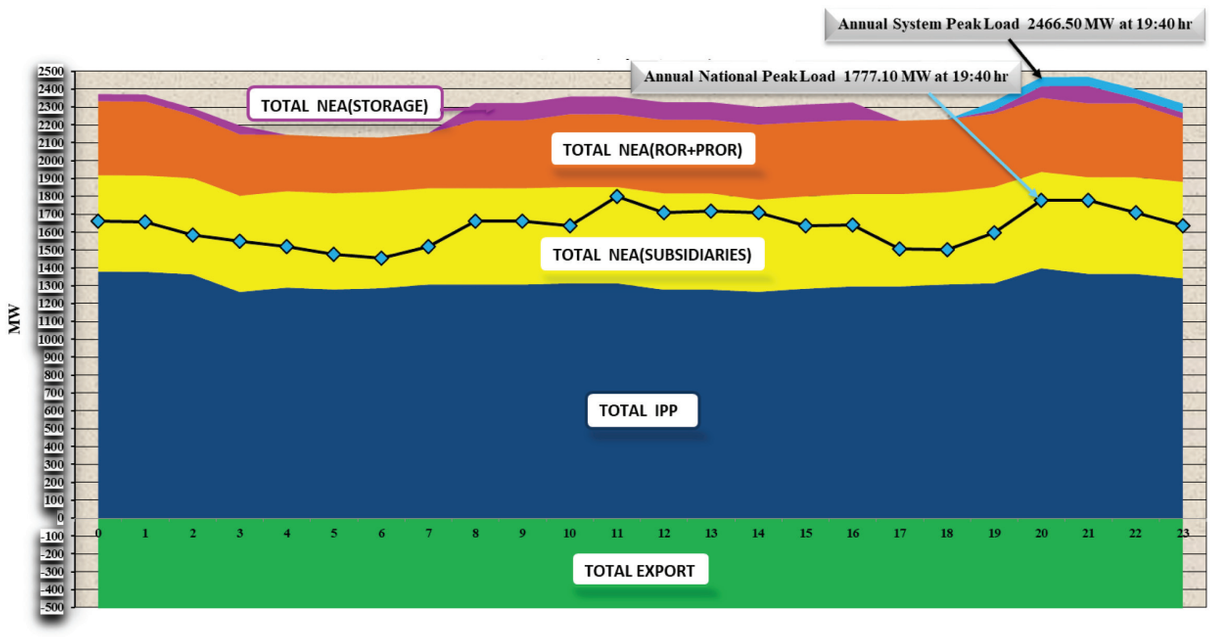
Particulars	2015	2016	2017	2018	2019	2020	2021	2022	2023
System Loss %	24.44	25.78	22.90	20.45	15.32	15.27	17.18	15.38	13.46

* Provisional Figures (Subject to Final Audit)

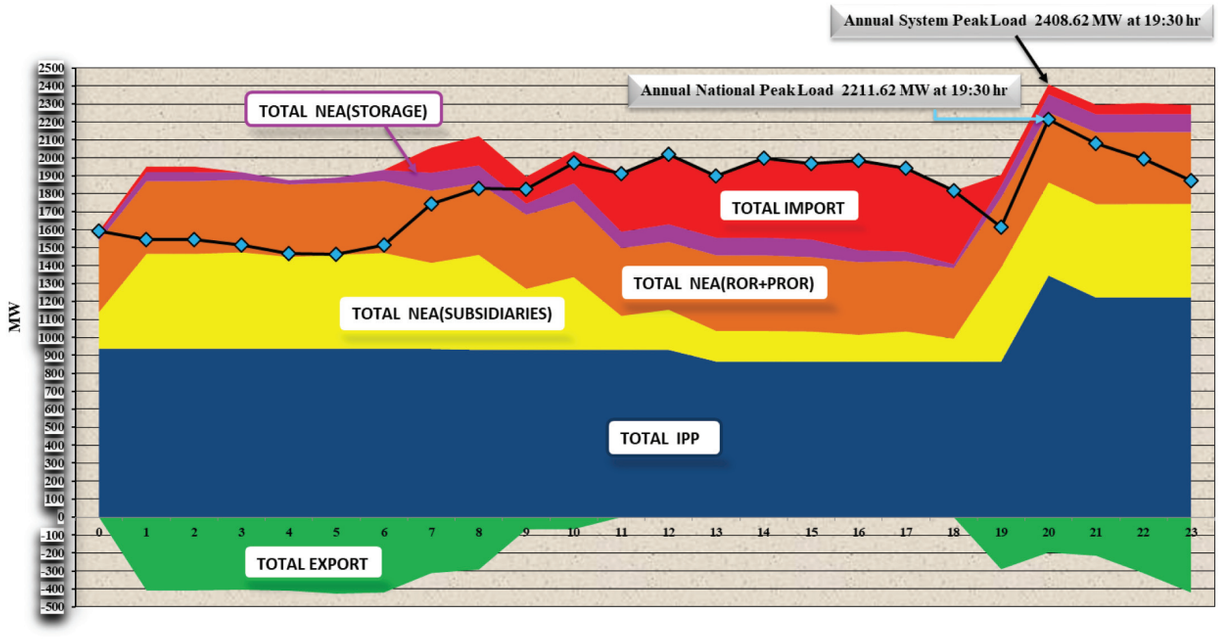
Import & Export (Million Units)
3,000
2,500
2,000
1,500
1,000
500
-
FY
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024*
Import
1,370
1,778
2,175
2,582
2,813
1,729
2,806
1,543
1,833
1,895
Export
3
3
3
3
35
107
38
494
1,346
1,946
Import
Export


Import & Export (Rs Million)
25,000
20,000
15,000
10,000
5,000
-
FY
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024*
Import
10,748
14,054
16,052
19,861
22,954
13,425
21,821
15,438
19,706
16,929
Export
39
32
46
29
413
983
316
3,942
10,458
17,066
Import
Export

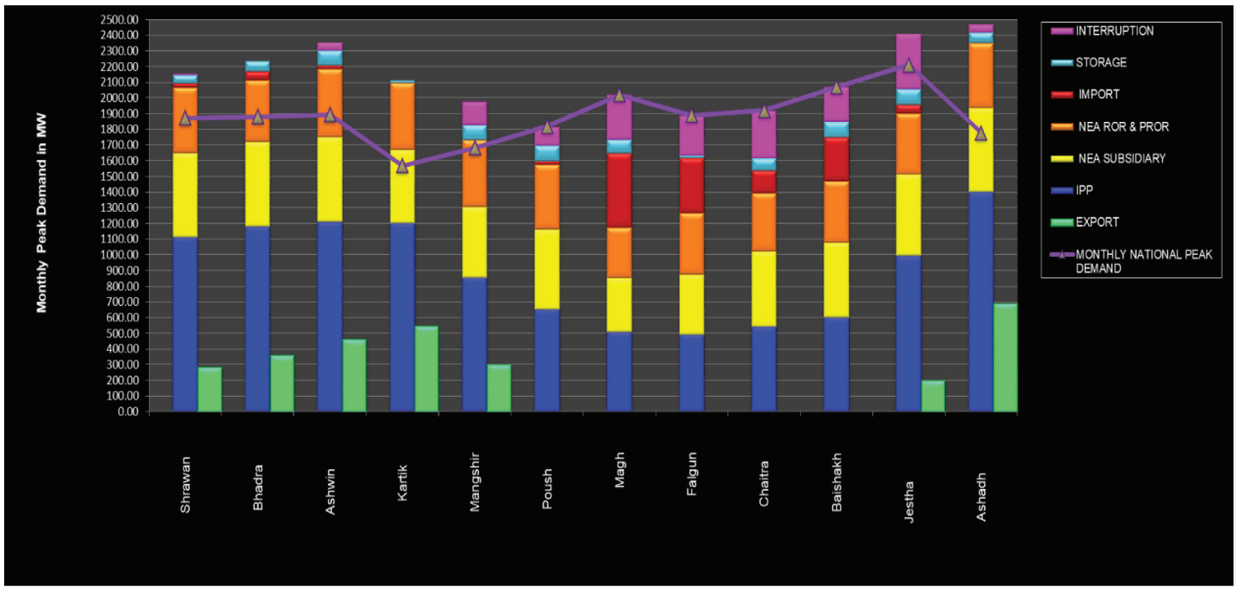
System Load Curve (Maximum Demand)
Ashad 31, 2081 (July 15, 2024) Monday



Annual System Peak Load Curve
Jestha 16, 2081 (May 29, 2024) Wednesday



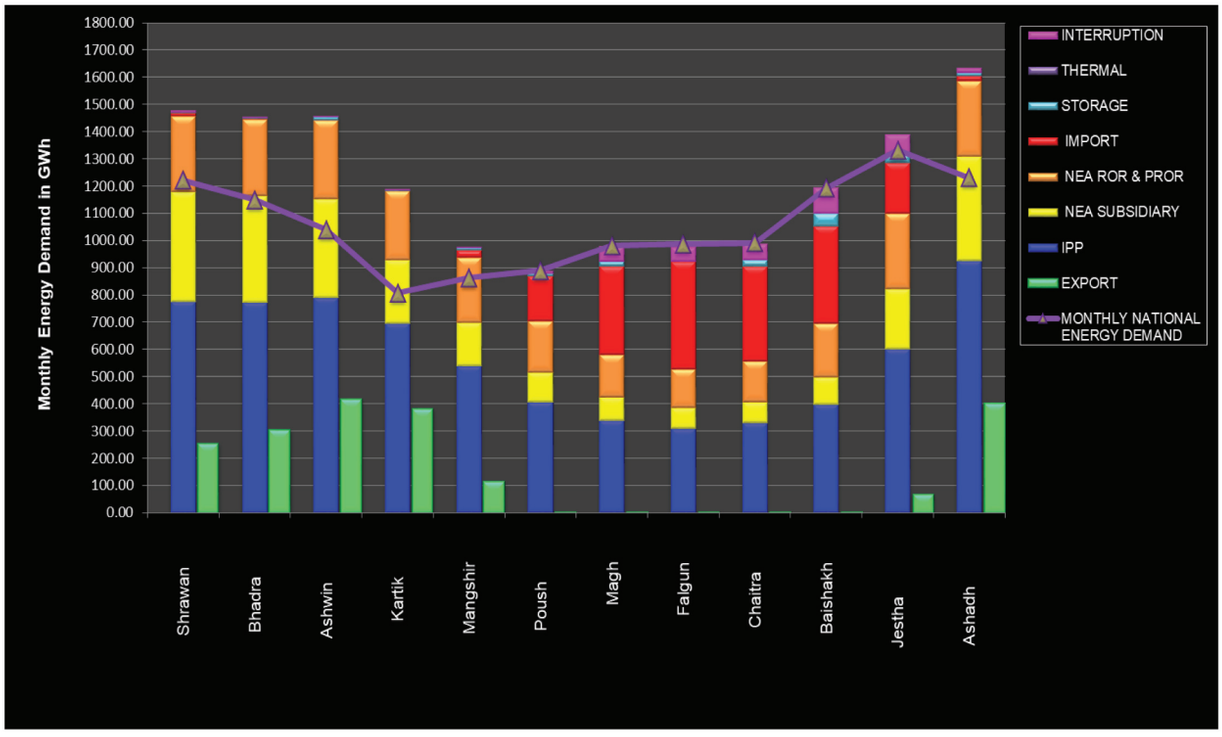
Capacity Balance (MW) in FY 2080/81(2023/24)



Capacity Balance MW of FY 2080/81 (2023/24)

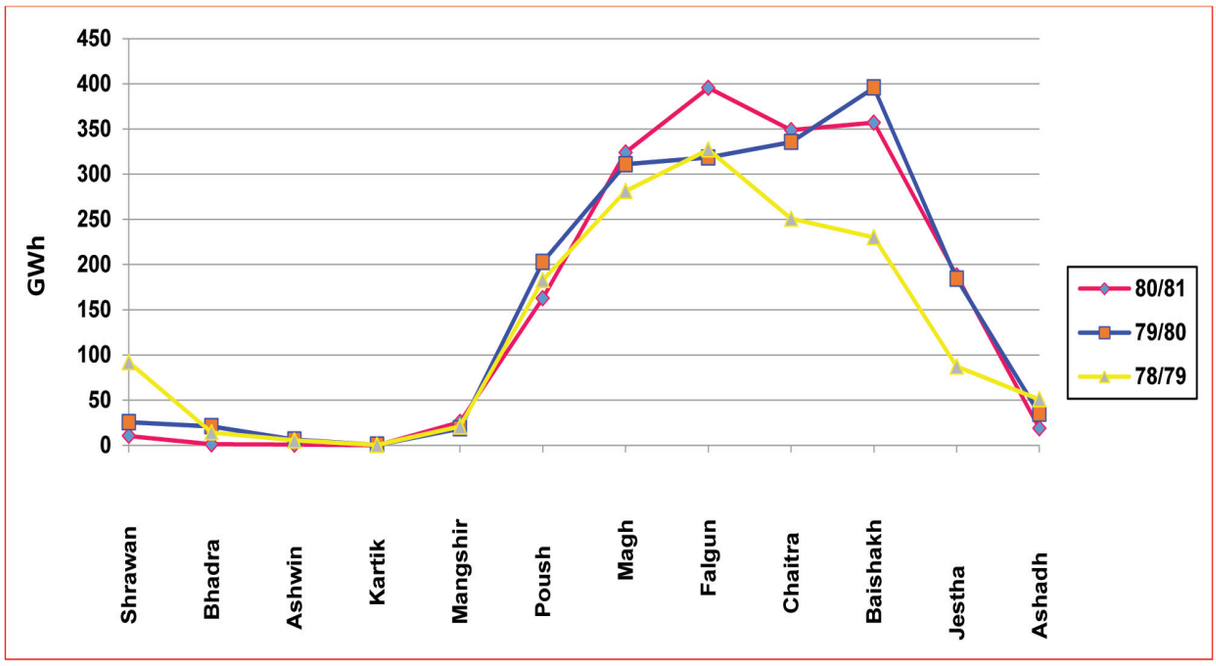
	Shrawan	Bhadra	Ashwin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashadh	Average
IPP	1114	1181	1211	1201	858	652	509	493	543	603	995	1398	897
NEA SUBSIDIARY	536	539	538	471	450	511	345	385	481	477	519	538	483
NEA ROR & PROR	417	394	434	425	425	415	321	390	374	390	390	415	399
IMPORT	27	56	21	0	0	22	472	353	141	281	55	0	119
STORAGE	51	67	97	17	97	100	92	19	82	99	101	65	74
INTERRUPTION	10	0	50	0	150	120	280	250	300	220	350	50	148
MONTHLY NATIONAL PEAK DEMAND	1872	1881	1893	1568	1682	1820	2019	1889	1920	2070	2212	1777	1884
EXPORT	283	356	459	545	298	0	0	0	0	0	197	689	236
MONTHLY SYSTEM PEAK DEMAND	2155	2237	2352	2113	1980	1820	2019	1889	1920	2070	2409	2466	2119

Energy Balance in GWh of FY 2080/81 (2023/24)



Energy Balance in GWh of FY 2080/81(2023/24)													
	Shrawan	Bhadra	Ashwin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashadh	Total
IPP	776	772	790	696	538	405	338	308	330	397	601	926	6875
NEA SUBSIDIARY	403	394	363	234	159	110	87	76	76	101	223	383	2609
NEA ROR & PROR	278	280	289	252	241	190	155	142	150	197	276	278	2727
IMPORT	10	1	1	0	27	163	324	395	349	357	188	19	1834
STORAGE	3	4	11	4	8	10	18	2	24	49	32	10	174
THERMAL	0	0	0	0	0	0	0	0	0	0	0	0	0
INTERRUPTION	7	2	3	1	3	9	56	52	59	93	70	17	373
MONTHLY SYSTEM ENERGY DEMAND	1477	1453	1457	1186	976	890	981	987	991	1193	1400	1631	14624
EXPORT	256	305	418	380	114	0	0	0	0	0	68	401	1943
MONTHLY NATIONAL ENERGY DEMAND	1222	1149	1040	806	862	890	981	987	991	1192	1332	1230	12681

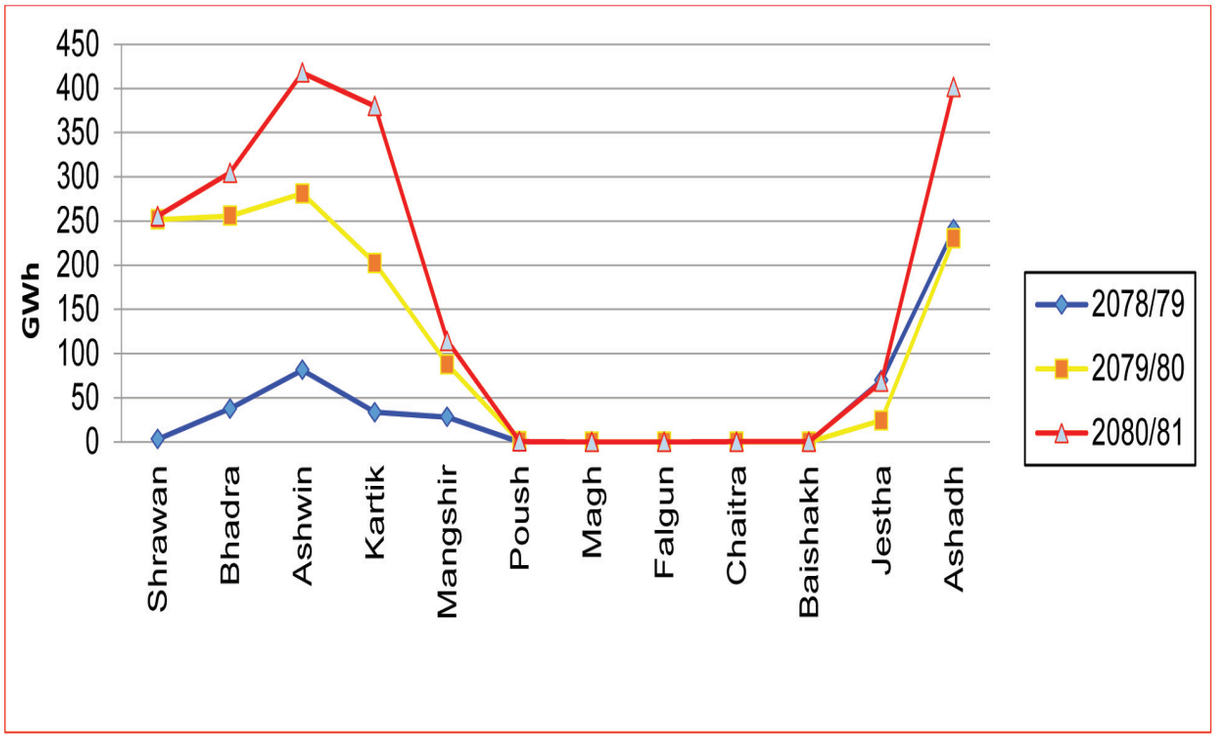
Imported Energy from different lines in FY 2078/79 (2021/22) FY 2079/80 (2022/23) and 2080/81 (2023/24)



Comparision of Imported Energy(GWh) from India in different FY.

FY	Shrawan	Bhadra	Ashwin	Kartik	Mangshir	Poush	Magh	Falgun	Chaitra	Baishakh	Jestha	Ashadh	Total
2080/81	10	1	1	0	26	163	324	395	349	357	188	19	1834
2079/80	25	21	6	1	19	203	311	318	336	396	184	35	1855
2078/79	92	14	5	0	21	183	281	327	251	230	87	51	1543

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**
2080/81	256	305	418	380	114	0	0	0	0	0	68	401	**1943**
2079/80	252	256	281	202	88	0	0	0	0	0	24	230	**1333**
2078/79	3	38	81	33	28	0	0	0	0	0	70	240	**494**

ANNEX-1

ELECTRICITY TARIFF

TARIFF RATES

1. Domestic Consumers

1.1 Single Phase Low Voltage (230 Voltage)

kWh (Monthly)	5 Ampere		15 Ampere		30 Ampere		60 Ampere	
	Minimum Charge (NRs.)	Energy Charge (NRs./kWh)	Minimum Charge (NRs.)	Energy Charge (NRs./kWh)	Minimum Charge (NRs.)	Energy Charge (NRs./kWh)	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 consumers use more than 20 units, they have to pay NRs.3.00 per unit for 1-20 unit.

1.2 Three Phase Low Voltage (400 Volt)

kWh (Monthly)	Up to 10 kVA			Above 10 kVA		
	Minimum Charge (NRs.)	Month	Energy Charge (NRs./ kWh)	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 Voltage (33/11 kV)

kWh (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		
a) Public Transportation (Charging Station)	200.00	5.75
b) 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 Supply	-	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 (66 kV or above)				
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 (23.00-5.00)
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 (5.00-17.00)**	
Medium Voltage (33 kV)	11.20	10.10	
Medium Voltage (11 kV)	11.60	10.20	
Low Voltage (230/400 V)	11.70	10.30	

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 Hydro (NEA)	**583,160**
Total Major Hydro - Grid Connected	578,624
Total Small Hydro - Isolated	4,536
Total Hydro (NEA Subsidiary)	492,900
Total Hydro(IPPs)	1,914,772
Total Hydro (Nepal)	**2,990,832**
Total Thermal (NEA)	**53,410**
Total Bagasse (IPPs)	**6,000**
Total Solar (Nepal)	**106,940**
Total Solar(NEA)	25,000
Total Solar(IPPs)	81,940
Total Installed Capacity - Grid Connected	**3,152,646**
Total Installed Capacity	**3,157,182**

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	94,800
9	Upper Modi 'A'	42,000
10	Upper Modi	18,200
	Total	**642,300**

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	Chainpur Seti	210,000
5	Aadhikhola Storage	180,000
6	Begnas Rupa Pump Storage	150,000
	Total	**3,064,000**

** Leased to Private Sector

***Not in Normal Operation

Nepal Electricity Authority
Generation Directorate
Generation Related Statistics and Performance Factors of FY(2080/81)(2023/24)

S.No.	Power Stations	Total Installed Capacity (MW)	Design Generation (MWh)	Actual Generation (MWh)			Percentage generation change from last year (%)	Max. generation in a year till date (MWh)	Generation Target in FY 2080/81 (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 (%)
				FY 2078/79	FY 2079/80	FY 2080/81															
		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	842,572.47	974,831.97	832,678.79	841,596.14	1.07%	974,831.97 (2078/79)	893,070.67	664,687.02	1,506,283.16	1,499,566.87	834,879.85	1,871.43	1,460.87	1,502,899.17	3,383.99	0.22%	0.40	66.72	99.88
2	Mid-Marsyangdi	70	397,590.00	468,270.00	428,402.10	441,127.40	2.97%	471,322.51 (2075/76)	453,638.03	891,771.65	1,332,899.05	1,316,532.38	424,760.73	112.12	1,205.67	1,317,850.17	15,048.88	1.13%	3.41	71.94	110.95
3	Marsyandi	69	467,450.00	464,271.50	434,558.80	446,081.80	2.65%	483,928.20 (2052/53)	469,378.33	388,478.00	834,559.80	820,133.00	431,655.00	-	4,295.40	824,428.40	10,131.40	1.21%	2.27	73.80	95.43
4	Upper Trishuli 3A	60	489,760.00	172,753.00	437,117.00	427,055.00	-2.30%	432,832.5 (2076/77)	470,996.21	46,621.26	473,676.26	467,125.15	420,503.89	-	731.50	467,856.65	5,819.61	1.23%	1.36	81.25	87.20
5	Kulekhani I	60	211,000.00	82,691.46	127,761.00	103,680.00	-18.85%	249,680.00 (2056/57)	164,660.75	179,641.56	283,321.56	270,881.27	91,239.71	11,221.67	1,042.48	283,145.42	176.14	0.06%	0.17	19.73	49.14
6	Kulekhani II	32	104,600.00	432,832.50	60,093.37	48,138.54	-19.89%	122,757.00 (2056/57)	87,819.07	875.76	49,014.30	48,200.55	47,324.79	-	277.10	48,477.65	536.65	1.09%	1.11	17.17	46.02
7	Chameliya	30	184,200.00	153,981.04	134,932.45	133,968.30	-0.71%	161,395.54 (2075/76)	174,909.69	570,623.05	704,591.35	686,774.17	116,151.12	12,351.56	247.97	699,373.69	5,217.66	0.74%	3.89	50.98	72.73
8	Trishuli	24	163,800.00	137,113.27	123,152.48	117,042.23	-4.96%	154,423.75 (2053/54)	147,154.97	186,735.52	303,777.75	269,640.56	82,905.04	28,875.00	297.90	298,813.46	4,964.29	1.63%	4.24	55.67	71.45
9	Gandak	15	71,015.34	15,181.70	14,848.80	20,196.30	36.01%	52,272.70 (2043/44)	19,785.99	167,079.51	187,275.81	65,989.80	(101,089.71)	107,309.76	520.56	173,820.12	13,455.69	7.18%	66.62	15.37	28.44
10	Modi	14.8	91,000.02	79,601.90	73,902.50	72,324.50	-2.14%	79,601.9 (2078/79)	78,803.41	147,622.57	219,947.07	191,859.00	44,236.43	19,947.11	106.71	211,912.82	8,034.26	3.65%	11.11	55.79	79.48
11	Devighat	15	113,000.01	98,389.60	88,913.59	86,832.08	-2.34%	106,277.70 (2056/57)	104,247.38	78,146.31	164,978.39	144,563.98	66,417.67	19,479.00	188.00	164,230.98	747.41	0.45%	0.86	66.08	76.84
12	Kulekhani III	14	40,850.00	36,243.80	27,536.40	22,278.80	-19.09%	36,243.8 (2078/79)	38,420.86	14.40	22,293.20	21,988.80	21,974.40	-	265.40	22,254.20	39.00	0.17%	0.18	18.17	54.54
13	Sunkoshi	10.05	62,686.89	63,524.08	55,277.02	58,160.95	5.22%	66,383.10 (2068/69)	63,089.94	5,899.52	64,060.47	60,014.00	54,114.48	881.17	286.76	61,181.93	2,878.54	4.49%	4.95	66.06	92.78
14	Puwa	6.2	48,000.00	37,715.20	33,010.30	33,877.71	2.63%	37,715 (2078/79)	38,253.82	33.59	33,911.30	32,955.46	32,921.87	-	104.03	33,059.49	851.81	2.51%	2.51	62.38	70.58
15	Chatara	3.2	6,000.00	2,878.58	3,305.87	3,414.72	3.29%	5,219.75 (2063/64)	3,346.29	326.85	3,741.58	1,726.94	1,400.08	36.53	14.19	1,777.66	1,963.92	-	-	12.18	56.91
16	Panauti	2.4	6,970.01	3,251.28	2,512.06	2,812.37	11.95%	4,654.80 (2058/59)	3,369.61	2,122.40	4,934.77	4,797.66	2,675.26	-	20.37	4,818.03	116.74	2.37%	4.15	13.38	40.35
17	Seti	1.5	9,800.00	10,954.65	11,824.18	11,690.73	-1.13%	11,682.18 (2077/78)	11,236.58	3.04	11,693.77	11,483.18	11,480.14	-	43.45	11,526.63	167.14	1.43%	1.43	88.97	119.29
18	Fewa	1	6,500.00	1,863.37	1,416.77	1,105.49	-21.97%	3,919.47 (2034/35)	3,142.98	12.74	1,118.23	1,068.69	1,055.95	-	8.79	1,077.48	40.75	3.64%	3.69	12.62	17.01
19	Sundarijal	0.97	7,229.53	6,101.62	5,785.47	6,186.75	6.94%	6,101.62 (2078/79)	6,016.04	-	6,186.75	1,799.24	1,799.24	-	62.95	1,862.19	4,324.56	0.00%	69.90	72.81	85.58
20	Pharping	0.5	-	-	-	-	-	48.65 (2064/65)				-	-	-	-	-	-	-	-	-	-
	Total (Hydro)	573.62	3,324,024.27	3,242,450.52	2,897,028.95	2,877,569.81	-0.67%		3,231,340.62	3,330,694.75	6,208,264.56	5,917,100.69	2,586,405.94	202,085.35	11,180.10	6,130,366.14	77,898.43	1.25%	2.71	57.27	86.57
21	Multifuel	39	-	-	-	-	-	86,215.07 (2055/56)	-	-	-	-	-	-	-	-	-	-	-	-	-
22	Hetauda Diesel	14.41	-	32.51	13.08	-	-	24,203.64 (2055/56)	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total (Thermal)	53.41	-	32.51	13.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Grand Total	627.03	3,324,024.27	3,242,483.03	2,897,042.03	2,877,569.81	-0.67%	-	3,231,340.62	3,330,694.75	6,208,264.56	5,917,100.69	2,586,405.94	202,085.35	11,180.10	6,130,366.14	77,898.43	1.25%	2.71	52.39	86.57

Nepal Electricity Authority
Generation Directorate
Acutal Monthly Generation of FY 2080/81

PowerStations/Month		Shrawan	Bhadra	Aswin	Kartik	Mangsir	Poush	Magh	Falgun	Chaitra	Baisakh	Jestha	Ashad	TotalActual
ROR/PROR														
Kaligandaki'A'	KGA	94,826	95,346	97,471	72,793	73,753	51,882	41,151	37,837	40,870	54,629	89,499	91,537	841,596
Mid-Marsyangdi	MMHPS	48,881	45,024	47,788	46,757	35,207	28,812	21,327	20,192	22,172	30,752	46,344	47,871	441,127
Marsyandi	MHPS	45,004	44,074	45,608	40,559	42,813	30,775	24,570	22,732	25,030	31,206	47,342	46,371	446,082
UpperTrishuli3A	UT3A	29,358	37,043	38,190	39,715	40,575	36,843	30,240	26,495	26,868	39,253	44,528	37,950	427,055
Chameliya	CHEHPS	17,707	17,644	17,507	9,415	9,327	7,407	6,593	6,473	6,933	8,564	10,813	15,585	133,968
Trishuli	THPS	10,057	9,092	10,299	11,192	11,069	10,746	9,410	8,585	8,176	10,311	9,272	8,835	117,042
Gandak	GHPS	2,075	2,957	2,324	646	-	1,955	2,755	3,023	1,217	-	1,131	2,113	20,196
Modi	MKHPS	8,065	8,376	8,486	8,165	5,620	4,058	2,971	2,327	3,536	5,401	8,259	7,061	72,325
Devighat	DHPS	7,170	6,384	7,138	8,432	8,382	7,903	6,864	6,475	6,276	7,967	7,137	6,703	86,832
Sunkoshi	SKHPS	6,202	6,386	6,360	6,491	5,436	4,132	3,410	3,221	2,933	3,012	4,800	5,777	58,161
Puwa	PKHPS	4,581	4,539	4,465	4,123	2,753	1,933	1,480	1,228	1,361	1,155	1,895	4,367	33,878
Chatara	CHPS	571	496	332	333	37	209	262	284	259	11	166	454	3,415
Panauti	PHPS	433	493	478	390	261	218	94	93	87	45	35	185	2,812
Seti	SHPS	1,006	1,004	969	1,077	1,044	985	946	850	939	965	933	971	11,691
Fewa	FHPS	185	190	184	50	118	188	139	52	-	-	-	-	1,105
Sundarijal	SJHPS	709	677	671	606	585	526	464	356	740	190	165	497	6,187
STORAGE														
KulekhaniI	KL1	1,620	2,126	6,323	1,801	4,704	6,192	10,741	881	14,377	29,722	19,097	6,096	103,680
KulekhaniII	KL2	877	1,152	3,067	1,022	2,275	2,876	4,893	436	6,478	13,516	8,829	2,717	48,139
KulekhaniIII	KL3	517	958	1,691	715	1,176	1,355	2,140	361	2,748	5,524	3,717	1,378	22,279
THERMAL														
Multifuel	MFPS	-	-	-	-	-	-	-	-	-	-	-	-	-
HetaudaDiesel	HDPS	-	-	-	-	-	-	-	-	-	-	-	-	-
Total(ROR/PROR)		276,831	279,725	288,269	250,745	236,979	188,572	152,676	140,221	147,397	193,460	272,320	276,276	2,703,472
Total(STORAGE)		3,014	4,237	11,080	3,538	8,155	10,423	17,774	1,678	23,603	48,762	31,643	10,190	174,097
Total(HYDRO)		279,845	283,962	299,350	254,283	245,134	198,996	170,449	141,899	171,000	242,222	303,963	286,466	2,877,570
Total(Thermal)		-	-	-	-	-	-	-	-	-	-	-	-	-
GrandTotal		279,845	283,962	299,350	254,283	245,134	198,996	170,449	141,899	171,000	242,222	303,963	286,466	2,877,570

NEPAL ELECTRICITY AUTHORITY
POWER TRADE DEPARTMENT
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Operation) as of FY 2080/81

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
3	Sanjen Hydropower Co.Limited	Upper Sanjen	Rasuwa	14800	2068.06.23	2080.06.21
			SUB-TOTAL	**492900**		
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	2051.05.01
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	Ngadi 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	Nuwakot	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 2072.12.10	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 2073.02.13	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 2075.10.16	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	29040	2071.11.22	2078.10.25
112	Upper Solu Hydroelectric Company Pvt. Ltd	Solu Khola	Solukhumbu	23500	2070.07.24	COD (2078.11.08) 2076.12.10 (Business Operation Date-BOD)
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 (10.3 MW) 2073.04.19 2075.11.21 (1.7 MW)	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	18000	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 2075.11.15	2080.02.08
140	Beni Hydropower Project Pvt. Ltd.	Upper Solu	Solukhumbu	19800	2069.09.16 2073.07.25 (PPA Revived)	2080.03.01
141	Maya Khola Hydropower Co. Pvt. Ltd.	Maya Khola	Sankhuwasabha	14900	2070.08.30	2080.03.22
142	Gaughar Ujjyalo Sana Hydropower Co. Pvt. Ltd.	Ghatte Khola Small	Sindhupalchowk	970	2074.11.11	2080.04.13
143	Global Hydropower Associate Pvt. Ltd.	Likhu-2	Solukhumbu/ Ramechap	52465	2071.11.19	2080.04.15
144	River Falls Hydropower Development Pvt. Ltd.	Down Piluwa	Sankhuwasabha	10300	2071.10.18	2080.04.25
145	Api Power Company Ltd.	Upper Chameliya	Darchula	40000	2075.11.15	2080.04.28
146	Bungal Hydro Pvt. Ltd. (Previously Sanigad Hydro Pvt. Ltd.)	Upper Sanigad	Bajhang	10700	2072.03.15	2080.05.02
147	Myagdi Hydropower Pvt. Ltd.	Ghar Khola	Myagdi	14000	2073.02.11	2080.05.08
148	Gelun Hydropower Co.Pvt.Ltd	Gelun	Sindhupalchowk	3200	2068.09.25	2080.08.15
149	Makar Jitumaya Hydropower Pvt. Ltd.	Upper Suri	Dolakha	7000	2075.04.10	2080.08.21
150	Ridge Line Energy Pvt. Ltd.	Super Chepe	Gorkha Lamjung	9050	2075.12.19	2080.10.08
151	Mathillo Mailung Khola Jalbidhyut Ltd. (Prv. Molnia Power Ltd.)	Upper Mailun	Rasuwa	14300	2068.05.23	2080.10.28
152	Yambling Hydropower Pvt. Ltd.	Yambling Khola	Sindhupalchowk	7270	2072.09.29	2080.11.08
153	Paan Himalaya Energy Private Limited	Likhu-1	Solukhumbu/ Ramechap	77000	2071.11.19	2080.12.19

154	Nilgiri Khola Hydropower Co. Ltd.	Nilgiri Khola-2 Cascade	Myagdi	71000	2074.03.05	2080.12.24
155	Ingwa Hydro Power Pvt. Ltd	Upper Ingwa khola	Taplejung	9700	2068.03.10	2080.12.28
156	Bhujung Hydropower Pvt. Ltd.	Upper Midim	Lamjung	7500	2074.05.29	2081.01.06
157	Unitech Hydropower Co. Pvt. Ltd.	Upper Phawa	Taplejung	5800	2074.11.11	2081.01.08
158	Sanima Middle Tamor Hydropower Ltd. (Prv. Tamor Sanima Energy Pvt. Ltd.)	Middle Tamor	Taplejung	73000	2073.09.26	2081.01.23
159	Chirkhwa Hydropower Pvt. Ltd.	Upper Chirkhwa	Bhojpur	4700	2073.03.01	2081.02.20
160	Parbat Paiyun Khola Hydropower Company Pvt. Ltd.	Seti Khola	Parbat	3500	2074.02.22	2081.03.07
161	Champawati Hydropower Pvt. Ltd	Chepe khola A	Lamjung	7000	2075.11.07	2081.03.25
			SUB-TOTAL	**1914772**		
SOLAR (IPPs)						
1	Kathmandu Upatyaka Khanepani bewasthapan Board	Solar	Lalitpur	680.4	2069.06.12	2069.07.15
2	Surya Power Company Pvt. Ltd.	Bishnu Priya Solar Farm Project	Nawalparasi	960	2074.04.08	2075.08.13
3	Ridi Hydropower Development Co. Ltd.	Butwal Solar Project	Rupandehi	8500	2075.06.09	2077.07.15
4	Eco Power Development Company Pvt. Ltd	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), Nainapur, Banke, Block-2	Banke	10000	2078.08.12	2080.01.18
15	Pure Energy Pvt. Ltd.	Solar PV Project (1032), Nainapur, Banke, Block-1	Banke	10000	2078.08.12	2080.09.11
16	Jhapa Energy Limited	Saurya Bidyut Project, Shivasakti	Jhapa	10000	2078.08.12	2080.10.10
			SUB-TOTAL	**81940.4**		
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	**2495612.4**		

NEPAL ELECTRICITY AUTHORITY
POWER TRADE DEPARTMENT
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Under Construction) as of FY 2080/81

(Financial Closure concluded projects)

S.N.	Developers	Projects	Location	Installed Capacity (kW)	PPA Date
Hydropower Projects (NEA's Subsidiary Companies)					
1	Middle Bhotekoshi Jalbidhyut Company Ltd.	Middle Bhotekoshi	Sindhupalchowk	102000	2068.07.28
2	Chilime Hydro Power Company Ltd.	Rasuwagadhi	Rasuwa	111000	2068.07.28
3	Sanjen Hydropower Company Limited	Sanjen	Rasuwa	42500	2068.08.19
4	Trishuli Jal Vidhyut Company Ltd.	Upper Trishuli 3B	Rasuwa	37000	2074.05.06
5	Tanahun Hydropower Ltd.	Tanahun	Tanahun	140000	2075.03.15
6	Raghuganga Hydropower Ltd.	Rahughat	Myagdi	40000	2075.12.18
7	Tamakoshi Jalvidyut Company Ltd.	Tamakoshi-V	Dolakha	94800	2079.08.14
8	Modi Jalvidhyut Company Ltd.	Upper Modi 'A'	Kaski	42000	2080.03.11
9	Modi Jalvidhyut Company Ltd.	Upper Modi	Kaski	18200	2080.10.18
			SUB-TOTAL	**627500**	
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
6	Water and Energy Nepal Pvt. Ltd.	Badi Gad	Baglung	6600	2068.08.13
7	Dariyal Small Hydropower Pvt.Ltd	Upper Belkhu	Dhading	996	2068.11.28
8	Suryakunda Hydroelectric Pvt. Ltd.	Upper Tadi	Nuwakot	11000	2068.12.03
9	Sasha Engingeering Hydropower (P). Ltd	Khani Khola(Dolakha)	Dolakha	30000	2069.03.25
10	Rising Hydropower Compnay Ltd.	Selang Khola	Sindhupalchowk	990	2069.03.31
11	Hydro Innovation Pvt. Ltd.	Tinekhu Khola	Dolakha	990	2069.06.08
12	Salankhu Khola Hydropower Pvt. Ltd.	Salankhu Khola	Nuwakot	2500	2069.06.14
13	Moonlight Hydropower Pvt. Ltd.	Balephi A	Sindhupalchowk	22140	2069.07.14
14	Reliable Hydropower Co. Pvt. Ltd.	Khorunga Khola	Terhathum	4800	2069.08.26
15	Rara Hydropower Development Co. Pvt. Ltd.	Upper Parajuli Khola	Dailekh	2150	2069.08.28
16	Lohore Khola Hydropower Co. Pvt. Ltd.	Lohore Khola	Dailekh	4200	2069.09.08
17	Dudhkoshi Power Company Pvt. Ltd.	Rawa Khola	Khotang	6500	2069.09.26
18	Madhya Midim Jalbidhyut Company P. Ltd.	Middle Midim	Lamjung	4800	2069.10.23
19	Volcano Hydropower Pvt. Ltd.	Teliya Khola	Dhankuta	996	2069.10.25
20	Betrawoti Hydropower Company (P).Ltd	Phalankhu Khola	Rasuwa	13700	2069.12.06
21	Dovan Hydropower Company Pvt. Ltd.	Junbesi Khola	Solukhumbu	5200	2069.12.29
22	Tallo Midim Jalbidhut Company Pvt. Ltd.	Lower Midim	Lamjung	996	2070.01.19
23	Apolo Hydropower Pvt. Ltd.	Buku Khola	Solukhumbu	6000	2070.02.02
24	Tangchhar Hydro Pvt. Ltd	Tangchhahara	Mustang	2200	2070.02.20

25	Abiral Hydropower Co. Pvt. Ltd.	Upper Khadam	Morang	990	2070.02.21
26	Essel-Clean Solu Hydropower Pvt. Ltd.	Lower Solu	Solukhumbu	82000	2070.07.15
27	Consortium Power Developers Pvt. Ltd.	Khare Khola	Dolakha	24100	2070.07.15
28	Idi Hydropower Co. P. Ltd.	Idi Khola	Kaski	975	2070.09.01
29	Rasuwa Hydropower Pvt. Ltd	Phalanku Khola	Rasuwa	7290	2071.08.24
30	Dipsabha Hydropower Pvt. Ltd.	Sabha Khola A	Sankhuwasabha	9990	2071.12.02
31	Research and Development Group Pvt. Ltd.	Rupse Khola	Myagdi	4000	2071.12.17
32	Hydro Empire Pvt. Ltd.	Upper Myagdi	Myagdi	37000	2071.12.17
33	Chandeshwori Mahadev Khola MH. Co. Pvt. Ltd.	Chulepu Khola	Ramechhap	8520	2071.12.23
34	Dhaulagiri Kalika Hydro Pvt. Ltd.	Darbang-Myagdi	Myagdi	25000	2072.04.28
35	Kabeli Energy Limited	Kabeli-A	Panchthar and Taplejung	37600	2072.06.07
36	Peoples Energy Ltd. (Previously Peoples Hydro Co-operative Ltd.)	Khimti-2	Dolakha and Ramechhap	48800	2072.06.14
37	Chauri Hydropower (P.) Ltd.	Chauri Khola	Kavrepalanchowk, Ramechhap, Sindhupalchowk, Dolakha	6000	2072.06.14
38	Diamond Hydropower Pvt. Ltd.	Upper Daraudi-1	Gorkha	10000	2072.08.14
39	Multi Energy Development Pvt. Ltd.	Langtang Khola	Rasuwa	20000	2072.09.29
40	Salasungi Power Limited	Sanjen Khola	Rasuwa	78000	2072.12.02
41	Sano Milti Khola Hydropower Ltd.	Sano Milti	Ramechhap and Dolakha	3000	2073.01.13
42	Ankhu Hydropower (P.) Ltd.	Ankhu Khola	Dhading	34000	2073.01.30
43	Him River Power Pvt. Ltd.	Liping Khola	Sindhupalchowk	16260	2073.02.28
44	Energy Venture Pvt. Ltd.	Upper Lapche	Dolakha	52000	2073.04.20
45	Sindhujwala Hydropower Ltd.	Upper Nyasem	Sindhupalchowk	41400	2073.07.24
46	Daram Khola Hydro Energy Ltd.	Daram Khola	Baglung and Gulmi	9600	2073.10.09
47	Madhya Tara Khola Hydropower P. Ltd. (Prv. Pahadi Hydro Power Company (P.) Ltd.)	Madhya Tara Khola Small	Baglung	2200	2073.10.26
48	Nilgiri Khola Hydropower Co. Ltd.	Nilgiri Khola	Myagdi	38000	2073.11.30
49	LC Energy Pvt. Ltd. (Prv. Chirkhwa Hydropower Pvt. Ltd.)	Lower Chirkhwa	Bhojpur	4060	2074.01.20
50	Him Consult Pvt. Ltd.	Rele Khola	Myagdi	6000	2074.01.28
51	Siuri Nyadi Power Pvt. Ltd.	Super Nyadi	Lamjung	40270	2074.02.19
52	Sabha Pokhari Hydro Power (P.) Ltd.	Lankhuwa Khola	Sankhuwasabha	5000	2074.02.21
53	United Mewa Khola Hydropower Pvt. Ltd.	Mewa Khola	Taplejung	50000	2074.02.21
54	Sewa Hydro Ltd.	Lower Selang	Sindhupalchowk	1500	2074.02.22
55	Gorakshya Hydropower Pvt. Ltd.	Super Ankhu Khola	Dhading	23500	2074.03.15
56	Orbit Energy Pvt. Ltd. (Previously Pokhari Hydropower Company Pvt. Ltd.)	Sabha Khola B	Sankhuwasabha	15100	2074.03.26
57	Jhyamolongma Hydropower Development Company Pvt. Ltd.	Karuwa Seti	Kaski	32000	2074.04.20
58	Mount Nilgiri Hydropower Company Pvt. Ltd.	Rurubanchu-1	Kalikot	13500	2074.05.08
59	Siddhi Hydropower Company Pvt. Ltd.	Siddhi Khola	Illam	10000	2074.05.29

60	Himalayan Water Resources and Energy Development Co. Pvt. Ltd.	Upper Chauri	Kavrepalanchowk	6000	2074.07.27
61	Nasa Hydropower Pvt. Ltd.	Lapche Khola	Dolakha	160000	2074.07.29
62	IDS Energy Pvt. Ltd.	Lower Khorunga	Terhathum	5500	2074.08.24
63	Langtang Bhotekoshi Hydropower Company Pvt. Ltd.	Rasuwa Bhotekoshi	Rasuwa	120000	2074.09.07
64	Him Star Urja Co. Pvt. Ltd.	Buku Kapati	Okhaldhunga and Solukhumbu	5000	2074.10.11
65	Nepal Water and Energy Development Company Pvt. Ltd.	Upper Trishuli - 1	Rasuwa	216000	2074.10.14
66	Seti Khola Hydropower Pvt. Ltd.	Seti Khola	Kaski	22000	2074.11.11
67	Vision Energy and Power Pvt. Ltd.	Nupche Likhu	Ramechhap	57500	2074.11.28
68	Omega Energy Developer Pvt. Ltd.	Sunigad	Bajhang	11050	2074.11.30
69	Gaurishankar Power Development Pvt. Ltd.	Middle Hyongu Khola B	Solukhumbu	22900	2074.12.08
70	Upper Lohore Khola Hydropower Co. Pvt. Ltd.	Upper Lohore	Dailekh	4000	2074.12.08
71	Lower Irkhuwa Hydropower Co. Pvt. Ltd.	Lower Irkhuwa	Bhojpur	13040	2075.02.16
72	Samyukta Urja Pvt. Ltd. (Prv. Sungava Foundation Pvt. Ltd.)	Thulo Khola	Myagdi	21300	2075.02.17
73	Himali Hydro Fund Pvt. Ltd.	Sona Khola	Taplejung	9000	2075.03.14
74	Sailung Power Company Pvt. Ltd.	Bhotekoshi-1	Sindhupalchowk	40000	2075.03.15
75	Tundi Power Pvt.Ltd	Rahughat Mangale	Myagdi	35500	2075.03.29
76	Tundi Power Pvt.Ltd	Upper Rahughat	Myagdi	48500	2075.03.29
77	Arati Power Company Ltd.	Upper Irkhuwa	Bhojpur	14500	2075.04.01
78	Shaileshwari Power Nepal Pvt. Ltd.	Upper Gaddigad	Doti	1550	2075.04.06
79	Palun Khola Hydropower Pvt. Ltd.	Palun Khola	Taplejung	21000	2075.04.06
80	Mewa Developers Pvt. Ltd.	Middle Mewa	Taplejung	73500	2075.05.04
81	Sanvi Energy Pvt. Ltd.	Jogmai Cascade	Illam	6000	2075.05.07
82	Apex Makalu Hydro Power Pvt. Ltd.	Middle Hongu Khola A	Solukhumbu	22000	2075.05.14
83	Hydro Village Pvt. Ltd.	Myagdi Khola	Myagdi	57300	2075.06.04
84	Dhading Ankhu Khola Hydro Pvt. Ltd.	Upper Ankhu	Dhading	38000	2075.06.14
85	Dolakha Nirman Company Pvt. Ltd.	Isuwa Khola	Sankhuwasabha	97200	2075.06.26
86	Blue Energy Pvt. Ltd.	Super Trishuli	Gorkha and Chitwan	100000	2075.07.11
87	Vision Lumbini Ltd.	Seti Nadi	Kaski	25000	2075.08.06
88	Kasuwa Khola Hydropower Ltd.	Kasuwa Khola	Sankhuwasabha	45000	2075.08.13
89	Alliance Energy Solutions Pvt.Ltd.	Upper Sit Khola	Argakhanchi	905	2075.08.23
90	Brahamayani Hydropower Pvt. Ltd. (Prv. Ekikrit Byapar Company Pvt. Ltd.)	Brahamayani	Sindhupalchowk	35470	2075.08.24
91	Integrated Hydro Fund Nepal Pvt. Ltd.	Upper Brahamayani	Sindhupalchowk	15150	2075.08.24
92	Perfect Energy Development Pvt. Ltd	Middle Trishuli Ganga	Nuwakot	15625	2075.09.03
93	Kabeli Hydropower Company Pvt.Ltd.	Kabeli-3	Taplejung	21930	2075.10.03
94	White Lotus Power Pvt. Ltd. (Prv. North Summit Hydro Pvt.Ltd.)	Hidi Khola	Lamjung	6820	2075.10.04
95	Union Mewa Hydro Ltd.	Mewa Khola	Taplejung	23000	2075.10.04
96	Sajha Power Development Pvt. Ltd.	Lower Balephi	Sindhupalchowk	20000	2075.10.06
97	Mount Rasuwa Hydropower Pvt. Ltd.	Midim 1 Khola	Lamjung	13424	2075.10.07

98	Dudhpokhari Chepe Hydropower Pvt. Ltd.	Dudhpokhari Chepe	Gorkha	8800	2075.10.15
99	Silk Power (Prv. Maa Shakti Engineering & hydropower Pvt. Ltd.)	Luja Khola	Solukhumbu	24824	2075.10.16
100	Hilton Hydro Energy Pvt. Ltd.	Super Kabeli	Taplejung	12000	2075.11.02
101	Snow Rivers Pvt. Ltd.	Super Kabeli A	Taplejung	13500	2075.11.02
102	Barpak Daruadi Hydropower Pvt. Ltd.	Middle Super Daraudi	Gorkha	10000	2075.11.23
103	River Side Hydro Energy Pvt. Ltd.	Tamor Khola-5	Taplejung	37520	2075.12.04
104	Milke Jaljale Hydropower Pvt.Ltd.	Upper Piluwa Hills	Sankhuwasabha	4990	2075.12.04
105	Orbit Energy Pvt. Ltd.	Sabha Khola C	Sankhuwasabha	4196	2075.12.10
106	Ambe Hydropower Pvt. Ltd.	Upper Bhurundi	Parbat	3750	2075.12.10
107	Mabilung Energy (P.) Ltd	Upper Piluwa Khola -3	Sankhuwasabha	4950	2075.12.12
108	White Gold Multi Energy Pvt. Ltd. (Prv. Dhaulagiri Civil Electrical and Mechanical Engineering Pvt. Ltd.)	Madhya Daram Khola A	Baglung	3000	2075.12.26
109	Milestone Hydropower Pvt. Ltd. (Prv. Dhaulagiri Civil Electrical and Mechanical Engineering Pvt. Ltd.)	Madhya Daram Khola B	Baglung	4500	2075.12.26
110	Kalika Construction Pvt. Ltd.	Upper Daraudi B	Gorkha	8300	2076.01.09
111	Kalika Construction Pvt. Ltd.	Upper Daraudi C	Gorkha	9820	2076.01.09
112	Isuwa Energy Pvt. Ltd.	Lower Isuwa Cascade	Sankhuwasabha	40100	2077.09.27
113	Mewa Developers Pvt. Ltd	Siwa Khola	Taplejung	9300	2079.05.20
114	Tamor Sanima Energy Pvt. Ltd.	Upper Tamor	Taplejung	255281	2079.07.17
115	National hydro Power Co. Ltd.	Tallo Indrawati	Sindhupalchowk	4153	2079.11.25
116	Jagadulla Hydropower Co. Ltd.	Jagadulla	Dolpa	106000	2080.01.27
117	Hydro Support Pvt. Ltd.	Middle Kaligandaki	Myagdi	53539	2080.03.06
118	Super Bagmati Hydropower Pvt. Ltd.	Super Tallo Bagmati	Lalitpur	41314	2080.03.25
119	Peace Energy Company Pvt. Ltd.	Upper Kabeli	Taplejung	28100	2080.04.02
120	Upper Seti Hydro Pvt. Ltd.	Upper Seti	Kaski	20000	2080.06.10
121	Jalshakti Hydro Company Pvt. Ltd.	Ilep (Tatopani)	Dhading	23675	2075.03.25
122	Sita Hydropower Co. Pvt. Ltd.	Dudh Khola	Manang	65000	2075.07.11
			SUB-TOTAL	**3226524**	
SOLAR (IPPs)					
1	Gorkha Congenial Energy and Investment Pvt. Ltd.	Lamahi Solar Project	Dang	3000	2075.06.24
2	Global Energy and Construction Pvt. Ltd.	Duhabi Solar Project	Sunsari	8000	2075.06.25
3	Api Power Company Ltd.	Parwanipur Solar Project	Parsa	8000	2075.04.27
4	Tarai Solar Pvt. Ltd.	Jeera Bhawani Sedhwa Solar	Parsa	7700	2080.07.15
5	Pashupati Renewables Pvt. Ltd.	Dharamnagar Solar Farm	Kapilvastu	10000	2080.08.10
6	Pashupati Renewables Pvt. Ltd.	Dharamnagar Solar Farm-II	Kapilvastu	15000	2080.08.10
			SUB-TOTAL	**51700**	
			TOTAL	**3905724**	

NEPAL ELECTRICITY AUTHORITY
POWER TRADE DEPARTMENT
Status of IPPs and NEA's Subsidiary Companies owned Power Projects (Different Stages of Development) as of FY 2080/81
(Without Financial Closure)

S.N.	Developers	Projects	Location	Installed Capacity (kW)	PPA Date
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	Sisa Hydro Electric Company Pvt. Ltd.	Sisa Khola A	Solukhumbu	2800	2073.10.28
4	Himali Rural Electric Co-operative Ltd.	Leguwa Khola Small	Dhankuta	640	2074.02.08
5	Nyam Nyam Hydropower Company Pvt. Ltd.	Nyam Nyam Khola	Rasuwa	6000	2074.03.27
6	Saptang Hydro Power Pvt. Ltd.	Saptang Khola	Nuwakot	2500	2074.04.08
7	Upper Richet Hydropower Pvt. Ltd.	Upper Richet	Gorkha	2000	2074.09.20
8	Khechereswor Jal Vidhyut Pvt. Ltd.	Jadari Gad Small	Bajhang	1000	2074.10.12
9	Khechereswor Jal Vidhyut Pvt. Ltd.	Salubyani Gad Small	Bajhang	233	2074.10.12
10	Super Hewa Power Company Pvt. Ltd.	Super Hewa	Sankhuwasabha	6000	2074.12.27
11	Baraha Multipower Pvt. Ltd.	Irkhuwa Khola B	Bhojpur	15524	2075.02.14
12	Jhilimili Hydropower Co. Pvt. Ltd.	Gulangdi Khola	Gulmi	980	2075.02.24
13	North Summit Hydro Pvt. Ltd.	Nyadi Phidi	Lamjung	21400	2075.02.24
14	Mount Everest Power Development Pvt. Ltd.	Dudhkunda Khola	Solukhumbu	12000	2075.04.01
15	Him Parbat Hydropower Pvt. Ltd.	Sagu Khola-1	Dolakha	5500	2075.04.10
16	Him Parbat Hydropower Pvt. Ltd.	Sagu Khola	Dolakha	20000	2075.04.10
17	Annapurna Bidhyut Bikas Co. Pvt. Ltd.	Landruk Modi	Kaski	86590	2075.04.13
18	Madame Khola Hydropower Pvt. Ltd.	Madame Khola	Kaski	24000	2075.04.15
19	Thulo Khola Hydropower Pvt. Ltd.	Upper thulo Khola-A	Myagdi	22500	2075.04.24
20	Kalika Energy Ltd.	Bhotekoshi-5	Sindhupalchowk	62000	2075.04.25
21	Super Ghalemdi Hydropower Pvt. Ltd.	Super Ghalemdi	Myagdi	9140	2075.05.05
22	Dibyajyoti Hydropower Pvt. Ltd.	Marsyangdi Besi	Lamjung	50000	2075.05.10
23	Amar Jyoti Hydro Power Pvt. Ltd.	Istul Khola	Gorkha	1506	2075.05.13
24	Ichowk Hydropower Pvt. Ltd.	Gohare Khola	Sindhupalchowk	950	2075.05.25
25	Pike Hydropower Pvt. Ltd.	Likhu Khola	Ramechhap and Okhaldhunga	30000	2075.05.26
26	Sita Hydro Power Co. Pvt. Ltd.	Nyasim Khola	Sindhupalchowk	35000	2075.05.26
27	Sushmit Energy Pvt. Ltd.	Kunaban Khola	Myagdi	20000	2075.05.29
28	Masina Paryatan Sahakari Sanstha Ltd.	Masina	Kaski and Tanahu	891	2075.06.02
29	Shikhar Power Development Pvt. Ltd.	Bhim Khola	Baglung	4960	2075.06.10
30	Phedi Khola Hydropower Company Pvt. Ltd.	Phedi Khola (Thumlung)	Bhojpur	4300	2075.06.21
31	Kalinchowk Hydropower Ltd.	Sangu (Sorun)	Dolakha	5000	2075.08.09
32	Ruru Hydroelectric Company Pvt. Ltd.	Rurubanchu Khola-2	Kalikot	12000	2075.08.20
33	Gumu Khola Bhyakure Hydropower Pvt. Ltd.	Gumu Khola	Dolakha	950	2075.08.21
34	Sindhujwala Hydropower Ltd.	Upper Nyasem Khola A	Sindhupalchowk	21000	2075.10.06

35	Habitat Power Company Pvt. Ltd	Hewa Khola "A"	Panchthar	5000	2075.10.07
36	Ruby Valley Hydropower Company Ltd	Menchet Khola	Dhading	7000	2075.10.15
37	Sankhuwasabha Power Development Pvt. Ltd.	Super Sabha Khola	Sankhuwasabha	4100	2075.10.23
38	Jal Urja Pvt. Ltd.	Nuagad	Darchula	1000	2075.11.03
39	Helambu Construction Pvt. Ltd	Ksumti khola	Sindhupalchowk	683	2075.11.29
40	Hydro Connection Pvt. Ltd.	Rauje Khola	Solukhumbu	17712	2075.12.04
41	Bhalaudi Khola Hydropower Pvt. Ltd.	Bhalaudi Khola	Kaski	2645	2076.01.06
42	Super Khudi Hydropower Pvt. Ltd.	Upper Khudi	Lamjung	21210	2076.01.11
43	Manang Marsyangdi Hydropower Company Pvt. Ltd.	Manang Marsyangdi	Manang	135000	2077.12.09
44	Syarpu Power Company Limited	Syarpu Khola	Rukum	3236	2078.04.11
45	Dudh koshi Hydropower Private Ltd	Dudhkoshi 2 - Jaleshwor	Solokhumbhu	70000	2078.08.06
46	Sani Bheri Hydropower Co. Pvt. Ltd	Sani Bheri 3	Rukum	46720	2078.08.06
47	Dipjyoti Hydropower Pvt. Ltd.	Khani Khola	Dolakha	550	2078.08.10
48	Melamchi Hydro Pvt.Ltd.	Ribal khola	Sindhupalchowk	998	2078.08.10
49	Puwa Khola-1 Hydropower Pvt. Ltd.	Aayu Malun khola	Okhaldhunga	21000	2078.11.01
50	Bigu Hydro Venture Pvt. Ltd.	Pegu Khola	Dolakha	3000	2079.03.30
51	Halesi Urja Pvt. Ltd.	Madhya Rawa	Khotang	2200	2079.05.15
52	Maulakalika Hydropower Company Pvt. Ltd.	Kalika Kaligandaki	Tanahu	38160	2079.05.21
53	Jurimba Hydropower Co. Pvt. Ltd.	Jurimba Khola	Sindhupalchowk	7630	2079.05.27
54	S.K Energy Development Pvt. Ltd.	Shyam Khola	Bhojpur	7200	2079.07.17
55	Terhathum Power Company Ltd.	Khorunga-Tangmaya	Terhathum	2000	2079.07.17
56	Dynamic Power Pvt. Ltd.	Manahari Khola	Makwanpur	4444	2079.08.13
57	Water Energy Solution Pvt. Ltd.	Upper Deumai	Ilam	8300	2079.08.13
58	Dynamic Hydro Energy Pvt. Ltd.	Lapche Tamakoshi	Dolakha	40000	2079.10.04
59	Dynamic Hydro Energy Pvt. Ltd.	Chepe Khola Cascade	Lamjung and Gorkha	2000	2079.10.04
60	White Flower Energy Company Pvt. Ltd.	Upper Chhujung	Sankhuwasabha	40700	2079.10.29
61	Simkosh Hydropower Pvt. Ltd.	Simkosh Khola	Myagdi	3450	2079.11.11
62	Summit Energy Solution Pvt. Ltd	Bakan Khola	Sankhuwasabha	44000	2079.11.11
63	Kali Gandaki Gorge Hydropower Co. Pvt. Ltd	Kaligandaki Gorge	Myagdi	180000	2079.11.17
64	Sangrila Urja Pvt. Ltd.	Chhujung Khola	Sankhuwasabha	63000	2079.12.17
65	Yaru Hydrpower Pvt. Ltd.	Yaru Khola	Gorkha	30542	
66	Lower Mid Rawa Khola Hydropower Project Pvt. Ltd.	Lower Mid Rawa	Khotang	4000	2080.01.28
67	Water Energy Development Pvt. Ltd.	Machha Khola	Gorkha	16000	2080.03.04
68	Sanima Hydropower Ltd.	Jum Khola	Dolakha	55615	2080.03.06
69	Upper Syange Hydropower Limited	Dovan khola	Gorkha	24500	2080.03.07
70	Upper Myagdi Hydropower Pvt. Ltd. (Prv. Himalayan Infrastructure Fund Ltd.)	Upper Myagdi -1	Myagdi	53500	2080.03.11
71	Milarepa Energy Pvt. Ltd.	Super Melamchi khola	Sindhupalchowk	23600	2080.03.18
72	Budhi Gandaki Hydropower Pvt. Ltd.	Super Machha Khola Sana	Gorkha	4600	2080.03.21
73	Himalayan Engineering and Energy Pvt. Ltd.	Arun Khola-2	Nawalpur	2000	2080.03.21

74	Gurkhas Himalayan Hydro Ltd.	Upper Junbesi	Solukhumbu	4700	2080.03.22
75	Happy Energy Pvt. Ltd.	Mathilllo Sankhuwa	Sankhuwasabha	40000	2080.03.25
76	Expert Hydro Investment Pvt. Ltd.	Sani Bheri	Rukum (East)	44520	2080.03.27
77	Om Power Company Pvt. Ltd.	Thuligad Khola	Doti and Kailali	17000	2080.04.09
78	Samriddhi Energy Ltd.	Bajhang Upper Seti	Bajhang	216000	2080.04.19
79	Himshila Power Company Ltd.	Gashali Khola	Dhading	4500	2080.04.24
80	Everest Energy & Infrastructure Fund Pvt. Ltd.	Mudi Khola	Myagdi	14700	2080.04.25
81	Menchhiyam Hydropower Pvt. Ltd.	Upper Piluwa Khola-1	Sankhuwasabha	7700	2080.04.29
82	Butwal Power Company Ltd.	Lower Manang Marsyangdi	Manang	139200	2080.04.30
83	Nar Khola Hydro Energy Pvt. Ltd.	Nar Khola	Manang	61110	2080.05.01
84	Balephi Energy Pvt. Ltd.	Balephi Khola	Sindhupalchowk	40000	2080.05.01
85	Annapurna Power Company Pvt. Ltd.	Upper Madi-0	Kaski	43000	2080.05.06
86	Liberty Energy Company Ltd.	Lodo Khola Small	Lamjung	1600	2080.05.18
87	Tiplyang Kaligandaki Hydropower Pvt. Ltd.	Tiplyang Kaligandaki	Myagdi	58000	2080.05.19
88	Surya Holding Pvt. Ltd.	Upper Mewa Khola 'A'	Taplejung	31920	2080.05.21
89	Ganesh Himal Hydropower Pvt. Ltd.	Ankhu Khola-2	Dhading	20000	2080.05.22
90	Nilganga Hydropower Company Pvt. Ltd.	Khimti-Ghwang Khola	Dolakha and Ramechhap	9000	2080.05.26
91	Nilganga Hydropower Company Pvt. Ltd.	Suti Khola	Manang	21000	2080.05.26
92	Shangrila Hydropower Pvt. Ltd.	Jaldigad	Rukum (West)	20731	2080.05.26
93	Gulmi Hydro Pvt. Ltd.	Lower Rupse	Myagdi	1860	2080.05.27
94	Koplang Energy Hydropower Pvt. Ltd.	Lower Khani B	Dolakha	6200	2080.06.07
95	Maa Durga Kali Hydropower Company Pvt. Ltd.	Miwaje Khola	Kaski	4950	2080.06.10
96	Niko Energy Ltd.	Upper Bhurundi 'A'	Kaski	4500	2080.06.15
97	Iceland Power Pvt. Ltd.	Garjang Khola	Ramechhap	900	2080.06.22
98	Hub Power Pvt. Ltd.	Lower Nyadi	Lamjung	12600	2080.06.22
99	Spark Hydroelectric Company Ltd.	Tamor Mewa	Taplejung	128000	2080.06.24
100	Darchula Power Pvt. Ltd.	Madhya Chameliya	Darchula	28304	2080.06.29
101	Matribhumi Hydropower Development Company Pvt. Ltd.	Sishuwa Khola	Sankhuwasabha	13500	2080.06.30
102	Sankhuwasabha Power Development Pvt. Ltd.	Super Sabha Khola A	Sankhuwasabha	9412	2080.06.30
103	M.A. Power Pvt. Ltd.	Marsyangdi Nadi	Tanahu and Gorkha	90000	2080.07.01
104	Trishuli Cascade Power Pvt. Ltd.	Upper Trishuli-1 Cascade	Rasuwa	24600	2080.07.19
105	Lalupate Hydropower Company Pvt. Ltd.	Dana Khola	Manang	49950	2080.08.05
106	Upper Balephi Hydropower Ltd.	Mathilllo Balephi	Sindhupalchowk	46000	2080.08.05
107	Mandakini Hydropower Ltd.	Upper Sardi Khola	Kaski	2837	2080.08.13
108	Darkhola Hydropower Pvt. Ltd.	Dar Khola	Myagdi	6500	2080.08.15
109	Mona Hydropower Ltd.	Bagar Khola	Myagdi	5500	2080.08.15
110	Sumnima Hydropower Company Pvt. Ltd.	Upper Pikhuwa Khola	Bhojpur	4900	2080.08.17
111	Alliance Energy Solutions Pvt. Ltd.	Syalque Khola	Manang	4800	2080.08.17
112	Kanchan Urja Pvt. Ltd.	Gandigad Small	Baitadi	1000	2080.08.19
113	Shrestha Energy Solution Pvt. Ltd.	Upper Seti-1	Kaski	13000	2080.09.06

114	Devdhunga Malika Hydropower Company Pvt. Ltd.	Dev dhunga Chaku	Sindhupalchowk	3412	2080.09.06
115	Shikhar Power Development Ltd.	Lower Bhim Khola Cascade	Baglung	6050	2080.10.04
116	Crystal Power Development Pvt. Ltd.	Super Tamor	Taplejung	166000	2080.10.05
117	Bajra Energy Ventures Pvt. Ltd.	Bajra Madi	Kaski	24800	2080.10.28
118	Alampu Jalbidhyut Bikas Co. Pvt. Ltd.	Mathhilo Sagu	Dolakha	10000	2080.10.29
119	Gurans Hydro Pvt. Ltd	Sankhuwa Khola	Sankhuwasabha	41060	2080.11.08
120	Bagmati Water Energy Pvt Ltd.	Malta Bagmati	Lalitpur	6500	2080.12.06
121	Naulo Nepal Hydro Electric Pvt. Ltd.	Budhigandaki "Ka"	Gorkha	103400	2081.01.03
122	Naulo Nepal Hydro Electric Pvt. Ltd.	Budhigandaki "Kha"	Gorkha	226000	2081.01.03
123	Remit Hydro Ltd.	Ghunsa Khola	Taplejung	77500	2081.01.21
124	Dhaulashree Power Company Pvt. Ltd.	Dhaula Khola	Myagdi	10600	2081.02.11
125	Manakamana Daraudi Hydropower Company Ltd.	Daraudi Nadi	Gorkha	9840	2081.02.28
126	Harmony Initiatives Pvt. Ltd	Lapa Khola	Dhading	4720	2081.02.29
127	Vision Tesla Power Pvt. Ltd.	Induwa Khola	Sankhuwasabha	24921	2081.03.10
128	Times Energy Pvt. Ltd	Budi Gandaki	Gorkha	340423	2081.03.12
			SUB-TOTAL	**3827899**	
SOLAR (IPPs)					
1	First Solar Developers Nepal Pvt. Ltd.	Bhrikuti Grid-tied Solar Project	Kapilvastu	8000	2077.12.20
2	G.C. Solar Energy Group Pvt. Ltd.	Grid Connected Solar Electricity Project, Birendranagar, Surkhet	Surkhet	1200	2078.09.19
3	East Solar Pvt. Ltd.	Baigundhura Solar Power	Jhapa	5000	2079.07.17
4	Tarai Energy Pvt. Ltd.	DDB Solar	Parsa	2300	2080.07.15
5	Arga Bhagbati Ventures Pvt. Ltd.	Arga Solar	Argakhanchi	10000	2080.08.10
6	Prime Power Pvt. Ltd	Lamahi Solar Power Project	Dang	10000	2080.09.08
7	Green Infrastructure Pvt. Ltd	Solar PV Project, Dhalkebar	Dhanusha	5000	2080.09.08
8	Prime Power Pvt. Ltd	Kapilvastu Solar	Kapilvastu	30000	2081.01.10
			SUB-TOTAL	**71500**	
			TOTAL	**3899399**	

Existing High Voltage Transmission Lines

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	ACCC Cordoba	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 Copenhegan	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)	Double	32.00	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-Tamghas	Double	104.00	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
49	Bardaghat-Sardi	Double	40	BEAR	250
50	New Hetauda-Old Hetauda	Double	8	BEAR	250
Total (132 kV)			**3967.87**		
B	**220 kV Transmission Line**				
1	Khimti- Dhalkebar	Double	150.00	BISON	350
2	Trishuli 3B Hub-Matatirtha	Double	98.00	BISON	350
3	Marsyandi (Markichwok)-Matatirtha	Double	164.00	MOOSE	500
4	Matatirtha- Matatirtha Substation	Double Ckt, Underground	2.50	1C, XLPE Cu Cable	1200
		Double Ckt, Underground	2.50	1C, XLPE Cu Cable	1600
5	Dana-Kushma	Double	79.6	MOOSE	500
6	Koshi Corridor (Inaruwa-Basantapur-Baneshwor-Tumlingtar)	Single	106	MOOSE	500
7	Koshi Corridor (Basantapur-Dhungesanghu)	Single	35	MOOSE	500
8	Kushma -New Butwal	Double	176	ACCC Drake	519.7
9	Bharatpur-Bardghat	Double	148	BISON	350
10	New Bharatpur-New Hetauda	Double	143.4	BISON	350
Total (220 kV)			**1105.00**		

C	400 kV Transmission Line				
1	Dhalkebar-Muzzaffarpur	Double	78.00	MOOSE	500
2	Dhalkebar-Inaruwa	Double	306.00	MOOSE	500
Total (400 kV)			**384.00**		
D	**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 Ten 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	5330	456
9	2079/080	514	3979	1101	148	5742	412
10	2080/081	514	4136	1213	644	6508	766
Total Increment in Ten Years							**3884**

Comparision of Substation Capacity in Last Ten 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	365
7	2077/078	6434	2134
8	2078/079	7149	715
9	2079/080	8867	1718
10	2080/081	13050	4183
Total Increment in Ten Years			**10918**

Comparison of Capacitor Bank Capacity in Last Ten 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
10	2080/081	748.644	0
Total Increment in Ten years			**367.5**

Summary of Underconstruction/planned & proposed transmission Line

S.N	Description	Voltage Level	Transmission Directorate	Project Management Directorate	Total
1	Under construction Transmission Line	132 kV	905	343	1,248
		220 kV	267	316	583
		400 kV	270	180	450
Total (Circuit km)			**1,442**	**839**	**2,281**
2	Planed and Proposed Transmission Line	132 kV	668	268	936
		220 kV	1,764	-	1,764
		400 kV	1,748	1,886	3,634
Total (Circuit km)			**4,180**	**2,154**	**6,334**

Summary of Underconstruction/Planned & Proposed Substation

S.N	Description	Transmission Directorate	Project Management Directorate	Total
1	Under construction (MVA)	2,699	4,803	7,502
2	Planed and Proposed (MVA)	9,195	6,556	15,751

Under Construction High Voltage Transmission Lines

S.N.	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 80-81	Constructed in FY 80-81 only			
I	**Transmission Directorate**							
A	**132 kV Transmission Line**							
1	Singati-Lamosangu 2nd Circuit	Single	40	40		BEAR	250	2024/25
2	Thankot-Chapagaon	Double	56	16		BEAR	250	
3	Burtibang-Paudi Amarai-Tamghas	Double	66	15	15	BEAR	250	2024/25
4	Kushaha- Biratnagar	Double	46	16	16	BEAR	250	2024/25
5	Dhalkebar-Loharpatti	Double	38	37.5	37.5	CARDINAL	420	2024/25
6	Kohalpur-Surkhet-Dailekh	Double	168	44	44	BEAR	250	2025/26
7	Balefi Corridor	Double	40			CARDINAL	420	2025/26
8	Dhalkebar- Balganga	Double	48			CARDINAL	420	2025/26
9	Kaligandaki- Ridi	Double	44			BEAR	250	2025/26
10	Nawalpur (Lalbandi) Salimpur	Double	40			BEAR	250	2025/26
11	Bhumahi-Hakui	Double	32			BEAR	250	2025/26
12	Kabeli (Amarpur) Dhungesangu	Double	40			BEAR	250	2025/26
13	Godak Soyak	Double	16.00			BEAR	250	2025/26
14	Kushma -Lower Modi -Modi	Double	30.00			BEAR	250	2025/26
15	Birgunj-Parsauni UG	Double	5.60			1C, XLPE Cu Cable		2025/26
16	Barhabise Lamosaghu 2nd Circuit (Sunkoshi 132 kV SS)	Single	12.00			BEAR	250	2024/25
17	Nepalgunj-Nanpara Cross Border	Double	33.00			BEAR	250	2025/26
18	Bafikot-Madichaur (Khungri)	Double	150			BEAR	250	2026/27
Total			**904.6**	**169**	**113**			
B	**220 kV Transmission Line**							
1	Chilime-Trishuli	Double	72	50	26	BISON	350	2024/25
2	Koshi Corridor (Basantapur-Dhungesangu 2nd ckt)	Single	35	20	20	MOOSE	500	2024/25
3	Tumlingtar-Sitalpati	Double	36			MOOSE	500	2025/26
4	Lekhnath-Damauli	Double	90.00			MOOSE	500	2025/26

5	Galchhi - Ratmate	Double	34.00			MOOSE	500	2025/26
Total			**267**	**70**	**46**			
C	**400 kV Transmission Line**							
1	Hetauda-Dhalkebar	Double	270	104	104	MOOSE	500	2024/25
Total			**270**	**104**	**104**			
A	**132 kV Transmission Line**							
1	Lapsifedi - Changunarayan - Duwakot	Double	28	0	0	BEAR	250	2024/25
2	Parwanipur - Pokhariya **	Double	84	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		**343**					
B	**220 kV Transmission Line**							
1	New Butwal - Bardaghat TL	Double	42	26	26	BISON	350	2024/25
2	Dharapani - Khudi TL	Double	56	0	0	Moose	500	2024/25
3	Khudi - Udipur TL	Double	36	0	0	ACCC Drake	519.7	2024/25
4	Udipur - Bharatpur TL	Double	134	12	6	ACCC Drake	519.7	2024/25
5	Lapang - Ratmate TL**	Double	48	0	0	Twin Moose	500	2024/25
Total			**316**	**38.0**	**32.0**			
C	**400 kV Transmission Line**							
1	New Khimti - Barhabise	Double	88	70	24	MOOSE	500	2024/25
2	Barhabise - Kathmandu	Double	92	86	58	MOOSE	500	2024/25
Total			**180**	**156**	**82**			

(Note : ** - In the process of Procurement)

Planned and Proposed High Voltage Transmission Lines

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	Arun Inaruwa Anarmani	Double	460.00	MOOSE	500
2	Arun-Dudhkoshi-Tingla	Double	230.00	MOOSE	500
3	Dudhkoshi-Dhalkebar	Double	170.00	MOOSE	500
4	New Butwal Gorakhpur	Double	40.00	MOOSE	500
5	Nijgadh -Harniya	Multi	140.00	MOOSE	500
6	Harnaiya-Bodebarsain	Multi	708.00	MOOSE	500
Total			**1748.00**		
B	220 kV Transmission Line				
1	Koshi Corridor (Inaruwa-Basantapur-Baneshwor-Tumlingtar)	Single	106	MOOSE	500
2	Dhaubadi Iron Mine	Double	16.00	BISON	350
3	Gandak Nepalgunj	Multi	1276.00	MOOSE	500
4	Kathmandu Valley Transmission System Expansion	Multi, Double	320.00		
5	Chilime-Kerung	Double	46.00	MOOSE	500
Total			**1764.00**		
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	BEAR	250
9	Lahan Sukhipur	Double	34.00	BEAR	250
10	Chandrapur-Sukhdevchaur (Rajpur)	Double	70.00	BEAR	250
Total			**668.00**		**250**
II	Project Management Directorate				
A	400 kV Transmission Line				
1	Nijgadh - Ramauli	Double	76.00	MOOSE	500
2	New Butwal-Lamahi	Double	340.00	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		**1886.00**		
B	220 kV Transmission Line				
1	Okharpauwa-Tinpiple (LILO of existing UT3A-Matatirtha Line)	Multi	16	BISON	350
	Total		**16.00**		
B	132 kV Transmission Line				
1	Dailekh - Kalikot - Jumla	Double	164.00	BEAR	250
2	Lamosangu - Kavre/Ramechhap	Double	80.00	BEAR	250
3	LILO of Nepalgunj-Nanpara Line	Multi	24.00	BEAR	250
Total			**268.00**		

Existing High Voltage Grid Substations

S.No	Substation	Voltage Ratio	Capacity FY 079-80	Capacity FY 080-81	Total Increment in FY 080-81
		kV	MVA	MVA	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
		132/11		45	45
		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	0
		66/11	22.5	22.5	0
5	Lainchour	66/11	22.5	30	7.5
		66/11	22.5	30	7.5
6	New Patan	66/11	18	30	12
		66/11	18	30	12
		66/11	18	30	12
		66/11	30	30	0
7	Teku	132/11		45	45
		132/11		45	45
		66/11	22.5	45	22.5
		66/11	22.5	45	22.5
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	45	45	0
		132/11	22.5	45	22.5
		132/11	22.5	45	22.5
11	Banepa	66/11	22.5	22.5	0
		66/11		22.5	22.5
12	Panchkhal	66/11	10	10	0
13	Matatirtha	220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		132/33	30	30	0
		132/11	22.5	22.5	0
		132/11		45	45

14	Bagmati	66/33	10	10	0
		66/11	6	6	0
15	Samundratar	132/33	30	30	0
		132/33	30	30	0
		33/11	8	8	0
		33/11	8	8	0
16	Trishuli 3B HUB	220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		132/33		50	50
17	Chilime HUB	220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		220/132		53.33	53.33
		132/33		50	50
B	**Hetauda Grid Division**				
18	Hetauda	132/66	45	45	0
		132/66	20	45	25
		66/11	10	10	0
		66/11	30	30	0
19	Kamane	132/33	63	63	0
		132/33	30	30	0
		33/11	24	24	0
		33/11	16.6	16.6	0
20	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
21	New Bharatpur	220/132	160	160	0
		220/132	160	160	0
		132/11	30.0	30.0	0
22	Birgunj	66/33	30	30	0
		66/33	12.5	30	17.5
		66/11	30	30	0
		66/11	30	30	0
23	Parwanipur	132/11	22.5	22.5	0
		132/11	22.5	22.5	0
		132/11	22.5	22.5	0
		132/11		22.5	22.5
		132/66	63	63	0
		132/66	63	63	0
		132/66	63	63	0
		132/33	63	63	0
24	Simra	66/11	15	15	0
		66/11	15	15	0
25	Amlekhgunj	66/11	10	10	0
26	Pathlaiya	132/11	22.5	22.5	0
		132/33	30	30	0

27	Purbi Chitwan	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
28	New Hetauda	400/220		166.67	166.67
		400/220		166.67	166.67
		400/220		166.67	166.67
		220/132		160	160
		220/132		160	160
		132/11		10	10
C	**Dhalkebar Grid Branch**				
29	Lahan	132/33		30	30
		132/33	63	63	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
30	Chapur	132/33	30	63	33
		132/33	30	63	33
		33/11	16.6	16.6	0
31	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
32	Mirchaiya	132/33	30	30	0
		132/33		30	30
		33/11	16.6	16.6	0
33	Nawalpur	132/33	63	63	0
		33/11	16	16	0
34	Rupani	132/33	63	63	0
D	**Duhabi Grid Division**				
35	Tingla	132/33	30	30	0
		33/11	8	8	0
36	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	24	7.4
		33/11	16.6	24	7.4
37	Anarmani	132/33	30	30	0
		132/33	63	63	0
		132/33	30	30	0
		33/11	24	24	0
		33/11	16.6	24	7.4
38	Damak	132/33	63	63	0
		132/33	63	63	0
		33/11	16.6	16.6	0
		33/11		16.6	16.6

39	Godak	132/33	63	63	0
		33/11	8	8	0
40	Phidim	132/33	20	20	0
		33/11	3	3	0
41	Amarpur (Kabeli)	132/33	30	30	0
		33/11	3	3	0
42	Kushaha	132/11	22.5	22.5	0
43	Inaruwa	400/220		315	315
		400/220		315	315
		400/220		315	315
		220/132	160	160	0
		220/132	160	160	0
		220/33	63	63	0
		220/33	63	63	0
44	Tumlingtar	220/132	100	100	0
		220/132	100	100	0
		132/33	30	30	0
		132/33	30	30	0
45	Baneshwor	220/33	30	30	0
		220/33	30	30	0
46	Basantapur	220/132		33.33	33.33
		220/132		33.33	33.33
		220/132		33.33	33.33
		220/132		33.33	33.33
		220/132		33.33	33.33
		220/132		33.33	33.33
		132/33		30	30
47	Dhungesanghu	132/33		30	30
E	**Butwal Grid Division**				
48	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
49	Bardghat	132/11	22.5	22.5	0
		132/11	22.5	22.5	0
50	Chanauta	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
		33/11	8	8	0
51	Kawasoti	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
52	Gandak	132/33	30	30	0
		132/33	30	30	0
		33/11	16.6	16.6	0
		33/11	16.6	16.6	0
53	Motipur	132/33	30	30	0
		33/11	16	16	0

54	Sandhikharka	132/33	30	30	0
		33/11	16	16	0
55	Mainahiya	132/33	45	45	0
		132/33	45	45	0
		33/11	16	16	0
56	New Butwal	220/132	100	100	0
57	Sunwal	132/33	63	63	0
		132/33	63	63	0
		132/11	22.5	22.5	0
58	Tamghas	132/33		30	30
		33/11		16	16
F	**Pokhara Grid Division**				
59	Damauli	132/33	30	30	0
		132/33	15	15	0
		33/11	16.6	16.6	0
		33/11	3	3	0
60	Pokhara	132/11	30	30	0
		132/11	30	30	0
61	Lekhnath	132/33	30	30	0
		132/11	22.5	22.5	0
		132/11		30	30
62	Markichowk	132/33	12	12	0
63	Syangja	132/33	30	30	0
		33/11	8	8	0
64	Dana	220/132	100	100	0
		132/33	25	25	0
65	Kushma	220/132	100	100	0
66	Lahachowk	132/33	30	30	0
		33/11	8	8	0
67	Kirtipur	132/11	10	10	0
G	**Attaria Grid Division**				
68	Attaria	132/33	30.0	63.0	33
		132/33	30.0	63.0	33
		33/11	16.6	16.6	0
		33/11		16.6	16.6
69	Lamki	132/33	15	15	0
		132/33	15	15	0
		33/11	16.6	16.6	0
70	Mahendranagar	132/33	30	30	0
		132/33		30	30
		132/33	30	30	0
		33/11	16.6	16.6	0
71	Pahalmanpur	132/33	30	30	0
		33/11	8	8	0
72	Syaule	132/33	30	30	0
		33/11	8	8	0
H	**Khimti Grid Section**				
73	New Khimti	220/132		66.67	66.67
		220/132		66.67	66.67
		220/132		66.67	66.67
		220/132	100	100	0
		132/33		30	30
		132/33	30	30	0
74	Singati	132/33	30	30	0

75	Garjyang	132/33	30	30	0
		33/11	8	8	0
76	Indrawati	66/11	10	10	0
77	Lamosanghu	132/33	30	63	33
I	**Kohalpur Grid Section**				
78	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
79	Bhurigaon	132/33	30	30	0
		33/11	8	8	0
80	Kusum	132/11	12.5	12.5	0
81	Hapure	132/33	30	30	0
		33/11	8	8	0
82	Lamahi	132/33	63	63	0
		132/33		63	63
		33/11	16.6	16.6	0
		33/11	8	8	0
83	Ghorahi	132/33	63	63	0
		132/33	30	30	0
		33/11	16.6	16.6	0

Summary of High Voltage Grid Substation

S.No	Voltage Rating (kV)	Transformer No.	Total Capacity FY 079-80 (MVA)	Total Capacity FY 080-81 (MVA)	Total Increment (MVA)
1	400/220	9	945	2390	1445
2	220/132	43	2190	3870	1680
3	220/33	4	186	186	0
4	132/66	13	610	635	25
5	132/33	85	2994	3532	538
6	132/11	29	548	835	288
7	66/33	3	53	70	18
8	66/11	33	661	780	119
9	33/11	52	681	752	71
	Total	**271**	**8867**	**13050**	**4183**

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	Burtibang Paudi Amarai Tamghas Sandhikharka Gorusinghe 132 kV Transmission Line	Burtibang	132/33 33/11	3 Ø, 30 16	46	2024-25
		Paudi Amarai	132/33 33/11	3 Ø, 30 16	46	2024-25
2	Kushaha Biratnagar 132 kV Transmission Line	Biratnagar	132/33 33/11	3 Ø, 2x63 3 Ø, 16	142	2024-25
3	Dhalkebar Loharpati 132 kV Transmission Line	Loharpatti	132/33 132/11	3 Ø, 2x30 3 Ø, 22.5	92.5	2024-25
4	Tumlingtar Sitalpati 220 kV Transmission Line	Sitalpati	220/132 132/33	1 Ø, 7x33.33 Bank 1 Ø, 4x8 Bank	224	2025/26
5	Dharan 220/33 kV substation	Dharan	220/33 33/11	3 Ø, 63 3 Ø, 10	73	2026/27
6	Kaligandaki Ridi132 kV Transmission Line	Ridi	132/33 33/11	3 Ø, 30 3 Ø, 8	38	2024/25
7	Lalbandi Salimpur 132 kV Transmission Line	Salimpur	132/33 33/11	3 Ø, 2x30 3 Ø, 1x24	84	2025/26
8	Dhalkebar Balganga 132 kV Transmission Line	Balganga	132/33	3 Ø, 2x63	126	2025/26
9	Bhumahi Hakui132 kV Transmission Line	Hakui	132/33	3 Ø, 2x100	200	2025/26
10	Malekhu 132 kV Substation Expansion	Malekhu	132/33	3 Ø, 2x30	60	2024-25
11	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	
12	Birgunj Parsauni 132 kV UG Transmission Line	Parsauni	132/33	3 Ø,2x100	200	2024/25
		Birgunj	132/33	3 Ø,2x100	200	2024/25
13	New Khimti - Lamosanghu Kathmandu Transmission Line Upgradation	New Khimti	220/132	1 Ø, 3x66.67 Bank	200	2025/26
14	Surkhet 132 kV Substation	Surkhet	132/33	3 Ø,2x30	60	2024/25
15	Kohalpur - Surkhet-Dailekh 132 kV Transmission Line	Dailekh	132/33 33/11	3 Ø,2x30 3 Ø,2x22.5	105	
Total					**2,698.50**	
II	**Under Project Management Directorate**					
1	220 kV Bahrabise Substation	Barhabise	220/132	1 Ø, 4x53.33	165	2023/24
			132/11	3 Ø, 1x5		
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

4	Marsyangdi Corridor 220 kV TL Project	Udipur	220/132	1 Ø, 4x53.33	210	2023/24
			132/33	3 Ø, 1x50		
		Khudi	220/132	1 Ø, 4x53.33	210	2023/24
			132/33	3 Ø, 1x50		
		Dharapani	132/33	1 Ø, 4x33.33	130	2023/24
			132/33	3 Ø, 1x30		
5	Lapsiphedi and Changunarayan SS Project	Lapsiphedi	220/132	1 Ø, 4x53.33	182.5	2023/24
			132/11	3 Ø, 1x22.5		
		Changunarayan	132/11	3 Ø, 1x45	45	
		Teku	132/11	3 Ø, 2x45	90	2023/24
			132/66	3 Ø, 1x63	63	
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	3 Ø, 2x63	171	2024/25
			132/11	3 Ø, 1x45		
8	Kathmandu Valley Transmission Capacity Reinforcement Project (Phase II)**	Balkumari	132/66	3 Ø, 2x63	216	2024/25
			132/11	3 Ø, 2x45		
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	3 Ø, 2x63	148.5	2023/24
			132/11	3 Ø, 22.5		
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 Amlkehgunj 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
16	132 kV New Patan substation **	New Patan	132/66	3 Ø, 2x63	261	2024/25
			132/11	3 Ø, 3x45		
Total					**4803**	
** Under procurement process						

Planned and Proposed Construction High Voltage Grid Substations

S.No	Name of Project	Substation	Voltage Level (Ratio)	Capacity	Total Capacity
			kV	MVA	MVA
I	**Transmission Directorate**				
1	Dhaubadi Iron Mine 220 kV Transmission Line	Dhaubadi	220/132 132/33	3 Ø, 2x160 3 Ø, 2x63	446
2	Palpa 220 kV Substation	Palpa	220/132 132/33 33/11	1 Ø,7x53.33 3 Ø,2x63 3 Ø,2x16	478
3	Godak Anarmani 132 kV Transmission Line	Anarmani	132/33	3 Ø, 2x63	126
4	Lahan - Sukhipur 132 kV Transmission Line	Sukhipur	132/33	3 Ø,2x30	60
5	Rupani - Bodebarsain 132 kV Transmission Line	Bodebarsain	132/33	3 Ø,2x30	60
6	Chandrapur - Sukhdevchaur 132 kV Transmission Line	Sukhdevchaur	132/33	3 Ø,2x63 3 Ø,25	151
7	Birauta 132 kV Substation	Birauta	132/11	3 Ø,2x30	60
8	Syaule-Safebagar 132 kV Transmission Line	Safebagar	132/33 33/11	3 Ø,2x30 3 Ø,1x16	76
9	Bafikot-Khungri (Madichaur) 132 kV Transmission Line	Ghartigaun	132/33 33/11	3 Ø,1x30 3 Ø,1x16	46
10	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
11	Attariya Dhangadhi 132 kV Transmission Line	Dhangadhi	132/33 33/11	3 Ø,2x63 3 Ø,1x22.5	148.5
12	Auraha Simara 132 kV Transmission Line	Auraha	132/33 33/11	3 Ø,2x63 3 Ø,2x22.5	171
13	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
14	Kathmandu Valley Transmission System Expansion	Agreegate	220, 132 and 66 kV		4129
15	Nijgadh 400 kV Substation	Nijgadh	400/220 220/132 132/33	3 Ø,2x500 3 Ø,2x200 3 Ø,2x63	1526
16	Nijgadh-Harnaiya 400 kV Transmission Line	Harnaiya	220/132 132/33	3 Ø,2x200 3 Ø,2x63	526
17	Harnaiya-Bodhebarsain 400 kV Transmission Line	Bodebarsain	400/132	3 Ø,2x315	630
Total					**9194.5**

I	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	
11	Nepalgunj-Nanpara 132 kV Transmission Line	Old Nepalgunj (33/11 kV)	132/33	3 Ø, 2x30	60
12	Okharpauwa-Tinpiple 220 kV Transmission Line	Tinpiple	220/132	1 Ø, 7x66.67 Bank	400
			132/66	3 Ø, 2x63	126
			132/11	3 Ø, 2x30	60
Total					**6556**

DCSD Loss Percentage											
S.N.	Category	Koshi PO	Madhesh PO	Bagmati PO	Bagmati DO	Gandaki PO	Lumbini PO	Lumbini DO	Karnali PO	Sudurpaschim PO	Total
1.	Received Energy, KWH	1,904,847,614	2,524,075,713	2,549,633,065	765,108,812	746,113,762	1,580,566,002	709,027,438	105,272,743	425,942,129	11,310,587,279
2.	Sales Energy, KWH	1,716,856,282	2,138,229,446	2,406,877,299	710,064,219	686,757,980	1,459,321,284	648,097,419	82,337,872	376,944,596	10,225,486,397
3.	Loss Unit, KWH	187,991,332	385,846,267	142,755,766	55,044,593	59,355,783	121,244,718	60,930,019	22,934,872	48,997,533	1,085,100,882
4.	Loss percentage (2023/024)	9.87%	15.29%	5.60%	7.19%	7.96%	7.67%	8.59%	21.79%	11.50%	9.59%
5.	Loss percentage (2022/023)	10.38%	13.79%	6.29%	9.82%	8.47%	8.48%	8.60%	16.20%	10.99%	9.76%
6.	Loss percentage (2021/022)	11.72%	14.17%	6.97%	7.38%	9.10%	12.83%	9.81%	15.27%	13.30%	10.86%
*PO=Provincial Office, DO=Division Office											

Distribution System Data for F/Y 2080/81 (2023/024)								
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	Total Quantity	Capacity (MVA)
1	Koshi PO	35	583.50	1235.42	10267.66	27659.10	8648	719.70
2	Madhesh PO	26	489.40	791.70	7207.67	23686.73	7809	786.01
3	Bagmati PO	22	175.60	537.40	7802.38	25438.67	8829	1075.65
4	Bagmati PDO	11	143.80	316.44	3484.12	9107.28	3102	261.37
5	Gandaki PO	26	243.25	771.60	5603.39	14306.45	4179	287.06
6	Lumbini PO	25	365.30	1358.72	4830.19	14846.99	4813	481.30
7	Lumbini PDO	13	207.20	1242.09	3889.10	11711.51	3329	294.26
8	Karnali PO	12	87.10	542.50	3047.78	7981.12	1813	107.45
9	Sudurpaschim PO	26	228.60	780.05	4543.26	15739.54	2952	187.00
	Total	**196**	**2523.75**	**7575.92**	**50675.55**	**150477.38**	**45474**	**4199.80**

POWER DEVELOPMENT MAP OF NEPAL

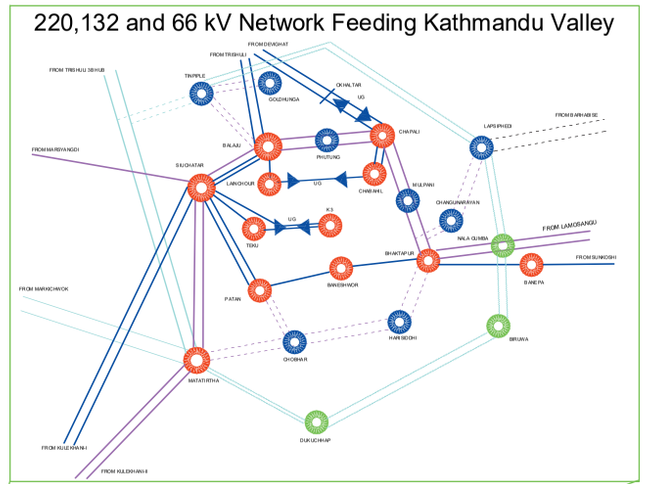
EXISTING / UNDER CONSTRUCTION TRANSMISSION LINES / SUBSTATIONS

(NOT TO SCALE)

N

CHINA

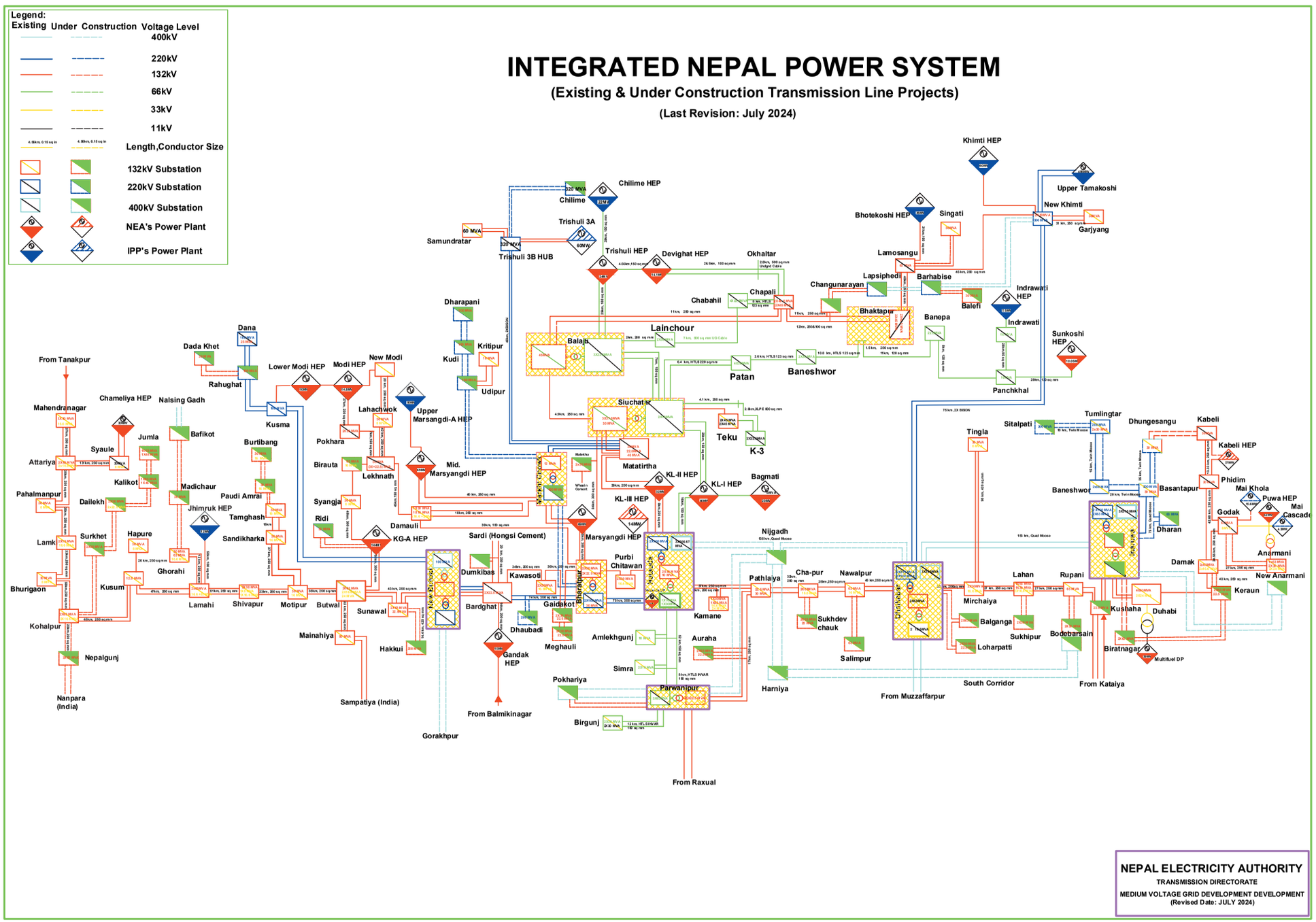
INDIA



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
MEDIUM VOLTAGE GRID DEVELOPMENT DEPARTMENT
(Revised Date: AUGUST 2024)


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
INTEGRATED NEPAL POWER SYSTEM
(Existing & Under Construction Transmission Line Projects)
(Last Revision: July 2024)
Khimti HEP
Upper Tamakoshi
New Khimti
Garjyang
Bhotekoshi HEP
Singati
Lamosangu
Barhabise
Lapsiphedi
Changunarayan
Bhaktapur
Balefi
Indrawati HEP
Indrawati
Sunkoshi HEP
Panchkhal
Banepa
Chilime HEP
Chilime
Trishuli 3A
Trishuli 3B HUB
Samundratar
Trishuli HEP
Devighat HEP
Okhaltar
Chabahil
Chapali
Lainchour
Balaju
Dharapani
Kritipur
Kudi
Udipur
Patan
Baneshwor
Siuchatar
Teku
K-3
Matatirtha
KL-II HEP
KL-I HEP
KL-III HEP
Bagmati
Marsyangdi HEP
Purbi Chitawan
Kamane
Nijgadh
Pathlaya
Cha-pur
Nawalpur
Sukhdev chauk
Salimpur
Harniya
Pokhariya
Parwanipur
Birgunj
From Muzzaffarpur
South Corridor
From Kataiya
From Raxual
From Balmikinagar
Gandak HEP
Amlekhgunj
Auraha
Simra
Dhaubadi
Meghauli
Gaidakot
Kawasoti
Sardi (Hongsi Cement)
Dumkibas
Bardghat
Bharatpur
Hetauda
New Butwal
Sunawal
Mainahiya
Hakkui
Sampatiya (India)
Gorakhpur
Dana
Dada Khet
Rahughat
Kusma
Lower Modi HEP
Modi HEP
New Modi
Upper Marsangdi-A HEP
Mid. Marsyangdi HEP
Lahachwok
Pokhara
Birauta
Lekhnath
Syangja
Ridi
Damauli
KG-A HEP
From Tanakpur
Mahendranagar
Attariya
Pahalmanpur
Lamk
Bhurigaon
Kohalpur
Nepalgunj
Nanpara (India)
Chameliya HEP
Syaule
Jumla
Kalikot
Dailekh
Surkhet
Kusum
Nalsing Gadh
Bafikot
Madichaur
Jhimruk HEP
Ghorahi
Hapure
Lamahi
Burtibang
Paudi Amrai
Tamghash
Sandikharka
Shivapur
Motipur
Tingla
Sitalpati
Tumlingtar
Dhungesangu
Kabeli
Kabeli HEP
Phidim
Basantapur
Baneshwor
Mai Khola
Puwa HEP
Mai Cascade
Godak
Dharan
Damak
Anarmani
New Anarmani
Keraun
Mirchaiya
Balganga
Sukhipur
Loharpatti
Lahan
Rupani
Kushaha
Duhabi
Biratnagar
Multifuel DP
Bodebarsain
Dhalkebar
Inaruwa
Tingla
Sitalpati
Tumlingtar
Dhungesangu
Kabeli
Kabeli HEP
Phidim
Basantapur
Baneshwor
Mai Khola
Puwa HEP
Mai Cascade
Godak
Dharan
Damak
Anarmani
New Anarmani
Keraun
Kushaha
Duhabi
Biratnagar
Multifuel DP
Bodebarsain
NEPAL ELECTRICITY AUTHORITY
TRANSMISSION DIRECTORATE
MEDIUM VOLTAGE GRID DEVELOPMENT DEVELOPMENT
(Revised Date: JULY 2024)

NEA Data Center and Load Dispatch Center Premises

Solar Plant at Nuwakot, Devighat

NEPAL ELECTRICITY AUTHORITY

Head Office: Durbar Marg, Kathmandu, Nepal
Tel: 014153051, Fax: 014153009
Email: neamd@nea.org.np, Website: www.nea.org.np