



MILLENNIUM CHALLENGE ACCOUNT – NEPAL

Terms of Reference (ToR) and Requirements for Consulting Services for the Technical Assistance Program to Nepal Electricity Authority (NEA)

Terms of Reference (ToR) and Requirements for Consulting Services for the Technical Assistance Program to Nepal Electricity Authority (NEA)

A. MCC Nepal Compact Program

The Federal Democratic Republic of Nepal, acting through the Ministry of Finance (the “Government”) and the United States of America, acting through the Millennium Challenge Corporation (“MCC”) entered into a Millennium Challenge Compact on September 14, 2017, providing for a grant of up to FIVE HUNDRED MILLION United States Dollars (US \$500,000,000) to advance economic growth and reduce poverty in Nepal (the “Compact”), to which the Government will contribute up to US\$130,000,000 for a program to reduce poverty through economic growth in Nepal. The Government is acting through the Millennium Challenge Account-Nepal (the “MCA-Nepal”) for the implementation of the projects funded under the Compact.

The goal of the Compact is to reduce poverty through economic growth. The Compact program includes two projects: (i) construction of about 300 kilometers of 400 kV electricity transmission lines, three substations, and technical assistance for the power sector -**The Electricity Transmission Project (ETP)**; and (ii) technical assistance to improve the road maintenance regime and road maintenance works on about 300 kilometers of the strategic road network-**The Road Maintenance Project (RMP)**. The program would include the procurement of contractors and consultants for design, construction and supervision of electricity lines and substations, road maintenance works, including a variety of technical services, equipment and construction works in different geographic locations within Nepal. The Compact can be accessed at http://mcanp.org/wp-content/uploads/2019/04/Millennium_Challenge_Compact.pdf

B. Background

Power Sector Context

Nepal’s power sector revolves around the country’s significant hydropower resources, with an estimated 42,000 megawatts (MW) of economically and technically feasible generation capacity coming from the country’s rivers. These resources represent an important opportunity to support economic growth and development in Nepal by providing modern electricity services to the country’s 26 million people (Census data 2011) of which about 86% (NEA Annual Report 2019/20) have access to on-grid electricity in FY 2019/2020. In addition, the generation potential is significantly greater than the expected future domestic demand, opening up the opportunity for Nepal to export power to the South Asia region, including India and Bangladesh. Beyond grid-connected customers, a significant share of the population has access to electricity from off-grid solutions, especially mini-, micro- and pico-hydro schemes with mini-grids serving local communities.

However, the lack of access to reliable grid-supplied electricity is a key constraint to economic growth and an obstacle to reducing poverty. Developing sustainable hydro generation will

enable Nepal to balance its supply deficit in the dry season with the revenues made through exports during the wet season, when rivers flows are high. In 2019-2020, annual electricity consumption per capita in Nepal was only about 264 kWh, one of the lowest rates of consumption in South Asia. Development of the hydropower potential has been slow: only 1,278 MW of installed generation capacity supplying 6,012 GWh of electricity annually. Independent Power Producers (IPPs) account for a growing share of installed capacity – about 696 MW compared to NEA’s 582 MW, or 54 percent of electricity supplied. This represents important growth in private sector participation with a 75 percent increase in IPP’s installed capacity since 2015. This trend is expected to continue; however, there have been delays in closing and constructing new projects, including large storage and peaking plants in recent years.

Peak demand in Nepal in 2019-2020 was about 1,408 MW. This number likely reflects some suppressed demand; even so, domestic generation capacity is not sufficient to meet these requirements. Further, since Nepal has a heavy reliance on run-of-river hydropower plants, energy supply is heavily influenced by differences in the water levels between the wet and dry seasons. In the years leading up to 2016, the result was significant load-shedding – up to 16 hours on a regular basis, creating a heavy burden on economic activity and the well-being of the population. However, since 2016 NEA has instituted a combination of operational improvements (including reduction of non-technical losses) and especially the introduction of a high-capacity cross-border transmission line with India, that have allowed load-shedding to be mostly eliminated. As the total power purchased from IPPs within Nepal has been significantly increases which help to reduces the total energy imported from India. In the fiscal year 2018/19, the import of electricity from India was 2,813GWh, but in the current fiscal year 2019/20, the import of electricity has decreased by almost half to 1,468 GWh. With the increase in domestic production of electricity, the demand for electricity imported from India has been declining. However in the past scenario was different and imports was by 250 percent from 2013 to 2019, when imports represented 2,813 GWh of Nepal’s electricity supply.

Going forward, progress in Nepal’s power sector will depend on continued growth in generation capacity driven by private sector investment. Hydropower will continue to be the primary source of generation, but NEA is targeting peaking plants and projects with hydro storage rather than run-of-river projects; further, there is interest in adding more solar power or wind resources. In addition, Nepal looks to increase power trade and to sustainably manage increased supply of power through exports to regional markets. Major expansions in the transmission and distribution network will be needed to accommodate the increased supply and demand in the country. To ensure that growth in the sector is sustainable, it will be essential to establish increased financial viability in the sector through improvements in the tariff regime, ongoing loss reduction and increased efficiency in system operations.

In addition to improving the performance of the power sector as presently constituted, the government of Nepal has expressed its interest in injecting more competition into the sector. Part of this NEA is a vertically integrated, state-owned utility is the sole off-taker of generation from other parties including private sector-owned generation. However, the Parliament, the Ministry of Energy Water Resources and Irrigation (MoEWRI) and the Electricity Regulatory Commission (ERC) have all expressed support for a more fundamental change: ultimately moving to a competitive market, both wholesale and retail.

Power Sector Legal Framework & Stakeholders

Nepal's power sector is governed by the following laws and policies:

- The Electricity Act 1992 is the primary law for the electricity sector. Among other issues, this Act allowed for private sector participation in the power sector. Enabling rules also provided details on institutional arrangements and requirements for development of new generation projects.
- The Hydropower Development Policy 2001 includes wide-ranging requirements related to the analysis and development of hydropower projects including establishing institutional responsibilities. However, the policy never became law and many provisions are not implemented in practice, creating some challenges with interpretation and application.
- The Nepal Electricity Authority Act 1984 has been established for making appropriate arrangements to supply power by generating, transmitting and distributing electricity in an efficient and reliable manner and in such a way that it is available to all. Following this act Nepal Electricity Authority was established in 1985.
- The Electricity Regulatory Commission Act 2017 established the Electricity Regulatory Commission (ERC), replacing the former Electricity Tariff Fixation Committee and providing for an enhanced regulatory framework in the electricity sector. Enabling regulations were issued in 2018 to clarify and further elaborate on provisions of the Act and responsibilities of the ERC.

The Electricity Regulatory Commission (ERC) of Nepal was established through the 'ERC Act 2017' to create a competitive electricity market in order to provide quality and reliable electricity service to all customers and to established competitive rates for generation, transmission and distribution.

The Nepal Electricity Authority (NEA) is the state-owned public electricity utility established under NEA Act 1984, responsible for supplying most Nepali consumers with electricity. NEA is vertically integrated, operates generation plants (mostly hydropower), develops and operates the transmission and distribution networks, and delivers electricity to consumers. In addition, NEA owns several subsidiary hydropower generation companies that generate revenues for NEA even as they are intended to be operationally independent. Most of the subsidiary companies are fully owned by NEA or with majority share of NEA. At present eight hydropower projects through six subsidiary companies of NEA are under construction with total installed capacity of 943.3 MW. The Upper Tamakoshi Hydropower Project with installed capacity of 456 MW is the largest hydropower project under construction.

NEA has about 9 planned and proposed hydropower generation projects that will be constructed through the subsidiary companies or by NEA itself in near future. Total installed capacity of planned and proposed projects is about 3,219 MW, of which Upper Arun HEP is the largest with installed capacity of 1061 MW. In addition to its generation facilities, NEA facilitates the participation of the private sector through Power Purchase Agreements (PPAs). NEA has fixed, posted rates for energy purchased from three categories of projects: Run of River (ROR), Peaking Run of River (PROR) and Storage type Projects. There are 98 IPP-owned ROR projects in operation with a combined installed capacity of 696 MW. A total of 131 IPP projects with a combined installed capacity 3,157 MW are under construction and an additional 112 IPPs projects (2,124 MW) are in different stages of development. The total capacity of the projects for which Power Purchase Agreements (PPAs) have been signed is about 5,978 MW.

The Ministry of Energy, Water Resources and Irrigation (MoEWRI) has responsibility for development and implementation of energy policy, including its conservation, regulation, utilization and oversight of the power sector.

The Water and Energy Commission Secretariat (WECS) was established with the objective of developing the water and energy resources in an integrated and accelerated manner. The primary responsibility of WECS is to assist GoN, different ministries relating to water resources and other related agencies in the formulation of policies and planning of projects in the water and energy resources sector.

The Department of Energy Development (DoED) is one of the department within the MoEWRI with responsibility for assisting the MoEWRI in implementation of overall government policies related to power/electricity sector. The major functions of the Department are to ensure transparency of regulatory framework, accommodate, promote and facilitate private sector's participation in the power sector by providing "One Window" services and license to power projects. DoED's main function is to identify projects, issue, monitor licenses and facilitate private sector investment in the sector. In addition to DoED, Ministry has the Department of Water Resources and Irrigation (WRI) and Department of Hydrology and Meteorology (DHM). Going forward, it will be essential to define the relationship and role between ERC and the DoED given the linkages between responsibilities related to regulation of electricity and licensing/ project approvals.

The Alternative Energy Promotion Centre (AEPC) has responsibility for developing and promoting renewable/alternative energy technologies in Nepal with the mission of making renewable energy a mainstream resource through increased access, knowledge and adaptability contributing for the improved living conditions of people in Nepal.

C. Objectives of Compact Support to Nepal Electricity Authority (NEA)

MCC Compact Electricity Transmission Project

The ETP of MCC's Compact is designed to help increase the supply and reliability of electricity in Nepal, driving increased electricity consumption and opportunities for increased power trade. ETP investments will focus on infrastructure, specifically the development of about 300 km of 400 kV transmission lines and three 400 kV substations to expand Nepal's high-voltage transmission backbone. The Compact will also fund construction of the segment of the second cross-border interconnection with India that lies in Nepal's territory.

Despite growth in domestic generation capacity and increased imports, consumption of electricity in Nepal remains relatively low. There are a number of risks to increased consumption in the future and the Compact's Technical Assistance (TA) Activity is designed to mitigate these risks and to take the opportunity to establish effective regulatory and operational practices that can boost the performance of the power sector over time. Key risks include:

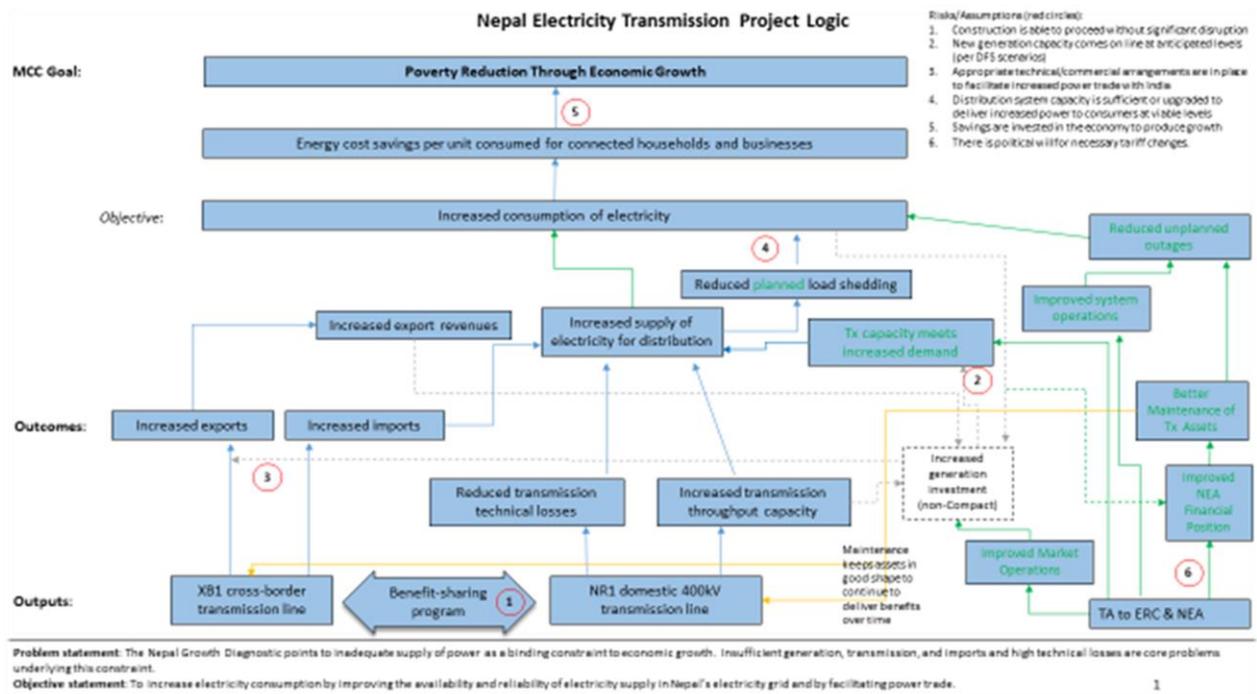
- Nepal's transmission system is not expanding fast enough to match increased electricity generation capacity and growing demand. Delays in building new infrastructure impact the development of new generation projects and contribute to technical challenges in

the network. Network expansion is slowed by a combination of inadequate resources and tools for planning, weak coordination between responsible parties, ineffective procurement and contracting mechanisms, significant challenges with environmental and social issues related to ROW acquisition, and ineffective project and contract management. problems.

- Outages and power quality issues (voltage and frequency fluctuations) negatively impact the reliability of electricity supply to customers. These problems reduce consumption (with outages) and impact on the performance of electrical devices (due to power quality issues). These problems result in part due to inadequate maintenance and system operations practices.
- Investment in new generation, especially peaking and reservoir projects, is slowing in part due to concerns about Nepal's power market and risks of non-dispatch and non-payment. The National Electricity Authority (NEA) may face financial liabilities if there is not enough domestic or export demand to absorb increased generation capacity. There is a need to establish clear rules and procedures for planning, operation and settlement of the power market to encourage continued investment in new generation capacity and achieve reasonable costs for power consumers and competitive prices for export markets.
- There are not sufficient financial resources to support continued growth and sustainable operations of the power sector. NEA's resources been constrained by poor financial performance which creates investment shortfalls and perceived payment risks for potential investors. These problems are the result of an inconsistent and weak tariff regime which reduces revenues to NEA as well as losses (which have recently declined). NEA's ability to access financing for investments may also be limited by inadequate analysis and planning to ensure effective investment requirements.

A detailed program logic diagram for overall ETP is shown below. The ETP's TA Activity is designed to respond to those risks through support to strengthen key power sector institutions by enabling:

- Increased pace of investment in required transmission network capacity
- Increased reliability of the transmission network
- Increased financial viability of the power sector
- Increased efficiency in the use of generation resources
- A stronger regulatory and operational framework for power trade



The MCC Compact with Nepal will support increased consumption of electricity in the country and increased power trade through investments in the transmission network. The TA Activity will support those goals by strengthening the capacity of power sector institutions to ensure the reliability of electricity supply.

The MCC Compact will provide support to NEA to strengthen the performance of the utility's transmission business. Through the transmission business transformation activities, NEA will be better positioned to meet the following objectives in a sustainable manner:

- NEA plans and executes necessary transmission capital investments to meet growth in electricity supply in demand;
- NEA reduces outages and power quality problems related to the transmission network;
- NEA updates system operations processes and skills to ensure efficient use of increased generation capacity and power trade opportunities; and
- NEA strengthens cross-cutting utility management to sustain and build on improved technical performance.

D. Compact Technical Assistance to NEA

Nepal's increasing demand for electricity, and opportunities for regional power trade are putting pressure on NEA to build and operate a robust transmission network. To deliver on this goal, NEA must build new infrastructure at an increased pace, manage its existing assets effectively to minimize breakdowns and outages, enhance system operations practices, and secure sufficient revenues to support these efforts.

To ensure consistent and reliable access to electricity service for the people of Nepal, the focus is on establishing an improved decision-making framework and processes within the transmission business. Improvements in these two key areas will hasten network development, strengthen operations and optimize maintenance practices, all of which will improve the reliability, quality and price of electricity supply.

Technical assistance to NEA will target the following objectives:

- Delivering priority transmission investments on time;
- Reducing outages and improving power quality;
- Ensuring efficiency and performance in planning and operation of the power system;
- Strengthening NEA's financial position to support sustainable growth and operations.

The Compact will support these objectives by assisting NEA to transform its transmission business through effective operation with enhanced core processes, strengthened technical and management skills, and upgraded tools. NEA will be better positioned to deliver consistent, reliable and good quality power supply to support Nepal's development goals.

In 2019, a needs assessment was performed to identify NEA's greatest challenges in meeting these objectives. From that assessment, a strategic plan was developed identifying a general scope of activities that the Compact could fund to support NEA. These activities were developed based on the following observations:

- NEA's main challenges are linked to process and organizational constraints. While there are also gaps in skills and equipment, they are not the primary cause of performance challenges. Changes in processes and organization are more difficult to plan, implement and sustain than skills and equipment support. The Compact program is designed to respond to these difficult challenges and provide support from identification of proposed changes through execution of those changes to meet measurable objectives.
- NEA's current data-collection, analysis and performance-monitoring practices are not fully aligned to the requirements of a modernizing utility. NEA is missing or does not have centralized data on assets and performance metrics across a range of areas. There is not a strong mapping of procedural steps and responsible parties to compare with best practice benchmarks and performance data to identify areas for improvement. Improving data collection, analysis and performance monitoring will be a key part of the program.

With these assumptions in mind, the Compact Technical Assistance program / package to NEA will comprise of the following programs:

1. Transmission Business Transformation (TBT)
2. System Planning (SP)
3. Network Development Effectiveness (NDE)
4. Asset Maintenance & Operation (AMO)
5. System & Market Operations (SMO)
6. Utility Financial Management (UFM)

Each Program is separate Bid Package.

E. Statement of Need

1. Transmission Business Transformation (TBT) Program

The objective of this program assists NEA in transforming its transmission business to successfully manage the ongoing growth of the power system. The technical assistance is to develop and implement a program to establish a results-based management approach and asset management model for its transmission business operations.

The Transmission Business Transformation (TBT) Program will provide the overall framework for support to NEA in strengthening the performance of its transmission business. The Compact will support NEA to establish a framework and plan to introduce an asset management model to transform its transmission business processes. Later phases of work will focus on implementation that requires change management in areas, on monitoring and management of the business transformation roadmap, and consistent analysis of business operation performance data.

The Consultant will work with NEA to document its as-is transmission business operation, develop a business transformation program to implement a series of business processes, and establish a results-based performance management framework. The Consultant will support NEA to prepare for and oversee implementation of asset management information systems and support NEA in change management and monitoring tasks to implement the transformation.

The key areas for the TBT undertakings are :

- Business Transformation Development
 - Project Initiation and Management Structure
 - Business Process Analysis and Development
 - Result-based Management Process Design
 - Asset Information Management – Data and Enabling Information Technology
 - Transmission Business Transformation Roadmap
- Asset Management System

- Transformation Program Implementation

The TBT Program consists broadly the following activity areas:

- Detailed analysis of NEA’s core transmission business practices and operational performance
- Review all reference materials and ensure proper understanding of the project requirements
- Prepare process chart of activities
- Document the current business processes at the physical activity level including timeline of the process cycle, in network planning (System Planning Department), network development & execution (Grid Development Department), maintenance planning & execution (Grid Operations Department), and system operations (System Operations Department) to document “as-is” situation and analyze the process metrics
- Conduct detailed analysis and process-mapping of the “to be” NEA transmission business processes according to the specific requirements for activities in each of the NEA transmission business areas above; and
- Incorporate in the processes the common functional modules/entities, namely DAT, LCP, SDM and ADM required for the business operations in Grid Development, System Planning, Grid Operations and System Operations
- Network development areas, asset maintenance & operation area, asset condition data and performance information management, Asset information management system & market operation area, utility financial management area,
- Establish project management structure aligned with the proposals in the TBT Roadmap which should include overall management/coordination of process implementation, performance monitoring approaches, and assignment of staff to support strengthening of business processes in priority business areas
- Advise and support NEA staff in core business process areas to oversee other technical assistance activities – including training/capacity building, new tools/technology, etc. into updated business processes;
- Support NEA staff in monitoring transmission business performance on key indicators, identify challenges/obstacles to improvements, and adapt approaches in response to challenges;
- Provide adequate resource to effectively manage the process rollout;
- Develop staff training program and conduct training on core business processes.
- Work with NEA designated staff to establish overall transformation plan and monitoring strategy, and support ongoing management to execute the project plan including tracking of project performance indicators
- Ensure NEA understands the needs for integrating new processes into overall Transmission Business Transformation program

2. System Planning (SP) Program

The objective of this System Planning (SP) program is to strengthen System Planning Department's (SPD) ability to meet transmission investment expansion goals in Nepal. The SP program will complement the TBT work with a focus on building the capacity of NEA's SPD to be self-sufficient in evolving the

- Future load demand of the country
- Future supply requirements to fulfil internal demand and external exports
- Reliable and secure transmission infrastructure to:
 - Meet future load demand across the whole country
 - Deliver power from power plants to the load centers
 - Enable cross-border import and export of power from neighboring countries

The key areas of System Planning include:

- Load Forecast (Spatial and Global Approach)
- Generation Planning (Process and Capacity Building)
- System Need Studies
- Evaluation (Economic and Financial)
- Transmission Plan (Project Definition)

3. Network Development Effectiveness (NDE) Program

The NDE Program will complement the TBT work with a focus on building the capacity of NEA's staff in key areas related to transmission network development, procurement and contracting, environment and social impact assessment, project management and monitoring. The objective of this program is to reduce time from project identification to project approval, contracting and commissioning, to improve quality of transmission line and substation designs and standards for enhancing quality of projects at bid stage, and complete projects on time and on budget.

The Consultant should take a holistic approach of factors that support NEA to develop capacity in specific technical skill areas as well as environmental and social assessment work streams required for timely delivery of transmission investments.

The proposed tasks will consider the full project life cycle for transmission network project:

- Project inception and management;
- Network development and design;
- Project execution and management; and
- Project completion and closeout

The NDE Program consists broadly the following activity areas:

- Update workflow and roles/responsibilities for integrating network project development, environmental and social assessment, and other areas to strengthen transmission infrastructure project development process;
- Train staff in transmission line and substation design competency and acquire improved software and other technologies, and update design standards;
- Train staff in the latest industry practices and methodologies for project management, procurement & contract management, technical requirements, environmental and social impact assessment to reduce time and increase quality for project execution;
- Introduce an improved performance monitoring approach for project development, implementation, commissioning, project close out procedures and performance management.

4. Asset Maintenance and Operations (AMO) Program

The objective of the AMO Program is to strengthen NEA's ability to drive productivity and efficiencies by leveraging the benefits of technologies and tools that maximize its effort of managing its assets to improve network availability and security by reducing the number of outages and outage duration (i.e. shorter response time).

This will be achieved through introduction of updated guidelines, work standards and tools, and training of NEA staff in areas related to asset condition monitoring, maintenance work program planning, and operations; in addition, improvement of health and safety practices that contribute to reduced incidents of injuries and fatalities among staff and the public related to its operations.

The AMO Program will also implement activities that increased maintenance data collection, asset conditions assessment, and utilization of asset performance data for the development of effective asset maintenance plan. Training of maintenance workforce in technical areas that respond to the highest priority risks to asset performance.

The five major areas that require support are:

- Maintenance and Operations Development in Policy & Standards, Asset Data, Condition Assessment & Performance Monitoring, Work Plan and Training
- Geographic Information Applications for Asset Maintenance and Operations
- Live Working Maintenance Program
- Aerial-based Maintenance Program
- Worker Health and Safety Program

5. System & Market Operations (SMO) Program

The SMO program is intended to address certain systemic or root cause issues and improved INTS reliability and operational efficiency improvements focusing on the real time operations

of the network under System Operations Department (SOD). This program has been designed to meet the objectives of NEA's expanding transmission network, increasing generation capacity and need for increased power trade with India.

The SMO program consists of the following activity areas:

- Assess and address issues with mis-operation of INTS protection systems including an assessment of protection system lifecycle practice in NEA and transformation program as well as specification of information technology solutions and processes for protection and control system settings management;
- Develop an integrating strategy and specific system-wide plan for augmentation of the installation and effective utilization of Substation Automation System (SAS) technology including capability for remote control and fault analysis and locating across the entire transmission system;
- Develop a strategy to enable rapid implementation of load and generation rejection schemes as need arises;
- Perform a gap analysis and recommended plan that complements the TBT work with a focus on training and building the capacity of NEA's staff in key technical areas related to the SMO functions of NEA;
- Develop a roadmap and readiness plan for NEA to optimize utilization of its synchronous connection to Indian electricity market.

6. Utility Financial Management (UFM) Program

The UFM Program focuses on strengthening financial management to improve sustainable operations and growth. Stronger overall financial management will positively impact all other areas of NEA because accounting and finance facilitates all areas of NEA.

The UFM Program will facilitate/support the implementation of a financial accounting, compliance and reporting program to improve NEA compliance with Nepal Financial Reporting Standards (NFRS), and streamline/strengthen NEA accounting and corporate finance workflows and processes, while building NEA management and staff capacity. This is expected to improve the financial position (i.e. increased profits/reduced losses) and availability of funds for critical investment and O&M (Operations and Maintenance) expenses. Furthermore, the more rigorous financial management is expected to give improved access to financing for future growth of NEA.

The UFM Program is contemplated to be implemented in the two parallel activity streams, addressing two key areas of financial management at NEA:

- Compliance with Accounting Standards:
 - Assistance in addressing compliance issues in accounting and financial reporting in line with required accounting standards

- Training of management and staff to apply NFRS in financial accounting and key financial management techniques such as forecasting, financial modeling, investment analysis, capital budgeting, etc. consistently

Workflows, Processes and Capacity of Financial Management:

- Organization wide accounting and finance workflow and process streamlining and capacity building training for relevant management and staff

These activities would need to be aligned with the ongoing integration process of NEA's new Enterprise Resource Planning (ERP) system, supplementing NEA efforts in that process and also leveraging resources and outcomes of that process.

F. Capability and Qualifications of the Consultants

MCA-Nepal seeks the services of a firm/s to provide support to NEA to transform its transmission business through effective operation with enhanced core processes, strengthened technical and management skills, and upgraded tools for NEA. The overall scope of work will be implementation of the Compact Technical Assistance program to NEA which will TBT, SP, NDE, AMO, SMO & UFM as stated above services described under this statement of Need.

The Consultant shall assemble a team of both key and other personnel with in-depth knowledge and experience on power utility sector specially in transmission business, planning, development, implementation of high voltage transmission line & substation projects, experience in load forecasting including global and spatial, protection design engineering, protection and control practice strategist and in-depth expertise in accounting compliance.

Extensive knowledge of international best practices in asset management business model, power transmission business, power system planning, experience of software used for power system planning load forecasting (global & spatial), PSS/E software, generation planning software such as SDDP/OptGen, PLEXOS, WASP, EGEAS etc and capacity building activities on related filed.

The Consulting firm shall have **15 years** of General Experience in providing the services described under this statement of Need. The consulting firm with successful experience in the execution/implementation of at least **Two Projects** of a similar nature.

The Consultant shall specify the number, general qualifications, and level of effort of the personnel who will work with key specialists to accomplish the various tasks. The Consultant shall provide adequate administrative support and timely material resources throughout the term of contract. The Consultant is free to propose alternative staffing configurations that will achieve all objectives of specific assignments, cover the required competencies, and satisfy the requirements for language capabilities as well as local knowledge and conditions.

G. Duration of Assignment and Key Personnels

MCA-Nepal expects to procure experienced Consultant for the NEA based in Kathmandu, who can perform a diverse set of activities in the filed of TBT, SP, NDE, AMO, SMO & UFM in order to complete the above stated services described under this statement of Need. These assignments will likely have a fixed duration in which Consultants have to cover the scope of work.

Each program is separate Bid Package. Consultants are free to recommend for undertaking the number of assignment/program based on their past experience, availability of the manpower, financial capacity and analysis of the ToR.

The tentative estimated duration and expected Key Personnel of the program / package will as below:

Program/Package	Tentative Estimated Duration	Tentative Ky Personnel
1. Transmission Business Transformatin (TBT)	Thirty (30) months	Team Leader (Utility Management), Senior Business Analyst – Utility Management Expert, Technical Analyst – Utility T&D Expert, Business Analyst – Change Management and Information Management Specialist
2. System Planning (SP)	Twelve (12) months	Team Leader, Load Forecasting Expert, Generation Planning Expert, System Studies Expert, EMTP Expert, Engineering Economist and Transmission Planning Expert
3. Network Development Effectiveness (NDE)	Twelve (12) months	Team Leader, Transmission Line Expert, Substation Expert, Procurement Expert, Environment Specialist and Social Specialist
4. Asset Maintenance & Operation (AMO)	Twenty Four (24) months	Team Leader, Senior Technical Specialist, Technical Specialist – Transmission Lines, Technical Specialist – Transmission Substation, Health & Safety Consultant
5. System & Market Operations (SMO)	Six (6) months	Protection and Control Practice Strategist (Team Leader), Senior Protection Design Engineer, Senior Control Design Engineer, Senior Protection and Control Maintenance Engineer, Business Process Analysts, Protection and Control Implementation Strategist, Senior System Planning Engineer, Senior Power System Operations Strategist,
6. Utility Financial Management (UFM)	Twelve (12) months	Team Leader / Accounting and Corporate Finance Expert, Accounting Compliance & Reporting Expert, Accounting Compliance & Reporting Specialist, Financial Management Systems

		Specialist, Corporate Finance Specialist and Human Resource / Capacity Building Specialist
--	--	--