Project Administration Manual

Project Number: 44219
Loan and Grant Numbers:
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Nepal: South Asia Subregional Economic Cooperation Power System Expansion Project

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Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The implementing agency is wholly responsible for the implementation of ADB financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by implementing agency of its obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the financing agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Financing Agreement, the provisions of the Financing Agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP) changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

ABBREVIATIONS

ACA	–	Annapurna Conservation Area
ADB	–	Asian Development Bank
ADF	–	Asian Development Fund
AEPC	–	Alternative Energy Promotion Centre
AFS	–	audited financial statement
CDTA	–	capacity development technical assistance
CREF	–	Central Renewable Energy Fund
DEED	–	District Energy and Environmental Sections
EA	–	Executing agency
EARF	–	environment assessment and review framework
EIB	–	European Investment Bank
EMP	–	environmental management plan
GESI	–	gender and social inclusion
GSS	–	grid substations
IP	–	indigenous people
HTLS	–	high temperature low sag
KfW	–	German Development Bank
MHDF	–	Micro Hydro Debt Fund
MOE	–	Ministry of Energy
MOEST	–	Ministry of Environment Science and Technology
MOF	–	Ministry of Finance
NEA	–	Nepal Electricity Authority
NORAD	–	Norwegian Agency for Development Cooperation
NRREP	–	National Rural and Renewable Energy Program
O&M	–	operation and maintenance
PAM	–	project administration manual
PEU	–	productive energy use
PFM	–	public financial management
PIC	–	project implementation consultants
PIU	–	project implementation unit
PMD	–	project management directorate
PMU	–	project management unit
PPA	–	power purchase agreement
PPS	–	project preparation support
PPTA	–	project preparatory technical assistance
PSC	–	project supervision consulting
RE	–	renewable energy
RIPP	–	resettlement and indigenous peoples plan
RSC	–	Regional Service Center
SCF	–	Strategic Climate Fund
SOE	–	statement of expenditure
SREP	–	Scaling Up Renewable Energy Program in Low Income Countries
UC	–	user community

WEIGHTS AND MEASURES

km		kilometer
kV		kilovolt
kWh	–	kilowatt-hour
MVA	–	megavolt-ampere
MW	–	megawattt

I. PROJECT DESCRIPTION

A. Rationale

1. Nepal is facing chronic power shortages: Only 65% of the country's households have access to electricity, comprising 56% through national grid and 9% through off-grid solutions, and per capita electricity consumption is only 102 kilowatt hours (kWh) per year, one of the lowest in the world. The existing installed capacity is 762 megawatt (MW), whereas the peak demand is 1,095 MW. Therefore, grid-connected consumers experience scheduled power cuts of 12 hours per day or more during dry seasons. With the expected commissioning of six hydropower projects totaling 732 MW, including the 456 MW Upper Tamakoshi hydropower plant, in the next 3-6 years, and with more than 1,500 MW of additional capacity under development[1], a wet season supply surplus is anticipated by 2018. Limited power transmission and distribution network, however, is becoming the bottleneck for meeting domestic power demand as well as power trade with neighboring countries.

2. The government has set the following key targets to be met by year 2027[2] : (i) increasing per capita electricity consumption to 400 kWh per year; (ii) commissioning 4,000 MW of generation capacity; (iii) providing electricity to 75% of the population through the national grid and 25% through decentralized generation solutions; and (iv) developing exportable power capacity. Steps have been taken to meet these targets. A master plan for hydropower with annual storage capacity has been prepared; the transmission system master plan is being updated; a distribution system and rural electrification master plan has been outlined by NEA; and long-term agreement for bulk power trading with India is being negotiated. Parallel institutional improvements are needed: While the incremental retail tariff increase over a ten year period (2002-2012) to 20% in 2012 has improved NEA's financial position to some extent, NEA's financial position is still perilous due to tariffs not being cost reflective, which needs to be significantly enhanced[3]; system planning capacity needs to be improved, generation, transmission and distribution departments of NEA need to be ring-fenced as a precursor to further corporate restructuring, and a fully independent regulatory agency needs to established.

3. To achieve the 25% electrification target through off-grid solutions, the government has enacted relevant policies and plans, such as Rural Energy Policy 2006; Subsidy Policy for Renewable (Rural) Energy 2009-2013; Renewable (Rural) Energy Subsidy Delivery Mechanism 2013; and Delivery Mechanism of Additional Financial Support to Micro/Mini Hydro Project 2011. The enabling measures, such as targeted grants (subsidies), and exemption of renewable energy (RE) projects from certain licensing requirements have been set up. These activities are being coordinated and implemented under the National Rural and Renewable Energy Program (NRREP), a government-led "single window" program for off-grid RE which is supported by various development partners.

4. The project will contribute to Nepal's energy development objectives by (i) scaling up both on-grid and off-grid RE supply, (ii) facilitating cross-border power exchange, (iii) increasing access to RE in rural areas, and (iv) building capacity for on-grid and off-grid power sector development. The on-grid components will be able to evacuate 1,000 MW of new generation

[1] The other five projects are invested by Nepal Electricity Authority (NEA) or its subsidiaries. Power purchase agreements for a total of 1,595 MW hydropower projects have been signed between NEA and other independent power producers (IPPs) for completion by 2020. The total installed capacity will be more than 3,000 MW against the projected peak load of 2,052 MW in FY 2019/2020.
[2] Government of Nepal. 2010. *Three Year Interim Plan (2010-2013).* Kathmandu.
[3], NEA still suffered from net loss of NRs 4.53 billion in FY 2012-2013.

outputs at Kali Gandaki Corridor and Marsyangdi Corridor to the main load center at Kathmandu valley and facilitate minimum 1,200 MW of power export to India including 600 MW from the Upper Marsyangdi 2 Hydropower Project to be developed by GMR, once connected to the second 400 kilovolt (kV) cross-border transmission line from Bardaghat (Nepal) to Gorakhpur (India).[4] The off-grid component will provide access to electricity and facilitate productive energy use (PEU) activities in rural locations without national grid connection[5]. This will enhance income and welfare of rural communities by utilization of the renewable energy, mainly in sectors of agriculture, rural enterprise, health and education. The project is fully consistent with the ADB Country Partnership Strategy[6] which focuses on: (i) improving inclusive electricity access; (ii) RE development; (iii) regional cooperation; and (iv) strengthening sector governance. The project is also prioritized as part of the SASEC Power Generation and Transmission Master Plan and Regional Cooperation Business Plan 2014-2016.[7] The sector and programmatic context of the project is presented in Supplementary Document 22.[8]

5. **ADB's interventions**. In 2009, 2011 and 2013, ADB approved three projects[9] to address the immediate needs for power sector including generation, transmission and distribution system expansion and improvement. In particular, the CDTA 8329-Support for Energy Sector Management and Reforms, associated with Tanahu Hydropower Project approved in 2013, is being implemented to support NEA's financial restructuring and management reforms, to strengthen the Electricity Tariff Fixation Commission (ETFC)'s capacity to review retail tariff adjustment petitions proposed by NEA and improve ETFC's institutional readiness for transformation to Nepal Electricity Regulatory Commission (NREC). ADB is also supporting the government to review and incorporate the comments by parliament on the draft Nepal Electricity Act 2009 and NERC Act 2009. CDTA 8329 is treated as a single window technical assistance for ADB to support institutional and policy development in the on-grid power sector of Nepal, and more resources will be allocated as needed. The project will supplement ADB's ongoing interventions by enhancing NEA's financial position through implementation of a pricing mechanism for the use of NEA's power grid by third parties for the purposes of exporting electricity, improving NEA's planning capacity through supporting preparation of the distribution system/rural electrification master plan, among others.

6. **Lessons learned from on-going projects.** The implementation of the ongoing projects has been slow due to various factors, including slow decision making within the NEA, delayed recruitment of implementation support consultants and prolonged land acquisition caused by change of route. The design of this project has fully integrated these lessons by setting up a vertically integrated project management directorate (PMD). The PMD, to be headed by deputy managing director level officer, will be responsible for preparation, procurement and construction supervision of all new ADB projects, starting with this project[10]. Under the PPTA, a project preparation support consulting firm is being engaged to support NEA to conduct detail design

[4] The feasibility study for the second cross-border transmission line is being funded by Grant 0361-NEP: Project Preparatory Facility for Energy.
[5] The off-grid component has been developed pursuant to the Nepal Country Investment Plan of the Scaling Up Renewable Energy in Low-income Countries program.
[6] ADB. 2013. *Nepal Country Partnership Strategy 2013-2017*. Manila.
[7] ADB. 2013. *South Asia Regional Cooperation Operations Business Plan 2014-2016*. Manila.
[8] Sector and Programmatic Context of the Project (available from the list of linked documents in Appendix 2, subject to request)
[9] ADB. 2009. *Energy Access and Efficiency Improvement Project*. Manila; ADB. 2011. *Electricity Transmission and Supply Improvement Project*. Manila; and ADB, 2013. *Tanahu Hydropower Project*. Manila. The Tanahu Hydropower Project is associated with a capacity development technical assistance (CDTA) 8329-NEP: *Support for Energy Sector Management and Reforms*.
[10] For details, see Project Administration Manual (accessible from the list of linked documents in Appendix 2).

including the routes and cost estimates, finalize bidding documents, and select turnkey contractors. Further, a project supervision consulting firm, funded by the project, will supervise project construction. Thus, seamless consulting service support to NEA will be provided.

7. **Coordination with other donors**. The project has been developed with active coordination among the NEA under the Ministry of Energy (MOE); the Alternative Energy Promotion Centre (AEPC) under the Ministry of Science, Technology and Environment (MOSTE); the government of Norway and the Norwegian Agency for Development Cooperation; the European Investment Bank (EIB); the government of Denmark and the German Development Bank. The project components are complementary to operations of the World Bank Group[11] and Japan International Cooperation Agency.

B. Impact and Outcome

8. The project's impact will be increased electricity access in Nepal and improved power exchange across the border. The outcome will be increased capacity of national power grid and enhanced renewable energy development.

C. Outputs

9. The Project outputs will be:

(i) Output 1. Power transmission capacity increased. This comprises: (a) construction and/or augmentation of 45 km of 400 kV and 191.5 km of 220 kV transmission lines along Kali Gandaki corridor and Marsyangdi-Kathmandu route; (b) construction and/or augmentation of 500 megavolt-ampere (MVA) of 400 kV/220 kV/132 kV, 500 MVA of 220 kV/132 kV/33 kV, and 120 MVA of 33 kV/11 kV grid substations along Kali Gandaki corridor and Marsyangdi-Kathmandu route; and (c) construction and/or replacement of grid service substations with an aggregated capacity of 393.8 MVA across the country.[12]

(ii) Output 2. Power distribution network improved. This comprises the construction and/or upgrading of 410 km of 33 kV, 545 km of 11 kV, and 725 km of 400 V distribution lines, 216 MVA 33kV/11kV substations and 20 MVA distribution substations in East, Central and West regions.

(iii) Output 3. Mini-grid based renewable energy systems in off-grid areas increased. This includes installation of up to total 4.3 MW of mini hydro-electric power plants and up to total 0.5 MW of mini-grid based solar or solar/wind hybrid systems, in selected rural communities, through the provision of (a) a credit line of $5 million from ADB's Special Funds to user communities for mini-hydro power plants and (b) a $10 million grant from the SCF administered by ADB. [13]

[11] The World Bank is supporting Dhalkebar (Nepal) –Muzarffarpur (India) 400 kV cross border transmission line.
[12] In addition, EIB will parallelly cofinance the construction of 125 km of 220 kV transmission line and 400 MVA of 220 kV/132 kV/33 kV substations at Marsyangdi corridor, and 24 km of 132 kV transmission line, and 30 MVA 132 kV/33 kV and 6/8 MVA of 33 kV/11 kV substations at Samundratar-Trishuli 3B transmission hub.
[13] Under the Scaling Up Renewable Energy Program in Low Income Countries (SREP) financed by the SCF. Nepal has been selected as a pilot country identified for funding and technical assistance under SREP. The government prepared the Scaling Up Renewable Energy Program Investment Plan which was endorsed by the governing trust fund committee of SCF in November 2011Outputs 3 and 4 will be implemented as integral parts of the National Rural and Renewable Energy Program.

(iv) Output 4. Capacity development supports to NEA and AEPC provided. The physical investments will be reinforced and supplemented by capacity building support to NEA and AEPC, including project management support, preparation support for distribution system/rural electrification master plan and feasibility study of utility level wind farm, and parallel livelihood development activities in the project area.

II. IMPLEMENTATION PLANS

10. The project will be executed over a period of approximately six (6) years from the date of loan effectiveness. Project implementation will be completed by 31 December 2021 and loan closing will be 30 June 2022. The implementation plan is shown in Figure 1.

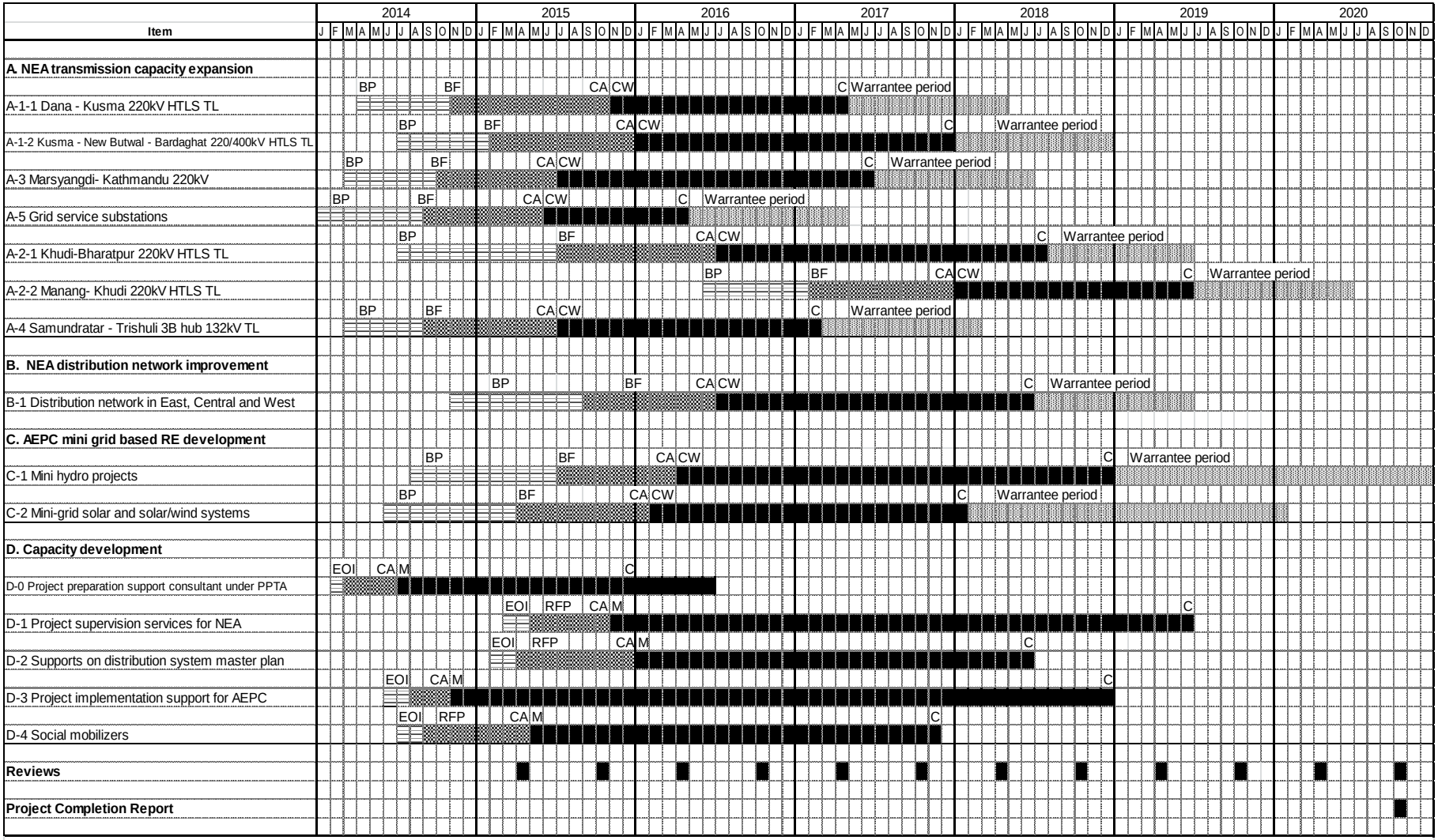
A. Project Readiness Activities

Indicative Activities	J	F	M	A	M	J	J	A	S	O	N	D	Who responsible
Loan Fact Finding			X										ADB/NEA/AEPC
Establish PMD at NEA				X									NEA
Establish PIU at AEPC				X									AEPC
EOI to engage PPS		X											ADB
Engagement of PPS							X						ADB
Draft bidding documents							X						NEA/AEPC
Management Review Meeting				X									ADB
Loan/grant negotiations					X								MOF/NEA/AEPC/ADB
ADB Board approval						X							ADB
Loan/grant signing									X				ADB/MOF
Government legal opinion provided											X		MOF
Loan effectiveness											X		MOF/ADB

ADB = Asian Development Bank, AEPC = Alternative Energy Promotion Centre, EOI = expression of interest, MOF = Ministry of Finance,
NEA = Nepal Electricity Authority, PIU = Project Implementation Unit, PMD = Project Management Directorate, PPS = Project Preparation Support Consultant.
Source: Asian Development Bank estimates.

B. Overall Project Implementation Plan

Figure 1: Implementation Schedule



BF = Bidding documents Float; BP: Bidding documents Preparation; C = Completion/Commissioning; CA = Contract Award; CW = Commencement of Work; EOI = Expression of Interest; RFP = Request For Proposals; M = Mobilization;

Sources: Nepal Electricity Authority, Alternative Energy Promotion Centre and PPTA Consultants

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

	Project implementation organizations	Management Roles and Responsibilities
	• Executing Agency - Nepal Electricity Authority(NEA) • Alternative Energy Promotion Centre (AEPC)	○ NEA implements on-grid components ○ AEPC implements off-grid component ○ Provision of counterpart staff
	• Project Management/ Implementation Unit	○ PMU will be established within NEA ○ PIU will be established within AEPC ○ Monitoring and evaluation of project activities and outputs including periodic review for implementing, monitoring, and reporting on the progress of project implementation to ADB and the government
	• Asian Development Bank	○ Will undertake project reviews and facilitate implementation

B. Key Persons Involved in Implementation

Executing Agency

NEA

Mr. Arjun Kumar Karki
Managing Director
Telephone: (977) 1- 4153052
Fax: (977) 1-4153067

Mr. Surendra Rajbhandari
Project Coordinator
Cell phone: (977) 9851108169
Email address: surendra13.rajbhandari@gmail.com

Alternative Energy Promotion Center

Executive Director
Telephone: (977) 5539391
Email address:

ADB

Energy Division,
South Asia Department

Mr. Yongping Zhai
Director
Telephone: (632) 632-6301
Email address: yzhai@adb.org

Mr. Zhang Lei
Mission Leader/ Energy Specialist
Telephone: (632) 683 1724
Email address: zlei@adb.org

Nepal Resident Mission

Mr. Pushkar Manandhar
Project Officer (Energy)
Telephone: (977) 1-4227779-203
Email address: pmanandhar@adb.org

C. Project Implementation Arrangement

11. NEA will be the executing agency (EA) for Outputs 1 and 2 (the on-grid components); AEPC will be the EA for output 3 (the off-grid component); and both NEA and AEPC will be EAs for output 4 (capacity development component). The implementation arrangements are as follows, and overall project implementation structure is given in **Figure 2**.

Implementation Arrangements

Aspects	**Arrangements**		
Implementation period	January 2015–December 2021		
Estimated completion date	31 December 2021 (loan and grant closing on 30 June 2022)		
Management			
(i) Oversight body	Steering committee chaired by Secretary, Ministry of Energy, and co-chaired by Secretary, Ministry of Science, Technology and Environment		
(ii) Executing agencies	Nepal Electricity Authority (NEA) and Alternative Energy Promotion Centre (AEPC)		
(iii) Implementation units	Project Management Unit and Project Implementation Unit established in NEA and AEPC respectively, with 25 (NEA) and 8 (AEPC) professional staff and supporting staff.		
Procurement	International competitive bidding	6 packages	$217.00 million
	National competitive bidding	16 packages	$13.70 million
	Shopping	6 packages	$0.60 million
Consulting services	Quality- and cost-based selection (90:10) for firms	300 person months	$8.4 million
	Individual	80 person months	$0.8 million
Advance contracting	All eligible contract packages and expenditures agreed between ADB and the government relating to all outputs		
Disbursement	The loan and grants (including ADB administered cofinancing) will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time) and detailed arrangements agreed upon between ADB and the government.		

Source: Asian Development Bank.

12. **On-grid components.** The components will be implemented and supervised by a project management unit (PMU). The PMU is headed by a project director (Level 11), and consist of several project managers (Level 9-10) who are responsible for each subproject, related engineers, procurement & contract staff, accountants, and administration staff. The PMU is setup within a project management directorate (PMD) of NEA. The PMD is dedicated to managing ADB funded projects, and is responsible for preparation, procurement and construction of all new ADB projects starting with this project. The PMD will be headed by the Project Coordinator preferably with Deputy Managing Director level (Level 12) who shall report directly to the Managing Director of NEA. The PMD will consist of several project management units (PMU), Project Preparatory Facility, Finance Section and Administration Section. Once the ADB projects are commissioned, the operation and maintenance of those projects will be delivered to NEA line departments. All the staffs under PMD are full time and performance based. The organization chart of PMD is in **Appendix 1**.

13. A project preparation support (PPS) consulting firm funded by the project preparatory technical assistance (PPTA) will assist NEA to conduct detailed survey and detailed design, finalize the bidding documents, and conduct procurement support until contract awards for all subprojects of the on-grid components. A project supervision consulting firm (PSC) to be funded by the project will replace PPS to supervise the construction covering safeguard issues.

14. **Off-grid component**. A two-tier implementation structure is being adopted. At AEPC level, a project implementation unit (PIU) including experienced staff headed by a Project Manager has been set up to be responsible for overall project implementation, including procurement, accounting, quality

assurance, and safeguards. The PIU will be supported by project implementation consultants (PICs)[14] funded by the project. At the field level, District Environment, Energy and Climate Change (DEECC), as the outreach arm of AEPC established in District Development Committees (DDC), have been set up in all districts across the country, which are responsible for coordination with district level stakeholders on off-grid renewable energy programs. The DEECC will be supported by the Regional Service Centers (RSCs)[15], which are being engaged under NRREP as service providers covering all the rural areas of the country. The RSCs will assist the DEECC to (i) identify subsequent subprojects in compliance with the criteria for selecting subprojects; (ii) prepare pre-feasibility studies for subsequent subprojects; (iii) supervise and monitor the construction and installation work of subprojects; (iv) coordinate and motivate target beneficiaries to contribute on subprojects implementation; (v) help target communities to develop and implement productive energy use plan; and (vi) conduct capacity building program. Any additional activity required to implement the Project will also be included from time to time by expanding the Terms of Reference (TOR) of present RSCs, engagement of new RSCs and recruitment of additional experts for these RSCs if needed[16]. Further, social mobilizers are to be recruited under the project, which will coordinate closely with RSCs and complement their roles for supporting the implementation of the off-grid component at field level.

15. A sector approach is adopted for the off-grid component. The due diligence on five (5) sample subprojects **(Appendix 2)** was conducted, and the selection criteria for subsequent subprojects were finalized with the government **(Appendix 3)**. In accordance with government's rural renewable energy subsidy policy, government will provide around 60% of procurement cost as subsidy for mini hydro and 90% for mini-grid based solar and solar/wind systems, and user communities will provide 10% of procurement cost as equity. For mini hydro projects, user communities or developers need to seek debts of around 30% of the procurement cost from commercial banks or other sources of funds.

16. For **mini hydro subprojects**, the subsidy will be funded by ADB SCF[17], and debts will be funded by a credit line ($ 5 million) from ADB's Special Funds to user communities or developers through the Micro Hydro Debt Fund mechanism which is presently under implementation and managed by two commercial banks[18], or Central Renewable Energy Fund (CREF)[19] when it is functional. The detailed implementation arrangement for the mini hydro subprojects is in **Appendix 4**.

17. For **mini-grid solar and solar-wind hybrid systems,** the implementation is more challenging given its higher upfront capital cost and higher operation and maintenance (O&M) recovery tariff required for sustainability of the subprojects. To bring down the capital cost, bundled procurement based on turnkey contract will be adopted for power generation systems to benefit from economies of scale. This is considered feasible due to standardized major equipment such as solar photo voltaic module, wind turbine, and battery banks. The project development procedure is in **Appendix 5**.

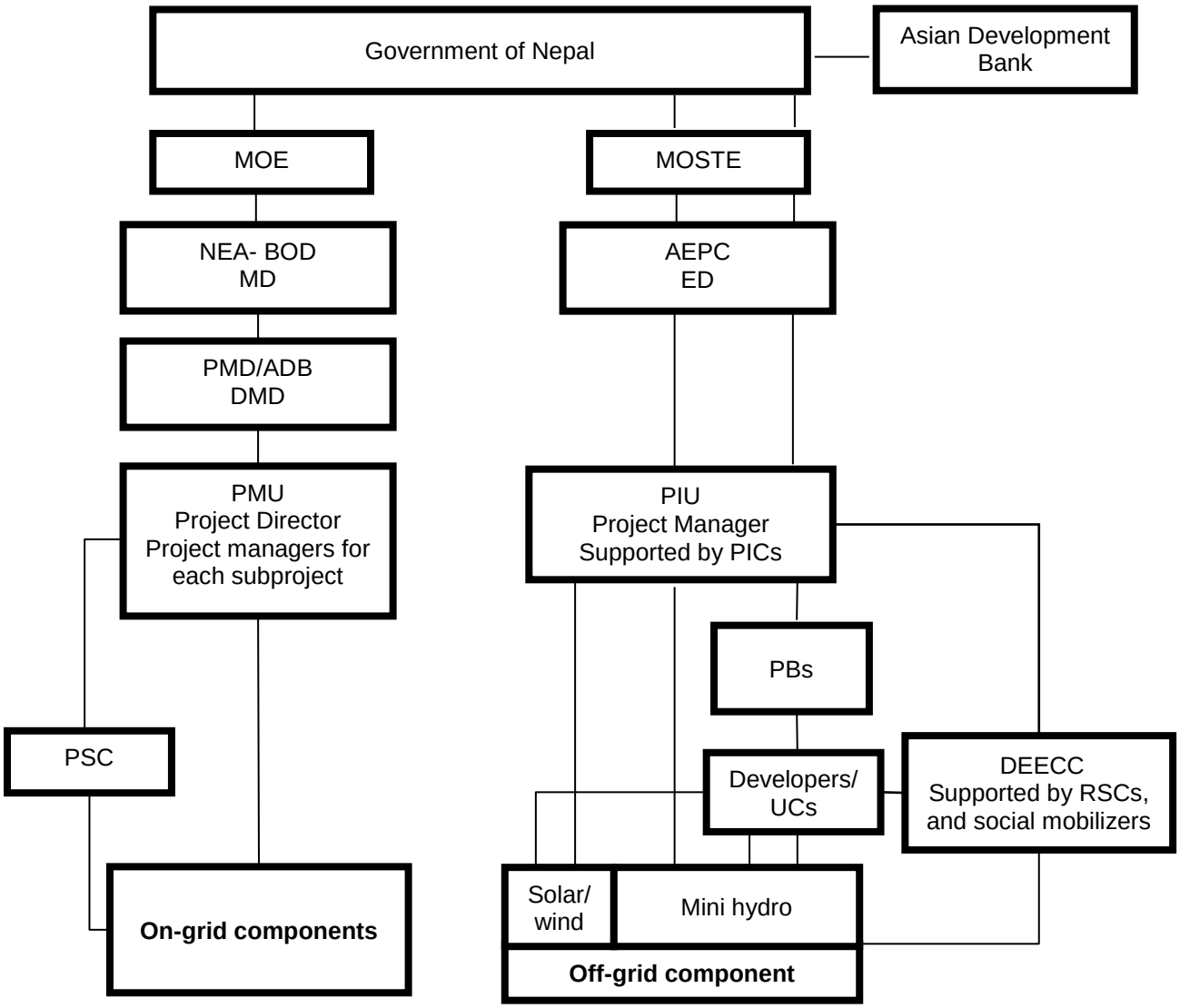
18. One common issue for off-grid renewable energy projects is operational sustainability, as tariffs collected from end users may not cover all O&M costs due to low tariff from households and low load

[14] The consultants include full time and short term experts, to help PIU on project procurement, technical supports, monitoring and evaluation. The consultants will have dual reporting function to both AEPC and ADB.
[15] NGO, cooperatives and private sector firms registered as legal entity in Nepal can apply as RSCs.
[16] Status Report of RSC (accessible from the list of linked documents in Appendix 2 of RRP, subject to request).
[17] Under the Scaling Up Renewable Energy Program in Low-Income Countries (SREP) financed by the SCF. Nepal has been selected as a pilot country identified for funding and technical assistance under SREP. The government prepared the Scaling Up Renewable Energy Program Investment Plan which was endorsed by the governing trust fund committee of SCF in November 2011.
[18] MHDF is supported by GIZ. Under MHDF, Himalayan Bank Limited and Clean Energy Development Bank Limited borrow at 4% from AEPC and onlent to user communities or developers at maximum 12%.
[19] As outlined by the Rural Energy Policy 2006, the CREF is envisaged to be a vehicle to mobilize both grant and credit funds for renewable energy sector. The CREF is in the initial stage of incorporation and expected to be functional by end 2015.

factors. To promote PEU activities is key for enhancement of sustainability of off-grid component. The subproject selection criteria and development procedures have integrated the support for PEU to ensure PEU activities are ready for operation once the power system starts. The PEU activities will be funded by NRREP.

19. Long term O&M is another major issue for the sustainable operation of any infrastructure project. Therefore O&M have to be planned carefully integrated into the project activities and the role must be clearly defined in the user communities (UC) from very beginning of the project. Therefore the first step to integrate O&M issues will be to form UC in which ensures presence of separate body to address issues of O&M in long run. The detailed arrangement of O&M of off-grid component is in **Appendix 6**.

Figure 2: Project Implementation Structure



AEPC-Alternative Energy Promotion Centre, BOD- Board of Directors, DEECC-District Environment Energy and Climate Change, DMD-Deputy Managing Director, ED- Executive Director, MD-Managing Director, MOE-Ministry of Energy, MOSTE-Ministry of Science, Technology and Environment, PBs- Participating Banks, PICs-project implementation consultants, PIU-project implementation unit, PMU-project management unit, PMD-project management directorate, PSC-project supervision consultant, RSCs-Regional Service Centers, UC-user communities

IV. COSTS AND FINANCING

20. The total project cost is estimated at $440 million including physical and price contingencies and interests during implementation. The government has requested a loan of $180.0 million[20] equivalent to SDR 116,493,000.00from ADB's Special Funds resources to help finance the project. The loan will have a 32-year term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions as set forth in the draft loan and project agreements. ADB will finance the interest during construction.

21. The government also requested cofinancing of $191.2 million, which comprises a loan of $120 million from the EIB, a grant of $60.0 million equivalent from the Government of Norway[21], and a grant of $11.2 million from the ADB SCF. The funds from the Government of Norway and ADB SCF will be administered by ADB[22]. ADB and the government of Norway will conclude a joint contractual cofinancing agreement, while ADB and EIB will conclude an aide-memoire on collaborative cofinancing. Given the government budget constraint, ADB SCF will finance the taxes and duties of mini hydro subprojects imposed within Nepal[23]. The loan proceeds from ADB, and the grant proceeds from the Government of Norway and ADB SCF will be relent to NEA and AEPC, as appropriate. The government will make available all counterpart funds as needed on a timely basis.

Project Investment Plan

Item		Amount ($ million)[a]
A.	**Base cost**[b]	
	1. Power transmission capacity expansion	314.8
	2. Power distribution network improvement	39.5
	3. Mini-grid based renewable energy development in off-grid areas	24.4
	4. Project management and capacity building	9.2
	Subtotal (A)	**387.9**
B.	**Contingencies**[c]	**25.1**
C.	**Financing Charges During Implementation**[d]	**27.0**
	Total (A+B+C)	**440.0**

a. Includes taxes and duties of $7.75 million to be financed by the government through cash contribution, and $0.58 million for mini hydro subprojects under output 3 to be financed by the ADB SCF.
b. In March 2014 prices.
c. Physical contingencies computed at 3% of base cost. Price contingencies computed using ADB's forecasts of international and domestic inflation includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
d. Interest during construction (IDC). IDC for ADB loan has been calculated at a rate of 1.0% per annum during the grace period of 8 years and 1.5% per annum thereafter of 24 years.
Source: Asian Development Bank, Nepal Electricity Authority, and Alternative Energy Promotion Centre

Financing Plan

	Amount ($ million)					Share of
Source	**Subtotal**	**Output 1**	**Output 2**	**Output 3**	**Output 4**	**Total** (%)
ADF Loan*	180.00	135.00	40.00	5.00	0.00	40.91
ADB SCF Grant*	11.20			10.00	1.20	2.55
Norwegian Grant	60.00	52.00			8.00	13.64
EIB Loan	120.00	120.00				27.27
Government	60.33	52.54	4.54	3.25		13.71
Communities	8.47			8.47		1.92
Total	**440.00**	**359.54**	**44.54**	**26.72**	**9.20**	**100.00**

* The interests cost (present value) of $5 mil ADF loan allocated for AEPC (Output 3) is $0.58 mil which is equal to the amount of taxes and duties of procurements under Output 3. The ADB SCF will finance the taxes and duties of procurements under Output 3 which should have been funded by GON, so that GON will receive such amount of taxes and duties from ADB SCF and use those to compensate interests cost (present value) of ADF loan ($5 MIL) relent to APEC.

[20] This includes $70 million from the allocation for regional cooperation and integration projects.
[21] The Government of Norway will provide cofinancing in Norwegian kroner
[22] ADB and ADB administered funds will finance transportation and insurance cost. For ADB administered cofinancer funds, cost sharing will be applied, and disbursement will be handled by ADB.
[23] The amount is within the reasonable threshold identified during the CPS preparation process, and does not represent an excessive share of the project investment plan. The taxes and duties apply only to ADB-financed expenditures, and the financing is material for AEPC and relevant to the success of the project

A. Allocation and Withdrawal of Loan Proceeds

a. Asian Development Fund (Loan)

CATEGORY			ADB FINANCING BASIS
		Amount Allocated for ADF Financing (SDR)	Percentage and Basis for Withdrawal from the Loan Account
S.N.	Item	Category	
1	Turnkey contract- *New Butwal-Bardaghat 400kV* Transmission Line and Marsyangdi-Kathmandu 220kV Transmission Line (NEA)**	23,111,000	41% of total expenditure claimed*
2	Turnkey Contract - Kali Gandaki 220 kV Transmission Line, Grid Substations, and Distribution Lines (NEA)**	82,548,000	100% of total expenditure claimed*
3	Credit line to AEPC***	2,971,000	100% of total expenditure claimed*
4	Unallocated for NEA	5,656,000	
5	Interests during implementation	2,207,000	100% of total amount
	Total	116,493,000	

* Exclusive of all duties and taxes imposed within the territory of the Borrower.
** Subject to the condition for withdrawal{as described in the paragraph 7 of Schedule 3 of the loan agreement}
*** Subject to the condition for withdrawal {as described in the paragraph 8 of Schedule 3 of the loan agreement}

b. Government of Norway (Grant)

CATEGORY			FINANCING BASIS
		Amount Allocated for Norwegian grant	Percentage and Basis for Withdrawal from the Grant Account
S.N.	Item	(US$ million)	
1	Turnkey contract *New Butwal-Bardaghat 400kV* Transmission Line and Marsyangdi-Kathmandu 220kV Transmission Line (NEA)**	50.80	59% of total expenditure claimed*
2	Consulting services	8.00	100% of total expenditure claimed*
3	Unallocated**	1.20	
	Total	60.00	

* Exclusive of all duties and taxes imposed within the territory of the Recipient.
** This amount also include ADB's administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the Government of Norway.

c. ADB SCF Grant

CATEGORY			FINANCING BASIS
		Amount Allocated for ADB SCF Grant	Percentage and Basis for Withdrawal from the Grant Account
S.N.	Item	(US$ million)	
1	Turnkey contract- AEPC's mini-micro hydro	7.00	100% of total expenditure claimed
2	Turnkey contract- AEPC's mini-grid solar/wind	3.00	100% of total expenditure claimed*
3	Consulting services	1.20	100% of total expenditure claimed*
	Total	11.20	

* Exclusive of all duties and taxes imposed within the territory of the Recipient.

B. Detailed Cost Estimates by Financers

(US $million)

		Total Cost	ADF Loan	%	SCF Grant	%	Norway Grant	%	EIB Loan	%	Comm. equity	%	GON Fund	%
A	**Investment Cost**													
1	**NEA transmission capacity expansion**	**291.19**	**126.85**	**44%**			**58.80**	**20%**	**105.54**	**36%**				
1.1	Kali Gandagi to border 220/400kV T/L and SS													
1.1.1	*Dana-Kushima 220kV HTLS TL and SS*	37.86	37.86	100%										
1.1.2	*Kushma-New Butwal 220kV HTLS and SS*	45.89	45.89	100%										
1.1.3	*New Butwal- Bardaghat 400kV TL and SS*	48.59	20.00	41%			28.59	59%						
1.2	Marsyangdi Corridor 220 kV T/L													
1.2.1	*Manang-Khudi 220kV HTLS TL and SS*	19.68							19.68	100%				
1.2.2	*Khudi-Marki Chowk-Baratpur TL and SS*	73.86							73.86	100%				
1.3	Marsyangdi to Kathmandu 220kV TL and SS	37.93	15.72	41%			22.21	59%						
1.4	Samundratar-Trishuli 3B 132kV	12.00							12.00	100%				
1.5	Grid service S/S replacement	7.38	7.38	100%										
1.6	Project Supervision and capacity building	8.00					8.00	100%						
2	**NEA distribution network improvement**	**36.42**	**36.42**	**100%**										
	Distribution system augmentation	36.42	36.42	100%										
3	**AEPC mini grid based RE development**	**22.95**	**4.59**	**20%**	**10.62**	**46%**					**6.74**	**30%**	**1.00**	**4%**
3.1	Mini-micro hydro mini grid[a]	12.23	4.59	38%	6.42	53%					1.22	10%		
3.2	Solar and solar-wind on mini grid[b]	3.33			3.00	90%					0.33	10%		
3.3	Project implementation consultants	0.80			0.80	100%								
3.4	Social mobilizers	0.40			0.40	100%								
3.5	Productive energy use	1.00											1.00	100%
3.6	In-kind contribution by communities	5.19									5.19	100%		
4	**Land**	**10.54**									**0.31**	**3%**	**10.23**	**97%**
5	**Safeguards Mitigation Cost**	**8.01**									**0.47**	**6%**	**7.55**	**94%**
6	**Taxes and duties**	**8.33**			**0.58**								**7.75**	**93%**
B	**Recurrent Costs**													
	Administration cost	**10.40**											**10.40**	**100%**
	Total Base Cost	**387.85**	**167.85**	**43%**	**11.20**	**3%**	**58.80**	**15%**	**105.54**	**27%**	**7.52**	**2%**	**36.93**	**10%**
C	**Contingencies**	**25.16**	**8.74**	**35%**			**1.20**	**5%**	**9.76**	**39%**	**0.94**	**4%**	**4.52**	**18%**
D	**Interest during Implementation**	**26.99**	**3.41**	**13%**					**4.70**	**17%**			**18.88**	**70%**
	Total Project Cost (A+B+C+D)	**440.00**	**180.00**	**41%**	**11.20**	**3%**	**60.00**	**14%**	**120.00**	**27%**	**8.47**	**2%**	**60.33**	**14%**

Assumptions:

1 Cost updated as on Q1 2014 prices.

2 IDC for ADB loan has been calculated at rate of 1.0% per annum during the grace period of 8 years. IDC for other cofinancers is subject to negotiation.

3 Except taxes and duties for mini hydro subprojects of Output 3, all other taxes and duties will be funded by GON, with 1% customs levy on imported equipment and 13% value added tax on construction and consulting services.

a Though 38% for ADF loan and 53% for SCF grant are shown here, it will be 100% for ADF loan which serves as credit line, and 100% for SCF grant which serves as subsidy during disbursement. The taxes and duties of procurements for mini hydro will be funded by ADB SCF.

b Though 90% for SCF grant are shown here, it will be 100% for SCF grant which serves as subsidy during disbursement. The taxes and duties of procurements for mini-grid based solar and/or wind systems will be funded by ADB SCF.

c Administered by the Asian Development Bank. This amount also includes ADB's administration fee, audit costs, bank charges, and a provision for foreign exchange fluctuations (if any), to the extent that these items are not covered by the interest and investment income earned on this grant, or any additional grant from the Government of Norway

C. Detailed Cost Estimates by Outputs

Item		(US $million)								
		Total	Output 1		Output 2		Output 3		Output 4	
		Cost	Amount	%	Amount	%	Amount	%	Amount	%
A	**Investment Cost**									
1	**NEA transmission capacity expansion**									
1.1	Kali Gandagi to border 220/400kV T/L and SS									
1.1.1	*Dana-Kushima 220kV HTLS TL and SS*	37.86	37.86	100%						
1.1.2	*Kushma-New Butwal 220kV HTLS and SS*	45.89	45.89	100%						
1.1.3	*New Butwal- Bardaghat 400kV TL and SS*	48.59	48.59	100%						
1.2	Marsyangdi Corridor 220 kV T/L									
1.2.1	*Manang-Khudi 220kV HTLS TL and SS*	19.68	19.68	100%						
1.2.2	*Khudi-Marki Chowk-Baratpur TL and SS*	73.86	73.86	100%						
1.3	Marsyangdi to Kathmandu 220kV TL and SS	37.93	37.93	100%						
1.4	Samundratar-Trishuli 3B 132kV	12.00	12.00	100%						
1.5	Grid service S/S replacement	7.38	7.38	100%						
1.6	Project Supervision and capacity building	8.00							8.00	100%
2	**NEA distribution network improvement**									
	Distribution system augmentation	36.42			36.42	100%				
3	**AEPC mini grid based RE development**									
3.1	Mini-micro hydro mini grid[a]	12.23					12.23	100%		
3.2	Solar and solar-wind on mini grid	3.33					3.33	100%		
3.3	Project implementation consultants	0.80							0.80	100%
3.4	Social mobilizers	0.40							0.40	100%
3.5	Productive energy use	1.00					1.00	100%		
3.6	In-kind contribution by communities	5.19					5.19	100%		
4	**Land**	10.54	9.87	94%	0.36	3%	0.31	3%		
5	**Safeguards Mitigation Cost**	8.01	7.18	90%	0.36	5%	0.47	6%		
6	**Taxes and duties**	8.33	6.95	83%	0.80	10%	0.58	7%		
	Subtotal A	**373.44**	**307.19**	**81%**	**37.95**	**10%**	**23.11**	**6%**	**9.20**	**2%**
B	**Recurrent Costs**									
	Administration cost	10.40	7.61	73%	1.52	14%	1.27	12%		
	Total Base Cost	**387.85**	**314.91**	**81%**	**39.47**	**10%**	**24.38**	**6%**	**9.20**	**2%**
C	**Contingencies**	**25.16**	**20.66**	**82%**	**3.16**	**13%**	**1.34**	**5%**		
D	**Interest during Implementation**	**26.99**	**24.09**	**89%**	**1.91**	**7%**	**0.99**	**4%**		
	Total Project Cost (A+B+C+D)	**440.00**	**359.65**	**82%**	**44.54**	**10%**	**26.71**	**6%**	**9.20**	**2%**

D. Detailed Cost Estimates by Year

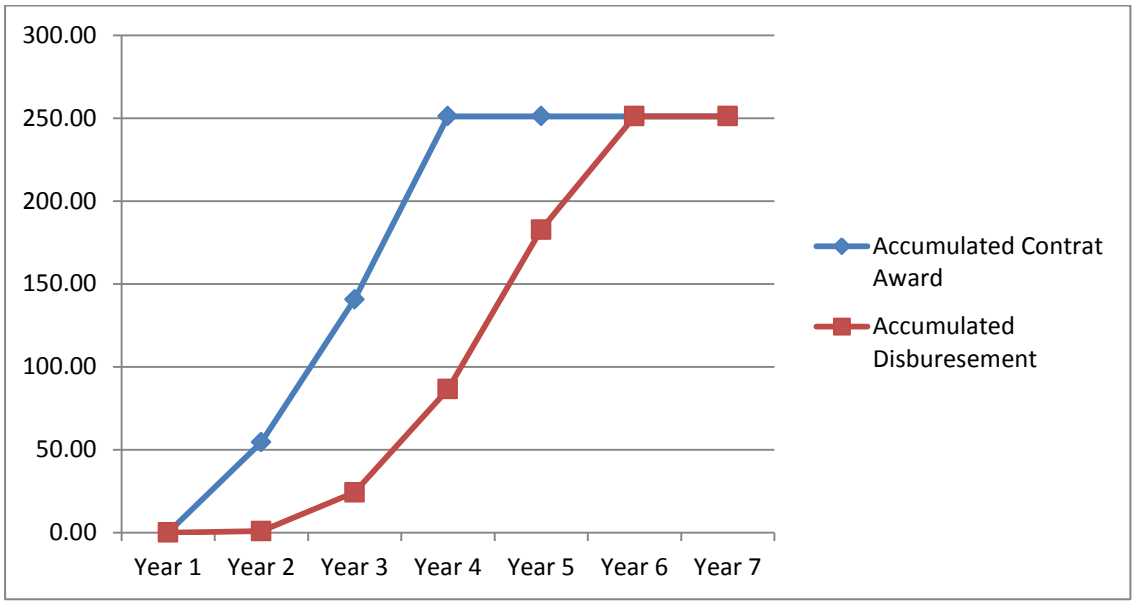
Item		(US $million) Total Cost*	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
A	**Investment Cost**							
1	**NEA transmission capacity expansion**							
1.1	Kali Gandagi to border 220/400kV T/L and SS							
1.1.1	*Dana-Kushima 220kV HTLS TL and SS*	37.86	0.00	9.00	20.00	8.86	0.00	0.00
1.1.2	*Kushma-New Butwal 220kV HTLS and SS*	45.89	0.00	4.00	6.00	27.00	8.89	0.00
1.1.3	*New Butwal- Bardaghat 400kV TL and SS*	48.59	0.00	0.00	8.00	16.00	24.59	0.00
1.3	Marsyangdi to Kathmandu 220kV TL and SS	37.93	0.00	3.00	12.00	22.93	0.00	0.00
1.5	Grid service S/S replacement	7.38	0.70	4.90	1.78	0.00	0.00	0.00
1.6	Project Supervision and capacity building	8.00	0.00	2.12	2.16	2.16	1.56	0.00
2	**NEA distribution network improvement**							
	Distribution system augmentation	36.42	0.00	0.00	8.40	13.60	14.42	0.00
3	**AEPC mini grid based RE development**							
3.1	Mini-micro hydro mini grid	11.59	0.00	0.00	2.40	3.20	5.99	
3.2	Solar and solar-wind on mini grid	3.00	0.00	0.00	0.90	1.20	0.90	0.00
3.3	Project implementation consultants	1.20	0.10	0.28	0.28	0.28	0.28	0.00
B	**Contingencies**	**9.94**					9.94	
C	**Interest during Implementation**	**3.41**	0.00	0.10	0.43	0.99	1.89	
	Total Project Cost (A+B+C)	**251.20**	0.80	23.40	62.34	96.21	68.45	0.00

Assumptions:

1 Cost updated as on Q1 2014 prices.

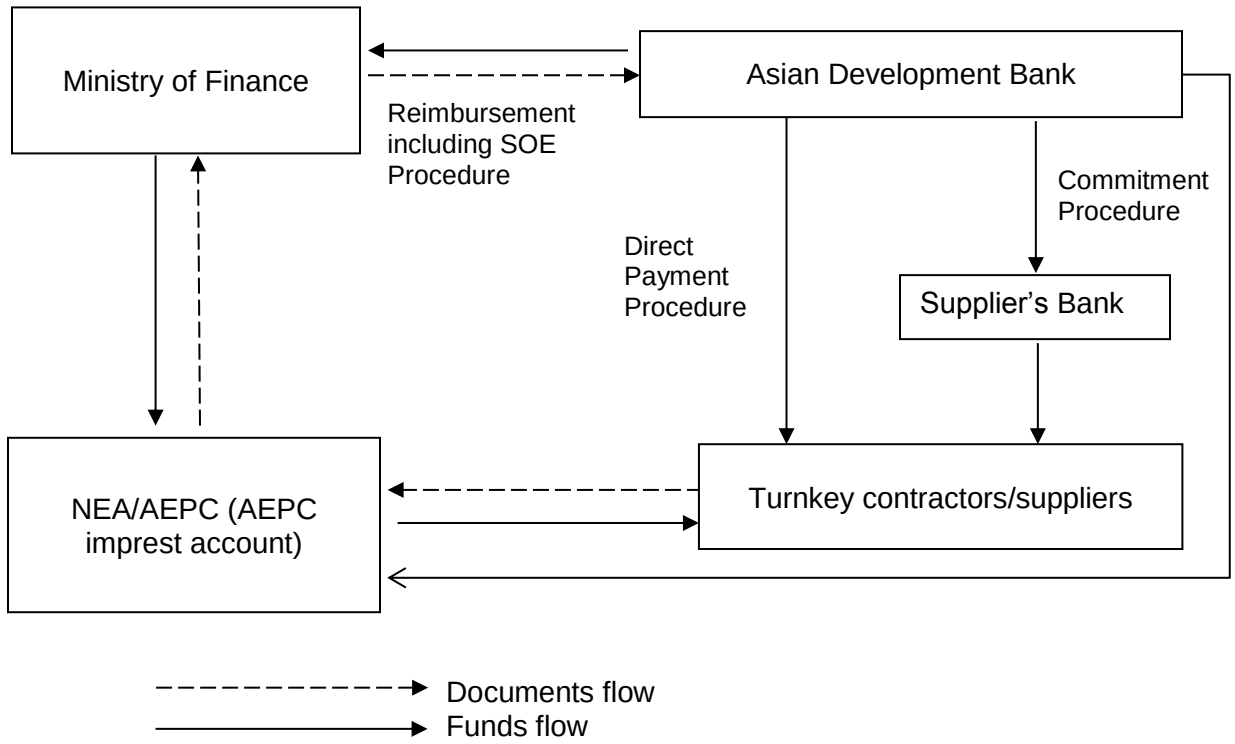
* ADB or ADB administered fund.

E. Contract and Disbursement S-Curve



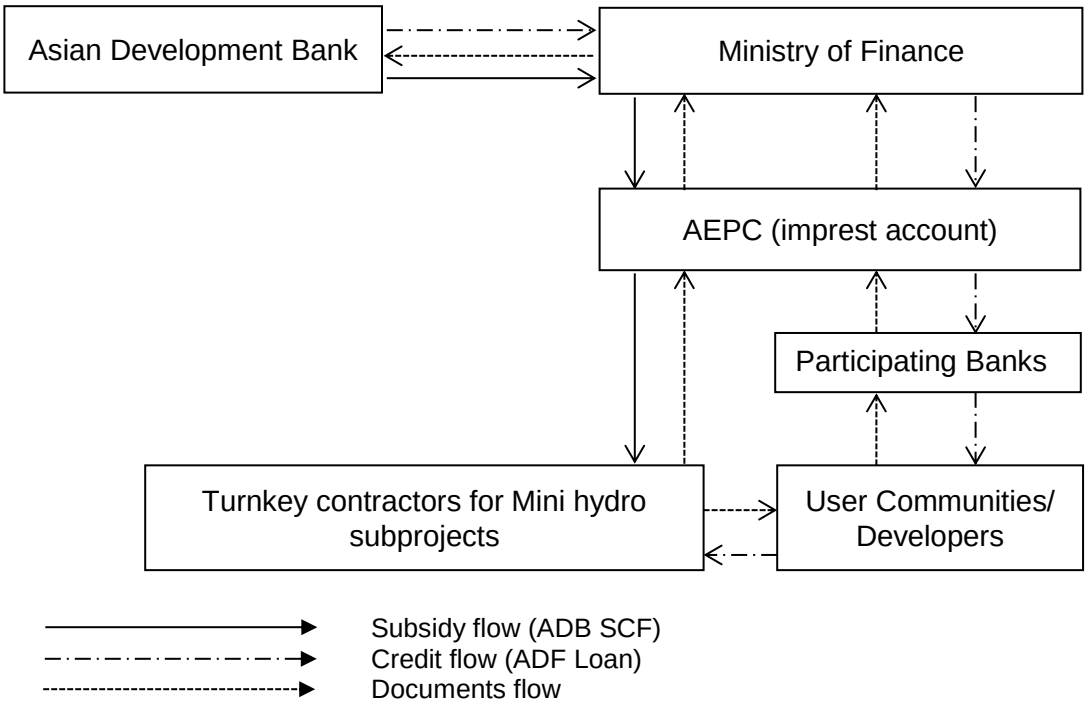
F. Fund Flow Diagram

FIGURE 3: FUND FLOW DIAGRAM



Note: ADB's direct payment and commitment letter procedures will be used for large scale payments. In such cases, the direct payment will be made from ADB to contractors or commitment letter reimbursement will go to a nominated bank of a supplier on the basis of withdrawal applications submitted to ADB by the EAs.

FIGURE 4: FUND FLOW DIAGRAM FOR MINI HYDRO SUBPROJECTS



Details for mini hydro subprojects are in Appendix 4.

V. FINANCIAL MANAGEMENT

A. Country-level Issues

22. An assessment was made of country-level financial management performance. This assessment drew from the Governance Assessment of Nepal in the Country Partnership Strategy, and the Nepal PEFA - An Assessment of the Public Financial Management Performance Measurement Framework February 2008. These assessments conclude that the necessary architecture and procedures for effective public financial management are in place but there are significant gaps in implementation, compliance, internal control, and enforcement due to insufficient human resources, capacities, and enforcement. Uncertainly around the current political transformation process will continue impeding progress towards better public management and accountability. The PEFA review, in particular, indicated a high fiduciary risk environment in Nepal. Strengthening Public Financial Management (PFM) is a key element of GON's strategy for strengthening governance, optimizing outputs from public resources and for ensuring inclusive and broad-based development. A number of development partners under the leadership of the World Bank are pooling donor resources (the Multi-Donor Trust Fund (MDTF)) to provide for strengthening PFM systems, increasing accountability in public expenditure and financial management, and addressing fiduciary and governance weaknesses in the utilization of public resources. The PFM reform program supported by the MDTF also includes funding for implementation of the Treasure Single Account (TSA) system.

23. Identified country-level public financial management issues center around the gaps in implementation of public financial management rules and procedures, compliance with the financial acts, weak internal control, staff accountability, and enforcement due to insufficient human resources, capacities, and enforcement. Overall, country specific risks were assessed as high.

B. Financial Management Assessment

24. NEA is an autonomous body corporate under the Nepal Electricity Authority Act, 2041 (1984) (NEA Act). The financial management of NEA was reviewed using ADB's financial management assessment questionnaire and interviews. The responses by NEA to the questionnaire revealed that NEA has defined policies and procedures in place for accounting, budgeting, and auditing activities. NEA has implemented externally financed projects from ADB, World Bank and bilateral agencies including KfW, DANIDA, JICA and other countries.

25. NEA is required to prepare annual audited financial reports under Section 26 of the NEA Act. As per the annual reports by the statutory auditor, the financial statements comply with the Nepal Accounting Standards and presentation requirements under Companies Act 2063 (2006). NEA provides training on financial accounting, and inventory management to staff. Training of staff on ADB processes is considered necessary for proper financial management, reporting, and implementation of the project, which will be supported by this project.

26. NEA's financial management exhibits some strengths: it operates under a robust legislative framework; NEA has significant experience in the implementation of ADB financed projects; and ERP is being introduced by NEA, which will, over time, improve its financial management, accounting and reporting capacity. Several weaknesses are evident however: audit reports indicate internal control weaknesses and recent allegations of (and arrests for) impropriety under project activities underscore these concerns; NEA's internal audit function cannot be relied upon; there is no apparent methodological and thorough follow up of auditors' recommendations; and non-compliance with certain key accounting standards leading to misrepresentation in the financial statements. NEA's inherent risks are overall control risks are assessed as moderate.

27. AEPC was established in the 1996 under the Development Board Act, 2013 (1956) as semi-autonomous institution under the Ministry of Science, Technology and Environment (MOSTE) to support and facilitate the promotion and development of renewable energy technologies. As a quasi-government organization, AEPC follows all the procedures of the Government's planning and budgetary process. AEPC receives an annual budgetary allocation from the Ministry of Finance through MOSTE, supplemented by income from interest margins charged to commercial banks who are on-lending funds on behalf of AEPC and from income generated by the sale of carbon credits. AEPC prepares an annual budget based on the ceiling fixed by the Government. AEPC prepares an annual budget based on the ceiling fixed by the GON. This planned budget will be endorsed by the Ministry of Finance (MOF) and eventually approved by Parliament. The approved budget along with its expense line items will be reflected in the Red Book of the Government. AEPC follows the "Results Based Monitoring and Evaluation Guidelines 2010" published by National Planning Commission, A monitoring and evaluation cell has also been established in AEPC to monitor project implementation. The annual financial statements of AEPC are audited by the Auditor General's office while annual project financial statements are audited by independent chartered accountant.

28. AEPC has been implementing several programs/projects financed, apart from ADB, by international donors, e.g. Danida, Norway, DFID, GIZ, KfW, UNDP and SNV, to promote the renewable energy technologies in Nepal. The donors' funds dominated in foreign currency and earmarked for AEPC will be firstly converted into local currency by the Nepal Rastra Bank (NRB) (Central Bank of Nepal) and then transferred to AEPC's account upon receiving the fund transfer application signed by the executive director of AEPC while the Government's budgetary allocation which is expressed in local currency will be directly transferred to AEPC's account with Financial Comptroller of the Government.

29. AEPC's financial management strengths include: a robust legislative framework and comprehensive statutory auditing; and significant experience in the implementation of donor-funded projects. Weaknesses include no familiarity with ADB procedures and processes; lack of internal audit; a partially implemented computerized accounting system; and difficulties in recruiting and retaining qualified staff. AEPC's inherent risk is assessed as moderate and overall control risk is assessed as substantial.

C. Disbursement

30. The loan and grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time),[24] and detailed arrangements agreed upon between the government and ADB.

31. ADB's direct payment and commitment letter procedures will be used for large scale payments.

32. To expedite implementation of the AEPC's mini hydro subprojects through the timely release of funds, a separate imprest account for each of ADF loan and ADB SCF grant may be established at the Nepal Rashtra Bank, administered by AEPC PIU. The ceiling for the imprest account should not exceed 10% of the respective loan/grant amount. The currency of the imprest accounts is the US dollar. The imprest accounts are to be used exclusively for the ADF loan and ADB SCF grant's share of eligible expenditures. The entity who established the imprest account in its name is accountable and responsible for proper use of advances to the imprest account.

33. AEPC may request for initial and additional advances to the imprest accounts based on an Estimate of Expenditure Sheet[25] setting out the estimated expenditures to be financed through the accounts for the forthcoming six (6) months. Supporting documents should be submitted to ADB or retained by AEPC in accordance with ADB's Loan Disbursement Handbook when liquidating or replenishing the imprest accounts.

34. ADB's Statement of Expenditure (SOE)[26] procedures may be used for reimbursement and liquidation and replenishment of the imprest account(s), with a SOE ceiling of $100,000 equivalent per individual payment. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.

35. Before the submission of the first withdrawal application, the government should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is US$100,000, unless otherwise approved by ADB. Individual payments below this amount should generally be paid from the imprest account or by the AEPC and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept WAs below the minimum amount.

36. Each project director or manager under NEA and AEPC will be responsible for: (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing withdrawal applications. Government counterpart funds will

[24] Available at: http://www.adb.org/Documents/loan-disbursement-handbook
[25] Available at: http://www.adb.org/Documents/loan-disbursement-handbook .
[26] SOE forms are available in Appendix 9B and 9C of the Loan Disbursement Handbook.

be used to finance detailed feasibility study preparations for subsequent subprojects which are not financed by ADB.

37. Particular attention shall be paid to the mini-hydro subprojects, due to the complicated funds flow arrangements (Figure 4), specific implementation arrangements (**Appendix 4 of PAM**) and the fact that proportion of subsidy and subloan to community/developer will be varied in accordance with current renewable energy subsidy policies[27]. Related to the mini-hydro subprojects, disbursement of the Turnkey contract – AEPC's mini-hydro category under SCF grant, which is a subsidy element, and the credit line category under the ADF loan will require the following disbursement operations:

(i) After total subproject amount (e.g., $1,000,000) is approved by AEPC, ADB will approve appropriate amount of each subproject under SCF grant (e.g., 530,000 under the Turnkey contract – AEPC's mini-hydro category) and ADF loan (e.g., 380,000 under the credit line category), in the form of Procurement Contract Summary Sheet (PCSS). The amount of PCSS will work as a ceiling of ADB financing from the subsidy from the SCF grant and the credit line from ADF loan, under each subproject. Do not use the PCSS 88XX series which is for a group of small contracts, in order to avoid double payment, over disbursement and erroneous treatment of credit line or subsidy.

(ii) Under the SCF grant (the Turnkey contract – AEPC's mini-hydro category), liquidation of the advance to the imprest account will be based on invoices of turnkey contracts. ADB's disbursement percentage is 100% of the expenditures claimed; however, AEPC shall only claim subsidy portion (around 50-60%) of subprojects in accordance with current renewable energy subsidy policies. The SOE sheet will follow the form presented in Appendix 9B of ADB's Loan Disbursement Handbook and list each invoice actually paid. The "ADB Disbursement %" column of the SOE sheet can indicate the subsidy portion (around 50 – 60%) so that SCF grant can disburse 100% of the calculated "Amount Requested for Withdrawal."

(iii) Under the ADF loan (the credit line category), liquidation of the advance to the imprest account will be based on subloan agreements to the user community or developer (not onlending agreement or big installment payments to the Participating Banks). ADB's disbursement percentage is 100% of the expenditures claimed; however, AEPC shall only claim credit line portion (around 38%) of subprojects in accordance with subloan agreements and the current renewable energy subsidy policies. The SOE sheet will follow the form presented in Appendix 9C of ADB's Loan Disbursement Handbook and list each subloan installment paid. The "ADB Disbursement %" column of the SOE sheet will indicate 100% of subloan payments.

(iv) AEPC is responsible for ensuring no over disbursement or double payment to turnkey contractors, the user communities or developers among the 3 different funding sources, namely the credit line from ADF loan (approx. 38%), the subsidy from SCF grant (approx. 52%), and the user community/developer's equity (approx. 10%).

D. Accounting

38. NEA and AEPC will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following follow accounting principles and practices prescribed by the Government of Nepal Financial Procedures Act (1999) and Financial Procedures Rules (2007). NE will prepare consolidated project financial statements in accordance with

[27] Government of Nepal. 2013. Subsidy Policy for Renewable Energy 2069 BS. Kathmandu.
Government of Nepal. 2013. Renewable Energy Subsidy Delivery Mechanism 2013. Kathmandu.

the government's accounting laws and regulations which are consistent with international accounting principles and practices.

E. Auditing and Public Disclosure

39. NEA and AEPC will cause the project financial statements to be audited in accordance with sound auditing standards acceptable to ADB by auditors acceptable to ADB. The NEA and AEPC should appoint external auditors to audit their project financial statements. The TOR for external auditor is in **Appendix 7**. Each EA shall submit the audited financial statements in the English language to ADB within 6 months of the end of the fiscal year. The annual audit report will include a separate audit opinion on the use of the imprest fund and the SOE procedures, as applicable. Auditor's opinion on EA's compliance with the specific financial covenants stipulated in ADB Loan Agreements is also required. Each EA will provide ADB with other information regarding the accounts, financial statements and audit thereof as ADB may reasonably request from time to time. The government, NEA, and AEPC have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited accounts. ADB reserves the right to verify the Project's financial statements to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

40. NEA and AEPC will cause the detailed consolidated project financial statements to be audited in accordance with the Nepal Standards on Auditing (NSA) and on guidelines issued by the Office of the Auditor General of Nepal, by an independent auditor acceptable to ADB. The audited project financial statements together with the auditors' opinion will be submitted in the English language to ADB within six months of the end of the fiscal year by NEA and AEPC.

41. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) use of the imprest fund procedure; and (v) the use of the statement of expenditure procedure certifying to the eligibility of those expenditures claimed under SOE procedures, and proper use of the SOE and imprest procedures in accordance with ADB's Loan Disbursement Handbook and the project documents.

42. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

43. The Government, NEA and AEPC have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.[28] ADB reserves the right to require a change in the auditor (in a manner

[28] ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.

consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

44. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011)[29]. After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

45. All advance contracting will be undertaken in conformity with ADB's *Procurement Guidelines* (2013, as amended from time to time) (ADB's *Procurement Guidelines)*[30] and ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) (ADB's *Guidelines on the Use of Consultants).*[31] The beneficiary, NEA, and AEPC have been advised that approval of advance contracting does not commit ADB to finance the project.

46. **Advance contracting.** The government has requested ADB's approval of advance contracting for recruitment of consultants and procurement of goods, related services and civil works including inviting and receiving bids for contracts that might be approved for implementation prior to loan effectiveness. The issuance of invitations to bid under advance contracting will be subjected to ADB approval. The NEA and AEPC have already initiated preparation of bidding documents for some procurement packages.

B. Procurement of Goods, Works and Consulting Services

47. Procurement of works, goods, and services to be financed by ADB administered funds will be carried out in accordance with ADB's *Procurement Guidelines (2013, as amended from time to time)*. Since ADB is administering cofinancing resources of Norwegian grant for Asian Development Fund (ADF)-financed operations, universal procurement will apply to all procurement packages to be financed by ADF resources, and jointly by ADF resources and Norwegian grant.[32] While EIB will pararelly cofinance Marsyangdi Corridor transmission line and Trishuli 3B transmission hub, ADB's standard bidding documents and procurement procedure will be adopted. The review and approval of technical and financial evaluation reports will be undertaken by EIB. The consulting services provided by PPS and PSC will also cover the components funded by EIB. The detailed arrangements will be included in the cofinancing documents.

48. The consultants will be recruited using ADB's *Guidelines on Use of Consultants* (2013, as amended from time to time). The government has requested ADB assistance in selection of the project supervision consultant to be financed by ADB administered fund.

- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

[29] Available from http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications
[30] Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf
[31] Available at: http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf
[32] ADB. 2013. *Blanket Waiver of Member Country Procurement Eligibility Restrictions in Cases of Cofinancing for Operations Financed from Asian Development Fund Resources.* Manila.

C. Procurement Plan

49. The detailed technical information of the project is in **Appendix 8**. The overall procurement and consulting service contract packages are as follows. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and general guidelines for the use of national competitive bidding are in **Appendix 9**.

Overall procurement and consulting service contract packages

Outputs	Details ($MIL)	Financers Schedule
A. NEA's transmission system expansion		
1.Kali Gandaki basin to border	i. Dana - Kusma 220kV transmission line, and substations at Dana, Kusma (38.2km, HTLS, $15.2+22.7); ii. Lot 1: Kusma - New Butwal 220kV transmission line, and substation at New Butwal (72km, HTLS, $28.8+17.1); Lot 2: New Butwal - Bardaghat 400kV transmission line, and substation at Bardaghat (45KM, $31.5+17.1);	ADB 18 months ADB 24 months ADB+NOR 24 months
2. Marsyangdi Corridor	i. Khudi- Udipur- Marki Chowk- Bharatpur 220kV transmission line, and substation at Khudi, switchyard at Udipur, Marki Chowk substation, and bay extension at Bharatpur; (100km, HTLS, $43.9+30.0) ii. Manang-Khudi 220kV transmission line, and associated substations at Manang and bay extension at Khudi (25km, $12+7.7)	EIB 30 months EIB 18 months
3. Marsyangdi to Kathmandu	i. Marki Chowk- Matatirtha- 220kV transmission line, and associated substation extension at Matatirtha; (81.5km, $26.9+11.0)	ADB+NOR 24 months
4.Trishuli 3B Transmission Hub	i. Samundratar - Trishuli 3B hub 132kV transmission line and associated substation at Samundratar. (24km, $6.0+6.0)	EIB 18 months
5.Grid substations reinforcement	i. Gandak 132/33/11kV (30MVA+16.6MVA); Middle Masyangdi 132/33kV (20MVA); Butwal 132/33 (63MVA); Bharatpur 132/33kv (63MVA); Dhalkebar 132/33kV (63MVA); Lahan 33/11kV (2*16.6MVA); Banepa 66/11kV (2*22.5MVA); Attaria 132/33kV (2*30MVA) (8 s/s, total $7.4)	ADB 12 months
B. NEA's distribution network improvement		
6. Distribution system	i. Lot 1: Distribution system augmentations in East Region ($17.2) Lot 2: Distribution system augmentations in Central and West Regions ($19.2)	ADB 24 months
C. AEPC's mini-grid based RE development		
7. Mini hydropower mini-grid development	i. Sani Veri Mini HPP (300kW) ($1.5 mil) and ii. Simurutu Mini HPP (200kW) ($0.8 mi) , and others ($10.7 mil)	ADB+SCF 42 months
8. Solar power and solar-wind power hybrid mini-grid development	i. Kyangshing Solar Mini grid (12.6kw) ($0.14 mil), Bhorleni Solar-wind hybrid mini-grid (35kW) ($0.30 mil), and Chisapani Solar-wind hybrid mini-grid (20kw) ($0.17 mil) ii. Others ($2.69 mil)	SCF 18 months SCF 18 months
D. Capacity development support to NEA and AEPC		
9. Project supervision and capacity building services	i. Construction supervision services covering all above NEA outputs ($6 mil) ii. Supports on pricing mechanism of open access to NEA grid by IPP for power export and others ($2mil) iii. Implementation supports for AEPC's output including social mobilizers ($1.2 mil)	NOR NOR SCF

D. Consultant's Terms of Reference

50. Outline Terms of Reference (TORs) for project supervision consultant (PSC) for NEA, preparation of distribution system (rural electrification) master plan, project implementation consultants (PIC) for AEPC and Social Mobilizers, to be engaged under Capacity Development Component and associated CDTA consultants are presented in **Appendix 10, 11, 12, 13 and 14.**

VII. SAFEGUARDS

51. **Environmental safeguards.** The project is classified as environment category B. Environmental assessments have been prepared for the on-grid and off-grid components following the ADB's *Safeguard Policy Statement* (SPS) (2009), the government's environmental impact assessment guidelines, and related national policies and legislation. Public consultation and information disclosure requirements have been met. Routing of transmission lines avoids environmentally and ecologically-sensitive areas to the maximum extent possible, and transmission rights-of-way have been minimized by use of 220 kV lines with high temperature low sag (HTLS) conductors instead of larger 400 kV systems with conventional conductors. The 25 km Manang-Khudi line and its 2 associated substations are sited within the Annapurna Conservation Area (ACA), in the intensive land-use zone, a multiple land-use area in which power and other infrastructure development are permitted. The footprint of these transmission facilities is less than 0.02% of the total area of the ACA. Potential impacts are temporary and reversible, and will not affect critical or natural habitat. Any loss of vegetation will be directly offset by reforestation activities consistent with the Nepali regulatory requirements. Due diligence conducted on associated hydropower facilities which are currently under construction has determined that these associated facilities are in compliance with Nepali regulatory requirements.

52. Transmission system: the IEE has been revised pursuant to ADB inter-departmental review, and further revisions will be made going forward as per the Project Environmental Management Plan (EMP). Based on a review of available maps and reference data for the protected areas, critical and natural habitats, and other potentially sensitive ecosystems, the preliminary findings are confirmed: (i) based on detailed examination of known information on the habitat ranges and elevations of the sensitive species in the ACA, these species will not be directly impacted by the proposed transmission lines, i.e., critical habitat will not be directly impacted; (ii) the Important Bird Areas may be indirectly impacted by the transmission lines due to the broad area traversed by birds which naturally extends beyond the areas demarcated as "Important Bird Areas"; and (iii) potential impacts in other potentially sensitive ecosystems (e.g., the "Dovan Bottleneck") have been identified and can be readily mitigated. The individual IEEs and EIA to be prepared for the individual transmission lines (under NEA's direction) will address these issues and will revisit the preliminary findings in the IEE for the on-grid components.

53. Distribution system: the draft IEE is in progress and will be completed by late June (prior to the proposed ADB Board date). Subprojects located in protected areas will not be included unless they are consistent with protected areas management plans and a "no objection" letter is provided by the protected area management team or its parent agency. In any case, the individual sub-projects have a very small footprint and will provide sustainable energy benefits which outweigh any negative impacts. Access to grid-supplied electricity will offset demand for kerosene for lighting, and diesel and gasoline (petrol) for back-up generators; with sufficient electricity supplies in the future, rural consumers will have the option to switch to electricity for cooking which will offset demand for traditional biomass (mainly fuel wood and animal dung).

54. As the off-grid component allows for future subprojects which have not been identified and subject to due diligence, an Environmental Assessment and Review Framework (EARF) for this component was prepared following the SPS, the AEPC's environmental assessment guidelines, and related national policies and legislation. Public consultation and information disclosure requirements have been met. An initial environment examination (IEE) was prepared for representative subprojects, which highlighted a few key issues: (i) diversion of water in irrigation channels and possible impacts on any sensitive species which may be present in the project area(s); (ii) management of batteries; and (iii) cumulative and induced impacts associated with the RE installations and operations and new end-uses of energy. The IEEs for subsequent subprojects will be prepared in line with EARF. Water

diversion can be minimized by lining existing irrigation channels which convey water to mini hydro installations. A battery management facility is being developed pursuant to a national policy and regulation; the facility is being designed based on international best practices and will be used to recycle used batteries from solar and wind power installations. Cumulative and induced impacts will have net positive benefits from increased access to energy and productive end uses of energy.

55. The environmental management plans (EMPs) for the on- and off-grid components include mitigation measures, monitoring, and adequate budgetary provisions for implementation. The EMPs will be part of the bidding documents. NEA and AEPC will supervise the construction contracts and EMP implementation. Monitoring reports will be submitted semiannually by NEA and AEPC to ADB. EMPs will be updated as necessary if unanticipated impacts are identified during implementation. NEA and AEPC have sufficient capacity to implement the EMPs, using third-party services as necessary.

56. **Social safeguards.** In accordance with the SPS, the Project is categorized as "A" for involuntary resettlement and "B" for indigenous peoples. The Project will have impacts due to land acquisition and involuntary resettlement which will primarily be economic displacements and will have limited impacts due to physical displacement. Transmission and distribution components will have both permanent and temporary impacts. Permanent impacts are anticipated due to land acquisition for construction of new transmission grid substations, distribution grid substations and small patch of land for transmission towers to be placed on private land. Additionally, the transmission lines will also have temporary impacts on loss of trees and crops along the Right of Way. Approximately 715 households will be impacted due to land acquisition and loss of crops and trees. A social survey was carried out based on feasibility study and preliminary design to assess the impacts on IR and IP. The assessment is preliminary in nature which needs to be updated during the detailed design survey. Census surveys were also carried out where notification for land acquisition was published. Public consultations were carried out at various locations in the project area. Additionally, separate consultations were carried out among the women group at various project locations. Exact location and ownership of land for tower footing is not exactly known yet which needs to be updated later on. Also, the route alignment is not final and detailed at the moment.

57. There are 12 grid substations (GSS) in the projects in 4 corridors (Kaligandagi, Marsyangdi, Marsyangdi-Kathmandu and Samundratar - Trishuli 3B hub). Out of these 12 GSS 7 GSS are proposed on private land (Dana, Kusuma, bardaghat, Khudi, Manag, Matatirtha and Samundratar). GSS for new Butwal is proposed on government/forest land. The land acquisition has already been done for Markichowk and Trishuli 3-B and the land is in possession with NEA. There are 2 existing GSS (Udipur and Bharatpur) where additional bays will be constructed within the existing premise without requiring any land acquisition. Notification for private land acquisition has been issued for three substations such as Dana, Khudi and Samundratar and the notification for remaining needs to be completed. . NEA has allocated a budget for the substations in Dana, Kushma, Bardaghat, Butwal and Khudi including the tower footings for the transmission line routes of 220/400 kV DC Kali Ghandaki Corridor, 220 kV DC Marsyangdi Corridor, and 220 kV DC Marsyangdi-Kathmandu. Transmission lines will have both permanent impact such as loss of small piece of land for tower footings in transmission lines and also temporary impacts on loss of trees and crops along the Right of Way. Transmission towers on private land will require to be acquired. There are 24 proposed new 33/11kv distribution substations which will require private land acquisition for which details will be collected later on and accordingly, notice will be published. The amount of land required is very minimum for distribution substation. Distribution lines, especially 33 kv lines will have temporary impacts on loss of trees and crops along the RoW. Distribution lines will not have any towers rather it will be pole based, therefore, permanent impact on land acquisition is negligible. All the losses will be compensated as per replacement/market cost. The grid substation reinforcement and up gradation of distribution substations and distribution substation reinforcement will not require any land acquisition

as the construction will be limited to replacement of equipment (transformers, conductors) within the existing premise.

58. Potential impact on IP on various sub-projects was evaluated based on the feasibility level of technical design. Initial assessment shows that there will be no endangered IP groups in the project areas. IP living in the project periphery are Magar,Tharu, Tamang, Rai, Sherpa, Gurung, Tharu and Newars. The subprojects are scattered in various parts of Nepal, therefore, some section of IP will be affected due to permanent land acquisition for transmission GSS and distribution substations and sometimes for small piece of land loss for tower footings and temporary impacts on loss of crops and trees etc along the Right of Way. However, it may be noted that land acquisition in the subprojects will not lead to any physical displacement. The magnitude of impacts on IP is not significant as far as overall sensitivity is concerned such as (a) customary rights of use and access to land and natural resources; (b) socioeconomic status; (c) cultural and communal integrity; (d) health, education, livelihood, and social security status; and (e) the recognition of indigenous knowledge; and (ii) the level of vulnerability of the affected Indigenous Peoples community. The impacts are limited to loss of portion of land for some IP groups which will be compensated at replacement cost. Additionally, these groups are considered as vulnerable where additional resettlement assistance will be provided in addition to compensation, consultations will be carried out to make them aware about the project and obtaining their endorsement for land acquisition. Since the impacts are limited to resettlement, therefore a draft combined Resettlement and Indigenous Peoples Plan has been prepared based on the feasibility design for the projects with due social impact assessment, census survey, consultations etc.

59. The impacts are limited to resettlement, therefore two draft combined Resettlement and Indigenous Peoples Plan has been prepared based on the feasibility design for the projects with due social impact assessment, census survey, and consultations for on grid components in line with SPS and Government of Nepal's laws and regulation. The two combined Resettlement and Indigenous Peoples Plan is in draft shape which will be revised and updated prior and/or during implementation based on the results of the detailed design and check surveys of the Contractors for the transmission line packages. The combined resettlement and Indigenous Peoples plans will guide the resettlement process and further elaborate on the nature of impacts, range of and eligibility for entitlements, income and livelihood restoration, rehabilitation assistance and compensation for losses incurred. The combined RIPPs will have the provision for compensation and assistance as per Nepal's laws and regulation and will comply with ADB's SPS 2009. The RIPPs also provides details on suitable institutional arrangements for carrying out implementation, a procedure for grievance redress, a structure for periodic and regular monitoring and reporting of project activities, detailed cost / budget estimates, and a time-bound implementation schedule for completing the process. The RIPPs will be updated as needed and publicly disclosed to interested stakeholders on ADB's and the EA's website. Project affected peoples will be duly consulted on a regular basis (as needed), in a timely, transparent and culturally sensitive manner and in the local language (Nepali).

60. All displaced people should be paid compensation and assistance in accordance with the combined resettlement and indigenous peoples plan. The land should be made free of encumbrances and obstructions from the related subproject required to be handed over to the contractor for and prior to commencement of construction thereof in accordance with the work schedule under the related civil works contract. Efficient grievance redress mechanism is in place in accordance with the related RP to assist displaced persons to resolve grievances and complaints if any in a timely manner.

61. The implementation of the combined resettlement and indigenous peoples plan will be monitored internally by the EAs and externally by qualified and experienced external experts, who will undertake the overall monitoring of the safeguards and relevant social issues and submit semiannual monitoring reports to EA for submission to ADB. The external experts will advise on safeguard

compliance issues, and if any significant involuntary resettlement issues are identified, a corrective action plan will be prepared.

62. The off-grid component will have no resettlement impacts for sample subprojects and no adverse impacts on IP.[33] The minimum private land requirements for the sample sub projects will be met through voluntary land donation. A due diligence report has been prepared for the sample sub projects The off-grid component allows for future subprojects which have not been identified and subject to due diligence. Therefore, Resettlement and Indigenous People's frameworks have been prepared as required by the SPS and related national policies and legislation. The resettlement framework will guide the process and describe the nature of impacts, range of and eligibility for entitlements, income and livelihood restoration, rehabilitation assistance, and compensation for losses incurred. All subprojects will be screened early in the project cycle. Subprojects will be selected based on voluntary land donation. AEPC will verify that donation is in fact voluntary using verbal and written records and confirmation through an independent third party and will ensure that voluntary donations do not severely affect the living standards of donors and benefit them directly Social safeguards shall be achieved in line with the provisions stated in the resettlement framework and the indigenous peoples planning framework.

VIII. GENDER AND SOCIAL DIMENSIONS

63. Nepal has made considerable progress in reducing poverty. Poverty rates declined in all of Nepal's development regions and ecological belts. More than 80% of the country's population lives in rural areas where poverty is more prevalent. Project interventions are designed to benefit the poor through increased economic opportunity, knowledge, and rights. The project has been designed to be classified as effective gender mainstreaming. It includes a gender and social inclusion action plan with integrated indicators and targets in the project design and monitoring framework. The gender and social inclusion action plan ensures that women are empowered through their participation and representation in a range of project- and nonproject-specific activities. These include partnering with local electricity user cooperatives in project orientation and education awareness, enhancement of livelihoods through skills training, small-scale enterprise development, AEPC capacity building on gender equity, and gender-based development activities in the project areas. A monitoring and evaluation system with data disaggregated by sex, caste, and ethnicity will be developed by the EA and the project management/implementation unit to track social inclusive and gender-based achievements of the AEPC will be responsible for overseeing the timely and appropriate implementation of the GESI and carrying out monitoring of its activities and reporting back on quarterly basis to ADB as indicated in the plan.

64. The GESI will enable poor women and men's participation in energy sector projects, through the provision of energy related skills training, employment and livelihood opportunities. The AEPC will receive capacity development on how to improve gender equity and community participation in the project. Training will aim to pilot and replicate a resource for the energy sector in Nepal. The participation of locally affected people, particularly poor female-headed households will be given special priority during project implementation. A full time GESI consultant will help AEPC implement the GESI plan.

65. The bidding documents provide clauses designed to ensure that all civil works contractors comply with applicable labor laws, do not employ child labor, encourage the employment of the poor particularly women, and do not offer different wages to men and women particularly for work of equal

[33] No impacts are foreseen on IP groups. If impacts are identified, the AEPC will be required to prepare an indigenous peoples plan identifying fair and inclusive compensation and rehabilitation measures, in line with host country laws, regulations, and the SPS requirements.

value. Dialogue and communication (both written and verbal) with stakeholders will be carried out in a gender specific and culturally sensitive manner and in local languages, as required during safeguards implementation. There are special provisions for the vulnerable households including the women headed households in the combined resettlement and indigenous peoples Plans.

66. **HIV /AIDS.** Based on the poverty and social assessment, there is no risk that the project will increase HIV/AIDS incidence. However contractors will carry out HIV/AIDS awareness for their laborers at work sites, which will be monitored by the construction supervision consultants. The EAs with the help of civil society organizations and public health agencies will carry out the awareness amongst the communities in the project influence area.

67. **Health.** The EAs/IAs will ensure that contractors provide adequately for the health and safety of the construction workers and further ensure that bidding documents include measures on how contractors will address this, including an information and awareness raising campaign for construction workers on sexually transmitted diseases, including HIV/AIDS and human trafficking.

68. **Labor.** The EAs will ensure that civil works contractors comply with all applicable labor laws and regulations do not employ child labor for construction and maintenance activities, provide appropriate facilities for women and children in construction campsites; and do not differentiate wages between men and women for work of equal value. The EA will ensure that specific clauses ensuring these will be included in bidding documents.

Gender and Social Inclusion (GESI) Framework

Activities	Indicators and Targets	Responsibility	Time Frame
Ouput-1: Power transmission capacity increased; Output 2: Power distribution network improved			
i. Involve women during project design and implementation. Preparation of socioeconomic baseline of subprojects to include sex- and caste/ethnicity disaggregated data and specific data on Female Headed Households (FHHs) for better targeting of communities. Conduct gender-inclusive consultations through focus group discussions (FGDs) among women in the project area	At least 25% of HHs from below poverty line (BPL), disadvantaged groups[34], and FHH will be consulted	NEA	Y1 – onwards
ii. Empower the contractors to employ local labor, including women, in project construction activities	• At least 25% of total skilled and unskilled labor will be women • Contractors agreements to include: equal pay for work of equal value, gender-related core labor standards, special facilities for women workers and gender-inclusive awareness raising for risk mitigation[35]	NEA and construction contractor	Y1 – onwards
Output-2: Power distribution network improved			
i. Electrification of new HHs with focus on disadvantaged groups, and FHHs in east, central, west, mid-west and far-west Regions	At least 50% of the proposed newly electrified HHs [estimated: 80,000] will be from BPL and FHHs. Approximately, 40,000 new BPL and FHHs will be electrified	NEA and construction contractor	Y1 – onwards
ii. End-user awareness raising for newly electrified HHs	End-user awareness raising activities of newly electrified HHs [estimated: 80,000], with a special focus on women consumers, to include: a) Safe and efficient use of electricity [i.e. use of compact fluorescent lamp (CFL)]; b) Energy-related livelihood opportunities; and c) Energy saving in consumer behavior and practices for HH tasks.	NEA	Y1 – onwards
Output-3: Mini-grid RE systems increased			
i. Below-poverty-line, disadvantaged groups and FHH electrified by mini hydro based mini-grid development	28,000 additional HHs supplied by mini hydro in selected communities by 2020 [Target: at least 33% FHH and disadvantaged groups]	AEPC	Y1 – onwards
ii. Below-poverty-line, disadvantaged groups and FHH electrified by solar power or solar-wind hybrid based mini-grid (SWM) development	2,500 additional HHs supplied by SWM in selected communities by 2020 [Target: at least 33% of FHH and disadvantaged groups]	AEPC	Y1 – onwards
iii. Women trained in the construction, O&M of mini grid systems and as customer service providers	At least 40 % women's participation in all technical training in the construction, O&M and customer service provision[36]	AEPC	Y1 – onwards
iv. Enhance women, FHH and disadvantaged groups participation in sub-project development	At least 33% participation of beneficiaries in sub-project consultation and development activities are BPL women with proportionate representation and participation of disadvantaged groups	AEPC	Y1 – onwards
v. Mobilize community based organizations for	• At least 50% women and proportionate representation of disadvantaged	AEPC	Y1 – onwards

[34] The definition of disadvantaged groups is based on Government's Three Year Interim Plan (2010-2013) and the GESI analytical framework, which uses four indicators: poverty, geography, caste/ethnicity and gender.

[35] Risks associated with large infrastructure projects could include sexually transmitted infections (STIs) and human trafficking, with women especially vulnerable to such risks.

[36] Customer service provision responsibilities will include billing and fee collection, information dissemination and minor maintenance such as changing light bulbs in households, keeping an audit of minor repairs that need to be referred to skilled electricians.

Activities	Indicators and Targets	Responsibility	Time Frame
social and environmental community development activities[37]	groups • Support the implementation of the AEPC *Social Mobilization Guidelines on Women's Empowerment*[38]		
Output-4: Capacity development support to NEA and AEPC			
i. Trainings in GESI-based community participation and management of energy systems by 2018. ii. Promote productive energy use activities focused on: (a) Reducing women's time burden spent on household tasks, and (b) women-led micro-enterprise development.	(a) Five trainings in GESI-based community participation and management conducted. (b) ***Technology promotion's activities conducted***. These activities will raise awareness for the productive, safe and sustainable use of energy[39], Conduct 'training of trainers' programs to develop 'technology promoters' to implement activities ***Target:*** At least one technology promoter in each sub-project site - 50% are women] (c) ***Baseline and end-line surveys on women's time-use conducted***. Surveys will determine time spent for water and fuel collection and other housework, as well as time spent for income-generating activities and leisure [time-saving targets to be set based on the results of the baseline surveys] (d) ***Women's micro-enterprises developed.*** **This will be carried out through**: (i) Conducting a needs assessment and mapping of existing enterprises to identify appropriate livelihood opportunities for women's energy-based micro-enterprise development in each sub-project site (incl. upgrading of existing enterprises)[40]; (ii) Developing a skills training program[41] and establishing business incubator programs to promote innovative micro-enterprise development, e.g., ICT service centers/kiosks; and (iii) Providing additional fund support for enterprise-development based on AEPC subsidy policy and delivery mechanism[42] ***Target*****:** At least one woman per BPL household, proportionate number of BPL socially excluded households and all BPL/WHHs. At least 30% increase in women-led micro-enterprises].	AEPC Baseline data gathered within a year of project commencement and end-line data gathered at project's end, with comparison/analysis reported in the Project Completion Report	Y1 – onwards
Implementation arrangements: • A full-time Gender and Social Inclusion (GESI) consultant, financed by NRREP will be engaged and located at the AEPC premises to support the implementation of all GESI Action Plan-related activities.			

[37] Environment management activities for micro and mini hydro sites, e.g., community forestry and tree plantation. Social activities in MMH and SWM sites, e.g., environment health and sanitation, trail road construction.
[38] The AEPC has recently adopted social mobilization guidelines for women's empowerment, which should be used as a reference for community mobilization activities.
[39] Such as improved cook stoves, water mills, ICT technologies, solar heaters/hot-water systems/dryers, food/agro-processing equipment, and others.
[40] Such as agricultural production and processing, food processing, craft making, horticultural production and processing.
[41] Such as operating electrical appliances, simple book-keeping and finance management, access to MFI services and others.
[42] Available at: http://www.aepc.gov.np/?option=resource&page=rescenter&mid=3&sub_id=18&ssid=2&cat=RE%20Subsidy%20Policy.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Increased electricity access in Nepal and improved power exchange across the border	Cross-border power flows increased from to 2,000 MW by 2025 (Baseline: 100 MW in 2013). Electricity access rate in Nepal increased to 92% in 2025 (Baseline: 65 % in 2013)	NEA annual reports AEPC annual reports	**Assumptions** The government continues prioritizing power sector and regional integration Timely completion of the Dhalkebar (Nepal)–Muzaffarpur (India) 400 kV transmission line, and Bardaghat (Nepal)-Gorakhpur (India) 400 kV transmission line Planned generation capacity in selected valleys achieved on time **Risk** Political instability affecting timely implementation of power sector development projects
Outcome Increased capacity of national grid and enhanced renewable energy development	Power evacuation capacity from Kali Gandaki basin and Marsyangdi basin increased to 1,000 MW by 2021 (Baseline: 100 MW in2013) Distribution capacities in identified areas increased to 316 MVA by 2021 (Baseline: 100MVA in 2011) 30,500 additional households supplied by renewable energy in rural communities by 2021 CO_2 emissions reduced by 20,000 tons per year by 2021	NEA annual reports NEA annual reports AEPC annual reports AEPC annual reports	**Assumption** The government continues to be committed to progress on NEA financial and management restructuring
Outputs 1. Power transmission capacity increased	45 km of 400 kV and 191.5 km of 220 kV transmission lines and associated substations, constructed and/or augmented along Kali Gandaki corridor and Marsyangdi–Kathmandu route by 2021	NEA annual reports	**Assumption** Timely availability of counterpart funds from the government **Risk** For AEPC's component, contributions by communities realized on

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
			time
	125 km of 220 kV transmission line, and associated substations at Marsyangdi corridor; and 24 km of 132 kV transmission line and associated substations at Samundratar–Trishuli 3B transmission hub constructed by 2021 (to be financed by EIB's parallel cofinancing)	NEA annual reports	
	8 grid service substations with aggregate capacity of 393.8 MVA constructed and/or replaced by 2020	NEA annual reports	
2. Power distribution network improved	Identified distribution lines (410 km of 33 kV, 545 km of 11 kV, and 725 km of 400 kV), 216 MVA 33kV/11 kV substations and 20 MVA distribution substations constructed and/or upgraded by 2020	NEA annual reports	
3. Mini-grid-based renewable energy systems in off-grid areas increased	Up to an additional 4.8 MW of mini-grid-based renewable energy capacity established by 2020 in selected communities where at least 33% of the households are headed by women or are disadvantaged	AEPC annual reports	
4. Capacity development support to NEA and AEPC provided	Project management monitoring system developed by 2015	Project quarterly progress report	
	20 persons trained in GESI-based community participation and management of energy systems by 2018	Project quarterly progress report	
	A feasibility study of one large scale wind farm approved by AEPC by 2018	AEPC annual reports	
	Draft regulations for implementing Renewable Energy Promotion Board Act accepted by AEPC by 2018	AEPC annual reports	

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
	A updated distribution system and rural electrification master plan adopted by NEA by 2019	NEA annual reports; distribution system master plan	
Activities with Milestones			**Inputs**
1. Power transmission capacity increased 1.1 Acquisition of land for substations and tower footings (June 2015) 1.2 Construction of transmission lines (July 2015–June 2021) 1.3 Implementation of environment management plan (July 2015) **2. Power distribution network improved** 2.1 Acquisition of land (if any required) (December 2016) 2.2 Extension of the identified distribution networks (January 2017–December 2018) **3. Mini-grid-based renewable energy systems in off-grid areas increased** 3.1 Land contribution by communities for sample mini hydroelectric subprojects (September 2015) 3.2 Construction of sample mini hydro subprojects (December 2015–November 2017) 3.3 Construction of subsequent mini hydro subprojects (July 2017–June 2020) 3.4 Land contribution by communities for sample mini-grid solar and solar-wind hybrid subprojects (June 2015) 3.5 Installation of sample mini-grid solar and solar-wind hybrid subprojects (January 2016–June 2017) 3.6 Installation of subsequent mini-grid solar and solar-wind hybrid subprojects (September 2017–February 2019) **4. Capacity development support to NEA and AEPC provided** 4.1 PSC support for NEA in supervising the implementation of outputs 1 and 2 (January 2016–December 2021) 4.2 PIC and Social mobilizers support for AEPC in procuring and implementing output 3 (January 2015–June 2020) 4.3 Training of NEA, AEPC, and identified stakeholders (May 2015–April 2017) 4.4 Feasibility study of one large-scale wind farm (minimum 1 MW) accepted by AEPC (December 2017) 4.5 Draft regulations for implementing Renewable Energy Promotion Board Act accepted by AEPC (June 2018) 4.6 Distribution system and rural electrification master plan adopted by NEA (December 2019)			**Loan** ADB: $180,000,000 EIB: $120,000,000 **Grant** Government of Norway: $60,000,000 ADB SCF: $11,200,000 **Government of Nepal:** $60,340,000 Communities: $8,460,000

ADB = Asian Development Bank, AEPC = Alternative Energy Promotion Centre, EIB = European Investment Bank, GESI = gender equality and social inclusion, km = kilometer, kV = kilovolt, MVA = megavolt-ampere, MW = megawatt, NEA = Nepal Electricity Authority, PIC = project implementation consultant, PSC = project supervision consultant, SCF = Strategic Climate Fund.
Source: Asian Development Bank.

B. Monitoring

69. **Project performance monitoring**. The NEA and AEPC will undertake overall monitoring of the project in terms of progress. ADB, Beneficiary, NEA and AEPC will conduct semiannual reviews

throughout the implementation of the project. The review will monitor the (i) project output quality, (ii) implementation arrangements, (iii) implementation progress, and (iv) disbursements. Performance will be monitored based on indicators and targets stipulated in the design and monitoring framework.

70. **Environment monitoring**. The contractors, subcontractors, and PMU/PIU must adhere to the EMP and RP during contract implementation as prepared in accordance with ADB's *Safeguard Policy Statement 2009* and as agreed/ endorsed by the government. The contractors and subcontractors shall prepare and submit the monthly progress report in conformance to the EAs' requirements and shall indicate when, how and at what cost the contractors' plans to satisfy the requirements as per detailed specifications. For each package, these programs shall detail the resources to be provided or utilized and any related subcontracting proposed. The NEA and AEPC, with the support of related implementing agencies, will be responsible for processing and implementing the subprojects. It will be assisted by technical staff/experts who will evaluate the technical reports, feasibility studies, preliminary design reports, environmental assessment reports (including the EMP with budget), resettlement and indigenous people's development plans, and detailed design reports to ensure compliance with ADB and government requirements. Summary appraisal reports will be submitted to ADB subsequent to EAs' approval and the required Nepal government clearances. The NEA and AEPC will prepare progress reports and submit them to ADB on a quarterly basis and will submit other required performance and monitoring reports twice a year.

71. **Involuntary Resettlement Monitoring**. The implementation of the combined resettlement and indigenous peoples plan for the transmission and distribution component will be monitored internally by the NEA and externally by qualified and experienced external experts, who will undertake the overall monitoring of the safeguards and relevant social issues and submit semiannual monitoring reports to NEA for submission to ADB. The external experts will advise on safeguard compliance issues, and if any significant involuntary resettlement issues are identified, a corrective action plan will be prepared.

72. For the off grid component, the AEPC will monitor the resettlement and indigenous people plan implementation and submit semiannual report to ADB. Social safeguards shall be achieved in line with the provisions stated in the resettlement framework and the indigenous peoples planning framework.

73. Compliance with safeguard requirements will include the need to ensure that project contractors and sub-contractors adhere to ADB safeguard policy requirements, particularly with respect to compliance with core labor standards, occupational health and safety, and acceptable and fair working standards and conditions, in line with host country requirements. To avoid the risk of spreading preventable transmissible illnesses and diseases like HIV/AIDs as a result of an influx of workers into the project area during construction works, NEA and AEPC and its implementation partners will be expected to inform and educate project workers about the risks of HIV/AIDs, how it is spread and how it can be prevented.

74. **Gender and Social Dimensions Monitoring**. GESI Plan implementation will be monitored regularly and adjusted to reflect field observations and generally improve results oriented performance. Parameters and targets for monitoring GESI activities will be set out in a relevant Linked Document to RRP. Data will be monitored, collated and analyzed to provide an indication of change in the life of beneficiaries, which in turn will be important for recording the outputs and performance of the project. The analysis will provide the basis for management review and decisions regarding gender and social development aspects. The results of GESI monitoring will be reported to ADB by AEPC and NEA with quarterly project progress reports. The AEPC with its evaluation and monitoring consultant will be responsible for preparing the monitoring reports, which in turn should be closely monitored along with the project implementation targets and activities.

C. Evaluation

75. Within 6 months of physical completion of the project, the NEA and AEPC will submit a project completion report to ADB.[43]

Table: Evaluation Methodology

Evaluation Activity	Purpose	Methodology	Who responsible and involved
Review mission	Review the progress of the project and provide guidance to facilitate implementation	Site visit and meetings with EAs officials, contractors, consultants at least twice a year	ADB/NEA/AEPC
Mid Term review	Comprehensive review of project	Site visit and meetings with EAs officials, contractors, consultants	ADB/NEA/AEPC
Project Completion Report	Evaluate the overall output of the project and its relevance and suitability	Site visit and meetings with EAs officials, contractors, consultants	ADB/NEA/AEPC

ADB = Asian Development Bank, AEPC = Alternative Energy Promotion Centre, NEA = Nepal Electricity Authority.

D. Reporting

76. The NEA and AEPC will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 6 months of physical completion of the project. To ensure the project continue to be both viable and sustainable, and the AFSs, together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

77. The Stakeholder Communications Strategy is presented in the following table. The NEA and AEPC will each have a dedicated webpage for the project. The project webpage will include at a minimum the following information: (a) bidding procedures, bidders, and contract awards; (b) use of the funds disbursed under the project; and (c) physical progress.

Table: Stakeholder Communication Strategy

Project information to be communicated	Means of communication	Responsible for Communication	Audience	Frequency
Report and Recommendation to the President with web-linked documents	ADB website	ADB	ADB, Government of Nepal, Development Partners, NGOs, Civil Society, private sector, individuals	Once
IEEs for subsequent subprojects	ADB website	ADB	ADB, Government of Nepal, Development Partners, NGOs, Civil Society, private sector, individuals	Once
Project information while planning/ designing	Discussions and stakeholders consultation	NEA/AEPC	Project beneficiaries including protected area managers/sponsors	Regular intervals during planning and

[43] Project completion report format available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

				design
Status of implementation during construction	Boards on project construction sites	NEA/AEPC/ Contractors	Project beneficiaries including protected area managers/sponsors	All the time at construction sites
Project Performance Reports and Project Information Document	ADB website	ADB	ADB, Government of Nepal, Development Partners, NGOs, Civil Society, private sector, individuals	Quarterly
Quarterly progress reports	NEA/AEPC website	NEA/AEPC	ADB, Government of Nepal, Development Partners, NGOs, Civil Society, private sector, individuals	Quarterly
Project Completion Report	ADB website	ADB	ADB, Government of Nepal, Development Partners, NGOs, Civil Society, private sector, individuals	once

ADB = Asian Development Bank, AEPC = Alternative Energy Promotion Centre, NEA = Nepal Electricity Authority, NGO = non-government organization.

X. ANTICORRUPTION POLICY

78. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.[44] All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.[45]

79. To support these efforts, relevant provisions are included in the loan and grant agreement/regulations and the bidding documents for the project.

80. The project incorporates several specific anticorruption measures, including (i) strict financial management with full adherence to monitoring and reporting systems; (ii) strict compliance with local laws and procurement regulations/guidelines published by Department of Public Finance; (iii) the financial audit by the Auditor General's Office of all subprojects; and (iv) random and independent spot checks of implementation by ADB. Furthermore, the NEA and AEPC will each maintain a project website that will be updated regularly and will include (i) bidding procedures, bidders, and contract awards; (ii) use of the funds disbursed under the project; and (iii) physical progress.

XI. ACCOUNTABILITY MECHANISM

81. People who are, or may in the future be, adversely affected by the project may address complaints to ADB, or request the review of ADB's compliance under the Accountability Mechanism.[46]

XII. RECORD OF PAM CHANGES

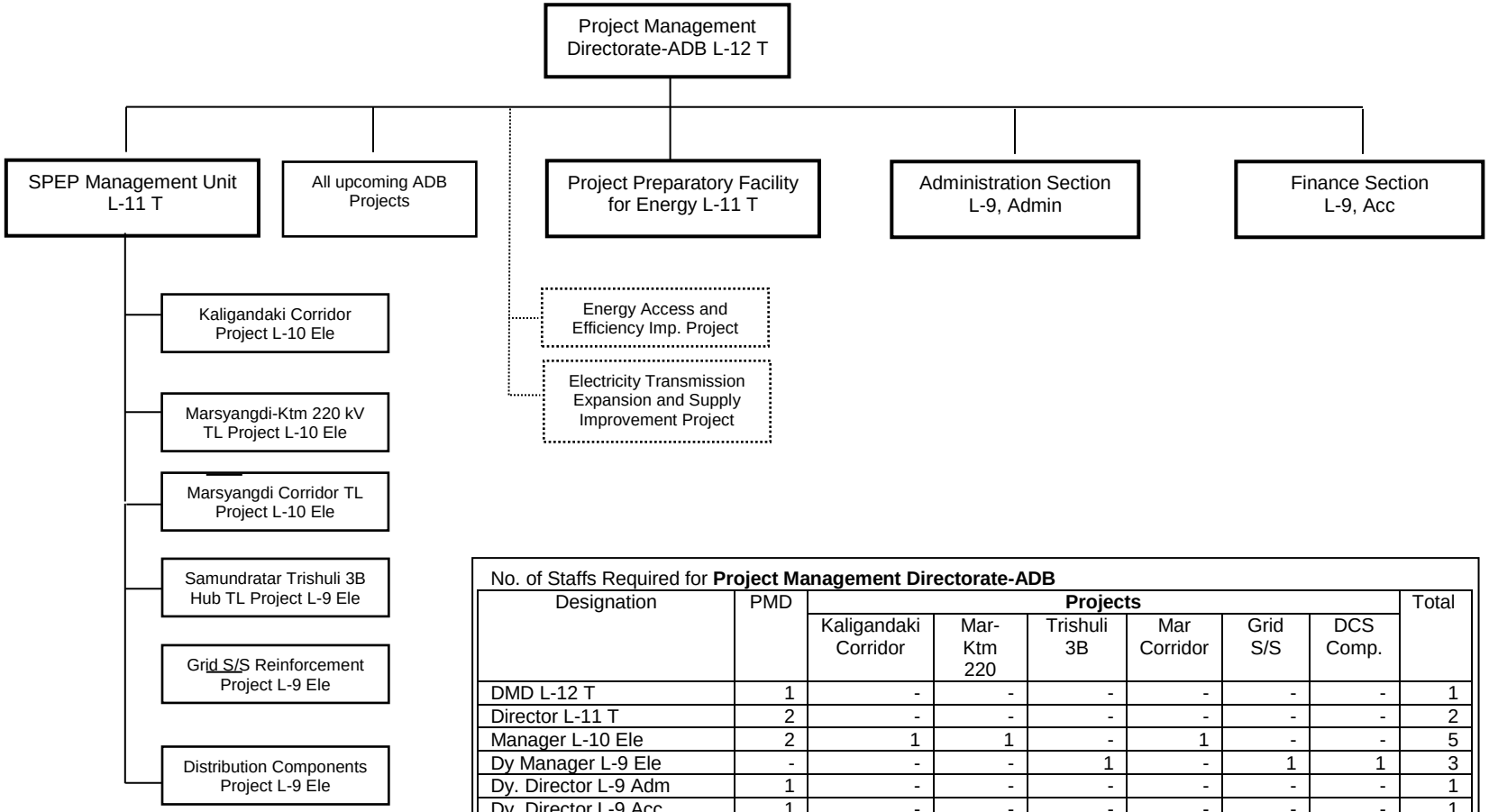
[44] Available at: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf
[45] ADB's Integrity Office web site is available at: http://www.adb.org/integrity/unit.asp
[46] For further information see: http://compliance.adb.org/.

APPENDICES:

1. Organization chart of PMD
2. Information on five (5) sample subprojects of the off-grid component
3. Selection criteria for subsequent sample subprojects of the off-grid component
4. Detailed implementation arrangement for the mini hydro subprojects
5. Development Procedure for mini-grid solar and solar/wind hybrid systems
6. Details of O&M for off-grid component
7. TOR for external auditor
8. Detailed technical information of the project
9. Draft procurement plan
10. TOR for project supervision consultant (PSC) for NEA
11. TOR for preparation of distribution system (rural electrification) master plan
12. TOR for project implementation consultants (PIC) for AEPC
13. TOR for Social Mobilizer
14. TOR for attached CDTA consultants

PROJECT MANAGEMENT DIRECTORATE-ADB
Organization Structure

Appendix- 1



Index:
DMD- Deputy Managing Director
T= Technical Services
Adm= Administration Group
Acc= Accounts Group
Ele= Electrical Group
For coordination

No. of Staffs Required for **Project Management Directorate-ADB**

Designation	PMD	Projects						Total
		Kaligandaki Corridor	Mar-Ktm 220	Trishuli 3B	Mar Corridor	Grid S/S	DCS Comp.	
DMD L-12 T	1	-	-	-	-	-	-	1
Director L-11 T	2	-	-	-	-	-	-	2
Manager L-10 Ele	2	1	1	-	1	-	-	5
Dy Manager L-9 Ele	-	-	-	1	-	1	1	3
Dy. Director L-9 Adm	1	-	-	-	-	-	-	1
Dy. Director L-9 Acc	1	-	-	-	-	-	-	1
Engineer L-7 Ele	2	2	2	1	2	1	2	12
Engineer L-7 Civil	-	1	1	1	1	-	1	5
Finance Officer L-7 Acc	1	1	1	-	1	-	1	5
Admin Officer L-7 Adm	-	1	1	-	1	-	-	3
Asst. Finance Officer L-6 Acc	1	-	-	1	-	1	-	3
Accountant/Store Keeper L-5	2	-	-	-	-	-	2	4
Senior Asst. Admin L-5	2	1	1	1	1	1	1	8
Supervisor Civil L-5	-	2	2	2	2	-	1	9
Supervisor Ele. L-5	-	2	2	2	2	2	4	14
Driver L-3 or 4	8	2	2	1	2	2	2	18

List of Sample Subprojects **Appendix2**

S.N.	Name of Project	Category	Size of Project (kW)	Beneficiaries (HHs)	Location				Accessibility Information	Estimated Cost (USD)
					Region	District	VDC/Ward No	Village Name		
1	Sani Veri Mini Micro Hydro Project	Mini hydro	300	1,386 HHs	Mid Western	Rukum	Taksera	Tak Gaon, Bacchi Gaon, Birgum, Tallo Sera, and Upallo Sera	35 km from nearest road head Musikot	1,260,000
2	Simurutu Mini Micro Hydro Project	Mini hydro	200	2,200HHs	Mid Western	Rukum	Rudha VDC-2	Rugha, Khara, Muru, and Bhalakcha	63 Kilometers East from Dang, Ghorai	870,000
3	Kyangshing Village Solar Mini Grid Sub Project	Solar mini-grid	12.6	51 HHs	Central	Sindhupalchowk	Gumba-8	Kyangshing	7 to 10 hours walk distance from road head, i.e. Kartike	154,070
4	Bhorleni Wind-solar hybrid sub project	Wind-solar hybrid mini-grid	35 kW (15 kW Wind +20 kW Solar)	120 HHs	Central	Makwanpur	Phaperbari	Bhorleni	Accessible during fair weather, 59 KM from district headquarter Hetauda	313,881
5	Chisapani Wind-solar hybrid sub project	Wind-solar hybrid mini-grid	20 kW (10 kW Wind +20 kW Solar)	66 HHs	Eastern	Sindhuli	Hariharur Gadhi	Chisapani		184,050

Appendix- 3

SUB-PROJECT SELECTION CRITERIA

The following criteria will guide the identification of potential sites for subprojects of Output 3 under the Project. The selection criteria draw on the guidelines and project selection criteria developed by AEPC for renewable energy projects.

Selection Criteria	Mini-micro Hydropower	Solar and Solar-Wind Hybrid Mini-Grid
Technical	Adequate flow in the river, adequate head at the site and stable terrain. The installed capacity of the plant is conventionally calculated on the basis of flow for 11 months. For these mini hydro plants this criteria should be relaxed to 6 months exceedance. The project design of the mini-grid shall be grid compatible.	No proven resource of micro hydro power resource nearby. Adequate solar and wind energy resources. Wind resource data to be measured at least for one-year (that includes all the seasons), at height 10 m or above the ground level. For hybrid project, the annual averaged wind power density should be more than 35 W/m2 at hub height, and solar irradiance should be more than 4 kWh/m2/day The project design of the mini-grid shall be grid compatible.
Economic	EIRR for the project shall not be less than 12%	EIRR for the project shall not be less than 12%
Environmental	Sub-projects that will not be supported by the Project include: (i) any projects assessed as category A; (ii) subprojects directly located on/in biologically sensitive or significant habitat (e.g. on a site with endangered flora or fauna); and (iii) subprojects in legally protected areas where the proposed development is not permitted under Government legislation.	
	Environmental mitigation measures should be included in the detailed feasibility study report.	Environmental mitigation measures should be included in the detailed feasibility study report. Particularly battery management process/guideline should be included in the mini-grid solar/wind package
Resettlement	Sub-projects shall not involve resettlement of local people, nor relocation of existing dwellings	Sub-projects shall not involve resettlement of local people, nor relocation of existing dwellings
Community Willingness & Contribution	The community should demand the system and contribute in cash or kind no less than 10% of the subproject cost in line with the Renewable Energy Subsidy Policy. The contribution in cash should to be deposited in the account jointly managed by AEPC and community prior to subproject approval by AEPC. Any acquired land for the subproject	The community should demand the system and contribute in cash or kind no less than 10% of the subproject cost. The contribution in cash of minimum 3% of project cost shall be deposited in the account managed by AEPC and the community prior to subproject approval by AEPC. Any acquired land for the subproject shall be contributed by the

	shall be contributed by the communities. The community should provide evidence of their contribution to the project to be considered for support under the project	communities. The community should provide evidence that the contribution from communities are assured to be considered for support from the project.
Productive Use of Electricity	The proposed scheme must include a feasible business plan. At least 20% of the installed capacity should be used for productive uses.	The proposed scheme must include a feasible business plan. At least 20% of the installed capacity should be used for productive uses
Multiple Use of Water	The targeted communities shall get water right clearance from concerned department and shall demonstrate that there is no issue of using water for power generation Multi-purpose projects that use water for irrigation and drinking water in addition to power generation should get high priority	Not applicable
Water Use and Land Use	There should be no conflict on the water and land use rights in the source stream/river. The community is solely responsible to resolve conflicts, if any, before implementation. The community has to provide evidence in writing from the concerned offices stating their rights for water and land use	There should be no conflict on land use rights for the project site. The management committee is solely responsible to resolve conflicts, if any, before implementation. The committee has to provide evidence in writing stating their right to use the land
Accessibility	The project will ensure that the project site will not be connected to the national grid in the next 5 years. The project site shall be accessible to at least fair roads within half day walking distance	The project will ensure that the project site will not be connected to the national grid in the next 5 years The project site shall be accessible to at least fair roads within half day walking distance
Gender and Social Inclusion	The targeted communities will preferably be composed of socially excluded groups of people and households headed by women, and shall commit to include them in every project related activity	The targeted communities will preferably be composed of socially excluded groups of people households headed by women, and shall commit to include them in every project related activity
Sustainability of Project Operations	The community/users group should have clear procedures for project management and Operation & Maintenance of the project The plant operators should be trained and capable to operate and maintain the power plant by the time the manufacturer hands over the power plant	The community/users group should have clear procedures for project management and Operation & Maintenance of the project The plant operators should be trained and capable to operate and maintain the power plant by the time the manufacturer hands over the power plant

Appendix- 4

Detailed Implementation Arrangement for the Mini Hydro Subprojects

1. Introduction

1. The off-grid component of South Asia Subregional Economic Cooperation Power System Expansion Project will install mini hydro plants in remote rural areas of Nepal and will supply power to households and local enterprises through a mini-grid. The component will fund subsidies for eligible projects and will leverage financing from various sources including funding mechanisms under the National Rural and Renewable Energy Program (NRREP), counterpart funds from the Government of Nepal (GON), equity from Users Committee (UC), and funds from Village and District Development Councils (VDCs & DDC) to finance the installations. Under the NRREP, a Central Renewable Energy Fund (CREF)[47] is being established to support renewable energy initiatives. The CREF is intended to be a revolving fund for the bulk of donor support for renewable energy.

2. This component will be implemented following the current practice of using the District Environment Energy and Climate Change (DEECC)[48] and the Regional Service Centres (RSCs)[49] to facilitate the development of projects. In accordance with government's rural renewable energy subsidy policies, government will provide around 60% of procurement cost as subsidy, and UC will provide around 10% of procurement cost as equity. For the balance, UC or developers need seek debts from commercial banks or other sources of funds.

3. Commercial banks in Nepal have an important role to play in making financing available for mini hydro subprojects. A few local financial institutions have been active in financing mini-micro hydro projects in the country and are well positioned to scale up their activities given their knowledge of the marketplace, the clientele for renewable energy systems, and understanding of the risks involved. The primary drawback faced by these financial institutions is the lack of liquidity in the financial markets in Nepal, which leads to banks being more active in profitable retail banking than increasing lending for developmental projects, which are generally perceived to be a high-risk portfolio. Making financing available to these financial institutions at attractive terms for the express purpose of increasing lending to development of mini hydro projects can greatly enhance lending to this sector and lead to the creation of a sustainable financing mechanism based on commercial principles.

4. The GON has also requested $11.2 million grant from the ADB Strategic Climate Fund (SCF). Within those, $7 million SCF grant will fund mini hydro subprojects under off-grid component as subsidy. The GON also requested $ 5 million loan from ADB's Special Funds resources (ADF) as credit to finally onlent to UC or developers to bridge the financing gap of mini hydro subprojects.

2. Matrix of Responsibilities

5. The Alternative Energy Promotion Centre (AEPC) is the executing agency for the off-grid component of the project. AEPC will provide $ 7 million from ADB SCF as subsidies to finance the mini hydro subprojects. The utilization of the subsidies will follow ADB project modality, thus, the procurement will follow ADB's procurement guidelines (2013, as mended from time to time),

[47] As outlined by the Rural Energy Policy 2006, the CREF is envisaged to be a vehicle to mobilize both grant and credit funds for renewable energy sector. The CREF is in the initial stage of incorporation and expected to be functional by end 2015.
[48] DEECC is the outreach arm of AEPC established in District Development Committees.
[49] NGO, cooperatives and private sector firms registered as legal entity in Nepal can apply as RSCs.

and disbursement of subsidy will follow ADB's Loan Disbursement Handbook (2012, as mended from time to time).

6. Meanwhile, AEPC will relent the $ 5 million ADF credit to the end users/developers for financing the same mini hydro subprojects, through financial institutions, i.e. Micro Hydro Debt Fund (MHDF) mechanism or CREF when it is functional.

7. The credit money will be channeled from a dedicated AEPC account to the accounts of the two participating financial institutions, i.e. Himalayan Bank Limited (HBL) and Clean Energy Development Bank Limited (CEDB), that will check repayment capacity of the UC or developer according to its internal procedures and provide a loan to the UC or developer.

8. Table 1 shows the assignment of key responsibilities in the project development, approval, financing and monitoring process.

Table 1: Summary of Key Responsibilities

Activity	Key responsibility	Technical assistance	Facilitation
Pre-project activities			
Identification and due diligence of sample subprojects	AEPC	PPTA consultants	DEECC/ RSCs
Establishment of selection criteria for subprojects and borrowers	AEPC	PPTA consultants	
Establishment of debt structure and lending terms	AEPC	PPTA consultants	
Selection of PFIs	AEPC	PPTA consultants	
Project implementation activities			
UC energy demand assessment and pre-feasibility study	DEECC, outreach of AEPC at district level		RSCs
Subproject DFS and PEU baseline preparation	TRC, led by AEPC, and participated by representative of UC and PBs,	National consultants to prepare DFS; review and approve by TRC with support of PIC	RSCs
UC or developer starts preparing PEU business plans and mobilizing funds for PEU	UC or developer	AEPC	RSCs
UC or developer mobilization	Equity by UC or developer		
Finance application	UC or developer		RSCs
Subprojects including PEU business plan approval	AEPC		
Subproject financial appraisal	PBs	AEPC	
Subprojects procurement	TRC, led by AEPC, and participated by representative of UC and PBs	PIC	
Subprojects construction and subsidy disbursement	AEPC	PIC	RSCs
Loan disbursements	PBs and AEPC	PIC	
Subprojects O&M and monitoring activities			
Loan repayment	UC or developer		RSCs
Maintenance	UC or developer	Turnkey contractors	RSCs
Performance monitoring	AEPC	PIC	RSCs

AEPC- Alternative Energy Promotion Centre, DEECC- District Environment Energy and Climate Change, DFS- detailed feasibility study, PEU- productive energy use, PB- participating bank, PIC- project implementation consultants, RSC- Regional Service Centre, TRC- Technical Review Committee, UC- user community
Source: Asian Development Bank and Alternative Energy Promotion Centre.

3. Selection criteria for subprojects

9. During project processing, two sample subprojects, i.e. Sani Veri Mini Hydro (300kW) and Sumirutu Mini Hydro (200kW) were identified and due diligences on the two sample subprojects were conducted. Based on the findings on the due diligences, and in accordance with government's current rural renewable energy policies, AEPC and PPTA consultants jointly developed the selection criteria for mini hydro subprojects as in Table 2.

Table 2: Selection Criteria for Mini Hydro Subprojects

Selection Criteria	Mini-micro Hydropower
Technical	• Adequate flow in the river, adequate head at the site and stable terrain. • The installed capacity of the plant is conventionally calculated on the basis of flow for 11 months. For these mini hydro plants this criteria should be relaxed to 6 months exceedance. • The project design of the mini-grid shall be grid compatible.
Economic	• EIRR for the project shall not be less than 12%
Environmental	• Sub-projects that will not be supported if: (i) any projects assessed as category A; (ii) subprojects directly located on/in biologically sensitive or significant habitat (e.g. on a site with endangered flora or fauna); and (iii) subprojects in legally protected areas where the proposed development is not permitted under Government legislation. • Environmental mitigation measures should be included in the detailed feasibility study report.
Resettlement	• Sub-projects shall not involve resettlement of local people, nor relocation of existing dwellings
Community Willingness & Contribution	• The community should demand the system and contribute in cash or kind no less than 10% of the subproject cost in line with the Renewable Energy Subsidy Policy. The contribution in cash should to be deposited in the account jointly managed by AEPC and community prior to subproject approval by AEPC. • Any acquired land for the subproject shall be contributed by the communities. • The community should provide evidence of their contribution to the project to be considered for support under the project
Productive Use of Electricity	• The proposed scheme must include a feasible business plan. • At least 20% of the installed capacity should be used for productive uses.
Multiple Use of Water	• The targeted communities shall get water right clearance from concerned department and shall demonstrate that there is no issue of using water for power generation • Multi-purpose projects that use water for irrigation and drinking water in addition to power generation should get high priority
Water Use and Land Use	• There should be no conflict on the water and land use rights in the source stream/river. The community is solely responsible to resolve conflicts, if any, before implementation. The community has to provide evidence in writing from the concerned offices stating their rights for water and land use
Accessibility	• The project will ensure that the project site will not be connected to the national grid in the next 5 years. • The project site shall be accessible to at least fair roads within half day walking distance
Gender and Social Inclusion	• The targeted communities will preferably be composed of socially excluded groups of people and households headed by women shall commit to include them in every project related activity
Sustainability of Subproject Operations	• The community/users group should have clear procedures for project management and Operation & Maintenance of the project • The plant operators should be trained and capable to operate and maintain the power plant by the time the manufacturer hands over the power plant

4. Identification of Participating Banks

10. The ongoing MHDF mechanism has been assessed. The MHDF was established with support from the German Development Bank (GIZ) to assist rural communities raise the necessary financing needed to become eligible to obtain the GON subsidy for development of mini micro hydro projects. GIZ provided grant financing of €500,000, and €42,000 towards Technical Assistance, with additional grant of €650,000 and €50,000 as TA as per the second agreement. AEPC selected two commercial banks, i.e. HBL and CEDB through a competitive bidding process to operate the MHDF. The objective of MHDF is (i) to make financing available to rural communities to install mini-micro hydropower plants; and (ii) to help commercial banks gain experience in financing energy projects in rural areas which would hopefully lead to additional bank financing and a sustainable financing mechanism. The MHDF has been functional since November 2010, and HBL and CEDB have approved $ 0.7 million to fund mini-micro hydro plants of 1.5 MW in total. As of now, the performance of MHDF is satisfactory.

11. Based on experience of MHDF, the following will be the guidelines for the debt structure, which will be reviewed and agreed between the AEPC, PBs and borrowers, and included in the related project documents:

(i) Debt limit of individual subprojects: up to 40% of the project cost;
(ii) Grace period to borrower: two year;
(iii) Repayment period by borrower: up to seven years;
(iv) Repayment period by PB to AEPC: one year more than the repayment period by the borrower;
(v) Proposed interest rates: AEPC to PB at 4% per year (fixed); and PB to borrower at maximum 12% per year (fixed);
(vi) Loan disbursements: AEPC to PB and PB to borrowers as per agreed subproject progress milestones, which will harmonize with subsidy disbursements.

12. Preliminary due diligence has been undertaken to confirm the suitability of the 2 PBs - HBL and CEBD. Both banks are public limited liability companies under Nepal's Company Act, 2063. CEDB is licensed by Nepal Rastra Bank (NRB) as a development bank (class "B", one of 86 banks in Nepal) under the Bank and Financial Institution Act, 2063. HBL, a joint venture with Habib Bank Limited, Pakistan, is licensed by NRB as a commercial bank (class 'A', one of 31 banks in Nepal). HBL is listed in Nepal Stock Exchange Limited.

13. CEDB identifies "investing in clean energy sector to strengthen the economy of the nation" as one its strategic objective and "mobilization and provision of mid-term and long-term capital as may be required for the establishment, operation, protection and promotion of hydro-power, renewable energy and other infrastructures and business related therewith, by the private sector". It is noted that 15% of all loan disbursed by CEBD have been invested in hydroelectric projects.

14. HBL is primarily a retail bank, and has a vision to become a "leading bank of the country by providing premium products and services to the customers, thus ensuring attractive and substantial returns to the stakeholders of the Bank".

15. It has been confirmed that, as licensed financial institution regulated by Nepal Rastra Bank, both banks are required to adhere to directives issued by Nepal Rastra Bank, including exposure limits and disclosure requirements It is noted that the boards of directors of each bank are responsible for establishing and maintaining adequate levels of capital, and that the Nepal Rastra Bank generally expects banks to operate above the limits prescribed in its directives and capital adequacy frameworks. Both banks have confirmed that they have full autonomy to make lending and pricing decisions, so long as those decisions comply with Nepal Rastra Bank circulars and are published in a national daily newspaper. Both banks have been consistently profitable in recent years. Table 3 summarizes the banks' financial position and key capital adequacy ratios.

Table 3: Selected Indicators for PBs

Item	Minimum Prescribed by NRB	CEDB[1/]	HBL[2/]
Total Assets (NPR m)		10,666	61,152
Total Deposits (NPR m)		8,480	53,072
Total Core (Tier 1) Capital to Risk Weighted Exposures	6%	(not reported)	9.79%
Total Capital to Risk Weighted Exposures	11%	21.67%	11.91%
Non-Performing Loans to Total Loans		2.50%	2.65%

1/ As at 14 January 2014
2/ As at 17 October 2013
CEDB – Clean Energy Development Bank Limited, HBL - Himalayan Bank Limited, NRB – Nepal Rastra Bank, PFI – participating financial institution
Source: Himalayan Bank. 2013. *21st Annual Report 2013.* Available: *http://www.himalayanbank.com/contents/contents.php?PageID=annual_reports;* Clean Energy Development Bank. *2014. Unaudited Financial Result (Quarterly).* Available: http://www.cedbl.com/Financials.html

16. Both banks are not included in the ADB's Anticorruption Sanction List (updated on 21 April 2014).

17. If needed, other participating banks may be selected by AEPC in accordance with criteria as follows:

- Banks must be operating under appropriate licenses or any other legal approval for carrying out such business under the rules of the Nepal Rashtra Bank
- Banks must meet the mandatory pre-qualification requirements such as Total Assets of at least NPR 10 Billion as per the unconsolidated Audited Annual Accounts for the last two financial years
- Net Collection Efficiency on project lending, as certified by the Auditor, to exceed 90%
- Banks must have an existing portfolio of mini-micro hydro projects
- Banks must be willing to commit additional bank funds for mini micro hydro projects
- Banks must meet the same financial assessment, financial management assessment, and integrity due diligence requirements described in paragraphs 12-16.

5. Development Procedure

18. The development procedure is in Attachment 1.

MINI HYDRO DEVELOPMENT PROCEDURE

Attachment 1

DDC/VDC Level Demand Assessment by AEPC/RSCs

- Community level energy demand assessment (i.e. households, community services and PEU demands)
- UC interest in equity contribution assessment
- Pre-feasibility study to design project size to meet demands of households, community services and productive energy use.

Subproject Detailed Feasibility Study (DFS) and PEU baseline preparation

- RSCs make demand of required social mobilizers to AEPC
- Engagement of DFS preparation consultants by AEPC
- Engagement of social mobilizers to support DFS consultants and PEU baseline preparation.
- Submission of DFS report including PEU baseline by consultants
- Establishment of Technical Review Committee (TRC) in AEPC, participated by representatives from PFIs who will onlend ADF loan as credit to UC or (or private entrepreneur)
- DFS approved by TRC
- UC and AEPC to share cost of DFS

Community Mobilization & Sub project approval

- Provisional approval of subproject which meets selection criteria and UC creating a CEF
- Community organization formed and mobilized by social mobilizers.
- CEF established with UC and AEPC as co-signatories
- Local economic development (LED) committee established to promote PEU.
- AEPC approval of bank ac/ and financial audit controls
- UC starts collecting funds as community contribution. (Sources of contribution: equity, debt from ADF loan etc)
- CEF jointly managed by AEPC and the UC.
- UC (or private entrepreneur) start preparing PEU business plans with supports from RSC and starts mobilizing funds for PEU
- UC (or private entrepreneur) submit finance application to PFIs, and PFIs conduct preliminary appraisal
- UC (or private entrepreneur) deposited at least 3% of procurement cost in CEF
- Subproject approval including the business plans for PEU promotion by AEPC

Subproject Procurement

- Bidding documents preparation by AEPC with support of PIC
- *ADB approval of bidding documents for the sample subproject (Based on satisfactory performance of AEPC, bidding documents for subsequent subprojects will be post-facto approved by ADB)*
- AEPC Technical Review Committee for sample subproject bid evaluation (AEPC/PIU, UC, PFIs) with support of PIC, and submission to ADB for concurrence *(Based on satisfactory performance of AEPC, bid evaluation report for subsequent subprojects will be post-facto approved by ADB)*
- *Turnkey Contractor Selected*
  - *Contract Agreement signed between turnkey Contractor and AEPC*
  - *Financial close. Loan Agreement signed between PFIs and UC or (or private entrepreneur)*

Subproject Construction & Commissioning

- AEPC/RSC manage turnkey contractor
- Negotiating tariff within communities for PEU services with supports from RSC.
- Supports for PEU is made available to entrepreneurs through LED committee
- Independent verification of project construction based on approved criteria (primarily for E&M and civil structure)
- *For ADB administered fund, disbursement per provisions of bidding documents, in compliance with ADB Loan Disbursement Handbook.*
- *For credit onlent by commercial banks, disbursement per provision of loan agreements between commercial banks and UC or (or private entrepreneur), in line with schedule of disbursement of ADB administered fund*
- Completion certificate issued by AEPC after commissioning

Management and O&M of Power System

- Turnkey contractor for training UC *(or private entrepreneur)* on O&M
- AEPC/RSC support training of UC *(or private entrepreneur)* for plant Management
- Plant O&M contract for large projects (>100 kW)
- AEPC/UC/*private entrepreneur* approval of O&M contract
- UC *(or private entrepreneur)* hires manager to collect tariffs
- Operator to operate the plant
- UC *(or private entrepreneur)* gradually payback equity of AEPC through tariff collection
- UC*(or private entrepreneur)* fully owned the plant

CEF-Community Energy Fund; DDC-District Development Committee; DFS-Detailed Feasibility Study; LED- Local Economic Development; PEU- Productive Energy Use; PFI- Participating Financial Institution; PIC-Project Implementation Consultant; PIU-Project Implementation Unit; RSC-Regional Service Centre; UC-User Community

Appendix-5

SOLAR AND SOLAR- WIND HYBRID MINI-GRID DEVELOPMENT

DDC/VDC Level Demand Assessment by AEPC/RSC

- Community level energy demand assessment (i.e. households, community services and PEU demands)
- UC interest in equity contribution
- Awareness creation of new program publicizing need to get UC applications submitted by a specific due date with UC commitments to create CEF, as applicable
- Pre-feasibility study to design project size to meet demands of households, community services and productive energy use.

Subproject Detailed Feasibility Study (DFS) and PEU baseline preparation

- RSCs will make a demand of required social mobilizers to AEPC
- Engagement of DFS preparation consultants by AEPC
- Engagement of social mobilizers to support DFS consultants and PEU baseline preparation.
- Submission of DFS report including PEU baseline by consultants
- Establishment of Technical Review Committee in AEPC
- DFS approved by AEPC
- UC and AEPC to share cost of DFS

Community Mobilization and sub project approval

- Provisional approval of subproject subject to meeting selection criteria and UC creating a CEF
- Community organization formed and mobilized by social mobilizers.
- CEF established with UC and AEPC as co-signatories
- Local economic development (LED) committee established to promote PEU.
- AEPC approval of bank ac/ and financial audit controls
- UC starts collecting funds to cover the cost of mini-grid system as community contribution. (Sources of contribution: equity, debt from ADF loan etc)
- CEF jointly managed by AEPC and the communities.
- UC (or private entrepreneur) start preparing business plans with supports from RSC and starts mobilizing funds for PEU
- UC deposited at least 5% of procurement in CEF
- Subproject approval including the business plans for PEU promotion.

Subproject Procurement by Bundling and Batches

- Applications of approved subprojects from multiple UCs bundled
- Bidding documents preparation for turnkey package (design, supply and install) for sample subprojects (3 villages) by AEPC
- ADB approval of bidding documents for the sample subprojects *(the ADB's standard bidding documents for plant (turnkey) are applied to set a template for subsequent subpojects (one turnkey package through ICB)*
- Bidding documents for sample subprojects issuance and contractors submission of bids
- Review Committee for bid evaluation
- ADB approval for bid evaluation reports (technical and financial) for the sample subprojects [(The approved bid evaluation report *sets a template for subsequent subpojects (one turnkey package through ICB)*)
- Contract agreement singed between AEPC and Turnkey contractors

Subproject Construction & Commissioning

- AEPC/RSC manage turnkey contractors
- Negotiating tariff within communities for PEU services with supports from RSC.
- Supports for PEU is made available to entrepreneurs through LED committee
- Disbursement per provisions of bidding documents, in compliance with ADB Loan Disbursement Handbook.
- Completion certificate issued by AEPC after commissioning

Management and O&M of Power System

- Turnkey contractor support training of UC for plant Management and O&M
- UC management contract to private firm to provide O&M
- UC to O&M the plant and collect tariffs

CEF-Community Energy Fund; DDC-District Development Committee; DFS-Detailed Feasibility Study; LED- Local Economic Development; PEU- Productive Energy Use; PIC-Project Implementation Consultant; PIU-Project Implementation Unit; RSC-Regional Service Centre; UC-User Community

Appendix 6

Operations and Maintenance of Sub-Projects of Off-grid Component

1. Long term operations and maintenance (O&M) is one of the major issues for sustainable operation of any infrastructure project. Therefore O&M have to be planned carefully and shall be integrated into the project activities from very beginning of the project.

2. The Off-grid component will install mini-micro hydropower (MMH), and solar and/or wind hybrid (SWM) energy systems in remote rural areas of Nepal and will supply power to households and local enterprises through mini-grid. An important issue in the reliable, safe and sustainable operations of the sub-projects is putting in place a good O&M system that is effective, economical and appropriate for rural and remote project sites.

3. **Challenges of O&M in RE in rural communities**. The project will leverage financing from various sources including funding mechanisms under the National Rural and Renewable Energy Program (NRREEP), applicable Government of Nepal (GoN) subsidies, equity from Users Committee (UC), and funds from Village and District Development Councils (VDCs & DDC) to finance the installation of RE-based mini-grid systems in remote rural areas of Nepal.

4. O&M of the installed generation projects and the associated mini-grid systems is essential to the viability of the project and to the sustainability and replicability of the implementation mechanisms. Many small RE systems in Nepal, especially mini-micro hydropower projects, have suffered from poor O&M rendering the projects in-operational or operational at low capacity which does not serve the needs of communities and fails to meet the objectives of the rural electrification plans which are funded by several donor countries. This situation needs to be effectively addressed to ensure that the project objectives are met and the program leads to the scaling up of small-scale RE systems in Nepal. Some of the key issues in O&M likely to be faced by sub-projects planned under the project are noted below.

- Rural Nepal has little experience with O&M of mini hydropower plants (100-1,000 kW capacity). The O&M of solar PV and wind energy systems may likely prove even more challenging given that present experience is primarily with Solar home systems and few mini-grid systems and there limited experience with large capacity solar panels, wind energy systems, and battery backup systems, and the related controls.
- The UC and DDC/VDC in remote rural areas have little expertise or capacity to maintain RE generations. The practice in stand-alone rural electricity projects has been to train local persons and SMEs to provide basic and some routine plant operations and maintenance support while depending on equipment suppliers and installers to provide services for addressing larger maintenance issues and system failures. For the project, the UC and local communities may be at an even greater disadvantage since these subprojects will likely be larger in size than many existing projects.
- The project is also likely to have more extensive mini-gird serving customers over a wider service territory. Thus in addition to O&M of the generation plant, the system will need O&M for the mini-grid system, which will include transformers and substation switchgear and protection systems. Local communities and SMEs are unlikely to have the expertise or capacity to operate and maintain an extensive mini-grid system.

- The remoteness of many subproject sites and the relative small size of the subprojects will make it difficult and expensive to obtain the services of experienced O&M providers and firms who are generally based in urban areas. In such case, the equipment supplier can be the most preferred option to deliver O&M services, however it is less likely that the suppliers will be willing to provide O&M service and make their presence permanently at the site.
- The O&M needs of RE systems and mini-grids to be installed under the project will likely entail higher tariffs from customers.

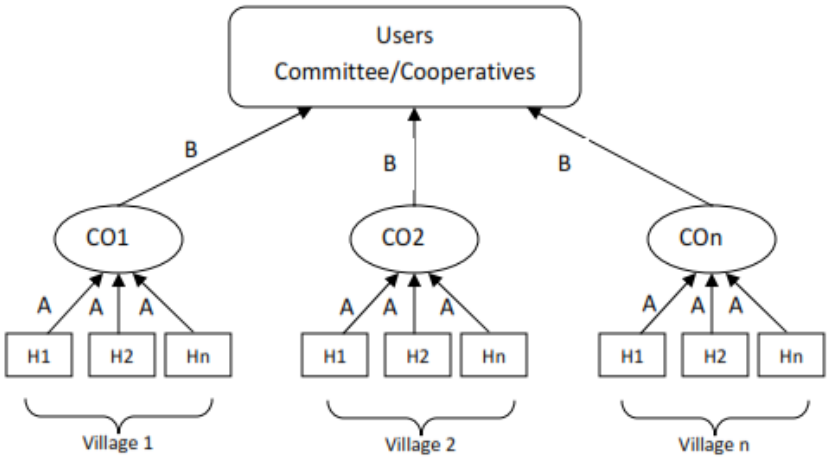
5. The project will leverage the investment need to install MMH and SWM subprojects that will supply power to local mini-grids. Responsible and sustainable O&M of the generation, transmission and distribution systems is essential to the success of the project, and to rural households who have contributed equity to the project.

6. The GoN has a vision to extend the national electricity grid to all regions of the country and provide safe and affordable energy to poor rural areas. Well designed and maintained mini-grid systems can be integrated into the national electricity grid at a later time when it becomes economical to extend the national grid.

7. **Recommendations**. O&M have to be planned carefully integrated into the project activities and the role must be clearly defined in the UC from very beginning of the project. Therefore the first step to integrate O&M issues will be to form UC in which ensures presence of separate body to address issues of O&M in long run.

8. As far as possible, the project will make efforts to build on existing community structure rather than creating new one to implement, operate and manage the MMH and SWM subprojects. In rural Nepal, there is widespread presence of community organization such as community forest user groups, women groups, youth club, cooperative registered in different government agency. Given the smaller size and area of operation of existing community structure, the project will try to consolidate all existing community organization (CO) within project areas and engage them in one organization through social mobilization activities. The preference options for engaging them into one organization is by establishing cooperative as:

- Cooperative is also kind of business form which is best known and understood by the rural population;
- The reporting requirement of cooperative for district cooperative office make them more responsible to manage the financial and accounting system in proper way;
- The taxation and VAT regime in Nepal is more favourable for cooperatives than for companies; and
- Cooperative offer equity due to provision of “one man one vote” unlike “one share one vote”.

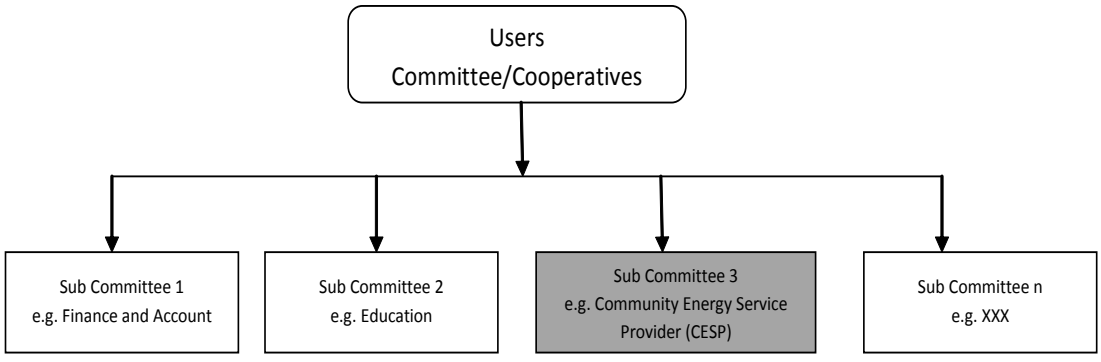


A= Households being member of certain CO like community forest users group, women group, youth club.

B= Members of CO joins cooperative by paying certain entry fees.

9. The cooperative will later serve as UC who will be primarily responsible to execute the project at local level on behalf of the communities. However, in case of smaller system which benefits small number of households (i.e. less than 50 households) thereby not making feasible to establish new cooperative, other types of community users group having legal identity can be also formed.

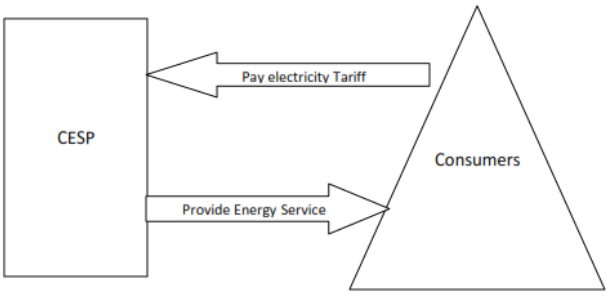
10. For effectively addressing the issues of O&M in long run, the UC shall establish separate "Community Energy Service Provider (CESP)" subcommittee along with other sub committees like saving and credit, agriculture and livestock, education as per requirement. The tariff structure that generates sufficient cash flow to ensure its own sustainability must be well disseminated among the community members. The question of ownership and distribution of responsibilities on operation and maintenance shall be answered in very specific way avoiding collective ownership as far as possible.



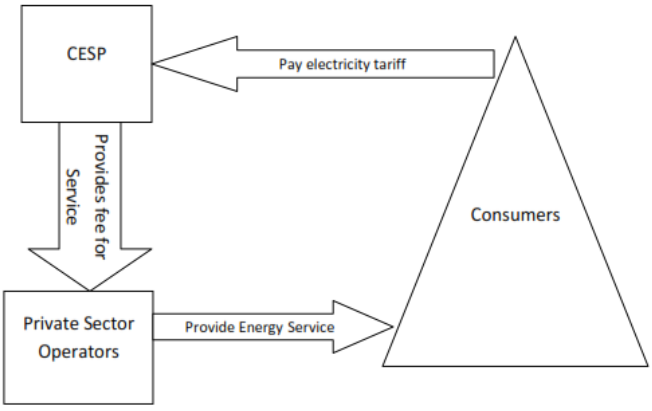
11. As preferred option, the CESP subcommittee may also award sub contract to private sector operator for O&M of the MMH and SWM projects. In a case that CESP does not find any suitable private sector operators for O&M of their energy system, the CESP shall be ready to take responsibility for O&M of the energy system by itself. For this reason, it is necessary to have CESP formed in the very beginning of the project and dedicated technical and management staffs shall be engaged.

12. The technical staffs will work closely with equipment suppliers during installation phase, capacitate themselves through various capacity building activities provided by the project and provide technical backstopping to the project during operation phase. Likewise, the managerial staffs will mainly be responsible for overall project management in community level along with mobilizing community funds to ensure the community contribution are ensured before start of procurement works.

13. The CESP shall have separate bank account during operation phase under joint signatory of chairman of the UC (cooperative) and assigned CESP subcommittee members. All revenues from tariff collection and by providing energy service shall be deposited in this account and shall be spend only on energy based intervention such as purchase of spare parts, maintain the energy system, providing credit to promote productive use of energy.



CESP providing energy service to the consumers



CESP providing energy service via private sector operators

14. Other ways to address the issues related with long term O&M under RERE includes:

- The international contractor should set up after-sales office located in Katmandu equipped with competent staff from equipment supplier during warrantee period, to provide technical services on O&M. During warrantee period, all the contractors (international/national, including equipment suppliers) should provide training to UC, RCS and other relevant stakeholders in the O&M of subprojects. These should be the conditions in the bidding documents.

- The proposed implementation mechanism essentially mirrors the present practice where the Rural Service Centers (RSC's) working with the DDC, VDC and UC are central to identification, development, implementation and O&M of the subprojects. The RSCs are thus central to the project and their capacity should be strengthened to institutionalize an option to address O&M issues of subprojects in long run. AEPC can contract short-term experts to support RSCs.
- The project includes a capacity development component, which will provide capacity building to relevant stakeholders to assist in implementation. This capacity development component will seek to strengthen the capacity of UC, DDCs, VDC, and RSCs to undertake O&M of subprojects.
- The project bidding documents could integrate provision of O&M for larger systems that cannot easily be operated and maintained by rural communities. Provision to provide onsite supports for few years (2-3 years) can be made to ensure smooth transfer of knowledge and skills from suppliers to hosting communities.
- The private sector must be encouraged to play a bigger role in investing, implementing and operating RE mini-grid systems if investment in RE is to be scaled up and replicated. Some large MMH and SWM projects could be better operated through management contracts, where private firms bid on operating and maintaining the system for a fee. The challenge will be in making it attractive for capable firms to bid for management contracts in remote rural areas due to thin markets, and in convincing the UC to collect higher tariffs. However, given that the willingness to pay of users in the sub-project sites is higher than the likely tariff for the RE system, the possibility of introducing management contracts should be explored.
- The presence of reliable firms that can assume responsibility for O&M and spare parts is essential, and it may be best to rely on functioning networks of local companies.
- The role of local financial intermediaries (LFIs) to finance the working capital needs of MMH and SWM projects should be explored. The tariff will then have to cover the additional cost to serve the working capital debt. Capacity building for LFIs can be provided through the capacity development component.
- The National Association of Community Electricity Users in Nepal (NACEUN), established in 2006 to support, train and facilitate community groups interested in power distribution, currently represents 187 member community-based organizations (CBOs) in 42 districts and has facilitated the electrification of some 180,000 households. This association could play an important role in supporting O&M of RERE projects.

15. O&M services flow chart are shown in Figures 1 and 2.

Figure 1. O&M Options for MMH Subprojects

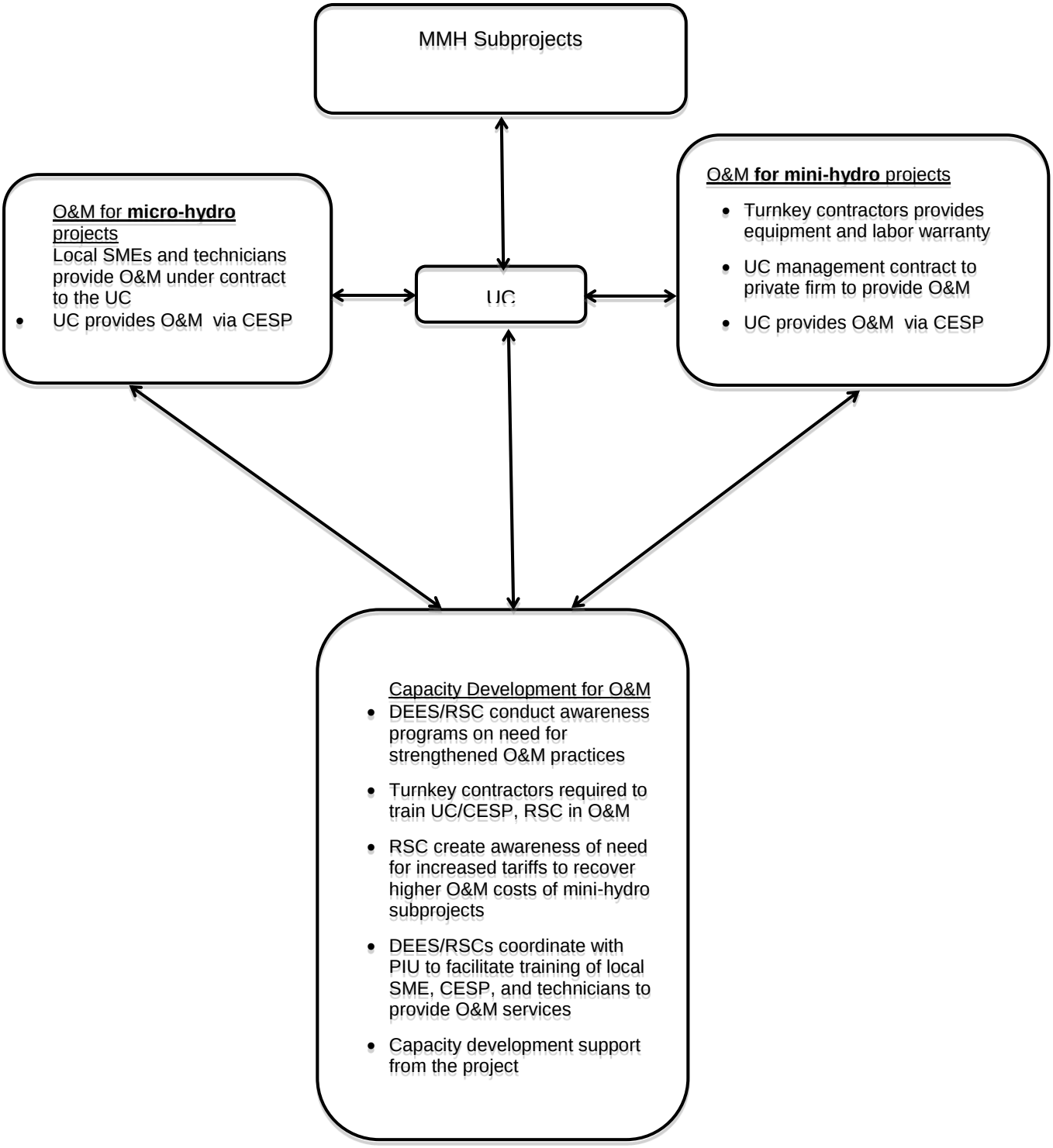
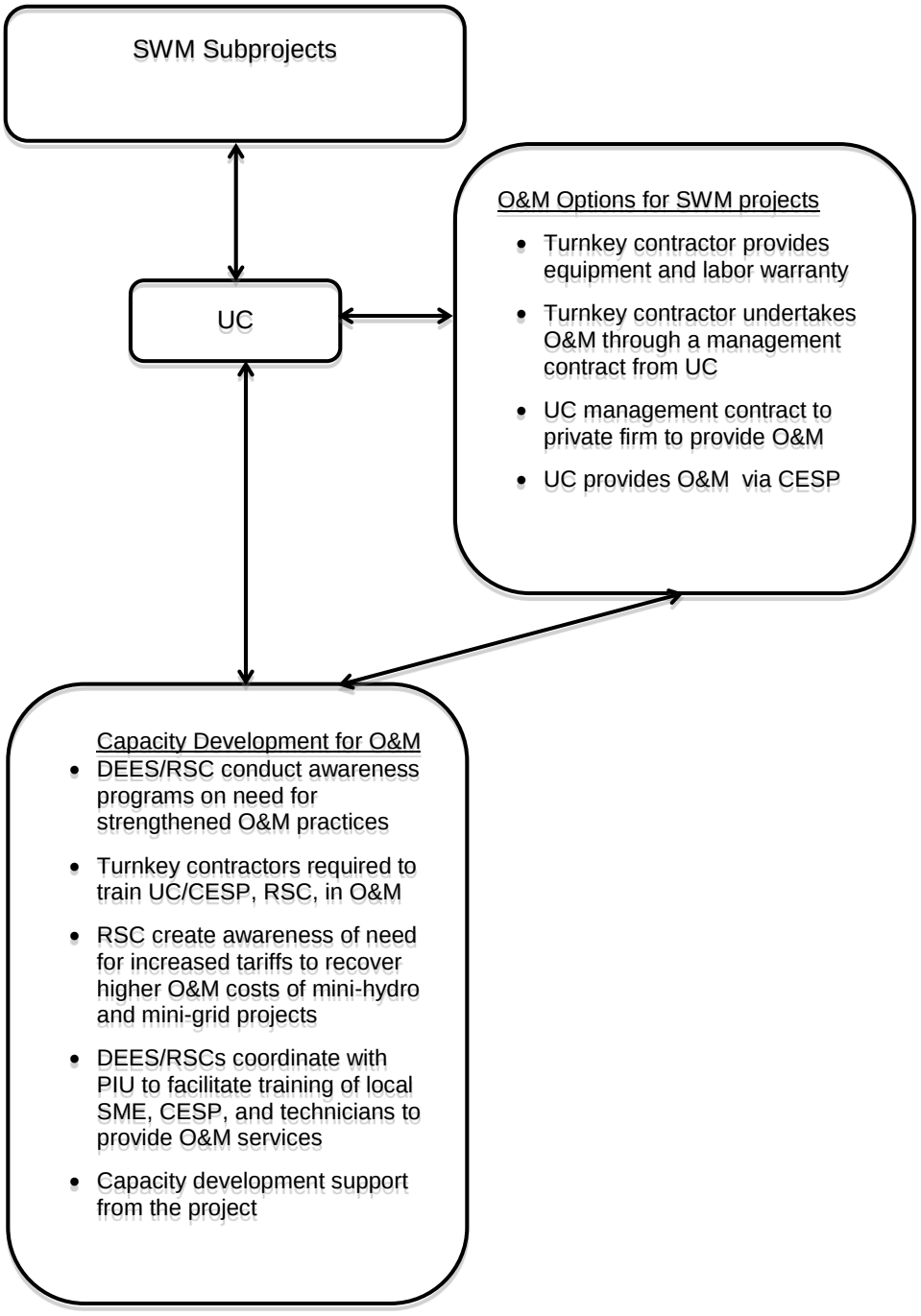


Figure 2. O&M Options for SWM Subprojects under RERE



Appendix- 7

Terms of Reference (TOR) and Request for Proposal for
Financial Audit Consulting Services (Auditor)
Audit of Annual Project Financial Statements (APFS)

A. INTRODUCTION

1. The management of Alternate Energy Promotion Centre (AEPC) is looking to appoint an auditor to carry out an audit of *the financial statements of its Project 'Rural Electrification Through Renewable Energy' funded by the Asian Development Bank (ADB) for the period 28 February 2014 to 31 July 2019. The Project forms part of the National Rural and Renewable energy Program (NRREP).*

2. The appointed auditor shall be engaged for a period of 6 years.

3. The AEPC has a budget of [insert $ amount] for the audit of its financial statements.

4. The auditor must be authorized to practice in Nepal and be independent of, control of the submitting entity and the employer by whom they were appointed.

5. This letter describes the assignment scope and terms and invites you to submit a proposal for delivery of these services latest by [insert proposal submission date]

B. BACKGROUND AND PROJECT OBJECTIVES

6. [Describe the legal structure of the entity and the nature of its activities. In the case of a Project, describe the purpose of the Project, the commencement date and expected completion dates. Also provide summary of the amount of funding by ADB. Provide project information in sufficient detail for the auditor to understand the 'purpose for which the funds are intended'] Detailed Project Information is given in Annexure 1 and related Fund Allocation is given in Annexure 2.[1]

7. The audit services will be contracted by AEPC. The [Project Director or Chief Accountant or other relevant person] shall act as the audit coordinator.

C. AUDIT REQUIREMENTS AND DELIVERABLES

8. The objective of the audit of the annual financial statements is to enable the auditor to express an independent and objective opinion in accordance with Nepal Auditing Standards

(a) As to whether the financial statements of the Project for the period ended *July 15, 2014*, present fairly in all material respects the financial position of the Renewable Energy for Rural Electricity Access Project implemented by the AEPC as at *[insert date]*, *and on the funds received and expenditures for the year then ended"]* in accordance with Government of Nepal Accounting policies.

[1] Annexure 1 will give more detailed project information, description and a summary of the results of the financial management assessment carried out, whereas Annexure 2 will give details of Investment Plan, Financing Plan, or Cost Estimate Tables.

9. The auditor will also be required to express an opinion in accordance with ISRE 3000 "Assurance Engagements other than Audits or Reviews of Historical Financial Information" in accordance with ADB's audit requirements specified in their loan agreement. The auditor is required to confirm the level of compliance for each financial covenant contained in the legal agreement for the project. The auditor should also indicate, where applicable, the extent of any noncompliance, by reference to the specified (required) and actual performance measurements for each financial covenant for the fiscal year concerned.Refer to paragraph 21 for details[2]

10. The audit opinion on the financial statements shall be addressed to the governing body of AEPC. The audit opinion on donor requirements shall be addressed to the ADB c/o the AEPC

11. A sample audit opinion format on the financial statements has been given at Annexure 3 of this request. A sample audit opinion on donor requirements has been given in Annexure 4.

12. The auditor shall also provide a management letter specifying any internal control weaknesses that have come to his attention during the course of his audit, which do not affect his opinion on the financial statements but are areas recommended for improvement. Minimum requirements for management letter are given in para 24.[3]

13. [Insert number] hard copies of all reports must be provided in the English language and within 6 months of the end of the fiscal year to which they relate to AEPC with a copy to ADB.

14. If necessary, the audit firm may be requested to participate in a wrap-up session for the [Ministry of Finance (MOF) or equivalent], AEPC and ADB to share common findings across projects being audited and provide recommendations for addressing bottlenecks in preparation for the next audit.

D. SCOPE OF WORK

Audit Locations – *[Insert if required]*

15. The ADB funded project [insert name] carries out its activities at the [central level, provincial and lower levels.] The auditors will be required to travel to [specify provinces and districts] to perform the financial audit. The Project background is given in Annex A A with detailed location and budget allocation for each Province per year.

16. Audit shall be carried out in (specify the audit locations including EA and IAs in this para):
    1) ....
    2) ....
    3) ....
    4) Add as necessary

17. Audit Timeframe – [Optional: If information is available at the time, and the EA wants to specify this]. Audit field work is expected to commence around [insert date]. It is envisaged that fieldwork will be completed within [insert number] weeks, and audit opinion on the financial statements will be issued within [insert number] weeks. Management letter would be issued [within x weeks of the opinion/along with the opinion on the financial statements].

[2] ADB's Project Administration Instruction (PAI 5.07 para 25) and the loan agreement require one or more of the following four opinions: use of loan proceeds, compliance with financial covenants, use of imprest fund procedure (which includes imprest accounts and subaccounts) and use of statement of expenditures where applicable.

[3] No need for a template. Specifying minimum content is sufficient

18. Applicable auditing standards: The audit is required to be conducted in accordance with Nepal Standards of auditing. These standards require that the auditor comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

19. Review against specific ADB guidelines – The auditor shall specifically review and express an opinion on the following:[4]

(a) Use of Loan Proceeds - Whether ADB financing (and all external financing where ADB is not the only financier) has been used in accordance with the conditions of the relevant financing agreement, with due attention to economy and efficiency, and only for the purposes for which the financing was provided, as detailed in the supporting documents;

(b) Use of Counterpart Funds - Whether counterpart funds have been provided and used in accordance with the relevant financing agreements, with due attention to economy and efficiency, and only for the purposes for which they were provided;

(c) Compliance with Financial Assurances. The auditor will confirm compliance with all financial assurances[5] contained in the project legal documents. Where present, the auditor should indicate the extent of any noncompliance by comparing required and actual performance of the borrower in respect of these ADB requirements for the financial year concerned.

(d) Eligibility of Expenditure - Whether the expenditures submitted to ADB are eligible for financing and all necessary supporting documents, records, and accounts in support of credit withdrawals have been adequately maintained with clear linkages between the books of account and reports presented to ADB;

(e) Reconciliation of Statement of Expenditure and Withdrawal Applications - The auditor shall audit all SOEs used as the basis for the submission of credit withdrawal applications to ADB. He should review whether the funds disbursed through SOEs have been utilized for the purposed defined in the funding agreements. Where ineligible expenditures are identified as having been included in withdrawal applications and reimbursed against, these should be separately noted by the auditor; Annexed to the APFS should be a schedule listing individual SOE withdrawal applications by specific reference number and amount.

(f) Review of Imprest Account - The Imprest Account reflects: (i) deposits and replenishment received from financiers; (ii) payments substantiated by withdrawal applications; and (iii) the remaining balance at financial year-end. The audit shall

[4] Delete as appropriate those items which ADB does not require auditors to certify. Also, this list is also not exhaustive. Your specific project may require additional assurances.

[5] Financial assurance is distinguished from legal, economic and performance covenants.

review whether designated Accounts (imprest account and sub-accounts, if used) have been maintained in accordance with the provisions of the relevant financing agreements and funds disbursed out of the account were used only for the purpose intended in the financing agreement and other supporting documents.

20. Form and Content of the AFS - The Project's/entities accounting system provides the basis for the preparation of the financial statements. These are the responsibility of the Project Implementing Unit set up at APEC for this Project. These are prepared using a double entry cash basis of accounting. Financial statements to be audited shall include :

- Statement of Sources and Uses of Funds for the *period* ended *[insert date]* showing the Asian Development Bank (ADB) funds, funds received from other financiers and with summary of expenditure shown under the category of the main project outputs and components for both current fiscal year, prior year and cumulative to date, based on the categories given in Annex 3.
- Statement of Budget Vs. Actual
- Summary of principal accounting policies adopted and other explanatory notes as per the template given in the Government auditing Standards of Nepal.

21. Template of the financial statement financial statements are attached as Annexure 5.

22. Management Letter - In addition to the audit report, the auditor shall submit a management letter, in which the auditor will:

a) Give comments and observations on the accounting records, systems and controls that were examined during the course of the audit;
b) Identify specific deficiencies or areas of weakness in the accounting and internal control systems that were identified during the audit, and for each such deficiency make recommendations and timeframe for their improvement, along with their related risk, significance and audience response.
c) Communicate matters that have come to the auditor's attention during the audit which might have a significant impact on the implementation of the project, matters that the auditor considers pertinent, including ineligible expenditures. Include responses from the AEPC for each of the issues highlighted, provide practical recommendations on the steps that could be taken address the weaknesses and issues identified, together with a time frame for making these changes;
d) Give comments on the extent to which outstanding issues/qualification issues have been addressed;
e) Give comments on the status of significant matters raised in previous management letters; and on previous audits' recommendations that have not been satisfactorily implemented;

E. PROPOSAL SUBMISSION

23. Proposal requirements – We request you to submit your proposal for the audit of the Renewable Energy for Rural Electricity Access Project for the year ended [insert date] in accordance with the requirements specified above latest by [insert date]. In particular please specify:

a. Profile of your Firm including details of number of offices, partners and staff, quality rating assigned by the *Institute of Chartered Accountants Nepal*, evidence of authorization to practice in *Nepal* and international affiliation, if any
b. Relevant experience of the Firm, in particular prior ADB or World Bank experience, including name of the project, period end and email address or telephone number for the contact person/ audit coordinator
c. Relevant sector experience
d. Profiles of the proposed team members including qualifications, relevant experience and expected roles and responsibilities for the audit
e. Audit work plan, methodology and quality assurance procedures
f. Any envisaged scope limitations
g. Timeframe Required to complete the audit
h. Audit fees, expected out of pocket expenses, and related payment schedule

24. Contract and Procurement Mode:

The …….. [6] is the procurement method agreed for auditor recruitment. The contract will be on lump sum in accordance with annual based performance (will be reviewed on annual basis).[7]

25. Indicative Staff / Time Budget

ADB undertook an initial assessment of this engagement and identified the following indicative positions, tasks and responsibilities, and input days. Please note that these are indicative only, except for the asterisked key position in the table below, which will be evaluated as part of the evaluation of the firm's proposal. The firm has discretion, based on their exercise of professional judgment, to propose a suitably composed and qualified audit team.

	Designation	Man Hours
	Engagement Partner*	[insert number]
	Quality Assurance Partner	[insert number]
	Director	[insert number]
	Senior Manager / Manager	[insert number]
	Audit Team Leader	[insert number]
	Audit Assistants / Staff	[insert number]

26. Please feel free to contact us if you have any questions or queries. [Give contact details of relevant person at the AEPC]

[6] Please discuss with OSFMD to decide the procurement mode under this contract. OSFMD will decide based on the total cost, complexity and other factors .
[7] Full payment after the audit report is acceptable to ADB and the Government.

Annex 1

Project Background, Executing and Implementing Agencies

A. The Project to be Audited:

1. Project No: _____
2. Grant No. _____
3. Project Name: _____

   _____
4. Executing Agency: _____
5. Implementing Agencies:_____

   _____
6. Total Project Costs _____ (from all financiers)

B. Project Description: Describe the project here in the context of its contribution to achievement of the EA's economic goals. The auditor must understand the "purpose for which the funds are intended" in the context of the broad project objectives as well as in terms of the specific project budget.

C. The Executing- and the Implementing Agencies (EA/IAs): A detailed description—both legal and generally informative—should be provided here to enable the auditor to understand fully the nature, location and objective of the executing- and implementing agencies (EA/IAs), the entities under audit. Geographic characteristics should be described, together with:

(a) organization charts;
(b) name and qualification of the person(s) responsible for coordinating with the auditor
(c) name and address of any existing external auditor;
(d) computing or other data processing facilities in use;
(e) a copy of the latest published financial statements; if applicable; and
(f) internal facilities (if any) available to an external auditor (e.g., office accommodation, calculators, computer facilities).
(g) A general summary of the financial management assessment of the EA/IAs should be included, together with a reference that the full financial management assessment will be made available to the auditor;

D. Accounting and Financial Management Practices: Briefly summarize relevant accounting and financial management practices. Various diagnostic reports are available that describe accounting and financial management practices (e.g., ADB Diagnostic Studies of Accounting and Auditing, World Bank Country Financial Accountability Assessments). Emphasis should be placed on issues raised and risks identified in these reports. If possible, latest available audited and/or unaudited financial statements should be provided for the auditors' understanding.

Annex 2

Funds provided by ADB and its co-financiers

Please complete the following tables:

2.1. **Fund Allocation by Components/ Output**

No	**Item**	Amount ($)	%
A. Base Cost			
1			
2			
3			
4			
5	Subtotal (A)		
B. Contingencies			
C. Financing Charges During Implementation			
Total (A+B+C)			

2.2. **Fund Allocation by Financing Plan**

No	Source	Amount ($)	Share of Total (%)
1			
2			
3			
4			
5			
	Total		

2.3. **Allocation of ADB Loan/Grant Proceeds**

No	Items	Amount Allocated		ADB Financing
		Category	Sub-category	Percentage and Basis for Withdrawal from the Loan or Grant Account
Total				

2.4. Allocation by Procurement Plan

(Please attach the Procurement Plan here).

2.5. Budget Allocation by Executing and Implementing Agencies:

Items	Amount	Remarks
Total Project Costs	$	
Direct payment from ADB and cofinanciers	$	
Through Imprest accounts	$	for xx accounts
Through sub-accounts	$	for xx sub-accounts

Notes: Please segregate the budget allocation for each imprest- and sub-account

2.6. Cofinancier(s) and Counterpart funds:

Please also segregate the number of accounts for the cofinanciers(s) and counterpart funds, and budget allocation for each account

Notes: See PAM and Loan and/or Grant Agreement for details.

Annexure 3 – Auditors' Opinion on Financial Statements

Auditor LOGO

AUDITOR'S REPORT

[*Appropriate Addressee*][8]

Audit Opinion on the Financial Statements of the [*Name of the Project or Entity*] for the year ended [insert date] funded through ADB Loan [insert loan details]

We have audited the accompanying [9]financial statements of the [*Name of the Project or Entity*], which comprise the Sources and Uses of Funds, Statement of Busget Vs Actual for the [*specify period*] ended [*insert year end date*], and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

The [*name of IA*] is responsible for the preparation and fair presentation of these financial statements in accordance with [relevant financial accounting framework] and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Nepal Auditing Standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, (or *give a true and fair view of*) the [*financial position of name if Project/entity*] and as at [*the end of the (fiscal)l year*], and (*of*) its financial performance and cash flow for the year then ended in accordance with *[relevant financial accounting framework*]

[8] This will normally be the governing body of the entity/project under audit
[9] For consolidated financial statements, add the word 'consolidated' as and where required

[Alternatively: “Except for the matters given below, in our opinion ….]

[Auditor’s signature]

[Date of the auditor’s report]

[Auditor’s Place of Signing]

Annexure 4 – Auditors' Opinion on Other Donor Requirements

AUDITOR LOGO

AUDITOR GENERAL'S REPORT

[Asian Development Bank C/o Name of Implementing Agency]

Audit Opinion on Opinion on Other Donor Requirements
[*Name of Project]* supported by ADB Loan Agreement [*Loan number and name*] dated *[date of loan agreement*]

We have audited the accompanying financial statements of [name of project], which comprise the Sources and Uses of Funds, Statement of Budget Vs Actual, and a summary of significant accounting policies and related explanatory notes for the year ended [*insert year end*]

Management's Responsibility for the Financial Statements

The [*Implementing Agency]* is responsible for the preparation and fair presentation of these financial statements in accordance with [relevant financial accounting framework], and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

A summary of the work performed

Our responsibility is to express an opinion on these consolidated financial statements based on our audit. We conducted our audit in accordance with Nepal Auditing Standards. As part of our audit we have considered whether the activities undertaken by [name of Project] are in accordance with the loan agreement with ADB, whether financial covenants in the loan agreement have been complied with, whether adequate supporting documentation has been maintained to support claims for reimbursement through Statement Of Expenditures and whether the Imprest Account

Opinion

In our opinion,

(i) the [*IA*] has utilized all proceeds of the loan disbursed by the ADB only for the purposes of the Project as agreed between ADB and the [IA] in accordance with the loan agreement and no proceeds of the loan have been utilized for other purposes;
(ii) The [IA] was in compliance as at [insert date] with all financial covenants of the loan agreement;
(iii) With respect to Statement of Expenditures, adequate supporting documentation has been maintained to support claims to the ADB for reimbursement of expenditure

incurred, and which expenditures are eligible for financing under Loan Agreement [*Number and Date of Agreement*]

(iv) The Imprest Account gives a true and fair view of the receipts collected and payments made during the year ended , and these receipts and payments support the imprest account liquidations/ replenishments during the year

[Alternatively: “Except for the matters given below, in our opinion ….]

[Auditor’s signature]

[Date of the auditor’s report]

[Auditor’s Place of Signing]

Appendix-8

TECHNICAL INFORMATION ON PROJECT COMPONENTS

Output 1: Power Transmission Capacity Expansion

Part 1 (a): Kali Gandagi corridor 220/400kV transmission line and associated substations

Summary

i. 220kV transmission line from Dana to Kusma and 220/132 kV substations at Dana and Kusma.
ii. 220kV transmission line from Kusma to New Butwal and 400/220/132 kV substation at New Butwal.
iii. 400kV transmission line from New Butwal to Bardaghat and 400/220/132 kV at Bardaghat.

Details

(a) 45km 400kV double circuit, twin "Moose" conductor transmission line
(b) 110km 220kV double circuit, twin high-temperature low-sag (HTLS) conductor transmission line
(c) 2 x 400/220/132kV 250MVA transformers
(d) 3 x 220/132/33kV 100MVA transformers
(e) 8 x 33/11kV 15MVA transformers
(f) 4 x 400kV line bays
(g) 2 x 400kV transformer bays
(h) 10 x 220kV line bays
(i) 5 x 220kV transformer bays
(j) 4 x 220kV bus coupler bays
(k) 11 x 132 kV line bays
(l) 4 x 132 kV transformer bays
(m) 8 x 33kV line bays
(n) 8 x 33kV transformer bays
(o) 24 x 11 kV line bays
(p) Line and substation civil works
(q) 4 control buildings and related cabling and controls
(r) Project preparation support, project management and construction supervision
(s) Environmental mitigation and monitoring

Part 1 (b): Marsyangdi corridor 220 kV transmission line and associated substations

Summary

i. Construction of a 220kV transmission line from Manang to Khudi and Bharatpur via Marki Chowk.
ii. Construction of 220/132kV substations at Khudi and Manang, a 220kV switchyard at Udipur and extension of the 220kV Bharatpur substation.

Details

(a) 125km 220kV double circuit, twin high-temperature low-sag (HTLS) conductor transmission line
(b) 4 x 220/132/33kV 100MVA transformers
(c) 16 x 220kV line bays
(d) 4 x 220kV transformer bays
(e) 5 x 220kV bus coupler bays
(f) 4 x 132 kV bus coupler bays
(g) 23 x 33kV line bays
(h) 8 x 33kV bus coupler bays
(i) Line and substation civil works
(j) 3 x control buildings and related cabling and controls
(k) Project preparation support, project management and construction supervision
(l) Environmental mitigation and monitoring

Part 1 (c): Marsyangdi to Kathmandu 220kV transmission line and associated substations

Summary

i. Construction of a 220kV transmission line from Marki Chowk to Matatirtha (Kathmandu).
ii. Construction of a 220/132kV substation at Marki Chowk and extension of the 220kV Matatirtha substation.

Details

(a) 82km 220kV double circuit, twin "Moose" conductor transmission line
(b) 2 x 220/132/33kV 100MVA transformers
(c) 2 x 220kV line bays
(d) 2 x 220kV transformer bays
(e) 2 x 220kV bus coupler bays
(f) 1 x 132 kV bus coupler bays
(g) Line and substation civil works
(h) 2 x control buildings and related cabling and controls
(i) Project preparation support, project management and construction supervision
(j) Environmental mitigation and monitoring

Part 1 (d): Samundratar-Trishuli 3B 132kV transmission line

Summary

i. Construction of a 132kV transmission line from Trishuli 3B substation to Samundratar and a 132kV substation at Samundratar.

Details

(a) 24km 132kV double circuit, twin "Bear" conductor transmission line
(b) 1 x 132/33kV 100MVA transformer
(c) 1 x 33/11kV 15MVA transformer
(d) 1 x 132kV line bay
(e) 1 x 132kV transformer bay
(f) 1 x 132kV bus coupler bay
(g) 1 x 132 kV bus coupler bays
(h) 3 x 33kV line bays
(i) 1 x 33kV transformer bay
(j) 1 x 11kV transformer bay
(k) Line and substation civil works
(l) 1 x control buildings and related cabling and controls
(m) Project preparation support, project management and construction supervision
(n) Environmental mitigation and monitoring

Part 1 (e): Grid service substations

Summary

i. Construction of a 132/33/11kV substation at Gandak.
ii. Construction of 132/33kV substations at Middle Marsyangdi, Butwal, Bharatpur, Dhalkebar, and Attaria.
iii. Construction of a 66/11kV substation at Banepa,
iv. Construction of a 33/11kV substation at Lahan

Details

(a) 1 x 132/33/11 30 MVA/16.6MVA transformer
(b) 3 x 132/33kV 20MVA transformers
(c) 3 x 132/33kV 63MVA transformers
(d) 2 x 66/11kV 22.5MVA transformers

(e) 2 x 33/11kV 16.6MVA transformers
(f) 7 x 132kV line bays
(g) 7 x 132 kV transformer bays
(h) 1 x 132 kV bus coupler bay
(i) 2 x 66kV line bays
(j) 2 x 66kV transformer bays
(k) 1 x 66kV bus coupler bay
(l) 13 x 33kV line bays
(m) 9 x 33kV transformer bays
(n) 2 x 33kV bus coupler bays
(o) 5 x 11kV transformer bays
(p) 2 x 11kV bus coupler bays
(q) 10 x 11kV line bays
(r) Line and substation civil works
(s) 8 x control buildings and related cabling and controls
(t) Project management and construction supervision
(u) Environmental mitigation and monitoring

Output 2: Distribution network improvement

Summary

i. Augmentation of 33/11kV and 11/0.4kV substation capacity in Nepal's eastern, western and central regions.
ii. Augmentation of 33kV, 11kV and 0.4kV line capacity in Nepal's eastern, western and central regions.

Details

(a) 410km 33kV line
(b) 545km 11kV line
(c) 725 km 0.4kV line
(d) 33 x 33/11kV transformers with total capacity of 216MVA.
(e) 431 11/0.4kV distribution transformers of various sizes
(f) Line and substation civil works
(g) Project management and construction supervision
(h) Environmental mitigation and monitoring

Output 3: Mini-grid based renewable energy systems development

Summary

i. Construction of up to 4.3MW of mini-hydroelectric power plants in rural, off-grid areas.
ii. Construction of up to 0.5MW of mini-grid based solar or solar/wind hybrid systems in rural off-grid areas.

(output details depend on applications received by project developers and user committees)

Appendix- 9

PROCUREMENT PLAN
Basic Data

Project Name: South Asia Subregional Economic Cooperation Power System Expansion Project	
Project Number: 44219	**Approval Number**:
Country: NEPAL	**Executing Agency**: Nepal Electricity Authority (NEA) Alternative Energy Promotion Centre (AEPC)
Project Financing Amount: $ 440.0 **ADB Financing:** $ 180.5 **Non-ADB Financing:** $191.2	**Implementing Agency:** N.A.
Date of First Procurement Plan: 14 April 2014	**Date of this Procurement Plan**: 19 May 2014

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	**Threshold**	**Comments**
International Competitive Bidding (ICB) for Works	$2,000,000	
International Competitive Bidding for Goods	$1,000,000	
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	
Shopping for Works	Below $100,000	
Shopping for Goods	Below $100,000	

Consulting Services	
Method	**Comments**
Quality and Cost Based Selection (QCBS)	90:10

2. Goods and Works Contracts Estimated to Cost $1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Pack. No.	General Description	Estimated Value	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
A-1-1	Dana - Kusma 220kV HTLS transmission line and substations at Dana, Kusma	$37.9m	ICB	Prior	1S2E	Q4/2014	Plant
A-1-2	Lot 1: Kusma - New Butwal 220kV HTLS transmission line and New Butwal Substation	$45.9m	ICB	Prior	1S2E	Q1/2015	Plant
	Lot 2: New Butwal- Bardaghat 400kV transmission line and Bardaghat Substation	$48.6m					

A-3	Marsyangdi- Kathmandu 220kV transmission line and Matatirtha substation extension	$37.9m	ICB	Prior	1S2E	Q3/2014	Plant
A-5	Grid service substations	$7.4m	ICB	Prior	1S2E	Q3/2014	Plant
B-1	Lot 1: Distribution network in East Region	$17.2m	ICB	Prior	1S2E	Q3/2015	Plant, Domestic Preference
	Lot 2: Distribution network in Central and West regions	$19.2m					

3. Consulting Services Contracts Estimated to Cost $100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Pack. No.	General Description	Est. Value	Recruit. Method	Review	Advert. Date (Q/year)	Type	Comments
D-1	Project supervision services for NEA	$4 m	QCBS	Prior	Q1/2015	FTP	International 90:10
D-2	Supports on distribution system master plan	$4 m	QCBS	Prior	Q4/2014	FTP	International 90:10
D-3	Project implementation support for AEPC	$0.8 m	Individuals	Prior	Q3/2014		National. Wind energy engineer, mini-hydro engineer, procurement expert,
D-4	Social mobilizer	$0.4 m	QCBS	Prior	Q2/2014	Bio	National Firm/NGO

4. Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Pack. No.	**General Description**	**Est. Value**	**Nos Contract**	**Procur. Method**	**Review**	**Bidding Proce.**	**Advert. Date** (Q/Y)	**Comments**
A-6	Vehicles	$0.40	4	Shopping	Prior		Q4/2014	
C-1	Mini hydro projects	$13 m	15	NCB	Post	1S2E	Q3/2015	Plant. 2 sample subproject packages will be prior approved by ADB for procurement, and based on satisfactory performance of the EA, balance packages will be post-facto approved by ADB
C-2	Mini-grid solar and solar/wind systems	$0.7 m	1	NCB	Prior	1S2E	Q1/2015	Plant As sample subproject, while NCB is adopted, the ADB's standard bidding document for plant (turnkey) is applied to set a template for subsequent

								subpojects (one turnkey package through ICB)
C-4	Wind masts	$0.19	2	Shopping	Prior		Q3/2014	

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Pack. No.	General Description	Estimated Value	Procur. Method	Review	Bidding Procedure	Advert. Date (Q/Year)	Comm.
C-3	Mini-grid solar and solar/wind systems	$2.8m	ICB	Prior	1S2E	Q1/2016	Plant, Domestic Preference

Pack. No.	General Description	Est. Value	Recruit. Method	Review	Advert. Date (Q/year)	Type	Comments

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

1. Awarded and Ongoing Contracts

Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/ year)	Date of ADB Approval of Contract Award	Comments[10]

[10] Indicate the Contractor's name and the contract signing date.

Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments[11]

[11] Indicate the Consulting Firm's name and the contract signing date.

2. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/	Date of ADB Approval of	Date of Completion	Comments

					year)	**Contract Award**		

Consulting Services								
Package Number	**General Description**	**Estimated Value**	**Contract Value**	**Recruitment Method**	**Advertisement Date** (quarter/ year)	**Date of ADB Approval of Contract Award**	**Date of Completion**	**Comments**

D. Non-ADB Financing

The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Pack. No.	**General Description**	**Estimated Value**	**Procur. Method**	**Review**	**Bidding Procedure**	**Advert. Date** (Q/Year)	**Comm.**
A-2-1	Khudi- Udipur- Marki Chowk-Bharatpur 220kV HTLS transmission line and substations at Khudi and Marki Chowk, switchyard at Udipur, and 220kV bay extension at Bharatpur	$73.9	ICB	Prior	1S2E	Q2/2015	Plant
A-2-2	Manang- Khudi 220kV HTLS transmission line and Manang Substation and bay extension at Khudi	$19.7	ICB	Prior	1S2E	Q1/2017	Plant
A-4	Samundratar - Trishuli 3B hub 132kV transmission line and Samundratar Substation	$12.0m	ICB	Prior	1S2E	Q3/2014	Plant

Consulting Services				
General Description	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Recruitment Method**	**Comments**

E. National Competitive Bidding

National competitive bidding (NCB) shall be in accordance with that described as "by inviting bids and a national level" as set forth in "The Public Procurement Act, 2007" (PPA) and "The Public Procurement Regulations, 2007" (PPR) and subject to the following:

1. The first NCB document for both goods and works procurement shall be reviewed and approved by ADB prior to issue. These will be used for all NCB procurement under the project. The document shall include qualification and evaluation criteria and ADB's right to audit and inspect in accordance with para 1.14 of ADB's Procurement Guidelines. No other criteria other than that described in the bidding document may be used to determine the lowest evaluated responsive bidder and no form of domestic preference may be employed. A positive assessment of a bidder's qualifications to perform a contract will be a pre-requisite to an award.

2. All qualified ADB member bidders and ADB member produced goods, services and works shall be eligible. Registration and licensing shall be permitted only as a condition of contract award and not participation in bidding. No award may be withdrawn for failure to obtain tax registration; license or fulfill any similar requirement without ADB's prior concurrence. No bidder will be held ineligible based on provision 63 of the PPA without ADB prior concurrence.

3. Invitations to bid shall be advertised in at least one widely circulated national daily newspaper or freely accessible, nationally-known website allowing a minimum of twenty-eight (28) days for the preparation and submission of bids. Invitations for bids for contracts estimated at $500,000 or more for goods and $1,000,000 or more for civil works shall be advertised on ADB’s website. No restriction will be placed on the sale of bidding documents.

4. The approved Standing List of a Procuring Entity prepared in accordance with the law shall only be accepted to supplement an advertised open pre-qualification exercise for the specific contract provided that those on the standing list meet the qualification criteria.

5. Bids shall be opened at a single location immediately after the deadline for submission. Multiple locations for submission and opening are not acceptable.

6. Government-owned enterprises in Nepal shall be eligible to participate only if they meet the conditions of para 1.8 (c) of the Procurement Guidelines.

7. Extension of bid validity of more than 4 weeks beyond the original validity shall not be allowed without the prior concurrence of ADB.

8. Cancellation of bidding and re-bidding shall not be carried out without the prior concurrence of ADB.

9. Percentage variations from rates fixed by a district rate fixation committee shall not be used for the purpose of evaluating bids.

In the event of a conflict between these provisions and the law, these provisions shall prevail.

Appendix 10

Appendix 11

OUTLINE TERMS OF REFERENCE FOR CONSULTING SERVICES

Preparation of Electrification Master Plan

A. Background

1. The Government of Nepal (GON) has a policy of providing all district headquarters with grid electricity as soon as practicable and of providing electricity to all the households by 2027. A clear policy on priorities and an execution plan for rural electrification is required. NEA does not have an Electrification Master Plan (master plan) though some sporadic works have been done in the past to prepare ad hoc electrification and distribution projects. This has resulted in unplanned and improper electrification using suboptimal technical solutions, and has contributed to high distribution system loss.

B. Objective of the Assignment

2. Against this backdrop, NEA intends to develop a master to articulate a plan for electrification of the entire country. A consulting firm will be engaged to work closely with NEA to develop the master plan. The overall objective of the assignment is to identify the least cost and economically viable means to reinforce, upgrade and expand Nepal's electricity system, including on- and off-grid, to achieve universal access to electricity 2025. The master plan will include policy recommendations, a comprehensive electrification and distribution augmentation program and detailed case studies.

C. Scope of Works for the firm

3. As a firm, the Consultant shall provide the services covering: (i) review of existing legislation, regulation and policy relating to distribution system expansion and rural electrification and recommendations for enhancement and streamlining; (ii) development of planning process and prioritization criteria; (iii) data collection and preparation of demand forecasts; (iv) desktop identification and evaluation of areas for grid extension and areas for off-grid electrification; (iv) execution of sample physical and socio-economic surveys in selected un-electrified areas and preparation of standardized and sample designs; (vi) economic and financial analysis; (vii) identification of social and environmental safeguarding requirements; (viii) design of business models and promotion policy; and (ix) consolidation of the master plan. A focus will also be given to NEA staff capacity building throughout the execution of the services.

a. Review of Existing Legislation, Regulation and Policy

4. The consultant firm shall undertake the following tasks:

(i) Review existing reports regarding rural electrification plans and programs;
(ii) Review and analyze all relevant laws and regulations;
(iii) Review and analyze all relevant Government and NEA policy in relation to on- and off-grid electrification;

(iv) Consult with stakeholder ministries, agencies and institutions regarding existing and planned approaches to on- and off-grid electrification; and
(v) Summarize and provide recommendations for changes in legislation, regulation, policy and approaches to on- and off-grid electrification.

b. Develop Planning Process and Prioritization Criteria

5. In light of the GON's target date of 2027 for 100% electricity access, the Consultant shall:

(i) Review NEA's distribution and electrification planning process and recommend improvements; and
(ii) Propose criteria for prioritizing capital investment in distribution augmentation and rural electrification.

c. Data Collection and Preparation of Demand Forecasts

6. The Consultant shall:

(i) Collect the necessary data and information related to geographical divisions, political divisions, demography, available infrastructure, socio-economic indicators, environmental and vulnerability checks, short, medium plans at national, district and village levels;
(ii) Investigate and report on trends of power demand and impacts after electrification in sample indicative electrified rural settlements; and
(iii) Investigate the social and economic conditions of un-electrified rural settlements to assess the present and future electricity demand, keeping in mind affordability, potential productive uses of electricity, and population growth.

d. Desktop Identification And Evaluation Of Areas For Grid Extension And Areas For Off-Grid Electrification

7. Following on from development of the planning and prioritization process and using demand forecasts as a backdrop, the Consultant shall:

(i) Collect and analyze information on the potential for renewable energy systems in Nepal, specifically micro/mini hydro, solar, wind, biogas and biomass;;
(ii) Identify the potential sites/settlements for distribution line extension by NEA and also identify the areas for distribution augmentation;
(iii) Identify the potential sites/settlements for rural electrification through micro/mini hydro power plants;
(iv) Identify the potential sites/settlements for rural electrification through other renewable energy systems; and
(v) Hold initial consultation meetings in Kathmandu with representations from center and regional offices to discuss various aspects of master plan including relevancy, course

of action and choice of technologies and agree on the context and criteria for initial target site selection.

e. Execution of Sample Physical and Socio-economic Surveys in Selected Un-Electrified Areas

8. The Consultant shall base the overall master plan on the detailed work undertaken in selected pilot areas:

(i) Organize regional level workshop at 8 regions with Alternative Energy Promotion Center (AEPC) representatives to identify the un-electrified target sites/settlements;
(ii) Select five high-priority target sites/settlements with different characteristics (technical, social, economic, and environmental) and representing a range of electrification technology solutions (that is, grid extension, solar, solar/wind hybrid, etc);
(iii) Carry out the detailed feasibility survey of the target sites;
(iv) Assess the survey results in line with the provisional planning parameters and prioritization process and adjust if necessary;
(v) Prepare designs and cost estimates for the targeted sites, adopting a standardized approach to the extent possible so that designs and cost estimates can be used as pro formas for other sites/settlements.
(vi) Ensure data collected is sex – disaggregated.

f. Economic and Financial Analysis

9. The Consultant shall:

(i) Develop a rapid assessment tool to identify the least cost means to electrify villages/settlements;
(ii) Develop and articulate approaches to economic and financial analysis in relation to the master plan;
(iii) Undertake detailed economic analysis of the target sites, including calculation of economic internal rate of return based on assessed willingness to pay;
(iv) Estimate an indication weighted average cost of capital for each target site;
(v) Estimate tariff requirements for customers at off-grid target sites;
(vi) Calculate financial internal rates of return for customers at on-grid target sites and estimate tariffs required for financial viability;
(vii) Indicate financial and economic rates of return and tariff requirements for the overall master plan; and
(viii) Prepare economic and financial evaluation models to be handed over to NEA staff.

g. Identification Of Social And Environmental Safeguarding Requirements

10. The Consultant shall:

(i) Identify the possible environmental and social impacts, both positive and negative from the planned rural electrification methods;
(ii) Recommend appropriate mitigation measures to address the adverse impacts;
(iii) Suggest strategies and actions for enhancing favorable impacts; and
(iv) Undertake detailed safeguarding analysis at target sites in line with ADB and GON safeguarding requirements.

h. Design Of Business Models And Promotion Policy

11. As a complement to the economic and financial analysis, the Consultant shall:

(i) Analyze the investment, recurrent costs and tariff structures of different proposed rural electrification methods with and without the provision of grants and/or subsidies;
(ii) Assess the willingness and affordability to pay of targeted consumers together with the existing and future electricity needs, demand and tariff; and
(iii) Recommend business models of all proposed rural electrification methods, with and without the participation of private sector, community, elected bodies and NGOs.

i. Consolidation of the Master Plan

12. Based on policy and prioritization recommendations and the findings and results of other work streams, the Consultant shall:

(i) Consolidate all data for rural electrification;
(ii) Integrate all data, including relevant socio-economic parameters, into a GIS map and database;
(iii) Prioritize electrification programs to achieve universal access by 2027;
(iv) Identify the expected least cost means of electrification to all un-electrified areas;
(v) Prepare the overall master plan, including indicative cost estimates and economic and financial analysis;
(vi) Through discussions with stakeholders and development partners, prepare an indicative financing plan for the master plan; and
(vii) Suggest institutional development and strengthening of existing organizations to implement the master plan.

i. Capacity Building

12. Strengthening the capacity of NEA and other institutions in master planning, least cost analysis, on- and off-grid designs, economic and financial analysis, safeguarding and business planning is a key part of the services. In this context the Consultant shall:

(i) Review the existing status of and strategies and plans for capacity building of all key stakeholders;
(ii) Identify the gaps and areas for capacity building needed to prepare, update and implement the master plan;
(iii) Select capacity development initiatives for institutions and key individuals from short, medium and long term perspectives;

(iv) Prepare detailed budgets for in-house, off-site and other third party training;
(v) Ensure on-the-job skills transfer through the involvement of NEA counterpart staff in all aspects of master plan preparation; and
(vi) Develop a Monitoring and Evaluation Plan for NEA officers to make periodic field visits to project sites in order to observe physical execution of works and to consult and interact with local level stakeholders and partners.

D. Expertise and tasks

a. Person-months

13. It is expected that about 110 person-months of international consulting services and 79 person-months will be needed from a firm specializing in distribution and electrification master planning. Indicative expertise required to execute the services is identified in Table 1.

Table 1: Indicative Expertise and Person-Months: Transmission Line and Substations

Expertise	International Consultants (pm)	Domestic Consultants (pm)
Team Leader/Distribution Expert	24	
Renewable Energy Expert	16	16
Distribution System Planner	16	16
Distribution System Engineer	16	16
Policy Expert	3	
Institutional / Capacity Building Expert	4	3
Social Specialist	11	12
Environmental Specialist	6	6
Financial / Economic Expert	6	
GIS Expert	8	10
TOTAL	110 pm	79 pm

E. Output

14. The Consultant shall produce the following deliverables during execution of the services:

(i) An Inception Report within 6 weeks of commencement;
(ii) Quarterly progress reports, detailing work undertaken and work planned for the subsequent quarter;
(iii) Two interim reports, the first within 9 months of commencement and the second within 18 months of commencement;
(iv) A Draft Final Report within 24 months of commencement, including the draft master plan; and

(v) A Final Report within 27 months of commencement, incorporating all comments and suggestions received in relation to the Draft Final Report, and incorporating the Final Master Plan.

15. The Consultant shall maintain records documenting decisions made at meetings, progress on project implementation, and decisions taken. The Consultant will assist ADB in preparing a project completion report and monitoring and evaluation reports as required.

16. All documents and reports would be made available in electronic format to ADB.

17. All reports will be in English language.

Terms of Reference for Project Implementation Consultants (PIC)

I. INTRODUCTION

1. A Project Implementation Unit (PIU) will be established at the AEPC to oversee implementation of the RERE Project. The primary functions of the PIU will be to ensure that all Project activities are implemented in compliance will all relevant ADB guidelines and requirements, and activities are monitored consistent with the Project monitoring plan and performance indicators.

2. Given the lack of experience of AEPC in implementing ADB funded projects, AEPC will require its capacity to be strengthened to implement the Project. Project Implementation Consultants (PIC) will be contracted by the AEPC in compliance with ADB guidelines to support PIU.

3. It is expected that PIC with specialties as indicated in the table below may need to be contracted to support the PIU. The indicative list of experts required to support AEPC implement the Project is provided in the Table below.

Indicative List of Experts Required

National Experts	LOE Person Months
1. Mini-micro Hydropower Expert (national)	**36**
2. Renewable Energy (Solar/wind) Expert (national)	**36**
3. Procurement Expert (national)	**24**
4. Monitoring and Evaluation Expert (national)	**18**

II. TERMS OF REFERENCE

Mini-micro Hydropower Expert (National, 36 person-months)

4. The expert will assist PIU implement mini-micro hydropower projects. The expert will support PIU in survey, preparation of pre-feasibility and detailed feasibility studies, the bidding documents preparation, bids evaluations, and oversight of project construction. The expert will also assist the project administration and disbursement, providing guidance and training of staff members of AEPC on mini hydro component.

5. The expert will have minimum Bachelor's Degree in Civil, Mechanical or Electrical Engineering and minimum of 12 years of experience in implementing mini hydropower projects (100 kW – 1000 kW). The expert will support the PIU to conduct, including but not limited to, the following tasks for mini-micro hydro components:

i. Support AEPC and Regional Service Centres (RCSs) to conduct survey, verify resource data, assess demand including demand for productive end use, and prepare the pre-feasibility studies

ii. Prepare and finalize detailed feasibility studies including technical specification, implementation schedule, bill of quantity and cost estimates

iii. With assistance of procurement expert, prepare bidding documents in accordance with ADB's guidelines

iv. Support PIU/RSC and communities (for mini-grid systems) in evaluation of bids by turnkey contractors, and preparation of bid evaluation reports (technical and financial)

v. Support the review of project design and project construction schedule proposed by turnkey contractors

vi. Assist PIU in making disbursements

vii. Undertake site visits as necessary to monitor progress of projects

viii. Support PIU in monitoring implementation of the component and prepare mini-micro hydro part of the quarterly progress reports to be submitted to ADB, (the reports shall be in line with ADB's requirements and include (a) a narrative description of progress made during the period, (b) changes in the implementation schedule, (c) problems or difficulties encountered, (d) work to be carried out in the next period, and (e) a summary financial account, consisting of project expenditures for the year to date and total expenditure to date, and a contract financing plan)

ix. Support PIU staff in other activities related to the development of mini-micro hydro subprojects as required and build capacity in AEPC

6. Reporting requirements:

i. Reports on preparation of detailed feasibility study report and bidding documents, and evaluations of bids (technical and financial) for mini-micro hydro subprojects,

ii. Presentations from training and capacity building programs

iii. Assist the PIU in preparing reports that will be integrated and or incorporated into the project monitoring and quarterly progress reports to be submitted by AEPC to ADB

iv. Other support as required by the PIU/AEPC

Renewable Energy (solar and wind) Specialist (National, 36 person-months)

7. The expert will assist PIU implement mini-grid solar and solar-wind hybrid subprojects. The expert will support PIU in survey, preparation of pre-feasibility and feasibility studies, the bidding documents preparation, bids evaluations, and oversight of project construction. The expert will also assist the project administration and disbursement, providing guidance and training of staff members of AEPC on mini-grid solar and solar-wind hybrid component. The expert will also assist AEPC to identify 5 candidate sites for utility scale wind farm and procure 5 wind masts for feasibility study of one utility scale wind farm to be supported by the associated Capacity Development Technical Assistance.

8. The expert will have at least a Bachelor's Degree in renewable engineering or a related specialization in technology or science, and a minimum of 10 years of experience in the design and evaluation of mini-grid solar and wind energy systems. The expert will support the PIU to conduct, including but not limited to, the following tasks for mini-grid solar and solar-wind hybrid component:

i. Support AEPC and RCSs in verifying resource data for planned solar and solar-wind hybrid mini-grid systems and assess demand including demand for productive end use

ii. Prepare and finalize detailed feasibility studies including technical specification, implementation schedule, bill of quantity and cost estimates by adopting the detailed feasibility study template developed by the PPTA consultants

iii. With assistance of procurement expert, prepare bidding documents in accordance with ADB's guidelines for solar and solar-wind hybrid subprojects in bundled manner (two batches) for generation parts, and for mini-grid parts in each village separately. The design for mini-grid shall be national grid compatible

iv. Support PIU/RSC and communities (for mini-grid systems) in evaluation of bids by turnkey contractors, and preparation of bid evaluation reports (technical and financial)

v. Support the review of project design and project construction schedule proposed by turnkey contractors for solar and solar-wind hybrid systems and mini-grid systems

vi. Assist PIU in making disbursements

vii. Undertake site visits as necessary to monitor progress of projects

viii. Support PIU in monitoring implementation of the component and prepare mini-grid solar and solar-wind hybrid part of the quarterly progress reports to be submitted to ADB, (the reports shall be in line with ADB's requirements and include (a) a narrative description of progress made during the period, (b) changes in the implementation schedule, (c) problems or difficulties encountered, (d) work to be carried out in the next period, and (e) a summary financial account, consisting of project expenditures for the year to date and total expenditure to date, and a contract financing plan)

ix. Assist AEPC to identify 5 candidate sites for utility scale wind farm

x. Assist AEPC to procure and install 5 wind masts for feasibility study of one utility scale wind farm to be supported by the associated Capacity Development Technical Assistance

xi. Support PIU staff in other activities related to the development of mini-grid solar and solar-wind hybrid systems as required, and build capacity in AEPC

9. Reporting requirements:

i. Reports on preparation of feasibility study report and bidding documents, and evaluations of bids (technical and financial) for mini-grid solar and solar-wind hybrid subprojects

ii. Assist the PIU in preparing reports that will be integrated and or incorporated into the project monitoring and quarterly progress reports to be submitted by AEPC to ADB

iii. Presentations from training and capacity building programs

iv. Other support as required by the PIU/AEPC

Procurement Specialist (National, 24 person-months)

10. The procurement specialist will support PIU at AEPC in ensuring that all project related procurement is in compliance with ADB and GoN guidelines, as required.

11. Expertise Required: The expert will have Bachelor's Degree in a relevant field and a minimum of 10 years of experience in preparing procurement plans in infrastructure projects. Knowledge of ADB and GoN guidelines for procurement of goods and services is essential.

The consultant will conduct various tasks in support of the Project as necessary, including but not limited to the following tasks:

i. Assist other experts to prepare bidding documents for procurement of goods and Request for Proposal (RFP) for consulting services ensuring compliance with ADB and GoN guidelines

ii. Ensure that RFP documents and bids received by ADB in compliance with ADB and GoN guidelines

iii. Assist PIU to evaluate bids and RFP and prepare related evaluation reports in accordance with ADB's guidelines

iv. Assess project procurement plans and verify that they comply with ADB and GoN guidelines

v. Support PIU staff in other activities related to procurement for development of mini-grid projects as required, and build capacity in AEPC

12. Reporting requirements:

i. Bid documents and RFP

ii. Bids and RFP evaluation reports (technical and financial)

iii. Procurement plan assessment report

iv. Procurement document templates compliant with ADB and GoN requirements

v. Presentations from training programs and related materials

vi. Other support as required by the PIU/AEPC

Monitoring and Evaluation Expert (National, 18 person-months)

13. The monitoring and evaluation (M&E) specialist will support PIU at AEPC in ensuring that a robust data and information monitoring and reporting system is in place to monitor the progress and performance of the Project.

14. Expertise Required: The expert will have a Bachelor's Degree in statistics, science, or a related field with a minimum of 8 years of experience in the design and implementation of M&E systems. Preference will be given to candidates with prior experience with monitoring and evaluation of energy or other infrastructure projects funded by multilateral banks. Knowledge of ADB and GoN rules and requirements is essential. The expert will conduct various tasks in support of the Project as necessary, including the following tasks:

i. Support the PIU in designing a robust M&E system that captures all relevant quantitative and qualitative data and information to report the progress and performance of the Project in compliance with ADB guidelines

ii. Ensure that the M&E system captures the indicators required for reporting as required by the ADB

iii. Develop templates for data and information gathering from project sites ensuring that templates can be easily used by village-level project participants and other project partners

iv. Develop methodologies for data verification and data validation to ensure reliability of data and performance indicators

v. Provide other related support to the PIU as required and build its capacity

15. Reporting requirements:

i. Report on the methodology to be used for data and information gathering and progress reporting at sub-project and project levels

ii. Templates for data and information gathering from the project sites

iii. Periodic report as required on the analysis of data providing performance indicators and other information relevant to tracking project progress

iv. Other outputs and reports as required

Appendix-13

INDICATIVE TERMS OF REFERENCE FOR SOCIAL MOBILISITION SERVICE PROVIDER

A. INTRODUCTION

1. The Government of Nepal (GoN) has launched the National Rural and Renewable Energy Program (NRREP), a five-year program[1] which is being implemented by the Alternative Energy Promotion Centre (AEPC). The NRREP builds on past efforts by GoN and its development partners to promote renewable energy (RE) projects in rural areas of Nepal and will encourage productive energy use and improvement in the living standard of rural people, increase employment opportunities in rural areas, reduce dependency on traditional energy and promote sustainable development of rural communities.

2. Implementing the NRREP will require direct coordination and interaction with rural communities to understand their developmental needs, assess energy demand for basic end-uses and productive energy use, and mobilize support for the development and financing of RE projects in conjunction with other on-going RE programs of the GoN. Regional Service Centers (RSCs) will serve to provide this intermediation between rural communities and AEPC, the executing agency for NRREP. These RCSs are under selection process to implement the NRREP.

3. The Rural Electrification through Renewable Energy Project (REREP) plans to install mini-micro hydropower (MMH) plants, and solar and solar-wind hybrid plants (SWM) in remote rural areas of Nepal and supply power to households and local enterprises through a mini-grid. The MoSTE will be an executing agency while the AEPC will be an implementing agency of the REREP. The REREP funded Project will leverage financing from various sources including funding mechanisms under the NRREP, counterpart funds from GoN, equity from Users Committee (UC), and funds from Village and District Development Councils (VDCs & DDC) to finance the installation of eligible subprojects.

4. As it is community based project, communities will be engaged in all phase of project cycle. Due to this reason, effective social mobilization will be the backbone for better implementation and for the achievement of development benefits envisioned by the project. AEPC is preparing its own social mobilization guidelines to mobilize the communities for effective promotion of clean and renewable energy under NRREP.

5. The project seeks the support of a local social mobilization service provider to provide social mobilization supports to the REREP. This ToR is prepared to engage a firm/NGO who will provide required social mobilizers to the RSCs on behalf of AEPC for mobilizing beneficiary communities under REREP program.

B. SPECIFIC CHARACTER OF THE ISSUE:

6. The implementation of the REREP at the field level will be carried out by the RSCs on behalf of AEPC. The social mobilizers required to mobilize the community during the implementation of REREP shall be recruited through the firm/NGO. For effective implementation of REREP by the RSCs, it is important for RSCs that the recruited social mobilizers are familiar

[1] The NRREP is operational from mid-July 2012 to mid-July 2017

with local context. The local social mobilization service provider shall work closely with the RSCs from very beginning of recruitment process.

7. Any requirement of the social mobilizers by the RSCs for implementation of REREP shall be made through AEPC only. Similarly, recruited social mobilizers shall be deployed to the RSCs through AEPC only. The PIU that sit in AEPC may provide necessary assistance to the AEPC in this task.

C. SCOPE OF THE WORK

8. The major work of the local social mobilization service provider is to provide numbers of suitable social mobilizers for AEPC upon request of the RSCs to implement the REREP at the field level. Other works of the RSCs includes, but not limited to, are as follows;

- Review of existing Social Mobilization guidelines being prepared by the AEPC in light of REREP objectives, if required; suggest changes to make the approach more pragmatic;
- Coordinate closely with the AEPC and the RSCs to understand their need in better way the nature and qualities of the social mobilizers to be hired;
- Develop smart selection criteria in close consultation with the AEPC and the RSCs that facilitates quick and easy selection of suitable social mobilizers in transparent way considering gender and social inclusion aspects;
- Provide necessary trainings and orientation to the selected social mobilizers to aware them about the project objectives and the implementation approach;
- Monitor the performance of social mobilizers in regular basis in close consultation with the AEPC and the RSCs.

D. RESPONSIBILITIES OF SOCIAL MOBILIZERS

9. Social mobilizers provided will be a full time staff based in community level and will have following responsibilities;

- Applying his/her best judgment to identify the best approaches in mobilizing the communities and relevant stakeholders in line with provided community mobilization guideline;
- Motivate the target beneficiaries to contribute on the construction and installation of renewable energy systems, RE-based livelihood facilities, and obtain their commitment possibly in writing and confirm that the beneficiaries deliver their committed share in cash or in kind;
- Aware and facilitate in establishment of community organization that suits with local context;
- Work closely with the project team and relevant district line agencies to conduct different trainings related to community development;
- To develop business plan for communities and recommend in productive use of energy to increase the profitability of community members;
- Train community members in development of transparent accounting system and encourage community members to conduct public auditing;
- To inform community members about the available grievance redress mechanism to receive and facilitate the concerns of communities as well as other stakeholders;

- Perform other functions as assigned or delegated by the relevant officers of the AEPC and the RSCs related to the REREP implementation.

E. QUALIFICATION/EXPERIENCE OF THE LOCAL SOCIAL MOBILIZATION SERVICE PROVIDER

- The service provider should have at least 5 years of experience to support the community development works will be highly preferred.
- The firm should have prior experience in capacity building activities of recruited staffs to meet the needs and expectation of the clients.

F. DURATION OF THE ASSIGNMENT

10. The duration of the services will be for the period of 5 years. Within this time frame, the firm shall able to recruit stipulated numbers of social mobilizers within 60 days once all the detail requirements are received from the AEPC.

G. INDICATIVE REQUIREMENT OF STAFFS

Position	LOE (person months)
1. Social Mobilizers	2000
2. Social mobilizers coordinators	100 (one in each RSCs)
3. Training Specialist (community development)	100

Appendix 14

CAPACITY DEVELOPMENT TECHNOLOGY ASSISTANCE
Support for Rural Electrification through Renewable Energy

A. Methodology and Key Activities

1. The capacity development technical assistance (CDTA) aims to help the government promote renewable energy and rural electrification in a sustainable and programmatic manner. CDTA will focus on four components shown in below paragraphs.

2. **Feasibility study of a large scale wind farm (minimum 1MW)**. There is no large level wind farm in Nepal. Under the ensuing project, 5 wind masts will be procured and installed in candidate sites. Based on measured one year wind date, the CDTA will support to develop a feasibility study for grid connected large level wind farm, and recommend a proper tariff structure.

3. **Energy storage management scheme**. As for solar and solar/wind hybrid systems, the energy storage systems are needed. The CDTA will study the options of management including recycling the batteries and support the government to implement the scheme.

4. **Institutional capacity development**. To ensure appropriate institutional governance, the CDTA will support capacity development of Ministry of Science, Technology and Environment (MoSTE) and Alternative Energy Promotion Centre (AEPC) which will cover accounting and financial management, operations and maintenance, safeguards and gender and community involvement. The CDTA will also support preparation of draft regulations for implementing the Renewable Energy Promotion Board (REPB) Act as and when it is enacted.

B. Implementation Arrangements

5. The executing agency (EA) will be MoEST, and the implementing agencies (IAs) are AEPC and Nepal Electricity Authority (NEA). AEPC will oversee day-by-day CDTA implementation. MoSTE and AEPC will help the consultants liaise with other government ministries and agencies, local authorities, and other stakeholders in the project areas, and obtain data and documentation from them. They will assign the counterpart staff for each expertise areas for on-the-job-training and skills transfer. AEPC will provide sufficient office space, furniture, and support facilities to the CDTA consultants on time.

6. The CDTA will be implemented over 24 months from Jul 2015 to Jun 2017. ADB will engage a consulting firm or consortium of firms using its quality- and cost-based selection procedures in accordance with the Guidelines on the Use of Consultants (2013, as amended from time to time). Equipment financed by the CDTA will be procured under ADB's Procurement Guidelines (2013, as amended from time to time). The CDTA will be disbursed in accordance with ADB's Technical Assistance Disbursement Handbook (2012, as amended from time to time) and any appropriate trust fund policy guidelines.

Table 1: Summary of Consulting Services

Area of Expertise	**Duration** (person-months)
A. International	
1. RE policy expert/ team leader	4.0
2. Wind energy expert	2.0

3. Energy storage expert	1.0
4. Tariff expert	2.0
5. Financial expert	1.0
6. Environment expert	1.0
7. Social development expert	1.0
Subtotal (A)	**12.0**
B. National	
1. RE expert	4.0
2. Environment expert	3.0
3. Social development expert	3.0
Subtotal (B)	**10.0**
Total (A+B)	**22.0**

C. Cost and Financing

7. CDTA will be financed by $500,000 on a grant basis by ADB's Technical Assistance Special Fund (TASF-others. The Government of Nepal will provide local currency costs through in-kind contributions, including office accommodation, facilities, data, and other information. The detailed cost estimates and financing plan are given in Table 2.

Table 2: Cost Estimates and Financing Plan
($'000)

Item	Total Cost
A. Asian Development Bank[a]	
1. Consultants	
a. Remuneration and per diem	
i. International consultants	308.10
ii. National consultants	45.35
b. International and local travel	86.20
c. Reports and communications	2.00
2. Equipment[b]	3.80
3. Training, seminars and conferences	
a. Facilitators	2.00
b. Training Program	22.50
4. Surveys	5.00
5. Miscellaneous administration and support costs	2.00
6. Contingencies	23.05
Total (A)	**500.00**

Note: The technical assistance (TA) is estimated to cost $500,000, of which contributions from the Asian Development Bank are presented in the table above. The government will provide counterpart support in the form of counterpart staff, office accommodation, and other in-kind contributions. The value of government contribution is estimated to account for 20% of the total TA cost.

[a] Financed by the Asian Development Bank's Technical Assistance Special Fund (TASF-other sources)

[b] The equipment will include 1 printer, 1 scanner, 1 fax machine, and 1 digital video camera. The equipment will become the property of executing agencies at the end of TA.

Source: ADB estimates.

D. Outline Terms of Reference

8. An international expert in renewable energy policy and institution will be the team leader, who will coordinate the inputs of all the other consultants, provide quality control on all outputs, harmonize proposals and recommendations, and ensure that the consultation process is adequate in terms of the stakeholder's participation and ownership.

9. The consultants' outline terms of reference are described as follows.

10. **RE Policy and Institutional Expert/Team leader** (international, 4 person-months). The consultant will have a master's degree in energy economics/energy policy/engineering/management or a closely related field and a minimum of 10 years of experience in evaluating the RE sector and analyzing RE policies and the related institutional sector. The consultant will conduct the tasks including but not limited to:

i. Review energy sector and RE sector in Nepal the past, present and ongoing programs and reports.
ii. Review the draft REPB Act, energy sector and RE sector policies of the government including any policy related to tariffs, subsidies etc.
iii. Conduct meetings with all major public and private stakeholders who are active in the energy and RE sectors in Nepal, to understand the context of the countries policies for the RE sector and understand the challenges facing implementation of RE projects in the country. Commercial banks involved in financing RE projects should also be consulted.
iv. Based on the discussions on the draft REPB Act, prepare an outline of the RE implementation regulations highlighting policy measures, regulatory frameworks, funding sources and institutional arrangements.
v. Conduct a consultative workshop to discuss the draft roadmap and REPB regulations with all key stakeholders active in the RE sector and finalize those in consultation with relevant government ministries and agencies.
vi. Set up a roadmap for an institutional capacity development programs for each of the EA and the IAs with other consultants.
vii. Identify priorities for institutional capacity building with time-bound action plans with other consultants.
viii. Serve as a resource person for in-house seminars and workshop organized with other consultants.
ix. Conduct other duties as reasonably requested by ADB project officer.

11. **Wind Energy Expert** (international, 2 person-months). The consultant will have a degree/diploma in engineering with minimum of 8 years' experience in wind energy resource assessment and wind project development. The consultant will conduct the tasks including but not limited to:

i. Collect and assess previous satellite-based wind maps by the US National Renewable Energy Laboratory and other existing secondhand wind data.
ii. Identify atleast 5 candidate sites for developing utility scale wind farm (minimum 1MW each), taking into account the factors of wind potential, power evacuation, and accessibility etc.
iii. Based on the 1-year wind data collected through the wind masts, select one candidate site and prepare the pre-feasibility study for utility scale wind farm (minimum 1MW).
iv. Assist the team leader to develop the draft REPB regulations.
v. Serve as a resource person for in-house seminars and workshop organized with other experts in doing the above tasks.

12. **Energy Storage Expert** (international, 1 person-month). The consultant will have a degree/diploma in engineering with minimum of 8 years' experience in storage systems for mini-grid systems. The consultant will conduct the tasks including but not limited to:

i. Review the status of Nepal battery market on industrial and household usage, transportation etc.
ii. Propose the proper management scheme for the batteries to be used for solar and solar/wind hybrid mini grid component.
iii. Based on the experience and lessons from the new pilot project utilizing new storage technology, advise AEPC how to adopt the new energy storage technology in Nepal
iv. Serve as a resource person for in-house seminars and workshop organized with other experts in doing the above tasks.

13. **Tariff Expert** (international, 2 person-months). The consultant will have a degree/diploma in economics/finance or a closely related field with minimum of 6 years' experience on tariff setting. The consultant will conduct the tasks including but not limited to:

i. Assist Wind Energy Specialist to develop the feasibility study for a utility scale wind farm by setting up a reasonable tariff.
ii. In coordination with AEPC, NEA and related institutions, develop principles, procedures and methodologies for grid connected RE generation tariff setting on the international practice covering (a) financial performance targets, (b) revenue requirement determination, (c) structuring tariffs toward full cost recovery and minimization of cross-subsidy, (d) targeting and delivering subsidies, and (e) incentive-based regulation with particular reference to incentivizing loss-reductions.
iii. Establish norms of power purchase agreements and cost based tariff mechanisms based on the international practices.
iv. Propose the methodologies of setting tariff for the subprojects for grid connection in the future.
v. Serve as a resource person for in-house seminars and workshop organized with other experts.

14. **Financial Specialist** (international, 1 person-month). The consultant will have a degree/diploma in economics/finance/accounting or a closely related field with minimum of 8 years' experience in energy sector. The consultant shall have wide-ranging experience in developed and developing countries in preparing energy sector financing plans. The consultant will conduct the tasks including but not limited to:

i. Review financing plans and financing sources for energy and RE sector projects in Nepal by reviewing past, present and ongoing programs and reports on the energy and RE sectors.
ii. Review relevant energy sector and RE policies of the Government including any policies related to tariffs, subsidies, draft policies, etc. to understand financing issues and implications of RE targets and programs.
iii. Review past, ongoing and planned RE sector financing programs of the government and its developmental partners.
iv. Review the financial sector in Nepal including national and private commercial banks and other financial institutions, pension and insurance funds, etc. to assess the potential for local financing for RE programs. Examine issues related to external financial

borrowings, foreign exchange risk, risk mitigation options, and innovative financing mechanisms.

v. Help Wind Energy Specialist conduct financial analysis for the feasibility study of a utility scale wind farm.

15. **Environmental Expert** (international, 1 person-month; National 3 person-months). The consultants will have a degree/diploma in environmental science/environment management/environmental engineering or a closely related field with minimum of 6 years' experience in environment planning and implementation. Work experience in RE industry will be preferred. The consultants should have sound knowledge on ADB Environmental Safeguard Policy. The consultants will conduct the tasks including but not limited to:

i. Develop environmental monitoring and reporting systems for the ensuring project. Support AEPC in implementing safeguard plans and their monitoring if necessary.
ii. Assess design and management to adapt the climate change and improve safety measures. Set up checklists for any environmental and climate change risks (e.g., flush floods and glacial lake outburst floods) and their mitigation measures.
iii. Develop the initial environment examination and (IEE) or environmental impact assessment (EIA) where and as applicable for the utility scale wind farm project.
iv. Serve as a resource person for in-house seminars and workshop organized with other experts in doing the above tasks.
v. Assist the team leader to develop the RE roadmap.

16. **Social Development Expert** (international, 1 person-month; National 3 person-months). The consultants will have a degree/diploma in social sciences or a closely related field together with 6 years of experience in social development with a focus on resettlement activities, and community participation issues. The consultants should have sound knowledge on ADB Social Safeguard Policy. The consultants will conduct the tasks including but not limited to:

i. Develop monitoring and reporting systems for GESI action plan of ensuing project including monitoring indicators to ensure the timely and effectively implementation of the action plan.
ii. Develop the social impact assessment and safeguard plans for the utility scale wind farm project.
iii. Develop AEPC's manuals for community development plans, livelihood restoration programs, and gender mainstreaming with other experts.
iv. Serve as a resource person for in-house seminars and workshop organized with other experts in doing the above tasks.
v. Assist the team leader to develop the RE roadmap.

17. **Renewable Energy Expert** (National 4 person-months). The consultant should have a degree/diploma in energy economics/energy engineering or a closely related field together with 8 years of experience in RE sector in Nepal, and be familiar with and knowledgeable about Nepal's energy laws, policies, and regulations. The consultant will conduct the tasks including but not limited to:

i. Provide logistical, secretarial, and research support during meetings, interviews, and workshops.
ii. Conduct secondary research for data and information through one-one-one meetings and/or interviews with implementing partners and appropriate stakeholder groups to

gather inputs, necessary to carry out each of the tasks under the TOR of the team leader. and

iii. Perform other functions as may be assigned or delegated by the team leader from time to time during the assignment.

E. Reporting

18. The consultants will submit to the EA/IAs and ADB an inception report focusing on the work program no later than 2 month after commencing the consultancy services. Interim reports will be submitted 6 months and 12 months after the start of the services. A draft final report will be submitted 17 months after incorporating all of the deliverables and the performance evaluation achieved under the TA. The final report will be submitted within 4 months after submission of the draft final report. Tripartite meetings/workshops will be held in Nepal to discuss the inception, interim, and draft final reports among the consultants, the EA/IAs and the ADB mission. Every 6 months, the consultants will prepare progress reports highlighting any achievements and issues that are critical for the timely completion of the TA. Within 2 months of the tripartite meeting to discuss the draft final report, the team leader will submit a final report in a format acceptable to ADB after addressing all comments received from the government and ADB.