



Report and Recommendation of the President to the Board of Directors

Project Number: 41155
October 2011

Proposed Loan, Grant, Technical Assistance Grant,
and Administration of Grant
Nepal: Electricity Transmission Expansion and Supply
Improvement Project

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 15 October 2011)

Currency unit	–	Nepalese rupee/s (NRe/NRs)
NRe1.00	=	\$0.01275
\$1.00	=	NRs78.42

ABBREVIATIONS

ADB	–	Asian Development Bank
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
ETFC	–	Electricity Tariff Fixation Commission
FIRR	–	financial internal rate of return
FRP	–	Financial restructuring plan
NEA	–	Nepal Electricity Authority
NGO	–	nongovernment organization
O&M	–	operation and maintenance
PAM	–	project administration manual
SDR	–	special drawing rights
TA	–	technical assistance
TASF	–	Technical Assistance Special Fund
WACC	–	weighted average cost of capital

NOTE

In this report, “\$” refers to US dollars.

Vice-President	X. Zhao, Operations 1
Director	S.H. Rahman, South Asia Department (SARD)
General Director	Y. Zhai, Energy Division, SARD
Team leader	P. Wijayatunga, Senior Energy Specialist, SARD
Team members	M. Davidovski, Senior Counsel, Office of the General Counsel L. George, Energy Specialist, SARD Z. Lei, Energy Specialist, SARD S. Parwez, Senior Programs Officer, SARD F. Tornieri, Senior Social Development Specialist, SARD P. van Houten-Castillo, Social Safeguard Specialist, SARD
Peer reviewer	J. Acharya, Climate Change Specialist, Regional and Sustainable Development Department

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PROJECT AT A GLANCE

1. Project Name: Electricity Transmission Expansion and Supply Improvement Project				2. Project Number: 41155-013	
3. Country: Nepal		4. Department/Division: South Asia Department/Energy Division			
5. Sector Classification:					
		Sectors	Primary	Subsectors	
		Energy	√	Electricity transmission and distribution	
				Energy efficiency and conservation	
6. Thematic Classification:					
		Themes	Primary	Subthemes	
		Economic growth	√	Promoting economic efficiency and enabling business environment	
		Environmental sustainability		Natural resources conservation	
		Regional cooperation and integration		Cross-border infrastructure	
		Capacity development		Organizational development	
6a. Climate Change Impact			6b. Gender Mainstreaming		
Adaptation		Low	Gender equity theme (GEN)		
Mitigation		Low	Effective gender mainstreaming (EGM)		√
			Some gender benefits (SGB)		
			No gender elements (NGE)		
7. Targeting Classification:			8. Location Impact:		
General Intervention	Targeted Intervention			National	High
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level	Regional	Medium
√					
9. Project Risk Categorization: Low					
10. Safeguards Categorization:					
		Environment	B		
		Involuntary resettlement	B		
		Indigenous peoples	C		
11. ADB Financing:					
		Sovereign/Nonsovereign	Modality	Source	Amount (\$ Million)
		Sovereign	Project grant	Asian Development Fund	19.0
		Sovereign	Project loan	Asian Development Fund	56.0
		Sovereign	Capacity development technical assistance	Technical Assistance Special Fund	.2
		Total			75.0
12. Cofinancing:					
		Financier	Category	Amount (\$ Million)	Administration Type
		Norway	Official-Grant	25.0	Full
		Total		25.0	
13. Counterpart Financing:					
		Source	Amount (\$ Million)		
		Government	28.0		
		Total	28.0		
14. Aid Effectiveness:					
		Parallel project implementation unit	No		
		Program-based approach	No		

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed loan, (ii) a proposed grant, and (iii) proposed administration of a grant to be provided by the Government of Norway to Nepal for the Electricity Transmission Expansion and Supply Improvement Project. The report also describes proposed technical assistance (TA) for Gender-Focused Capacity Building in Clean Energy, and if the Board approves the proposed loan and grant, I, acting under the authority delegated to me by the Board, will approve the TA.¹

2. The project will improve the reliability of energy supply in Nepal and strengthen the transmission infrastructure needed to promote Nepal's capacity for cross-border energy trade. It will provide support in three critical areas in the electricity supply industry, which has experienced severe underinvestment: (i) electricity transmission capacity expansion, (ii) strengthening of distribution systems including those along the Tamakoshi (Khimti)–Kathmandu transmission line, and (iii) rehabilitation of selected small hydropower plants.²

II. THE PROJECT

A. Rationale

3. The current available generating capacity of 705 megawatts (MW) in Nepal comes predominantly from hydropower. At system peak time, up to 400 MW of load is shed³ countrywide, depending on variations in available water resources and transmission limitations. Six hydropower projects totaling 592 MW are presently under construction. Another six projects with a total capacity of 1,335 MW are planned or proposed in the near to medium term. Limited transmission capacity in western region of Nepal has restricted additional electricity imports through the western border with India. The first large-scale cross-border transmission line with India between Dhalkebar (Nepal) and Muzaffarpur (India), with a capacity of 1,000 MW, is at an advanced stage of preparation. This will enable Nepal to import electricity from India initially and later facilitate hydropower export. However, the full benefits of this critical regional connection can be harnessed only when adequate strengthening of the related transmission infrastructure within Nepal is undertaken.

4. A total of 16 Nepal Electricity Authority (NEA)-owned small hydropower stations with an overall capacity of 13.84 MW are connected to the national grid. Another 23 isolated power plants with a total capacity of 4.54 MW are owned by the NEA; some of them are operated by the communities. In addition, 21 small hydropower plants established by the private sector under the small power purchase agreements provide 78.5 MW of electricity to the national grid. The NEA has been implementing a plan to rehabilitate aging small hydropower plants to enhance their output. Under the Energy Access and Efficiency Improvement project⁴, the Asian Development Bank (ADB) is assisting the rehabilitation of two such plants.

¹ The design and monitoring framework is in Appendix 1.

² The Asian Development Bank (ADB) provided project preparatory TA. ADB. 2010. *Technical Assistance to Nepal for Preparing the Second Energy Access and Efficiency Improvement Project*. Manila.

³ Load shedding (also called rolling blackouts) is the practice of using intentionally engineered electrical power outages where electricity delivery is stopped for non-overlapping periods over geographical regions. Typically, this practice arises where demand for electricity exceeds the power supply capability of the network as a result of insufficient generation capacity or inadequate transmission infrastructure to deliver sufficient power to the area where it is needed.

⁴ ADB. 2009. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to Nepal for the Energy Access and Efficiency Improvement Project*. Manila.

5. The interim plan of Nepal⁵ sets out the Government of Nepal's long-term vision (up to 2027) for the energy sector. The related targets include (i) developing 4,000 MW of generation for domestic use, (ii) providing electricity to 70% of the population through the national grid and 25% through other sources, (iii) increasing per capita consumption to 400 kilowatt-hours, and (iv) exporting electricity. Achieving these targets requires rapid expansion of the electricity supply industry. To help attain the government's objectives in line with ADB's country partnership strategy for Nepal,⁶ ADB continues to focus on (i) improving access to electricity in rural areas, (ii) increasing energy efficiency, (iii) clean energy development, (iv) regional cooperation, (v) strengthening sector governance, and (vi) promoting private sector participation.

6. In 2009, ADB approved the Energy Access and Efficiency Improvement Project to address immediate needs for improvement of electricity supply capacity. Implementation is progressing as scheduled. The project emphasized a financial restructuring plan for the NEA, its internal restructuring, improved revenue collection, effective tariff regulation, and loss reduction. The NEA has prepared and approved a financial restructuring plan (FRP) which is awaiting governmental adoption. During its policy dialogue with the government, ADB underscored the need to implement the FRP, including average upward tariff revisions, to ensure the long-term financial sustainability of the sector. In line with the release of project funds is conditioned on the adoption of the FRP and the announcement of a tariff rise. Further, the government reconstituted the Electricity Tariff Fixation Commission⁷ as an essential step toward the proposed tariff increases. Over the medium term, the project design aims at NEA operational solvency by mid-2015 through multiple measures in the FRP such as reduction of indebtedness, tariff revisions, and curtailment of interest on government financing to NEA. ADB will reserve the right to suspend further disbursements if substantial progress toward this target is not being made. Under new management, the NEA has instituted substantial reform efforts, including internal restructuring, demonstrably improved revenue collection, and the development of a loss reduction plan, including short-term year-end reduction targets.

7. Large-scale hydropower development is under way in the Tamakoshi Valley, targeting both domestic consumption and export to India. The Tamakoshi–Kathmandu 400-kilovolt (kV) line under the project will give increased evacuation capacity from the Tamakoshi Valley through an alternative route to the Dhalkebar–Muzaffarpur cross-border line via Kathmandu. This transmission system configuration will accommodate and improve the reliability of exporting the planned generation. The government is promoting the development of small hydropower for domestic use, with a standard power purchase tariff provided to the developers. The government is also encouraging such small hydropower development with people's participation through village development and district development committees. The NEA has started a program to provide electricity access to the communities affected by greenfield transmission line projects.

8. The project targets the strengthening and expansion of transmission and distribution systems, and enables Nepal to make further use of its abundant hydropower resources. Transmission network strengthening, in conjunction with current hydropower development, is a precondition to reducing load shedding and technical losses and increased cross-border electricity trade. The project is designed to address these needs of Nepal's power system. The NEA and ADB have agreed to a short list of priority subprojects for inclusion in the project.

⁵ Government of Nepal. 2008. *Three Year Interim Plan (2008–2010)*. Kathmandu.

⁶ ADB. 2009. *Country Partnership Strategy: Nepal, 2010–2012*. Manila.

⁷ The ETFC is an independent body operating under the Electricity Act, 1992 and the Electricity Tariff Fixation Rules, 1993.

These subprojects contribute to inclusive growth through increased income-generating opportunities for the poor with increased access to electricity, pro-poor and gender focused interventions, and regional energy trade. In addition, the project supports improved project management through the training of NEA staff and provision of implementation consultants.

B. Impact and Outcome

9. The impact of the project will be increased access to reliable supply of electricity through improved electricity supplies and transmission and distribution systems. The outcome of the project will be improved electricity supply through improved connectivity between generation and load centers, distribution strengthening, and enhanced small hydropower capacity.

C. Outputs

10. **Output A: Increased electricity transmission.** Output A will include (i) stringing a second circuit on the 132 kV transmission line between Kohalpur and Mahendranagar, (ii) construction of the 220 kV or 400 kV Tamakoshi (Khimti)–Kathmandu transmission line and related facilities, and (iii) expansion of the Chapali grid substation.

11. **Output B: Expanded electricity distribution.** Output B includes the rehabilitation of distribution systems in NEA Distribution and Consumer Services Division (East): Gaur S/S, Rautahat; Nijgarh S/S, Bara; Chandragadhi S/S, Jhapa; Jare S/S, Dhading; Belbari S/S, Morang; and in NEA Distribution and Consumer Services Division (West): Gorkha S/S, Gorkha; Parasi S/S, Nawalparasi; Krishnanagar S/S, Kapilbastu; Taulihawa S/S, Kapilbastu; Amuwa S/S, Rupandehi; Mirmi S/S, Syangja) and new distribution systems along the Tamakoshi (Khimti)—Kathmandu transmission line

12. **Output C: Enhanced electricity generation.** Output C will rehabilitate Tinau (1 MW) and Sundarijal (640 kilowatts) small hydropower plants to ensure enhanced output from these plants.

13. Each of outputs A, B, and C will encompass subparts devoted to capacity building relevant to that output, aimed at supporting project implementation, training in operation and maintenance (O&M) for NEA staff, and building awareness and engagement of communities to be served by these investments. This will include training women for different activities involving the operation of small hydropower plants and distribution systems, and a gender-sensitive educational program on the benefits of household energy efficiency.

D. Investment and Financing Plans

14. The project is estimated to cost \$128.05 million, including taxes and duties. The project cost includes physical and price contingencies and interest charged during implementation. Table 1 summarizes the investment plan. Detailed cost estimates by expenditure category and by financier are in the project administration manual (PAM).⁸

15. The government has requested a loan in various currencies equivalent to SDR35,550,000 from 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 charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; and such other terms and

⁸ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

conditions as set forth in the draft loan and project agreements. ADB will finance the interest during construction.

16. The government has also requested a grant of \$19 million from ADB's Special Funds resources and grant cofinancing of \$25 million equivalent from the Government of Norway. The Government of Norway has provided a firm commitment, with final approval anticipated by December 2011.⁹ The grant will be administered by ADB.

17. The government and the NEA will provide \$28.05 million equivalent to fund a portion of the local costs, including taxes and duties. The government shall make the loan and grant proceeds available to the NEA and cause the proceeds to be applied to financing project expenditures, including through separate subsidiary loan and equity agreements, in form and substance acceptable to ADB. Table 2 summarizes the financing plan.

Table 1: Project Investment Plan
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Part A: Increased Electricity Transmission	98.69
2. Part B: Expanded Electricity Distribution	12.28
3. Part C: Enhanced Electricity Generation	4.45
Subtotal (A)	115.42
B. Contingencies^c	11.57
C. Financing Charges during Implementation^d	1.04
Total (A+B+C)	128.03

^aIncludes taxes and duties of \$2.82 million to be financed from government resources.

^bIn August 2011 prices.

^cPhysical contingencies are computed at 5% of base costs. Price contingencies for investment in Nepal are computed in accordance with Asian Development Bank. 2005. *Financial Management and Analysis of Projects*. Manila.

^dIncludes interest charges (1% per annum).

Sources: Asian Development Bank and Nepal Electricity Authority.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Fund loan	56.00	43.74
Asian Development Fund grant	19.00	14.84
Government of Norway	25.00	19.53
Government of Nepal and Nepal Electricity Authority	28.03	21.89
Total	128.03	100.00

Source: Asian Development Bank estimates.

18. Gender mainstreaming activities will be financed through a combination of ADB's Technical Assistance Special Fund (TASF-IV)¹⁰ and government counterpart funds. Activities will be supplemented by additional interventions planned under previously approved Japan Fund for Poverty Reduction grant assistance.¹¹

19. The government will relend the proceeds of the Asian Development Fund loan to the NEA under the subsidiary loan agreement upon terms and conditions satisfactory to ADB.

⁹ The Government of Norway will provide the cofinancing in Norwegian kroner.

¹⁰ ADB. 2011. *Technical Assistance to Nepal for Gender Focused Capacity Building in Clean Energy*. Manila

¹¹ ADB. 2010. *Proposed Grant Assistance for Improving Access to Clean and Renewable Energy in Bhutan, Nepal, and Sri Lanka*. Manila.

Except as ADB shall otherwise agree, the terms for relending the proceeds of the loan shall include interest at the rate of 5% per annum on the amount of the subsidiary loan and a repayment period of 32 years including a grace period of 8 years. The proceeds of the grants will be made available to the NEA under the subsidiary equity investment agreement upon terms and conditions satisfactory to ADB.

E. Implementation Arrangements

20. The implementation arrangements are summarized in Table 3 and described in detail in the PAM (footnote 8).

Table 3: Implementation Arrangements

Table 6: Implementation Arrangements			
Aspects	Arrangements		
Implementation period	1 March 2012–30 June 2017		
Estimated completion date	30 June 2017 (loan and grant closing on 31 December 2017)		
Management			
Oversight body	Steering committee chaired by the secretary, Ministry of Energy		
Executing agency	NEA		
Key implementing agencies	Project management unit within NEA (with expertise as PMU for other NEA-focused ADB projects)		
Implementation units	10 staff at NEA		
Procurement	International competitive bidding	Five contract packages	\$107.49 million
Consulting services (project implementation and training)	Financed by the government and ADB. Quality- and cost-based selection (80:20) for firms	Two contract packages	\$2.25 million
Advance contracting	All eligible contract packages and expenditures agreed between ADB and the government relating to output A		
Disbursement	The loan and grants (including ADB administered cofinancing) will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2007, as amended from time to time) and detailed arrangements agreed upon between ADB and the government.		

ADB = Asian Development Bank, NEA = Nepal Electricity Authority.

Source: Asian Development Bank.

III. TECHNICAL ASSISTANCE

21. A Capacity development TA is proposed to be provided for Gender-Focused Capacity Development in Clean Energy to enhance livelihood opportunities and increase awareness of efficient use of energy in the communities surrounding the project locations. ADB will provide TA not exceeding \$250,000 equivalent. The government will provide counterpart support in the form of counterpart staff and office supplies. The TA will be financed on a grant basis from ADB's Technical Assistance Special Fund (TASF–IV). A national nongovernment organization (NGO) will be recruited by ADB in accordance with ADB's Guidelines on the Use of Consultants (2010, as amended from time to time). It is anticipated that 84 person-months of national consultant inputs will be provided by the NGO to implement the TA. The NGO will be selected in accordance with ADB's quality- and cost-based selection method using a quality–cost ratio of 80:20 and a simplified technical proposal.¹²

¹² The terms of reference for consultants are in Project Administration Manual (accessible from the list of linked documents in Appendix 2).

IV. DUE DILIGENCE

A. Technical

22. Preliminary technical due diligence has been undertaken on the subprojects and demonstrates that the cost estimates are reasonable and unit cost rates compare favorably with similar recent projects in India and Nepal. The NEA has undertaken preparatory work to develop the subprojects under output A to the stage of readiness for tendering.

23. The NEA's O&M staff is familiar with the technologies and concepts involving all the subprojects except in 400 kV transmission systems. Consequently, the project design envisages providing this required experience through the engagement of an international consulting firm to act as the owner's engineer for output A. Additional demands on the NEA will be due to the increases in line lengths, additional hardware, and resources to maintain transmission lines rated for 400 kV. Where any specific training on hardware items is required, the NEA has the capacity to facilitate this, either through in-house training or through manufacturer's training commitments, which will be incorporated into hardware supply contracts where necessary. The supply contracts will include sufficient spare parts plus quality and performance guarantees. Best practice design standards and construction techniques—including adaptations to counter climate change incidents, e.g., flood and extreme weather—will be applied to all investments

B. Economic and Financial

24. Financial analysis of the project was carried out in accordance with ADB's *Financial Management and Analysis of Projects*.¹³ All financial costs and benefits are expressed in constant 2011 prices. The weighted average cost of capital (WACC) for the NEA was evaluated to be 0.75% per year. Project financial viability was examined by comparing the financial internal rate of return (FIRR) with the WACC. The costs of the project were evaluated on the basis of NEA initial assessments, and were verified and compared with industry norms. The capital investments, O&M costs, and taxes incurred to install and operate the project were used as costs. The benefits were evaluated in the following manner. For output A: increased electricity transmission, the benefits are through serving additional customer demand, and evacuation of hydropower from existing and new power plants. For output B: expanded electricity distribution, the benefits arise through the increased electricity sales, which have largely reached the limits of the existing distribution substations and lines. For output C: enhanced electricity generation, the benefits arise from additional generation from rehabilitation of two aging small hydropower plants, which are presently providing only a small portion of their potential electricity generation. The FIRR of output A is 7.0% while that of output B is 25.0%. The FIRR for part C is 6.4%. These values compare well with the WACC. The FIRR for the entire project is 11%. The sensitivity analysis shows that the FIRR drops only to 6.8% when adverse changes are introduced to all the critical variables.

25. Each project component has been analyzed for economic viability using a with- and without-project approach. Without the project, it is assumed that bottlenecks will continue to cause disruption, and that newly available generation will not be delivered to final consumers. With the project, it is assumed that there will be increased capacity to evacuate newly available generation and to reduce system losses, resulting in increases in both non-incremental and incremental electricity consumption. Economic evaluation indicates that the project will deliver an attractive economic return. The economic internal rate of return (EIRR) of the overall project is 25.7%. The EIRR is 23.2% for output A while the EIRR is 40.2% for output B and 18.8% for

¹³ ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

output C. The sensitivity analysis shows that the project returns are robust against changes to critical variables and the project will have a minimum EIRR of 18%.

C. Governance

26. The government will ensure that the NEA has operational autonomy and that no organizational changes will affect its ability to perform its obligations under the project.¹⁴ A financial management assessment and a procurement capacity assessment of the NEA were also conducted during due diligence. The NEA has defined policies and procedures in place for accounting, budgeting, and auditing activities. The NEA is required to prepare annual audited financial reports under the NEA Act and in compliance with accounting requirements of the Companies Act 2007. The NEA has sufficient experience in local and foreign procurement, including ADB standard bidding procedures, under domestic projects and external assistance from international development partners. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the NEA. The specific policy requirements and supplementary measures are described in the PAM.

D. Poverty and Social

27. 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. People who tend to remain poor are households of agricultural wage earners, those who are landless or have small land holdings, those of lower castes, those with illiterate household heads, and those living in large households with more than seven members. The poverty classification of the project is general intervention, with rural economic growth as a theme. The project impact, outcome, and outputs are consistent with Nepal's tenth plan for poverty reduction. 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. Activities include partnering with local electricity user cooperatives in project orientation and education awareness, enhancement of livelihoods through skills training, small-scale enterprise development, NEA 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 NEA and the project management unit to track social inclusive and gender-based achievements of the project. Financing of effective gender mainstreaming activities will be from a combination of Government of Nepal counterpart funds and ADB's TASF-IV, complemented by previously approved Japan Fund for Poverty Reduction grant assistance funds.¹⁵

E. Safeguards

28. **Environment.** The project is classified environment category B and the initial environment examinations were prepared following ADB's Safeguard Policy Statement (2009),

¹⁴ As part of the NEA financial restructuring plan, the NEA has proposed for government approval the establishment of a rural electrification entity, and will undertake to keep ADB informed of any effect this could have on (i) the ownership and management of assets of the NEA, which are involved in the project; and (ii) the implementation of the project and obligations of the NEA as executing agency.

¹⁵ ADB. 2010. *Technical Assistance for Improving Access to Clean and Renewable Energy in Bhutan, Nepal, and Sri Lanka*. Manila.

the government's environmental impact assessment guidelines, and related national policies and legislation. Public consultation and information disclosure requirements have been met. Alignment of transmission lines has avoided any environmentally and ecologically sensitive areas. Out of the total length of the Tamakoshi (Khimti)–Kathmandu line, 16 kilometers will pass through some forest areas in Chanrawati Watershed¹⁶, which is host to ecosystem services transaction¹⁷ but is not a legally protected area. Any loss of vegetation within the right-of-way will be directly offset by reforestation activities consistent with the requirements of the government. The NEA and ADB will provide oversight to ensure that ongoing reforestation initiatives within the Chanrawati Watershed will not be affected. Installation of the second circuit for the Kohalpur–Mahendranagar line will not have any significant impacts as no new transmission towers will be required and the existing right-of-way will be maintained. Decommissioned equipment and materials from the rehabilitation of distribution substations and the small hydropower plants are not expected to cause any risk to community health and safety as these will be stored on site until they can be safely reused and redistributed to other substations. Disposal of unusable equipment will comply with national and international requirements such as the Stockholm Convention.¹⁸

29. The environmental management plan (EMP) includes mitigation measures, monitoring, and adequate budgetary provisions for its implementation. The EMP will be part of the bidding documents and the NEA will supervise the construction contracts and EMP implementation. Monitoring reports will be submitted semiannually by the NEA to ADB. EMPs will be updated if unanticipated impacts are identified during implementation. The NEA has sufficient capacity in its Environmental and Social Studies Department to implement the EMP. Third-party services will be utilized for monitoring and mitigation activities as necessary.

30. **Involuntary resettlement and indigenous peoples.** The project is classified as category B for involuntary resettlement and category C for indigenous peoples. The project will have limited resettlement impacts and no adverse impacts on indigenous groups.¹⁹ An estimated 39 households, with about 195 people, will lose an estimated 15 hectares of land as a result of the construction of three new substations (Laipur, Kohalpur, and Moolpani) and the upgrading of one existing substation (Barhabise). No landowner or household will lose 10% or more of their productive assets. People using or living along the transmission line will be temporarily impacted and restricted to using affected land for agricultural purposes. Affected persons will be eligible for compensation in line with ADB's Safeguard Policy Statement requirements. No further clearance or acquisition of land will be required for the project.

31. The NEA is considered to have adequate institutional capacity to implement, manage, and monitor all activities. In contributing to poverty reduction and alleviation, the NEA and contractors will ensure that 30% of the workforce originates from the local area and that priority and preference is given to women, the poor, and marginalized ethnic groups. The project will promote and advocate for a socially inclusive, gender equitable, and nondiscriminatory work

¹⁶ The watershed area was declared in 2010 after the licensing in 2007 of the Tamakoshi hydropower facilities within its boundaries; it was acknowledged that hydropower development would occur in this area which does not constitute a critical habitat.

¹⁷ Payments to land managers and others to undertake actions that increase the quantity and quality of benefits people gain from ecosystems such as food and water and regulation of floods, drought and land degradation.

¹⁸ United Nations Environment Programme.. 2004. *Stockholm Convention on Persistent Organic Pollutants*. Stockholm.

¹⁹ No impacts are foreseen on indigenous peoples groups. If impacts are identified, the NEA 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 ADB's Policy on Indigenous Peoples (1998) and Safeguard Policy Statement requirements.

environment and practices. Practices will be consistent with core labor standards, which among other things, prohibit the use of child laborers, forced, bonded, or compulsory labor practices; and seek to ensure fair treatment, good working conditions, and safe working practices for all workers. Where worker migration is required, the project will minimize the risk of HIV/AIDS through information dissemination at project areas. Social safeguards shall be achieved in line with the provisions stated in the PAM.²⁰

32. A detailed resettlement plan will guide the resettlement process and describe the nature of impacts, range of and eligibility for entitlements, income and livelihood restoration, rehabilitation assistance, and compensation for losses incurred. The resettlement plan details the institutional arrangements for implementation, a procedure for grievance redress, a structure for periodic and regular monitoring and reporting of project activities, detailed cost and budget estimates, and a time-bound implementation schedule. The resettlement plan will be updated as needed and publicly disclosed to interested stakeholders on the ADB and NEA websites. Project-affected peoples will be consulted on a regular basis as needed, in a timely, open, transparent, and culturally sensitive manner and in the local language.

F. Risks and Mitigating Measures

33. The project does not have unusual technical risks. Each subproject will use standard technologies used in Nepal and will be designed and selected according to international standards. The risk of weak technical supervision capacity of the NEA will be addressed by the use of a specialist firm to perform the role of owner's engineer for the 400 kV rated Tamakoshi (Khimti)–Kathmandu line and related transmission substations, which will be at a higher voltage than other existing lines in Nepal. The major risks and mitigation measures are summarized in Table 4. The project benefits are expected to outweigh the associated risks.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Weak governance within the electricity sector	The Government of Nepal undertakes to maintain the functions of the Electricity Tariff Fixation Commission throughout the project, and NEA to maintain the new NEA corporate governance reform measures.
Financial sustainability of the NEA	Adoption of the FRP and announcement of an initial tariff increase are conditions to disbursement of proceeds.
Weak implementation capacity in large-scale projects	Implementation consultants will be provided for major components. Subprojects are implemented through EPC contracts.
Transition to federal structure, political uncertainty may lead to lack of political will to increase tariffs sufficiently to place the NEA on a solid financial footing	Taking into account the complex political situation, fixed increments of tariff increases are not mandated, but ADB will reserve the right to suspend disbursements if it deems that substantial progress toward operational solvency by mid 2015 is not being made.
NEA loses government support due to weak internal governance	NEA will implement system loss reduction plans and arrears collection programs as ongoing covenants.
Risk of corruption as general feature of landscape	NEA will disclose on project website the audited project financial accounts; project progress; and procurement short lists, invitations for bid, and contract awards. NEA will train project staff in ADB and Nepal on anticorruption rules.

ADB = Asian Development Bank; EPC = engineering, procurement, and construction; NEA = Nepal Electricity Authority.

Source: Asian Development Bank.

²⁰ Section VII (safeguards) and section VIII (gender and social) of the Project Administration Manual (accessible from the list of linked documents in Appendix 2).

IV. ASSURANCES AND CONDITIONS

34. The government and NEA have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents. The government and NEA have agreed with ADB on certain covenants for the project, which are set forth in the financing agreement, grant agreement, and project agreement. As conditions for ADB loan and grant effectiveness, the government has agreed that (i) a subsidiary loan agreement under which the loan proceeds are relent to NEA; and (ii) subsidiary equity financing agreement, under which grant proceeds are provided to NEA, in form and substance satisfactory to ADB, shall have been signed and delivered.

35. As conditions for withdrawal of loan proceeds, the government has agreed that no withdrawals shall be made from the loan or grant account until (i) the government shall have adopted the financial restructuring plan of NEA, in form and substance satisfactory to ADB; and (ii) ETFC shall have announced an upward revision in electricity tariffs.

V. RECOMMENDATION

36. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

- (i) the loan in various currencies equivalent to SDR35,550,000 to Nepal for the Electricity Transmission Expansion and Supply Improvement Project, from ADB's Special Funds resources, with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; for a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board;
- (ii) the grant not exceeding \$19,000,000 to Nepal, from ADB's Special Funds resources, for the Electricity Transmission Expansion and Supply Improvement Project, on terms and conditions that are substantially in accordance with those set forth in the draft grant agreement presented to the Board; and
- (iii) the administration by ADB of a grant not exceeding the equivalent of \$25,000,000 to Nepal for the Electricity Transmission Expansion and Supply Improvement Project, to be provided by the Government of Norway.

Haruhiko Kuroda
President

24 October 2011

Design Summary	Performance Targets and Indicators	Data Sources and Reporting Mechanisms	Assumptions and Risks
3. Enhanced electricity generation	Distribution systems (155 km of 400 V lines) along the planned Tamakoshi–Kathmandu transmission line installed by 2017.	NEA annual reports	
	Electricity access provided to 20% of new electrified households along the Tamakoshi–Kathmandu line (target: 30% women and marginalized groups) (2011 baseline: 9,000)	NEA annual reports	
	Tinau (1 MW) and Sundarijal (640 kilowatts) hydropower plants rehabilitated by 2017	NEA annual reports	
	2,500 tons of CO ₂ saved annually from 2017	NEA annual reports	
4. Efficient project management	Livelihood enhancement through training of 1,000 households in the surrounding villages in energy conservation and efficiency	NEA annual reports	
	Project management unit operational by 30 November 2011	NEA annual reports	
	Project implemented on time and within budget	NEA annual reports	
Activities with Milestones			Inputs
1. Increased electricity transmission			ADB (ADF grant): \$19 million
1.1 Acquisition of land (completed by March 2012)			Item Amount (\$ million)
1.2 Site clearance and compensation (completed by June 2012)			Part A 19.00
1.3 Construction of lines (June 2012–June 2017)			
1.4 Implementation of environment management plan (from June 2012 onward)			
2. Expanded electricity distribution			ADB (ADF loan): \$56 million
2.1 Removal of existing transformers and replacement with new transformers (June 2012–June 2017)			Item Amount (\$ million)
2.2 Replacement of aging distribution lines (June 2012–June 2017)			Part A 47.27
2.3 Identification of those areas that can be handled by communities (December 2012)			Part B 6.43
2.4 Transfer of distribution responsibility to communities (December 2013)			Part C 2.30
3. Enhanced electricity generation			Government of Norway: \$25 million
3.1 Detailed assessment of specific components to be replaced (June 2012–June 2013)			Item Amount (\$ million)
3.2 Replacement of the components (June 2014–June 2016)			

Activities with Milestones	Inputs	
4. Efficient Project Management 4.1 Recruitment of an individual consultant to support recruitment of implementation consultant for 220/400kV transmission line (December 2011–January2012) 4.2 Recruitment of implementation consultants (January 2012 – June 2012) 4.3 Procurement of goods and works (June 2012 – June 2013) 4.4 Construction work and commissioning of subprojects (December 2012-June 2017)	Part A	25.00
	Government and NEA: \$ 28.03 million	
	Item	Amount (\$ million)
	Part A	17.54
	Part B	7.93
	Part C	2.56
	Grant Technical assistance: ADB: \$0.250 million (TASF-IV) Government: Contribution in the form of counterpart staff and office supplies.	

ADB = Asian Development Bank, ADF = Asian Development Fund, CO₂ = carbon dioxide, km = kilometer, kV = kilovolt, MW = megawatt, NEA = Nepal Electricity Authority, V = volt.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://adb.org/Documents/RRPs/?id=41155-013-3>

1. Financing Agreement
2. Grant Agreement (Externally Financed)
3. Project Agreement
4. Sector Assessment (Summary): Energy
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Financial Analysis
9. Economic Analysis
10. Country Economic Indicators
11. Summary Poverty Reduction and Social Strategy
12. Gender Action Plan
13. Initial Environmental Examination
14. Resettlement Plan
15. Risk Assessment and Risk Management Plan

Supplementary Documents

16. Technical Information on Project Components
17. Governance Measures
18. Procurement Capacity Assessment of the Nepal Electricity Authority
19. Gender-Focused Capacity Building in Clean Energy