



Nepal: Power Transmission and Distribution Efficiency Enhancement Project

Project Name	Power Transmission and Distribution Efficiency Enhancement Project
Project Number	50059-002
Country / Economy	Nepal
Project Status	Active
Project Type / Modality of Assistance	Loan Technical Assistance

Loan 3542-NEP: Power Transmission and Distribution Efficiency Enhancement Project

Source of Funding / Amount	Concessional ordinary capital resources lending	US\$ 150.00 million
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TA 9334-NEP: Strengthening the Capacity of Nepal's Energy Sector to Deliver Gender Equality and Social Inclusion Results

Source of Funding / Amount	Japan Fund for Prosperous and Resilient Asia and the Pacific	US\$ 2.00 million
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Strategic Agendas
Environmentally sustainable growth
Inclusive economic growth

Drivers of Change
Gender Equity and Mainstreaming
Governance and capacity development
Knowledge solutions
Partnerships
Private sector development

Sector / Subsector
Energy / Electricity transmission and distribution - Energy efficiency and conservation

Gender
Effective gender mainstreaming

Description

Electricity is a necessary requirement for accelerating the economic development of any country and is considered an important input to improve quality of life. Overall, the electricity demand has far outgrown the supply, leading to load curtailment and increased dependence on imports from India in recent times. The peak suppressed demand in Nepal in FY2013/2014 has been around 1,200 megawatt (MW) as against installed capacity of 787 MW, hence resulting in a deficit of about 440 MW due to non-availability of generation. Government has plans to generate additional 10,000 MW in the next 10 years. About 63% of the population in Nepal has access to electricity but the supply quality is unreliable and inadequate. The government has recognized the immediate need for reinforcement and upgrade of outdated distribution systems crucial to deliver the required energy to the customers even if the generation and transmission lines are in place. In this regard, the need for immediate distribution network enhancement is included in the government's action plan to address energy crisis and provide universal access to reliable and efficient electricity for all by 2030. This will contribute in promoting sustainable energy for all (Sustainable Development Goal #7) and Nepal's Intended Nationally Determined Commitments for the United Nations Framework Convention on Climate Change.

ADB's Nepal country partnership strategy 2013/2017 supports the government's development objective of accelerated and inclusive economic growth. It seeks to address the infrastructure bottlenecks in the key areas such as energy services and creating an enabling environment for increased business and employment opportunities. ADB's support for the energy sector in Nepal has largely focused on generation and transmission with some distribution extension. This project will be ADB's first investment in Nepal specifically targeting energy efficiency through distribution system enhancements measures.

Project Rationale and Linkage to Country/Regional Strategy	The Asian Development Bank (ADB) will provide a loan to the Government of Nepal (the government) to meet the immediate needs of electricity distribution network in Kathmandu Valley and strengthening of associated transmission lines by the Nepal Electricity Authority (NEA). Major sections of the existing distribution network in the valley were constructed decades ago and despite significant increase in electricity demand and the number of consumers, minimal reinforcement of the distribution network has been carried out. The project will enhance the distribution capacity and improve reliability and quality of electric supply in the Kathmandu Valley by reducing distribution system overloads and technical and commercial losses, which currently is about 20%. The project will also support implementation of other system efficiency upgrades and energy efficiency measures such as advanced grid operations software, distribution system automation, and smart metering. System efficiency improvements and loss reductions will improve NEA's financial health, while customers will benefit from a reliable and improved quality of electricity supply and reduced dependence on diesel generators to meet their daily electricity needs. Operational upgrades will also facilitate integration of new generation capacity scheduled to come on-line during the next three to four years. The project can be replicated in other cities in the country.
Impact	Reliable and efficient electricity supply for all achieved by 2030 (National Energy Crisis Reduction and Electricity Development)

Project Outcome

Description of Outcome	Access to efficient, adequate, and high-quality power supply in the Kathmandu Valley improved
Progress Toward Outcome	Out of \$150 million, the contract was awarded for \$137.94million (92%). Out of the seven subprojects planned under the project, the contract has been awarded for six subprojects and is under different stages of implementation. The process for procurement of Distribution Transformers under Package C1 was canceled after delays encountered in the rebidding process, thereby reducing the relevance of this subproject. Instead, a process was initiated for the procurement of a 132 kV GIS substation at Amlekhgunj. Preparation of the Bidding documents for this package is in the final stage. With the lifting of the Covid-19 related restrictions, the works under the packages have been improving gradually.

Implementation Progress

Description of Project Outputs	Transmission grid capacity to feed the primary distribution networks for the Kathmandu Valley strengthened Kathmandu Valley distribution network rehabilitated and capacity increased Operational and financial performance of NEA distribution centers enhanced NEA's capacity to operate and manage an advanced distribution system and intelligent network (smart grid) technology with GESI aspects in electricity access and end-user awareness programs developed
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Status of
Implementation
Progress (Outputs,
Activities, and
Issues)

Package A-1-Supply and Installation of 220kV Lapsiphedi Substation and 132kV Changunarayan Substation: Work is ongoing in all locations except for Lapsiphedi, which is disrupted due to construction from the local community. Works at Teku and Siuchatar is expected to complete by December 2022. NEA is discussing with the affected local communities of Lapsiphedi to resolve the issue and start physical works as early as possible.

Package A2: Supply and Installation 132kV GIS Substations at Kathmandu Valley: Work ongoing in Phutung and Thimi Substation. Work could not be initiated in the third location- Chovar due to obstruction from local communities. Works were earlier delayed for Phutung and Thimi Substation due to poor performance of the contractor, however, it is rectified after regular follow-up from NEA and it is expected to be complete by June 2023. Physical works at Chovar is also expected to commence by August 2022.

Package A3: Supply and Installation of 220kV GIS Substation in Barhabise: Contour Survey, soil investigation, site leveling work, retaining wall, and boundary wall have been completed. The design of major equipment is finished except for the internal layout of 220 kV GIS equipment, the general layout of SS, relay protection panels, substation automation system (SAS), and communication system. Works substantially delayed for pre-engineering buildings with design/drawing for control room building and manufacturing quality plan still pending. NEA is regularly monitoring the contractor's performance to complete the works by December 2022.

Package B1: Enhancement of Distribution Networks in the Central Region of the Kathmandu Valley & Package B2: Enhancement of Distribution Networks in the Northern Region of the Kathmandu Valley

Works ongoing with physical progress of 61.5% (for Central Region) and 68.6% for (Northern Region). Works progress is delayed in road sections owned by the Department of Road due to delays in securing road cutting permits by NEA. Delays were also noted due to difficulties in placing distribution control panels along the footpaths. NEA agreed to remove the distribution control panels which are completely blocking the footpath.

Package C1- Supply and delivery of smart metering and associated facilities: All major activities including design, supply, and installation of smart meter and its associated systems completed. The smart meters are operational in households of Maharajgunj and Ratnapark distribution centers. NEA, however, yet to receive approval for use of the frequency band from the concerned authority. Discussion is currently ongoing between NEA, Ministry of Energy Water Resources and Irrigation, Ministry of Communication, Information and Technology, and Ministry of Finance to resolve the issue.

Package C2 Supply and delivery of Distribution Transformers. Procurement of distribution transformer canceled after the winning bidder refused to sign the contract. NEA and ADB agreed to cancel this package and use the loan saving to procure a 132 kV GIS substation in Amlekhgunj given its potential contribution to (i) increasing internal electricity demand through easing the transmission bottleneck in Birgunj-Simara industrial corridor and (ii) providing reliable power supply for industries.

Various activities were carried out to enhance the capacity of NEA to operate and manage an advanced distribution system and intelligent network (smart grid) technology with GESI aspects in electricity access and end-user awareness programs. Utility management training was provided to 102 senior managers and officers of NEA. Training on new technological applications provided to 106 NEA engineers and planned for additional 50 numbers of engineers have been canceled due to Covid-19 risk. (i) 102 senior managers and officers were trained on topics like negotiations and public communications, contract and project management, key performance indicators, restructuring, and financial considerations. Out of a total, 19 (18.7%) staffs were women; (ii) Technical training for NEA staff from distribution centers was conducted with the participation of 106 staff out of which 9 (8.5%) are women; (iii) A hybrid training on approaches and practices to mainstream GESI as a resource person was conducted to 30 NEA/ESSD staff with 18 F (60%) participants. It has been agreed that NEA will complete the remaining two activities under the project's GESI action plan (not covered by TA attached to the loan), i.e., (i) providing energy efficiency and safety awareness training to 9,000 persons with 40% women participation, and (ii) conducting mass media campaigns on productive energy use & safe use of electricity in Kathmandu Valley and districts by November 2022.

Geographical Location Kathmandu Valley

Safeguard Categories

Environment	B
Involuntary Resettlement	A
Indigenous Peoples	C

Summary of Environmental and Social Aspects

Environmental Aspects	Initial environmental examinations (IEEs) have been prepared following ADB's Safeguard Policy Statement (SPS) (2009) and the government's environmental regulations. The project implementation is ongoing following the approved IEEs.
Involuntary Resettlement	Project implementation is ongoing based on the safeguard policy of ADB. Consultations had been undertaken and surveys were conducted. The resettlement plan was publicly disclosed to interested stakeholders on ADB's websites.
Indigenous Peoples	There is no indigenous peoples group in the project areas. So, no indigenous peoples impact is expected.

Stakeholder Communication, Participation, and Consultation

During Project Design	A series of consultations were conducted with affected persons and communities by the project implementing agency during project preparation. This is will be continued during the project implementation.
During Project Implementation	A series of consultations/meetings with affected persons and communities had been conducted and will be conducted as and when needed throughout the project implementation.

Business Opportunities

Consulting Services	Project Supervision Consultant has been engaged for the project.
Procurement	<p>All procurement of goods will be undertaken in accordance with ADB's Procurement Guidelines 2015, as amended from time to time. Before start of any procurement, ADB and the government will review the public procurement laws of the central and state governments to ensure its consistency with ADB's Procurement Guidelines 2015, as amended from time to time.</p> <p>The procurement scope under the project will be limited to procurement of goods for the substations, distribution system enhancement and smart meters. International Competitive Bidding (ICB) procedures would be adopted where the estimated tender value is above the threshold limit as defined in the procurement Plan, and National Competitive Bidding (NCB) procedures may be adopted for bids with an estimated value up to the threshold limit. NEA has sufficient capacity to design and implement these activities. NEA has also demonstrated good performance and track record with procurement of goods and works other similar activities and has sufficient knowledge of NCB procedures.</p>

Responsible ADB Officer Manandhar, Pushkar

Responsible ADB Department Sectors Group
 Responsible ADB Division Energy Sector Office (SG-ENE)
 Executing Agencies *Nepal Electricity Authority (NEA)*

Timetable

Concept Clearance	22 Jul 2016
Fact Finding	16 Sep 2016 to 30 Sep 2016
MRM	11 May 2017
Approval	29 Jun 2017
Last Review Mission	-
Last PDS Update	25 Jul 2022

Loan 3542-NEP

Milestones

Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
29 Jun 2017	10 Sep 2017	05 Dec 2017	30 Jun 2022	30 Jun 2024	-

Financing Plan

Loan Utilization

	Total (Amount in US\$ million)	Date	Net Percentage		
			ADB	Others	
Project Cost	189.00	Cumulative Contract Awards			
ADB	150.00	02 Apr 2024	145.48	0.00	98%
Counterpart	39.00	Cumulative Disbursements			
Cofinancing	0.00	02 Apr 2024	94.01	0.00	64%

Status of Covenants

Category	Sector	Safeguards	Social	Financial	Economic	Others
Rating	-	Satisfactory	Satisfactory	Satisfactory	-	Unsatisfactory

TA 9334-NEP

Milestones

Approval	Signing Date	Effectivity Date	Closing		
			Original	Revised	Actual
29 Jun 2017	24 Jul 2017	24 Jul 2017	29 Jun 2019	27 Dec 2021	09 May 2022

Financing Plan/TA Utilization

Cumulative Disbursements

ADB	Cofinancing	Counterpart		Project Sponsor	Others	Total	Date	Amount
		Gov	Beneficiaries					

0.00 2,000,000.00 0.00 0.00 0.00 0.00 2,000,000.00 02
Apr 1,987,961.13
2024

Status of Covenants

Category	Sector	Safeguards	Social	Financial	Economic	Others
Rating	-	Satisfactory	Satisfactory	Satisfactory	-	Unsatisfactory

Project Page <https://www.adb.org/projects/50059-002/main>

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