



Bhutan: Promoting Energy Security and Transition Project

Project Name	Promoting Energy Security and Transition Project	
Project Number	56163-001	
Country / Economy	Bhutan	
Project Status	Approved	
Project Type / Modality of Assistance	Technical Assistance	
Source of Funding / Amount	TA 10008-BHU: Promoting Energy Security and Transition Project	
	Technical Assistance Special Fund	US\$ 1.00 million
Strategic Agendas	Environmentally sustainable growth Inclusive economic growth	
Drivers of Change	Gender Equity and Mainstreaming Governance and capacity development Knowledge solutions Private sector development	
Sector / Subsector	Energy / Renewable energy generation - solar	
Gender Equity and Mainstreaming	Some gender elements	
Description	<p>The knowledge and support technical assistance (TA) aims to help Bhutan diversify renewable sources and promote energy transition to more resilient energy systems with novel technologies, new approaches, and concrete strategies. Bhutan's energy is dependent on mono-resource of hydropower, export revenues of which sustain the national economy and the government's revenues. This suggests that Bhutan is vulnerable to any impacts on hydropower resources due to climate change. To alleviate concerns on energy security and aftereffects, it is necessary to push for the diversification of energy resources. Hence, the TA will support the development of schemes for rooftop solar and floating solar, and the relevant knowledge enhancement among the stakeholders. The studies will assess the resource and technical design requirements, viability, business models, safeguards, and relevant regulation and policy formation on alternative energy resources.</p>	
Project Rationale and Linkage to Country/Regional Strategy	<p>Climate and energy security. Bhutan's key economic drivers are hydropower export, tourism, and agriculture. Although the tourism business was significantly affected by the coronavirus disease (COVID-19) pandemic, hydropower exports have relatively been stable and the resultant foreign currency earning has been sustained. However, hydropower generation is dependent on the availability of water resources, which can be varied by weather and climatic conditions. This means that Bhutan's high dependency on hydropower (99.7%) renders the country vulnerable to climate change impacts, thereby raising energy security concerns.</p> <p>Energy diversification. On concerns about climate and energy security, the government intends to diversify energy sources to improve energy independence. Bhutan's Sustainable Hydropower Development Policy, 2021 stipulates to enhance energy security and develop value chains based on alternative clean energy. Renewable energy technologies such as solar and wind power have different generation profiles and patterns during the year and daytime, which can be complementary in a mix of power sources with hydropower. Thus, Bhutan's Druk Green Power Corporation (DGPC) plans to fast-track solar development up to 200 MW over the next 3 years. For this purpose, ADB intends to finance Bhutan's first utility-scale solar photovoltaic power plant (17 MW), and support subsequent ground-mounted solar power projects in several locations. Solar power will compensate for power deficits in the dry season and increase hydropower export in the wet season by using additional solar power for domestic consumption. Given this advantage, solar power generation can be promoted and diversified further from ground-mounted solar photovoltaic power type to floating solar and rooftop solar power types.</p> <p>Especially, Bhutan's floating solar power in the existing hydropower reservoir areas can bring multiple favorable conditions, including higher solar panel efficiency due to cooling effect on the water surface, no land acquisition requirement and conflict with fishing purposes, close access to grid systems within the premise of the hydropower stations, and complementary operations with hydropower's flexible generation. Rooftop solar can also be expanded in urban areas on the rooftops of buildings and houses for various applications such as electricity and water heating as well as cooking. Given the nascent stage of solar power development in Bhutan, this new technological and business areas can be demonstrated by the public sector to gradually boost private sector mobilization and create new job opportunities, particularly for women for operations and maintenance activities. The alternative domestic energy resources will help Bhutan promote energy transition and improve energy security.</p>	
Impact	Bhutan's diversification of clean energy sources promoted.	
Project Outcome		
Description of Outcome	Readiness for project development in alternative energy resources enhanced.	
Progress Toward Outcome		
Implementation Progress		
Description of Project Outputs	Floating solar development plans prepared Rooftop solar business and financing models developed Floating and rooftop solar knowledge sharing and awareness improvement among stakeholders promoted	
Status of Implementation Progress (Outputs, Activities, and Issues)		
Geographical Location	Nation-wide	
Summary of Environmental and Social Aspects		
Environmental Aspects		

Involuntary Resettlement

Indigenous Peoples

Stakeholder Communication, Participation, and Consultation

During Project Design

During Project Implementation

Business Opportunities

Consulting Services ADB will engage consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions. The TA will require a consultancy contract with a firm, association, or joint venture, recruited through a simplified technical proposal and quality- and cost-based selection method with a quality/cost ratio of 90:10. An output-based contract will be considered.

Responsible ADB Officer	Ogino, Kaoru
Responsible ADB Department	South Asia Department
Responsible ADB Division	Energy Division, SARD
Executing Agencies	Department of Energy Ministry of Economic Affairs

Timetable

Concept Clearance	20 Sep 2022
Fact Finding	12 Oct 2022 to 14 Oct 2022
MRM	-
Approval	06 Dec 2022
Last Review Mission	-
Last PDS Update	06 Dec 2022

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Financing Plan/TA Utilization						Cumulative Disbursements		
ADB	Cofinancing	Counterpart				Total	Date	Amount
		Gov	Beneficiaries	Project Sponsor	Others			
1,000,000.00	0.00	0.00	0.00	0.00	0.00	1,000,000.00	-	0.00

Project Page	https://www.adb.org/projects/56163-001/main
Request for Information	http://www.adb.org/forms/request-information-form?subject=56163-001
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