



Technical Assistance Report

Project Number: 54408-001
Knowledge and Support Technical Assistance (KSTA)
December 2020

Republic of Uzbekistan: Promoting Distributed Solar Photovoltaic Systems for Enhanced Access to Energy

This document is being disclosed to the public in accordance with ADB's Access to Information Policy.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 23 October 2020)

Currency unit	–	sum (SUM)
SUM1.00	=	\$0.0000964157
\$1.00	=	SUM10,371.76

ABBREVIATIONS

ADB	–	Asian Development Bank
GW	–	gigawatt
JSC REN	–	Joint Stock Company Regional Electric Power Networks
kW	–	kilowatt
PPP	–	public–private partnership
PV	–	photovoltaic
TA	–	technical assistance

NOTE

In this report, “\$” refers to United States dollars, unless otherwise stated.

Vice-President	Shixin Chen, Operations 1
Director General	Werner Liepach, Central and West Asia Department (CWRD)
Director	Joonho Hwang, Energy Division (CWEN), CWRD
Team leader	Yun Ji Suh, Energy Specialist, CWEN, CWRD
Team members	Isabel A. Borcena, Senior Operations Assistant, CWEN, CWRD
	Seung Duck Kim, Energy Specialist, CWEN, CWRD ^a
	Shokhimardon Musaeov, Senior Project Officer, Uzbekistan Resident Mission, CWRD
	Michelle H. Tan, Associate Project Officer, CWEN, CWRD

^a Outposted to the Uzbekistan Resident Mission.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

	Page
KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE	
I. INTRODUCTION	1
II. ISSUES	1
III. THE TECHNICAL ASSISTANCE	3
A. Impact and Outcome	3
B. Outputs, Methods, and Activities	3
C. Cost and Financing	4
D. Implementation Arrangements	4
IV. THE PRESIDENT'S DECISION	6
APPENDIXES	
1. Design and Monitoring Framework	7
2. Cost Estimates and Financing Plan	9
3. List of Linked Documents	10

KNOWLEDGE AND SUPPORT TECHNICAL ASSISTANCE AT A GLANCE

1. Basic Data		Project Number: 54408-001	
Project Name	Promoting Distributed Solar Photovoltaic Systems for Enhanced Access to Energy	Department/Division	CWRD/CWEN
Nature of Activity Modality	Capacity Development Regular	Executing Agency	Ministry of Energy of the Republic of Uzbekistan, Ministry of Investment and Foreign Trade (MIFT)
Country	Uzbekistan		
2. Sector		ADB Financing (\$ million)	
✓ Energy	Renewable energy generation - solar		0.35
		Total	0.35
3. Operational Priorities		Climate Change Information	
✓ Addressing remaining poverty and reducing inequalities		GHG Reductions (tons per annum)	16
✓ Accelerating progress in gender equality		Climate Change impact on the Project	Low
✓ Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability		ADB Financing	
✓ Strengthening governance and institutional capacity		Adaptation (\$ million)	0.00
		Mitigation (\$ million)	0.35
		Cofinancing	
		Adaptation (\$ million)	0.00
		Mitigation (\$ million)	1.00
Sustainable Development Goals		Gender Equity and Mainstreaming	
SDG 1.4		Some gender elements (SGE)	✓
SDG 5.b			
SDG 7.1, 7.a		Poverty Targeting	
SDG 12.5		General Intervention on Poverty	✓
SDG 13.a			
4. Risk Categorization Complex			
5. Safeguard Categorization Safeguard Policy Statement does not apply			
6. Financing			
Modality and Sources		Amount (\$ million)	
ADB		0.35	
Knowledge and Support technical assistance: Technical Assistance Special Fund		0.35	
Cofinancing		1.00	
Clean Energy Fund under the Clean Energy Financing Partnership Facility (Full ADB Administration)		1.00	
Counterpart		0.00	
None		0.00	
Total		1.35	
Currency of ADB Financing: US Dollar			

I. INTRODUCTION

1. The knowledge and support technical assistance (TA) will promote the development of distributed solar photovoltaic (PV) systems in Uzbekistan. The country's vast renewable energy resources are largely underdeveloped. The TA will (i) support the development of the government's sector strategy for distributed solar systems to improve the quality of electricity supply in remote regions and to scale up distributed solar systems through private investments;¹ (ii) install at least 20-kilowatt (kW) distributed solar PV system to demonstrate the technical feasibility and socioeconomic benefits;² and (iii) strengthen institutional capacity through hands-on training in planning, designing, implementing, and operating the distributed solar PV systems. Expansion of distributed solar PV systems will enhance energy access and fulfill the government's commitment to mitigate climate change impacts.

2. The TA is included in the Asian Development Bank (ADB) country operations business plan for Uzbekistan, 2021–2023 as an ongoing program for 2020.³ The TA is aligned with the Energy Policy 2009⁴ and Strategy 2030 operational priorities⁵ 1 (addressing remaining poverty and reducing inequalities); 2 (accelerating progress in gender equality); 3 (tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability); and 6 (strengthening governance and institutional capacity).⁶

II. ISSUES

3. Benefiting from high commodity prices, Uzbekistan's economy grew at an average of more than 7% a year during 2010–2014. However, unfavorable external conditions, such as declining commodity prices and subdued growth of its trading partners, slowed Uzbekistan's economic growth from 6.1% in 2016 to 4.5% in 2017. In response, the country initiated comprehensive economic reforms in 2017 to stimulate demand, foster foreign investment, and develop the private sector. Uzbekistan has made good progress on the economic reforms, while achieving macroeconomic stability. Major structural reforms include implementing foreign exchange and tax reforms, improving macro fiscal management, and restructuring state-owned enterprises. In 2019, the government initiated comprehensive power sector reforms to (i) deregulate the monopoly structure, (ii) streamline and strengthen sector oversight, (iii) create a power market and a competitive environment, (iv) reduce carbon intensity, and (v) attract private investment.

4. Beginning in 2010, Uzbekistan's demand for power increased with the upsurge driven by the industrial and residential sectors. However, aging power infrastructure and insufficient investment have widened the supply–demand gap, resulting in an unreliable electricity supply. The country's installed power generation capacity is about 14 gigawatts (GW), but the available capacity is estimated at less than 12.5 GW.⁷ Most power generation assets are 40–50 years old, operating beyond their useful life, and require replacement and/or rehabilitation. Uzbekistan's 230,000 kilometers of transmission and distribution lines, with an average age of more than 30

¹ In the Resolution of the President of the Republic of Uzbekistan No. 4779 (dated 10 July 2020), the government envisioned the development of renewable energy resources (except hydropower plant) to be carried out through transparent auction.

² In the Resolution of the President of the Republic of Uzbekistan No. 4422 (dated 22 August 2019), the government envisioned measures on an uninterrupted supply of energy resources to social facilities (such as preschools and health care facilities) through the phased installation of modern solar PV plants and solar water heaters.

³ ADB. 2020. [Country Operations Business Plan: Uzbekistan, 2021–2023](#). Manila.

⁴ ADB. 2009. [Energy Policy 2009](#). Manila.

⁵ ADB. 2018. [Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific](#). Manila.

⁶ The TA will first appear in the business opportunities section of ADB's website on 12 November 2020.

⁷ ADB. 2020. [Uzbekistan: Power Sector Reform Program \(Subprogram 1\)](#). Manila.

years, have also exceeded their economic life. Therefore, utilities incur additional operation and maintenance expenses to source spare parts that are no longer readily available and to cope with frequent equipment outages.

5. The unreliable power supply has undermined people's livelihoods and the profitability of businesses. Small enterprises suffer more because of the high cost of running diesel backup generators. Occasional power outages still occur in urban areas but they are particularly severe in rural and remote areas during the cold season from December to February when electricity demand surges—lasting from 6 hours a day to weeks in some villages. The unreliable supply has negatively affected businesses, households' quality of life, economic activity, and the delivery of social services. The rural population has limited access to quality infrastructure services, exacerbating urban–rural disparities. Women, as the primary users of electricity in households, are disproportionately affected by the unstable and poor quality of the electricity supply.⁸ A reliable power supply would enable women to operate small enterprises and participate in income-generating and community activities.

6. In 2019, the burning of fossil fuels generated 56,500 gigawatt-hours of electricity, or 88.8% of the country's total; the rest was from hydropower. The energy sector is the main source of greenhouse gas emissions in Uzbekistan. At current natural gas production levels, proven gas reserves would last for only 20 years. Therefore, it is imperative for Uzbekistan to shift to a more sustainable energy system.⁹ In May 2019, the government adopted the Renewable Energy Law to support the long-term energy security of Uzbekistan and reduce its reliance on fossil fuels by developing and regulating renewable energy resources. The government's power sector master plan lays out its commitment to a clean energy system and the targets of adding 5 GW of solar power and 3 GW of wind power by 2030. The aim is to generate 15% of the country's electricity from renewable sources (excluding hydropower) within 10 years.¹⁰

7. The government envisions multifaceted measures to further exploit abundant solar resources through (i) utility-scale solar PV projects under the public–private partnership (PPP) modality; (ii) small-scale distributed solar PV systems; and (iii) micro-scale solar home systems. Because the sector relies heavily on limited sovereign financing, it is essential to unlock private sector participation to ensure adequate investment in solar projects. The government enacted the Law on Public–Private Partnership in 2019 to support and protect private investors from adverse changes in the realization of their project with supplementary legislation. With the assistance of ADB and other development partners, the government developed a bankable PPP structure and supporting mechanisms for large-scale renewable energy projects. These measures were effective in deploying utility-scale renewable energy projects and demonstrated by the first 100-megawatt Navoi solar power project¹¹ and subsequent solar and wind PPP projects.¹²

8. While the recent advancement in developing large-scale renewable energy projects is noteworthy, a complementary approach is needed where large energy projects are not viable such as areas with geographic complexity, remoteness, and low electricity demand. Distributed solar PV systems can be affordable, reliable, and resilient energy solutions in such areas. However, unlike large-scale PPP projects, Uzbekistan does not have a clear regulatory framework

⁸ Women spend almost 63% of their time on housekeeping activities, such as cooking, cleaning, laundering, ironing, and repairing clothing, compared with 12% spent by men on such activities.

⁹ British Petroleum. 2019. [BP Statistical Review of World Energy 2019](#). London.

¹⁰ Ministry of Energy. 2020. *Concept Note for Ensuring Electricity Supply in 2020–2030*. Tashkent.

¹¹ Ministry of Energy. 2020. *Uzbekistan – Navoi scaling solar independent power producer project*. Tashkent.

¹² Ministry of Energy. 2020. *Uzbekistan – Launch of the request for quotations for the first solar photovoltaic PPP project in Sherabad*. Tashkent.

or incentive mechanism that could attract private investments. Established legal and regulatory frameworks are required to demonstrate the viability of adopting distributed solar PV systems. Such frameworks will create an enabling market environment and influence the feasibility and growth potential. In similar interventions in other countries, ADB highlighted three key factors in promoting renewable energy: supporting the government in identifying policy issues, addressing policy gaps, and building and sharing knowledge.¹³ Joint Stock Company Regional Electric Power Networks (JSC REN), the owner and operator of the networks that distribute and sell electricity to consumers, has limited experience in developing distributed solar PV systems. Developing the indigenous capacity of JSC REN and the capacity of related local stakeholders to plan, design, install, and operate distributed solar PV systems will support the wider adoption and sustainable long-term operation of such systems.

III. THE TECHNICAL ASSISTANCE

A. Impact and Outcome

9. The TA is aligned with the following impact: enabling conditions for accelerated development of renewable energy resources created.¹⁴ The TA will have the following outcome: enabling environment for distributed solar PV development established.¹⁵

B. Outputs, Methods, and Activities

10. **Output 1: Adequate regulatory frameworks to promote distributed solar PV system developed.** The TA will conduct technical and legal analyses to identify gaps in the policy and regulatory frameworks. The TA will provide practical implementation measures for the renewable energy auction mechanism, which will allow more private investment in small-scale renewable energy projects. Key activities will include (i) analysis of the policy, regulations, technical barriers for grid interconnection, anticipated grid impact, and the adequacy of the grid code; (ii) review of the tariff mechanism and infrastructure for net-metering¹⁶; (iii) development of a road map and policy paper for the government by consolidating technical, regulatory, financial, and economic assessments; (iv) development of a renewable energy auction mechanism with a related regulatory framework, comprehensive manual, platform, and sample transaction templates; and (v) study tours, stakeholder consultations, and workshops, including with local civil society organizations, to disseminate knowledge and international best practices.

11. **Output 2: Distributed solar PV systems applications supported.** The TA will finance a pilot project to install at least 20 kW distributed solar PV system that will be connected to the existing distribution networks. Depending on the site characteristics and local energy needs, the integration of a battery energy storage system or solar water heater will be considered. The pilot project capacity and system configuration will be decided upon detailed due diligence. Key activities will include (i) formulation of project selection criteria and assessment tools, taking into account technical, financial, and socio-environment characteristics; (ii) conducting of technical and safeguards due diligence on the target projects; (iii) procurement and installation of pilot

¹³ ADB. 2020. *Technical Assistance Completion Report: [Promoting and Scaling Up Solar Photovoltaic Power through Knowledge Management and Pilot Testing in Bangladesh and Nepal](#)*. Manila.

¹⁴ Government of Uzbekistan. 2020. *Resolution of the President of Uzbekistan No. 4779 dated 10 July 2020, on additional measures to decrease the dependency of industries on fuel and energy products through increasing the economy's energy and utilization of renewable resources*. Tashkent.

¹⁵ The design and monitoring framework is in Appendix 1.

¹⁶ Net metering is a mechanism that allows solar PV system owners to feed excess electricity to the grid and receive a credit for the amount of electricity contributed.

project; (iv) training of implementing agency officials for operation and maintenance; and (v) development of business models for the productive use of electricity, focusing on small businesses led by women.

12. Output 3: Institutional capacity in designing, constructing, and operating distributed solar PV systems strengthened. The TA will build the institutional capacity to plan, design, install, and operate distributed solar PV systems. It will focus on improving the capacity of JSC REN to review and study the grid impact of the integration of small-scale decentralized power generators. JSC REN staff will be trained to enhance understanding, indigenous knowledge, and expertise in solar PV project design and implementation. Women will comprise 50% of the training participants. Local stakeholders will be invited to the training and workshops.

13. ADB value addition. ADB has provided financial resources and targeted policy support to make the power sector more sustainable through various interventions. The TA will build on that support and provide knowledge and policy assistance for scaling up renewable energy. The TA will explore possible business models that would allow productive use of renewable generated electricity with an emphasis on small businesses led by women and households likely to suffer more from an inadequate electricity supply.¹⁷ The TA will bring together a suite of ADB services from the Central and West Asia Department and the Office of Public–Private Partnership. It will also explore potential PPP projects and private investment opportunities in distributed renewable energy system development.

C. Cost and Financing

14. The TA is estimated to cost \$1.35 million, of which (i) \$0.35 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF 6 \$0.20 million and TASF-other sources \$0.15 million) and (ii) \$1.00 million will be financed on a grant basis by Clean Energy Fund under the Clean Energy Financing Partnership Facility and administered by ADB.¹⁸ The key expenditure items are in Appendix 2.

15. The Clean Energy Fund resources will be used to finance operational expenses related to the TA and/or local expenditures for goods, works, and services from ADB member countries following ADB's applicable guidelines and procedures.¹⁹

16. The government will provide counterpart support in the form of data and information, counterpart staff, office accommodation, logistics and administrative support, and other in-kind contributions.

D. Implementation Arrangements

17. The TA will be implemented from December 2020 to September 2022. ADB will administer the TA through the Central and West Asia Department's Energy Division, with support from the Uzbekistan Resident Mission. The Ministry of Energy and the Ministry of Investment and Foreign Trade will ensure that the respective government agencies and municipal entities involved with

¹⁷ ADB. 2020. [Effects of Access to Electricity Interventions on Socioeconomic Outcomes in Low-and Middle-Income Countries](#). Manila.

¹⁸ Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom. The Clean Energy Fund allocation was approved on 28 April 2020.

¹⁹ ADB. 2007. *Clean Energy Financing Partnership Facility: Establishment of the Clean Energy Fund and Clean Energy Trust Funds*. Manila.

the TA provide the necessary implementation support. JSC REN will be the implementing agency for the TA. A firm, consisting of international and national experts, will be recruited using the quality- and cost-based selection method with a 90:10 quality–cost ratio so as to prioritize the quality of the consultant’s proposed methodology and specialized knowledge and experience. ADB will use individual consultant selection to engage any consultants needed at a later stage. The Clean Energy Fund resources will be front-loaded. The TA’s implementation will be monitored against the design and monitoring framework and any additional monitoring and reporting requirements specific to the Clean Energy Fund. The coronavirus disease situation will be closely monitored; necessary measures addressing any potential delay it may cause will be included in the TA implementation arrangements.

18. The implementation arrangements are summarized in the table.

Implementation Arrangements

Aspects	Arrangements		
Indicative implementation period	December 2020–September 2022		
Executing agencies	Ministry of Energy and Ministry of Investment and Foreign Trade		
Implementing agencies	Joint Stock Company Regional Electric Power Networks		
Consultants	To be selected and engaged by ADB		
	Firm: QCBS (90:10)	Preparation of a road map for developing distributed solar PV System and procurement of pilot distributed PV system	\$1,186,000
	Individual: Individual selection	National expert (14 person-months)	\$70,000
Procurement	To be procured by consultants		
	Request for quotations	1 contract for at least 20kW distributed solar system. Final capacity and system configuration will be decided upon detailed technical due diligence.	\$350,000
Disbursement	Disbursement of TA resources will follow ADB’s <i>Technical Assistance Disbursement Handbook</i> (2020, as amended from time to time). Clean Energy Fund assistance will be front-loaded.		
Asset turnover or disposal arrangement upon TA completion	Pilot plant procured under the TA will be transferred to the government upon TA completion following ADB guidelines. ^a		

ADB = Asian Development Bank, kW = kilowatt, PAI = project administration instruction, PV = photovoltaic, QCBS = quality- and cost-based selection, TA = technical assistance.

^a ADB. 2018. Administering Grant-Financed Technical Assistance. *Project Administration Instruction*. PAI 5.09. Manila (paras. 41 and 42).

Source: Asian Development Bank.

19. **Consulting services.** ADB will engage the consultants following the ADB Procurement Policy (2017, as amended from time to time) and its associated project administration instructions and/or staff instructions.²⁰ The consultants will carry out procurement, on behalf of ADB, following

²⁰ Terms of Reference for Consultants (accessible from the list of linked documents in Appendix 2).

the ADB Procurement Policy and its associated project administration instructions and/or staff instructions.

20. **Pilot testing of project approach.** The project approach will be pilot tested to demonstrate the technical feasibility and socioeconomic benefits of the distributed solar PV system. Two public schools in the Samarkand region are being considered as sites. Available land space and roof space will be considered for PV system installation. The final pilot project location and system configuration will be decided after undertaking detailed due diligence of the candidate sites. A request for quotations will be used as the procurement method to install the pilot project. The integration of a battery energy storage and solar water heater system will be considered as needed. The consultant will develop a system installation and operation management plan, including a health and safety management plan, to comply with ADB's Safeguards Policy Statement (2009). The selected contractor will be required to provide 1 year of operation and maintenance services after commissioning. The pilot project will serve as a platform for hands-on technical training for the implementing agency staff for their capacity building for their continued operation and maintenance. Pilot testing will not result in any potential adverse environmental and/or social impacts. During the consultation mission in October 2020, ADB and the government agreed on counterpart in-kind contributions, including allocation of project sites and permits or clearances, and implementation arrangements. The TA meets all criteria for pilot testing of a project approach.²¹

21. **ADB's procurement.** Procurement for the pilot project will be undertaken by the TA consultant on behalf of ADB following ADB's Procurement Policy and Procurement Regulations for ADB Borrowers (2017, as amended from time to time), in collaboration with the implementing agency. The TA consultant will sign the contract on behalf of ADB. The size and cost of the pilot project will be confirmed pending required due diligence during TA implementation to determine the optimum configuration, design, and components of the pilot project. Pilot project costs will not exceed 30% of the TA amount.

IV. THE PRESIDENT'S DECISION

22. The President, acting under the authority delegated by the Board, has approved (i) the Asian Development Bank (ADB) administering a portion of technical assistance not exceeding the equivalent of \$1,000,000 to be financed on a grant basis by the Clean Energy Fund under the Clean Energy Financing Partnership Facility, and (ii) ADB providing the balance not exceeding the equivalent of \$350,000 on a grant basis to the Government of Uzbekistan for Promoting Distributed Solar Photovoltaic Systems for Enhanced Access to Energy, and hereby reports this action to the Board.

²¹ ADB. 2019. *Staff Instruction on Business Processes for Knowledge and Support Technical Assistance*. Manila. (Attachment 1 [Optional Provisions] para. 14[ii]).

DESIGN AND MONITORING FRAMEWORK

Impact(s) the TA is Aligned with Enabling conditions for accelerated development of renewable energy resources created (Resolution of the President of Uzbekistan No. 4779) ^a			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Enabling environment for distributed solar PV development established.	By 2022: a. A road map for developing distributed solar PV systems approved by the MOE (2020 baseline: 0) (OP 3.1.5) b. Electricity generated by distributed solar PV system increased by 30 MWh annually (2020 Baseline: NA) (OP 3.1.4) c. At least 16 tCO ₂ of GHG emissions avoided annually (2020 baseline: NA) (OP 3.1)	a. Issued government resolution b. JSC REN's annual business report c. JSC REN's annual business report	R: Economic shocks from the continued impact of COVID-19 leads to shifting of policy priorities, hindering the adoption of the road map. R: Changing climate conditions reducing solar irradiation may reduce the electricity generation.
Outputs 1. Adequate regulatory frameworks to promote distributed solar PV system developed. 2. Distributed solar PV systems applications supported.	By 2022: 1a. Government sector strategy for distributed solar PV developed (2020 baseline: 0) (OP 3.1.4, OP 3.1.5, OP 6.1.2) 1b. Renewable energy auction mechanism and sample templates for contract developed (2020 baseline: 0) (OP 3.1.4, OP 3.1.5, OP 6.1.2) 2a. At least 20 kW distributed solar PV system commissioned (2020 baseline: NA) (OP 1.3.1, OP 3.1.4, OP 3.1.5) 2b. Project screening criteria and project development, O&M handbook prepared (2020 baseline: 0) (OP 6.2.1) 2c. Potential women-led business models for productive electricity use of renewable energy systems developed (OP 2.1.4) (2020 baseline: NA)	1a–1b. TA consultant final report 2a. JSC REN's annual business report 2b–2c. TA consultant final report	R: Any changes that occur in the sector governance structure may delay the process. R: Incidents that could limit the logistics operations may delay pilot equipment transportation and its installation.

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
3. Institutional capacity in designing, constructing, and operating distributed solar PV systems strengthened.	<p>3a. At least 20 relevant JSC REN experts (10 men, 10 women) trained (2020 baseline: 0) (OP 2.1.1)</p> <p>3b. At least 5 knowledge sharing workshops on distributed solar PV systems and renewable auction mechanism provided to government officials, JSC REN staff and related stakeholders (2020 baseline: 0) (OP 3.1.2)</p>	<p>3a. JSC REN's annual business report</p> <p>3b. TA consultants' final report (which includes training reports and conference proceedings)</p>	R: High turnover of trained staff hinders institutional capacity improvement.

Key Activities with Milestones

1. Adequate regulatory frameworks to promote distributed solar PV system developed

- 1.1 Recruit and mobilize consultants for the field assignment (Q1–Q2 2021)
- 1.2 Conduct gap analysis for promotion of distributed renewable energy projects in terms of policy, regulatory frameworks, and stakeholder consultations (Q2 2021–Q3 2021)
- 1.3 Prepare the renewable energy auction mechanism and related templates (Q3 2021–Q2 2022)
- 1.4 Prepare and distribute the solar PV system road map (Q3 2021–Q2 2022)

2. Distributed solar PV systems applications supported

- 2.1 Recruit and mobilize consultants for the field assignment (Q1–Q2 2021)
- 2.2 Start fieldwork, gather and analyze data, consult with stakeholders, and submit inception report (Q2–Q3 2021)
- 2.3 Select the site, prepare the design, and start the procurement activities (Q2–Q3 2021)
- 2.4 Complete procurement and installation works (Q3–Q4 2021)

3. Institutional capacity in designing, constructing, and operating distributed solar PV systems strengthened

- 3.1 Recruit and mobilize consultants for the field assignment (Q1–Q2 2021)
- 3.2 Conduct capacity building workshop and on-the-job training during the design of the pilot program (Q4 2021–Q3 2022)
- 3.3 Conduct knowledge sharing workshops and production of knowledge works (Q2–Q3 2022)

TA Management Activities

- Recruit TA consultant (Q1–Q2 2021)
- Provide project management support through consultant/s (Q2 2021–Q3 2022)
- Monitor and evaluate TA progress (Q2 2021–Q3 2022)

Inputs

ADB: \$350,000 (\$200,000 TASF 6, \$150,000 TASF-other sources)

Clean Energy Fund under the Clean Energy Financing Partnership Facility: \$1,000,000

Note: The government will provide counterpart support in the form of data and information, counterpart staff, office space with office supplies, and other in-kind contributions.

ADB = Asian Development Bank, COVID-19 = coronavirus disease, JSC REN = Joint Stock Company Regional Electric Power Networks, kW = kilowatt, MOE = Ministry of Energy, MWh = megawatt-hour, O&M = operation and maintenance, OP = operational priority, PV = photovoltaic, Q = quarter, R = risk, TA = technical assistance, TASF = Technical Assistance Special Fund, tCO₂ = tons of carbon dioxide.

^a Government of Uzbekistan. Resolution of the President of Uzbekistan No. 4779, dated 10 July 2020, *On additional measures to decrease the dependency of industries on fuel and energy products through increasing the economy's energy and utilization of renewable resources*. Tashkent.

Source: Asian Development Bank.

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Amount	
	ADB ^a	CEF under the CEFPF ^b
A. Consultants ^c		
1. Remuneration and per diem		
a. International consultants	45.0	127.0
b. National consultants	18.0	52.0
c. Others	105.0	298.0
2. Out-of-pocket expenditures		
a. International and local travel ^d	38.0	66.0
b. Reports and communications	6.0	16.0
c. Miscellaneous administration and support costs ^e	2.0	8.0
B. Training and seminars ^f	20.0	55.0
C. Pilot testing: Goods ^g	90.0	260.0
D. Contingencies	26.0	118.0
Total	350.0	1,000.0

ADB = Asian Development Bank, CEF = Clean Energy Fund, CEFPF = Clean Energy Financing Partnership Facility.
Note: The TA is estimated to cost \$1,350,000, of which contributions from ADB and the Clean Energy Fund under the Clean Energy Financing Partnership Facility are presented in the table. The government will provide counterpart support in the form of counterpart staff, office spaces with office supplies, and other in-kind contributions. The value of the government contribution is estimated to account for 5% of the total TA cost.

^a Financed by ADB's Technical Assistance Special Fund (TASF 6 \$200,000 and TASF-other sources \$150,000).

^b Financing partners: the governments of Australia, Norway, Spain, Sweden, and the United Kingdom. Administered by the Asian Development Bank.

^c The selection of a firm will be based on the performance terms of reference. This will allow the firm the flexibility of defining the experts needed, their required inputs, and other expenditures. ADB defines minimum key experts and minimum person-months required and most of the budget is assigned to the Others category.

^d Includes expenses for rental vehicles during fieldwork or site and safeguards survey.

^e Includes expenses for general secretarial supports.

^f Including at least five training sessions or workshops, stakeholder consultations, and a study tour outside of Uzbekistan will be conducted.

^g All equipment and the pilot plant will be transferred to the government upon TA completion following ADB. 2018. Administering Grant-Financed Technical Assistance. *Project Administration Instructions*. PAI 5.09. Manila (paras. 41 and 42).

Source: Asian Development Bank estimates.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/LinkedDocs/?id=54408-001-TARreport>

1. Terms of Reference for Consultants
2. Procurement Plan