

Project Administration Manual

Project Number: 49370-002
Loan Number: xxxx
October 2018

Turkmenistan: National Power Grid Strengthening Project

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Project Administration Manual Purpose and Process

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

The Ministry of Energy of Turkmenistan and Turkmenenergo are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by Ministry of Energy of Turkmenistan and Turkmenenergo {executing and implementing agencies} of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the loan/ agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the {loan/grant} agreement, the provisions of the {loan/grant} agreement shall prevail.

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

Abbreviations

ADB	=	Asian Development Bank
EA	=	executing agency
EMP	=	environmental management plan
GWh	=	gigawatt-hour
GOT	=	Government of Turkmenistan
IA	=	Implementing agency
ICB	=	international competitive bidding
kV	=	kilovolt
LARP	=	land acquisition and resettlement plan
MOE	=	Ministry of Energy
MW	=	megawatt
PAM	=	project administration manual
PMU	=	project management unit
TOR	=	terms of reference

I. PROJECT DESCRIPTION

1. **Project's rationale, location and beneficiaries.** The project will (i) build about 1,100 kilometers (km) of new 110-kilovolt (kV), 220 kV, and 500 kV transmission lines; (ii) construct four new substations; and (iii) expand three existing substations. The project will cover four of the five regions of Turkmenistan and will help establish an interconnected national transmission grid to improve reliability and energy efficiency of the network. Hydrocarbon-rich Turkmenistan has been an exporter of baseload power to its neighbors, notably Afghanistan. The reinforced transmission network is an essential prerequisite for improving power supply reliability for domestic consumers and current and expanded future electricity exports. Turkmenistan is a sparsely populated country with a total population of about 5.7 million, the lowest among Central Asian countries.¹ Its economy is built around its vast hydrocarbon resources: Turkmenistan is the 12th largest natural gas producer in the world, and the 10th biggest oil producer in Asia and the Pacific.² The country's economy expanded at an annual rate of 12.3% during 1998–2016.³ Hydrocarbon-related products consistently averaged close to 90% of annual exports from 2001 to 2015. As the Turkmen economy is sensitive to global oil and gas prices, economic growth slowed from over 10% in 2013–2014 to about 6.5% in 2017 because of a sharp contraction in oil and gas export revenues.

2. Turkmenistan has the world's fourth largest share of natural gas reserves, at 9.4% of the global total or 17.5 trillion cubic meters, after the Russian Federation, Iran, and Qatar.⁴ Annual production of natural gas averaged about 60 billion cubic meters (bcm) during 2005–2016. The country is an exporter of gas, primarily to the People's Republic of China, totaling about 45 bcm per year, half of what it used to export in the early 1990s, to its neighbor countries.⁵ Turkmenistan has more than 5.4 gigawatts of installed power generation capacity, nearly all of which comes from natural gas-fired power plants. The country clearly has sufficient gas resources to be a major exporter of gas and electricity.

3. Turkmenistan was a key part of the Central Asia Power System (CAPS) created under the auspices of the Soviet Union in the 1970s.⁶ Turkmenistan's power system was developed at that time with a strong export orientation because of its rich hydrocarbon resources and its proximity to large populations in surrounding countries and regions, such as Afghanistan, Iran, Uzbekistan, and southern Kazakhstan. During the early 1990s, electricity exports from Turkmenistan peaked at 13 terawatt-hours (TWh) per year. The collapse of the Soviet Union resulted in a progressive decline in power trade in the CAPS. Turkmenistan was first to disconnect from the CAPS in 2003. Subsequently, it maintained seasonal export of electricity, especially during the winter months, to Tajikistan through Uzbekistan until 2009, but that also stopped once Tajikistan was disconnected from the CAPS in December 2009. Turkmenistan's electricity exports declined to 1.5 TWh in 2010. By 2017, its electricity exports had increased to 3.4 TWh thanks to a new export market.

4. The Asian Development Bank (ADB), under its Central Asian Regional Economic Cooperation (CAREC) Program, has been working closely with all regional countries to achieve energy security through power interconnection and power trade.⁷ Within CAREC, there are energy resource complementarities and uneven distribution of energy among countries. Central

¹ ADB. 2018. Basic Statistics 2018. Manila.

² ADB. 2017. Country Partnership Strategy: Turkmenistan, 2017–2021. Manila.

³ International Monetary Fund. World Economic Outlook Database, October 2016. (accessed 20 April 2018).

⁴ BP. 2017. *BP Energy Outlook: 2017 edition*. <https://www.bp.com/content/dam/bp/pdf/energy-economics/energy-outlook-2017/bp-energy-outlook-2017.pdf>.

⁵ It stalled gas exports to Iran in 2017 and the Russian Federation in 2016.

⁶ The CAPS covered southern Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

⁷ Turkmenistan joined CAREC in 2010.

Asian countries are energy rich and can export it, including to large markets in energy-deficient Afghanistan and Pakistan. While Central Asian countries are 100% electrified with stable demand growth, Afghanistan and Pakistan have large populations without access to energy; demand growth is therefore high. Thus, CAREC's Central Asia–South Asia Regional Energy Market is one of the key pillars of CAREC's work plan for the energy sector.

5. ADB's regional energy trade initiatives in CAREC have supported linking Turkmenistan's large energy resources to large new markets. The proposed 1,800 km Turkmenistan–Afghanistan–Pakistan–India gas pipeline aims to export an annual 33 bcm, equivalent to a supply of about 50,000 megawatts (MW) of power generation capacity to South Asia. Within the Central Asia–South Asia Regional Energy Market framework, through the Turkmenistan–Uzbekistan–Tajikistan–Afghanistan–Pakistan (TUTAP) and Turkmenistan–Afghanistan–Pakistan power interconnection initiatives, ADB is financing multiple electricity transmission lines to enable power export initially to Afghanistan. This has enabled Afghanistan to access more than 3 TWh of electricity from its neighbors. Collectively, these imports will supply electricity to about 8 million Afghan households, businesses, and industries. But numerous households in Pakistan and Afghanistan still do not have access to modern electricity, especially in cities close to the border with Turkmenistan. The proposed project will enable future power trade with Pakistan.

6. With ADB's support within the CAREC umbrella, Turkmenistan became the third country to export power to Afghanistan, after Tajikistan and Uzbekistan. Under the TUTAP power interconnection framework, Turkmenistan signed a power purchase and sales agreement with Afghanistan extending to 2028, for an estimated export volume of about 1.5 TWh per year valued at about \$75 million per year, assuming an average price of \$0.05 per kilowatt hours (kWh).

7. Since 2012, ADB has financed multiple projects in Afghanistan to strengthen Turkmen-Afghan power interconnection. This includes construction of 500-kV transmission line from Afghan-Turkmen border to Kabul, associated sub-stations and distribution networks in several provinces to utilize imported power from Turkmenistan.⁸ These projects are under advanced stages of construction and will be completed and put into operation during 2019–2020. ADB is also financing a high voltage direct current back-to-back convertor station inside Afghanistan that will enable synchronized power transfer from Turkmenistan to the Afghan national grid.⁹

8. In parallel, the recent opening of Uzbekistan for power trade in the CAPS—as illustrated by each of its bilateral declarations with the Kyrgyz Republic, Tajikistan, and Turkmenistan—has created new dynamism and hope in reinvigorating the CAPS. Turkmenistan and Uzbekistan signed a memorandum of understanding that aims to reconnect Turkmenistan with Uzbekistan initially on an island mode—supply with a dedicated generator without connecting the two power grids—for Turkmenistan to export electricity to part of Uzbekistan. It may open new opportunities for power export to Kazakhstan, the Kyrgyz Republic, and Tajikistan. In the backdrop of this promising power export outlook for Turkmenistan, some part of its power grid needs urgent rehabilitation and expansion as described below.

9. Turkmenistan has a 100% electrification rate and a transmission network of more than 6,100 km. Primarily built in 1970s during the Soviet era, Turkmenistan's transmission network is in urgent need of rehabilitation and expansion. Transmission losses on 500 kV and 220 kV are high, at about 5%, which could be halved with a modern transmission system. Power supply

⁸ ADB. Islamic Republic of Afghanistan. Energy Supply Improvement Investment Program Tranche 1 (\$275 million).

⁹ ADB. Islamic Republic of Afghanistan. Energy Supply Improvement Investment Program (G-0521/0522/0523) Tranche 2 (\$415 million).

reliability is low, with a large number of faults in the network, and weak redundancy makes large sections of the network vulnerable to outages. The absence of strong interconnections between different regions of the country further amplifies the problem for remote regions.

10. Turkmenenergo, the State Energy Corporation is the vertically integrated power utility in the country. In 2017, it produced more than 23 TWh of electricity, exporting 15% of that to neighboring countries. Demand for electricity has grown consistently during 2012–2017, at an annual average about 1.5%–2.0%. The domestic demand growth is expected to be steady and moderate in the medium term, with peak electricity demand increasing from about 3,813 MW in summer 2018 to 4,300 MW by 2024. The government is in the process of reinforcing new generation capacity to come online. It plans to add 2.5 gigawatts of additional capacity by 2020, which will provide adequate headroom to export electricity if the grid is strengthened.

11. The National Programme for Socio-Economic Development of Turkmenistan, 2011–2030, adopted in May 2010, aims to achieve strong and sustainable economic growth on the basis of efficient integration of the country into the world economy, with maximum diversification of its export potential. The National Program for Socio-Economic Development has identified developing the fuel and energy industry as a key component. To meet its strategic objectives to expand electricity exports to neighboring countries and beyond, it is essential that a robust, reliable, and efficient power transmission network is in place.

12. For the power transmission system to be in step with the addition of new generation capacity for power export, areas with high loss and low reliability needs immediate attention. A well-integrated transmission system with multiple redundancies removes overall reserve generation capacity, cuts losses, and removes transmission network congestions. System Load-flow modeling and studies by independent experts have identified these vulnerable spots.

13. Detailed load-flow modeling—with and without the investment—indicated that about 800 MW–1,000 MW of additional electricity capacity will be available by implementing the project because of loss reduction, reduced need for reserve, and optimized power flow. Accordingly, it identified strengthening transmission links between the five regions of Turkmenistan—Ahal, Balkan, Dashoguz, Lebap, and Mary—as a high priority. The associated new transmission lines, rehabilitation of some key transmission line segments, constructing new substations and expanding existing substation as envisaged under the project and described in para. 20 below will create a ring system to help achieve an N-1 redundancy standard.¹⁰ This will provide a highly reliable and efficient system due to contingency and interconnections as per international norms. In addition, the system loss reduction will bring in climate mitigation benefits valued at \$3.4 million per year based on ADB's Guidance Note on Counting Climate Finance in Energy.¹¹

14. ADB's recently approved Strategy 2030 highlights infrastructure development and regional cooperation and integration as major ADB value additions and comparative advantages.¹² Fostering regional cooperation and integration is one of the seven operational priorities under the new strategy. The CAREC 2030 strategic framework¹³ supports energy

¹⁰ N-1 is a standard feature for enhancing reliability, and it refers to failure of 1 segment from “n” number of parallel segments between two points without compromising power flow between these points.

¹¹ ADB 2017. Available at: <https://www.adb.org/sites/default/files/institutional-document/296466/guidelines-estimating-ghg.pdf>

¹² ADB. 2018. Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific. Manila.

¹³ ADB. 2017. CAREC 2030: Connecting the Region for Shared and Sustainable Development. Manila.

efficiency improvements, regional cooperation, and power trade. The project is also consistent with the objectives of ADB's Energy Policy¹⁴ to support (i) energy efficiency improvements; (ii) effective regional cooperation in the energy sector; and (iii) energy sector investments complying with ADB safeguards policies regarding environment, involuntary resettlement, and indigenous peoples.

15. ADB's country partnership strategy for Turkmenistan, 2017–2021 will help the country become a key catalyst for regional cooperation and integration by diversifying its markets and positioning it as a trade and transit hub.¹⁵ The strategy identifies the export of excess power via the TUTAP power interconnection initiative as an excellent way to achieve these goals.

16. The project is the first such project by any international financial institution in the power sector in Turkmenistan. It will enable the Government of Turkmenistan to get familiar with and introduce good practices of robust techno-economic evaluation in project investment decision making, higher safeguard requirements consistent with international standards, an open competitive bidding process in procurement, advanced project management practices, and international financial management reporting. Together, these are expected to deliver higher value addition with trickle-down effects throughout the national power system. A modern and strengthened network, in view of possibly reconnecting to the CAPS, will provide significant benefits to Turkmenistan and Central Asia. With ADB's assistance Turkmenistan will be able to implement these interventions earlier.

a. Impacts and Outcome

17. The project is aligned with the following impacts: energy exports diversified and capacity improved. The project will have the following outcomes: reliability of power supply improved and volume of power export increased.¹⁶

b. Outputs

18. **Output 1: Power transmission infrastructure strengthened.** Output 1 will be achieved through (i) construction of 450 km of a 220 kV double-circuit transmission line from Ahal (Gurtly, Ashgabat) to Balkan (Balkanabat) and about 65 km of spur transmission lines; (ii) construction of 560 km of a 500 kV single-circuit transmission line from Balkan (Balkanabat) to Dashoguz (Dashoguz); (iii) construction of 25 km of a 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz; and (iv) construction of 500 kV substations in Balkan, and Dashoguz, as well as 220 kV substations in Ahal, Balkan and Dashoguz.

19. **Output 2: Project and financial management capacity of executing agency and implementing agency improved.** Output 2 will address the challenges because the ADB process, systems and International Financial Reporting System is new to the executing and implementing agency. Attached TA (para. 31) will directly contribute to output 2 by undertaking critical analytical work and necessary training.

20. **Output 3: Regulatory framework and awareness of energy efficiency in Turkmenistan improved.** Output 3 will support development of regulatory framework and

¹⁴ ADB. 2009. *Energy Policy*. Manila.

¹⁵ ADB. 2017. *Country Partnership Strategy: Turkmenistan, 2017–2021—Catalyzing Regional Cooperation and Integration, and Economic Diversification*. Manila.

¹⁶ The design and monitoring framework is in Appendix 1.

increase awareness of energy efficiency options in power generation, transmission, distribution and end use.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 1: Project Readiness Activities

Indicative Activities	2018												2019		Responsibility		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2			
Advance action for procurement of goods and IT services contracts					X	X	X	X	X	X	X	X					MOE-PMU
Loan negotiations								X									MOE
ADB Board approval									X								ADB
Loan signing												X					ADB-MOE
Government Legal opinion provided															X		MOE
Government budget inclusion															X		MOE
Loan effectiveness															X		MOE-ADB

ADB = Asian Development Bank, EA = Executing Agency, MOE = Government of Uzbekistan. PMU = project management unit

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing agency	Ministry of Energy (MOE) of Turkmenistan will be responsible for (among others) all procurement of goods, works and services under the project.
Project Management Unit (PMU)	The Ministry of Energy will designate a Project Management Unit (PMU) at the Department for Long-term Development, New Technologies and Capital Construction. The PMU will be responsible for the overall management and monitoring of the project; all procurement of goods, and works for the project.
Project Implementing agency (PIU)	Turkmenenergo will be responsible for the implementation of the components financed by ADB. Turkmenenergo will establish a dedicated full-time Project Implementation Unit (PIU). The PIU will administer all contracts related to the reinforcement and construction of transmission lines and the construction, extension and rehabilitation of substations. It will be responsible for preparing project plans, progress reports, applications for withdrawal of funds, and any other reports required by ADB.
ADB	Main project financier

ADB = Asian Development Bank.

B. Key Persons Involved in Implementation

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C. Project Organization Structure

21. The Ministry of Energy (MOE) will be the executing agency for the project. It will be responsible for procurement of goods, manage contracts, manage payments for works and services under the project.

22. The MOE will establish a Project Management Unit (PMU) at the Department for Long-term Development, New Technologies and Capital Construction. The PMU will be responsible for the overall management and monitoring of the project. The environmental specialist from Turkmenenergo will be to be appointed as part of PMU will be responsible for ensuring compliance to applicable national environmental regulations, effective implementation and monitoring of environmental management plan.

23. Turkmenenergo (TE) will be the implementing agency for the project. TE will establish a dedicated full-time Project Implementation Unit (PIU). The PIU will administer all contracts related to the reinforcement and construction of transmission lines and the construction, extension and construction of substations. It will be responsible for preparing project plans, progress reports, applications for withdrawal of funds, and any other reports required by ADB.

24. Since the substations will be rehabilitated on a supply basis, there is a risk that the actual output may not conform to the designed outcome. Further, a single responsibility contract could have provided warranty for the whole of the facilities after commissioning; under goods contract, warranty is for individual equipment only.

25. The PMU staff will include at least 4 experts (some will be part-time) covering the following expertise: Project Manager, Procurement Specialist, Environmental Specialist, and Stakeholder Communication Specialist. The PMU team will oversee the works of the PIU team comprised of: Power Transmission Engineer, Substation Engineer, Field Engineer for managing construction and installation (one per site), IT Specialist, and Finance Specialist. The PIU team will have additional responsibility for effective implementation of environmental management plan. They will work under direct coordination with environmental specialist of PMU.

26. The ADB will recruit consultants financed under the Japan Fund for Poverty Reduction (JFPR) to support PMU and PIU capacities. The implementation arrangements are summarized in Table 3 and will be further developed and described in the project administration manual for the project.

27. Under advance procurement action, Turkmenenergo as prepared the detailed design for the transmission lines and substations, including the technical specifications and bill of quantities, through the Institute "Turkmenenergotaslama", the government owned design institute operating under the Ministry of Energy subsidiary network.

28. The PMU will include the positions with the following terms of reference (TOR):

Position	Terms of Reference
Project Manager	<ul style="list-style-type: none"> • Manage the project implementation, schedule, and budget • Manage PMU staff and PMU activities • Manage supervision and project management consultants and contractors • Undertake administrative coordination and liaising with financiers • Prepare project reports and other project documentation

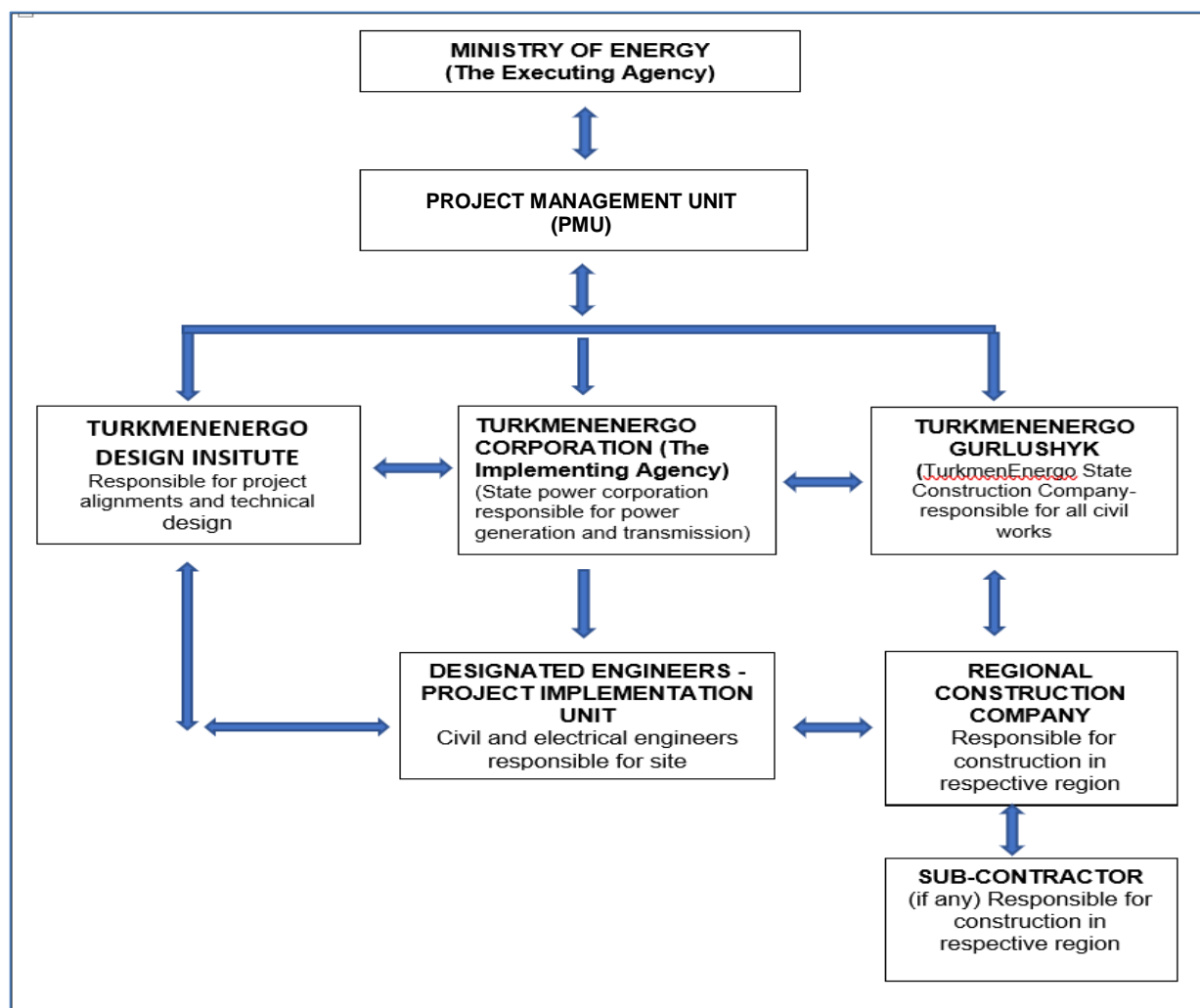
Position	Terms of Reference
	<ul style="list-style-type: none"> • Coordinate with Regional Managers, Regional Project Implementation Units in the respective regions • Be responsible for keeping record of all project related correspondence and data • Be responsible for coordinating ADB missions and meetings with Turkmenenergo
Procurement Specialist	<ul style="list-style-type: none"> • Lead recruitment of project management and supervision consultant • Lead procurement of goods and works • Provide inputs identify and resolve issues in the area of specialty • Monitor compliance of contractors with contract requirements • Assist the Project Manager in contract administration of the consultants and contractors • Prepare overall project progress report • Prepare contract award and disbursement projections • Coordinate with other Specialists in the PMU in the respective regions
Environmental Specialist	<ul style="list-style-type: none"> • Ensuring the bidding documents include all tasks as described in the approved EMP • Ensuring integration of environmental requirements in project design through TurkmenEnerggo Design Institute, • Providing technical advice as required to PIU and other two agencies of Turmenenergo • Collecting, analysing and reporting to MOE and ADB on environmental safeguard compliances in accordance with the project environment-related legal covenants. • Ensuring all necessary government permits and license, including ecological expertise opinion, for all civil works will be obtained • Approving SEMP's which will be prepared by the Contractors and endorsed by the PIU • Preparing, submitting to the MOE and ADB, and disclosing semi-annual environmental monitoring reports on ADB website and in TKM • Reporting in a timely manner to ADB of any non-compliance or breaches with ADB safeguard requirements and taking corrective actions promptly. • Updating the IEE in case of technical design changes or unanticipated impacts • Establishing a Grievance Redress Mechanism (GRM) after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons • Building up and sustaining institutional capacity of MOE and TurkmenEnerggo for environmental management

29. The Project Implementation Unit (PIU) will comprise of the following terms of reference (TOR):

Transmission Engineers	<ul style="list-style-type: none"> • Coordinate with the project manager in ensuring efficient project implementation; • Prepare technical data and inputs to project reports and other project documentation • Review the contractor's design submissions; • Supervise and monitor the project implementation of related transmission lines works;
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	<ul style="list-style-type: none"> • Monitor progress against plan; and • Ensure adherence to project quality assurance plan
Substation Engineers	<ul style="list-style-type: none"> • Coordinate with the project manager in ensuring efficient project implementation; • Prepare technical data and inputs to project reports and other project documentation • Review the contractor's design submissions; • Supervise and monitor the project implementation of related substations works; • Monitor progress against plan; and • Ensure adherence to project quality assurance plan
Field Engineer for managing construction and installation (one per site),	<ul style="list-style-type: none"> • Prepare weekly reports on-site activities supported by photos and • Update progress achieved in percentage Report on materials and equipment deliveries and check at site on completeness of delivery and transport defects, if any Record use and condition of machinery and equipment at site • Report any non-compliance of materials and works to project manager and transmission line or substation engineer • Record health and safety issues and report any non-compliance with safety regulations to project manager
IT specialist	<ul style="list-style-type: none"> • Conduct site surveys and evaluation of existing I&C systems • Coordinate with the project manager in ensuring efficient project implementation; • Prepare technical data and inputs to project reports and other project documentation • Review the contractor's design submissions; • Supervise and monitor the project implementation of SCADA installation and field testing of the works; • Monitor progress against plan; and • Ensure adherence to project quality assurance plan
Financial Specialist	<ul style="list-style-type: none"> • Maintain project accounts • Prepare withdrawal applications • Prepare reports on the project disbursement as required by respective financiers and government authorities • Monitor loan covenants • Prepare project financial statements and reports • Provide inputs identify and resolve issues in the area of specialty • Assist Project Manager in delivery of his/her duties • Coordinate with other Specialists in the PMU in the respective regions

30. The Project Management Unit and Project implementation Unit organizational structure will be as shown below:



IV. COSTS AND FINANCING

31. The Government has requested a loan of \$500 million from ADB's regular ordinary capital resources to help finance the project. The loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility,¹⁷ a commitment charge of 0.15% per year 1 and such other terms and conditions to be set forth in the legal agreements for the project.

32. ADB will finance the supply of goods for the substations the transmission lines, delivery of transmission lines, construction equipment, and installation of telecommunication system at all the above substations. Turkmenenergo will finance the civil works for the entire project. The Turkmenenergo will provide counterpart funding for all taxes in connection with the project.

¹⁷ Interest may include a maturity premium of 10 basis points or 20 basis points depending on loan terms and the government's choice of repayment option and dates. The maturity premium is 0.10% per annum for loans with an average loan maturity that is more than 13 years and up to 16 years, and 0.20% per annum for loans with an average loan maturity that is more than 16 years and up to 19 years. There is no maturity premium for loans with an average loan maturity that is 13 years or less. The average loan maturity shall not exceed 19 years.

33. JFPR will finance the capacity building for project implementation and assist Turkmenenergo in preparing the company's financial statements in accordance to International Financial Reporting Standards (IFRS).

A. Cost Estimates Preparation and Revisions

34. The cost estimates for the project were prepared based on the technical analysis and a market assessment by the project preparatory consultants. These estimates were reviewed by ADB and Ministry of Energy of Turkmenistan and Turkmenenergo.

B. Key Assumptions

35. The following key assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: Manat 3.5 = \$1.00 (as of 30 April 2018).
Price contingencies based on expected cumulative inflation over the implementation period.

Table 1: Summary Cost Estimates
(\$ million)

Item	Amount
A. Base Cost^a	
1. Construction of 220 kV double-circuit transmission line from Ahal to Balkan	174.0
2. Construction of 500 kV single-circuit transmission line from Balkan to Dashoguz	202.4
3. Construction of 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz	7.3
4. Construction of 500 kV substations in Balkan and Dashoguz, 220 kV substations in Balkan and Dashoguz	201.3
Subtotal (A)	585.0
B. Contingencies^b	59.5
C. Financial Charges During Implementation^c	30.5
Total (A+B+C)	675.0

kV= kilovolt.

Note: Assuming the Asian Development Bank finances all equipment costs and the government funds all installation costs.

^a In 2018 prices; includes 15% value-added tax for local goods.

^b Physical contingencies (5% of base cost). Price contingencies computed at 1.5% on foreign exchange costs and 6.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction has been computed at the 5-year United States dollar fixed swap rate plus a contractual spread of 0.5% and maturity premium of 0.10%. The Asian Development Bank loan will be onlent to Turkmenenergo on the same terms and conditions. Commitment charges are 0.15% on the undisbursed loan amount.

Source: Asian Development Bank estimates.

Table 2: Summary of Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Regular Ordinary Capital Resources (loan)	500.7	74.18
Turkmenenergo	174.3	25.82
Total	675.0	100.0

Source: ADB staff estimates

C. Detailed Cost Estimates by Expenditure Category

Item	(\$million)			% of Total Base Cost
	FC	LC	Total Cost	
A. Investment Cost^a				
1. Construction of 220 kV double-circuit transmission line from Ahal to Balkan	135.30	34.00	169.30	28.9%
2. Construction of 500 kV single-circuit transmission line from Balkan to Dashoguz	157.50	39.40	196.90	33.7%
3. Construction of 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz	5.70	1.40	7.10	1.2%
4. Construction of 500 kV substations in Balkan and Dashoguz, 220 kV substations in Balkan and Dashoguz	170.30	25.60	195.90	33.5%
Total Investment Cost	468.80	100.40	569.20	97.3%
Taxes and Duties^b	-	15.81	15.82	2.7%
Subtotal (A)	468.80	116.21	585.02	100.0%
B. Contingencies^c				
1. Physical	23.44	5.02	28.46	4.9%
2. Price	23.69	7.38	31.08	5.3%
Subtotal (B)	47.13	12.40	59.54	10.2%
C. Financial Charges During Implementation^d			-	0.0%
1. Interest during Implementation	28.67	-	28.67	4.9%
2. Commitment Charges	1.77	-	1.77	0.3%
Subtotal (C)	30.44	-	30.44	5.2%
Total (A+B+C)	546.37	128.61	675.00	115.4%

Source: Asian Development Bank estimates.

^a In 2018 prices.

^b 15% value added tax of local goods

^c Physical contingencies computed at 5% for based cost. Price contingencies computed at average of 1.5% on foreign exchange costs and 6.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year US dollar fixed swap rate plus a contractual spread of 0.5% and 0.10% of maturity premium. The ADB loan will be on-lent to Turkmenenergo on the same term and conditions. Commitment charges are 0.15% on the undisbursed loan amount.

D. Allocation and Withdrawal of Loan Proceeds

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS				
Project name				
Number	Item	Total Amount Allocated for ADB Financing		Basis for Withdrawal from the Loan Account
		Category	Subcategory	
		\$		
1	Goods	458,800,000		100% of total expenditure claimed*
1A	500kV Dashoguz substation		45,300,000	100% of total expenditure claimed*
1B	500 kV Balkan substation		39,500,000	100% of total expenditure claimed*
1C	220 kV Dashoguz SPP substation		13,100,000	100% of total expenditure claimed*
1D	220 kV Serdar substation		34,900,000	100% of total expenditure claimed*
1E	500 kV single circuit Dashoguz - Balkan transmission line		170,700,000	100% of total expenditure claimed*
1F	220 kV transmission line		135,300,000	100% of total expenditure claimed*
1G	Equipment for construction, installation and maintenance		20,000,000	100% of total expenditure claimed*
2	Turnkey (Telecommunication system-SCADA)	10,000,000		100% of total expenditure claimed*
3	Interest and commitment charges	30,440,000		
4	Unallocated	760,000		
	Total	500,000,000		

*exclusive of taxes and duties within the Borrower's territory

E. Detailed Cost Estimates By Financier

(\$ million)

Item	ADB (Equipment & Goods)		Turkmenenergo (Construction & Installation)		Total Cost
	Amount	% of Cost Category	Amount	% of Cost Category	
A. Investment Cost^a					
1. Construction of 220 kV double-circuit transmission line from Ahal to Balkan	135.30	80%	34.00	20%	169.30
2. Construction of 500 kV single-circuit transmission line from Balkan to Dashoguz	157.50	80%	39.40	20%	196.90
3. Construction of 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz	5.70	80%	1.40	20%	7.10
4. Construction of 500 kV substations in Balkan and Dashoguz, 220 kV substations in Balkan and Dashoguz	170.30	87%	25.60	13%	195.90
Total Investment Cost	468.80	82%	100.40	18%	569.20
Taxes and Duties^b			15.81	100%	15.82
Subtotal (A)	468.80	80%	116.21	20%	585.02
B. Contingencies^c					
1. Physical	0.76	3%	27.72	97%	28.48
2. Price	-	0%	31.07	100%	31.08
Subtotal (B)	0.76	1%	58.79	99%	59.56
C. Financial Charges During Implementation^d					
1. Interest during Implementation	28.67	100%	-	0%	28.67
2. Commitment Charges	1.77	100%	-	0%	1.77
Subtotal (C)	30.44	100%	-	0%	30.44
Total (A+B+C)	500.00	74%	175.00	26%	675.00

Source: Asian Development Bank estimates.

Assuming ADB finances all equipment costs and Government fund all installation costs.

^a In 2018 prices.

^b 15% value added tax of local goods

^c Physical contingencies computed at 5% for based cost. Price contingencies computed at average of 1.5% on foreign exchange costs and 6.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year US dollar fixed swap rate plus a contractual spread of 0.5% and 0.10% of maturity premium. The ADB loan will be on-lent to Turkmenenergo on the same term and conditions. Commitment charges are 0.15% on the undisbursed loan amount.

F. Detailed Cost Estimates By Outputs/Components

(\$ million)

Item	Total Cost ^a	Power transmission and substation infrastructure	
		Amount	% of Cost Category
A. Investment Cost^a			
1. Construction of 220 kV double-circuit transmission line from Ahal to Balkan	169.30	169.30	100%
2. Construction of 500 kV single-circuit transmission line from Balkan to Dashoguz	196.90	196.90	100%
3. Construction of 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz	7.10	7.10	100%
4. Construction of 500 kV substations in Balkan and Dashoguz, 220 kV substations in Balkan and Dashoguz	195.90	195.90	100%
Total Investment Cost	569.20	569.20	100%
Taxes and Duties^b	15.82	15.82	100%
Subtotal (A)	585.02	585.02	
B. Contingencies^c			
1. Physical	28.46	28.46	100%
2. Price	31.08	31.08	100%
Subtotal (B)	59.54	59.54	100%
C. Financial Charges During Implementation^d			
1. Interest during Implementation	28.67	28.67	100%
2. Commitment Charges	1.77	1.77	100%
Subtotal (C)	30.44	30.44	100%
Total (A+B+C)	675.00	675.00	100%

^a In 2018 prices.

^b 15% value added tax of local goods

^c Physical contingencies computed at 5% for based cost. Price contingencies computed at average of 1.5% on foreign exchange costs and 6.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year US dollar fixed swap rate plus a contractual spread of 0.5% and 0.10% of maturity premium. The ADB loan will be on-lent to Turkmenenergo on the same term and conditions. Commitment charges are 0.15% on the undisbursed loan amount.

G. Detailed Cost Estimates by Year

(\$ million)

Item	Total Cost	2019	2020	2021	2022
A. Investment Cost^a					
1. Construction of 220 kV double-circuit transmission line from Ahal to Balkan	169.30	50.79	84.65	32.17	1.69
2. Construction of 500 kV single-circuit transmission line from Balkan to Dashoguz	196.90	59.07	98.45	37.41	1.97
3. Construction of 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz	7.10	2.13	3.55	1.35	0.07
4. Construction of 500 kV substations in Balkan and Dashoguz, 220 kV substations in Balkan and Dashoguz	195.90	58.77	97.95	37.22	1.96
Total Investment Cost	569.20	170.76	284.60	108.15	5.69
B. Capacity building	-	-	-	-	-
Taxes and Duties^b	15.82	4.75	7.91	3.01	0.16
Subtotal (A)	585.02	175.51	292.51	111.15	5.85
B. Contingencies^c					
1. Physical	28.46	8.54	14.23	5.41	0.28
2. Price	31.08	9.32	15.54	5.91	0.31
Subtotal (B)	59.54	17.86	29.77	11.31	0.60
C. Financial Charges During Implementation^d					
1. Interest during Implementation	28.67	0.99	4.39	8.79	14.50
2. Commitment Charges	1.77	0.69	0.56	0.38	0.13
Subtotal (C)	30.44	1.68	4.96	9.16	14.63
Total (A+B+C)	675.00	195.05	327.24	131.63	21.08

^a In 2018 prices.

^b 15% value added tax of local goods

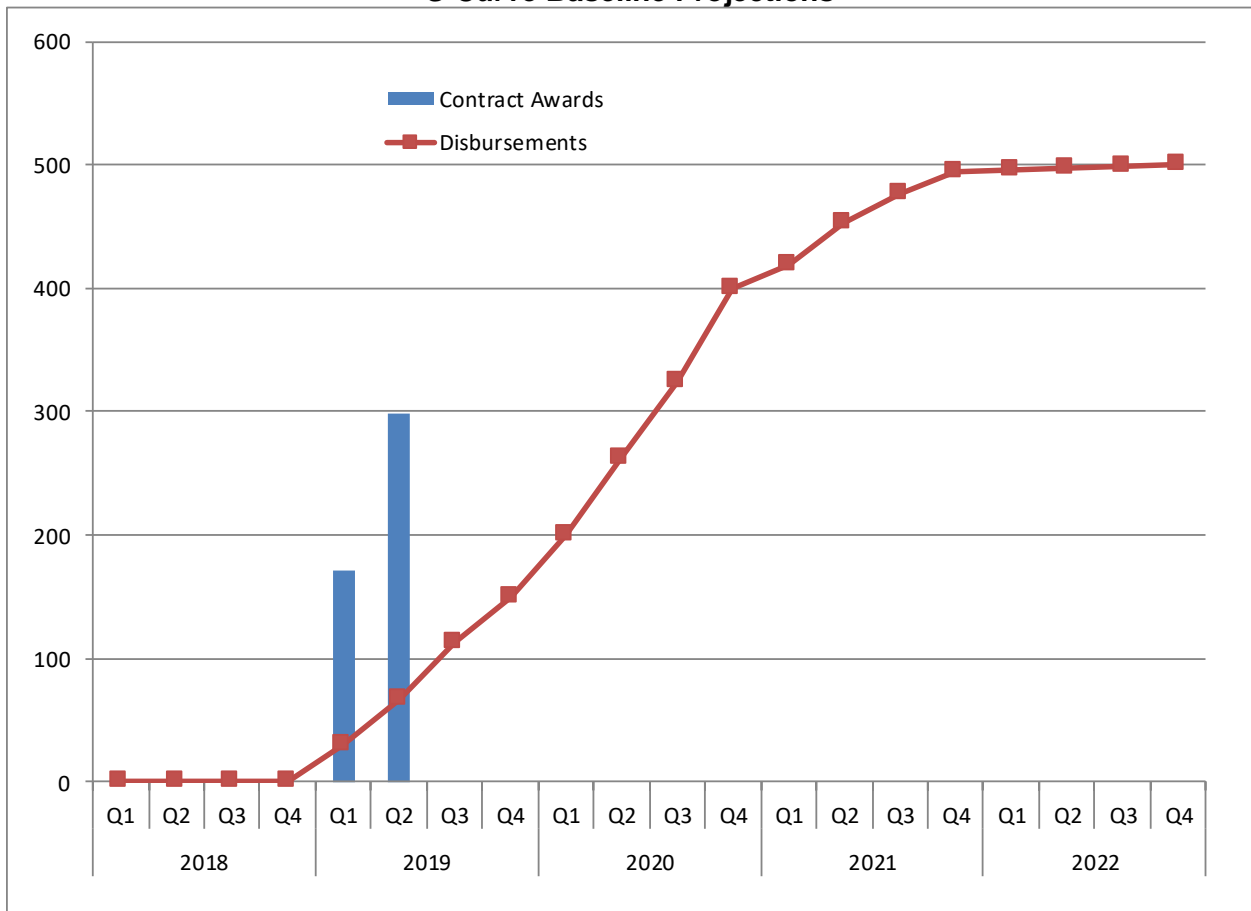
^c Physical contingencies computed at 5% for based cost. Price contingencies computed at average of 1.5% on foreign exchange costs and 6.2% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loan has been computed at the 5-year US dollar fixed swap rate plus a contractual spread of 0.5% and 0.10% of maturity premium. The ADB loan will be on-lent to Turkmenenergo on the same term and conditions. Commitment charges are 0.15% on the undisbursed loan amount.

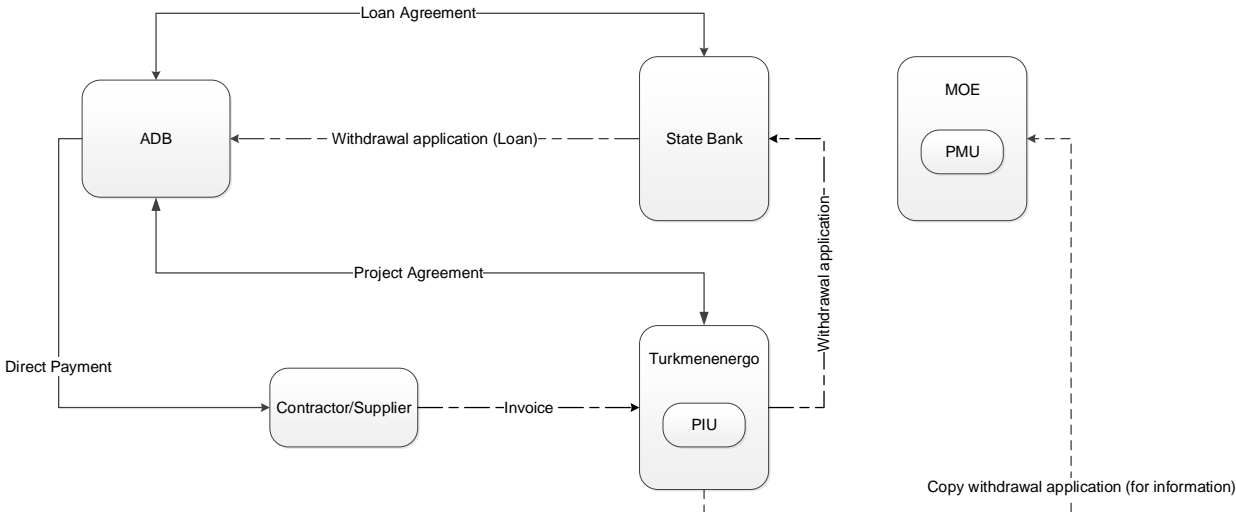
H. Contract and Disbursement S-curve

	Contract Awards (in USD million)					Disbursements (in USD million)				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2018					0.00					
2019	170.70	298.10			468.80	30.00	37.50	45.00	37.50	150.00
2020					0.00	50.00	62.50	62.50	75.00	250.00
2021					0.00	19.00	33.25	23.75	19.00	95.00
2022				0.76	0.76	1.00	1.50	1.50	1.00	5.00
2023					0.00	-	-	-	-	-
2024					0.00					
2025					0.00					
	Total Contract Awards				469.56	Total Disbursements				500.00

S-Curve Baseline Projections



I. Fund Flow Diagram



ADB = Asian Development Bank; PMU = Project Management Unit; PIU = Project Implementation Unit

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

36. The financial management assessment (FMA) was conducted in April 2018 following ADB’s *Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note*. The FMA considered the capacity of Turkmenenergo, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements.

37. Based on the assessment, the key financial management risks identified are:

- (i) Turkmenenergo’s staff are not familiar with ADB’s financial management requirements;
- (ii) Turkmenenergo’s staff are not familiar with independent auditor’s procedure and requirements for audited project financial statements.

38. It was concluded that Turkmenenergo will implement action plan to minimize the financial management risk (Table 4).

Table 4: Financial Management Action Plan

Action	Responsibility	Resources	Timing
Review auditor terms of reference to confirm audit scope for project financial statements	TE	TE and Consultant	4 months after effectiveness
Provide financial management training and disbursement training to PIU staff	TE	ADB	Before the first disbursement

Action	Responsibility	Resources	Timing
Recruit a consulting firm that will assist (i) the appropriate recording and management of the project account and procurement; and (ii) convert Turkmenenergo's NAR to IFRS	TE	TE with ADB's assistance	4 months after effectiveness
Implementation consulting firm will support Turkmenenergo's staff to familiarize independent auditor's procedure and requirements	TE	TE and Consultant	6 months after effectiveness
Provide audited project financial statements	TE	TE	Within 6 months after FY
Provide audited entity financial statements for FY 2019	TE	TE	By 30 June 2021, or 1 month after approval of the FS by relevant authority, whichever is earlier
Provide audited entity financial statements for FY 2020 and succeeding FYs.	TE	TE	1 month after approval of the FS by relevant authority

ADB = Asian Development Bank, TE = Turkmenenergo; IFRS = International Financial Reporting Standards; NAR = National Accounting Regulation

B. Disbursement

a. Disbursement Arrangements for ADB Funds

39. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time)¹⁸, and detailed arrangements agreed upon between the government and ADB. Online training for project staff on disbursement policies and procedures is available.¹⁹ Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

40. Before submitting the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below this amount should be paid by Turkmenenergo and subsequently claimed to ADB through reimbursement, unless

¹⁸ The handbook is available electronically from the ADB website (<http://www.adb.org/documents/loan-disbursement-handbook>).

¹⁹ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

otherwise accepted by ADB. Use of ADB's Client Portal for Disbursements (CPD)²⁰ system is encouraged for submission of withdrawal applications to ADB.

41. Turkmenenergo will fund constructions, and installation. Turkmenenergo will finance taxes and duties. ADB will fund equipment and goods.

C. Accounting

42. Turkmenenergo will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. Turkmenenergo will prepare project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

43. Turkmenenergo will cause the detailed project financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within six months of the end of the fiscal year by Turkmenenergo.

44. Turkmenenergo will also submit the entity-level financial statements which is audited by independent auditor. The entity-level financial statements will be submitted to ADB within one month after their approval by the relevant authority.

45. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project.

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

47. The Government, Ministry of Energy and Turkmenenergo have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.²¹ ADB reserves the right to require a change in

²⁰ The CPD facilitates online submission of WA to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

²¹ ADB approach and procedures regarding delayed submission of audited project financial statements:

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

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

48. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).²² After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting

49. All advance contracting will be undertaken in conformity with ADB's *Procurement Regulations for ADB Borrowers: Works, Goods, Nonconsulting and Consulting Services* (2017, as amended from time to time). The issuance of invitations to bid under advance contracting will be subject to ADB's approval. The borrower has been advised that approval of advance contracting does not commit ADB to finance the project.

50. Advance contracting will be undertaken by PMU for the procurement of goods and services including: preparation of tender documents to procure goods and services, and evaluation of bids.

B. Procurement of Goods, Works and Consulting Services

51. Procurement of goods and related services²³ and SCADA system²⁴ for the transmission network, which will be financed by ADB, will be undertaken through open competitive bidding (OCB) in accordance with ADB's *Procurement Regulations for ADB Borrowers: Goods, Works, Nonconsulting and Consulting Services* (2017, as amended from time to time). There will be three OCB packages: (i) one package for supply and delivery of equipment, parts and materials for the construction of substations (four lots for seven substations) and transmission lines (two lots for transmission lines); (ii) one package for supply and delivery of equipment for construction, installation and maintenance (one lot), and (iii) one package for the design, supply and installation of SCADA system (one lot). Detailed design and supervision of installation of equipment in substations will be required from the suppliers as part of the contracts' related services. All procurement will use ADB's single-stage: two-envelope bidding procedure except SCADA system which will be done in 2 stage bidding procedure. Under single-stage two-envelope bidding procedure, the price envelope of technically non-responsive bidders will be returned unopened.

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

²² Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

²³ The bidding documents for goods and related services will be based on ADB's Standard Bidding Document for Goods.

²⁴ The bidding document for the SCADA system will be based on the Standard Bidding Document for Plant, Design and Install.

52. Procurement of civil works and installation services, which will be financed entirely by Turkmenenergo, will be undertaken in accordance with the country's procurement law and regulations.

53. The project will engage consulting firm and individual experts, financed through a grant from Japan Fund for Poverty Reduction administered by ADB, to assist MOE in the evaluation of bids and preparation of bid evaluation reports. Selection of consultants will be in accordance with the *Procurement Regulations for ADB Borrowers: Goods, Works, Nonconsulting and Consulting Services* (2017, as amended from time to time). The grant will also finance procurement and contract management trainings, workshops and other capacity-building activities. A project management unit (PMU) and project implementation unit (PIU) will be established in MOE and Turkmenenergo, respectively, to manage the day-to-day implementation of the project.

54. ADB will engage consulting firms and individual consultants in accordance with ADB Procurement Policy (2017, as amended from time to time) and the associated PAIs/TA Staff Instructions to provide capacity building for both the Ministry of Energy and Turkmenenergo.

55. Funds required for the financing of goods, works and consulting services will be directly disbursed to the suppliers, contractors and consultants by ADB.

56. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.

VII. PROCUREMENT PLAN

Basic Data		
Project Name: National Power Grid Strengthening Project		
Project Number: 49370-002	Approval Number:	
Country: Turkmenistan	Executing Agency: Ministry of Energy of Turkmenistan	
Project Procurement Classification: A	Implementing Agency: The State Power Corporation "Turkmenenergo" of the Ministry of Energy of Turkmenistan	
Procurement Risk: Substantial		
Project Financing Amount: \$675 million ADB Financing: \$500 million ²⁵ Cofinancing: ADB Trust Fund \$1.5 million Non-ADB Financing: (Ministry of Energy/Turkmenenergo): \$175 million ²⁶	Project Closing Date: 30 June 2024	
Date of First Procurement Plan: 26 April 2018	Date of this Procurement Plan: 10 August 2018	
Procurement Plan Duration: 18 months	Advance contracting: yes	eGP: no

A. Methods, Review and Procurement Plan

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

²⁵ Cost of goods and related services and SCADA system only; to be finalized to include other financing costs.

²⁶ Government share for civil works and installation services for substations and transmission lines.

Procurement of Goods and Works		
Method	Applicability	Comments
Open Competitive Bidding for Goods and IT Products and Services	{To be agreed with ADB during project processing}	-International advertisement -ADB's prior review and approval required
Procurement method in accordance with Turkmenistan's procurement law and regulations	All civil works and installation services under government financing	Agreed with ADB during project processing

Consulting Services	
Method	Comments
Quality-Cost Based Selection (QCBS)	STP, ADB-administered TA-grant, for IFRS component
Individual Consultants Selection (ICS)	ADB-administered TA-grant

B. List of Active Procurement Packages (Contracts)

The following table lists goods, works and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods and Works							
Package Number ¹	General Description	Estimated Value	Procurement Method	Review ²	Bidding Procedure ³	Advertisement Date ⁴	Comments ⁵
Package 1 (Goods and Related Services)	Lot 1: Supply and delivery of equipment, parts and materials for the construction of: (i) 500 kV Dashoguz substation	45.3	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement
	Lot 2: Supply and delivery of equipment, parts and materials for the construction of 500 kV Balkan substation	39.5	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement
	Lot 3: Supply and delivery of equipment, parts and materials for the construction of 220 kV Dashoguz SPP Substation	13.1	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement
	Lot 4: Supply and delivery of equipment, parts and materials for the construction of: (i) 220 kV Serdar	34.9	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement

	Substation						
	Lot 5: Supply and delivery of equipment, parts and materials for the construction of 500 kV single-circuit Dashoguz – Balkan transmission line	170.70	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement
	Lot 6: Supply and delivery of equipment, parts and materials for the construction of (i) Gurtly-Serdar-220 kV double-circuit transmission line; (ii) Serdar – Balkanabat 220 kV Double-circuit Transmission Line; (iii) 220 kV Dashhoguz-Dashoguz SPP Transmission Line.	135.3	Open Competitive Bidding (OCB)	Prior	1S2E	Q3/2018	International advertisement
Package 2 (Turnkey)	Supply and installation of SCADA system (Lot 7)	10.0	OCB	Prior	2S	Q3/2018	International advertisement
Package 3 (Goods and Related Services)	Supply and delivery of construction, installation and maintenance equipment (Lot 8)	20.0	OCB	Prior	1S2E	Q3/2018	International advertisement

C. List of Indicative Packages (Contracts) Required under the Project

The following table lists goods, works and consulting services contracts for which the procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e. those expected beyond the current procurement plan duration).

Goods and Works						
Package Number ¹	General Description	Estimated Value	Procurement Method	Review ²	Bidding Procedure ³	Comments ⁵

Consulting Services						
Package Number	General Description	Estimated Value	Selection Method	Review ⁶	Type of Proposal ⁷	Comments ⁸

¹ If the package contains multiple lots, please provide the following information for each lot – lot number, lot description and lot estimated value.

² Review type: Prior or Post Review Sampling

³ Type of Bidding Procedures: 1S1E / 1S2E / 2S / 2S2E.

⁵ (a) Indicate whether international or national advertisement if OCB. (b) Indicate whether prequalification of bidders and domestic preference is applicable. (c) Specify the type of bidding documents to be used: Small Works / Large Works / Plant / Goods / Design-Build / Design-Build-Operate / IT Products and Services / Output-Based / Others. (d) Indicate if a contract is under advance contracting. (e) Indicate if a contract will use e-GP and specify corresponding URL of the system.

⁶ Indicate whether Prior or Post Review if Firm. Indicate whether Prior or Post Review Sampling if Individual Consultant Selection.

⁷ See Guidance Note on Selection of Consultants: full, simplified or bio data technical proposal.

⁸ (a) Specify the Quality-Cost Ratio for QCBS method. (b) For Direct Contracting, indicate the type of assignment, whether Firm or Individual Consultant Selection, and the expertise for Individual Consultant Selection. (c) Indicate whether international or national advertisement. (d) Indicate if a contract is under advance contracting. (e) Indicate if a contract will use e-GP and specify corresponding URL of the system.

D. List of Awarded and Completed Contracts

The following table lists the awarded contracts and completed contracts for goods, works and consulting services.

Goods and Works					
Package Number	General Description	Contract Value ⁹	Date of ADB Approval of Contract Award ¹⁰	Date of Completion ¹¹	Comments ¹²

Consulting Services					
Package Number	General Description	Contract Value ⁹	Date of ADB Approval of Contract Award ¹⁰	Date of Completion ¹¹	Comments ¹²

⁹ Indicate contract value at the time of award or the final contract value at the time of the completion of contract.

¹⁰ Date of ADB Approval of Contract Award is the date of No-Objection letter to the EA/IA.

¹¹ The Date of Completion is the physical completion date of the contract, otherwise leave it blank.

¹² Indicate the Contractor's name or Consulting Firm's name and the contract signing date.

E. Non-ADB Financing

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

Goods and Works				
General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Comments
Civil works and installation services for the construction of substations and transmission lines under Package 1	100.2 million	n/a	In accordance with Turkmenistan's procurement law and regulations	Government counterpart financing

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

F. National Competitive Bidding – Not applicable

G. Review of Contract Modifications

38. ADB will review contract modifications in accordance with the procedures set forth in the loan agreement between the borrower and ADB.

VII. SAFEGUARDS

39. The Government through MOE will ensure that all safeguard requirements prescribed for the Project that have been prepared are implemented. The Project, in accordance to ADB SPS 2009, is categorized as “B” category for environment and, and as “C” category for Involuntary Resettlement and Indigenous People impacts. Therefore, Initial Environmental Examination (IEE) including an Environmental Management Plan (EMP) was prepared. This report identified potential impacts that would be generated from the Project, and proposed EMP consisting of mitigation measures, monitoring plan, and arrangements for EMP implementation.

40. MOE and Turkmenenergo oblige to implement EMP proposed in the IEE that was prepared with adequate consultations with relevant local people and stakeholders.

41. Prohibited investment activities. Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).²⁷

²⁷ Available at: <http://www.adb.org/sites/default/files/pub/2009/Safeguard-Policy-Statement-June2009.pdf>

A. Environment

42. Proposed alignment of transmission lines has been realigned considering environmental sensitivities. All the natural habitats, identified important bird areas, agriculture areas and water body have been bypassed in the final alignment. Dashoguz to Balkan transmission line alignment has also been shifted away from the Kaplankyr state reserve towards the desert area for the protection of birds. The sites selected for new sub stations are barren land away from habitation and devoid of any vegetation or faunal movement. As such project impacts during construction stage are expected to be limited, insignificant and site specific due to civil works and inappropriate disposal of waste transformer oils and other wastes. These impacts can be minimized by the use of effective waste management and good site management practices. Impacts during the operation stage are related to electrocution or collision of birds and will be minimized with design measures. Occupational health and safety risks are also anticipated during construction stage and maintenance activities that will be addressed in the EMP. The EMP will form part of the bidding documents. A TA will provide training to PMU and PIU staff for capacity building in environmental management to ensure full compliance with ADB's SPS requirements

43. The cost for implementing EMP will be financed by the project, specifically: the costs of mitigation measures and environmental monitoring will be included in the construction contracts, and the cost for environmental supervision will be included in the PMU operational costs. PMU costs will have a budget for purchasing a PCB-oil detector kit which will be used for PCBs test of oil before being released from the old equipment to be replaced. PMU is responsible for overall environmental compliance with SPS 2009. A grievance redress mechanism to handle both environmental and social safeguard issues will be established after the project effectivity.

44. The PMU at MOE, in coordination with Turkmenenergo will be responsible for implementation of EMP to comply with ADB's safeguards requirements and environmental national regulations. For this, a full-time environmental specialist position is required for the PMU. The environmental specialist will be responsible for environmental management for the project in overall. S/He will be responsible for reporting on safeguard compliance through the coordination with all three related agencies of the Ministry of energy viz Turkmenenergo, Turkmenenergo Design Institute, and Turkmenenergo Gurlushyk in ensuring effective implementation of environmental management plans and other environmental aspects.

45. The tasks of the PMU environmental specialist include, but not limited to:

- Ensuring the bidding documents include all tasks as described in the approved EMP
- Ensuring integration of environmental requirements in project design through TurkmenEnergo Design Institute,
- Providing technical advice as required to PIU and other two agencies of Turmenenergo
- Collecting, analysing and reporting to MOE and ADB on environmental safeguard compliances in accordance with the project environment-related legal covenants.
- Ensuring all necessary government permits and license, including ecological expertise opinion, for all civil works will be obtained
- Approving SEMP's which will be prepared by the Contractors and endorsed by the PIU
- Preparing, submitting to the MOE and ADB, and disclosing semi-annual environmental monitoring reports on ADB website and in TKM
- Reporting in a timely manner to ADB of any non-compliance or breaches with ADB safeguard requirements and taking corrective actions promptly.

- Updating the IEE in case of technical design changes or unanticipated impacts
- Establishing a Grievance Redress Mechanism (GRM) after the project effectivity and act as the GRM secretary to make sure that the GRM is operational to effectively handle environmental and social concerns of project affected persons
- Building up and sustaining institutional capacity of MOE and Turkmenenergo for environmental management

46. Additional responsibilities of three agencies:

- i. **Turkmenenergo corporation:** Designate its site engineer with additional responsibility of EHS and ensuring effective implementation of EMP during construction and operation stages. Support PMU and environmental specialist at PMU for effective implementation of EMP and overall EHS management. Provide adequate authority and resources to its designated site engineers to oversee and check EMP implementation by constructors and reporting to PMU at per defined frequency in the EMP
- ii. **TurkmenEnergo Design Institute:** Ensure design and alignment finalisation with regulatory and environmental consideration. Interaction with regulatory agencies along with Environmental Specialist of PMU for assessment of their requirement and suggestion for design/alignment finalisation.
- iii. **TurkmenEnergo Gurlushyk:** responsible for ensuring environmental compliance as per EMP in addition to occupational health and safety during construction works. Cooperate and provide all compliance assessment to PIU designated engineers for monitoring environmental compliances as per EMP.

47. Contractors will be responsible for implementing mitigation measures. Within 30 days after contract award and prior to commencing any physical works, Specific Environmental Management plans (SEMPs) will be developed by the Contractors under the guidance of the Environmental specialist of the PMU and be submitted to PMU for approval, for which ADB technical advice will be requested as needed. The SEMP is the document that the Contractors shall prepare outlining how he intends to implement the EMP and ensure that all of the mitigation and monitoring is completed according to the implementation arrangements specified in this EMP. During construction, the Contractors must retain the expertise of a responsible staff for EHS issues at each project sites to implement and continually update the SEMP, and to report on the implementation of mitigation measures throughout the contract period.

48. It is mandatory that OVOS (Turkmenistan EIA) be prepared by MOE and relevant approvals be obtained from State Commission for Environmental Protection prior to the commencement of the project activities. After commissioning, the State Commission through its local branches and Institute of Desert and Fauna will also be involved in the monitoring process of waste management and bird movement in accordance with national regulations. During the maintenance activities, Turkmenenergo local branches are required to report to the State Commission on bird incidences and leakages of hazardous wastes if found any.

B. Social Safeguards

49. A grievance redress mechanism will be established by the IA and contractors during project implementation in order to provide communities with a channel to report any issues or concerns.

50. **Involuntary resettlement.** The project is classified as Category C for involuntary resettlement under ADB's Safeguard Policy Statement (2009). A due diligence report has been conducted to support the C categorization. All civil works in substations will be implemented within the confines of existing substations, or in unencumbered land where no involuntary land acquisition or livelihood impacts will occur. The transmission lines will be parallel to existing lines, and located in the Karakom desert, which dominates central Turkmenistan. The scarcity of settlements and arable land is such that the project is highly unlikely to require any land acquisition or impact any assets. There will be sufficient flexibility in fine tuning transmission line routes to avoid any land acquisition and resettlement along the transmission routes. Should monitoring during project implementation reveal any unanticipated and unavoidable impacts, a land acquisition and resettlement plan will be prepared.

51. Indigenous peoples. The project is classified as Category C under ADB's Safeguard Policy Statement (2009). The project is not expected to affect Indigenous people as defined under the Safeguard Policy Statement.

VIII. GENDER AND SOCIAL DIMENSIONS

52. A poverty and socio-economic assessment report was prepared. The increased efficiency and reliability of power supply resulting from the project will have a positive impact on economic growth, poverty reduction, and social services such as schools, colleges and kindergartens, clinics and shops, which ultimately improve well-being and community welfare. Improved energy supply will have a positive effect on business development and thus support new job creation. The improvement in the delivery of electricity will equally benefit households and business run by women. Energy-based household appliances such as washing machines and cooking stoves will significantly benefit women through reduced time spent in household work. Reliable energy supply will also enhance the productivity of home-based micro-enterprises, most of which are managed by women. Thus, as the main users of household electricity, the project will ensure that women will be given equal opportunities to participate in stakeholder consultations.

53. The project is categorized as "no gender elements" (NGE) as it mainly concerns improvement in power transmission infrastructure, along idle lands owned by the government. No gender action plan has been prepared. There are no anticipated changes to the high level of domestic access to energy. The second output on capacity building of EAs/IAs can include some gender considerations in the project, such as (i) ensuring that female staff involved in procurement, project management, safeguards, and financial management will have equal opportunities to participate in capacity building, and (ii) women community members will have equal opportunities to participate in stakeholder consultations as well as in any workshops and capacity building activities relevant to energy efficiency, since they are the main users and managers of energy/electricity within their households. Responsibilities for ensuring women's participation will be included in the ToR of the Stakeholder Communication Specialist.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Impacts the Project is Aligned with
Energy exports diversified and capacity improved (National Programme for Socio- Economic Development of Turkmenistan, 2011–2030)

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Reliability of power supply improved and export volume of electricity increased	By 2022: a. Power outages reduced to 2.7 hours per year (2017 baseline: 3.8 hours) b. Transmission losses reduced to 3.8% per year (2017 baseline: 4.6%) c. Power export is increased to more than 6 TWh (2017 baseline: 3.4 TWh)	a–b. Annual statistics published by the Ministry of Energy, Turkmenenergo, and the Central Dispatch Center of Turkmenistan	Delays in power export agreements results in lower volume of power trade
Outputs 1. Power transmission infrastructure strengthened	By 2021: 1a. 450 km of new 220 kV double-circuit transmission line from Ahal to Balkan installed and commissioned (2017 baseline: 0 km) 1b. 560 km of new 500 kV single-circuit transmission line from Balkan to Dashoguz installed and commissioned (2017 baseline: 0 km) 1c. 25 km of new 220 kV single-circuit transmission line between 500 kV and 220 kV substations in Dashoguz installed and commissioned (2017 baseline: 0 km) 1d. 500 kV substations in Balkan and Dashoguz constructed and commissioned (2017 baseline: 0) 1e. 220 kV substations in Ahal, Balkan and Dashoguz constructed and commissioned (2017 baseline: 0)	1a–e. Actual field data from the project's report, midterm review report, review mission report, and Turkmenenergo's annual report	Delays in project construction and quality of work.
2. Project and financial management capacity	2a. Annual financial statement based on IFRS prepared	2a. Turkmenenergo financial report	Trained staff in EA/ IA do not stay long enough

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
of executing agency and implementing agency improved (under attached TA)	independently by implementing agency from 2021 onwards (2017 baseline: Not applicable) 2b. At least 30 executing agency and implementing agency staff, at least 30% of whom are women, have increased knowledge and skills on financial management, procurement, project implementation, and environmental safeguards (2017 baseline: 0)	2b. Survey of training participants	to provide the expected support.
3. Regulatory framework and awareness of energy efficiency in Turkmenistan improved. (under attached TA)	3a. By 2021, road map for higher energy efficiency submitted to and adopted by the government (2017 baseline: Not applicable) 3b. By 2020, A law and regulations related to energy efficiency drafted (2017 baseline: Not applicable)	3a. Energy efficiency road map adapted by the government 3b. Draft law and regulations	Energy efficiency demand remains weak because of low domestic energy prices, and supply-side options continue to be overemphasized
<p>Key Activities with Milestones</p> <p>1. Power transmission infrastructure strengthened</p> <p>1.1 Issue invitation for bids (Q4 2018)</p> <p>1.2 Award contracts for goods and related services (Q1 2019)</p> <p>1.3 Deliver goods and complete related services (Q1 2019–Q2 2020)</p> <p>1.4 Award contract for SCADA system (Q1 2020)</p> <p>1.5 Complete civil works and installation services (Q1 2020–Q4 2021)</p> <p>1.6 Supply and install SCADA system (Q1 2020–Q4 2021)</p> <p>2. Project and financial management capacity of executing and implementing agency improved</p> <p>2.1 Recruit individual consultant and consulting firm (Q4 2018–Q2 2021)</p> <p>2.2 Conduct four workshops and trainings (Q2 2019–Q1 2021)</p> <p>2.3 Submit annual audited project financial statement based on IFRS (every year)</p> <p>2.4 Submit annual audited financial statement based on IFRS (every fiscal year)</p> <p>2.5 Submit TA completion report (Q2 2021)</p> <p>3. Regulatory framework and awareness of energy efficiency in Turkmenistan improved</p> <p>3.1 Recruit individual consultant (Q4 2018–Q4 2021)</p> <p>3.2 Complete assessment of energy efficiency potential (Q3 2019).</p> <p>3.3 Develop road map for higher energy efficiency (Q4 2019)</p> <p>3.4 Draft relevant law and regulations (Q1 2020)</p> <p>3.5 Conduct workshop and training on energy efficiency (Q2 2020)</p> <p>Inputs</p> <p>Asian Development Bank: \$500,000,000 (regular ordinary capital resources loan)</p> <p>Government of Turkmenistan: \$175,000,000</p> <p>Japan Fund for Poverty Reduction: \$1,500,000</p> <p>Assumptions for Partner Financing</p> <p>Not applicable</p>			

IFRS = International Financial Reporting Standards, km = kilometer, kV = kilovolt, Q = quarter, SCADA = supervisory control and data acquisition, TA = technical assistance.
Source: Asian Development Bank.

B. Monitoring

73. **Project performance monitoring.** The following indicators will be updated in the quarterly progress reports and at the time of semi-annual meetings and the midterm review expected in two years from the date of loan effectiveness. The financial indicators will be monitored annually at the time of submission of annual financial report.

74. **Compliance monitoring:** Loan covenants—policy, legal, financial, economic, environmental, and others—will be monitored through semi-annual project meeting and the midterm review.

75. **Safeguards monitoring.** The Contractor(s) are responsible for the preparation of weekly EHS checklists and an EHS section in contractors' monthly progress reports that shall be submitted to the designated engineers of PIU for review. The designated engineer of PIU shall carry out additional site inspection and base on Contractors' monthly reports reports to compile EMP compliance monitoring for reporting to the Environment Specialist of PMU on quarterly basis. The PMU Environmental Specialist will submit semi-annual Environmental Monitoring Report to ADB through MOE for posting at ADB website (in English) and in TKM (in local language) per disclosure requirements of SPS 2009.

C. Evaluation

76. **Inception Mission.** ADB will field an inception mission after loan signing to (i) establish a working relationship between ADB and the EA; and (ii) to ensure that the borrower and EA understand ADB's procedures.

77. **Review Missions.** ADB will field review missions at least once a year to review overall implementation of the project and update project implementation schedule based on mission findings.

78. **Midterm Review Mission.** ADB will field a midterm review mission after two years of loan signing to assess whether attainment of the project's immediate objective (purpose in terms of the design and monitoring framework) is still likely.

79. **Project Completion Review Mission.** ADB will field a project completion review mission upon physical completion of the project to commence preparation of ADB's project completion report. Ministry of Energy will submit a project completion report to ADB within 6 months of physical completion of the project.²⁸

D. Reporting

80. The Ministry of Energy will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system and containing sections on compliance with safeguard requirements; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated

²⁸ Project completion report format available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>.

implementation plan for next 12 months; (iii) semi-annual environmental monitoring reports starting from the contract award to be submitted to ADB in January and July (within one month after each half calendar year); and (iv) a project completion report within 2 months of physical completion of the project. To ensure projects to continue to be both viable and sustainable, project accounts and the executing agency AFSs, together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

81. Project documents will be disclosed on the ADB website. Table below outlines the framework communication strategy to be implemented by ADB.

ADB Public Communications Strategy

Project Documents [language]	Means of Communication	Responsible Party	Frequency	Audience(s)
Project Information Document (PID) [English/Russian]	ADB's website	ADB	initial PID no later than 30 calendar days of approval of the concept paper; quarterly afterwards	General Public
Design and Monitoring Framework (DMF) [English]	ADB's website	ADB	draft DMF after post fact-finding mission	General Public
Report and Recommendation of the President [English]	ADB's website	ADB	within 2 weeks of Board approval of the project	General Public
Legal Agreements [English]	ADB's website	ADB	within 2 weeks of Legal Agreements signing	General Public
Social Poverty Reduction and Social Strategy [English]	ADB's website	ADB	within 2 weeks of Board approval of the project	General Public, project
Project Administration Manual [English]	ADB's website	ADB	within 2 weeks of Board approval of the project	General Public
Major Change to Project [English]	ADB's website	ADB	within 2 weeks of approval of the change	General Public
Completion Report [English]	ADB's website	ADB	within 2 weeks of circulation to the Board for information	General Public
Business opportunities, bidding process and guidelines, results of bidding process,	ADB's website Ministry of Energy's website	ADB Ministry of Energy	per project progress,	General Public

X. ANTICORRUPTION POLICY

82. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.²⁹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.³⁰

83. To support these efforts, relevant provisions are included in the loan/grant agreement/regulations and the bidding documents for the project. Procurement will follow ADB's *Procurement Regulations for ADB Borrowers: Goods, Works, Nonconsulting and Consulting Services* (2017, as amended from time to time), and disbursement will follow ADB's loan disbursement policies, guidelines, practices, and procedures.

XI. ACCOUNTABILITY MECHANISM

84. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.³¹

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

85. All revision/updates during course of implementation should be retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

Date Revised/Updated	PAM Section	Revision/Updates

²⁹ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

³⁰ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

³¹ Accountability Mechanism. <http://www.adb.org/Accountability-Mechanism/default.asp>.