Pakistan : Tarbela 5 Hydropower Extension

1. Project Information

Project ID:	P000005	Instrument ID:	L0005A
Member:	Pakistan	Region:	Southern Asia
Sector:	Energy	Sub-sector:	Renewable energy generation-hydropower
Instrument type:	☒Loan:300.00 US Dollar million ☐Guarantee	Lead Co-financier (s):	World Bank
ES category:	A	Borrowing Entity:	Ministry of Finance, Pakistan
Implementing Entity:	Wapda and Power Development Authority		
Project Team Leader:	Ghufran Shafi		
Responsible DG:	Gregory Liu		
Responsible Department:	INF2		
Project Team Members:	Yi Geng, OSD - Financial Management Specialist; Liu Yang, Project Counsel; Shonell Robinson, OSD - Financial Management Specialist; Guoping Yu, OSD - Procurement Specialist; Mudassar Hassan, OSD - Environment & Social Development Specialist; Yanyang Shi, Project admin		
Completed Site Visits by AIIB:	Nov, 2017 May, 2019 Visits by WB Oct, 2019 Visits by WB Dec, 2020 Consultation with WB after its Mission Aug, 2021 Consultation with WB after its Aug-Sep Mission Jun, 2022 Feb, 2023 Consultation with WB after its February 2023 mission Aug, 2023 AIIB team visited project site together with WB		
Planned Site Visits by AIIB:	Jul, 2024 Visit planned in July/August 2024		
Current Red Flags Assigned:	0		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	0		
Previous Red Flags Assigned Date:	2023/04		

2. Project Summary and Objectives

To facilitate the sustainable expansion of Pakistan's electricity generation capacity providing a low cost, clean, renewable energy option. The Project will add capacity of 1,410 Megawatt (MW), with annual electricity generation

of over 1,800 Gigawatt-hours (GWh), primarily during the summer season when demand is highest. The total capacity at Tarbela with the induction of Tarbela 5 Hydropower extension will become 6,928 MW and annual average generation is expected to increase to 19,000 GWH.

The shortages of energy have held back Pakistan's economic performance. The project will support generation of low-cost renewable energy during the peak demand period of summer months when shortages are at their worst. Increased supply at competitive prices from the project would support economic growth for all enterprises that use electricity, regardless of size or sector. In addition to increasing the supply thus reducing load shedding it will also supplement government's reform program to reduce power sector subsidies and improve its financial viability by reducing the dependence on imported fuels and lowering the cost of supply. The project has major incremental benefits, accruing to all consuming sectors (industry, agriculture, commercial and residential), by making available required energy as well as non-incremental benefits, by replacing the expensive and unclean thermal generation.

Main components of the project are indicated below. Of these, AIIB is co-financing the first two components: the civil works and electro-mechanical equipment.

(i) The construction of a power-house and modification of the existing Tunnel 5 to house the power plant,

(ii) The installation of power units and ancillary equipment,

(iii) The provision of technical assistance to support implementation of a social action plan, environmental and social management plan, and dam safety monitoring surveillance program,

(iv) The provision of technical assistance to carry out construction supervision, monitoring and evaluation of Project progress, quality, and impacts as well as independent supervision of the social action plan and environmental and social management plan,

(v) The project management, and strengthen capacity to plan, develop and manage the hydropower infrastructure in the long term,

3. Key Dates

Approval:	Sep. 27, 2016	Signing:	Jan. 18, 2017
Effective:	Aug. 11, 2017	Restructured (if any):	
Orig. Closing:	Jun. 30, 2022	Rev. Closing (if any):	Jun. 30, 2025

4. Disbursement Summary (USD million)

Contract Awarded:		Cancellation (if any):	0.00
Disbursed:	104.07	Latest disbursement (amount/date):	3.58/Mar. 29, 2024
Undisbursed:	195.93	Disbursement Ratio (%)[1]:	34.69

5. Project Implementation Update

The physical works in T5HP are carried out under two main contracts: (i) civil works contract for construction of powerhouse connection to tunnel and intakes; and (ii) Electro-mechanical (EM) contract for supply and installation of EM equipment and substation. These contracts were respectively signed in May 2021 and June 2021. Since then, works are ongoing on all major work-sites, including Tunnel 5, intake, penstock, powerhouse, T5 tailrace, outlet culvert and switchyard. AIIB and WB have been emphasizing that T5HP shall be commissioned in 2025 provided contractor deploy additional resources and implement its work in accordance with workplan.

[1] Disbursement Ratio is defined as the volume (e.g. the dollar amount) of total disbursed amount as a percentage of the net committed volume.

However, the construction progress and resource mobilization by the contractor is slower than required. WAPDA and its senior management are monitoring the progress of works and regularly convening review meetings with staff, contractors and consultants. The delivery of the electro-mechanical equipment is on schedule and expected to arrive timely to the site. WAPDA has been reminded to mitigate the risk of affecting the supply schedule because of delays in civil works by providing warehouse facilities.

Components	Physical Progress	Environmental & Social Compliance	Procurement
Component A: Powerhouse and Tunnel Works (USD133.2 M)	Contractor has mobilized by establishing its camp and site offices. Major activities currently underway include surveys and excavation at intake area; penstock and T5 outlet; powerhouse; tailrace culvert canal and switchyard. T5 has been handed over to the contractor after which contractor has access to all work sites. Physical progress on the T5 Power House and Connection to T5 is about 15%.	An Environmental and Social Assessment (ESA) of the Project has been prepared jointly by WAPDA and NTDC. The Resettlement Action Plan (RAP) for the transmission line has been prepared and approved. The contractors have prepared Contractor's ESMPs that have been approved by PMU. The implementation of these site specific ESMPs is being carried out by the contractors at site and is monitored by the supervision consultants and PMU.	Civil Works contract (approximately valued at USD356 million) was signed in May 2021
Component B1: Turbines generators and related equipment (USD110.6 M)	Contract for electro-mechanical works was awarded in June 2021 and contractor has mobilized. Contractor has delivered the initial manufacturing and design drawings, and system calculations for key components as per the contract provisions.	An Environmental and Social Assessment (ESA) of the Project has been prepared jointly by WAPDA and NTDC. The Resettlement Action Plan (RAP) for the transmission line has been prepared and approved. The contractors have prepared Contractor's ESMPs that have been approved by PMU. The implementation of these site specific ESMPs is being carried out by the contractors at site and is monitored by the supervision consultants and PMU.	EM Works contract (approximately valued at USD209 million) was signed in June 2021
Component B2: Transformers, switchyard electrical connection (USD30.1 M)	Contract for electro-mechanical works was awarded in June 2021 and contractor has mobilized. Contractor has delivered the initial manufacturing and design drawings, and	An Environmental and Social Assessment (ESA) of the Project has been prepared jointly by WAPDA and NTDC. The Resettlement Action Plan (RAP) for the transmission line has been prepared and approved. The contractors have prepared Contractor's ESMPs that have been	EM Works contract was signed in June 2021

	system calculations for key components as per the contract provisions.	approved by PMU. The implementation of these site specific ESMPs is being carried out by the contractors at site and is monitored by the supervision consultants and PMU.	

Financial Management:

The audit report including the Management Letter (ML-Internal control weaknesses) for FY June 2023 was submitted to World Bank on Dec 29, 2023, one day prior to the submission due date of December 31, 2023. The auditors issued an unqualified (clean) opinion on the project's financial statements and noted only a few audit observations in ML, which does not lead to any major internal control weaknesses or any serious accountability issues. As such the report is deemed acceptable to the Banks.

6. Status of the Grievance Redress Mechanism (GRM)

A Project-specific Grievance Redress Mechanism has been established. A tripartite Grievance Redress Committee to address the grievances of labor and project affected community has been operational during Tarbela 4 Hydropower Project and continues to address labor and community complaints and employment issues under the Project. A total 33 workplace related grievances were registered under GRM of T5HPP during the reporting period, out of which 20 cases have been resolved and closed and 13 cases are under process. Most of the pending labor and community grievances are of minor nature and can be resolved easily.

7. Results Monitoring (please refer to the full RMF, which can be found on the last page of this PIMR)

Project implementation was delayed and implementation of major works commenced in end 2021. Implementation is monitored based on the revised workplan and results are tracked accordingly

Remarks:

Project Objective Indicators	Indicator level	Unit of Measure	Cumulative Target Values																					Frequency	Responsibility	Comments
			Baseline		2016		2017		2018		2019		2020		2021		2022		2023		End Target					
			Year	Value	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Year	Target	Actual			
Generation Capacity of Hydropower Constructed Under the Project	Project	MW	2016	0	0	0	0	0	0	0	0	0	0	0	1,410	0	1,410	0	1,410	0		1,410		Annually	WAPDA, M&ECs	Baseline is 3478 MW without T4 (total capacity at Tarbela Dam wth T4HP is 4,888MW)
Electricity supply of renewable energy annually	Project	GWh	2016	14,175	14,175	14,175	14,175	14,175	17,200	14,175	17,200	14,175	17,200	14,175	19,000	14,175	19,000	14,175	19,000	14,175		19,000		Annually	WAPDA, M&ECs	
Availability of generation capacity during summer months	Project	MW	2016	3,478	3,478	3,478	3,478	3,478	4,888	3,478	4,888	3,478	4,888	3,478	6,298	3,478	6,298	3,478	6,298	3,478		6,298		Annually	WAPDA, M&ECs	
Preparation of hydropower project, completion of pilot solar project and capacity building program	Project	Percentage	2016	0	0	0	20	0	40	40	60	50	80	65	100	75	100	75	100	75		100		Annually	WAPDA, M&ECs	Design of T5HP is complete. Preparation studies of solar subprojects are complete. The project are financing several trainings for WAPDA

Project Intermediate Indicators	Indicator level	Unit of Measure	Cumulative Target Values																					Frequency	Responsibility	Comments
			Baseline		2016		2017		2018		2019		2020		2021		2022		2023		End Target					
			Year	Value	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Year	Target	Actual			
Component A. Construction of T5 power house and	Project	Percentage	2016	0	0	0	0	0	20	0	40	0	80	0	100	0	100	2.5	100	3.5		100		Annually	WAPDA, M&ECs	

connection to Tunnel 5																										
Component A. Construction of intake modification for Tunnel 5	Project	Percentage	2016	0	0	0	0	0	0	0	20	0	40	0	80	0	100	2.5	100	3.9		100		Annually	WAPDA, M&ECs	
Component B. Installation of number of power units on Tunnel 5	Project	Number	2016	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	3	0		3		Annually	WAPDA, M&ECs	
Component B. Construction of T5 Switchyard	Project	%	2016	0	0	0	0	0	20	0	40	0	80	0	100	0	100	0.5	100	0.87		100		Annually	WAPDA, M&ECs	
Component B. Transmission line for power evacuation	Project	%	2016	0	0	0	0	0	20	0	40	0	80	0	100	0	100	2	100	6		100		Annually	WAPDA, M&ECs	