

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:	<input checked="" type="checkbox"/> Loan:300.00 US Dollar million <input type="checkbox"/> Guarantee	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:	Liu Yang, Project Counsel; Shonell Robinson, OSD - Financial Management Specialist; Sheikh Naveed Ahmed, OSD - Social Development Specialist; Guoping Yu, OSD - Procurement Specialist; Zhixi Zhu, OSD - Environment Specialist		
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 Feb, 2022 Consultation with WB after its February 2022 mission Jun, 2022		
Planned Site Visits by AIIB:	AIIB visit will be planned after the Covid-imposed travel restrictions are eased by the Bank.		
Current Red Flags Assigned:	0		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	0		
Previous Red Flags Assigned Date:	2022/04		

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; Jun. 30, 2025;

4. Disbursement Summary (USD million)

Contract Awarded:		Cancellation (if any):	0.00
Disbursed:	51.94	Most recent disbursement (amount/date):	1,500,000.00/Oct. 14, 2022
Undisbursed:	248.06	Disbursement Ratio (%) ¹ :	17.31

5. Project Implementation Update

The T5HP designs were finalized after extensive additional geotechnical and site investigations after. During the design review, the forecast of electricity generation was also updated, which confirmed the constructability of the project. The analysis also confirmed the strong economic returns of the T5HP. After initial procurement delays, tendering of works were successfully completed and major contracts have successfully been procured. Physical works consist of 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. WAPDA successfully signed the civil works contract in May 2021 and EM contract in June 2021. Contractors have mobilized and works have commenced. The delayed approval of the regulator to allow tunnel T5 closure, which is needed for completion of works, caused some delays. However, the approval was obtained in October. Based on revised timelines, the plant is expected to be commissioned in 2025. The loan agreement has been extended to June 30, 2025 to cover for the initial delays after an extension request from Government. The disbursement projection shown

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.

below are based on the extended implementation period.

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. The handover of the T5 is expected to accelerate physical progress	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 is under review. 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 is under review. 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 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 is under review. 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 was signed in June 2021

Financial Management:

The project financial management system has been continuously maintained as satisfactory, the outstanding audit report for year 2021 has been received and deemed acceptable.

6. Status of the Grievance Redress Mechanism (GRM)

A Project-specific Grievance Redress Mechanism has been established. A tripartite Grievance Redress Committee on labor issues has been operational during Tarbela 4 Hydropower Project and continues to address labor complaints and employment issues under the Project. A total of 143 workplace related grievances registered under GRM for workers of T5HP, out of which 76 cases have been resolved and closed while 16 cases are partially resolved and 51 are under process. Most of the pending grievances are minor in nature and can be resolved easily

7. Results Monitoring

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

Project Objective Indicators #1

Generation Capacity of Hydropower Constructed Under the Project (MW)

Year	Target	Actual	Comments, if any
Jan. 01, 2026	1410	-	

Project Objective Indicators #2

Electricity supply of renewable energy annually (GWh)

Year	Target	Actual	Comments, if any
Jan. 01, 2026	19,000GWh	-	Baseline (annual generation of entire Tarbela complex for 2021 is 14175 GWh)

Project Objective Indicators #3

Availability of generation capacity during summer months (MW)

Year	Target	Actual	Comments, if any
Jan. 01, 2026	6,298MW	-	Baseline is 3478 MW without T4 (total capacity at Tarbela Dam with T4HP is 4,888MW)

Project Objective Indicators #4

Preparation of hydropower project, completion of pilot solar project and capacity building program (percentage)

Year	Target	Actual	Comments, if any
Jan. 01, 2025	100	75	Design of T5HP is complete. Preparation studies of solar subprojects are complete. The project are financing several trainings for WAPDA

Intermediate Result Indicators #1

Indicator #1: Component A. Construction of T5 power house and connection to Tunnel 5 (percentage)

Year	Target	Actual	Comments, if any
Jan. 01, 2026	100%	2	Works have commenced with target commissioning in 2025

Intermediate Result Indicators #2

Indicator #2: Component A. Construction of intake modification for Tunnel 5 (percentage)

Year	Target	Actual	Comments, if any
Jan. 01, 2026	100%	2	Works have commenced with target commissioning in 2025

Intermediate Result Indicators #3

Indicator #3: Component B. Installation of number of power units on Tunnel 5

Year	Target	Actual	Comments, if any
Jan. 01, 2026	3	-	

Intermediate Result Indicators #4

Indicator #4: Component B. Construction of T5 Switchyard

Year	Target	Actual	Comments, if any
Jan. 01, 2026	100%	-	

Intermediate Result Indicators #5

Indicator #5: Component B. Transmission line for power evacuation

Year	Target	Actual	Comments, if any
Jan. 01, 2025	100%	-	

Remarks: