



## Improving Power System Resilience for European Power Grid Integration (P176114)

EUROPE AND CENTRAL ASIA | Ukraine | Energy & Extractives Global Practice |  
IBRD/IDA | Investment Project Financing | FY 2021 | Seq No: 2 | ARCHIVED on 15-Apr-2022 | ISR50875 |

Implementing Agencies: PJSC "Ukrhydroenergo", Ministry of Finance of Ukraine, PJSC "Ukrhydroenergo"

**Key Dates****Key Project Dates**

Bank Approval Date: 30-Jun-2021

Effectiveness Date: --

Planned Mid Term Review Date: --

Actual Mid-Term Review Date:

Original Closing Date: 31-Dec-2026

Revised Closing Date: 31-Dec-2026

**Project Development Objectives**

Project Development Objective (from Project Appraisal Document)

To enhance the flexibility of the Ukrainian power grid through storage investments and market expansion to support synchronization with the European electricity grid and decarbonization of power sector.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

**Components Table**

Name

Installation of Battery Energy Storage System (BESS) with solar Photovoltaic (PV) plants, establishment of an Energy Management System (EMS), and Supervision Consultancy:(Cost \$249.00 M)  
Technical Assistance for UHE:(Cost \$1.00 M)

**Overall Ratings**

Name	Previous Rating	Current Rating
Progress towards achievement of PDO	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Moderately Satisfactory
Overall Implementation Progress (IP)	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Satisfactory
Overall Risk Rating	<input type="checkbox"/> Substantial	<input type="checkbox"/> Substantial

**Implementation Status and Key Decisions**

Project signing was completed on September 13, 2021 and effectiveness is expected by May 2022. The Project is in too early a stage to report on progress of development objectives.



**Risks**

**Systematic Operations Risk-rating Tool**

Risk Category	Rating at Approval	Previous Rating	Current Rating
Political and Governance	☐ Substantial	☐ Substantial	☐ Substantial
Macroeconomic	☐ Moderate	☐ Moderate	☐ High
Sector Strategies and Policies	☐ Substantial	☐ Substantial	☐ High
Technical Design of Project or Program	☐ Moderate	☐ Moderate	☐ Moderate
Institutional Capacity for Implementation and Sustainability	☐ Substantial	☐ Substantial	☐ Substantial
Fiduciary	☐ Substantial	☐ Substantial	☐ Substantial
Environment and Social	☐ Substantial	☐ Substantial	☐ Substantial
Stakeholders	☐ Substantial	☐ Substantial	☐ Substantial
Other	☐ Moderate	☐ Moderate	☐ Substantial
Overall	☐ Substantial	☐ Substantial	☐ Substantial

**Results**

**PDO Indicators by Objectives / Outcomes**

Newly installed capacity of battery storage				
▶ Newly installed capacity of battery storage (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	200.00
Date	19-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	Installed capacity of energy storage			

Available Frequency Containment Reserve (FCR) amount				
▶ Available Frequency Containment Reserve (FCR) amount (Megawatt, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	177.00	177.00	177.00	300.00
Date	19-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	Available FCR amount (MW) in Ancillary Services Market			



Reduced variable renewable energy curtailment				
▶ Reduced renewable energy curtailment (Gigawatt-hour (GWh), Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	12.70
Date	19-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	Avoided solar and wind energy curtailment			

Ancillary services market improved				
▶ Number of units (power plants/storage units) certified for trading in Ancillary services market (Number, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	32.00	32.00	32.00	40.00
Date	21-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress towards improved legal and regulatory framework on ancillary services market.			

Reduced GHG emissions				
▶ Reduced GHG emissions (Metric tons/year, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	124,721.00
Date	07-Apr-2021	24-Sep-2021	30-Mar-2022	31-May-2027
Comments:	This indicator tracks the GHG emissions reduction enabled by the proposed project			

### Intermediate Results Indicators by Components

Installation of BESS with solar PV plants, establishment of an EMS and Supervision Consultancy				
▶ Ancillary services battery storage procured and installed (Yes/No, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	21-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027



Comments:	This indicator tracks the progress of installation of ancillary services battery storage			
<b>► Long-duration battery procured and installed (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	21-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of installation of long-duration battery storage			
<b>► PV solar procured and installed (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	21-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of installation of PV solar plants			
<b>► Supervision consultant mobilized (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	21-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of mobilization of the supervision consultant			
<b>► ASM rules updated to increase market competitiveness and enable storage participation (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	24-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of improvements in ancillary services market rules			
<b>► Grid code updated to include connections and operation rules for storage (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	24-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of updates on Grid Code to facilitate participation of battery storage in markets			



<b>► Monitoring methodology for ancillary services at unit level implemented (Yes/No, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	No	No	No	Yes
Date	24-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of implementation of the monitoring methodology for ancillary services at unit level			
<b>► Number of staff trained on gender awareness (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	500.00
Date	24-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	This indicator tracks the progress of gender trainings conducted under the Project			
<b>► Percentage increase of women employed by UHE (Percentage, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	10.00
Date	24-Mar-2021	24-Sep-2021	30-Mar-2022	30-Apr-2027
Comments:	The indicator tracks the progress in the percentage increase of women employed by UHE			
<b>► Number of roundtables on storage systems and electromobility where citizens receive answers to their concerns (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	0.00	0.00	5.00
Date	09-Apr-2021	24-Sep-2021	30-Mar-2022	30-Sep-2026
Comments:	The indicator tracks the progress in the number of roundtables on storage systems and electromobility			
<b>► Number of participating companies in Ancillary Services Market (Number, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	4.00	4.00	4.00	6.00
Date	15-Apr-2021	24-Sep-2021	30-Mar-2022	30-Sep-2026
Comments:	The indicator tracks number of companies participating in Ancillary Services Market for various services. The indicator is aimed at tracking market concentration.			

**Performance-Based Conditions**



**Data on Financial Performance**

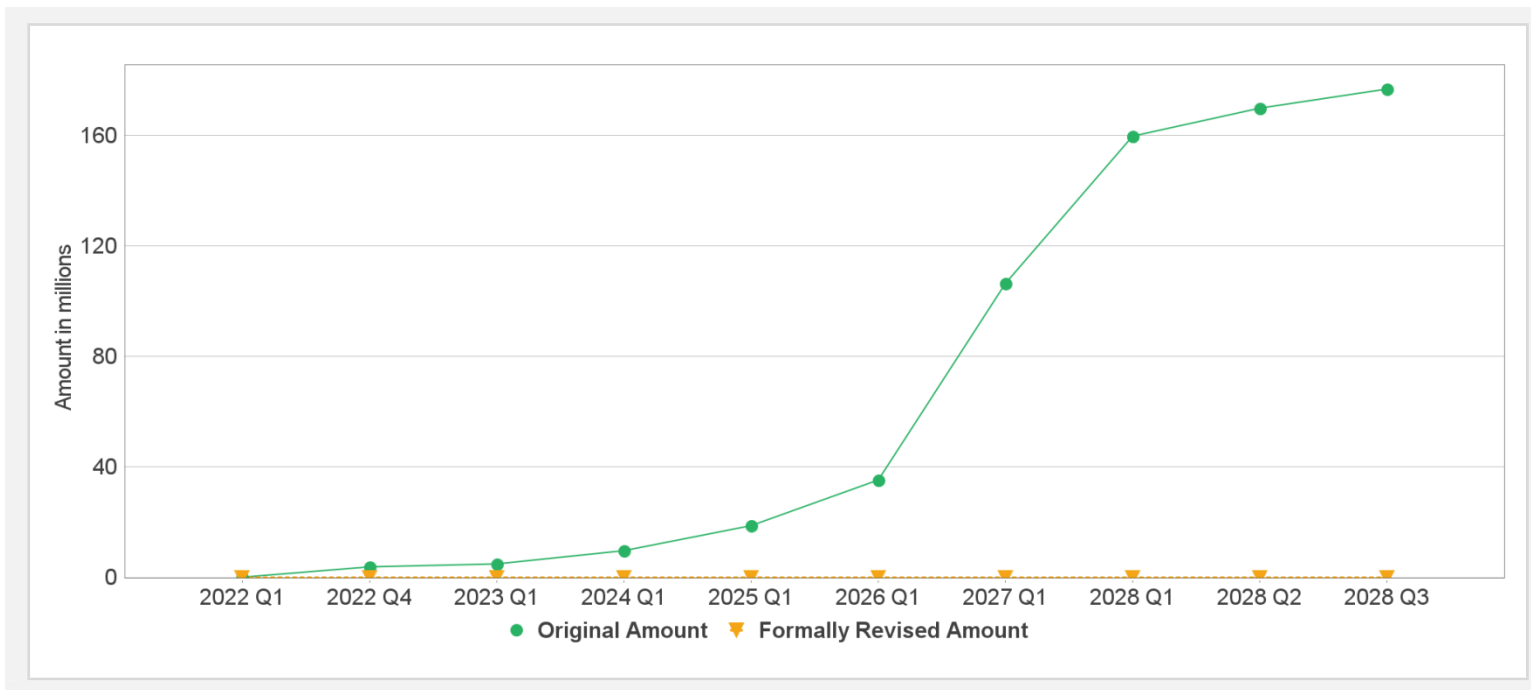
**Disbursements (by loan)**

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P176114	IBRD-92840	Not Effective	USD	177.00	177.00	0.00	0.00	177.00	0%
P176114	TF-B5994	Not Effective	USD	34.00	34.00	0.00	0.00	34.00	0%

**Key Dates (by loan)**

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P176114	IBRD-92840	Not Effective	30-Jun-2021	13-Sep-2021	--	31-Dec-2026	31-Dec-2026
P176114	TF-B5994	Not Effective	30-Jun-2021	13-Sep-2021	--	31-Dec-2026	31-Dec-2026

**Cumulative Disbursements**





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### **Restructuring History**

There has been no restructuring to date.

### **Related Project(s)**

There are no related projects.

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