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The World Bank
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT
INTERNATIONAL DEVELOPMENT ASSOCIATION
REGIONAL OFFCE
UKRAINE, BELARUS AND MOLDOVA

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OFFICIAL DOCUMENTS

May 13, 2019

H.E. Oksana Markarova
Minister
Ministry of Finance of Ukraine
12/2, Hrushevskyi Str.
Kyiv, 01008, Ukraine

Re: Second Power Transmission Project
Loan No. 8462-UA
Amendment to the Loan Agreement and Partial Cancellation

Your Excellency:

We refer to the Loan Agreement ("Loan Agreement") for the above referenced Project dated February 10, 2015 between Ukraine ("Borrower") and the International Bank for Reconstruction and Development ("Bank"). We also refer to the letter dated April 1, 2019 from Yu I. Heletii, Deputy Minister in Charge of European Integration, Ministry of Finance of Ukraine, requesting certain amendments to the Loan Agreement and cancellation of US$60,000,000 from the loan proceeds.

We are pleased to inform you that the Bank hereby agrees to your request. Accordingly, the Loan Agreement and the related Supplemental Letter No. 2 are hereby amended as follows:

A. Loan Agreement

1. Pursuant to Section 7.01 of the General Conditions, we would like to inform you that the amount of US$60,000,000 is hereby cancelled as of April 2, 2019. As a result, the withdrawal table set forth in Schedule 2, Section IV.A.2 of the Loan Agreement is hereby deleted in its entirety and replaced with the withdrawal table attached to this letter as Attachment 1.

2. Schedule 2, Section III.B, paragraph 2 is hereby amended and replaced in its entirety to read as follows:

"2. **Other Methods of Procurement of Goods, Works and Non-consulting Services**. The following methods, other than International Competitive Bidding, may be used for procurement of goods, works and non-consulting services for those contracts specified in the Procurement Plan: (a) Shopping; and (b) Direct Contracting."

3. Schedule 2, Section III.C, paragraph 2 is hereby amended and replaced in its entirety to read as follows:

"2. **Other Methods of Procurement of Consultants' Services**. The following methods, other than Quality and Cost-based Selection, may be used for procurement of consultants' services for those contracts which are specified in the Procurement Plan: (a) Least Cost Selection; (b) Selection based on Consultants' Qualifications; (c) Procedures for the Selection of Individual Consultants; (d) Single-source procedures for the Selection of Individual Consultants; (e) Single-source Selection of consulting firms; (f) Quality-based Selection; and (g) Selection under a Fixed Budget"

4. Schedule 2, Section IV.B is hereby amended and replaced in its entirety to read as follows:

"2. The Closing Date is June 29, 2022."

B. Supplemental Letter No. 2: Performance Monitoring Indicators

With reference to the provisions of Schedule 2, Section II.A.1 of the Loan Agreement, the performance monitoring indicators for the Project set out in the Supplemental Letter No. 2 dated February 10, 2015, and signed by the Bank and the Borrower are hereby amended to read as set forth in the Attachment 2 to this letter.

Except as specifically amended herein, all the other terms and conditions of the Loan Agreement shall remain in full force and effect.

Please confirm your agreement to the foregoing amendments to the Loan Agreement and the amended performance monitoring indicators on behalf of the Borrower, by signing and dating the confirmation on the enclosed copy of this letter and returning it to us. Upon receipt by the Bank of said duly countersigned original amendment letter, said amendments will come into force and effect as of the date of countersignature by the Borrower.

Very truly yours,
INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

Satu Kähkönen
Country Director
Belarus, Moldova, and Ukraine
Europe and Central Asia

CONFIRMED AND AGREED:

UKRAINE

By: _____
Authorized Representative

Name: Yuriy Moletiy
Title: Deputy Minister of Finance of Ukraine for european integration
Date: June 04, 2019

Attachment 1

Revised Withdrawal Table

Category	**Amount of the Loan Allocated (expressed in USD)**	**Percentage of Expenditures to be financed (inclusive of Taxes)**
(1) Goods, works, non-consulting services, consultants' services, and Training for Parts 1 and 2.1, 2.3 and 2.4 of the Project	266,675,000.00	100%
(2) Goods, non-consulting services, consultants' services, and Training for Part 3 of the Project	2,500,000.00	100%
(3) Front-end Fee	825,000	Amount payable pursuant to Section 2.03 of this Agreement in accordance with Section 2.07(b) of the General Conditions
(4) Interest Rate Cap or Interest Rate Collar premium	0	Amount due pursuant to Section 2.08(c) of this Agreement
Cancelled as of April 2, 2019	60,000,000	Cancelled pursuant to Section 7.01 of General Conditions
TOTAL AMOUNT	330,000,000	

Attachment 2

Revised Performance Monitoring Indicators

Project Goals Achievement Indicators

Indicator	Basis	Unit	Baseline	Overall Target Indicators							Frequency	Data Source / Methodology	Responsibility for data collection	Comments
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7				
1 The number of outages at the rehabilitated substations (SS) has been reduced														
1. SS 330 kV Novokyivska			35	35	35	35	35	35	35	8				
2. SS 330 kV Nyvky			23	23	23	23	23	23	23	5				
3. SS 330 kV Kremenchuk			37	37	37	37	37	37	37	9				
4. SS 330 kV Zhytomyrska			28	28	28	28	28	28	28	7				
5. SS 330 kV Cherkaska			12	12	12	12	12	12	12	3				
6. SS 330 kV Sumy			27	27	27	27	27	27	27	7				
7. SS 220 kV Kalush			18			18	18	18	18	4	Half-year Progress Report, Mid-term Review, and Completion	UE Half-year Progress Reports	PIE PIU	Indicator for Component 1 Annual indicators
8. SS 330 kV Bohorodchany			15			15	15	15	15	4				
9. SS 220 kV Boryslav			6			6	6	6	6	1				
10. SS 330 kV Rivne		Quantity	21			21	21	21	21	5				
11. SS 330 kV Ivano-Frankivsk			17			17	17	17	17	4				
12. SS 330 kV Kovel			14			14	14	14	14	3				
13. SS 750 kV Pivnichnoukrayinska			3			3	3	3	3	1				
14. SS 330 kV Konotop			6			6	6	6	6	1				
15. SS 330 kV Poltava			22			22	22	22	22	5				
16. SS 330 kV Losieve			26			26	26	26	26	6				
17. 330 kV Bilotserkivska			25			25	25	25	25	6				
18. SS 330 kV Poliana			16			16	16	16	16	4				
19. SS 330 kV Chernihivska			17			17	17	17	17	4				
20. SS 330 kV Nizhynska			16			16	16	16	16	4				
21. SS 330 kV Slavutych			15			15	15	15	15	3				
2) Reduced BOP electrical energy consumption of the rehabilitated substations:														
1. Central region		MWh	8951	8951	8951	8951	8823	8823	8823	8324	Half-year Progress Report, Mid-term Review, and Completion	UE Half-year Progress Reports	PIE PIU	Indicator for Component 1 Annual indicators
1.1 SS 330 kV Novokyivska, SS 330 kV Nyvky, SS 330 kV Cherkaska, SS 330 kV Zhytomyrska			3863	3863	3863	3863	3735	3735	3735	3546				
1.2 SS 330 kV Bilotserkivska, SS 330 kV Poliana, SS 330 kV Chernihivska, SS 330 kV Nizhynska, SS 330 kV Slavutych			5088	5088	5088	5088	5088	5088	5088	4778				

Indicator	Basis	Unit	Baseline	Overall Target Indicators							Frequency	Data Source / Methodology	Responsibility for data collection	Comments
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7				
2. Northern region			9946	9946	9946	9946	9877	9877	9877	9280				
2.1 SS 330 kV Kremenchuk, SS 330 kV Sumy,			3299	3299	3299	3299	3230	3230	3230	3091				
2.2 SS 750 kV Pivnichnoukrayinska, SS 330 kV Konotop, SS 330 kV Poltava, SS 330 kV Losieve			6647	6647	6647	6647	6647	6647	6647	6189				
3. Western region SS 220 kV Kalush, SS 330 kV Bohorodchany, SS 220 kV Boryslav, SS 330 kV Rivne, SS 330 kV Ivano-Frankivsk, SS 330 kV Kovel			5414	5414	5414	5414	5414	5414	5414	5132				
3) Portion of the electrical energy traded on a bilateral basis and on the day-ahead market on Ukraine's Wholesale Electrical Energy Market		%	0	0	0	0	40	40	40	50	Half-year Progress Report, Mid-term Review, and Completion	UE Half-year Progress Reports	PIE PIU	Indicator for Component 2.3 Annual indicators
Intermediate Results Indicators														
1) Progress of the rehabilitation of substations 1. SS 330 kV Novokyivska 2. SS 30 kV Nyvky 3. SS 330 kV Kremenchuk 4. SS 330 kV Zhytomyrska 5. SS 330 kV Cherkaska		stages	0	Tender documents are ready	The contract has been signed	The Contractor has developed detail design documents, and expert analysis has been approved	The work at 110-150 kV high-voltage facilities has started	The work at 110-150 kV high-voltage facilities continue	The work at 110-150 kV high-voltage facilities continue	The work at 330 kV high-voltage facilities is ongoing / The contracts are completed	Every year	UE Half-year Progress Reports	PIE PIU	Interim Results Indicator for Component 1

Indicator	Basis	Unit	Baseline	Overall Target Indicators							Frequency	Data Source / Methodology	Responsibility for data collection	Comments
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7				
6. SS 330 kV Sumy 7. SS 220 kV Kalush 8. SS 330 kV Bohorodchany 9. SS 220 kV Boryslav 10. SS 330 kV Rivne 11. SS 330 kV Ivano-Frankivsk 12. SS 330 kV Kovel 13. SS 750 kV Pivnichnoukrayinska 14. SS 330 kV Konotop 15. SS 330 kV Poltava 16. SS 330 kV Losieve 17. 330 kV Bilotserkivska 18. SS 330 kV Poliana 19. SS 330 kV Chernihivska 20. SS 330 kV Nizhynska 21. SS 330 kV Slavutych						Tender documents are ready	The contract has been signed. The Contractor has developed detail design documents, and expert analysis has been approved The work at 110-150 kV high-voltage facilities has started	The work at 110-150 kV high-voltage facilities continue	The work at 110-150 kV high-voltage facilities continue	The work at 330 kV high-voltage facilities is ongoing / The contracts are completed				
2) Maintenance and operating expenses at the rehabilitated substations have been reduced														
1. SS 330 kV Novokyivska			0	0	0	0	25	25	25	50				Interim Results Indicator for Component 1
2. SS 330 kV Nyvky			0	0	0	0	25	25	25	50				
3. SS 330 kV Kremenchuk			0	0	0	0	25	25	25	50				
4. SS 330 kV Zhytomyrska			0	0	0	0	25	25	25	50				
5. SS 330 kV Cherkaska			0	0	0	0	25	25	25	50				
6. SS 330 kV Sumy			0	0	0	0	25	25	25	50				
7. SS 220 kV Kalush			0	0	0	0	0	0	0	50	Every year	UE Half-year Progress Reports	PIE PIU	
8. SS 330 kV Bohorodchany			0	0	0	0	0	0	0	50				
9. SS 220 kV Boryslav		%	0	0	0	0	0	0	0	50				
10. SS 330 kV Rivne			0	0	0	0	0	0	0	50				
11. SS 330 kV Ivano-Frankivsk			0	0	0	0	0	0	0	50				
12. SS 330 kV Kovel			0	0	0	0	0	0	0	50				
13. SS 750 kV Pivnichnoukrayinska			0	0	0	0	0	0	0	50				
14. SS 330 kV Konotop			0	0	0	0	0	0	0	50				
15. SS 330 kV Poltava			0	0	0	0	0	0	0	50				

Indicator	Basis	Unit	Baseline	Overall Target Indicators							Frequency	Data Source / Methodology	Responsibility for data collection	Comments
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7				
16. SS 330 kV Losieve			0	0	0	0	0	0	0	50				
17. 330 kV Bilotserkivska			0	0	0	0	0	0	0	50				
18. SS 330 kV Poliana			0	0	0	0	0	0	0	50				
19. SS 330 kV Chernihivska			0	0	0	0	0	0	0	50				
20. SS 330 kV Nizhynska			0	0	0	0	0	0	0	50				
21. SS 330 kV Slavutych			0	0	0	0	0	0	0	50				
3) Electrical energy losses per year in the Project area	x	MWh	1.9	1.7	1.7	1.7	1.6	1.6	1.6	1.4	Every year	UE Half-year Progress Reports	PIE PIU	Indicator for Component 1 Central, Northern, and Western regions
4) Amounts of the energy not supplied have been reduced														Interim Results Indicator for Component 1 Baseline data—MWh annually
1. Central region		%	35	0	0	0	25	25	25	50	Every year	UE Half-year Progress Reports	PIE PIU	
2. Northern region			7	0	0	0	25	25	25	50				
3. Western region			25	0	0	0	0	0	0	50				
5) Voltage on 35 kV busbars of the rehabilitated substations is within operating limits ±5%														Indicator for Component 2.1 Annual indicators
1. SS 330 kV Novovolynsk		V	40,000	40,000	40,000	39,000	39,000	39,000	39,000	35,000	Every year	UE Half-year Progress Reports	PIE PIU	
2. SS 220 kV Lutsk Pivdenna			40,000	40,000	40,000	39,000	39,000	39,000	39,000	35,000				
3. SS 330 kV Kovel			40,000	40,000	40,000	39,000	39,000	39,000	39,000	36,000				
4. 330 kV Shepetivka			41,000	41,000	41,000	40,000	40,000	40,000	40,000	36,000				
5. SS 330 kV Kamianets-Podilska			42,000	42,000	42,000	40,000	40,000	40,000	40,000	36,000				
6) Smart Grid implementation progress		stages	The Feasibility Study is completed	Preparation of tender documents	Preparation of tender documents	Tender documents are ready; the bidding procedure has started	The contract has been signed	The contract under implementation	The contract under implementation	The detail design documents are ready	Every year	UE Half-year Progress Reports	PIE PIU	Interim Results Indicator for Component 2.2
7) Implementation of the balancing market		stages	The Feasibility Study is completed		Preparation of tender documents	The software contract is signed	The hardware contract is signed The software is configured for the roll-out	The hardware contract is under implementation The software	The hardware contract is under implementation The software	Changes in the balancing market (software) / The balancing market is in operation /	Every year	UE Half-year Progress Reports	PIE PIU	Interim Results Indicator for Component 2.3

Indicator	Basis	Unit	Baseline	Overall Target Indicators							Frequency	Data Source / Methodology	Responsibility for data collection	Comments
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7				
								is under implementation	is under implementation	The balancing market has been rolled out				
8) MIS implementation progress		stages	The Feasibility Study is completed	Preparation of tender documents for software and hardware	Tender documents for the hardware are ready Tender documents for the software are ready	The software contract has been signed	The hardware contract has been signed / The detail design documents for software have been completed	Contract under implementation	Contract under implementation	The MIS is in operation	Every year	UE Half-year Progress Reports	PIE PIU	Interim Results Indicator for Component 2.4
9) GHG emissions, tonnes reduced or avoided		Tonnes per year	0	344,199	734,427	1,000,464	1,579,257	1,579,257	1,579,257	2,804,407	Every year	UE Half-year Progress Reports	PIE PIU	CTF Indicator
10) Annual electrical energy savings		MWh/per year	0	1,500	8,000	47,000	220,000	220,000	220,000	430,000	Every year	UE Half-year Progress Reports	PIE PIU	CTF Indicator
11) Increase in the renewable energy installed power in the Ukrainian Electrical Energy System		MW	0	180	395	500	680	680	680	1.100	Every year	UE Half-year Progress Reports	PIE PIU	CTF Indicator

PDO Indicators	
Indicator	Description (indicator definition etc.)
The number of outages of the equipment at the rehabilitated substations (SS) has been reduced	This indicator measures the improvement of the reliability of the electrical energy transmission on the basis of the reduction in the number of outages at the rehabilitated substations.
Reduced BOP electrical energy consumption of the rehabilitated substations	This indicator measures the reduction in the balance-of-plant energy consumption of the substations. UE monitors and keeps records of the BOP energy consumption at the substations
Portion of the electrical energy traded on a bilateral basis on Ukraine's Wholesale Electrical Energy Market	Portion of the electrical energy traded on a bilateral basis on Ukraine's Wholesale Electrical Energy Market

Intermediate Results Indicators	
Indicator	Description (indicator definition etc.)
Progress of the rehabilitation of substations	This indicator reflects the monitoring of the substation rehabilitation progress.
Maintenance and operating expenses at the rehabilitated substations have been reduced	This indicator shows the reduction in maintenance and operating expenses of the rehabilitated substations
Amounts of the energy not supplied have been reduced	The reduction in the energy not supplied is measured against a baseline level, which is calculated on the basis of the 5-year amount of the energy not supplied in each electrical energy system region (Central, Northern, and Western regions).
Electrical energy losses per year in the Project area	This indicator measures electrical energy losses in three project areas (Central, Northern, and Western regions of Ukraine's grid); it is calculated on the basis of the amount of the electrical energy transmitted to the region divided by the amount of overall losses; it represents indirect losses (the electrical energy consumed for the balance-of-plant needs of substations)
Voltage on 35 kV busbars of the rehabilitated substations is within operating limits ±5%	This indicator measures the non-peak voltage on 35 kV busbars within the limits after the installation of shunt reactors; it is calculated on the basis of the simulation of non-peak distribution flows
Smart Grid implementation progress	This indicator measures the progress of the implementation of the Smart Grid program funded under the Project
Implementation progress of the electrical energy balancing market	This indicator reflects the progress of implementation of the electrical energy balancing market system
MIS implementation progress	This indicator reflects the progress of the implementation of the MIS installation in the UE

GHG emissions, tonnes reduced or avoided	This indicator measures the greenhouse gas (GHG) emissions avoided per year as a result of the increase in the electrical energy production by existing RES sources and new RES generators with the assistance of investments into the smart grid.
Annual electrical energy savings	This indicator measures the amount of the annual electrical energy savings from the reduction in technical losses of the electrical energy during transmission and as a result of the installation of smart grid elements
Increase in the renewable energy installed power in the Ukrainian Electrical Energy System	This indicator measures the connection of additional 1,100 MW of solar and wind generators to the United Electrical Energy System of Ukraine