REPORT NO.: RES39814

RESTRUCTURING PAPER

ON A

PROPOSED PROJECT RESTRUCTURING

OF

ELECTRICITY SUPPLY RELIABILITY PROJECT

APPROVED ON MAY 26, 2011

TO

REPUBLIC OF ARMENIA

ENERGY & EXTRACTIVES GLOBAL PRACTICE

EUROPE AND CENTRAL ASIA REGION

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ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
ARAP	Abbreviated Resettlement Action Plan
CPF	Country Partnership Framework
ECA	Europe and Central Asia
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
ESRP	Electricity Supply Reliability Project
ETNIP	Electricity Transmission Network Improvement Project
FIRR	Financial Internal Rate of Return
HVEN	High Voltage Electric Networks
IBRD	International Bank for Reconstruction and Development
km	Kilometers
kV	Kilovolt
MTAI	Ministry of Territorial Administration and Infrastructure
OTL	Overhead Transmission Line
PDO	Project Development Objective
RVP	Regional Vice President
TPP	Thermal Power Plant

BASIC DATA

Product Information

Project ID P116748	Financing Instrument Investment Project Financing
Original EA Category Partial Assessment (B)	Current EA Category Partial Assessment (B)
Approval Date 26-May-2011	Current Closing Date 31-Dec-2019

Organizations

Borrower Republic of Armenia	Responsible Agency High Voltage Electric Networks

Project Development Objective (PDO)

Original PDO

The project development objective is to increase the reliability and capacity of the transmission network.

Summary Status of Financing

Ln/Cr/Tf	Approval	Signing	Effectiveness	Closing	Net Commitment	Disbursed	Undisbursed
IBRD-83880	02-Jul-2014	06-Aug-2014	03-Feb-2015	31-Dec-2019	37.50	19.42	18.08
IBRD-80550	26-May-2011	01-Jun-2011	28-Nov-2011	31-Dec-2019	39.00	33.66	5.34

Policy Waiver(s)

Does this restructuring trigger the need for any policy waiver(s)?

No

I. PROJECT STATUS AND RATIONALE FOR RESTRUCTURING

1. The project is financed with the original US$39 million loan (No. 8055-AM) and US$37.5 million Additional Financing (AF) loan (No. 8388-AM).

2. **Project Status**: The project implementation progress has slowed down due to significant delays with the completion of ongoing works and the commencement of the procurement of a new activity. Despite the slow progress, the Project's development objective remains achievable, and the Borrower's performance continues to be satisfactory. Measures have been taken to strengthen the implementation capacity of the project implementing entity, including contract management. Time-bound actions have been agreed to expedite the resolution of pending issues and implementation of remaining activities. The detailed progress and the agreed actions are described below.

3. *Part A: Strengthening of the power transmission network*. This component finances the rehabilitation of two transmission lines and four substations.

4. *Part A.1: Provision of works, goods, and technical assistance for the rehabilitation of the existing power transmission line from Hrazdan Thermal Power Plant (TPP) to Shinuhayr substation and existing Lalvar - Noyemberyan power transmission lines, including compensation and grievance mechanisms for land acquisition and resettlement*. The High Voltage Electric Networks (HVEN) – the implementing entity of the project - completed the replacement of the 220kV transmission line from Hrazdan TPP to Shinuhayr substation with a total length of 230km and the line is currently energized and used for electricity transmission.

5. The progress with the replacement of the 110kV Lalvar-Noyemberyan overhead transmission line (OTL) has been slow due to delays with land acquisition. As of December 4, 2019, 23km of the total 25km was completed. The completion of works and commissioning of the transmission line is expected by the end of 2020.

6. *Part A.2: Provision of works, goods, and technical assistance for: (i) rehabilitation and extension of Haghtanak substation, and (ii) rehabilitation of Charentsavan-3, Vanadzor-1 and Zovuny substations*. The rehabilitation of Haghtakan substation was completed as of the end of May 2019 and the substation is already operational. The rehabilitation of Vanadzor-1 substation is in progress and expected to be completed by the end of 2020. The remaining works include replacement of 110kV busbars and insulators, installation of fire alarm and air conditioning system and commissioning of 110kV and 6kV equipment and relay protection.

7. Reconstruction of Charentsavan-3 substation was temporarily suspended by HVEN in October 2017 because it was planning to complete the installation works using its own staff. The rationale for this approach was to reduce the total construction cost considering the previous Government's intention to significantly constrain the growth of public debt considering the fiscal constraints. Therefore, HVEN instructed the contractor to carry out only the supply of equipment. However, in June 2018, the new Government and the management of HVEN revisited the approach to completion and determined that completion of the substation using HVEN's in-house manpower would take longer than completing it with the specialized contractor. The financing of the substation will continue to be supported by the Project.

8. HVEN is currently exploring the following two options for completing the facility:

a. **Option 1**: Extend the contract with the existing contractor to complete the supply and installation;
b. **Option 2**: Have a new contract to complete the substation: If Option 2 is pursued, the key next steps are:
    - Prepare a cost estimate for completion by January 20, 2020.

- Prepare a revised works completion schedule, including a timeline for the procurement of a new contractor by February 15, 2020.
- Procure a new contractor by August 30, 2020.

9. The decision on the option for completion of the substation will be made by HVEN, in consultations with the Bank, by December 27, 2019.

10. The bidding process for Zovuni substation has not started yet because of delays with the finalization of the bidding package. It is being delayed for the following reasons:

a. *Delayed effectiveness of the previous restructuring*. The rehabilitation of Zovuni substation was included in the project scope during the June 2017 restructuring processed in response to the restructuring request letters from the Ministry of Finance, dated November 10, 2016, and April 19, 2017. However, the Amendment to the Loan Agreement only became effective on April 16, 2018, with significant delay. The reason for the delay was that the Government, together with HVEN, had been contemplating another restructuring request to either supersede or supplement the already approved ones, mainly in response to fiscal constraints. However, the pressure on public debt has subsided, and the new Government is willing to complete the rehabilitation of this important substation.

b. *The structural changes in the new Government and the high turnover of HVEN management.* Since the effectiveness of the previous restructuring, Armenia had a change of the Government in 2018 and, more frequently, the leadership of HVEN. Over the past year and a half, the top management of HVEN was replaced twice with the current general director of HVEN being appointed to that position in late December 2018. This significantly impacted the decision-making processes related to investments, including procurement of new activities.

c. *Introduction of some modifications to the Bank's standard bidding document for design, supply and installation of plants that would address the specific concerns of HVEN.* HVEN's experience under the recent single-responsibility design, supply, and installation contracts suggests that there were numerous instances of discrepancies between the installed types/ quantities of transmission line and substation equipment and those specified in the invoices and packing lists used for customs clearance. Those discrepancies cause major problems for HVEN because any difference between actual installed quantities/types and those cleared at the customs constitutes a breach of law leading to imposition of big fines on HVEN as the recipient and the owner of the shipped goods. This also results in significant delays with the release of the goods from the customs terminal and consequently delays with project implementation. To address those critical problems, the top management of HVEN proposed to introduce the following key modifications to the Bank's standard bidding document:
    - the contractor is responsible for customs clearance of goods supplied from abroad,
    - payments to the contractor are made upon achievement of certain milestones,
    - the transfer of ownership of installed goods takes place from the contractor upon achievement of each milestone.

11. The Bank reviewed and submitted its comments on the draft bidding document submitted by HVEN on August 5, 2019. The Bank will take further action once the updated bidding document is received, which is expected by December 24, 2019.

12. The Closing Date of the Project is proposed to be extended by 12 months till December 31, 2020, to allow for completion of ongoing works. However, rehabilitation of Zovuni substation and completion of Charentsavan-3 substation would require further extension of the project, which, as agreed with the Government of Armenia, will be discussed with the Bank subject to having the final bidding document for Zovuni substation acceptable to the Bank and satisfactory progress with the chosen option on Charentsavan-3 substation by April 30, 2020.

13. *Part B: Technical assistance to help HVEN implement the project and strengthen its capacity*. The key activity under this component is the support provided to HVEN for technical supervision of the rehabilitation works of transmission lines and substations. In August 2019, HVEN sought and obtained the Bank's no-objection to extend the implementation support and supervision contracts with the Joint Venture Decon international GmbH and CONSULTERA Unternemensberatung GmbH (Germany) till December 31, 2019. This contract with the implementation support consultant needs further extension to ensure uninterrupted technical supervision of ongoing works.

14. Environmental Safeguards: HVEN has shown a satisfactory track record in environmental performance throughout the life of the Project. To address potential environmental impacts, HVEN prepared site-specific EMPs for substations, which contain mitigation and monitoring plan along with their implementation arrangements. The EMPs were reviewed by the World Bank Environmental Specialist, which found it in full compliance with the National EA requirements and World Bank Operational Policies. HVEN uses consultant services for supervision works under the project. HVEN has an environmental and social safeguards specialist, who undertakes quality control of supervision consultants and conducts field trips to the sites of the project.

15. **Social Safeguards:** For the Hrazdan-Shinuhayr OTL, six Abbreviated Resettlement Action Plans (ARAPs) have been prepared and implemented. In total, 702 households with 3,018 family members have been affected in the Hrazdan-Shinuhayr line. There is no physical displacement involved. Most of the impacts related to loss of unused land plot or crops and/or trees. A total of 466 private land plots were acquired. Another eight cases are pending due to technical/legal reasons. In all these eight cases, compensation has been transferred to an escrow account with either a notary (six cases) or the court (two cases). For six cases the court has requested additional documents to accept the cases. The issues in these cases primarily involve an absence of the project affected persons from Armenia and/or lack of respective contact details, death of PAPs and nonexistence of identified and/or reachable heirs.

16. For the Lalvar-Noyemberyan OTL, two ARAPs have been prepared. Both ARAPs are currently under implementation. A total of 105 households with 363 family members will be affected under both the ARAPs. There is no physical displacement involved so far. Currently, of 116 land plots (60 private; and 56 community/state-owned), 79 have been acquired (32 privately owned; 47 community/state-owned). Additionally, 28 cases have been presented to court and compensation amounts for these cases have already been transferred to the notary or court deposit accounts. Owners of the land plots under expropriation in the courts have agreed to the proposed acquisition, however, lack proper documentation. Nine other community-owned land plots are in the process of being acquired by the project. HVEN has agreed to expedite the remaining cases so that ARAP implementation can be completed.

17. **Contract Management:** HVEN's contract management capacity has deteriorated, but measures are being put in place to strengthen it. In particular, contracts for consulting services were allowed to expire resulting in repeated requests for retroactive extensions of expired contracts. To strengthen its contract management capacity HVEN will pool additional experienced staff and work proactively with the contractors and consultants that will involve monthly coordination meetings between the Bank project team and HVEN, including contractors/consultants to ensure timely identification and resolution of implementation issues. In addition, during the mission in October 2019, the Bank team delivered a training

on contract management for the project implementation staff of HVEN. It was agreed that HVEN would provide at least monthly progress reports on high value contracts.

18. **Financial Management**. The financial management arrangements under the project are overall satisfactory and acceptable to the Bank and there are no overdue audits under the project.

19. **Rationale for Restructuring**: The restructuring of the project is necessary for the project to meet its development objective. The extension of the closing date of the project by 12 months would provide sufficient time for (a) completion of the RAP and replacement of Lalvar-Noyemberyan transmission line expected by end of 2020, (b) the completion of the rehabilitation of Vanadzor-1 substation expected by the end of 2020. Meanwhile, the extension would also give the Ministry of Territorial Administration and Infrastructure (MTAI) and High Voltage Electric Networks of Armenia (HVEN) additional time to finalize the bidding document for Zovuni substation and decide on the contractual arrangements for completion of the rehabilitation of Charentsavan-3 substation.

20. The current management of HVEN and MTAI are strongly committed to implementing the remaining activities. The completion of Lalvar-Noyemberyan transmission line and the rehabilitation of Vanadzor-1, Charentsavan-3, and Zovuni substations are essential for ensuring reliable power supply to consumers and electricity distribution substations across the country. The project objective remains relevant to the energy sector strategy of the Republic of Armenia. It is aligned with CPF Objective 3 “Enhance connectivity and access to reliable infrastructure (transport, energy, digital)” of Focus Area 1 of Armenia Country Partnership Framework FY19-FY23.

21. The proposed restructuring also envisages cancellations of US$3.5 million of the original IBRD Loan amount (Loan 8055-AM) and $1.5m of the Additional Financing (Loan 8388-AM) to ESRP given the savings under the project. The savings are generated due to strong competition during the bidding processes.

II. DESCRIPTION OF PROPOSED CHANGES

22. The proposed changes include the following:

(a) Cancellation of US$3.5 million of the total size of the Loan No. 8055-AM.

(b) Cancellation of US$1.5 million of the total size of the Loan No. 8388-AM.

(c) Revision of the Category 1 of the Eligible Expenditures (Loan No. 8055-AM) from US$35,902,000 to US$32,402,000.

(d) Revision of the Category 1 of the Eligible Expenditures (Loan No. 8388-AM) from US$37,400,000 to US$35,900,000.

(e) Extension of the Closing Date of the Loan No. 8055-AM from December 31, 2019 to December 31, 2020.

(f) Extension of the Closing Date of the Loan No. 8388-AM from December 31, 2019 to December 31, 2020.

(g) PDO Level Result Indicators will have a YR6 target (proposed new final year) added given the extension of the Project Closing Date by one year. No change in the YR6 targets compared to the YR5 targets.

(h) Intermediate Result Indicators will have YR6 target added given the extension of the Project Closing Date by one year. No change in the YR6 targets compared to the YR5 targets.

Appraisal Summary
Appraisal Summary Change in Economic and Financial Analysis
Explanation: The economic and financial analyses of the project was updated to estimate the flow of economic and financial benefits and costs given the revised capital costs from the contracts signed by HVEN for Hrazdan TPP-Shinuhayr SS and Lalvar-Noyemberyan transmission lines, Haghtanak, Charentsavan-3, and Vanadzor-1 substations and the project implementation progress. **Economic analysis**. The main economic benefits are (a) the reduction of operating and maintenance costs (O&M) due to lower frequency of equipment failures that allows for the reduction of the spending on recurrent repairs, (b) avoided increase in un-served energy due to increased frequency of outages (due to equipment failures) leading to power supply interruptions at end-user level, and (c) the reduction of technical losses. The technical loss reduction was valued at the long-run average incremental cost (LRAIC) of electricity generation. Avoided increase in un-served energy was valued as the weighted average willing-to-pay (WTP) for residential and non-residential consumers estimated at $0.29/kWh. The main economic cost is the economic cost of the rehabilitation of the substations and the replacement of the transmission lines, exclusive of taxes and duties. The applied economic discount rate was 8%. The updated economic analysis yielded an EIRR of 14.8 percent and NPV of US$71.7 million exclusive of GHG benefits and an EIRR of 14.8% percent and NPV of $72.3 million inclusive of GHG benefits. **Financial analysis**. The main financial benefit is the incremental revenue from transmission of electricity due to reduced frequency of outages and reduction of technical losses. The main financial cost is the financial cost of the investments, inclusive of taxes and price contingencies. The updated financial analysis of the project yielded FIRR of 4.5 percent and NPV of US$11.7.

III. SUMMARY OF CHANGES

	Changed	Not Changed
Results Framework	✓	
Components and Cost	✓	
Loan Closing Date(s)	✓	
Cancellations Proposed	✓	
Reallocation between Disbursement Categories	✓	
Disbursement Estimates	✓	
Overall Risk Rating	✓	

Economic and Financial Analysis	✓	
Implementing Agency		✓
DDO Status		✓
Project's Development Objectives		✓
Disbursements Arrangements		✓
Safeguard Policies Triggered		✓
EA category		✓
Legal Covenants		✓
Institutional Arrangements		✓
Financial Management		✓
Procurement		✓
Implementation Schedule		✓
Other Change(s)		✓
Technical Analysis		✓
Social Analysis		✓
Environmental Analysis		✓

IV. DETAILED CHANGE(S)

COMPONENTS

Current Component Name	Current Cost (US$M)	Action	Proposed Component Name	Proposed Cost (US$M)
Component 1: Strengthening of the power transmission network	69.80	Revised	Component 1: Strengthening of the power transmission network	64.80
Component 2: Technical assistance	6.50	No Change	Component 2: Technical assistance	6.50
TOTAL	**76.30**			**71.30**

LOAN CLOSING DATE(S)

Ln/Cr/Tf	Status	Original Closing	Revised Closing(s)	Proposed Closing	Proposed Deadline for Withdrawal Applications
IBRD-80550	Effective	30-Jun-2016	30-Jun-2018, 31-Dec-2019	31-Dec-2020	30-Apr-2021
IBRD-83880	Effective	31-Dec-2018	31-Dec-2019	31-Dec-2020	30-Apr-2021

CANCELLATIONS

Ln/Cr/Tf	Status	Currency	Current Amount	Cancellation Amount	Value Date of Cancellation	New Amount	Reason for Cancellation
IBRD-80550-001	Disbursing	USD	39,000,000.00	3,500,000.00	05-Dec-2019	35,500,000.00	LOAN RESTRUCTURING, COST SAVINGS
IBRD-83880-001	Disbursing	USD	37,500,000.00	1,500,000.00	05-Dec-2019	36,000,000.00	LOAN RESTRUCTURING, COST SAVINGS

REALLOCATION BETWEEN DISBURSEMENT CATEGORIES

Current Allocation	Actuals + Committed	Proposed Allocation	Financing % (Type Total)	
			Current	Proposed
IBRD-80550-001 | Currency: USD				
iLap Category Sequence No: 1	Current Expenditure Category: IBRD80550 G,CW,CS,NONE-CS,TR,AUD,OC			
35,902,500.00	32,678,500.20	32,402,500.00	100.00	100.00
iLap Category Sequence No: 2	Current Expenditure Category: IBRD80550 LAND ACQ/GRIEV MECHANISM			
2,000,000.00	933,291.03	2,000,000.00	100.00	100.00
iLap Category Sequence No: 3	Current Expenditure Category: Refund of PPA			
1,000,000.00	622,185.00	1,000,000.00		

Total	**38,902,500.00**	**34,233,976.23**	**35,402,500.00**		

IBRD-83880-001 | Currency: USD

iLap Category Sequence No: 1 Current Expenditure Category: GD, CW, Non-CS, CS, TRNG, Aud, IOC

	37,400,000.00	19,322,126.36	35,900,000.00	100.00	100.00
Total	**37,400,000.00**	**19,322,126.36**	**35,900,000.00**		

DISBURSEMENT ESTIMATES

Change in Disbursement Estimates
Yes

Year	Current	Proposed
2011	0.00	0.00
2012	782,285.00	782,285.00
2013	5,422,804.51	5,422,804.51
2014	1,027,357.65	1,027,357.65
2015	9,801,501.34	7,801,501.34
2016	5,592,473.69	6,079,226.81
2017	9,360,984.29	9,649,852.93
2018	23,520,542.02	4,827,300.00
2019	20,992,051.50	12,546,359.64
2020	0.00	9,900,160.47
2021	0.00	0.00

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating at Approval	Current Rating
Political and Governance		Moderate
Macroeconomic		Substantial

Sector Strategies and Policies	Moderate
Technical Design of Project or Program	Low
Institutional Capacity for Implementation and Sustainability	Substantial
Fiduciary	Substantial
Environment and Social	Substantial
Stakeholders	Low
Other	
Overall	Substantial

Results framework

COUNTRY: Armenia
Electricity Supply Reliability Project

Project Development Objectives(s)

The project development objective is to increase the reliability and capacity of the transmission network.

Project Development Objective Indicators by Objectives/ Outcomes

Indicator Name	DLI	Baseline	End Target
Increase the reliability of the transmission system			
Outages per year on the target section of the transmission line (Number)		14.00	3.00
Action: This indicator has been Revised			
Average interruption frequency per year in the project area (Number)		0.20	0.08
Action: This indicator has been Revised			
Customers served in the project area (Number)		62,000.00	362,000.00
Action: This indicator has been Revised			
Average interruption frequency per year for customers of the Special Economic Zone served by Haghtanak substation (Number)		0.20	0.05
Action: This indicator has been Revised			
Plant and equipment failures per year in target substations (Number)		8.00	2.00
Action: This indicator has been Revised			

Indicator Name	DLI	Baseline	End Target
Increase the capacity of the transmission system			
Increased capacity of the targeted section of the transmission line (Megawatt)		250.00	380.00
Action: This indicator has been Revised			

Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	End Target
Component 1: Strengthening of the power transmission network			
Total number of substations rehabilitated under the project (Number)		0.00	4.00
Action: This indicator has been Revised			
Transmission lines constructed or rehabilitated under the project (Kilometers)		0.00	255.00
Action: This indicator has been Revised			
Transmission lines constructed under the project (Kilometers)		0.00	255.00
Action: This indicator has been Revised			
Percent of registered project related grievances (disaggregated by gender) responded to within stipulated service standards for response times (Percentage)		100.00	100.00
Action: This indicator has been Revised			