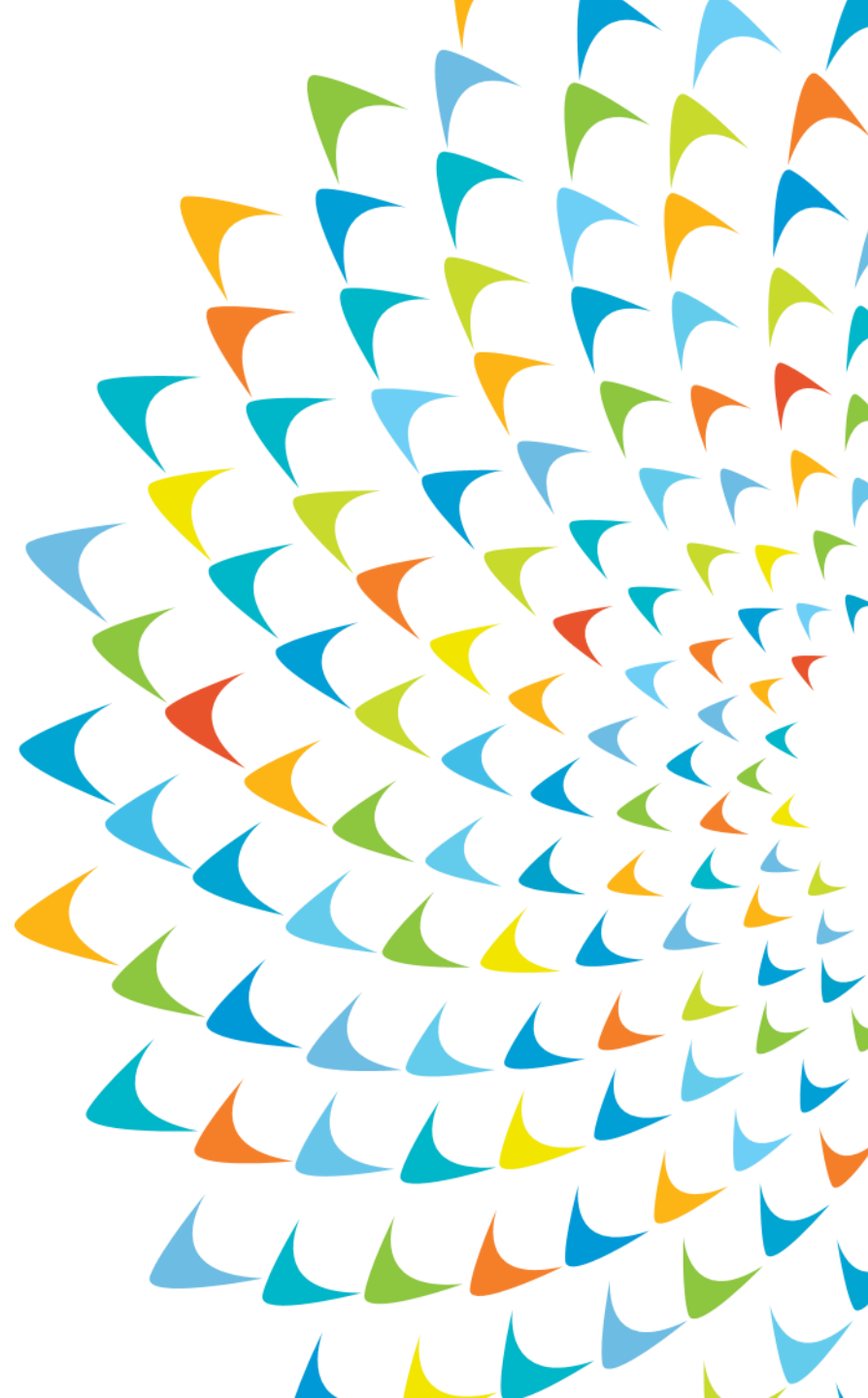




Central and West Asia Department

Armenia:

**ADB involvement in Energy
sector**





Financing the public and private sectors

Sovereign operations

Power Transmission and Rehabilitation Project

HVEN

Rehabilitation of
Shinuhayr and Agarak-2
220kW substations

EPSO

SCADA installation and
Backup Dispatch Center
Construction

Institutional

development and
capacity building

Non-sovereign operations

Sevan-Hrazdan Cascade Hydropower System Rehabilitation Project

Status: Successfully completed

Rehabilitation and modernization of
4 hydropower plants

Distribution Network Rehabilitation, Efficiency Improvement, and Augmentation

Status: Ongoing

Number of connections increased;
distribution losses decreased

Yerevan Gas-Fired Combined- Cycle Power Project

Status: Ongoing

Combined cycle gas-fired power
plant construction



**Sovereign
Operations**

**Power Transmission and
Rehabilitation Project**



ARM: POWER TRANSMISSION AND REHABILITATION PROJECT (HVEN component)

The Project component is about Rehabilitation of 220 kilovolt substations in Agarak 2 and Shinuhayr.

Outcome

The expected impact will be improved and efficient power supply in Armenia. The expected outcome will be increased operational efficiency of domestic transmission network.

Expected output

Replacement of aging power transformers, circuit breakers, instrument transformers, disconnectors, and control and protection equipment with modern technology in Agarak 2 and Shinuhayr.





ARM: POWER TRANSMISSION AND REHABILITATION PROJECT (EPSO component)

The objective of the Extension and Upgrade of SCADA/EMS component of the Power Transmission Rehabilitation Project is to upgrade the existing Supervisory Control and Data Acquisition (SCADA) System and Energy Management System (EMS), extend fiber optic communication backbone by new OPGW cables, support institutional development, capacity building and project management, to increase power system reliability and efficiency, electricity supply to urban and rural customers, to support inclusive and sustainable economic development.

Outcome

The expected impact will be improved and efficient power supply in Armenia. The expected outcome will be increased operational efficiency of domestic transmission network.

Expected output

- i. Upgrade the existing SCADA/EMS system
- ii. Extension and upgrade the existing Telecommunication System
- iii. Construction of a new Backup Dispatch Center

The component has a project progress rate of 90% aiming at project completion by the end of 2021.





Non-Sovereign Operations

- Sevan-Hrazdan Cascade Hydropower System Rehabilitation Project
- Distribution Network Rehabilitation, Efficiency Improvement, and Augmentation
- Yerevan Gas-Fired Combined-Cycle Power Project



ARM: SEVAN-HRAZDAN HYDROPOWER SYSTEM REHABILITATION PROJECT FINANCING FACILITY (\$25MLN)

The Project involves the rehabilitation and modernization of the System's four hydropower plants, the diversion channels for three plants and associated electrical equipment replacement at the substations.

OUTCOME

Increased efficiency, reliability, safety, and environmental performance of the Sevan-Hrazdan Cascade Hydropower System

PROJECT OUTCOME

- Enhance reliability of electric supply in Armenia
- Reduce water leakage from the diversion channels in the Sevan-Hrazdan system
- More efficient use of water resources

EXPECTED OUTPUT



REHABILITATION AND MODERNIZATION OF SEVAN- HRAZDAN CASCADE HYDROPOWER SYSTEM

Project implementation plan is more than 95% complete. All units covered by the project are fully operational starting 2017.





50146-001-ARM: DISTRIBUTION NETWORK REHABILITATION, EFFICIENCY IMPROVEMENT AND AUGMENTATION FINANCING FACILITY (\$80 MLN)

OUTCOME INDICATORS BY 2021:

- **Number of household connections increased to 957,451 (2016 baseline: 936,451)**
- **Number of non- household connections increased to 80,641 (2016 baseline: 73,635)**
- **Annual energy distribution increased to 5,500 GWh (2016 baseline: 5,328 GWh)**
- **Distribution losses decreased to 8.0% (2016 baseline: 9.7%)**
- **Annual CO2 emissions avoided amounts to 11,400 tons per annum (2016 baseline: 0)**

OUTCOME

Improved private sector electricity distribution in Armenia, primarily characterized by lower distribution losses of 8.0% by 2021, compared with 9.7% in 2016.

EXPECTED OUTPUTS



EXECUTION OF LEGAL DOCUMENTATION COMPLETED BY JULY 2017



ENVIRONMENTAL AND SOCIAL SAFEGUARD POLICIES IMPLEMENTED BY DECEMBER 2017





51090-001-ARM: YEREVAN GAS-FIRED COMBINED-CYCLE POWER PROJECT
FINANCING FACILITY (\$68.4MLN)

OUTCOME INDICATORS BY 2021:

- Electricity delivered to off taker reached 1,981 gigawatt-hours per year (2018 baseline: 0)
- Number of jobs provided during operation totaled at least 80 (2017 baseline: 0)

PROJECT OUTCOME

Reliable and affordably priced power to the domestic grid increased

EXPECTED OUTPUTS



GAS-FIRED COMBINED CYCLE POWER PLANT CONSTRUCTED AND COMMISSIONED



LOCAL EMPLOYMENT GENERATED



GROWTH OF LOCAL AND NATIONAL ECONOMY SUPPORTED





Thank you.

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