Technical Assistance to Connectivity in the Western Balkans - 2
NEAR/2022/EA-RP/0081

ALBANIA

Technical Assistance to the Vau i Dejes Substation Expansion (Feasibility Study and Environmental and Social Impact Assessment)

The subject sub-project is still ongoing. The description that follows is for information purposes only and subject to the sub-project's completion.

Partners:
- Albanian Transmission System Operator (OST)
- Ministry of Infrastructure and Energy
- Agence Française de Développement (AFD)

Budget of Technical Assistance:
- Euro 730,000

EU contribution[1]:
- As above (100%)

Technical Assistance provided by:
- CONNECTA 2 (Technical Assistance to Connectivity in the Western Balkans - 2)

Energy

The electricity transmission system in Albania has been gradually developed in accordance with the increasing demand for electricity, the introduction of new sources of electricity production and the need for integration into the regional network. Albania's geographical position creates very favourable conditions for it to become an energy transit country (from Italy/Greece to Central Europe). Thus building and operating a stable and extended 400 kV transmission network in Albania is of crucial importance.

The current configuration of the Albanian transmission and regional networks, while enabling satisfactory activation of the 400 kV interconnection network in import situations, leaves it relatively passive in export situations, overloading the 220 kV interconnection network. The transition of the power flow from the sources of the north to the central part of Albania, where the demand is concentrated (in sub-stations 400/220 kV Tirana and Elbasan) through the 220 kV network and the 220/400 kV transformation to move further to the interconnection lines 400 kV, constitutes a circuit with relatively high inductance mainly due to the transformer nodes, which reduces the flow of flux in this direction.
The voltage level in the 400 kV network exceeds the maximum limit value of 420 kV.
One of the measures to reduce the above problems is the reconfiguration of the 400 kV and 220 kV network through the expansion of the 220/110 kV Vau i Dejes substation with a new 400/220 kV transformation, which will make it possible to transfer part of the energy produced at the 220 kV connected HPPs to the 400 kV network.

The Vau i Dejes substation expansion project will include:
- Construction of a new digital 400/220/20 kV substation near the existing Vau i Dejes substation with a new 400/220 kV transformation and a new configuration of 400 kV and 220 kV lines going out from this substation;
- Installation of a power shift transformer, 2x400 MVA installed capacity;

- Installation of a shunt reactor 400/220 kV, 120 MVAr;
- Identification and implementation of control, protection, monitoring, telecommunication and other measures to transition Vau i Dejes towards a digital substation;
- General descriptions of equipment's of main equipment's of the substation;
- Technical characteristics of the overhead transmission lines;
- Estimated costs;
- Financial and economical evaluations;
- Environmental and social impact assessment.

The **overall objective of the CONNECTA 2 assignment** is to develop a feasibility study (FS) and an environmental and social impact assessment (ESIA) for the proposed new 400/220/20 kV substation near the existing Vau i Dejes substation, considering technical and financial / economic criteria and socio-environmental criteria in accordance with the AFD and EU policies and all locally applicable legislative rules.

Results to be achieved:
- Feasibility study report;
- Detailed environmental and social impact assessment;
- Resettlement action plan;
- Detailed cost benefit analysis;
- Climate resilience and risk assessment; and
- Procurement strategy and implementation plan.

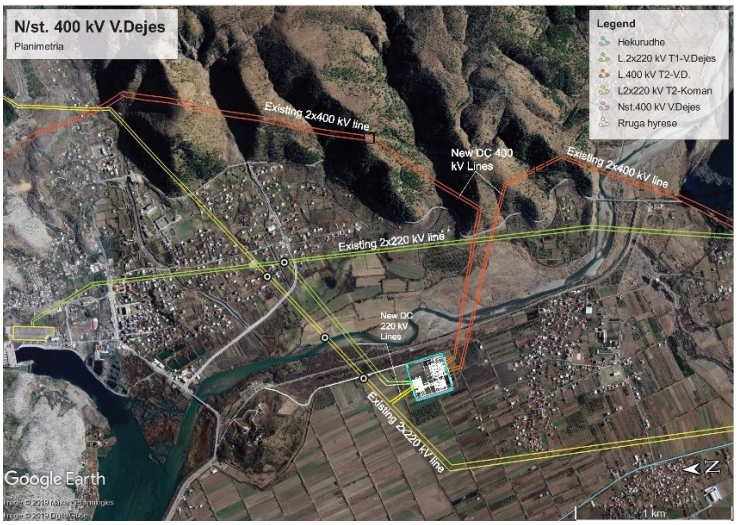
[1]EU contribution concerns only Technical Assistance services for project development

Start date: April, 2025

Duration: 8 months

Key recommendations–further actions:

(to be updated after the sub-project is completed)



Benefits expected due to Technical Assistance:

- **Feasibility study report**
  - Determines whether the project is technically, economically, and operationally viable; and
  - Increases investor and stakeholder confidence by demonstrating thorough planning.
- **Environmental and social impact assessment**
  - Identifies and mitigates potential negative environmental and social impacts; and
  - Ensures compliance with national regulations and international standards.
- **Resettlement action plan**
  - Ensures fair and lawful compensation for displaced persons.
- **Climate resilience and risk assessment**
  - Recommends design adaptations to increase resilience and long-term viability;
  - Supports compliance with climate policies and donor requirements; and
  - Protects investments from future climate-related losses.
- **Procurement strategy**
  - Ensures transparency, efficiency, and fairness in acquiring goods and services and minimizes procurement risks (e.g. delays, cost overruns, disputes).

Impacts anticipated:

- **Enhanced grid reliability and stability**:
  - Improved voltage regulation;
  - Improved stability; and
  - Fault resilience.
- **Operational efficiency**:
  - Advanced monitoring;
  - Automation; and
  - Remote control.
- **Cost-effectiveness**:
  - Reduced maintenance costs;
  - Optimized asset utilization; and
  - Compact design.
- **Environmental benefits**:
  - Energy loss reduction;
  - Lower carbon footprint; and
  - Sustainable design.
- **Integration with renewable energy**:
  - Facilitation of integration of RES; and
  - Supports hybrid AC/DC grid configurations.
- **Improved safety:**
  - Reduced personnel exposure; and
  - Enhanced protection systems.
- **Future-ready infrastructure:**
  - Scalability; and
  - Interoperability.

Energy