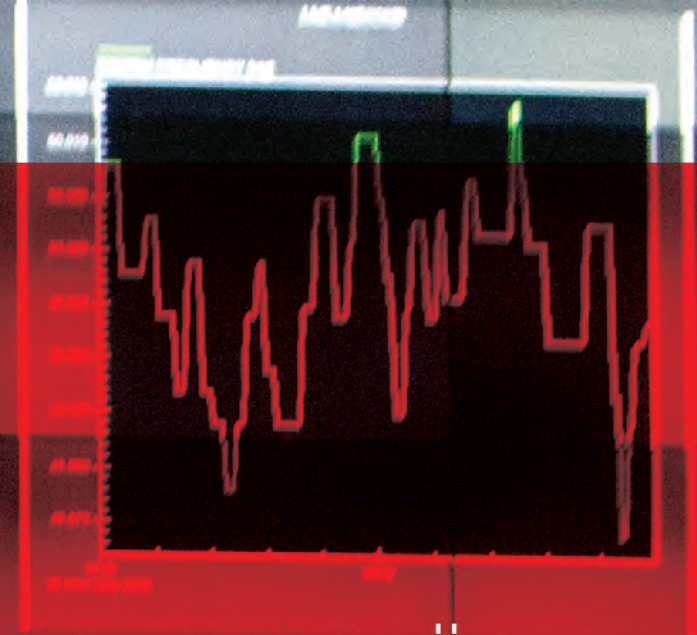




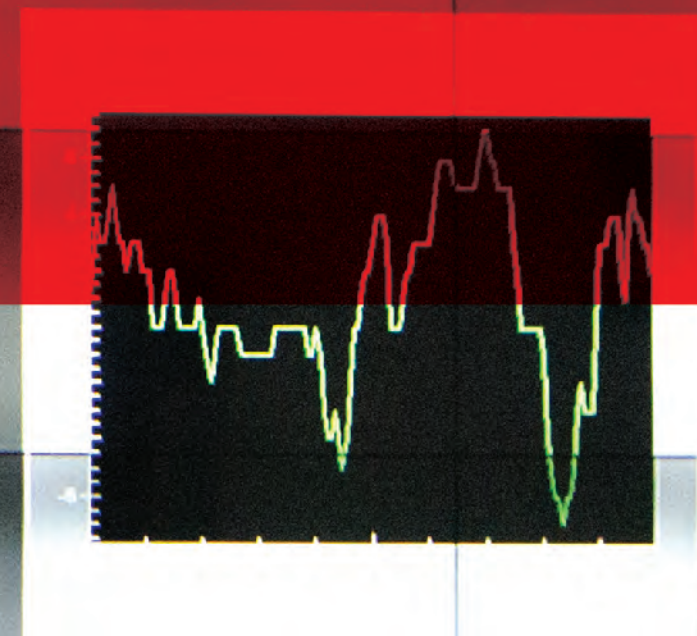
ALBANIA TRANSMISSION SYSTEM OPERATOR



QENDRA KOMBËTARE DISPEÇER



Total Generation	650 MW
Raw ACE	0 MVar
Filtered ACE	2 MW



OST sh.a. FUNCTIONS



Transmission System in Albania is directed by Transmission System Operator (OST sh.a.) a public Company with 100% of the shares owned by the state. OST sh.a. Corporation was established in 2004.

Based on the applicable law OST sh.a. has three main functions.

TRANSMISSION NETWORK OPERATOR

Responsible for, maintaining and developing the transmission system in Albania. OST works continuously to maintain and develop transmission system in compliance with long-term electricity demand of the country and development plans for new generation resources, and coordinates the development of interconnection network with neighboring countries

SYSTEM OPERATOR

Responsible for dispatching electricity system in the transmission, generation and distribution level, maintaining the balance and electricity system security in the country. Coordination of OST sh.a. with neighbors for security of the system is a key element. OST sh.a. applies all ENTSO - E rules and guidelines for the system operation.

MARKET OPERATOR

Responsible for market administration and operation, market participants registration scheduling and accounting for ancillary services, balancing. Actually OST performs actually split auctions on all borders on Yearly, Monthly, Daily basis.

OST is part of SEECAO and participates on the allocation of the CB since beginning of 2015.

FINANCIAL DATA

- Total assets value of OST sh.a. is 400 Million Euro, 31 December 2015.
- Total Equity of OST sh.a. is 190 Million Euro, 31 December 2015.
- Total revenues of OST sh.a. are 47 Million Euro, for the year ending on 31 December 2015.
- Operating income of OST sh.a. is 20 Million Euro for the year ending on 31 December 2015.

TOTAL TRANSMITTED ELECTRICITY
IN THE TRANSMISSION SYSTEM
FOR THE YEAR 2015 WAS 7.6 TWH.



ASSETS OF THE TRANSMISSION SYSTEM

The transmission system is composed by transmission lines, substations and other installations with a voltage level starting at 110 kV up to 400 kV.

TRANSMISSION LINES:

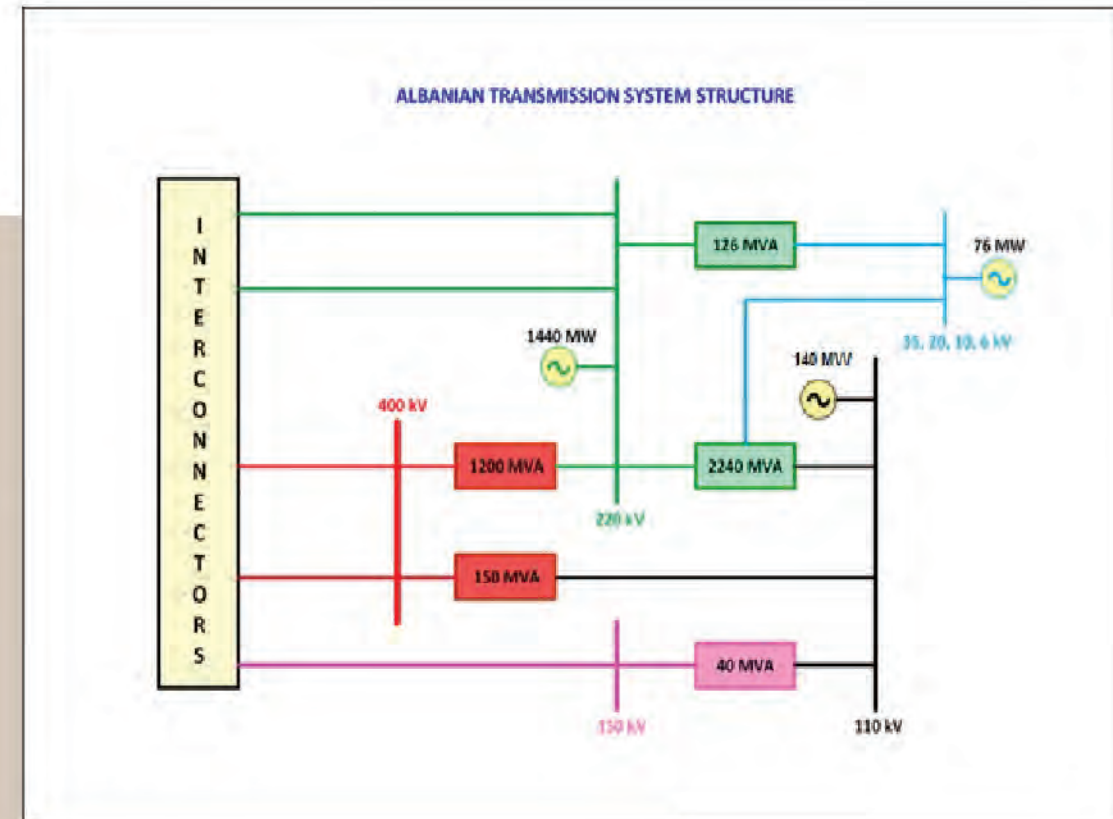
- 297 km 400 kV line
- 1140 km 220 kV line
- 34.4 km 150 kV line
- 1285 km 110 kV line

INTERCONNECTION LINES:

- 400 kV Tirana 2 - Podgorica (MN)
- 400 kV Zemplak - Kardaria (GR)
- 220 kV Fierza - Prizren (KS)
- 220 kV Koplik - Podgorica (MN)
- 150 kV Bistrica - Myrtos (GR)

SUBSTATIONS:

- 2 Ss 400/220 kV, 1200 MVA
- 1 Ss 400/110 kV, 150 MVA
- 1 Ss 220/20 kV, 126 MVA
- 11 Ss 220/110/MV, 2240 MVA



NEW DISPATCHING CENTER AND SCADA/EMS SYSTEM

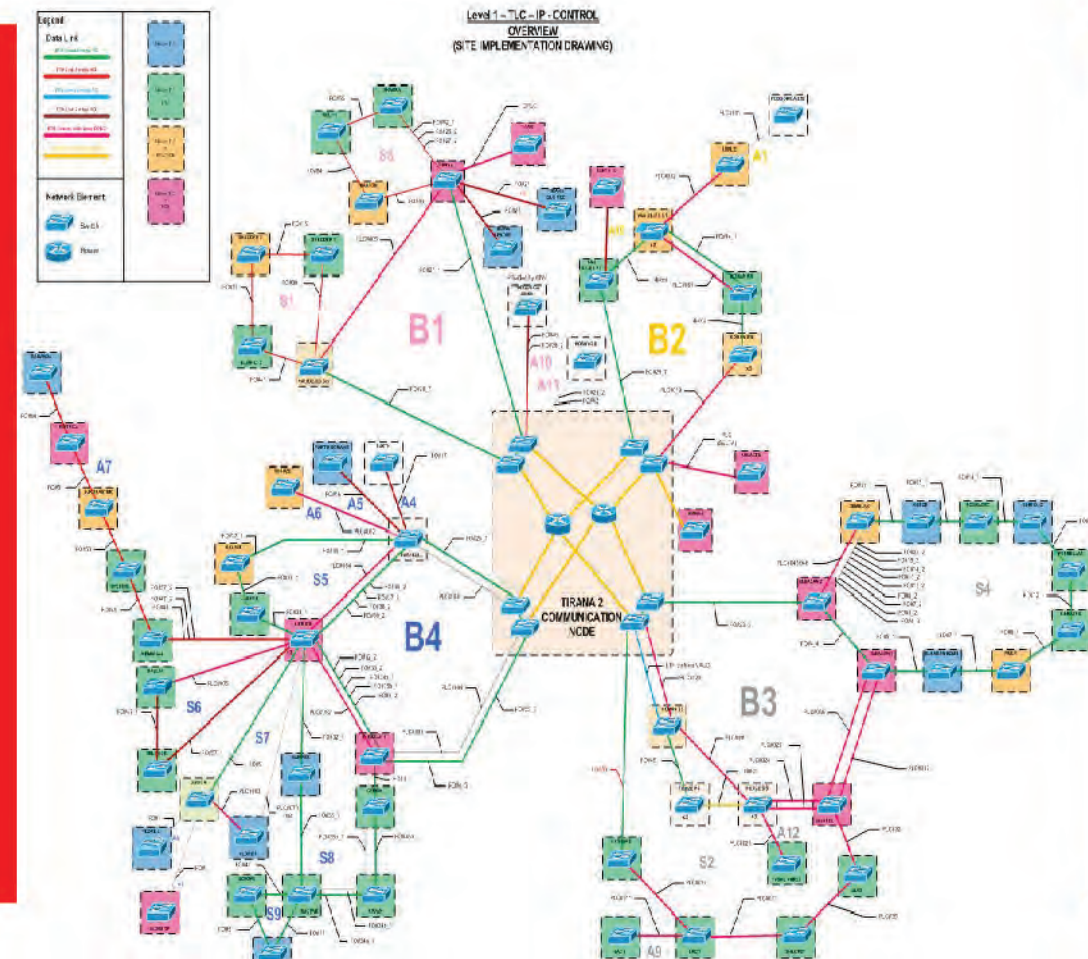
The Transmission System Operator of Albania, OST sh.a. is using Network Manager SCADA/EMS (Supervisory Control and Data Acquisition/ Energy Management System), provided by ABB, as a control center solution.

SCADA

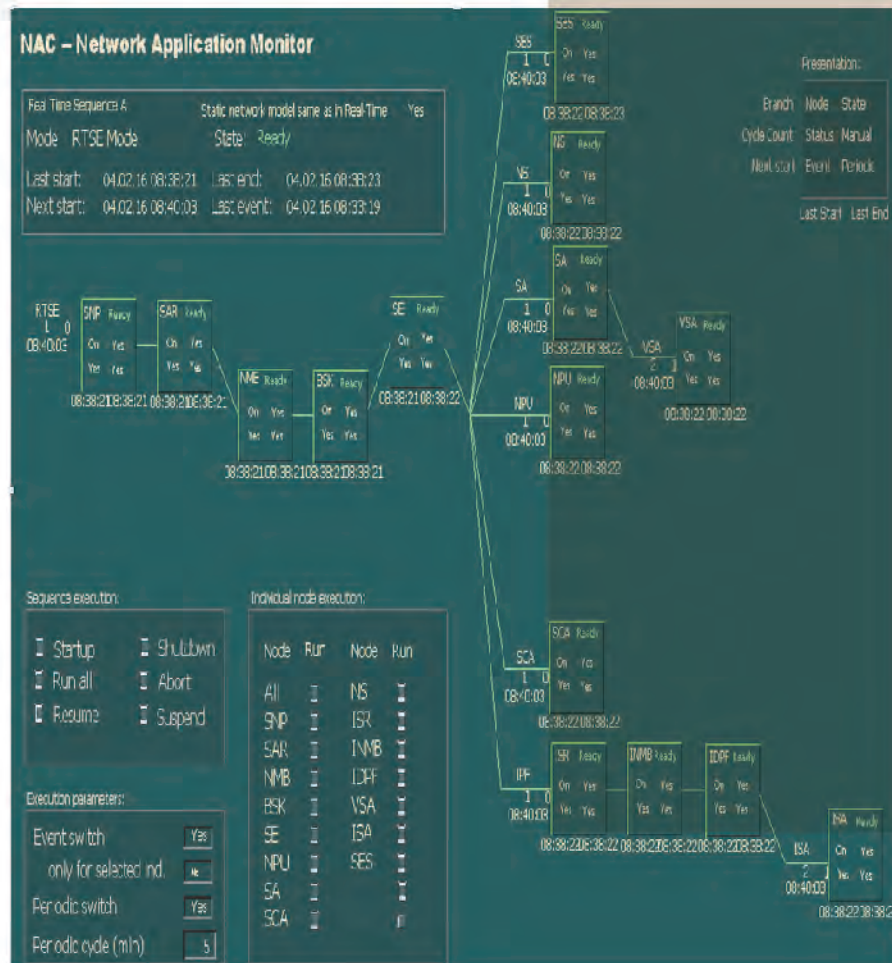
In the SCADA system of the Transmission System Operator of Albania, OST sh.a., are being monitored and operated on real time all the 220/400 kV stations and most important 110 kV stations. The Master Station of the SCADA/EMS System is installed in NDC.

For guarantying the highest level of availability and reliability the system is fully redundant in terms of:

- ROUTER
- SWITCH
- FIREWALL
- SERVER



GMS and EMS



GENERATION MANAGEMENT SYSTEM (GMS)

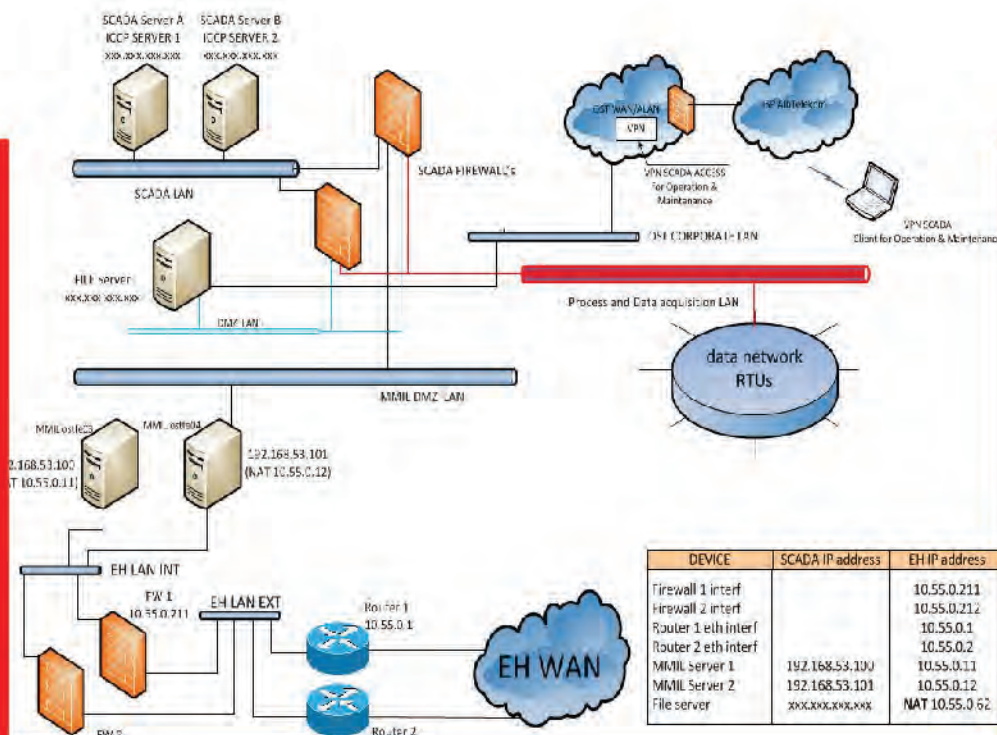
For maintaining the System Frequency and Control Area net Interchange at their scheduled values we are using the solution provided from ABB as Automatic Generation Control (AGC). As Albania has hydro generating units, the Automatic Generation Control provides real-time control and management of the hydro power and the associated water resources.

ENERGY MANAGEMENT SYSTEM (EMS)

The EMS Application, as part of Network manager, is composed of several network applications, each of these applications interact with the others but they are managed separately from each other.

MOST IMPORTANT EMS APPLICATIONS:

- SNP (Telemetry Snapshot):
- SAR (Status and Analog Retrieval):
- NMB (Network Model Builder):
- SE (State Estimator):
- SA (Security Analysis):



ELECTRONIC HIGHWAY

OST sh.a., following the main directive from ENTSO-E, has implemented the communication node for the Electronic Highway services. Now we are official part of the EH. The node is located in the National Control Center.

The system is fully redundant in terms of:

- ROUTER
- FIREWALL
- SWITCH

The communication line for the EH to the neighbors are:

- IPTO Greece: Leased Line 10 mbps, PtP
- CGES Montenegro: Private Line over SDH Network 10 mbps, PtP

CREATION OF NEW ELECTRICITY MARKET IN ALBANIA.

There are two concrete initiatives for creation of open electricity market in Albania.

World Bank Project that includes: New meter installation for all consumers in MV, and creation of a new data center.

- July 2016 consumers connected in 35 kV will buy electricity in the open market.
- January 2017 consumers connected in 20 kV will buy electricity in the open market.
- January 2018 consumers connected in 10 kV and 6 kV will buy electricity in the open market.

The data that will be provided by new metering system will be used as trading data for all market processes such as:

- Settlement
- Invoicing
- Balancing
- Scheduling etc.

- There is another initiative supported by Albania Government to create Albania Electricity Exchange. The project will be led by Albania Government in the cooperation with Energy Secretariat Community and Nord Pool.
- A project has been agreed and has a strong support and involvement:
- Sponsored by the Norwegian Government, represented by Royal Norwegian Embassy in Kosovo and Albania.
- Recipient is the Ministry of Energy and Industry and the Prime Minister of Albania Office.
- Facilitated by the Energy Community Secretariat.
- Managed by Nord Pool Consulting as Project Manager.

CREATION OF ELECTRICITY MARKET



TRANSMISSION SYSTEM DEVELOPMENT

During the recent years are realized and are in operation important projects that have increased significantly the reliability of the Power System, exchange capacities with neighboring countries and quality of service for the transmission system users.

Other important benefits of the new projects are the reduction of non served electricity and the reduction of transmission losses. From 2007 to 2015 the electricity demand is increased 35%, while electricity losses are reduced from 3.75% to around 2%.

In the meantime other important projects are in the implementation phase and OST has a clear plan for the development of the transmission system.

PLANNED PROJECTS

- The construction of the 220 kV double circuit line Tirana 2 - Rashbull and the reinforcement of 220/110 kV Rashbull Substation.
- The strengthening of the 110 kV ring of Tirana network and the construction of 400/110 kV Tirana 3 Substation.
- The construction of the 400 kV interconnection line Elbasan- Bitola (Macedonia) and the extension of 400 kV Elbasan2 Substation.
- The construction of the 400 kV line Elbasan - Fier, and the new 400/220 kV Fieri Substation.



400 KV INTERCONNECTION LINE ALBANIA - MACEDONIA

THIS PROJECT INCLUDE:

- Construction of a new 400 kV line SS Elbasan 2 - SS Ohrid - SS Bitola.
- The extension of the 400 kV Elbasan2 substation by new 400 kV double busbars, new 400 kV line bays and 120 MVAR shunt reactor.
- Construction of new 400/110 kV Ohrid Substation, 300 MVA transformer.
- The length of Elbasan 2 - Border Line will be: 56 km
- The length of Bitola - Border Line will be: 95 km.
- Total length of the line will be: 151 km.

ADRIATIC SEA





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