



Albanian Transmission System Operator

Session III - SEE VREs grid integration workshop - IRENA
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Albanian Transmission System

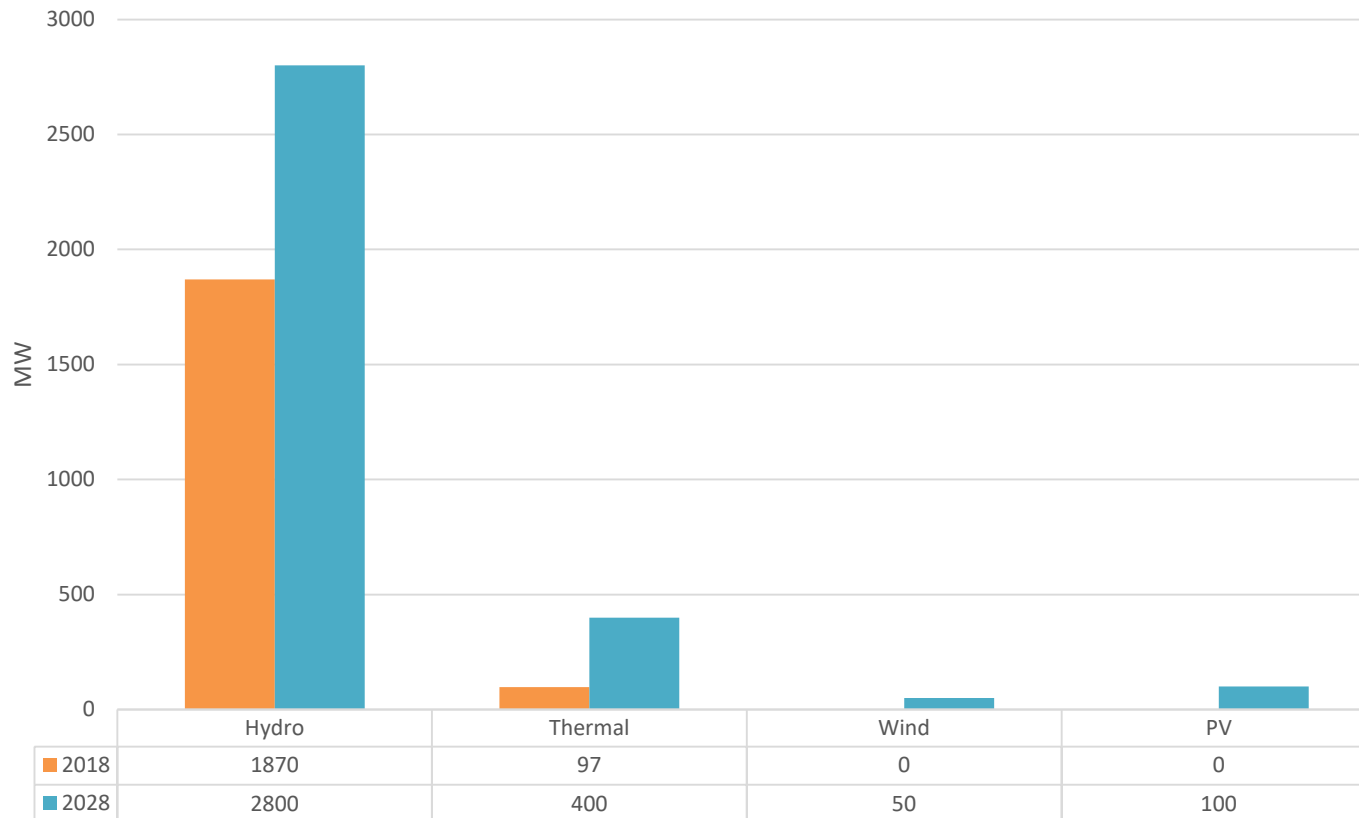
Tirana , Albania, November 2018

OVERVIEW

1. Energy Planning Framework
2. Power Sector Planning
3. Representation of Renewable Energy in Generation Capacity Expansion Planning Tools
4. Generation Scheduling with high share of VRE
5. Network analysis

ALBANIAN TRANSMISSION SYSTEM OPERATOR

Energy Planning Framework



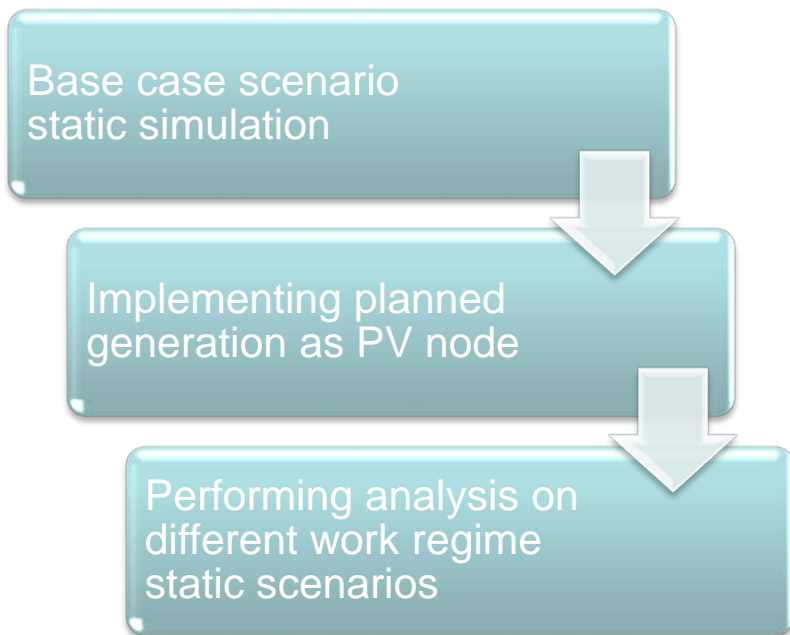
Sources:

- Ten Year Network Development Plan: <https://www.ost.al/wp-content/uploads/2018/10/Albanian-Network-Development-Plan-d.pdf>
- Updated Ten Year Network Development Plan 2018-2028

Power Sector Planning

- Power System Planning Software: Power System Simulation for Engineering (PSS/E), version 33.5.
- PSS/E can be utilized to facilitate calculations for a variety of analyses, including:
 - Generation capacity investment scenarios
 - Future generation dispatch scenarios
- For the purpose of conducting a full analysis in the transmission network, has been exploited The Southeast Europe model provided by SECI (The Southeast European Cooperative Initiative) considering Ten Year Development Plan of ENTSO-E.
- Regarding Power demand Forecast module, OST does not use any specific software, but taking in account influence factors in power demand, builds corresponding correlations for a more accurate prediction.

Representation of Renewable Energy in Generation Capacity Expansion Planning Tools



Simulations are performed, starting from base case scenario and implementing planned generation sources as PV node.

Later, on the prepared model we perform different analysis such as system stabilities and transmission capacities.

Generation Scheduling with high share of VRE

Step 1: Prepare different scenarios with low share of VRE

Step 2: Managing first instances of grid congestion, and incorporate forecasts of VRE generation in the scheduling and dispatch of other generators

Step 3: Increasing the amount of VRE Generation

Step 3: Defining the maximum amount of VRE Generation compatible with security standards and technical uncertainties on future network conditions

- Due to 95% Hydro generation OST doesn't have problems regarding *flexibility* – relating to supply and demand in the face of higher uncertainty and variability
- Very low VRE generation is expected
- Forecasted accuracy not tested yet, actually 0 MW VRE are implemented

Network analysis

- Actually 95% of installed capacity in Albania is RES
- Aim to remain 95% RES
- Network studies are performed using Power System Simulation for Engineering (PSS/E)
- Main concerns are in a maximum generation condition:
 - Low system security
 - Increased voltage profile

THANK YOU FOR YOUR ATTENTION!