South East Europe Electricity Roadmap (SEERmap)

Network Electricity Model
(EKC)

Belgrade,

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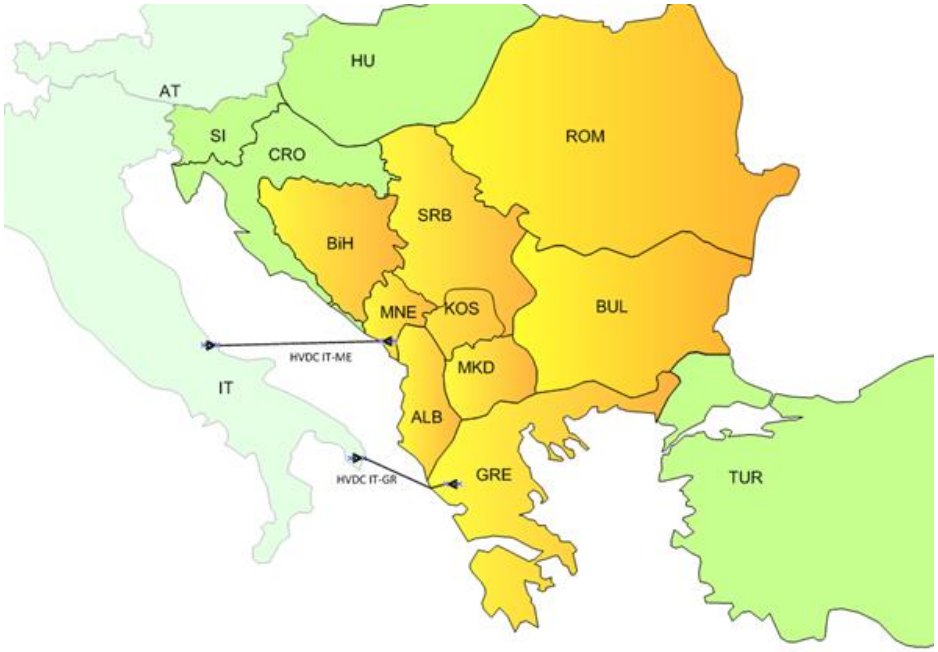
Content

- Scenario description – Network assessments
- Wholesale price impacts
- Generation mix, CO2 impacts
- Impacts on system costs:
  - Investment costs,
  - RES support costs
- Network impacts -Network assessments
  - Contingencies
  - NTC valuations
  - Network loss impacts

Network Electricity Model (PSS-E)



Comments:

- ►The map shows the region that will be included in the network modelling
  - ►9 electric power systems will be modelled and assessed in full capacity
  - ►Croatia , Hungary, Slovenia and Turkey will be modelled in full capacity
  - ►Italy and Austria will be modelled as equivalents
- ►Two analysed scenarios
  - ►Reference RES penetration
  - ►Maximum RES penetration
- ►Two target years
  - ►2020
  - ►2030
- ►Two analysed regimes
  - ►Winter max regime
  - ►Summer maximum regime

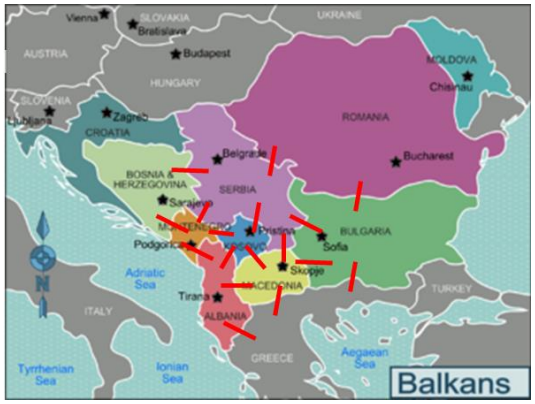
Scenario definition

- Network model was will be used for the assessment
- Representatives hours of years 2020 and 2030 will be modelled, to assess the network impacts on the whole region
- The following assessments will be carried out:
  - Steady-state and contingency analyses
  - Evaluation of net transfer capacity between target electric power systems
  - Transmission grid losses
  - Network reinforcement for 9 countries, including costing estimation

Scenario Assessment Results

Scenario 2025		TRIPPING		OVERLOADING		SOLUTION
REF	WinterMax					
	Summermax					
AMB	WinterMax					
	Summermax					

- **Evaluation of net transfer capacity between target electric power systems**



- **Evaluation of transmission grid losses**

Calculation parameters	Albania	
	Winter	Summer
Equivalent duration time of maximum losses [h]		
Variation of transmission losses [MW]		
Scenario REF		
Scenario AMB		
Variation of yearly transmission losses [GWh]		
Scenario REF		
Scenario AMB		

EKC Network Model Challenges

The following unknowns are expected:

► Voltage level of the connection of the new generation facilities (to transmission or to distribution network)

►Connection points of the new generation in 2020 and 2030 (if transmission network)

►Precise location of the new RESs (geographical position related to the nearest transmission facilities

►Transmission assets unit cost (i.e. OHLs Euro/km)

Thank you for the attention!

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