

# ***TSO & DSO interaction in operation and planning***

***(KOSTT- Kosovo Transmission, System and Market Operator)***

***Meeting CIGRE SEERC TAC Meeting and Workshop***

***Workshop: 23 Jan 2020***



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## Main topics

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# Fast facts – Kosovo power system

## Electricity generation:



- ❖ Kosovo Energy Corporation J.s.c. is a publicly owned company under Kosovo law, 100% shares held by the Government of Kosovo. Main divisions:

### 1. Thermal Power Plant Kosovo A (gen. units A3, A4, A5; 3x130 MW)

## Electricity transmission – Transmission System Operator:



- ❖ KOSTT J.s.c. is the Electricity Transmission, System and Market Operator of Kosovo, as a public company which was established on 1<sup>st</sup>

## Distribution of electricity – Distribution System Operator:



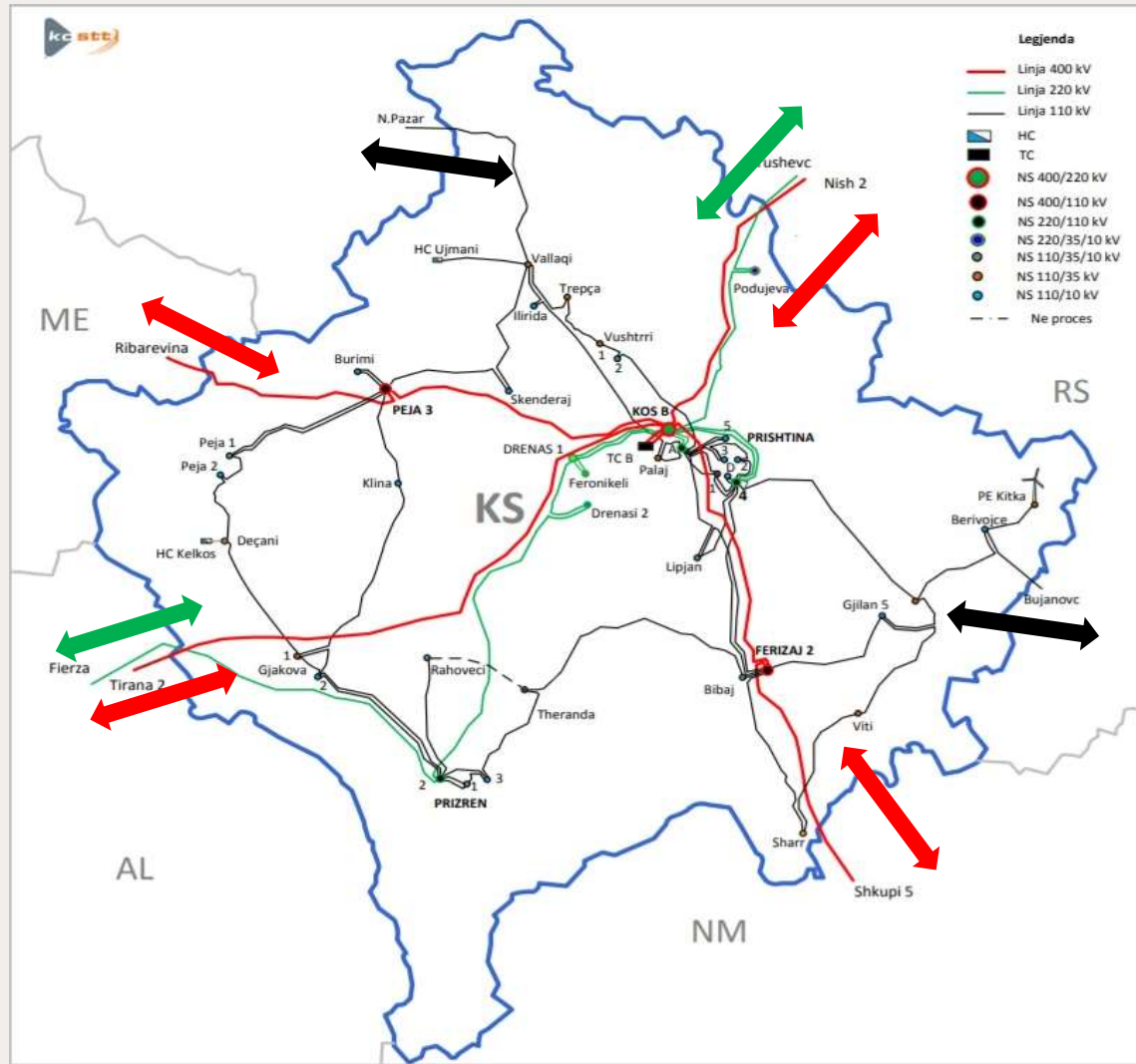
- ❖ Kosovo Energy Distribution Services KEDS J.s.c. under the licenses from ERO operates with electricity distribution, is owned by Turkish companies Çalik Holding and Limak. Was established in 2009, while its

## Electricity supply:



- ❖ KESCO (Kosovo Company for Supply of Energy) was founded by the Limak- Çalik consortium in January of 2015, serves 600 thousands consumers (households, commercial and industrial)

# KOSTT Transmission grid - overview



❖ KOSTT manages the Transmission System of the Kosovo, operating with high voltages **400 kV**, **220 kV** and **110 kV**

## ❖ KOSTT Tie Lines:

- 4 Tie Lines at **400 kV**
- 2 Tie Lines at **220 kV**
- 2 Tie Lines at **110 kV**

# KOSTT grid map - interconnected with regional network



# Installed generation capacities, peak load and total demand for 2019

## TPP Kosovo A

Generat. unit	MW
A3	130
A4	130
A5	130

## TPP Kosovo B

Generat. unit	MW
B1	260
B2	260

## HPP Ujmani

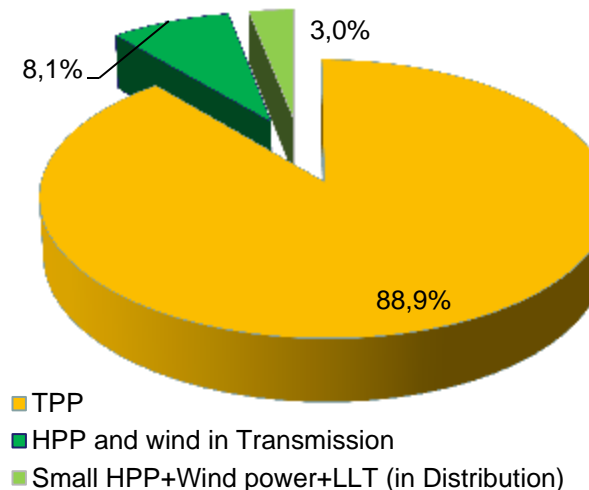
Generat. unit	MW
U1	16
U2	16

**Gen. in Distrib.: 68.1 MW**

## RES into Transmission grid

Wind/HPP	MW
WPP Kitka	32.4
HPP Kelkos	32.1

## Installed generation capacity (2019)

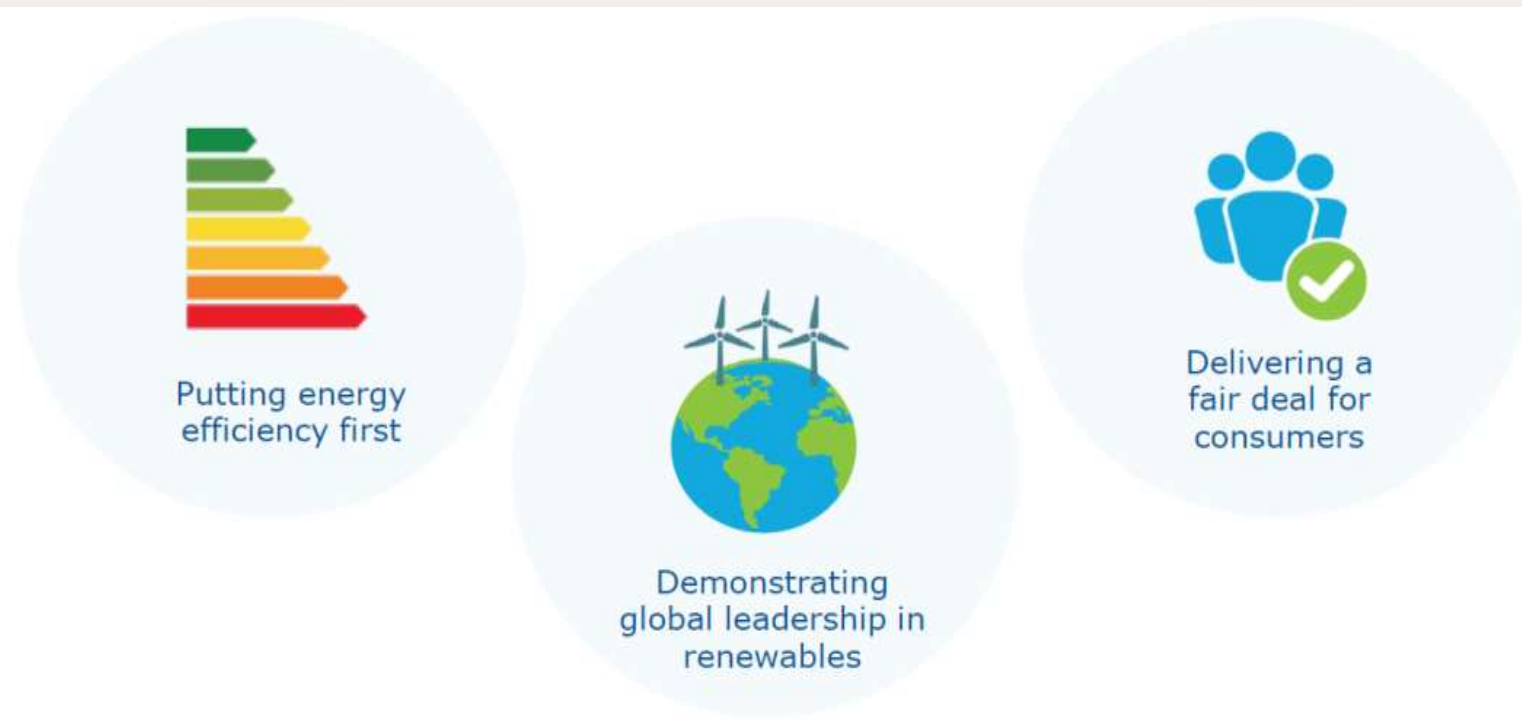


**Peak load in 2019: 1255 MW**

**Total Demand 2019 (without losses): 5.96 TWh**

## Accelerating the energy transition in EU (1)

- ❖ **Clean Energy for all Europeans** package presented by EC in Nov 2016, provides a modern framework for the transition towards cleaner and more sustainable energy; and puts the consumer at the center of the energy transition and empowers them to actively participate in the market.



of 32.5%)

)

for individuals to  
consumer rights

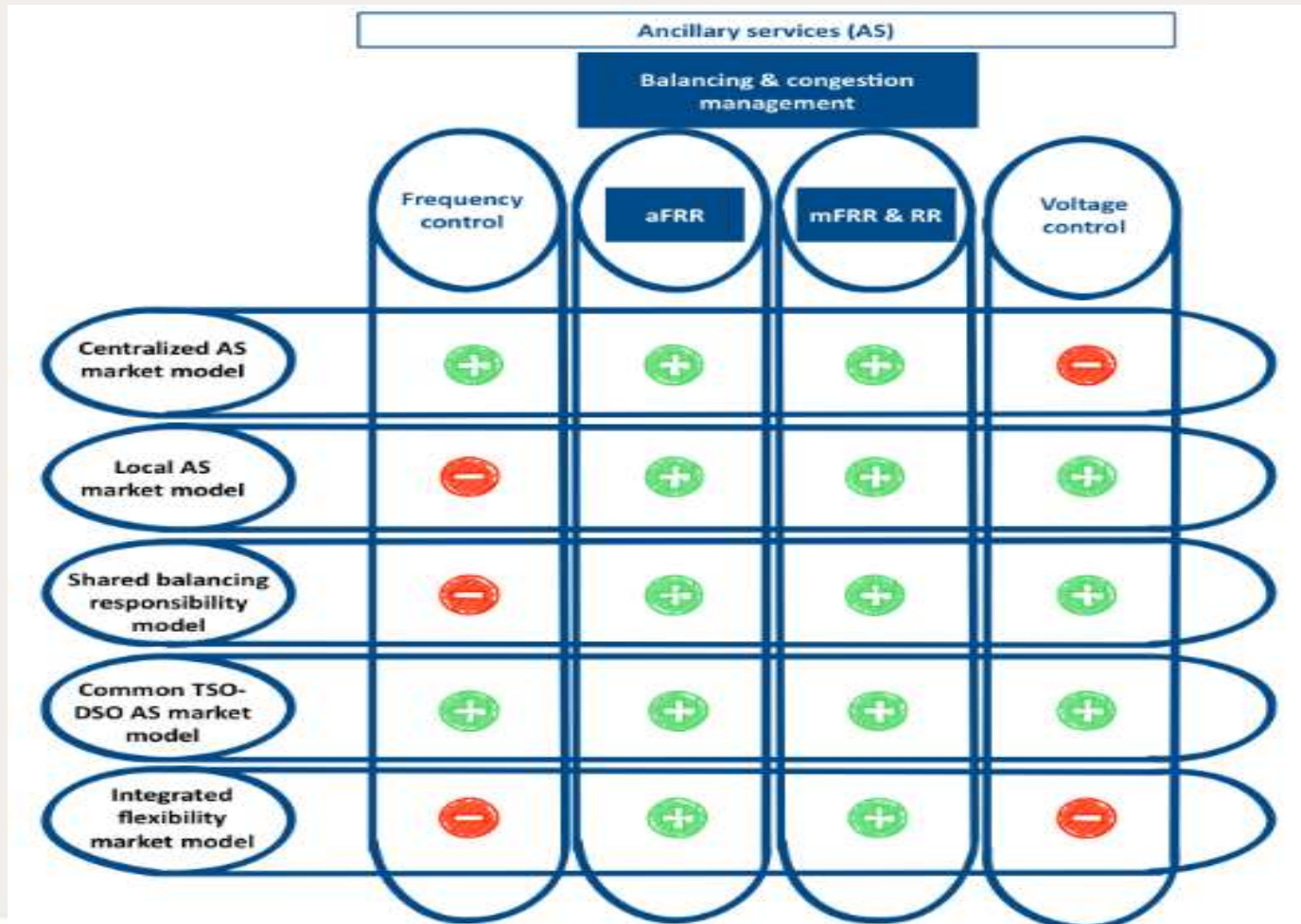
## Accelerating the energy transition in EU (2)

- ❖ The energy market is undergoing to important changes, driven by internal energy market and increasing RES
- ❖ More studies and analysis have been done such as SmartNet (<http://SmartNet-Project.eu>), TSO-DSO Data Management Report etc.
- ❖ Both TSOs and DSOs could benefit from the use of flexible resources from the distribution grid. TSOs could use these resources for frequency control, voltage control or congestion management, while DSOs could acquire flexible resources for local congestion management and voltage control



## TSO-DSO possible coordination scheme

- ❖ Five (5) possible coordination schemes TSOs & DSOs for AS by distributed flexibility resources according to SmartNet



Source: project SmartNet (<http://smartnet-project.eu>)

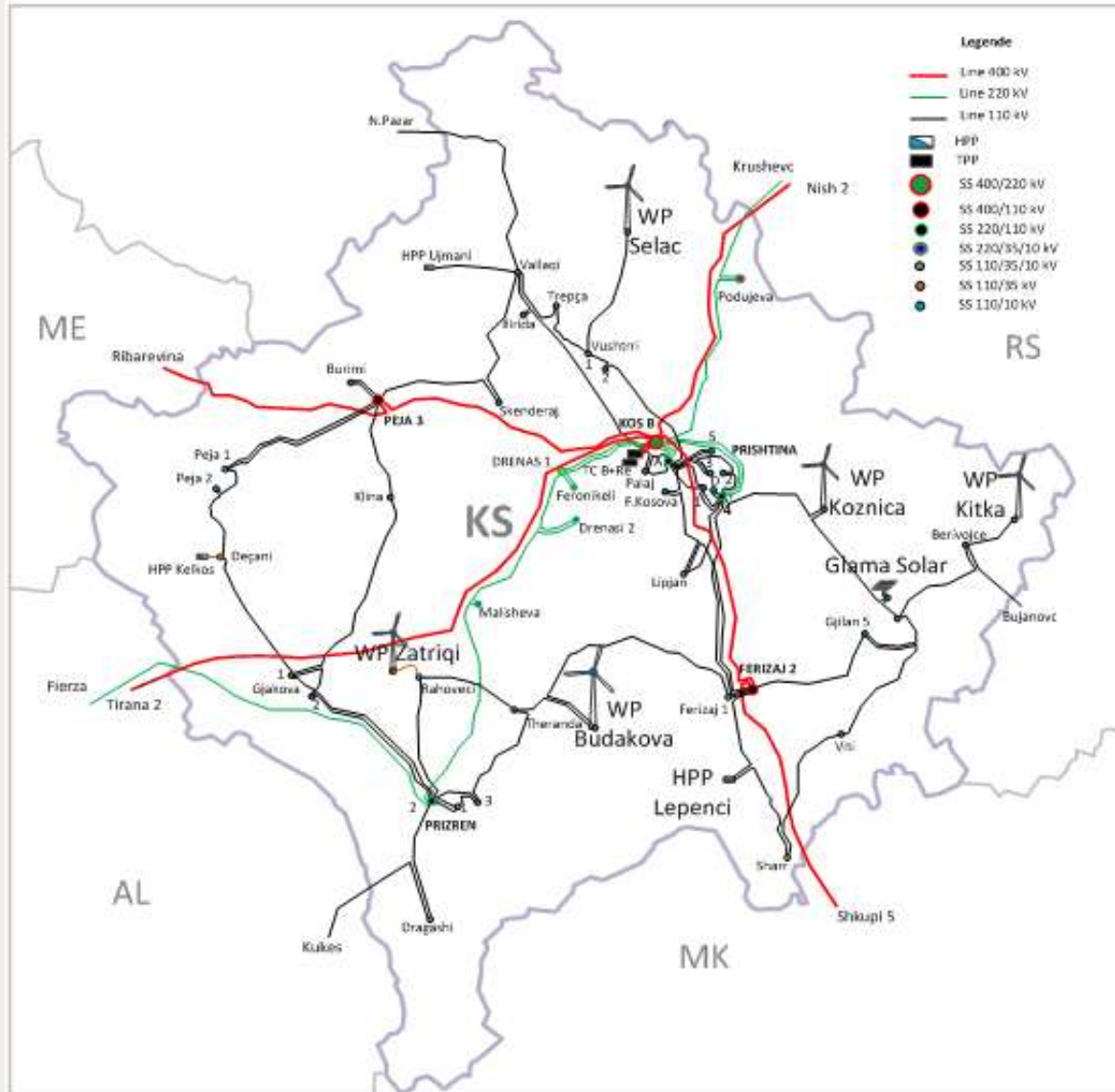
## The target of RES up to 2020 in Kosovo

- ❖ The Ministry of Economic Development – Government of Kosovo in accordance with Energy Community set a target of 25% of RES up to 2020, as follows:

RES	MW
Wind	150
Solar	10
SSHP	240
Biomass/Gas	14

- ❖ According to The Law on Electric Energy, ERO drafted and implemented the methodology for the determination of feed-in tariffs for energy from Renewable Sources.

# RES integrated into TSO/DSO grid in Kosovo



RES integrated into TSO/DSO grid in Kosovo:

## a). Wind

Planned

2020 (MW)	2025 (MW)	2030 (MW)
64	184	336

## b). Solar

Planned

2020 (MW)	2025 (MW)	2030 (MW)
6.6	70	150

## KOSTT – AS (Ancillary Services)

- ❖ According to KOSTT Grid Code AS (Ancillary Services) in KOSTT include:
  - Frequency Control (FCR, FRR and RR)
  - Voltage and reactive control (no payment)
  - Black Start (no payment)
  
- ❖ Frequency Control at the TSO level
  
- ❖ KOSTT Grid Code and regulative at ERO (Energy Regulatory Office) allows KOSTT as TSO to procure DER connected to DSO grid (>5MW) for AC (ancillary services)

## Coordination planning, data exchange and congestion management TSO-DSO

- ❖ TSO-DSO cooperation enable efficient use of flexibilities for coordination planning, congestion management on the grids and for balancing of the power system
- ❖ Due to planned landscape of RES in future, TSO and DSO in Kosovo will facing with new and mutual challenges, an appropriate definition of the scope of data to be shared among grid operators is of most importance
- ❖ There are many practical cases of issues between TSO and DSO in our case such as in maintenance, protection etc.

# Thank you for your attention!

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