HYDROPOWER AND ITS FUTURE ROLE

Prof. Atanas Kochov, PhD., Mechanical Faculty
Skopje
Igor Ilijoiski, ELEM
Goran Stoilov, ELEM
ENERGY FLOW THROUGH OUT THE YEARS HISTORY OF ELECTRICITY GENERATION

- **1909**: Construction of small 44 kW electric diesel generator
- **1909 - 1940**: HPP Pena, HPP Matka
- **1945 - 1955**: Establishing of ESM, TPP Madjari, HPP – Zrnovci, Pesocani, Sapuncica, Dosnica
- **1990 - 2005**: 2004 – HPP Kozjak

2 GW
TOTAL INSTALLED CAPACITY

Total Supply: 8500 GWh

ELEM EXISTING POWER PLANTS

8 HPPs: 600 MW
ELEM PLANNED POWER PLANTS

4 Planned HPS: ~1000 MW
SHPPs in Macedonia:

**Current status:**
35 SHPP in operation - 60 MW
15 SHPP under construction

According to an assessment prepared by the International Finance Corporation (IFC), the technically feasible potential of SHPPs includes 200 sites with installed capacity of 230 MW, with an annual production of about 990 GWh and with total required investment of about EUR 460 million.

Source: http://shpp.moepp.gov.mk/350/shpp-opportunities
RESTRUCTURING OF THE ENERGY POWER SECTOR

Energy power system of Macedonia

MEPSO
Transmission operator, Energy power system operator and market operator

EPS (new)
Generation, distribution and supply

MEPSO
Transmission operator, Energy power system operator, market operator and wholesale supplier

ELEM
Generation

TPP Negotino

EPS
Distribution system operator, retail supplier, distributed generation
ELEM EXISTING POWER PLANTS

8 HPPs: 600 MW
ELEM PLANNED POWER PLANTS

4 Planned HPS: ~1000 MW
HPP BOSKOV MOST

Installed capacity 68.2 MW
Generation 117.55 GWh

Ongoing activities
• In a phase for approving for additional financing
• Preparation of Basic Design

Benefits
• Expanding of ELEM’s generation portfolio with peak energy
• Generating of economic activity in Mavrovo-Rostusa region

Project value: 144 M€
Implementation period: 2016-2020
VARDAR VALLEY

Installed capacity 324 MW

Generation 1300 GWh

Ongoing activities
- In a phase of preparation of prefeasibility study

Benefits and recommendations
- Excluded navigability of Vardar
- Transport infrastructure under the jurisdiction of the Ministry of Transport and Communications
- Optimization of small HPP

Project value:
Implementation period: after 2025
CEBREN AND GALISTE

Installed capacity 330 + 194 MW
Generation 340 + 260 GWh

Ongoing activities
- In updating phase of project documentation

Benefits:
- Total usage of the Crna reka catchment area
- Increasing of ELEM's HPP generation for additional 50%
- Economic activity in the Mariovo region
- ELEM has possibility to become regional participant

Project value: Implementation period: after 2025
THANK YOU FOR YOUR ATTENTION