



**ELECTRIC POWER INDUSTRY
OF SERBIA**

EPS Investment Strategy in RES Sector

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“Opening Up the West Balkans Energy Market”, Belgrade, March 7th, 2012

EPS – Structure & Ownership

Structure

- Vertically organized company
- All energy chain elements except transmission
 - Comprising of 11 subsidiaries

Ownership

- 100% owned by the Republic of Serbia

EPS –Activities

- Electricity generation
- Electricity distribution
- Electricity trading
- Coal production
- Steam and hot water generation
- Designing, construction and maintenance of energy, mining and other facilities



EPS - Overview 2011

Installed Capacities	
○ Hydro Power Plants	2,835 MW
○ Thermal Power Plants	5,171 MW* 3,936 MW**
○ Combined Heat and Power	353 MW
Total	8,359 MW* 7,124 MW**

Electricity generation	41,284 GWh* 36,050GWh**
Coal Production	40.3 mill t **
Gross Consumption	34,450 GWh**
Number of Customers	3.53 million**
No. of Employees	29,150**

*Including K&M ** Excluding K&M

From the end of June 1999, EPS cannot manage its facilities on the territory of Kosovo and Metohija (K&M)

Intensive EPS Investment Activities

Ongoing and Planned Investment Activities in EPS

- Secure supply under conditions of electricity demand
 - Average annual growth rate of ca.1.55% in the period up to 2025
- Meet environmental standards
- Replace the old, inefficient facilities at the end of operation life
- Achieve economic and financial sustainability
 - High efficiency with increase of competitiveness

Environment for EPS Investments

- Law on PPP of the Republic of Serbia
- New Energy Law
 - Market liberalization
 - Feed-in tariffs for investments in RES
- Credit rating
 - EPS has not performed credit rating assessment so far
 - Credit rating of the Republic of Serbia stands at BB/Stable as per Standard&Poor's

Intensive EPS Investment Activities

Funding sources

- EPS funds
- Loans from banks and IFIs
- Partnership

Planned Investment Activities

- Maintenance of current generation
 - Environmental protection improvement
- Generation increase - new capacities

Ongoing Investment Activities

Rehabilitation and modernization

- TPPs & HPPs
- Coal mines
- Distribution system

EPS models for Project realization

Models according to which EPS invests into new generation capacities

- Long-term PPA's have key role in financing of TPP construction
- Market liberalization is of great importance for HPP construction
- "Feed-in" tariffs stimulate investments in the RES
- Commercial arrangements for export based on Interstate Agreements



Partner/Independent projects – HPP&PSHPP

Project	Implementation model	Capacity (MW)	Annual production (GWh)	Investment value (mil. €)	Expected start/end of construction
Ibar HPP	Joint venture (international agreement with Italy - SECI)	103	420	290	2013/2021
Velika Morava HPP	Joint venture based on memorandum with RWE	150	650	360	2014/2020
Djerdap 3 PSHPP	Memorandum with RWE (potentially 4x600 MW)	600 (I phase)		400	2015/2020
Gornja Drina HPP	With the Republic of Srpska (EPS and RWE)	250	800	435	2013/2022
Srednja Drina HPP	With the Republic of Srpska (EPS and SECI)	320	1,200	820	2014/2023
Bistrica PSHPP		680		553	2015/2020

Renewable Energy Sources

The Government of the Republic of Serbia has introduced new “feed-in” tariffs to stimulate investments in RES

Rehabilitation of existing small hydro power plants (SHPPs) plants that are operating within EPS system

Development of new SHPPs

Analyses of possible locations for wind farms (Kostolac 30 MW)

Analyses of possible locations for solar panels (Čajetina 5 MW, Kostolac 2MW)

Development of facilities that use communal waste for energy generation

- Memorandum with the cities Užice and Kragujevac

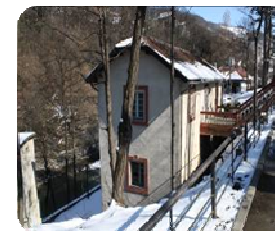
Development of facilities that use biomass for energy generation



SHPPs of interest to EPS

SHPPs of interest to EPS

- I. Existing SHPPs owned by EPS which need to be revitalised
- II. New SHPPs on existing water management facilities
- III. New SHPPs on existing HPPs and TPPs owned by EPS
- IV. New SHPPs on new locations



SHPPs owned by EPS

I. Existing SHPPs owned by EPS which need to be revitalized

1. SHPP Ovčar Banja

10. SHPP Moravica

2. SHPP Međuvršje

11. SHPP Sveta Petka

3. SHPP Radljeska Reka

12. SHPP Sićevo

4. SHPP Vrelo

13. SHPP Temac

5. SHPP Raška

14. SHPP Sokolovica

6. SHPP Seljašnica

15. SHPP Gamzigrad

7. SHPP Turica

16. SHPP Vučje

8. SHPP Kratovska Reka

17. SHPP Jelašnica

9. SHPP Pod Gradom

SHPPs owned by EPS

I. Rehabilitation from EPS's own funds

Drinsko –
Limske HPP

SHPP Ovčar Banja
SHPP Međuvršje

- Annual generation about 80 GWh
- Total investments € 2.7 mill

I. EBRD loan for another 15 SHPPs rehabilitation

Capacity of revitalized SHPPs	23.15 MW
Capacity added to the system by increase of the SHPP capacity	5.6 MW
Total mean annual generation	77 GWh
Total investments for revitalisation	€ 23 mill



SHPPs on existing water management facilities

II. New SHPPs on existing water management facilities

1. SHPP Ćelije

2. SHPP Bovan

3. SHPP Barje

4. SHPP Zlatibor

5. SHPP Parmenac

6. SHPP Rovni

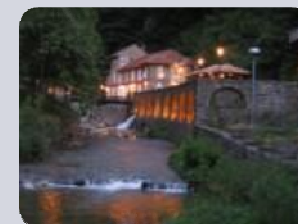
7. SHPP Selova

8. SHPP Svračkovo

9. SHPP Vrutci

10. SHPP Prvonek

- 10 new SHPPs of total capacity of about 23 MW
- Annual generation would be about 78 GWh
- Construction of SHPP Prvonek is finished
- Svračkovo was not operational and extensive works are needed



SHPPs on existing water management facilities

SHPP Prvonek

- The owner of the reservoir is the water supply utility “Vranje”
- Model to be applied to SHPP on water management reservoirs
- Designed water flow is 550 l/s
 - for water supply of Vranje around 220 l/s
 - water surplus sufficient for the operation of SHPP



SHPPs on existing water management facilities

II. EBRD loan - SHPPs on 8 existing water management facilities

Capacity of new SHPPs	14.31 MW
Total mean annual generation	56 GWh
Total investments for the construction	€ 19 mill



New SHPPs on existing EPS HPPs&TPPs

III. New SHPPs on existing HPPs and TPPs owned by EPS

1. SHPP Jezero

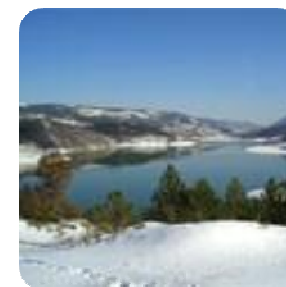
2. SHPP Mala Vrla1

3. SHPP Zavoj

4. SHPP Pirot

5. SHPP TENT B

- Total capacity of about 4 MW
- Annual generation would be about 19 GWh
- Investments for the construction € 9.6 mill



SHPPs of interest to PE EPS

IV. New SHPPs on new locations

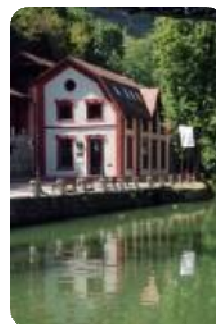
1. SHPP Tigar

2. SHPP Banjica

3. SHPP Stalać

4. SHPP Sokolja

- Total capacity of about 20 MW
- Annual generation would be about 82 GWh
- Investments for the construction € 45.1 mill



Thank you



**PUBLIC ENTERPRISE
ELECTRIC POWER INDUSTRY OF SERBIA**

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