

# THE POSSIBILITIES OF PV USE IN BELGRADE AND ONE METHOD OF ECO SUPPLY THE REPUBLIC SERBIA WITH ELECTRIC ENERGY

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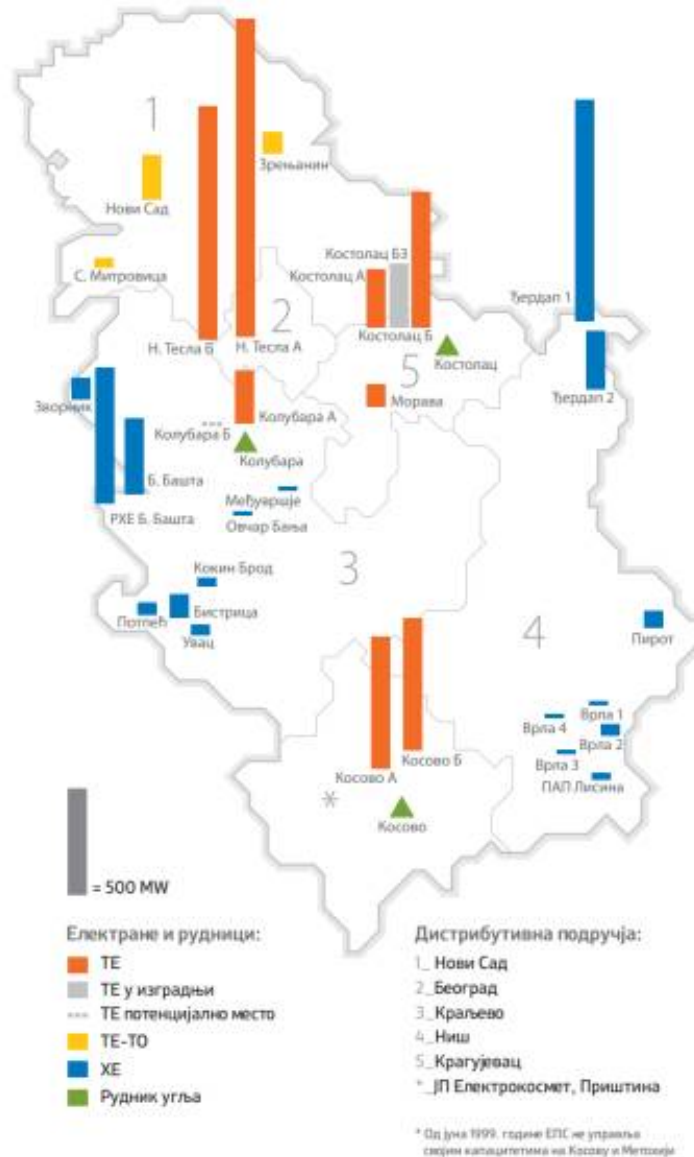


# Introduction

The European Parliament, 2008.  
Goals for the year 2020:  
20% reduction in greenhouse gas emissions,  
20% improvement in energy efficiency and  
20% share of renewable energy in the energy sector



# Production and consumption of electric energy in our country



## Installed power

Thermo power plant	4.368MW (59,8%)
Hydro power plant	2.936MW (40,2%)
Total installed power	7.304 MW

## Electric energy production

Thermo power plant	25,5 TWh (70,8%)
Hydro power plant	10,5 TWh (29,2%)
Total installed power	36 TWh

## Coal production tons

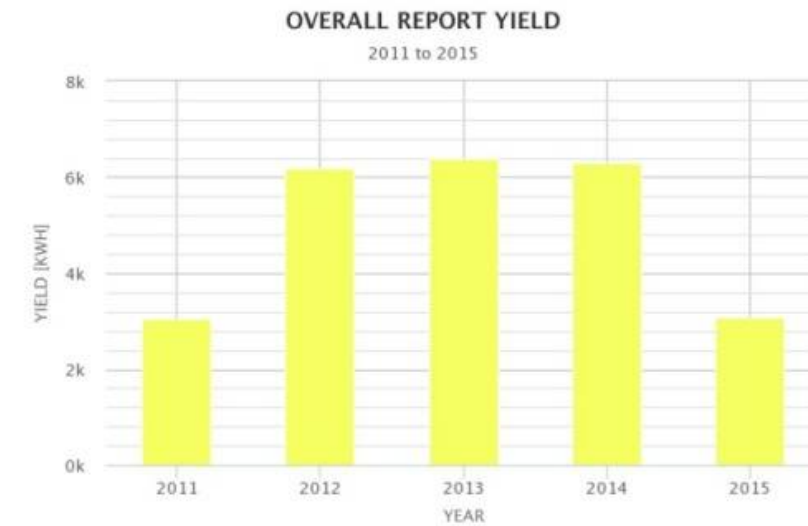
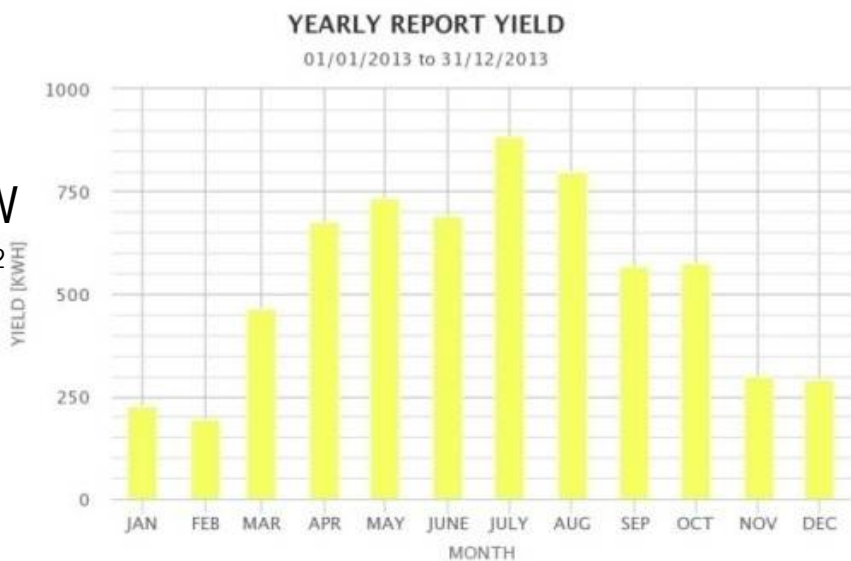
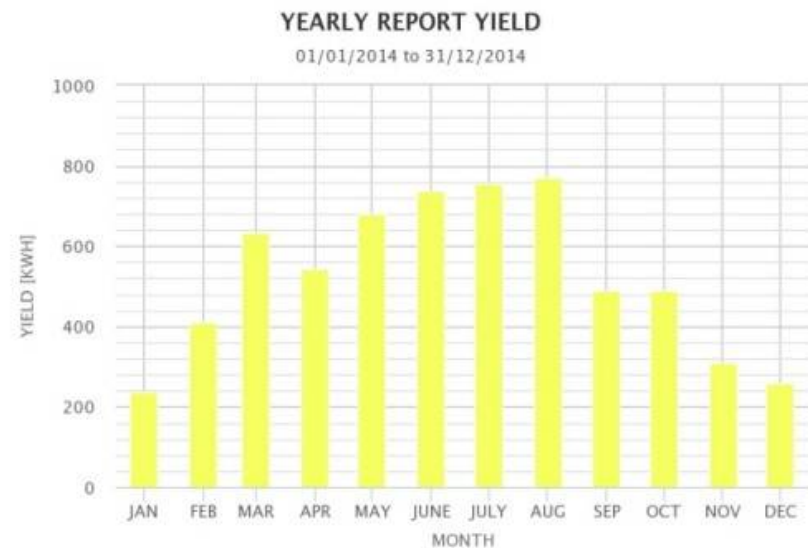
37 million

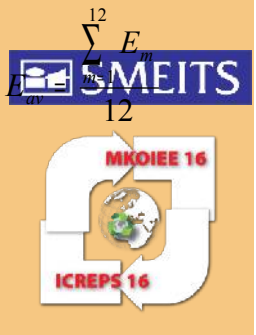


# Possibility to supply the electro distribution network using photovoltaic cells

Installed power  
 PV Aria  
 Inclination  
 Efficiency

5.060 W  
 36,3 m<sup>2</sup>  
 35°  
 16,2%.





# The measurement results of the possibility on the grid connected photovoltaic

Average annual production of electric energy

$$E_{av} = \frac{\sum_{m=1}^{12} E_m}{12}$$

Average annual production of electric energy  
6.300,68 kWh

Annual insolation

$$T_A = \frac{E_{av}}{P_{PV}}$$

Daily average production of electric energy  
17,262 kWh.

Annual insolation  
**1.245 h**

Average unit production of electric energy

$$E_{sp} = \frac{E_{av}}{S}$$

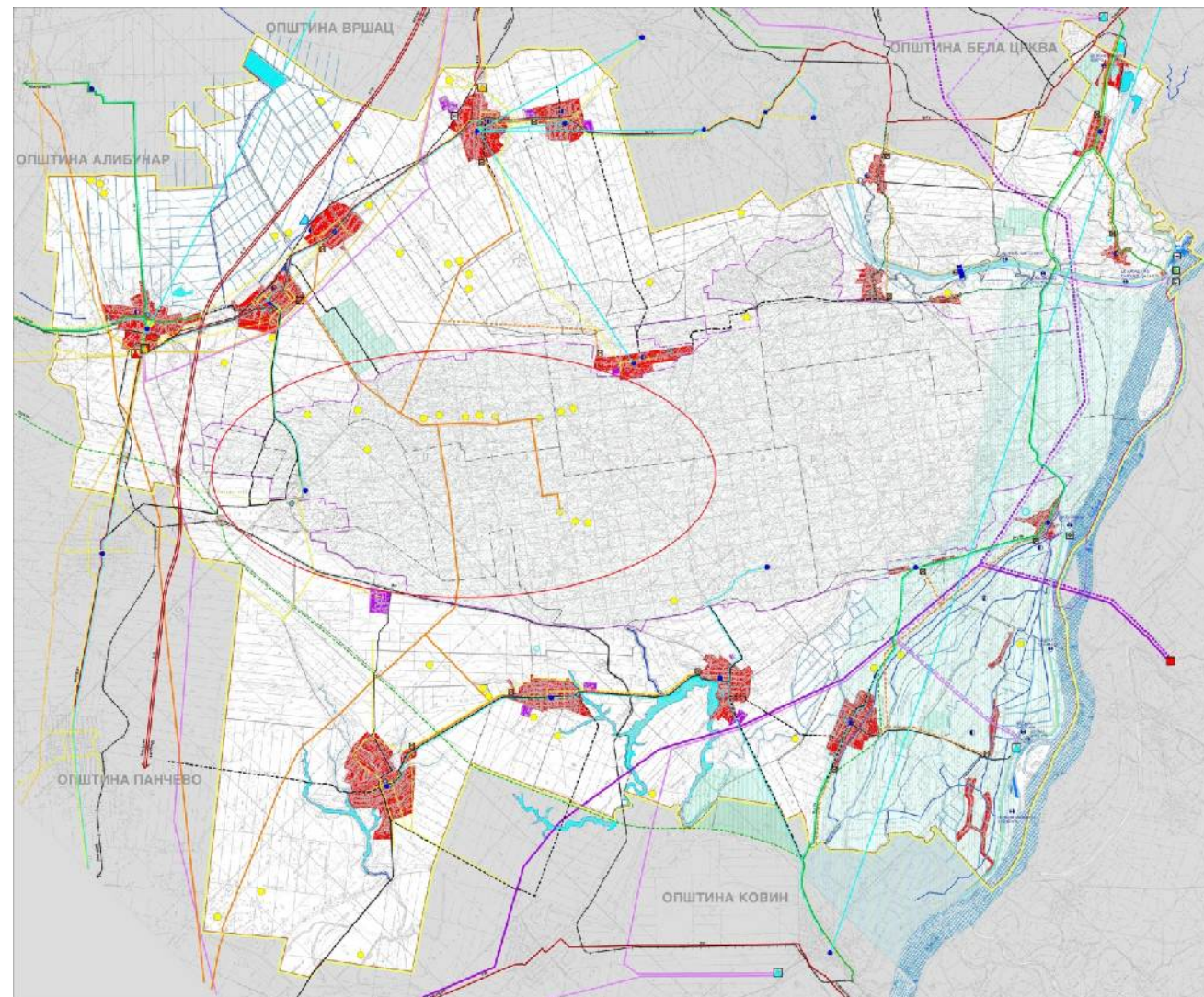
Average daily insolation  
**3,41 h**

Specific annual electric energy production  
**173,6 kWh/m<sup>2</sup>**

# Photovoltaic supply of consumers by electric energy in Serbia

For the production of 36 TWh of electric energy must be set around 206,5 km<sup>2</sup> of solar panels.

The yield from hydropower is 10,5 TWh of electric energy, so the required yield of 25,5 TWh of electric energy requires about 146,9 km<sup>2</sup> of solar panels. This is about 50% of the area of Deliblato desert.



# Problems

1. Storage of electrical energy
2. Commissioning
3. Supplement with other renewables (hydro, wind, bio)
4. Ecology
5. Price US\$/W 0,5
6. Efficiency 16 – 80%





**THANKS FOR YOUR  
ATTENTION**