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**
37 million tons
Possibility to supply the electro distribution network using photovoltaic cells

Installed power
PV Area
Inclination
Efficiency
5,060 W
36.3 m²
35°
16.2%.
The measurement results of the possibility on the grid connected photovoltaic

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average annual production of electric energy</td>
<td>$E_{av} = \frac{\sum_{m=1}^{12} E_m}{12}$</td>
</tr>
<tr>
<td>Average annual production of electric energy</td>
<td>6,300,68 kWh</td>
</tr>
<tr>
<td>Daily average production of electric energy</td>
<td>17,262 kWh</td>
</tr>
<tr>
<td>Annual insolation</td>
<td>$T_A = \frac{E_{av}}{P_{PV}}$</td>
</tr>
<tr>
<td>Annual insolation</td>
<td>1,245 h</td>
</tr>
<tr>
<td>Average daily insolation</td>
<td>3,41 h</td>
</tr>
<tr>
<td>Average unit production of electric energy</td>
<td>$E_{sp} = \frac{E_{av}}{S}$</td>
</tr>
<tr>
<td>Specific annual electric energy production</td>
<td>173,6 kWh/m²</td>
</tr>
</tbody>
</table>

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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$^2$ 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$^2$ 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 0,5 US$/W
6. Efficiency 16 – 80%
THANKS FOR YOUR ATTENTION