

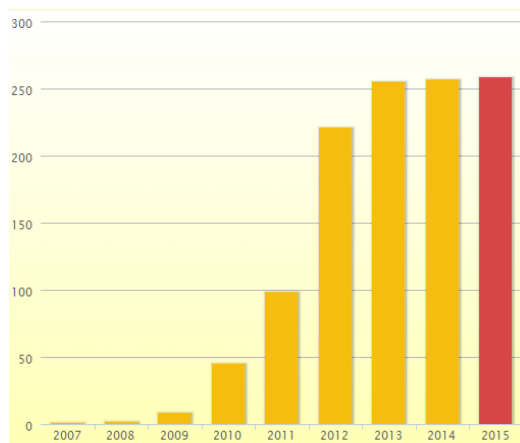
GENERATION OF ELECTRICAL ENERGY FROM SOLAR ENERGY – LESSONS OF EXPERIENCE FROM SLOVENIA CASE

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Abstract

Due to the increasing environmental awareness, legal regulations and international agreements that require reducing of carbon emissions and improvement of energy efficiency, there is need to increase the share of renewable energy in the total energy balance of the community. Renewable energy sources such as solar energy, wind energy, water energy, biomass, continue to set record levels for investment.

Solar energy is the main driving force of climate cycles and all life cycles on Earth, it is inexhaustible and it can be basically used in all countries of the world. Solar energy can be converted into electricity in many ways, but the simplest is the direct conversion using photovoltaic (solar) cells, where operating method is based on the photoelectric effect. As a result of the initiative to use renewable energy, photovoltaic (PV) systems have recently recorded a rapid increase in installed capacity. Currently, photovoltaic systems are the leading producers of electrical energy in relation to the number of installed capacity, and they have outscored wind energy and gas systems.



This paper gives an overview of constructed photovoltaic power plants in Slovenia. Fig. 1 shows a cumulative number of photovoltaic power plants in Slovenia from 2007 till 2015. The reason for increased situation is mainly in electricity feed-in support scheme for renewable energy source (RES) and high-efficiency cogeneration (CHP) power plants. For example, the subventions provided by the Slovenian government to green power producers in 2014 were about 130 million euro, where the bulk of the subventions went to the solar PV plants - 62.6 million euro. Described situation has some defectiveness, while conclusions could be applied in some countries where an increased economy level is about to start.

Figure 1: Cumulative number of photovoltaic power plants in Slovenia.

In that manner the current situation of Bosnia and Herzegovina about the area of photovoltaic power plants will be presented in the paper as well.

References

- [1] CIGRE Technical Brochure on Coping with Limits for Very High Penetration of Renewable Energy, Junij 2012
- [2] Global Market Outlook for Photovoltaics until 2016, European Photovoltaic Industry Association, Maj 2012
- [3] Anton Verdenik, Damjan Kovačić, Tadej Dobrun: Izgradnja prve solarne elektrane u Bosni i Hercegovini; Međunarodna konferencija ENERGA, Tuzla, Junij, 2012
- [4] Targets, strategies and measures till the year 2020 on the field of green electricity production in Slovenia, EC, Boosting green electricity in 11 European regions (RES-e Regions)

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