

Realities and Prospects of Solar Energy in Vinnytsia Region.

Вінницький національний технічний університет

Анотація

У даній статті описано реалії та перспективи сонячної енергетики у Вінницькій області. Було здійснено обґрунтування необхідності та доцільності використання сонячної енергії. Також було здійснено перелік існуючих і функціонуючих сонячних електростанцій Вінниччини.

Ключові слова: Сонячна енергетика, енергія, електростанції, СЕС, Вінниччина.

Abstract

Realities and prospects of solar energy in Vinnytsia region are described in this article. The necessity and efficiency of solar energy implementation are grounded. The list of operating solar energy plants was presented.

Keywords: Solar power, energy, power, SPP, Vinnytsia region.

It is a well - known fact that nowadays the price of electricity in the national economy is one of the most decisive for taking economic decisions. Production in general (in any industry) is directly dependent on the cost of the used power supply. In its turn the cost of power depends on the source of energy and the cost of its production.

Thus, the availability of energy supply and the means of getting power are extremely important in the national economy. Unfortunately, Ukraine (and Vinnytsia region in particular) is not very rich in natural energy resources and it constantly depends on energy import. Currently Ukraine makes efforts to develop national oil, gas and coal fields and other deposits of natural resources, but the cost of production is rather high. In this situation the use of alternative power supply resources gets more and more important.

Energy minerals were not found in Vinnytsia region, making it energy-dependent region. There is small number and lack of fossil fuels in the country. That`s why we need to use alternative energy sources. Considering the natural features of region, we can conclude that the most advisable is the use of solar energy.

The potential of solar energy in Vinnytsia region, especially in its southern regions is only ten per cent lower than on the Crimean peninsula. Nowadays there are good trends using of the potential of solar energy for the development of solar energy in Vinnytsia region.

The solar power plant (SPP) started its operation in 2011. The most widely used solar power plants convert the energy of sunlight into electricity by means of solar cells. The main and largest existing SPPs in our area are:

- The first in Vinnytsia region and the second solar power plant in Ukraine with capacity 571,5 kw which began to work on 15 November in 2011 in the village of Sloboda-Bushanska of Yampol district. It consists of the batteries manufactured by Chinese company "Yanhli", power of each is 235 watts. The station produces energy even on cloudy days, although its capacity falls. Another feature is that the solar modules do not require human intervention. Even when it snows, it is not necessary to remove it from the mirror plates. The station saves 1039 tons of coal or 627,000 cubic meters a year. Station was being prepared for its operation for almost one year. It is served by 5 engineers.

- In 2012 the company "Enerhosvit" started operation of the first series of Haldzhbiyivska solar power plant with capacity of 267.9 kilowatts. In general the plant consist of 5 series with the capacity of 1MW 450kVt. It uses combined power of hydro and solar energy.

- In January 2012 started its operation the solar power plant with capacity of 35 kW. It was mounted on the roof of the production building of Hnivan tire-repair plant. Solar modules are located on the roof of the production building. As for the prospects of solar energy use in the region, in addition to the already built there is a number of SPPs being designed and built in Vinnytsia region with maximum capacity of 54 MW. Some of them are already second and third series of the existing SPPs.

The pace of construction of solar power plants in Vinnytsia region for the past 5 years is really impressive. According to the number of planned and constructed solar power plants Vinnytsia region is on the first place in Ukraine.

Conclusion

Taking into consideration the geographical location of Vinnytsia region and a sufficiently high potential of solar radiation, state guarantees to buy solar power at competitive rates, stability of existing legislation, favorable conditions for investors, there are serious expectations that the development of solar energy in Vinnytsia region will continue to advance rapidly.

СПИСОК ВИКОРИСТАНОЇ ЛІТЕРАТУРИ

1. Алферов Ж.І., Андрєєв В.М., Румянцев В.Д. Тенденції та перспективи розвитку сонячної фотоенергетики –Т.: Генеза, 2004.
2. Лабейш В.Г. Нетрадиційні та відновлювальні джерела енергії. Навч. Посіб. –СПб.: СЗТУ, 2003.
3. Тимошкін З.Є. Сонячна енергетика і сонячні батареї. М., 1966.
4. Денисик Г.І., Жовнір Л.Ф. Географія Вінницької області: пробний Навч. Посіб. для середньої школи –В.: Гіпаніс, 2004.

Ткач Анна Сергійвна — студент групи ЕКО-13б, інститут екологічної безпеки та моніторингу довкілля, Вінницький національний технічний університет, Вінниця, e-mail: annyatkach@gmail.com;

Ясинська Вікторія Анатоліївна — студент групи ЕКО-13б, інститут екологічної безпеки та моніторингу довкілля, Вінницький національний технічний університет, Вінниця, e-mail: yasinskaya96@list.ru

Науковий керівник: **Марченко Олена Едуардівна** — викладач кафедри іноземних мов, Вінницький національний технічний університет, м. Вінниця.

Anna S. Tkach — the student of group EKO-13b, Vinnytsia National Technical University, Vinnytsia, email : annyatkach@gmail.com;

Viktoria A. Yasynska — the student of group EKO-13b, Vinnytsia National Technical University, Vinnytsia, email: yasinskaya96@list.ru.

Supervisor: **Olena E. Marchenko** — the lecturer of Foreign Languages Department, Vinnytsia National Technical University, Vinnytsia.