

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ
ЦЕНТР**

**МАТЕРІАЛИ
X ВСЕУКРАЇНСЬКОЇ НАУКОВО-ПРАКТИЧНОЇ
КОНФЕРЕНЦІЇ СТУДЕНТІВ, АСПІРАНТІВ ТА
ВИКЛАДАЧІВ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО
ЦЕНТРУ КАФЕДРИ ІНОЗЕМНИХ МОВ**

**“WITH FOREIGN LANGUAGES TO MUTUAL
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ECOLOGICALLY SAFER ENVIRONMENT”**

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DESIGNING OF PHOTOVOLTAIC ENERGY SYSTEM

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The problem of energy efficiency is one of the main problems of Ukraine, as our energy consumption in its economy considerably exceeds Western standards. Sumy State University(SSU) participates in the project on energy efficiency of higher education institutions of Ukraine "Higher Education. Energy and Sustainable Development "from the European Investment Bank. In this connection a comprehensive project "Energy Efficient University" was developed.

To reduce the power photovoltaic energy system was calculated for one of the buildings of SSU as it has a modern system of thermal insulation, good compass location and a proper roof structure, which allow to install solar panels without additional mounting structures. As a base for energy system photovoltaic system which connected to external power grids (on-grid) was selected. Its advantages are low cost, simplicity, reliability, possibility to use "green tariff" for extra energy generation.

As a result of research we have calculated possible amount of solar energy produced by our solar system. The quantity and range of brands which make solar panels, the optimal angle of installation have also been calculated. It was constructed 3D model of the case with a system of solar converters to visualize system using SketchUP. Analysis of the results shows that the designed photovoltaic system allows us to produce building energy independent from external energy and even supply surplus power to the external network.

The proposed method is quite available for being used to calculate the energy systems of other buildings and constructions.