The lack of reflection hydrometers is obvious; only the surface layer of the material is measured as moisture.

Visible optical moisture meters are rarely used. They are based on the ability of some materials to change their color and reflectivity from moisture [5].

Thus, the method of determining the moisture content of oils, based on the principle of the dielectric coefficient, is not inferior in accuracy to the standard method of Dean and Stark and at the same time has a number of significant advantages.

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ABOUT SOLAR ENERGY CONVERTERS AS ALTERNATIVE SOURCES OF ELECTRICITY

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Abstract: The article provides an analysis of data on the state of use of solar energy as an energy source in the Republic of Uzbekistan. At the same time, the prospects of using optimal grapheme-based solar energy converters are noted

Keywords: energy, ecology, energy source, converters, hydrocarbon, grapheme, climate, useful work, solar energy.

Introduction. Alternative or non-traditional energy sources are natural resources that can be used to generate electricity.

The use of non-traditional and renewable energy sources (RES) in the fuel and energy industry is an urgent task of the world energy industry. One

of the main types of solar radiation that is environmentally friendly and affordable is the energy of solar radiation[1,2].

Uzbekistan has favorable climate conditions for the use of solar energy, the energy potential of which is 98.5 percent of all renewable energy sources combined, so its use is relevant both to ensure energy security and to improve the social and living conditions of the population. It is also important to preserve hydrocarbon fuel reserves for future generations and to mitigate the environmental situation in Uzbekistan.

Methods and solutions to the problem. The main components of renewable energy sources in Uzbekistan are solar, hydraulic, wind and geothermal energy, as well as biomass energy. According to the results of the assessments, the technical potential of renewable energy sources in the Republic of Uzbekistan is 180 million tons of oil equivalent, which is more than three times its annual energy demand.

The climatic and natural conditions of the Republic of Uzbekistan provide (figure 1) wide opportunities for the use of renewable energy. The largest potential lies in the solar energy sector. This source is almost universal - it allows you to produce electrical and thermal energy.

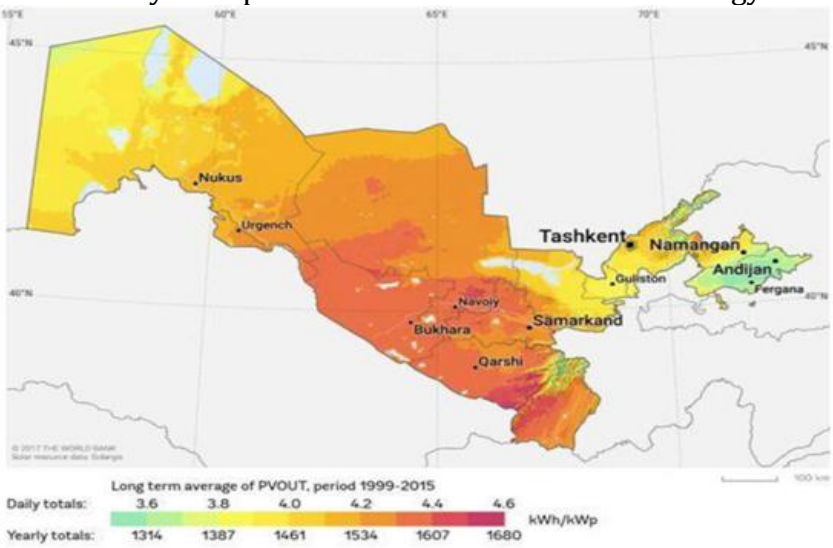

Figure 1: solar energy Potential in Uzbekistan, kWh / kW peak.

At the geographical latitude of Uzbekistan, solar energy utilization is possible through the use of a wide range of industrial technologies: solar panels (photovoltaic converters), concentrators of various types, combined stations. Table 1 below shows the potential of renewable energy sources in the Republic of Uzbekistan, million tons n.e.

Table 1.

Type of RES/Indicator	Gross	Technical	Mastered
Total	50993,8	182,2	0,7
Hydro energy	9,2	2,3	0,56
Largest river	8,0	1,8	0,2
Small rivers and watercourses	1,2	0,5	...
Solar energy	$50*10^3$	176,8	…
Wind energy	2,2	0,4	…
Biomass	10,0	0,5-3,0	…
The heat energy of the Earth	$67*10^5$	0	0

Energy conversion in solar cells is based on the photovoltaic effect in inhomogeneous semiconductor structures when exposed to solar radiation. In this paper, we will not go into the physics of this complex phenomenon [1.2], but will briefly describe the practical side of the matter. An important point of operation of solar cells is their temperature regime. When the element is heated by one degree above 25°C, it loses 0.002 V in voltage, i.e. 0.4 %per degree. On a bright Sunny day, the elements heat up to 600 -70°C, losing 0.07-0.09 In each. This is the main reason for reducing the efficiency of solar cells and leads to a drop in the voltage generated by the element. The efficiency of a conventional solar cell currently ranges from 10 to 16 %. This means that a 100*100 mm element can generate 1-1. 6 W under standard conditions. The standard conditions for certification of elements worldwide are recognized as follows: illumination-1000 W / m2 temperature -25°C; spectrum-AM1, 5 (solar spectrum at latitude 450) [2].

The German-French team from Fraunhofer ISE. Settee, CEA-LETI and Helmholtz Center Berlin has already announced the creation of solar cells with an efficiency of 43.6%. Based on this result and thanks to further intensive research and optimization steps, an efficiency of 44.7% was obtained.

The use of group III – V semiconductor elements, which were initially used in space technologies, helped to realize high efficiency for converting sunlight into electricity. In this connection, the solar cell elements made of III - V semiconductors are stacked on top of each other. Each layer converts waves of different lengths from the solar spectrum.

The Fraunhofer institutes for the study of solar energy systems, Settee. CEA-Leti and the Helmholtz center in Berlin announced that they have achieved a new world record for the efficiency of converting Solar energy into electrical energy by using a new structure of solar cells with four layers.

Like some other multilayer solar cells, this chip is designed to work with a concentrator that concentrates the flow of sunlight in 297.3 times, that is, the area of the lens of the concentrator is about Z00 times larger than the area of the solar cell. The efficiency of 44.7% applies to a wide range of solar radiation: from ultraviolet to infrared. The energy of waves with a length of 200-1800 nm is taken by four layers of the cell. This is an important step towards reducing the cost of using solar electricity and approaching an important milestone of 50% efficiency.

A group of scientists from the University of California predicted what will be economical and flexible solar panels of the new generation in the near future. After several years of work on organic solar cells, new prototypes of solar cells have been produced, which have a light weight, flexible substrate, low cost of manufacture and technological efficiency. The presence of transparent conducting electrodes in organic solar cells allows light to interact with active substances inside the element, generating electricity. Today, graphene-based polymer sheets are used to create large assemblies of flexible solar cells. Graphene - two-dimensional; allotropic modification of carbon, a layer of carbon atoms thick, one atom. Graphene is a two-dimensional crystal consisting of a single layer of carbon atoms assembled in a hexagonal lattice (figure 2). These sheets are used to convert solar radiation energy into electricity.

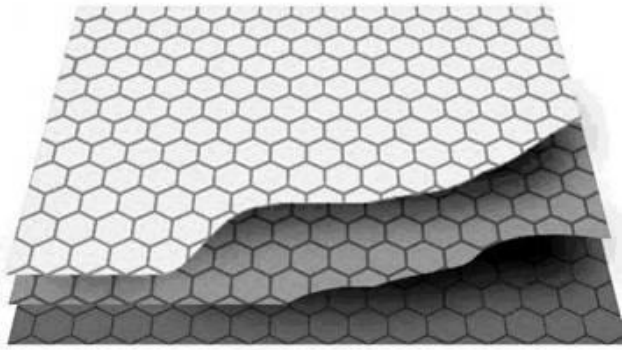

Figure 2. Polymeric sheets based on graphene.

A group of researchers from the USC Viterbi School of Engineering, put forward the theory that graphene, as an atom-sheet with a thickness of one carbon atom, can easily be integrated into very flexible polymer sheets, from which, after applying a thermoplastic layer of protection, cells of organic solar cells can be formed. At the same time, by chemical vapor deposition, high-quality graphene can now be obtained in sufficient quantities.

The flexibility of the cells of such solar cells gives an additional advantage, they will work even after repeated bends, unlike indium-Tin-Oxide solar cells. Low cost, electrical conductivity, stability, compatibility of

the electrodes with organic matter, and availability, along with flexibility, all give graphene cells decisive advantages over other solar cells[3].

A group of scientists from the University of California have proposed what will be the economical and flexible solar panels of the new generation in the near future. After several decades of work on organic solar cells, new prototypes of solar cells have been produced, which have a light weight, flexible substrate, low cost of manufacture and technological efficiency. Currently, research is being conducted on such solar cells.

The most unique property of organic solar cells are transparent conducting electrodes. This allows light to interact with the active substances inside the element, generating electricity. Today, graphene-based polymer sheets are used to create large assemblies of flexible solar cells.

Graphene is a two-dimensional allotropic modification of carbon, a layer of carbon atoms one atom thick. Graphene is a two-dimensional crystal consisting of a single layer of carbon atoms assembled in a hexagonal lattice). These sheets are used to convert solar radiation energy into electricity, providing cheap solar energy [3].

A group of researchers led by Chong wu Zhou, a Professor of electrical engineering at the USC Viterbi School of Engineering, put forward the theory that graphene as an atom - a sheet of one carbon atom thick can easily be integrated into very flexible polymer sheets, from which, after applying a thermo - plastic layer of protection, it is possible to form cells of organic solar cells. And since the method of chemical vapor deposition, high-quality graphene can now be obtained in sufficient quantities - the price of such solar cells is minimal.

Discussions. Traditional silicon solar cells are still more efficient. So, with their help, 14 W of electricity will be generated from 1000 W of sunlight, while organic solar panels allow you to get only 1.3 W of energy from 1000 W of sunlight. But organic solar panels will compensate for this with advantages such as flexibility and lower cost.

According to Gomez De Arco, it will be possible to launch printing machines for the production of flexible organic solar cells and it will be similar to printing ordinary Newspapers. These organic solar cells can be like curtains hanging in homes, they can even be made into fabric and worn as energy clothing.

The flexibility of the cells of such solar cells gives an additional advantage, they will work even after repeated bends, unlike Indium-Tin-Oxide solar cells. Low cost, electrical conductivity, stability, compatibility of the electrodes with organic matter, and availability, along with flexibility, all give graphene cells decisive advantages over other solar cells.

The Fraunhofer Institute for the study of solar energy systems, Soitec, CEA-Leti and the Helmholtz center in Berlin announced that they have achieved a new world record for the efficiency of converting Solar energy into electrical energy by using a new structure of solar cells with four layers. Like some other multilayer solar cells, this chip is designed to work with a concentrator that concentrates the flow of sunlight in 297.3 times, that is, the area of the lens of the concentrator is about 300 times the area of the solar cell. The efficiency of 44.7% applies to a wide range of solar radiation: from ultraviolet to infrared. The energy of waves with a length of 200-1800 nm is taken by four layers of the cell. This is an important step towards reducing the cost of using solar electricity and approaching an important milestone of 50% efficiency.

Conclusions. The article analyzes the latest information about solar cells and notes the prospects for using optimal solar energy converters based on graphene.

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REQUIREMENTS FOR FOREIGN LANGUAGE TEACHING

N. Karimova

Abstract: Teaching has been an essential process in pedagogy demanding great effort and responsibility. Essentially teaching process becomes more difficult in teaching a foreign language to learners a language as a second language. My below written article is devoted to requirements for foreign language teaching

Keywords: Secondary special vocational education, the goal of academic lyceums, teaching foreign languages. the communicative approach, practical trainings.

The first law of the Republic of Uzbekistan "On Education" adopted in 1992 and the basis of the "National Program of Personnel Training" adopted on August 29, 1997, the economic, social, scientific-technical and cultural formation of a needy, creative, socially active, spiritually rich person and