



The Importance of Use of Solar Energy

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Abstract: Nowadays, much attention is paid to the usage of solar energy. Solar energy, in addition to traditional energy, is ecologically clean while changing. Today, the demand for electricity and thermal energy is becoming increasingly urgent all over the world. This can be explained by the fact that researchers can reduce the burden of traditional energy resources (oil, coal, gas), increase their cost, ecological disturbances, and so on. Therefore, one of the key issues is to build solar panels that are economical and practical in their application. This requires the development of existing equipment and the research of modern variants of various constructive schemes.

Keywords: Toxic Gasses, Oxygen, Ozone, Nitrogen, Carbon Dioxide, Solar Energy, Constructive Schemes

1. Introduction

Oxygen is the most important component of the atmosphere and plays an important role in human life. The florae of the world absorb 160 billion tons of carbon dioxide per year, bringing about 120 to 190 billion tons of oxygen into the atmosphere. Additionally, they hold up three quarters of the dust in the air and swallow about two-thirds of the sulfide gas. It is proved that the air temperature in plants is less than 2-3 degrees Celsius.

Air pollution can be monitored by numerous interactions with toxic gasses, dust particles, in addition to oxygen, ozone, nitrogen, carbon dioxide gas and other air. One of the main factors that keep the fresh air is the toxic gases emitted by motor vehicles. The carbon dioxide gas is heavier than the air, and it is always concentrated near the Earth's surface. The harmful side of the gas is that it joins the hemoglobin in the blood and prevents oxygen from reaching the body cells [3-4].

Also, acrolein, formaldehyde, tetraethyl lead in car gas also negatively affects human health. In addition, one of the areas that polluting the air is heat cogeneration, thermal power plants and boiler installations. The amount of toxic substances emitted from heat exchangers is very large. For example, an electric boiler station that consumes 51,000 tons of coal per day produces 33 tons of sulfur dioxide into the air. Given the fact that it is 50 tons of sulfuric acid in favorable

meteorological conditions, 40-50 tons of lime is removed every day [15].

There is also a high share of ferrous metallurgy in air pollution. For example, in the tonnage, 4.5 kilograms of dust, 2.7 kilograms of toxic gas, and 0.1-0.5 kilograms of manganese are thrown into the atmosphere. Although these compounds are small in size, they contain arsenic compounds, phosphorus, rust, lead, mercury vapors, hydrogen cyanide. Modern steelmaking plants have coal coking blocks. Chemical-recovery production pollutes the air with dust and volatile compounds. One ton of coke will produce 300-320 cubic meters of coke gas, which contains 50-63 percent hydrogen, 20-34 percent methane, 5-4.7 percent carbon monoxide, 1.6-4 percent carbon dioxide, 5-10 percent nitrogen, 2 to 2.6 percent carbohydrates and other substances. Non-ferrous metallurgy plants are exposed to toxic dusty substances - arsenic and lead to the atmosphere. All of these are also harmful to human organisms.

There are many such kind of examples. Therefore, a number of activities on the protection of the atmosphere are currently being implemented. The introduction of gas turbine engines, neutralization of combustion gases, the development of engines, switching to electric vehicles (electro mobiles) and others. Along with such events, taking into account that the number of sunny days in our country exceeds 280-300 a year, the potential for solar energy is high. Additionally, the average annual solar energy of 1m² per surface is 546x10⁷ hp, which is equivalent to about 300 kg of coal. The sun's

radiation per hectare is equivalent to two tons of coal. So, scientists have also made a number of researches on the use of vehicles in the future due to solar energy [11].

Another important aspect of solar energy in the environment is that, thanks to the process of photosynthesis, plants receive carbon dioxide gas from the air and develop the oxygen required for the human body. A person spends 10,000 liters of air a day from the lungs, and more than a ton of oxygen per ear. For example, during a warm, sunny day, a hectare forest absorbs 220-280 kilograms of carbon dioxide from the air and produces 180-220 kilograms of oxygen. In addition, dust accumulates in the leaves of one hectare of trees, which keeps up to 100 tons of dust throughout the ear (counted in dusty periods).

2. Materials and Methods

Also, the usage of special filters for the reduction of toxic gases and particles from metallurgical plants, and in the future, application of solar panels in this area will serve to prevent air pollution contamination. Organic fuels are not only used for power generation but also for vehicles such as locomotives, overheads, aircraft, cars, tractors, metal melting, steam, house heating, food industry, and other industries [16-17].

In sum, taking into account the above, the experience of developed countries in this area will help to improve the effectiveness of the efforts to ensure environmental cleanliness.

Mankind is using the solar energy since the sun has existed on Earth. For 5,000 ears now, people look to the Sun for the main source of energy, light, heat, food and life. Modern technologies allow to produce electricity and heat from solar energy. According to the data, in 2003, the largest solar collectors in the world reached a total area of 10 million square miles in the United States, and 8.0 million square meters in Japan [12]. Exemplary work is also being undertaken in European countries. We know that the Sun, the nearest star, our planet cannot exist without it. People use the solar energy in their everyday life without ever thinking about it. For example, if people dry wet clothes in the yard, people use the heat from the sun. Uzbekistan has great potential for using solar energy [6]. The climatic conditions of our country are very comfortable for solar energy. According to the specialists of the "Physics and Solar" institute, the amount of solar energy in the territory of Uzbekistan, in average, is four times more than the energy of other sources in the country. Total capacity of solar energy is 51 billion tons, technical capacity - 177 million tons. Experts believe that the use of solar energy will help to solve the problems of supplying the population with electricity, accelerated development of a number of remote areas of the country. At the same time, Uzbekistan has raw materials for crystal silicon production. It produces 90 percent photoelectric modules worldwide. Silicon mines are located in Djizak and Samarkand regions. This resource base will provide an opportunity for the core manufacturing of solar

power industry [18].

The issue of prospects for the development of solar energy is not a novelty for Uzbekistan. The first research on solar energy began in the 1970s. In spite of a number of achievements, technology at that time did not allow the desired effectiveness. Because of low electricity and energy prices, solar energy is not needed. After 1991, a number of laws, regulations, development programs and other official documents on the priorities of development of this sector of energy were adopted. However, insufficient attention was paid to the identification and use of resources and capacities for the introduction of solar energy, and the creation of administrative and economic mechanisms to encourage private sector.

There is no serious need for energy resources because Uzbekistan has large natural gas reserves. The country also has developed energy infrastructure, electricity and gas sources have been delivered to almost all localities. People and businesses are still energizing with low prices. The low cost of energy is one of the key priorities of the government's energy policy. But these priorities are costly. The use of solar energy at a time when global energy prices are rising, it can increase the energy consumption structure. Solar and gas can serve as a basis for the development of decentralized solar energy and can address the quality and reliability of investment in energy infrastructure. Solar energy is very convenient in energy supply to remote and low-energy sites. Solar energy development is very beneficial for Uzbekistan as it conserves natural gas consumption or allocates additional resources for export (80-85% of domestic energy consumption is currently being satisfied). Currently, about 60% of natural gas is delivered to our consumers and SJSC Uzbekenergo.

3. Discussion

The export price of Uzbek natural gas is 200-230\$ per 1,000 cubic meters as of October 1, 2011. At our market this price is 57.1-45.9 US Dollars (99.60 sums per wholesale price and 79.90 Sums per population). If Uzbekistan's solar energy develops and reduces domestic demand for gas by at least 1% (or 650 million m³), our country annually supplies about 130-149.5 million cubic meters of gas and earnings around \$ 1,000. This income can be spent on the development of solar energy. For example, it may be of interest to the development of solar energy due to the development of helio-system conveniences through grants, subsidies and preferential loans.

If the export price for natural gas increases, Uzbekistan can shorten its long-term policy in the energy sector by expanding its gas utilization in the country by expanding its use of solar energy. In this regard, pointed targets are required, for example, to continually alter the gas production volume by decreasing 0.1-0.2 percent over a given period of time. At the same time, much is spent today to provide the population with a centralized heating system and subsidize hot water prices. However, these subsidies are used to

produce hot water in multi-storey home appliance where the same result is given. The results of a series of demonstration projects implemented by Tashkent heat supply companies show that the cost of 1 kW of electricity, combined with solar centralized water heaters and combustion of hydrocarbon fuel in boilers [5].

The liberation of legal entities from import customs duties and VAT (NDS) will significantly reduce the cost of imported solar system equipment for water heating and electricity production and will make them cheap for consumer. For example, today the imported South Korea 500-1000 W (Watt) helio equipment's are offered at a price of 1500-2500 USD. If the mentioned benefits are included, the price will be reduced to 700\$. This reduces the sales life of the equipment and increases the investment climate of solar energy.

Looking at the geography of the solar energy development, it usually sees that developed countries have achieved great success. Because of the technological opportunities available there are a number of important conditions. This is primarily due to the high prices for electricity and energy, and secondly, the high cost of connecting to centralized power supply systems, particularly the low infrastructure, the third, the ability to pay for the use of solar energy in enterprises and households. Specifically, such countries include Japan, Germany (the largest in the world market), China, India, Turkey and other countries. In these countries, conventional energy constraints encourage renewable energy development. But in these countries, the creation and expansion of the solar power market is solved only by the government's active intervention. In addition to investments in research and development, between renewable energy sources and renewable energy are covered by state [9].

4. Result

Solar energy depends on, first of all, the fact that this energy is considered as a strategic priority or a resource for energy conservation [10]. It is difficult to say that the most important energy resources in Uzbekistan are the strategic priorities. But in the next five to ten ears, solar energy can be energy and conserving energy resources, such as renewable energy, as a way of exporting hydrocarbons as a raw material for export and other industries. When the cost of exporting Uzbek natural gas increases, solar alternative is very useful. In implementing it, Uzbekistan needs to integrate economic incentives and administrative mechanisms, such as other countries. The world experience of the development of solar and other types of non-traditional energy shows that this policy should be complex, step-by-step and consistent. Its ultimate goal is to make solar power market accessible and gradually expand this market [1].

The following project will provide hot water supply for the ear.

Proposed project for the development of solar energy:

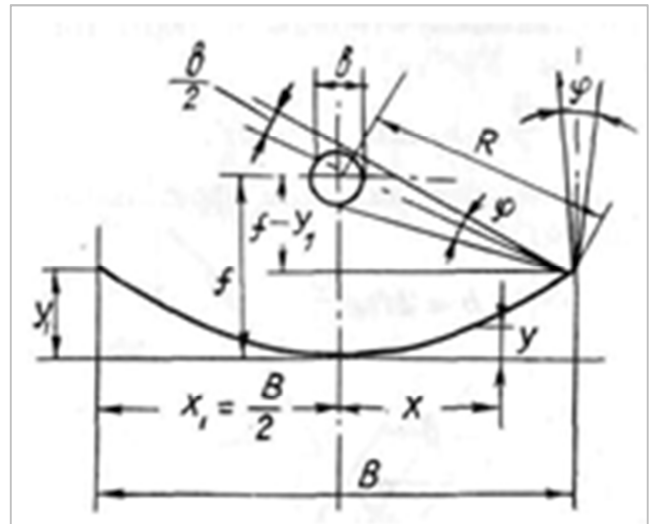


Figure 1. The scheme of the paraboloid cylinder concentrator receiver cylinder.

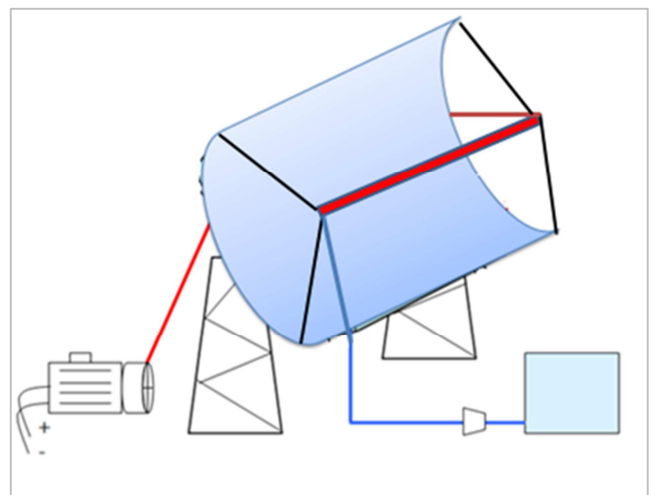


Figure 2. General scheme of paraboloid cylinder concentrator.



Figure 3. Harmony is a volumetric concentrate produced by Physics.

At present, much attention is paid to the use of solar energy. Solar energy, in addition to traditional energy, is ecologically clean while changing.

The rarity and the rising cost of fuel is one of the main problems of the scientific technique, which is the acquisition of infinite resources of solar energy. Further research and experiments on the use of solar energy, as well as the use of solar power plants in a number of countries, shows that solar energy can be widely used today based on modern technical capacities [13].

All the energy produced on our planet will be converted to heat energy and the resulting heat will rise to the air temperature. There is a problem of "air pollution" on the planet's surface in front of humanity. Solar energy to the Earth does not affect the planet's heat balance, so it is a "clean" energy.

The use of solar energy plays a key role in the development of the national economy in many regions of the Commonwealth of Independent States (Ukraine, South Caucasus, North Caucasus, Transcaucasia, Povolzh, Kazakhstan and Central Asian republics) and significantly reduces fuel and pollution in countries [2].

Solar energy into heat energy, heating buildings in the southern regions of the CIS; hot water supply, air conditioning, and drying of agricultural products save 15 ... 20 million tons of conditional fuel a year.

In this regard, significant benefits can be achieved only when solar energy is used to heat large consumers. For example, light, food and chemical industries require temperatures below 300 ° C. Solar energy can be widely used to achieve this [7].

5. Conclusion

At the present time, certain achievements have been achieved in the creation and introduction of solar cells, but they have not been widely used so far because the cost of the equipment is high. Therefore, one of the key issues is to build solar panels that are economical and practical in their application. This requires the development of existing devices and the research of modern variants of various constructive schemes [14].

In the agricultural sector, cheap solar energy, heating for livestock farms, cooking and other problems can be solved.

In country, the main problems with the use of solar energy in solar panels - solar collectors, solar panels and other equipment are not produced. Particular attention will be paid to the effective use of solar energy, the technical and technological characteristics of solar disturbances, and the determination of light intensities of the solar collectors.

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