Выполните реферирование текста

Text 1

SOLAR ENERGY

Solar cells convert solar rays directly into electricity. Non-polluting photovoltaic cells use no fuel, mechanical turbine, or generator to produce electric current, and solar energy is renewable, clean, and abundant. The solar power industry has enjoyed double-digit growth in recent years, but solar energy has historically suffered from inexpensive oil, which has been cheap and easy to produce. As air pollution worsens and global petroleum supplies get squeezed tighter in the future, the world's energy providers will look to the Sun for a clean, renewable, and decentralized energy source.

Every day, the surface of planet Earth is blasted with so much solar energy that, if harnessed, 60 seconds' worth could power the world's total energy requirements for one year. The Sun is a colossal fusion reactor that has been burning for more than 4 billion years. By some estimates, the amount of solar radiation striking the earth every 72 hours is equivalent to all the energy stored in the planet's coal, oil, and natural gas reserves.

Solar radiation is a free and unlimited natural resource, yet converting it into an energy source is a relatively new idea. Using solar power for heat seems simple enough today, but it wasn't until 1767 that Swiss scientist Horace de Saussure built the first thermal solar collector. He used his solar collector to heat water and cook food. It wasn't until 1891 that the first commercial patent for a solar water heater was awarded to US inventor Clarence Kemp. The patent rights to this system were later purchased by two California executives who, by 1897, had installed the solar-powered water heaters in one-third of the homes in Pasadena, California.

Solar energy has great potential for providing clean and unlimited electricity in many regions of the world. This renewable resource has largely been ignored by

many US energy providers because there has been little economic motivation due to the abundance of cheap coal and oil. Corporate shareholders want their profits today, not sometime in the distant future. In the last few decades, however, global energy demand has surged, as have the environmental problems associated with burning coal and oil and the storage of nuclear-generated radioactive waste. In the late 1990s, more governments, utilities, and corporations were embracing renewable energy sources as environmentalists, consumers, and voters pressure them to do so. More importantly, many consumers are willing to pay for "green energy," so suppliers see future profit in non-polluting renewable energy production. Some governments and energy suppliers have been slow to recognize the potential of solar power. Historically, research and development in photovoltaics has progressed erratically, in short-lived bursts of interest. For example, the US Department of Energy (DOE) funded the installation and testing of over 3,000 PV cell systems during the 1973-1974 oil embargo. By the late 1970s, energy companies and government agencies were investing in the PV industry, and an acceleration in module development took place. But solar power remained far behind oil, coal, nuclear, and other non-renewable energy sources. Serious interest in photovoltaics increased again during the 1990s after several military conflicts in the oil-rich Persian Gulf.

There are advantages to photovoltaic solar power that make it one of the most promising renewable energy sources. The system is non-polluting, has no moving parts to break down, and requires little maintenance and no supervision. The average unit produces energy for 20–30 years with low operating costs. Solar energy systems are especially unique because they require no extra construction or developed land area, and function safely and quietly. Remote or underdeveloped communities can produce their own supply of electricity by constructing as small or as large a system as needed. When communities grow, more solar energy capacity can then be added as necessary.

There are only two primary disadvantages to using solar power: a limited amount of sunlight and the cost of equipment. The value of sunlight a location receives varies greatly depending upon geographical location, time of day, season, and average cloud cover. The southwestern United States is one of the world's best areas for persistent sunshine. Globally, other areas receiving very high solar intensities include developing nations in Asia, Africa, and Latin America. Although solar energy technologies have made impressive cost improvements over the years, solar energy is currently still more expensive than traditional fossil fuel sources. However, solar energy is renewable and non-polluting, and the equipment will eventually pay for itself in 2 to 5 years, depending on how much Sun a particular location receives. Then the user will have a virtually free energy source until the end of the equipment's working life. Future improvements are projected to decrease the payback time down to 1–3 years.

As the price of solar-generated electricity decreases and as the environmental and dollar costs of petroleum increases, photovoltaics will expand its international market. Solar power will be an excellent energy option, long after Hydrocarbon Man fades away into the sunset. Clean, renewable photovoltaic-generated power enjoys obvious advantages when compared to coal, oil, natural gas, or nuclear power.

Exercise 1

Выполните перевод текста на русский язык

Exercise 2

Переведите выражения на русский язык

non-polluting photovoltaic cells

turbine

abundant

double-digit growth

purchase

due to

abundance

nuclear-generated radioactive waste

voters pressure

photovoltaic

erratically

burst

supervision

underdeveloped communities

persistent sunshine

Exercise 3

Переведите выражения на английский язык

солнечные батареи

колоссальный термоядерный реактор

неограниченный природный ресурс

корпоративные акционеры

коммунальные услуги

функционировать безопасно и спокойно

исчезнуть

Exercise 4

Составьте план текста

Exercise 5

Выполните реферирование текста