

The batteries and controllers are not needed in a system that works on the supply of energy in a general network. Only a main inverter is required. As well as any technical device, a solar battery has the operating and technical characteristics.

With a solar cell area of about two square meters, the power of the module is about 10 W. Tension at the maximum load is about 25 V. Current of short circuit makes about 500 mA. Such a module weighs about 2 kg. The approximate efficiency of the solar battery ranges from 14 to 18%. Such plate serves not less than 25 years.

Despite its low efficiency, a solar cell is the most efficient source of electric among alternative and autonomous energy sources. Due to the high cost of the solar battery, depending on weather conditions, they are positioned not as a main, but as an additional source of energy. It is predefined by two reasons: by the high enough cost of solar batteries, and comparatively small exit of energy from unit of area.

On a clear sunny day, you can get a maximum of 70 W per square meter of solar cell area. It isn't enough for operation of the computer.

Therefore, solar cells are combined in mini-power plants for more power. You can get more than 1 kW of energy from a solar cell of 10 sq. m. This can ensure functioning of a computer, TV, several light bulbs. For a house in which 3-4 people live (required power is 300-400 kW per month) in the daytime and the warm season, there will be enough solar cells with an area of 25 sq.m.

Solar battery will be inefficient in winter. There are many advantages: long service life, independence from technical malfunctions of the power generating organization, there is no need to maintain it all the time, free energy itself.

Unfortunately, there are several convincing and specific shortcomings: high cost and therefore a long payback period, dependence on weather conditions, low efficiency, inability to use for high-power devices.

Due to the fact that hydrocarbon reserves on Earth are limited, this prompts us to look for new ways to solve the problem of energy supply. There are ample opportunities to use solar installations for private farm, especially in rural areas. Expanding the scale of application of solar installations not only provides significant energy savings, but also allows to improve the environmental situation.

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ALTERNATIVE FUEL FROM AGRICULTURAL WASTES

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Agriculture is the largest contributor of any resource sector of the country. It is also a large generator of waste materials. Agricultural waste recycling is a growing business, as more and more farms and companies turn to alternate ways to process waste products instead of sending them to landfill. Production of alternative fuel from agricultural wastes is a new perspective direction for investing. This happens because of rising prices for hydrocarbon fuels and the exhaustion of its world reserves.

Previously, people use raw biomass like wood chips for heating and burning. But other biomasses like sawdust, straw, sunflower husk, corn waste, stalk, etc. are not suitable for direct use, and they often have large size which makes storage or transportation costs much higher [2]. In addition, the direct use of wood chips can sometimes not be fully combusted. In consequence, biomass pellet mill and biomass briquette machine are invented to make biomass into regular shape solid fuel which is easy to use, convenient to transport and store, and has a higher calorific value (heat value).

Unlike most traditional fuels, pellets and briquettes do not harm the environment. These extruded materials are convenient in storage, high in calories and have little ash in comparison with conventional firewood. In addition, high density eliminates moisture accumulation and prevents material from rotting. Different from fossil fuels, biomass fuels are renewable. It generally refers to the plants. Some biomasses like grass or crops are planted every year, others like tree can grow every tens of years, so we can say biomass fuels are renewable.

Wood pellets are made from dry sawdust compressed under high pressure and extruded through a die. They may include a low level of added binder, such as starch, but many use nothing other than steam. They come in a range of sizes: for domestic and relatively small scale systems 6 or 8 mm is typical, while for larger systems 10 or 12 mm are common. Biomass pellets are usually utilized in home pellet stove, central heating boiler, industrial boiler, or in power plants to replace coal. [3]

Briquettes are similar to wood pellets, but physically larger. Sizes vary but briquettes can vary in diameter from around 50 mm to 100 mm. They can offer a cleaner, more consistent alternative to firewood logs, offering higher energy density and steady combustion. They are primarily for industrial use for heating. The briquettes made by screw briquette press can also be made into charcoal briquettes for BBQ because of their light weight and regular shape. They are more durable to combust and easy to transport and store.

Main advantages of fuel briquettes and pellets.

- increased (4-6 hours) burning time compared to a conventional coal and wood;
- absence of impurities, minimum ash content;
- do not crush and whirl dust during transportation;
- convenient packaging and size are the advantage when stored in cramped conditions, stores, restaurants, cafes, etc.
- heating value is on a par with the natural gas.

The effectiveness of using alternative fuels from agricultural wastes: creation of environmentally friendly, non-waste production; decrease of the cost of products; cost-effective use of plant wastes; saving of the budget funds which are allocated for purchase of fuel for municipal boiler-houses; small business development; creating new jobs in the countryside.

So, we can say, that briquettes and pellets are the universal means of heating of both industrial facilities and social facilities. They can be used for heating production facilities, small and medium areas of social and domestic purposes (office buildings, schools, hospitals), for household needs. Fuel briquettes and pellets are a more high-tech fuel comparing to conventional coal and firewood, they do not include any harmful substances, including adhesives and, therefore, the burning process eliminates negative points such as smoke, sparks and smell. It provides exceptional environmental safety when used in industrial applications and at home furnaces, fireplaces, all types of furnaces for heating tents, greenhouses, etc.

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WHY DO CURRENCY BLACK MARKETS EXIST?

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The currency black market means the parallel market of exchanging foreign currency, which is illicit all over the world. Some current operations run outside legal channels of banks thus the black market of currency generates the underground economy. A common thing for a currency black market are cash transactions because each participant would be evidently reluctant to detect any facts of their involvement in illegal operations.

The purpose is to research why do Currency Black Markets exist. Why is it still deserved to use an adverse black market rate to convert dollars?

Currency fluctuations are a natural outcome of the floating exchange rate system that is the norm for most major economies. The exchange rate of one currency versus the other is influenced by numerous fundamental and technical factors. These include relative supply and demand of the two currencies, economic performance, outlook for inflation, interest rate differentials, capital flows, technical support, resistance levels, and so on. As these factors are generally in a state of perpetual flux, currency values fluctuate from one moment to the next [2].

But although a currency's level is largely supposed to be determined by the underlying economy, the tables are often turned, as huge movements in a currency can dictate the overall economy's fortunes – a currency tail wagging the economic dog [2].

A black market is a transaction where goods or services are exchanged illegally. What makes the market “black” can either be the illegal nature of the goods and services themselves, the illegal nature of the transaction or both [3].

For example, while the buying and selling of food is not illegal, the transaction enters the black market when the good sold is illegal, such as foie gras in California. And while it's perfectly legal to sell hamburgers, when an all-cash restaurant does not remit to the state government the mandatory sales taxes on its transactions, it too has entered the black market [3].

Black markets, also called shadow markets, come about when people want to exchange goods or services that are prohibited by governments. Black markets skew economic data, as transactions are unrecorded. Black markets also arise when people don't want to pay taxes on the transaction for legal or illegal goods or services. Some black markets exist simply because people don't realize there are laws they aren't following, such as bartering and not reporting the taxable value of the transaction, or hiring a regular housekeeper or babysitter, but failing to pay employment taxes [3]. Currency black markets typically spring up in countries that have the following characteristics in common:

Weak economic fundamentals, such as a high rate of inflation and limited foreign exchange reserves.

Strict currency controls that limit the amount of foreign currency available to residents.

A fixed exchange rate regime where the domestic currency is pegged at an unrealistically high exchange rate to the U.S. dollar or another global currency.

A lack of confidence among the citizenry in the value of the domestic currency [1].

Because of unstable situation in Ukraine, the black trading market of dollars was hit hard by growth. His main advantage is the rapid purchase of the required amount in the currency. Despite the fact that the dollar on the black market in Ukraine is slightly higher than the bank, the purchase of foreign currency from the hands of all the same enjoys an impressive demand from Ukrainians. The reason for this is: