Based on Authentication objects of the study (typically suschestvuyuschyh kopateley and cleaner heap korneplodov) opredelenы Basic Principles path and development, Or building a constructive algorithm-komponovochnoy scheme adaptyrovannoy korneuborochnые machine.

Woroch, korneplodы, impurities, transport and technological system Combined laboring body kopatel, cleaner, adaptyrovana korneuborochnaya machine.

The stages of improvement, structure and principle of functioning of adapted workings organs of diggings up and cleansing transport technological systems, are resulted root of harvester which is intended for simultaneous collection of root crops of sugar, feed, table beet and carrot. On basis of authentication of research (existent types of dig and purifiers to lots of root crops) objects certainly basic ways and principles of development, or algorithm of construction, structurally layout chart adapted root of harvester.

Lots, root crops, admixtures, transport-technological system, combined working organ, dig, purifier, adapted root harvester.

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FEASIBILITY OF BIOFUEL In agriculture UKRAINE

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Analyzed the feasibility of renewable energy in agriculture in terms of Ukraine's energy dependence on fossil energy sources and perspectives of the energy strategy States until 2030.

Biomass, biofuels, energy efficiency, alternative energy, renewable energy.

Problem. Incessant technological progress requires people more resources to meet the rapidly growing problem. We live in a time when energy, such as their source is probably the most problematic issue for developed countries because their budget should be calculated according to the prices of oil and gas. This in turn leads to international

conflicts, tensions and global economic conditions is a significant threat to humanity through man-made hazards.

Current trends in world prices for fossil energy resources raised relevance of energy supplies and use them effectively. The successful reform of the agricultural sector of Ukraine needs of a policy on a broad introduction enerhozaoschadzhuyuvalnyh technology, organizational and technical measures that increase the efficiency of energy resources. Active use of bioenergy resources could be one of the key solutions to strengthen energy security of Ukraine and keep the leading position in the global market as a supplier of agricultural products.

Analysis of recent research. In modern terms biomass is the fourth use of energy resources worldwide, which makes about 2 billion. Tce energy per year, representing about 14% of total primary energy consumption in the world. Each year on Earth formed about 120 billion. Tons of dry organic matter - biomass [1].

The potential of biomass, which is today Ukraine for energy production - about 30 million tons of fuel per year. Use of this capacity will allow Ukraine to 2020 to replace the 6 billion. M3 / year of natural gas and reduce greenhouse gas emissions by 11 million. T CO2 eq. / Yr. The fate of biomass and waste in the total consumption of primary energy in 2030 could reach 10%, and today it is about 1% [2].

Total annual energy consumption in Ukraine is about 200 million. Tons of fuel. Thus from its own sources provided 45% and by imports - 55%. One way to reduce dependence on imported energy and improve the environment in Ukraine is the development of bioenergy [3].

The purpose of research. Determining the feasibility of renewable energy (biofuels) in terms of agriculture Ukraine.

Results. Environmental protection, natural resource management, environmental safety of human life - an essential condition for sustainable economic and social development of Ukraine.

Modern energy emitting a significant amount of emissions of CO2, methane (CH4), sulfur oxides (SOx), nitrogen oxides (NOx) and volatile organic compounds.

The main suppliers of CO2 in Earth's atmosphere are - China with 28% of total emissions, the US (16%), EU (11%) and India (7%). Carbon dioxide emissions for 2012 reached a record 35.6 billion tons, surpassing the record of 2010 to 2.2 billion tons of emissions due to the growth in India and China, according to the magazine Nature Climate Change.

During 2012. the atmosphere Ukraine received 6.8 million tons of pollutants from stationary and mobile sources. In the total amount of pollutants emissions of methane and nitrous oxide, which are greenhouse gases amounted to 894.9 thousand tons and 14.6 In

addition to these substances in the atmosphere in 2012. stationary and mobile sources were emitted 232.0 million tonnes of carbon dioxide, which also contributes to climate change.

In Ukraine last year per 1 person released into the atmosphere 150 kg of pollutants 5.1 tons of carbon dioxide, which refers to the greenhouse gas emissions dropped 33 m3 of contaminated wastewaters, formed 9.9 tons of waste, including 30 0 kg of waste-III hazard classes.

About 64% of hazardous substances that were in the air, fell on stationary sources of industrial pollution. They got into the atmosphere of 4.3 million tons of pollutants to 39.3 thousand tons (0.9%) less than in 2011.

Fig. 1.Structure of emissions of air pollutants from stationary sources in 2012.

During 2012. in Ukraine formed 450.7 million tons of waste, which is 0.7% more than in 2011., including the economic activity of enterprises and organizations that have received permits for waste - 442.7 million tons (0.1% increase) in households - 8.0 million tons (53.9% increase). Mineral waste remains dominant in the structure of waste materials by category - 73% of the total waste generated (Fig. 2).

In comparison with 2011. increased the total amount of waste incineration (15.3%), while there was a significant increase in waste incineration for power (35.3%) and reducing waste incineration for their thermal processing (47.6%).

The vast majority of burned waste (70%) - vegetable waste from agriculture and forestry, waste food, pulp and paper.

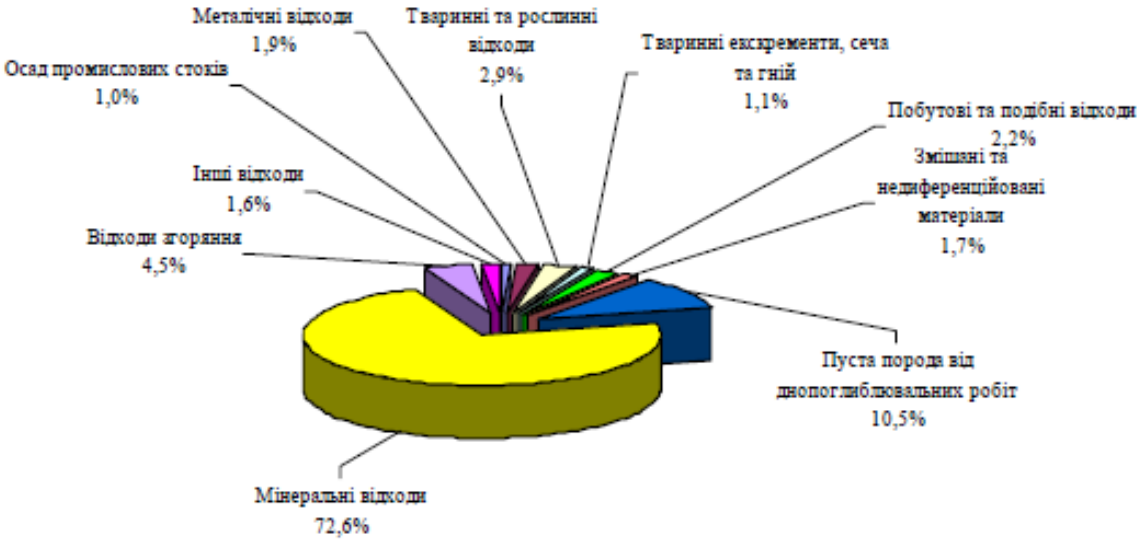

Fig. 2.Average amount of waste in 2012 by category of materials.

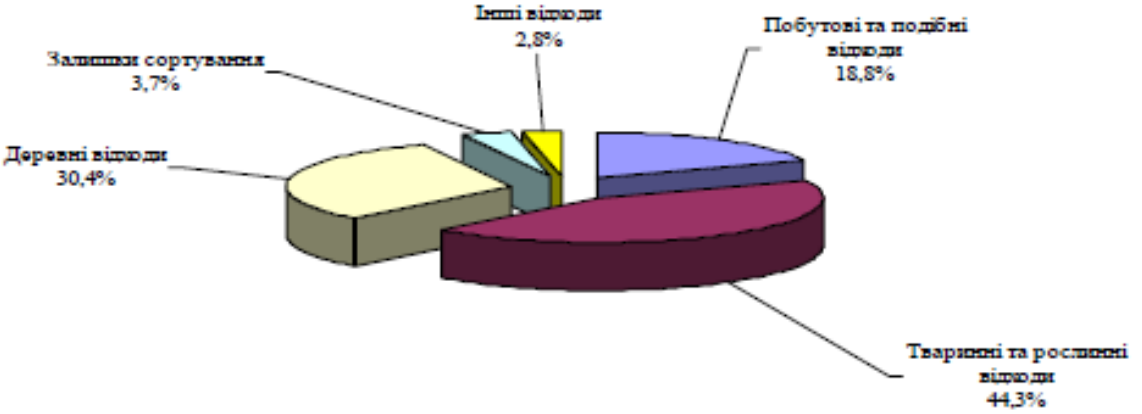

Fig. 3. Average amount of waste incineration in 2012 by category of materials.

In recalculation on dry mass formation of biological materials in the biosphere goes at about 2,5 × 1011tonn a year, with annual chemically binds approximately 1011 tons of carbon consumption and solar power is 2 × 1021 J / year (7 × 1013Vt) . Clean energy density, which can be obtained by burning ranges from 10 MJ / kg (raw wood) to 40 MJ / kg (fat, oil-like substance) and 55 MJ / kg of methane. The heat of combustion of dry biomass, which is essentially carbohydrates is about 20 MJ / kg.

During the combustion of biofuel energy dissipated, but the products of combustion are again converted into biofuel by natural ecological or agricultural processes. Thus, the use of industrial biofuels, as well tallies with natural ecological cycles can give no pollution and ensure continuous process energy. Such systems are called agroindustrial. Scheme planetary cycle of biomass are shown in Fig. 4.

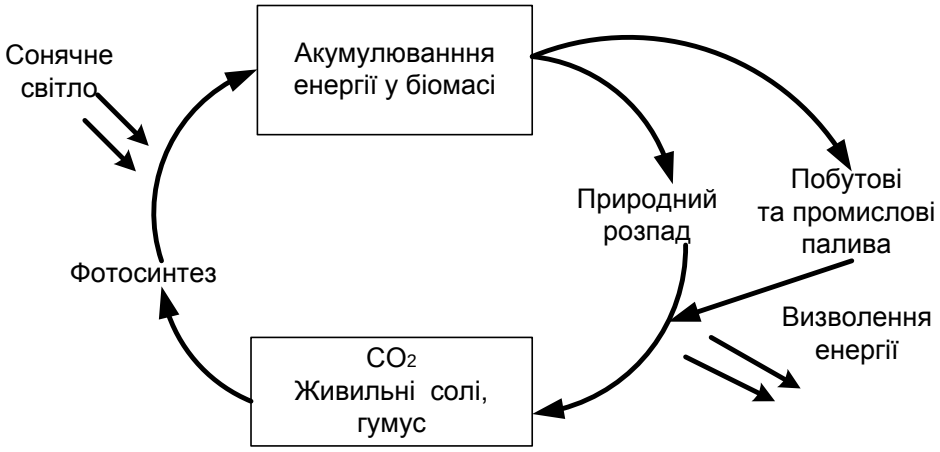

Fig. 4. Scheme planetary cycle biomass.

Based on the above and from the need of energy and environmental security in Ukraine, according to a new energy strategy up to 2030 will be used only 4% renewable energy. Instead, the EU 2020 renewable must be at least 20% of energy.

New energy development strategy developed for the period until 2030 is to reduce the share of consumption of gas and oil in power plants and the priority development of coal and nuclear power. An important role in this document is assigned to hydropower development, alternative energy sources and CMM. An integral part of the new concept is also energy-saving and resource-saving technologies. It is believed that the use of bioenergy plants for processing animal waste will significantly improve the ecological state near large livestock farms, which collected a huge amount nepererobnoyi biomass. In addition, you can expect to receive high quality organic fertilizer and biogas production by secured savings of traditional fuels. Especially useful are exploring the possibilities of application in agriculture and agribusiness in general non-traditional and alternative sources of energy as available sources such as Ukraine is, and their use is still minimal.

Agriculture is one of the most important branches of material production, which, according to preliminary estimates, in 2012. was set to 7.9% of gross value added of all economic sectors (for 2011. - 8.5%), and agricultural output was 258.3 billion. (At current prices).

Industrial use of biomass in agricultural production can be very significant. The use of biofuels as wood, dung and foliage plants is of paramount importance in both domestic approximately 50% of the population. But to consider biomass as a renewable energy source, it is necessary to ensure the production of at least the same level of consumption. For mankind terrible that currently fuelwood consumption is far ahead of his play.

It should be noted that Ukraine has the scientific and technical capacity and the necessary domestic technological base to build the entire production cycle industrial equipment components for the use of renewable energy sources (RES). But it takes time to prepare their production at Ukrainian plants.

Today it is possible to reduce the consumption of natural gas, which is an actual problem Ukraine energy by replacing traditional fuel energy agricultural waste and landfills, which is one of the most promising renewable energy sources in the country.

Ukraine has considerable potential of biomass available for energy production - about 31 million tons. / Year. The main components are potential agricultural waste, wood and, potentially, energy crops. Realization of this potential in the first phase by 2020 could lead to the replacement of 7 million. Tce / year of fossil fuels (equivalent volume of 6 billion. M3 / year of natural gas) and reduce greenhouse gas emissions by 11 million. Tons of CO2 eq. / yr.

Since wood and agricultural plant remains are of high environmental performance, because they contain little sulfur. The value obtained from their combustion energy is much lower than natural gas combustion (Table. 1).

1. Cost indices of biomass for energy production in Ukraine.

Type biomass	Density, kg / m3	Price, UAH.	The heat of combustion, MJ / kg	The cost of 1 GJ of heat USD.
Sawdust	225	10 USD / m3	17	2.6
Wood chips from waste	200	60 USD / m3	17	18
Energy willow	-	400 USD / m3	17	24
Pine wood	520	200 USD / m3	17	23
Wood oak	690	320 USD / m3	17	27
Wood Pellets	600	1200 USD / t	17	71
Straw heap	35	60 USD / t	14.5	4.14
Straw bales in	100	180 USD / t	14.5	12.4
Straw in bricks	400	900 USD / t	14.5	62
Husk sunflower	110-120	6 USD / t	15.4	0.4
Pellets from sunflower husk	600	1200 USD / t	15.4	78

In Ukraine agricultural sector uses approximately 1.9 million. Tons of diesel fuel and 620 thousand. Tons of gasoline, which are produced

mainly from imported oil. Substitute for mineral diesel fuel can vegetable oil and biodiesel.

To replace the furnace of fossil fuels in agriculture, used for heat in different stationary processes can be used biogas, briquettes and pellets from biomass, technical glycerin.

Pellets is pressed waste wood industry and agriculture: the bark, sawdust, shavings, husks, dead leaves, cake cones.

Given that the production of pellets is renewable raw material should seriously think about the potential benefits of this energy source. Because the cost of energy produced by the combustion of pellets and a half times less than that of gas, and three times less than the combustion of diesel fuel.

Ukraine is considered the area suitable for active development of biogas technology. Experts estimate Scientific and Technical Centre "Biomass", the country annually produce 52 million. Tons of manure, which can be obtained 2.207 billion. M3 of biogas. His energy potential is 1.59 million. Tons of fuel.

The real substitute for gasoline may be bioethanol feedstock which in Ukraine enough, grain and molasses. But the efficiency of biofuels is largely influenced by the cost of raw materials and complex use of processed products, and can greatly exceed the value of mineral motor fuel. Adds value alternative fuels derived from biomass transport is due to the high transportation costs.

In addition, the demand for energy sources will only grow to meet the growing needs of energy resources by 2030, according to the Energy Strategy of Ukraine, planned for the following conditions:

• reducing the energy intensity of GDP and increasing energy supply of the country;

• increase domestic production of coal, oil, gas and uranium;

• production of electricity in nuclear power plants on its own nuclear fuel;

• an increase in exports of petroleum products due to increased refining;

• implementation of energy efficiency programs in the fields of economy and social sphere;

• increased use of alternative and renewable energy sources;

• reducing energy dependence on foreign fuel supplies and increasing energy consumption of domestic products.

In prevylykyy unfortunately role of alternative and renewable energy sources in the consolidated energy sector given the state in last place.

This suggests that in the future given the energy sector Ukraine will develop only slightly compared to the EU member states. But we hope to

change policy on renewable energy and give it a "green" light for their development.

Conclusions

In Ukraine should urgently carry out restructuring of its industrial complex to optimize energy consumption and simultaneously minimize energy imports.

Renewable energy can be self-sufficient in terms of compensatory capacity of renewables in the energy system.

Ukraine has sufficiently developed science and technology and industrial base in all major areas of renewable energy, which, while ensuring appropriate state support, will create a new environmentally safe energy sector in the country.

The use of renewable energy in agriculture Ukraine will keep the leading position in the global market of agricultural products, energy products and reduce energy dependence on fossil fuels and will produce environmentally friendly products.

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Proanalyzyrovana tselesoobraznost Using vozobnovlyaemыh energy sources in ahropromыshlennom complex of Ukraine in terms эnerhetycheskoy dependence from yskopaemыh energy sources and prospects эnerhetycheskoy state Strategy to 2030 year.

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