

1. IRENA, Renewables Readiness Assessment: The Republic of Belarus [ ]. – 2021. – : www.irena.org. – : 2022. – 80 .
2. BELENERGO, Installed capacities of generating energy sources [ ]. – 2020. – : www.energo.by/ content/deyatelnost-obedineniya/osnovnye-pokazateli/h. – : 2022.
3. Ministry of economy, on development of renewable energy sources in the Republic of Belarus, [ ]. – 2018. – : www.windpower.by. – : 2022.
4. IEA, Clean energy technology assessment methodology pilot study. [ ]. – 2016. – : www.iea.org. – - : 2022.

## **FOOD WASTE AS A RENEWABLE ENERGY SOURCE**

Globally, most greenhouse gas (GHG) emissions come from the use of energy derived from fossil raw material, so in recent years more and more attention has been paid to the search for alternative energy sources that can worthy replace hydrocarbon fuels. Commercial aviation alone accounts for about 3% of total global carbon emissions. It is one of the main contributors to climate change and one of the sectors that is most difficult to move away from fossil fuels. However, the industry is actively seeking eco-friendly solutions in the form of clean jet fuel.

Renewable energy has offered great promise for energy production worldwide; however, cost and accessibility to the general population remains a problem. As one of the most popular clean energy sources using natural resources such as sunlight, wind, rain, tides, waves and heat, renewable energy accounted for only 13.7% of the world's total major energy consumption in 2016. As the demand for energy increases significantly year by year, it is clear that the search for other sources of clean energy has not even begun. In this regard, there is a

sustained interest in food waste and the possibility of using it as a renewable energy source.

Food waste (FW) is a renewable resource with enormous energy, chemical and material potential due to the presence of organic functional substances in it. Typically, conventional methods of handling FW include anaerobic digestion, composting, and animal feeding. In addition to these and products from FW, some studies have shown that it is possible to produce various biomaterials, bio-fuels, and bio-oil through various biological, thermal, and chemical transformations.

Determination of food waste destruction methods should be based on an understanding of the chemical structure of their components, which changes depending on the composition of food products and their formers. Not insignificantly, the composition of food waste (FW) is different in structure and physical properties of the components.

A new study suggests that we could reduce the carbon footprint of jet fuel by 165%, as well as reducing waste. In the course of this study, scientists suddenly discovered that food waste can serve as a raw material for creating jet fuel. Experiments have shown that the decomposition of food waste breaks down into components that are very similar in composition to the fuel used. This is a very good environmentally friendly alternative to the current options; it will greatly reduce carbon emissions due to motor vehicles.

The renewable energy sector is one of the most promising sectors of the economy. The search for alternatives to fossil fuels is dictated not only by economic problems, but also by concern for the future of our planet. An extremely efficient and environmentally friendly way of generating energy is its regeneration in modern waste incineration plants. During thermal recycling, energy is generated that can be used to heat homes or used in industry and agriculture.

An excellent example was set by France, which has set a goal to realize a 23% share of renewable energy by 2020. The county plans to use biomass to heat factories, buildings, and even entire cities.

The largest biomethane plant in Europe is located in the Spanish capital, Madrid. Built in 2009, the plant has expanded significantly over the past decade and, according to its latest report, is expected to reach 156,965 MW by 2030.

The United Kingdom is another example of a county using biogas to power millions of homes. According to a report published by the Anaerobic Digestion and Bioresources Association, UK anaerobic digestors produce enough biogas to feed more than 1 million households each year. In early 2019, the Scottish Government developed a new Food Waste Reduction Action Plan, which aims to encourage and ensure that farmers and landowners and homeowners with access to food processing facilities use them appropriately. If such structures are put in place, there will be an opportunity to build more anaerobic digestion fa-

cilities, especially near urban areas. The new action plan postulates that anaerobic digestion is now the most environmentally effective method of addressing food and energy shortages in Scotland.

Waste management is a global problem. Huge amounts of trash are dumped in landfills, and the energy they contain is irretrievably lost. One of the key issues in waste management is converting waste into energy in an environmentally friendly way. Waste-derived fuel of guaranteed quality and environmental friendliness can successfully replace fossil energy sources.

The principle of operation of this type of unit is simple - they receive properly sorted household waste, which is then burned at high temperature in a special furnace with an inclined combustion chamber. Such design of the device contributes to a better mixing of waste, and therefore - more effective disposal. Moreover, the innovative technology guarantees minimum gas emissions into the atmosphere and no unpleasant odors, and its "side effect" is the production of completely ecological energy.

In practice this means that the incinerator solves the problem of unnecessary waste that cannot be disposed of otherwise in an environmentally friendly way, does not cause unpleasant consequences for local residents and additionally produces "green energy" that can be used in the local grid, for heating homes or for powering industrial plants.

Based on the above, it can be argued that food waste is a very promising renewable energy source, and the development of the most appropriate methods of recycling determines the global environmental aspect and the relevance of the theme.

1. [Электронный ресурс]. – 2019. – : <https://energosmi.ru/archives/39180>. – : 21.08.2019.
2. [Электронный ресурс]. – 2021. – : <https://thecode.media/food-waste-power>. – : 05.04.2021.
3. / . . . , . . . : . . . , 2011. – 6 .
4. [Электронный ресурс]. – 2021. – : <https://zephyrnet.com/ru>. – : 22.03.2021.

5. [Электронный ресурс] .–2022.–  
 : <https://cyberleninka.ru/article/n/othody-pischevyh-proizvodstv>. – : 03.02.2022.
6. [ ]. –2021.– : <https://www.popsci.com/story/environment/food-waste-used-as-airplane-fuel/>. – : 16.03.2021.

## **ENERGY POLICY FOR EFFICIENT PRODUCTION**

Efficient use of energy is the achievement of an economically and socially justified reduction in the amount of use of energy resources for the creating of a unit of products or services at given levels of development of engineering and technology taking into account compliance with the necessary requirements for environmental protection [1].

For the efficient use of energy, enterprises producing this energy are trying to use renewable energy sources, because this reduces the cost of obtaining new raw materials, and also entails much less environmental pollution. Energy efficiency and renewable energy sources are two components of the energy policy of the twenty-first century. Many countries use energy efficient technologies in order to reduce the level of energy imports from abroad. It can also reduce the rate of consumption of domestic energy resources.

Thus, right now we can talk about the greatest relevance of energy policy, the task of which is to create environmentally friendly installations using renewable energy sources, as well as to develop and implement energy and resource saving measures [2].

Promotion of energy efficiency continues to progress, such as energy efficiency in buildings, even though it is mainly in the residential and public buildings sector. Need to expand the scale of energy efficiency improvements in industry and transport, taking into account the existing energy saving potential. Despite the fact that energy efficiency has been recognized as one of the most