GLOBAL BIOENERGY CAPACITY WORLDWIDE

Pozivni referat

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Abstract
Global climate change is one of the most significant environmental problems in the world today. The world depends on energy; therefore, we need resources that will be able to ensure the sustainable development of every society. Energy consumption represents the amount of energy consumed in all areas of life. The use of renewable energy sources has potential and a great perspective for the future. Biomass is considered as one of the important sources of renewable energy all over the world. Due to its global availability as a resource, biomass is currently the most important renewable resource in every country. Biomass has a huge potential for increased use and could replace a significant amount of fossil fuels.
Keywords: *renewable energy sources, potential of renewable energy sources in worldwide, bioenergy, bioenergy capacity.*

1. INTRODUCTION

Global warming and climate change have become a reality today. Global climate change, which is caused by the constant increase in the concentration of greenhouse gases in the atmosphere, is one of the most significant environmental problems in the world today. The reserves of non-renewable energy sources are constantly decreasing. Energy consumption represents the amount of energy used in all areas of life, such as electricity, heat, transport. Currently, energy consumption continues to increase. The energy crisis brought rising energy prices and pressure to reduce the impact of energy on the environment, so much attention is paid to the use of primary renewable energy sources. The world depends on energy, therefore we need resources that will be able to ensure the sustainable development of every society. In the global environment, the availability of biomass is the most important renewable resource that is used for the production of heat and electricity.

2. SHARE OF BIOENERGY IN TOTAL PRIMARY ENERGY SUPPLY WORLDWIDE

The use of renewable energy sources has potential and a great perspective for the future. Increasing energy prices and pressure to reduce the impact of energy on the environment, much attention is paid to the use of primary renewable energy sources. In connection with the decline of fossil fuels and the deterioration of the global atmosphere, biomass is coming back to the fore. Biomass has a huge potential for increased use and could replace a significant amount of fossil fuels.
Primary energy demand worldwide in 2022, with a forecast until 2045, by fuel type (in million barrels of oil equivalent per day) [1].

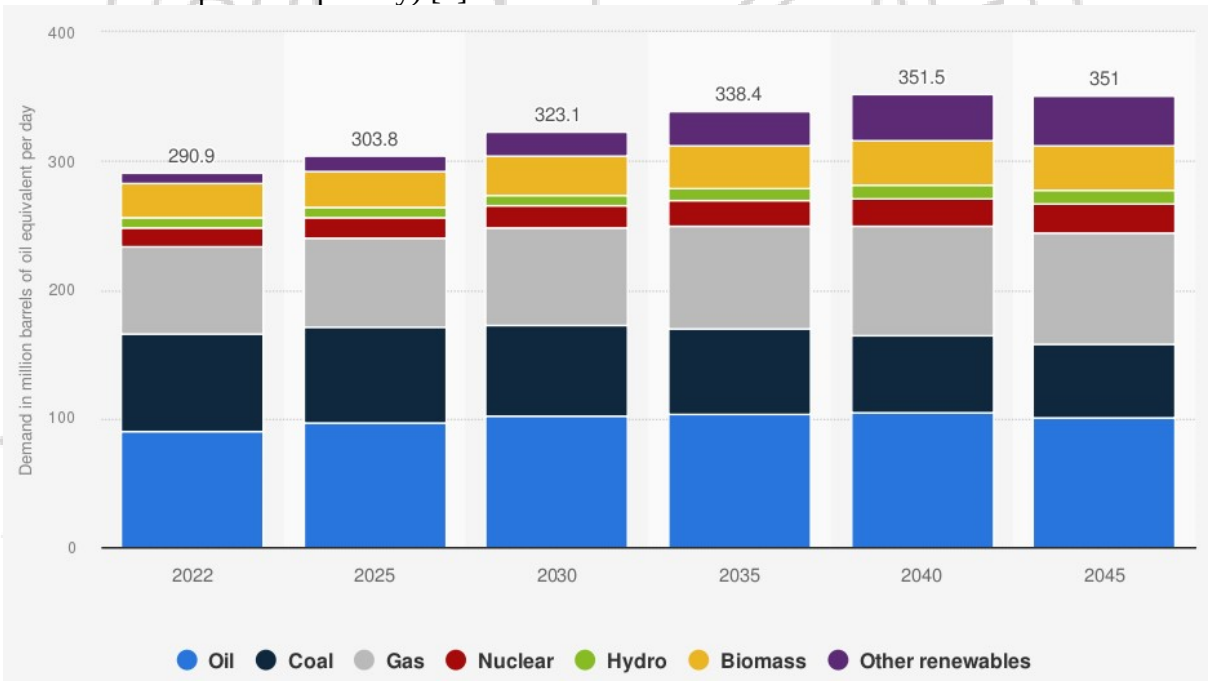

Figure 1. Worldwide forecast primary energy demand in 2022, to 2045, by sourc fuel type (in million barrels of oil equivalent per day) [1]

In the figure energy consumption in past years and future predictions to 2045 year in million barrels of equivalent oil per day. It can be seen that renewable sources of energy are increasing worldwide.

Biomass is considered as one of the important sources of renewable energy all over the world. It consists of materials of plant and animal origin, which are suitable for industrial and energy use, waste and secondary raw materials, which is created during the cultivation and processing of biological materials, but also the biodegradable part of municipal waste [2]. Wood is the most widespread biomass. The most common way of producing energy from biomass is combustion itself. This is a chemical process of rapid oxidation that releases heat. This is the reason why biomass is considered neutral in terms of carbon dioxide emissions [3]. The thermal energy obtained during this process is used for heating and water heating. Combustion of biomass is neutral in terms of greenhouse gases.

Advantages of using energy from biomass:

- When burning biomass, there is no formation of gases that cause the greenhouse effect, as when burning fossil fuels
- Wide availability/usability
- Cheap (low investment costs and energy prices)
- High energy potential
- Waste processing

Disadvantages of using energy from biomass:

- The dirtiest renewable resource (combustion)
- Depends on the geographical conditions and the harvest
- Lower efficiency in electricity production
- Higher fuel transportation costs, before processing
- They take up a lot of space

Bioenergy capacity worldwide from 2009 to 2022 (in megawatts)

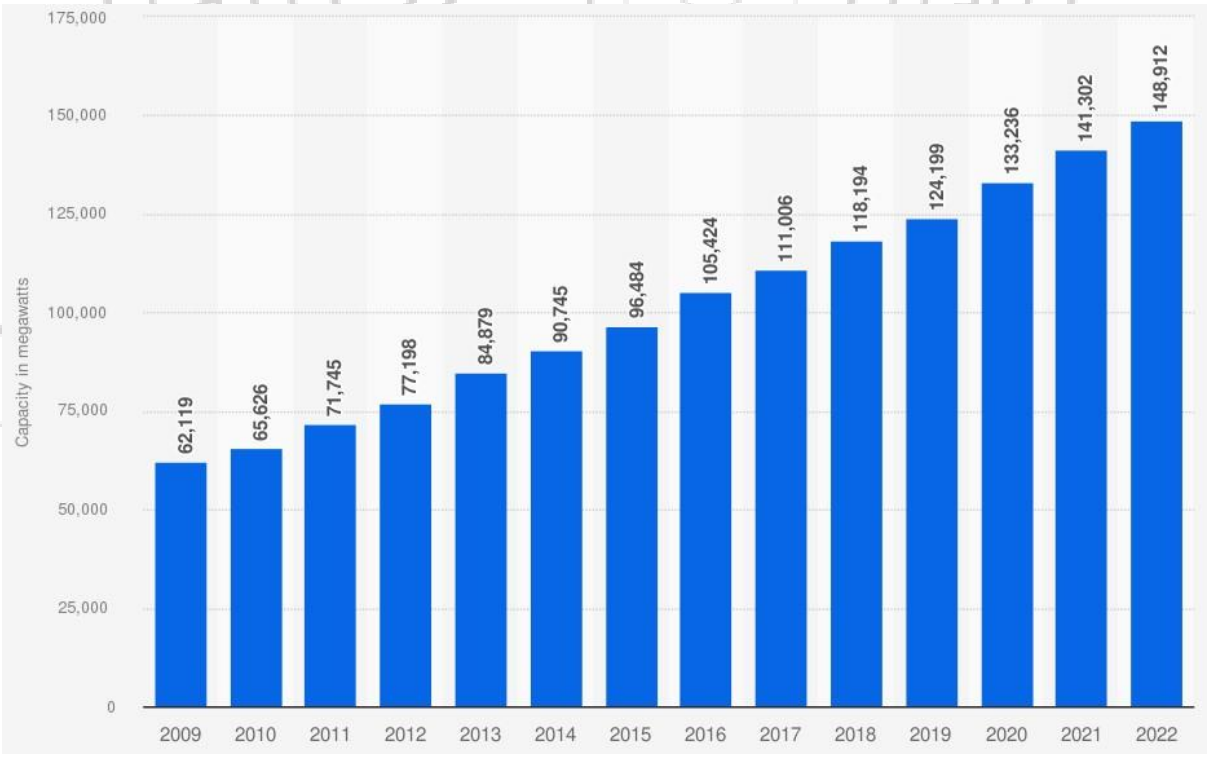

Figure 2. Bioenergy capacity worldwide from 2009 to 2022 (in megawatts) [4]

Over the years global reached biomass reached nearly 148.9 gigawatts and is going on increasing over years reached nearly 148.9 gigawatts reached worldwide. Bioenergy is energy derived from biological materials which are characterized as organic materials with stored chemical energy like wood and manure (Statista).

Leading countries in bioenergy capacity worldwide

Due to its global availability as a resource, biomass is currently the most important renewable resource in every country. The production of biomass as clean energy in the world is increasing every year, so many countries provide financial subsidies for development.

Leading countries in bioenergy capacity worldwide in 2022

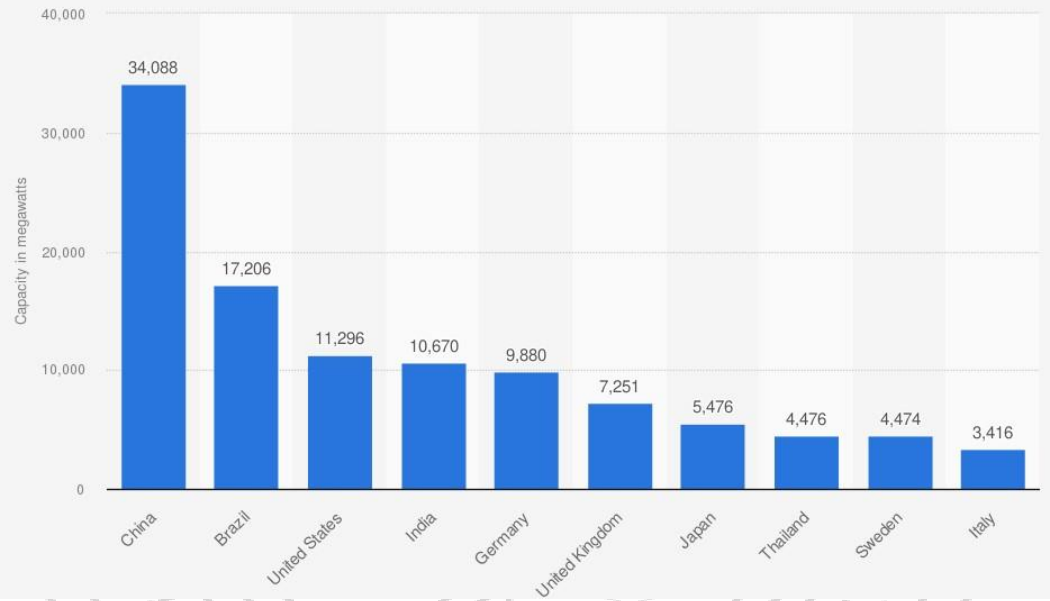

Figure 3. Leading countries in bioenergy capacity worldwide in 2022 [5]

In 2022, China was the country with the highest bioenergy production in the world, with nearly 34.1 gigawatts. Brazil ranked second, with a bioenergy capacity of 17.2 gigawatts. US are ranked thirdwith 11.296 gigawatts by comparison, Germany ranked fifth, with a capacity amounting to 9.9 gigawatts. And there are other EU countries Bioenergy is energy derived from biological materials which are characterized as organic materials with stored chemical energy like wood and manure (Statista).

3. SHARE OF BIOENERGY IN TOTAL PRIMARY ENERGY SUPPLY WORLDWIDE FROM 2015 TO 2050*

The use of renewable energy sources has potential and a great perspective for the future. Increasing energy prices and pressure to reduce the impact of energy on the environment, much attention is paid to the use of primary renewable energy sources. In connection with the decline of fossil fuels and the deterioration of the global atmosphere, biomass is coming back to the fore. Biomass has a huge potential for increased use and could replace a significant amount of fossil fuels.

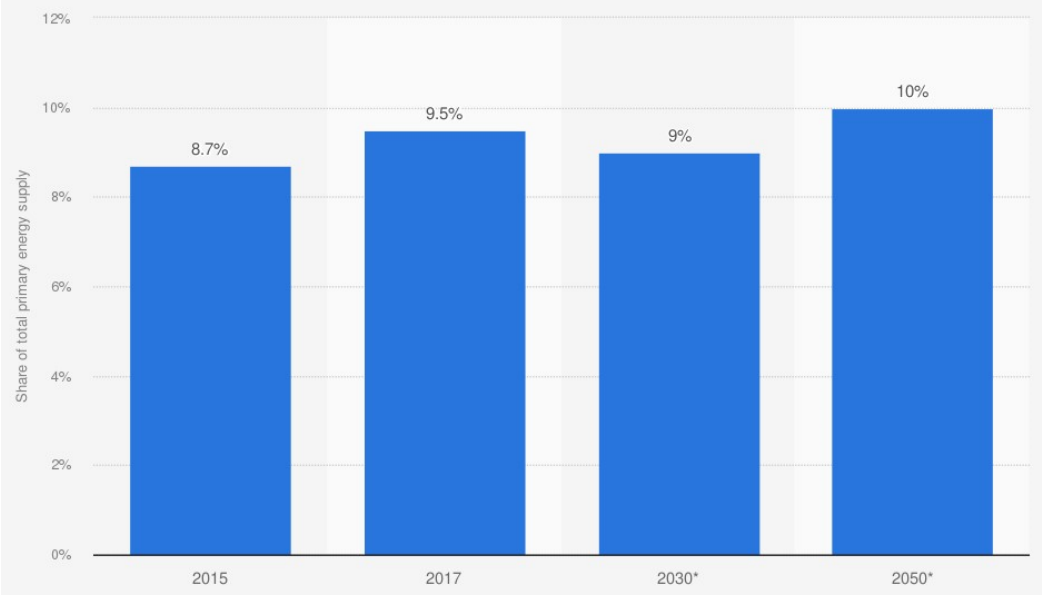

Figure 4. Share of bioenergy in total primary energy supply worldwide from 2015 to 2050* [6]

The share of biomassenergy in total primary energy supply (TPES) remained stable during the last year, accounting for some 9.5 percent TPES in 2017. A similar trend for this figure is expected under the current and planned energy plans, only increasing to some 10 percent by 2050 (Statista).

4. CONCLUSION

Global warming and the energy crisis have brought rising energy prices and pressure to reduce the impact of energy on the environment, so much attention is being paid to the use of primary renewable energy sources. The support of renewable energy sources in the future is one of the key pillars of energy in several countries of the world. The world depends on energy, so it is need to have resources that will last forever and will be able to ensure the sustainable development of any society. Biomass is used all over the world as an ecological solution to the problem of electricity production without consequences for the surrounding environment. Biomass, with its energy content and multifunctional use, has enormous potential and great prospects for the future.

5. LITERATURE

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