

Problems and considerations from current conditions of Biomass Power Generation.

1. Motivation behind Research Paper

Japan is currently experiencing power failures due to failures of liquefied natural gas supply as a result of economic sanctions against Russia. What should we do in such a society? When I researched global warming, I learned that fossil fuels are a major factor accelerating global warming, and I was interested in biomass power generation, which does not use fossil fuels, so I decided to examine it. I also wanted to find out why biomass power generation is not widespread in Japan, whether biomass power generation is widespread in the world, and what we can do to help.

2. Introduction

Do you know where and how the electricity we use is supplied? In Japan, thermal power generation is about 80%, hydroelectric power 10%, and other renewable energy sources 10%. We think that biomass energy, one of the renewable energies, should be more widely used in Japan, so we researched biomass power generation which can supply biomass energy. Biomass power generation, which we mentioned at the beginning, is a renewable source, but it is not widely used. For example, according to the Ministry of Economy there are approximately 900 biomass

power plants in Japan, in contrast there are approximately 2.5 million solar power plants and 8,000 wind power plants. We think that the reason why biomass power generation has not been widely spread in Japan is that Japan is not economically rich and doesn't have the money to spread on the introduction of new biomass power generation. I would like to examine the various researches and thesis based on this hypothesis.

3. Results and Analysis

What advantages and disadvantages exist in biomass power generation? Regarding the advantages, first of all, there is the stable generation of electricity. In addition, the ability to freely control the amount of electricity generated, according to how the electricity is used, is a feature that excels among renewable energies and therefore is attracting attention. Secondly, it is carbon neutral, and by linking it to the consumption of domestic timber, it is expected to have the effect of revitalizing the forestry industry and rural areas, and regenerating mountain forests.

While there are these advantages, there are also disadvantages. First, the cost of power generation is high. In woody biomass power generation, wood needs to be processed, and this is where the cost arises, moreover woody biomass, with its low combustion temperature, is inefficient for power generation alone. So far, various efforts for biomass power generation have been made in Japan. The Ministry of Agriculture, Forestry and Fisheries and other related ministries and agencies cooperated to form the "Biomass Nippon Comprehensive Strategy," a cabinet decision in December 2002 that outlines specific initiatives and action plans for promoting the utilization of biomass. In March 2006, the situation of biomass

utilization was amended after the formulation of the strategy for the entry into force of the Kyoto Protocol in February 2005. Measures to accelerate the construction of biomass towns through the full-scale introduction of domestic biofuels and utilization of unutilized biomass, etc. were promoted. Furthermore, in 2009, the "Basic Law for the Promotion of Biomass Utilization" was enacted to further accelerate the introduction of biomass power generation. And when biomass energy became subject to the Feed-in Tariff (FIT) system, which began in July 2012, it attracted attention as a renewable energy source that can be stably operated.

In the EU, biomass power generation accounts for nearly two-thirds of all renewable energy in 2019, more than the share of wind and solar power generation. Sweden and Finland in particular have a high share of biomass power generation in their energy mix.

4. Conclusion and Future Problems

Biomass power generation has many advantages and is being planned, but why has it not become more widespread in Japan? One of the reasons is that there are location restrictions. Japan is not a large country, and there is less land available than in other industrialized countries. Also, as mentioned earlier in this paper, the high cost of renewable energy makes it difficult to introduce new renewable energy sources.

The discussion by us from this paper does not allow for much involvement. So we thought about what we could do. The first is to try to conserve electricity in one's daily life. Examples include unplugging electrical appliances when finished using

them, setting the temperature of air conditioners to 28°C in summer and 20°C in winter as much as possible, and not leaving the TV on. I think it is very important to do small things like these that can be done close at hand. The second is to actively separate garbage. By separating trash, we can recycle plastic trash that should not be burned, thereby reducing the amount of extra greenhouse gasses and toxic substances generated. This will also reduce the cost of incinerating trash.

5. Reflection

We attempted to contact the companies as well as to research them in the literature, but unfortunately we were not able to do so. One reason for this is that there were very few companies involved in biomass power generation around our area in the first place. This shows that biomass power generation is not very popular in Japan. As mentioned in the conclusion, biomass power generation is not very popular in Japan, but there is no doubt that it has numerous advantages. Unfortunately, however, there is little that ordinary people like us can do to make biomass power generation more widespread. What is important is for each of us to deepen our understanding of biomass power generation and to do what we can do in our daily lives.

6. Work Cited

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