SOLAR ENERGY AND MICROGRIDS: INTEGRATING SOLAR PANELS INTO MICROGRIDS AND IMPROVING ENERGY SUPPLY STABILITY

Abdugafforov Nurbek

Student of Jizzakh Politecnikal institute

nurbekjonabdugafforov2311@gmail.com

Abstract

This article analyzes the integration possibilities between solar energy and microgrids. Solar panels produce energy based on photovoltaic technologies and play an important role in stabilizing energy supply in microgrids. The use of solar energy in microgrids, especially in combination with energy storage systems, makes it possible to ensure continuous and reliable energy supply. This article examines the issues of increasing the stability of energy supply by adding solar panels to microgrids.

Keywords: *Solar energy, Microgrids, Energy storage systems, Sustainable energy supply, Photovoltaic technologies, Power grid integration*

Introduction

Modern energy systems rely on technologies based on renewable energy sources. Solar energy occupies a leading position in this field, expanding the possibilities of stable and reliable supply of electricity together with microgrids. Microgrids are distinguished by their independence and the ability to continue energy supply even in cases of disconnection from the central grid. This article discusses the integration of solar panels into microgrids and how they can increase the stability of the energy supply.

Solar Energy and Microgrids

Solar energy, as one of the renewable energy sources, is an environmentally friendly and unlimited resource. With the help of solar panels, sunlight is converted into electricity, which, when integrated with microgrids, helps to ensure a stable and

stable energy supply. Microgrids, on the other hand, are small-scale electrical networks that can operate independently or be connected to a central power grid.

Integration of Solar Panels into Microgrids

The integration of solar panels into microgrids is important to ensure continuity of energy supply. Solar panels based on photovoltaic technologies convert the sun's rays into electrical energy, and this energy is fed to local needs through a microgrid or sent to storage systems. The addition of solar energy to microgrids increases the reliability of the energy supply and, when used in conjunction with energy storage systems, further strengthens the stability of the electricity supply.

Energy Storage Systems

Energy storage systems play an important role in microgrids. Due to the fact that solar energy is not stable during the day, it is necessary to save the generated energy and use it when necessary. With storage systems, energy is distributed during grid outages or times of high demand, providing stability.

Sustainable Energy Supply

Integration between solar energy and microgrids is of great importance in stabilizing the energy supply. Solar panels used with storage systems increase the possibility of working independently of the central grid and ensuring the continuity of energy supply. This integration is especially effective in areas where solar energy is abundant and ensures a stable energy supply.

Conclusion

The addition of solar panels to microgrids plays an important role in increasing the stability of energy supply. The integration of solar energy as a renewable resource with microgrids, when used together with energy storage systems, increases the reliability and stability of the electricity supply. This approach is important in the development of the energy sector and is expected to be more widely used in the future.

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