

Permanent increase in the installed capacity of photovoltaic systems requires their integration into the frequency and voltage control systems inside the distribution network. Such functions can be realized through proper management of the connected photovoltaic systems.

Under the present circumstances, photovoltaic sources, according to the paper by Ana Radovanovic and Zeljko Djurisc from the Faculty of Electrical Engineering, University of Belgrade, connected to the distribution network are generally designed to ensure maximum efficiency level, while only generating active power depending on the insolation on the panel surface. In a perspective power system, the share of a photovoltaic system will be significant. Under such circumstances, photovoltaic systems need to be able to provide systematic support in terms of voltage frequency regulation participation. Control of harmonic current distortions injected into the network is also essential.

The paper analyses the concepts of perspective intelligent photovoltaic systems and different techniques for their involvement in the frequency and voltage regulation systems. It also analyses possible quality improvements of electricity supplied by photovoltaic systems to the power system.

Permanent increase in the installed capacity of photovoltaic systems requires their integration into the frequency and voltage control systems inside the distribution network. Such functions can be realized through proper management of the connected photovoltaic systems. Frequency may be regulated by photovoltaic power plants operation outside the optimum operation point and by integrating energy storage systems. Along with the development of algorithms used to manage photovoltaic inverters, it is necessary to develop systems coordinating the operation of all photovoltaic systems, in order to achieve optimal effects in terms of their integration into the power system and participation in the frequency and voltage regulation systems of the power system, transmits Serbia-energy.eu