

POWER QUALITY ANALYSIS BEFORE AND AFTER THE CONNECTION OF BIOGAS POWER PLANT MALA BRANJEVINA

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ABSTRACT

The biogas power plant is installed in Eastern Croatia with a rated power of 2x1 MW. Power quality indices of the biogas power plant Mala Branjevina 2 were measured before and after the connection to the distribution network. The biogas power plant is connected to the distribution network using a T-connection on 10 kV overhead line feeders connected to TS 35/10 kV Laslovo and TS 35/10 kV Cebin. Power quality indices for the biogas power plant were measured using the Fluke 1760 Three-Phase Power Quality Analyzer (class A), and were presented according to the Croatian standard HRN EN 50160/2010 which is in accordance with the European standard EN 50160. Short circuit ratio a between three-phase short circuit at the point of common coupling (PCC) and the rated power of the biogas plant were also checked in accordance with the HEP National grid code. In addition, the influence of the biogas power plant on the distribution network was also analyzed. Results show that all the parameters of the supply voltage satisfy limits determined by the Croatian standard HRN EN 50160:2010. Furthermore, harmonic distortion of voltage waveform is even lower after the plant connection.