Voltage stabilization system for telecommunications infrastructure power supply consists of a battery power source, a step-up DC-DC converter with a current capacity of up to 30 A, and telecommunications equipment. Wherein the input of the step-up DC-DC converter is connected to the output of the battery power supply; the step-up DC-DC converter is designed to convert an input voltage in the range of approximately 8 V into a stabilized output voltage of 12.4 V, and the output of the step-up DC-DC converter is directly connected to the power input of the telecommunications equipment.