Energy-efficient electric food heating system for use during emergency power outages consists of a 12 V low-voltage direct current power supply, a step-up DC-DC converter, and an electric heating device with a heating element. The input of the step-up DC-DC converter is electrically connected to the low-voltage power supply. The output of the step-up DC-DC converter is electrically connected to the heating element of the electric heating device and is configured to produce an output voltage of approximately 20 V of direct current.