

## PDEOZE PowerContainer

# The voltage of electricity generated in the power station



## Overview

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How many volts does a power station produce?

Power stations produce electricity at something like 14,000 volts, but they use transformers (voltage increasing or decreasing devices) to "step up" the voltage by anything from three to fifty times, to roughly 44,000–750,000 volts, before sending it down power lines to the towns and cities where it'll be consumed.

How does a power station work?

In power stations, electrical power is generated at medium voltage levels, typically between 11 kV and 25 kV. This generated power is sent to a step-up transformer to increase the voltage. From here to the user end, the voltage varies at different stages. Let's explore these steps.

Where are power stations located?

Power stations are usually located far from the city centre. Electricity generated by a power station is transmitted through a transmission and distribution network to the electricity users.

How many kV can a generator produce?

A typical generator can produce voltages up to 25 kV. Figure gives a block diagram of the energy conversion in the generation of electricity at a thermal power station. The mechanism to rotate the turbines changes according to the type of energy resource used in the power station.

How is electricity produced at a power station stepped up?

The electricity produced at the power station is stepped up from about 20kV to 132kV, 275kV or 400kV by transformers in the transmission and distribution network, and transmitted through overhead, submarine or underground cables to substations in different parts of the city. This process is called "power transmission".

What is voltage stepping?

**Voltage Stepping:** Voltage levels are stepped up and down using transformers at various stages from generation to consumer delivery to ensure efficient and safe power distribution. In power stations, electrical power is generated at medium voltage levels, typically between 11 kV and 25 kV.

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