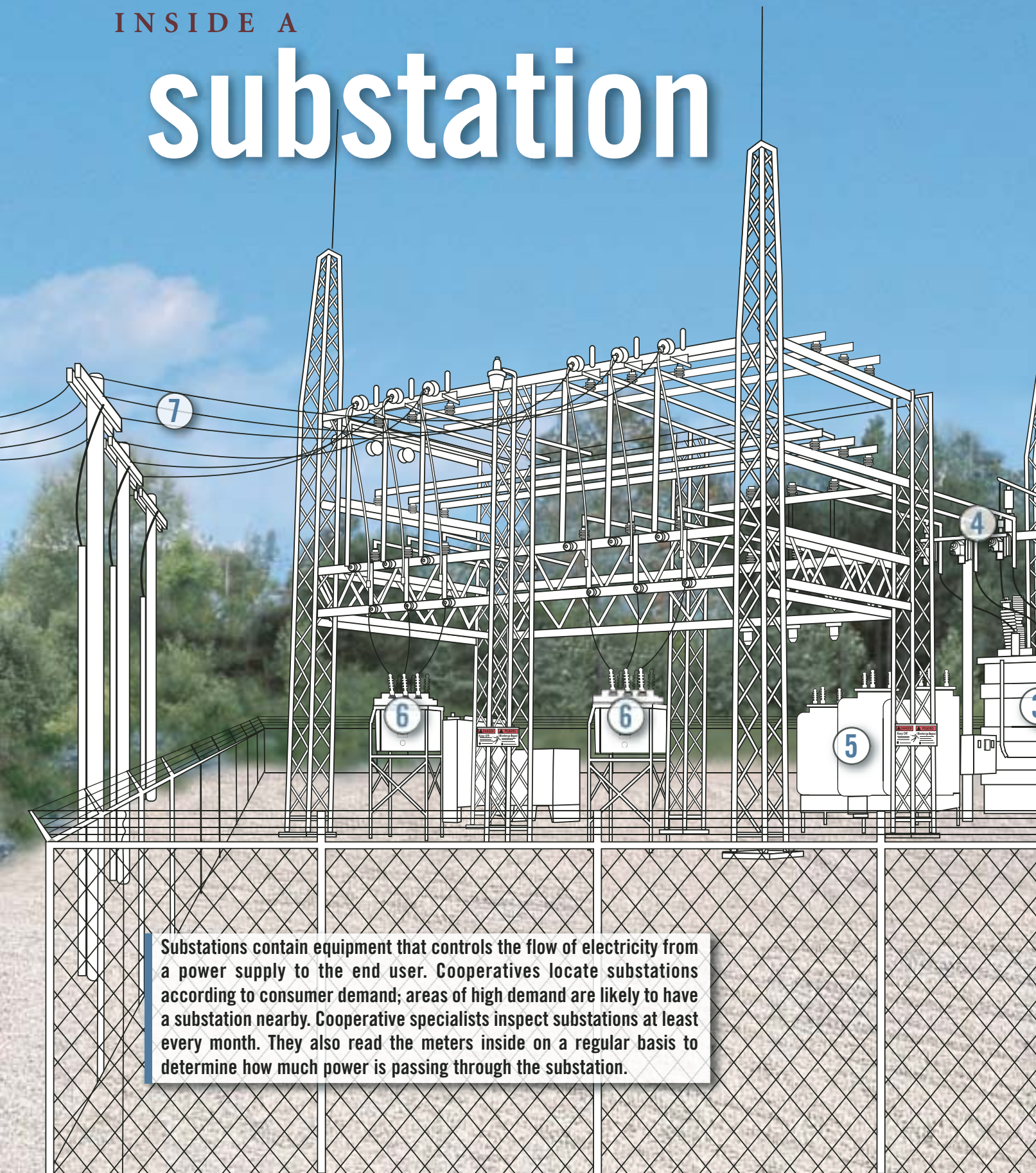
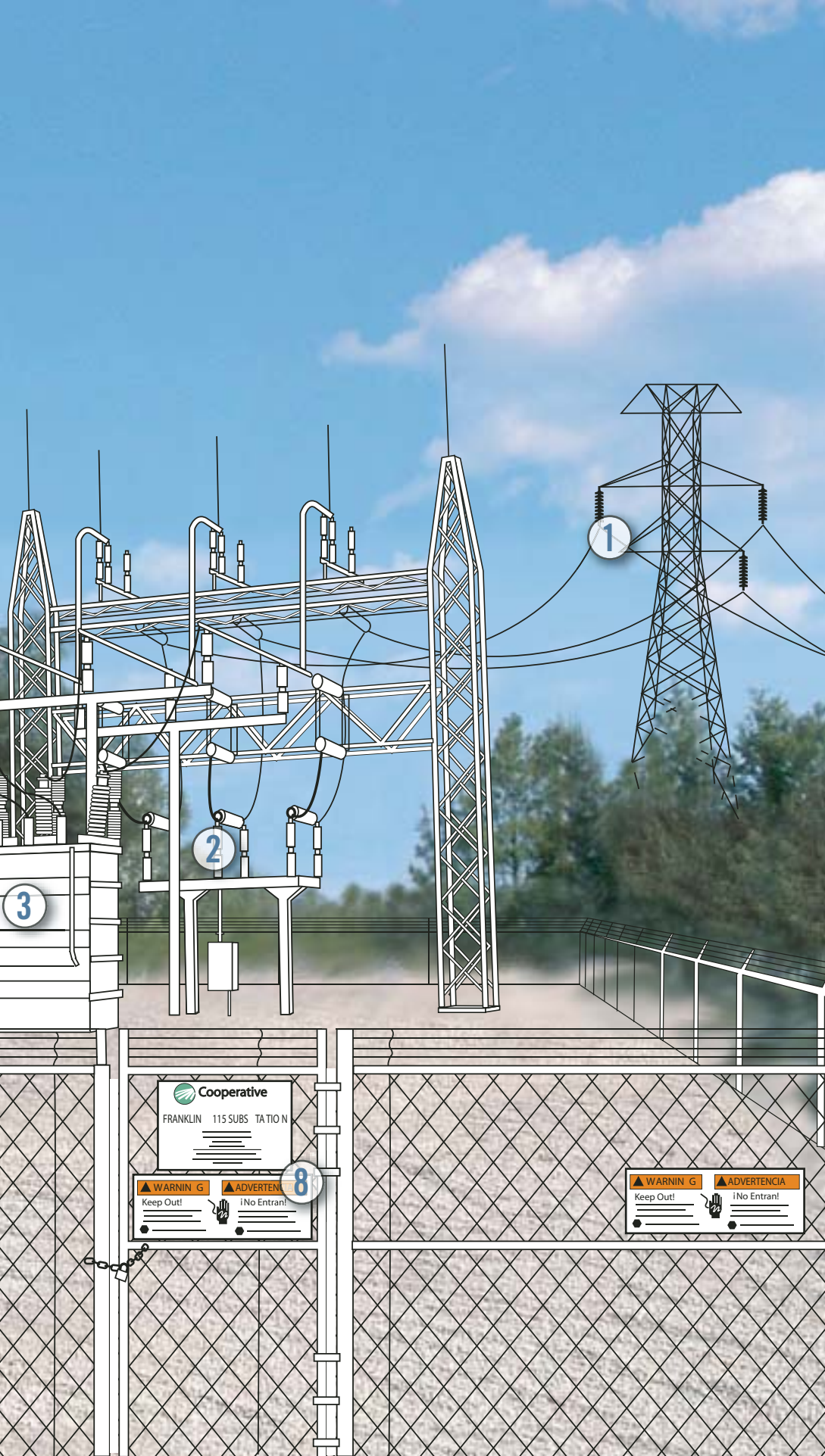


INSIDE A

substation



Substations contain equipment that controls the flow of electricity from a power supply to the end user. Cooperatives locate substations according to consumer demand; areas of high demand are likely to have a substation nearby. Cooperative specialists inspect substations at least every month. They also read the meters inside on a regular basis to determine how much power is passing through the substation.



- 1 Transmission Lines**
 Electric power enters the substation in 3 separate lines (“3-phase power”). The lines contain very high voltage (a measure of the current’s pressure), ranging from 44,000 volts to 760,000 volts, depending on consumer demand in the area.
- 2 Circuit Switchers**
 Like the switches inside the wall panel circuit-breaker box in your house, these protect the substation’s equipment. They can disconnect the circuit if necessary.
- 3 Power Transformer**
 Lowers voltage from transmission voltage to distribution voltage, typically down to 14,400 volts or 7,200 volts. Functions similarly to a transformer on the pole outside your house, which lowers voltage to be handled by your house’s electrical system. Contains mineral oil and fans to cool the windings inside.
- 4 Potential Transformers**
 Measures how much electricity passes through the substation. This is how the co-op is billed for its power. Functions like the meter on your house. Measurement is read at box below.
- 5 Voltage Regulators**
 Controls voltage according to demand. They can step up the voltage, or step it down. They contain mineral oil to cool the coils inside.
- 6 Reclosers**
 If a fault occurs on the distribution line, reclosers open the circuit to protect the substation, similar to the circuit breaker in your home.
- 7 Distribution Lines**
 Power leaves the substation on 3-phase circuit to be distributed to consumers along the system.
- 8 Warning/Danger Signs**
 Warning signs posted on the gate and fence, and danger signs inside the substation, warn about high voltage. Signs are written in English and Spanish on most substations. Gate remains locked at all times. Security devices on gates notify the co-op if someone enters the yard.