



POWER AND SUBSTATIONS



What makes a light rail train move?

A light rail system is virtually pollution free, using electricity from overhead wires that are suspended from poles or buildings. Electricity is conducted from the wires to motors on the vehicles that drive the wheels and propel the train. The electricity is distributed to the overhead wires through feeder cables from substations built specifically to power the light rail system.

What happens during a power outage?

The METRO light rail system is designed to maintain operations with one electrical substation out of service provided that adjacent substations are operating normally. In the event of a regional blackout, the light rail vehicle would slowly come to a stop. METRO staff would provide passengers with instructions for safe unloading and manually open the vehicle doors.

What is the effect on the Valley's energy consumption?

Project planners determined that the addition of light rail does not result in an overall increase in energy consumption in the Valley. METRO uses approximately one one-thousandth of a percent of the electricity used by all households in Maricopa County.

How do substations work?

Power substations are important elements of the system because they convert the higher-voltage power provided by the utility company distribution lines into lower-voltage direct current needed to

operate light rail vehicles. A typical substation building is 20 feet wide by 40 feet long by 12 feet high.

Substations have extensive safety features and were designed to minimize their visual impact. They make little noise, with the primary source of sound coming from air conditioning units.

Substations are placed at approximately one-mile intervals along the tracks to maintain a consistent power level along the light rail line. They were designed to be as close as possible to the light rail right-of-way, but a few of them had to be located away from the tracks where closer sites were not available. There are 15 substations that support the METRO line.

How safe are substations?

METRO substations were designed for maximum safety. All electrical equipment is fully contained within each substation building. Safety features include special locks to prevent unauthorized entry, an automatic fire detection system and portable fire extinguishers, doors monitored by a security system, system monitoring devices with alarms, a grounding system and air-conditioned interiors, and batteries to provide power in case of power outage.



substation map

