

The main background image of the advertisement shows a large, industrial power plant with a tall, lattice-structured transmission tower in the foreground. The sky is clear and blue. The text "Reliable Power for Developing Nations" is overlaid in white, bold, sans-serif font.

Reliable Power for Developing Nations

SEL helps make electric power safer, more reliable, and more economical.



WHO WE ARE

Schweitzer Engineering Laboratories, Inc. (SEL) designs, manufactures, and supports a complete line of products and services for the protection, monitoring, control, automation, and metering of electric power systems. We create solutions for utilities as well as for a wide variety of industry sectors, such as mining, petrochemicals, transportation, renewable energy, and agriculture. We understand the unique challenges faced by developing nations and are dedicated to providing high-quality solutions with low maintenance and implementation costs.

SEL manufactures products in the United States and is headquartered in

Pullman, Washington, USA. We have more than 25 years of experience making electric power safer, more reliable, and more economical. SEL has designed solutions for critical infrastructures in more than 140 countries, including Georgia, Ghana, Colombia, Vietnam, Brazil, South Africa, and Mexico, and offers local technical support worldwide from sales offices and technical centers in more than 20 countries.

SEL is committed to supporting the long-term goals of our customers to ensure a reliable supply of electricity for their growing, dynamic economies. We back our products with a ten-

year, worldwide, no-questions-asked warranty, so customers know they can depend on us for high-quality solutions and exceptional service.

Our SEL Engineering Services team designs unique, comprehensive, turnkey protection and control solutions, and provides cost-effective engineering capabilities that increase the quality of national transmission and distribution systems. Engineers and technicians can receive world-class training from SEL University, which holds cooperation agreements, including equipment donations, with academic institutions across several continents.



SOLUTIONS

SEL technology assists customers in developing countries to modernize and improve their system's reliability, efficiency, and cost-effectiveness by reducing maintenance, providing blackout mitigation strategies, and decreasing overall system losses.

Our wide range of equipment and extensive services protect, monitor, control, and communicate with electric power systems, generators, motors, transformers, and related devices. These solutions provide highly reliable, flexible options capable of meeting any requirements for:

- Power Management, Protection, and Control
- Automation and Integration
- Precise Timing
- Metering/Submetering
- Generator and Motor Protection
- Distributed Generation Integration
- Operational Monitoring and Control
- Substation Control Enclosures and Custom Panels
- Data Communications
- Cybersecurity
- Microgrid Integration
- Fault Detection and Location
- Synchronous Protection and Control Systems

INDUSTRY EXPERIENCE

SEL provides innovative, technologically advanced power management solutions to customers in developing nations, including:

- Elektro Electricidade e Services S.A., Brazil
- Empresa Electrica de Guatemala, S.A. (EEGSA), Guatemala
- Maharashtra State Electricity Transmission Company Ltd., India
- Comisión Federal de Electricidad, Mexico
- Sociedad Minera Cerro Verde S.A.A., Peru
- Vietnam Electricity (EVN), Vietnam

Additionally, SEL has experience working with the World Bank, United States Agency for International Development (USAID), Asia Development Bank, Africa Development Bank, Inter-American Development Bank, United States Trade and Development Agency (USTDA), and the Export-Import Bank of the United States, among others.

RELIABILITY

SEL designs and manufactures products for the world's most challenging environments, exceeding all industry standards for temperature, shock, and electric stress. SEL products operate in a temperature range of -40° to $+85^{\circ}\text{C}$ (-40° to $+185^{\circ}\text{F}$). They can withstand electrostatic shock up to 15 kV and are vibration/shock resistant up to 15 g. Optional conformal coating adds an extra level of protection in severe environmental conditions.



PERSONALIZED SERVICE AND TRAINING

SEL provides personalized service and ongoing technical support, consistently ranked by our customers as best in the industry. SEL engineers have field experience and engineering expertise in providing application-specific solutions for industrial electric power systems.

The SEL Engineering Services team takes a holistic approach to power system design and construction. From engineering studies and design to installation and testing, SEL provides cost-effective engineering, procurement, and construction (EPC) services to customers worldwide.

SEL University provides power systems training to engineers and technicians. Courses include product application, testing, integration, and automation. Our qualified instructors address current issues in managing power systems by focusing on practical applications and real-world problem solving.

EXCELLENCE

SEL has built a solid reputation in the electric utility industry and was chosen as #1 among protective relay manufacturers across all categories in a recent independent study by Newton-Evans Research Company.

With more than 17,000 customers served, SEL has sold over 3 million products to various industries, including renewable energy, transportation, mission-critical facilities, commercial buildings, healthcare, education, water and wastewater, biotechnology, metals and mining, and oil and gas.

SEL takes our commitment to quality seriously, as demanded by our customers' critical applications, and is certified to the International Standards Organization (ISO) 9001:2008 Quality Management Systems Standard.

The SEL ten-year, worldwide product warranty is proof of our confidence in the high quality of the products we manufacture, following the strictest industry standards.



SUCCESS STORIES

Brazil—The Brazilian utility Elektro partnered with SEL on a project to modernize 36 substations. Because SEL equipment is built to withstand harsh environments, it was possible to move the products to the substation yard and connect them via fiber optics to the control room instead of using bundles of copper wiring. “The reduction of cable placement in the substation eliminated more than 30 percent of the cable. Project analysis and the project itself have become simple, reducing commissioning time and providing for supervision and control from a distance, with the option to alter logic and adjust the equipment,” said Frederico Jacob Candian, an Elektro substation and transmission line manager.

Vietnam—Vietnam Electricity (EVN) was facing high maintenance costs and intermittent control issues. By modernizing their substation equipment with SEL products, EVN was able to reduce the amount of copper wiring by 80 percent and the installation time by 75 percent, which resulted in a 77 percent reduction in labor costs. The overall cost of installation dropped from \$69,000 to \$16,000 USD. SEL's equipment tolerance values had to match the extreme environmental conditions of Vietnam; operating temperatures in the cabinets can reach 85 degrees Celsius, and humidity can be as high as 95 percent. SEL equipment has been installed in Vietnam for more than ten years, and since then, not one environmental failure has been reported.



REGIONAL TECHNICAL SUPPORT

SEL provides personalized, regional technical support to customers around the world from more than 90 offices in over 20 countries, including:

Argentina	Brazil	Colombia	Italy	New Zealand	Singapore	UAE
Australia	Canada	Ghana	Mexico	Peru	South Africa	United Kingdom
Bahrain	China	India	Netherlands	Saudi Arabia	Spain	United States



SCHWEITZER ENGINEERING LABORATORIES, INC.

2350 NE Hopkins Court • Pullman, WA 99163-5603 USA
Tel: +1.509.332.1890 • Fax: +1.509.332.7990
www.selinc.com • info@selinc.com

© 2013 by Schweitzer Engineering Laboratories, Inc.
LM00171-01 • 20130103