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ABB helps secure stable electric service for Mexico City's iconic front door

The Paseo de la Reforma is getting an electrical overhaul, aided by Elastimold® switchgear and ABB Ability™ enabled intelligent controls

In many ways, Mexico City's Paseo de la Reforma is a living record of the country's history.

The last European crowned head to try to claim the country, the French-sponsored Emperor Maximilian, designed the broad avenue in 1864 to mimic the grand boulevards of Europe — the Champs-Élysées of Paris and the Ringstrasse of Vienna.

It soon gained its modern name, which translates roughly as the Avenue of Reform, after President Benito Juárez overthrew the emperor and forever returned Mexico to the control of its own people.

Today, the street is the site of many of the country's largest protests, demonstrations and celebrations. Its intersections are dotted with monuments to Mexican history, from Columbus to the iconic Angel of Independence. The headquarters of the region's largest and most sophisticated banks and institutions line its streets, including the Torre Reforma, the tallest building in the capital city.

And that modern grandeur is about to be matched underground, with help from the united expertise of ABB business units that have deep roots in Mexican soil.

The Comisión Federal de Electricidad, Mexico's largest utility and a longtime consumer of ABB utility products, has tapped the combined resources of two ABB business units — Installation Products and Grid Automation — to supply 62 maintenance-free medium-voltage Elastimold® switchgear systems, along with submersible ABB Ability™-enabled REC670 Intelligent Electronic Devices as part of a \$150 million effort to replace the aging power components that currently supply the Paseo's data-hungry buildings.

The project will replace the power infrastructure to about 9.1 miles of the boulevard's underground system and will tap into the power of ABB Ability™ to infuse it with stability and control, according to ABB utility apparatus product marketing manager Luis Bautista. Apart from some targeted and isolated upgrades through the years, the current system is about 70 years old.

The new ABB components will be hidden away mostly in underground vaults, but they will provide the heart of a power infrastructure that is much more stable.

Most traditional and legacy switchgear systems use gas or oil as insulation to prevent arcing within the switchgear. This insulation material can leak or deteriorate over time, so it requires routine inspection and maintenance. Elastimold switchgear uses an ingenious design that encapsulates a vacuum bottle in a maintenance-free solid dielectric EPDM rubber insulation. Contains no oil or gas to monitor or maintain, Elastimold switchgear provides high voltage and arc withstand capability that does not change or deteriorate over time.

Along with its maintenance-free construction, ABB's Elastimold switchgear is completely submersible in water.

The ABB Ability™ enabled REC670s are key components of what is known broadly as the “smart grid.” They are designed and programmed to quickly and automatically route power around adverse conditions such as faults on the line or equipment damage; providing crucial reliability and stability to the sophisticated electronic systems that fill the towers along the modern street.

“ABB’s Elastimold plant in Hackettstown, New Jersey, is committed to supply the complicated switchgear systems within 120 days,” said Angel Martinez, Product Marketing Director for the ABB Electrification division’s Installation Products unit in Mexico.

The unit’s Cable Accessories and Apparatus research and development team integrated and tested the ABB REC670s so they could be packaged locally from the ABB San Luis Potosi Campus.

“Although the contract completion schedule is on a rocket-like pace, securing the contract was part of a long process,” Martinez said, “one buttressed by a long history of ABB sales to the CFE, Mexico’s state-owned utility, combined with the ability of separate ABB business units to work together to unite superior switchgear products with the company’s most sophisticated controllers.

“The team at the plant and the communication among the product team and sales and marketing was a crucial element,” Martinez noted.

The process began with a project demonstration that successfully integrated the REC670 control technology with ABB’s state-of-the-art Elastimold solid dielectric switchgear. Originally showcased two years ago during ABB Customer World, a major industry trade show, then tested in various locations, the gear gave sales teams from ABB and local distributor Consorcio AMESA the ability to demonstrate the product combination to CFE’s engineering and standards groups — cooperation that pleased the distributor.

“In Consorcio AMESA, we were pleased to work with ABB in this project because we felt supported by their team and the great quality products they have,” Consorcio AMESA director Gabriela Garcia said. “This reflects the reason why ABB is such an important company worldwide.”

“Ultimately, CFE preferred the reliability of the ABB system,” Martinez said. “The maintenance-free aspect of Elastimold solid dielectric switchgear was particularly important, and the capabilities of the control systems were also up to the demands of servicing one of the most critical electrical service areas in all of Mexico. In addition, the company’s long experience in providing switchgear and controllers in the Mexican market has given it the manufacturing expertise to supply a large quantity of systems in a very short time.

“The Reforma project will mark around the 300th Elastimold solid dielectric switchgear system installation in the country,” Martinez continued, “including such critical facilities as Mexico’s United Congress; the National Bank of Mexico’s headquarters; the control tower at Benito Juárez International Airport; the National Palace; and Los Pinos, the presidential residence. This latest project marks the first large completely integrated system with ABB’s REC670 controls paired with the Elastimold solid dielectric switchgear solution.”

Altogether, ABB’s portion of the Reforma project will include 50 units of multiway medium-voltage Elastimold solid dielectric switchgear systems, 12 units of automatic fast transfer medium-voltage Elastimold solid dielectric switchgear systems with their corresponding control systems.

“The CFE — Reforma project has been one of the most important projects for the Installation Products business unit in recent years,” said Carlos Hernandez, global product group manager for the unit’s utility-oriented Cable, Accessories and Apparatus group. “CFE is one of our most important customers, and Reforma is one of the most important and emblematic streets in Mexico City. So we are proud to be part of the multi-year efforts to enhance the area’s beauty and transition its utility systems underground. We are also proud that our employees were able to work together at multiple levels to deliver high-quality products on a tight and demanding schedule.”

The ABB team is highly confident that successful completion will provide the Paseo de la Reforma with a superior electrical infrastructure for future growth, while the integrated system that combines diverse components of ABB's business units drives more growth for the company's smart grid capabilities.

"This is the very first project in which we have provided these powerful solutions together for our customers," Martinez said. "Our hope is that we can produce more synergies among the many devices of ABB in order to achieve this kind of success going forward."