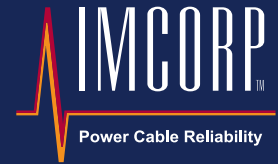


MAJOR SOUTHEASTERN UTILITY ENJOYS DRAMATIC DROP IN SYSTEM-WIDE FAILURES USING IMCORP'S FACTORY GRADE® TECHNOLOGY



IMCORP decreases overall cable replacement costs by 76%, reduces system wide failures by 98%

HIGHLIGHTS

OVERVIEW

- › Factory Grade® technology used by a major US utility to facilitate an effective asset management strategy.

CHALLENGE

- › To reduce failure rates of aging underground infrastructure with a manageable and stable budget.

RESULTS

- › Factory Grade® technology is proven effective in rehabilitating and certifying aged underground assets to like new condition with three times the reach, when compared to the cost of wholesale cable replacement.

Overview

Due to concerns with the age and increasing failure rate of its underground residential distribution (URD) system, a large utility in the southeastern United States sought a program to maximize system reliability while limiting asset management costs. Using IMCORP's Factory Grade® technology with 50/60 Hz partial discharge (PD) measurement, the company was able to stem its growing cable replacement budget while simultaneously reducing outages.

Background

At the beginning of the program, the utility had approximately 16,000 miles of underground medium voltage power cable systems in service, of which around 1,100 miles was comprised of systems installed prior to 1986. It was this population that was experiencing elevated failure rates, in the range of 24 failures per 100 miles per year. For many years, the utility had systematically replaced these cable systems based on traditional metrics such as vintage, failure frequency and construction type. After about three years, the utility noted that while the failure rate had decreased, the cost per avoided failure had increased by over 250% and forecasted program costs were expected to exceed \$20 million per year. It was apparent the utility needed to explore a more efficient and cost-effective approach to its underground asset management strategy and after evaluating several options, it chose a comprehensive rehabilitation program based on IMCORP's Factory Grade® technology as the solution.



Fig. 1: Underground Cable Assessment.



Fig. 2: Wholesale Cable Replacement

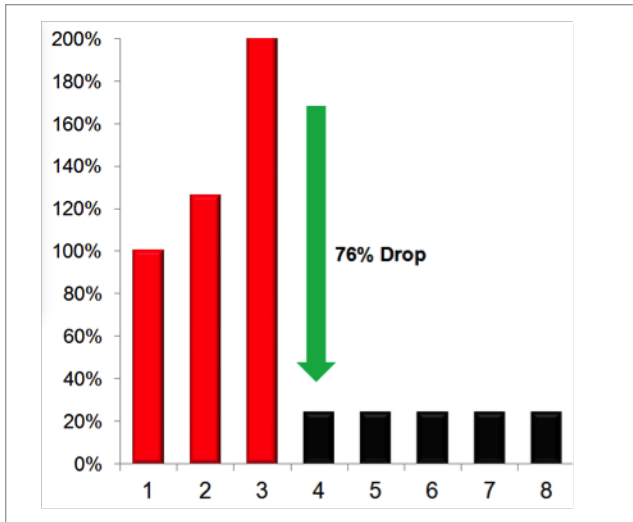


Fig. 3: Budget Stability

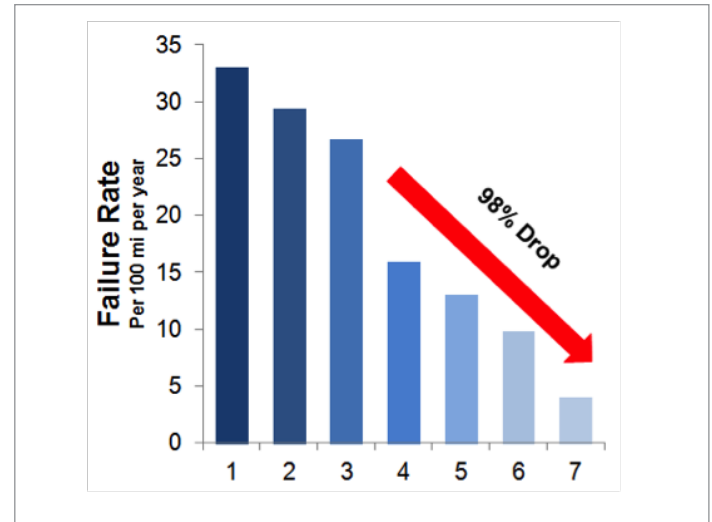


Fig. 4: Failure Rate Reduction

Results

To date, the seven year program has assessed, rehabilitated and certified over 2,000 miles of 15 kV and 25 kV class URD circuits, using IMCORP Factory Grade® technology. At an estimated replacement cost of \$17.50 per single phase conductor foot and \$30 per three phase conductor foot, this 2,000 miles represents almost \$200 million in cable assets. IMCORP's non-destructive assessment demonstrated approximately 94% of the population originally targeted for replacement could remain in service and be eligible for an additional guaranteed 15-year life extension. The results have shown 82% of the cable systems were recommended for deferral or "no" action; 12% recommended for repair; and only 6% for replacement.

This program has been a success by all accounts and perhaps the most telling metric is the dramatic drop in system wide failures. After assessing over 24,000 cable systems and taking the appropriate repair and replacement actions, the utility's failure rate of the targeted population has decreased by over 98%. To further illustrate this success, the all-capital assessment program, allowed by FERC, has decreased overall costs by 76% and has stabilized the utility's rehabilitation budget at a much lower level for the foreseeable future. With failure rates now at manageable levels, the utility has realized deferred capital savings of over \$157 million, when compared to the original wholesale replacement strategy. The utility has since deployed similar underground asset management strategies in other states where it operates.