



## STORM HARDENING & RESILIENCY

Utility companies fight an on-going battle as systems age and extreme weather wreaks havoc on Distribution and Transmission systems. Storms are growing stronger, more frequent, and more costly. EDG helps clients create and manage storm hardening programs to ensure that your infrastructure is reliable and can withstand the impacts of severe weather.

### WHY HARDEN YOUR SYSTEM?

#### STRONGER STORMS

- Storms are getting stronger and more costly. Statistics from NOAA show that in 40 years of record keeping, the last 4 years have had the highest number of damaging and costly storms

#### COST INCREASES

- Labor and material costs continue to increase so utilities investing in hardening their systems today will quickly realize savings in the future

#### JOINT USE IMPACT

- Joint use on existing poles is rapidly increasing adding stress and wind loading to aging infrastructure

#### NEW TECHNOLOGY

- Technology has rapidly evolved to include smart devices that can intelligently detect faults and automatically return a line to service

#### CUSTOMER EXPECTATIONS

- Customers have become conditioned to expect their power to come back on quickly. Resilient systems are returned to service far more quickly

#### DESIGN STANDARDS

- The strength and frequency of severe weather is increasing, leading utilities to reconsider design standards for wind and ice loading

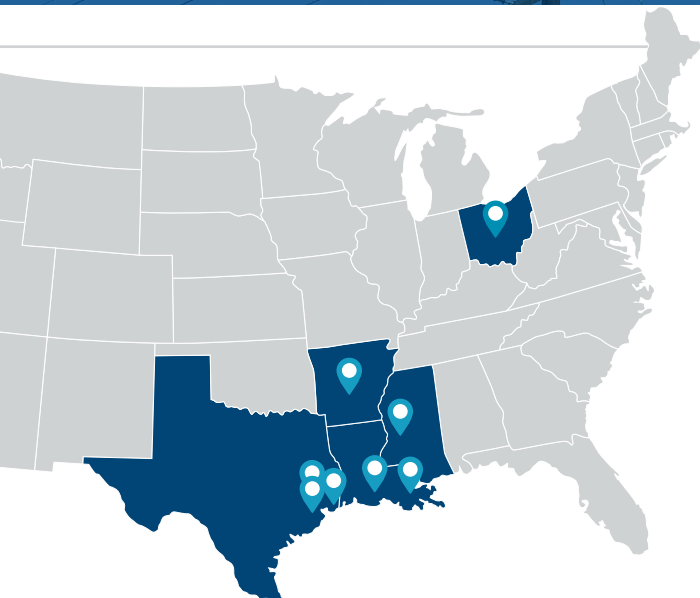
### CASE STUDY: DISTRIBUTION SYSTEM MODERNIZATION AND RESILIENCY PROGRAM

EDG managed a program called DSMART for CLECO. This program was designed to improve customer satisfaction by improving SAIFI and SAIDI metrics, reducing costs, and improving safety (avoiding hazards while searching for outages). Our effort included working in an advanced distribution management system and a distribution supervisory control and data acquisition system. By replacing key switches and reclosers on the worst performing circuits, the system automatically detected and isolated faults, closing in normally open devices to re-energize the portion of the circuit downstream of the fault. This automation significantly reduced the lineman's time locating the fault and making repairs while keeping power to customers outside the fault zone.

DMSART includes replacing fuses at the worst performing circuits with S&C trip savers. Many times circuits experience intermittent faults (a limb brushing a distribution line, flashover on an insulator due to contamination, etc.) that cause fuses to blow. The cause of the fault may not be obvious, and troubleshooting the circuit may take hours, resulting in delays to power restoration. The trip saver will open and then reclose (repeating the process three times) if it sees a fault, acting as a single-phase reclosure. If the fault is still present after the third attempt, the trip saver will open until a lineman patrols the line to find the outage.

# EDG CAN SUPPORT YOUR STORM HARDENING / RESILIENCY PROGRAM

- Programmatic management including Project Management, Engineering & Design, Construction Management & Inspection, Project Controls
- Tailored support to supplement your existing team with experienced team members
- Manage project scoping, estimating, and project schedule
- Track and report on schedule, cost, and productivity through weekly reporting and project dashboards
- Put together bid packages and review proposals from qualified contractors
- Coordinate contractors, permitting, material, and equipment to ensure productivity and efficiency
- Track and manage the project cost against unit price or lump sum contracting strategy
- Engineer/Design to regional wind and ice loading specifications using storeroom material standards
- Collect, organize, and submit material and vendor data for input into client asset management system
- Organize & incorporate field/inspection notes and coordinate general layout of facilities
- Manage DOT issues if conflicts exist, staking and surveying (poles, anchors, pad mounts, switch cabinets, slabs etc.), Permitting – as needed (highway, levee, railroad, waterway, wetlands), and row acquisition as needed



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