

CASE STUDY

OKLAHOMA GAS & ELECTRIC COMPANY

To improve capacity and system performance in Oklahoma, OG&E installed 35 miles of the Drake size ACCC® Conductor on a new 138 kV tie line from McClain Power Plant toward Oklahoma City, enhancing line efficiency and durability in a region historically vulnerable to severe storms.



Objectives

- Build a new generation tie line to connect additional power generation to the grid
- Optimize the placement and spans of new steel monopoles by leveraging the ACCC® Conductor's reduced sag and high capacity
- Improve electrical efficiency to reduce line losses and enhance overall system performance

Solution

OG&E selected the 1020 kcmil Drake size ACCC® Conductor for its high capacity, low line losses, and exceptionally durable composite core, making it ideal for enhancing grid resilience in tornado-prone Oklahoma. By installing approximately 35 miles of ACCC® Conductor on their new 138 kV tie line, OG&E maximized efficiency, capacity, and reliability. This decision also supported improved resilience as demonstrated by faster restoration after a severe EF4/EF5 direct tornado strike.

Key Results

01 Improved Efficiency & Capacity

Provided reserve capacity for future growth and cut line losses by ~30% to lower lifecycle costs.

02 Reduced Project Cost & Construction Timeframe

Enabled longer spans on steel monopoles, cutting project costs and reducing construction time.

03 Superior Resilience

Delivered enhanced storm resistance and faster post-tornado repairs with steel monopoles and high-strength ACCC® Conductor.

Resilience in Action

In May 2013, just five years after installation, a powerful EF5 tornado tore through central Oklahoma, carving a 17-mile path of destruction. With wind speeds exceeding 200 mph, the storm launched massive debris - including splintered rooftops, oil tanks, mobile homes, and even a 40-foot shipping container - causing widespread devastation. Near the McClain Power Plant, the tornado passed directly over OG&E's transmission corridor, where ACCC® Drake Conductors had been installed. A steel monopole was bent nearly 45 degrees from the impact, and nearby conventional transmission lines suffered severe damage. Remarkably, the ACCC® Composite Core remained intact, maintaining line suspension even as surrounding structures failed.



Rapid Recovery

After the storm, OG&E replaced only a 30-foot section of the ACCC® Conductor using full-tension splices. With the composite core still intact and minimal replacement needed, crews restored power to over 36,000 customers within days, far outperforming adjacent lines that required extensive repairs or full replacement.



Conclusion

The OG&E project showcases how ACCC® Conductors can deliver both long-term grid performance and critical resilience when it matters most. Selected initially to increase capacity and improve efficiency, the ACCC® Conductor also proved its strength during a direct tornado strike—maintaining structural integrity and enabling fast, efficient restoration.