

INNOVATION & TECHNOLOGY

DiGioia Gray understands that innovative engineering solutions are needed by our clients to stay competitive in a changing utility environment. Our goal is to be on the leading edge of applied T&D technology. DiGioia Gray has an in-house Innovation and Technology group focused on identifying and developing tools or processes that will improve the state-of-the-practice for all of our engineering disciplines.

DiGioia Gray provides solutions to complex problems, creatively using a range of tools and techniques to meet

challenges from our clients. The Innovation and Technology group seeks out new approaches to data collection and applied science that provide our clients more timely and robust solutions.



Ongoing efforts of the Innovation & Technology group include:

- DG Aerial Solutions, a branch of the Innovation & Technology service line, is a fully licensed and insured UAV operator that expands the range of possibility for DiGioia Gray engineers by equipping them with data that others may not have readily available and challenging them to improve the state of the practice by applying this information to improve the quality of solutions.
- The Transmission Line Optimization Program has been developed at DiGioia Gray to coincide with DiGioia Gray's client involvement in FERC 1000 projects. The FERC 1000 competitive transmission environment puts a heavy focus on cost reduction and innovation. These projects seek to achieve the highest quality product for the lowest installed and lifecycle cost.
- DiGioia Gray has developed specialized analytical tools in conjunction with the Power Line Systems (PLS) software suite to help develop a pre-engineered library of transmission line components (steel shafts, tower components, insulator assemblies, cross arms, etc.). These predesigned components allow the rapid assembly of monopole, H-frame or tower designs within PLS to perform optimization studies for the selection of conductor, structure type and line layout. Coupling these libraries with an automated version of the IEEE Flash program and BPA's CAFE program that was also developed in-house, we can develop new structure framings based on ampacity needs, terrain, lightning performance, and corona effects and field effects.

DiGioia Gray innovation flies above the conductor and looks below ground to find better ways to work. Supplementing our transmission optimization program, we continue to develop programs that enhance line design:

- Reconnaissance and Mapping
- Structural Analysis Analytical Tools
- Geologic Desktop Studies for Regional Design Zones
- Coupled Anchor Bolt Cages (work under live lines)
- Combined Structure-Foundation Preliminary Design
- Geotechnical Profiling for Foundation Optimization
- Vendor Pole & Foundation Optimization Program
- Reliability-Based Structure & Foundation Design