The new $960 million, 500-kV Trans-Allegheny Interstate Line (TrAIL) runs approximately two hundred miles from Southwestern Pennsylvania to West Virginia to Northern Virginia. Approved by PJM Interconnection (PJM), the regional transmission organization that coordinates movement of wholesale electricity in 13 Mid-Atlantic states, TrAIL will meet the region’s electricity needs and reduce overloading of the current transmission system.

**PROJECT RESULTS**

*Kleinfelder’s innovative foundation design concepts and collaboration with other team members enabled efficient foundation installation, preventing potential construction delays and costly change issues.* TrAIL was energized almost two weeks ahead of schedule. Furthermore, our team safely completed more than 70,000 service hours on the project.

**BALANCING ENGINEERING WITH THE ENVIRONMENT**

The TrAIL line crosses rugged terrain and required ingenuity in locating the tower structures by balancing human and environmental needs with engineering constraints. Unlike traditional projects where the data collection and assessment phase is followed by final design and construction, this project required concurrent planning, data collection, design, and construction. A strong collaboration among the owner, program manager, and the design team was essential to meet the accelerated project schedule mandated by PJM.

**REDUCING DATA COLLECTION AND DESIGN TIME**

Kleinfelder provided geotechnical engineering, engineering geology, rock mechanics, limited civil and structural engineering, and construction-phase engineering services for tower construction. By establishing critical geological and geotechnical risk factors, Kleinfelder created intelligent, targeted data collection processes for various subsurface conditions and measured the sensitivity of the solutions. This targeted approach and monitoring during foundation installation significantly reduced data collection and design time, helping to meet the demanding project schedule.

**Location:**
Washington, Pennsylvania

**Owner:**
FirstEnergy Corporation (formerly Allegheny Energy)