

CASE STUDY / ENVIRONMENTAL STUDIES FOR SOUTHERN CROSS TRANSMISSION LINE

COMPREHENSIVE STUDIES LAY GROUNDWORK FOR MULTISTATE WIND ENERGY TRANSFER

There's a lot of wind in Texas. To share it with its less windy neighboring states in the Southeast region of the U.S., Pattern Power Development proposed a high-voltage direct current (HVDC) bidirectional transmission line. A project this size — and length — required complex feasibility, routing and siting studies, as well as a robust public involvement program and creative permitting techniques.



EXTENSIVE COMMUNICATION MAINTAINED CRITICAL CONNECTIONS BETWEEN THE PROJECT AND PUBLIC

To keep this complex, multistate project on schedule and in compliance required coordination with many different entities, including numerous state and federal agencies and communities.

PROJECT STATS

CLIENT

Pattern Power Development

LOCATION

Louisiana, Mississippi
and Texas

TOTAL PROJECT COST

\$5.4 million

350

MILES LONG

500-kV

DC CIRCUITS

11+

NUMBER OF REGULATORY
AUTHORITIES INVOLVED

CHALLENGE

Pattern Power Development proposed the development of a 350-mile HVDC transmission line to transfer wind energy from wind-rich portions of Texas to the Southeast. Known as the Southern Cross transmission project, this electrical superhighway — a 345-kilovolt (kV) alternating current (AC) and 500-kV direct current (DC) transmission line — would provide access to cost-effective renewable energy.

This complex project stretching across three states involved many different constraints. Over the course of nearly a decade, there were changes in staff, systems and processes as well as parties involved that created additional challenges along the way, including the continual management of data, budgets and schedules.

For such a large-scale transmission line project, the developer, relatively new to the development of multistate transmission line projects, initially hired Burns & McDonnell to conduct interconnection feasibility studies. Our team determined the preferred interconnection locations for the converter stations, then provided preliminary engineering services to support cost data for financial modeling.

This front-end planning work — which also helped the developer identify, understand and manage potential risks — progressed into a long-term partnership that increasingly required multifaceted environmental support.

SOLUTION

With an initial strategy and preliminary cost identified, our environmental team began evaluating engineering and environmental criteria at several interconnection sites: the Rusk Substation in Texas and several AC/DC converter stations in Louisiana and Mississippi.

Using available aerial photography and digital data in conjunction with field reconnaissance, our team identified constraints, corridors and routes for the project. Data was mapped in a geographic information system, which was shared with Pattern Power Development via OneTouchPM, our firm's geospatial data aggregation tool that provides access to real-time project data anytime, anywhere, allowing possible issues to be quickly detected. Our team was able to collect information on existing utility corridors, land use, flood plains, cultural resources, threatened and endangered species, parks, wetlands, cities, state and federal properties, and residential and commercial developments.



After finalizing the routes for the AC line from the Rusk Substation in Texas to the Louisiana border, we presented our findings to the Public Utility Commission of Texas for a Certificate of Convenience and Necessity. Written and verbal testimony was provided in support of the project. We then submitted the Mississippi route alternatives to the Mississippi Public Service Commission for review, again providing written testimony in support of that portion of the project.

The length of the project also required a comprehensive and innovative approach to landowner and community involvement, as well as early engagement with local leaders to understand potential landowner concerns. To keep all agencies and the public well-informed across the large project footprint, our team created an informative project website and developed an interactive, web-based open house, allowing landowners to obtain the same information as if they'd attended in-person open houses held throughout the project area. Videos were developed to explain the intent of the open house and information provided at the various stations. Detailed maps and interactive web-mapping were provided to allow landowners to see their properties and provide comments.

When it came time for permitting, we identified, evaluated and discussed three critical crossing locations — the Mississippi River, the Natchez Trace Parkway and the Tennessee-Tombigbee Waterway — with the appropriate agencies. Together, we worked to refine development of the environmental assessments required under the National Environmental Policy Act (NEPA) for the federal crossings. As part of the NEPA process for the Natchez Trace Parkway — a 440-mile recreational road that crosses through Mississippi, Alabama and Tennessee — we completed viewshed analyses of the potential crossings and contracted with TrueScape to complete visual simulations of the alternatives.

Additionally, we conducted wetland surveys on four switching station and converter station sites and initiated and completed wetland, cultural, and threatened or protected species surveys in September 2017 for the three critical crossing locations. By developing a desktop wetland evaluation process, approved by the primary U.S. Army Corps of Engineers district encompassing a majority of the study area, we minimized the amount of wetland surveys required. This saved time and money, reducing the amount of on-the-ground surveying that would be required to obtain the necessary

permits for the project. Our team initiated additional surveys for the remainder of the project in 2018.

The success of the entire project heavily relied on coordination with the U.S. Army Corps of Engineers; U.S. Fish and Wildlife Service; National Park Service; and State Historic Preservation Officers for Texas, Louisiana and Mississippi regarding required permitting activities.

RESULTS

Through successful route development, most potential issues along the proposed 350-mile-long transmission line were avoided. Remaining concerns — specifically regarding the three federal crossing locations — were shared with the developer and agencies early on to discuss possible solutions and develop a plan to minimize permitting difficulties, which helped us to meet the project schedule and budget.

Coordinating such a large, multistate project involving multiple agency regions and districts certainly presented a wide range of challenges throughout the years. The collective team was able to provide timely, well-informed solutions, when necessary, through extensive studies and cross-agency collaboration. Though the project was put on hold in 2018, it continues to be evaluated and considered as a possible solution by Pattern Power Development.



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