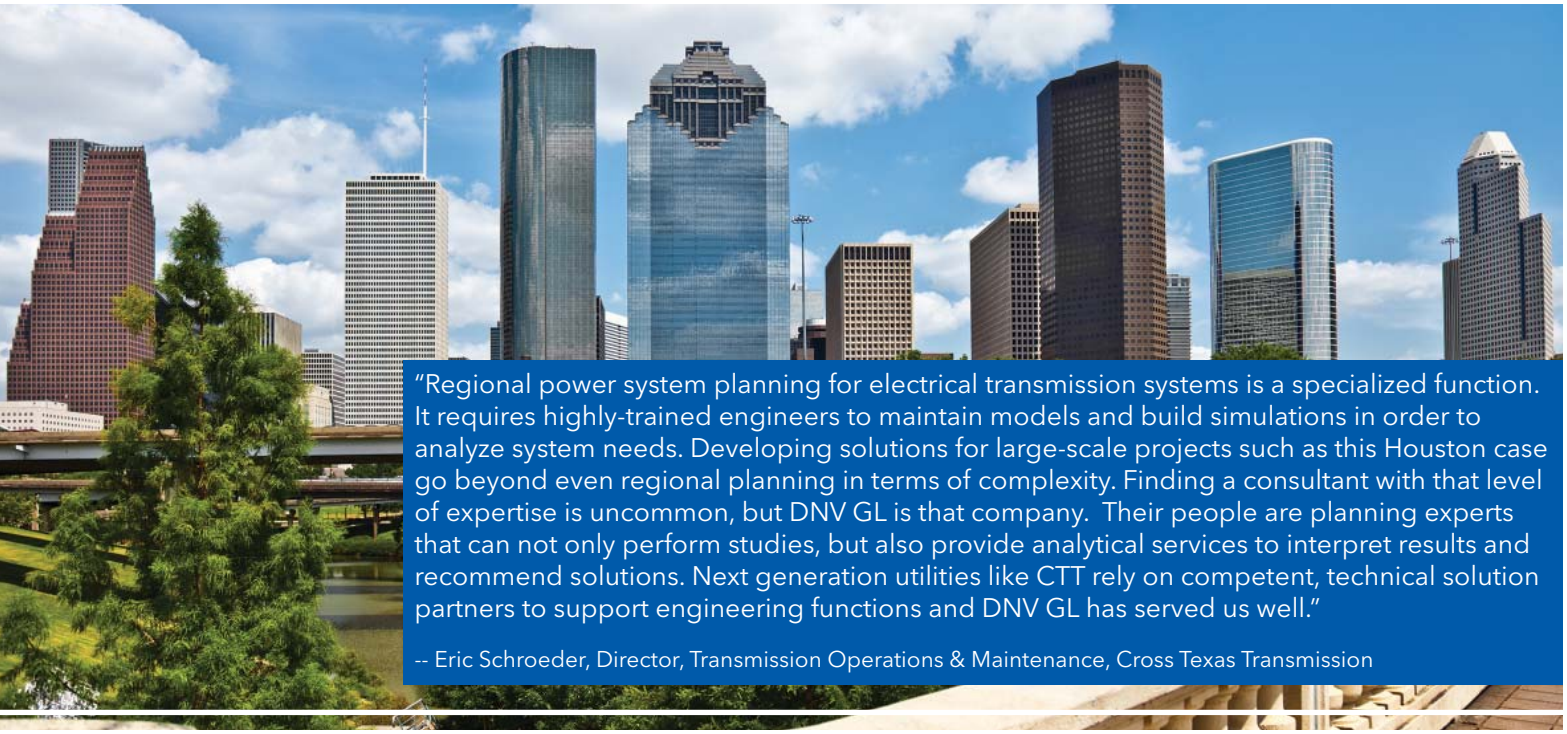

"Regional power system planning for electrical transmission systems is a specialized function. It requires highly-trained engineers to maintain models and build simulations in order to analyze system needs. Developing solutions for large-scale projects such as this Houston case go beyond even regional planning in terms of complexity. Finding a consultant with that level of expertise is uncommon, but DNV GL is that company. Their people are planning experts that can not only perform studies, but also provide analytical services to interpret results and recommend solutions. Next generation utilities like CTT rely on competent, technical solution partners to support engineering functions and DNV GL has served us well."

-- Eric Schroeder, Director, Transmission Operations & Maintenance, Cross Texas Transmission

ENERGY

FINDING THE RIGHT TRANSMISSION SOLUTION FOR HOUSTON

Case Study

CHALLENGE

Houston and the surrounding metropolitan area is one of the largest load centers in the Electric Reliability Council of Texas (ERCOT) system. To meet demand, it relies on electricity generated in Houston and, during peak load conditions, power imports from the rest of the ERCOT system. Load growth, coupled with generation retirement, was causing a need to increase import capacity by 2018. In mid-2013 Cross Texas Transmission (CTT) and Garland Power & Light (GP&L) recognized the issue and decided they could provide a solution.

SOLUTION

CTT is a transmission service provider that operates and maintains more than 200 miles of high-voltage transmission lines that deliver wind resources generated in the Texas Panhandle to the rest of Texas. GP&L is the municipal utility for the City of Garland, providing power and transmission services. With their collective knowledge of the situation and experience in developing high voltage transmission in ERCOT, the two companies saw this as an opportunity to work together. Combined, they brought expertise in building cost-effective transmission systems and experience as a municipal utility that could be connected to the improved transmission system.

Known for its technical proficiency and ability to recommend innovative transmission solutions that work with regional planning processes, PWR Solutions (PWR solutions is now DNV GL) was selected by CTT and GP&L to carry out an independent reliability analysis to identify and test transmission system alternatives that would mitigate Houston's future reliability concerns. Utilizing its innovative, proprietary analysis tools, DNV GL winnowed thirty potential solutions down to the ten that optimally addressed the need for increased reliability. These underwent a detailed load deliverability analysis for future-year cases, performed from a thermal and voltage stability basis. We recommended three preferred solutions to CTT and GP&L, including a 120-mile, 345kV double circuit line from Limestone to Gibbons Creek to Zenith, as well as technical support for the analysis. ERCOT had also identified this constraint and instigated its own independent review to improve Houston's import capacity and provide reliable power to this economically-important area. Our study was used by CTT and GP&L to support their submission to ERCOT's Regional Planning Group (RPG).

RESULTS

While ERCOT received a number of recommendations, it selected the plan we formulated for CTT and GP&L: the double circuit line from Limestone to Gibbons Creek to Zenith based on their independent assessment. We had also performed similar evaluations for several of the other organizations that were involved in this process, providing each company a report customized to their business.

Why DNV GL?

We understand the intricacies of regional planning.

CTT and GP&L needed an expert advisor that was able to analyze a wide range of transmission solutions to find the one that was optimal for all stakeholders, especially the ERCOT system as a whole. Our ability to navigate through the regional planning process allowed us to provide an unbiased, cost-effective and long-lasting solution. By being able to offer a viable, technically supported and independent solution, CTT and GP&L will be able to expand their transmission footprint and ensure the Houston area has a reliable supply of power into the future.

PWR SOLUTIONS is now DNV GL

About DNV GL

Driven by its purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. DNV GL provides classification and technical assurance along with software and independent expert advisory services to the maritime, oil & gas and energy industries. It also provides certification services to customers across a wide range of industries. DNV GL, whose origins go back to 1864, operates globally in more than 100 countries with its 16,000 professionals dedicated to helping their customers make the world safer, smarter and greener.

In the Energy industry

In DNV GL we unite the strengths of DNV, KEMA, Garrad Hassan, and GL Renewables Certification. DNV GL's 2,500 energy experts support customers around the globe in delivering a safe, reliable, efficient, and sustainable energy supply. We deliver world-renowned testing, certification and advisory services to the energy value chain including renewables and energy efficiency. Our expertise spans onshore and offshore wind power, solar, conventional generation, transmission and distribution, smart grids, and sustainable energy use, as well as energy markets and regulations. Our testing, certification and advisory services are delivered independent from each other.

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Learn more about our extensive energy advisory expertise, industry insights, innovations and client successes at www.dnvgl.com/energy.

Contact our Power Systems Planning experts today at energyadvisory.energy@dnvgl.com or +1 781 273 5700.

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