



Project Summary

Texas Department of Transportation

0-6495: TxDOT and Electric Power Transmission Lines

Background

Rural areas of Texas are being extensively developed as locations for renewable energy projects and generation facilities. Wind power, solar power, and other renewable energy technologies are viewed by the public as the next economic boom and have been compared to the oil boom of the early twentieth century. However, studies have indicated that the existing transmission network is unable to support significant transmission of electricity from additional wind generation. The Public Utilities Commission of Texas created Competitive Renewable Energy Zones (CREZ) to match renewable resources with needs in pursuit of adequate future transmission. The Texas Department of Transportation (TxDOT) has the potential for a unique and expansive role in the development of future transmission capacity given the authorizations contained in House Bill 3588 that allow the department to build, own, or operate transmission.

What the Researchers Did

The purpose of this study was to provide baseline information and case studies to better define TxDOT's role in electric power transmission lines and partnering with public utilities. Technical and legal issues were documented in literature and legal analysis undertaken during the study. Stakeholders in electric power generation and transmission were identified, and researchers interviewed a variety of state agencies, transmission providers, renewable energy non-profit organizations, property rights advocates, independent system operators, public utilities and other state departments of transportation.

What They Found

The researchers conclude that at present, the location of transmission alongside transportation is a reasonable and achievable goal. While there are incongruencies in the comparative planning regimens of TxDOT and transmission developers, none seem to present an insurmountable barrier to successful joint development. There are numerous examples of successful installations around the country. In most cases, these alignments are placed just outside of the highway right of way (ROW) on private land, though in a few cases they have also been placed within the ROW. Avoiding conflict with landowners and preserving landscapes was found to be the primary motivation for co-location.

Research Performed by:

Center for Multidisciplinary Research
in Transportation (TechMRT)
Texas Tech University

Center for Transportation Research (CTR),
The University of Texas at Austin

Research Supervisor:

Phillip Nash, TechMRT

Researchers:

Douglas Smith, TechMRT
Richard Walker, TechMRT
Robert Harrison, CTR
Nathan Hutson, CTR
Lisa Loftus-Otway, CTR

Project Completed: 8-31-10

What This Means

The research resulted in recommendations to encourage utility accommodation within ROW, and enhance TxDOT's role in this process.

Based on legal review, case studies, and stakeholder interviews, researchers make the following recommendations for TxDOT:

- Develop a procedure to include utility development and construction in its transportation planning process.
- Request the legislature to place within regular transportation code in Chapter 224 of the Texas Transportation Code the language regarding purchase of ROW for utility development that is currently found in Chapter 227, which provides instruction for development of multimodal corridors that include public utility development.
- Update the utility accommodation manual and process for utility accommodation to reflect the FHWA 2009 guidance on longitudinal accommodation. This would set the stage for continued collaboration between renewable energy transmission line developers and TxDOT and continued planning to achieve the state's renewable production standards and air quality goals.
- Utilize the exception carved out in 23 CFR.1.23 (c) which allows other use or occupancy – that is both temporary and permanent – to utilize ROW, including airspace for non-highway purposes. This exception allows occupancy, if the use is in the *public interest* and does not impair the highway or cause safety issues. Clearly transmission line development falls within this exception, is in the public interest, and if properly developed, maintained and takes advantage of new technologies to assure safety, would provide the requisite level of comfort to both the transmission line developers and TxDOT.
- Add a policy preamble into transportation utility code that planning for a multi-modal system could assist the state in enhancing delivery of renewable capacity that would improve air quality. By facilitating and assisting in the development of transmission routes, TxDOT could aid the state in developing its renewable energy capacity (which is extensive) to reduce reliability on fossil fuels.
- Structure a process to start dialogue with various utility groups in Texas. TxDOT could host a series of briefing meetings to discuss potential partnering opportunities. These meetings would also be a good forum to discuss current issues faced by these groups. These issue meetings could be utilized to develop internal guidance materials for the various groups.

For More Information:

Research Engineer - Duncan Stewart, TxDOT, 512-416-4730
Project Director - Tommy Jones, TxDOT, 325-676-6830
Research Supervisor - Phillip Nash, TechMRT, 806-742-2783

Technical reports when published are available at:
<http://library.ctr.utexas.edu/index.html>

www.txdot.gov
keyword: research



This research was performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement.