

Oncor Electric Delivery Company Dynamic Line Rating

Project Description

Oncor and its partners are conducting studies to remove constraints that prevent utilities from using Dynamic Line Rating (DLR) technology. Oncor will install and commission DLR technology at 26 locations distributed along eight transmission circuits located in Bell, Bosque, Falls, Hill, McLennan, and Williamson counties in central Texas. These circuits have been identified as significantly constrained by the Electric Reliability Council of Texas. At each location sensors will be attached to transmission towers. Radio receivers will be installed inside ten substations. The remaining dynamic line rating components will be housed at a transmission management system control center in Dallas. DLR technology uses a tension sensing device installed directly in a transmission circuit that accurately rates the conductor allowing better line management that enables the reduction of grid congestion. The use of DLR will provide the true transfer capacity of the grid in real time accounting for actual weather conditions. Oncor will demonstrate how installation can be streamlined; optimize the number of monitors required to rate the transmission line; train installation crews in effective installation practices; evaluate current calibration techniques to improve productivity and accuracy; and develop a best practices manual for future installations. Oncor will also demonstrate a technology that monitors line sag/clearances without requiring mounting equipment on the structures or line, which provides the flexibility to move sensors as needed.

Goals/Objectives

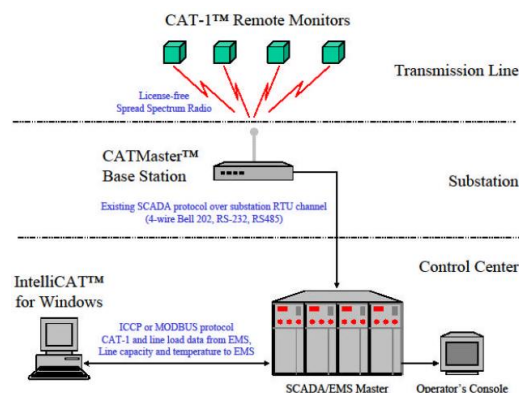
- Relieve congestion and transmission constraints, ensure design operating temperatures are not exceeded under adverse weather conditions, identify and quantify operation limits, and demonstrate that multiple monitoring units can be successfully integrated in transmission operations
- Determine a methodology to release day-ahead ratings and develop easy-to-use tools for the operator to manage improved wide-area situational awareness
- Quantify the economic value of the released transmission capacity to wholesale power markets, estimate the savings associated with the deferral of re-building or adding new circuits had DLR not been available, and quantify the total costs of implementing DLR

Key Milestones

- ICAT-1 Device Installation (April 2010)
- Terminal Upgrades (January 2011)
- Fine-tune DLR Device (August 2011)
- Remaining DLR Device Installation (November 2010)
- DLR automated into determining line ratings that are sent to ERCOT (May 2012)
- Submit final report (August 2013)

Benefits

- Electric costs reduced
- Power reliability increased
- Greenhouse gas emissions decreased



CONTACTS

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PARTNERS

The Valley Group
Southwest Research Institute
Siemens Energy Inc.
Chapman Construction Company

PROJECT DURATION

1/1/2010–5/4/2013

BUDGET

Total Project Value
\$7,136,552

DOE/Non-DOE Share
\$3,471,681/\$3,664,871

EQUIPMENT

26 Nexans CAT-1 units and associated logging & communications equipment
5 EDM Sagometer units
2 Promethean Devices Real-Time Transmission Line Monitoring System (RT-TLMS) units

DEMONSTRATION STATES

Texas

CID: OE0000320

Managed by the National Energy Technology Laboratory for the Office of Electricity Delivery and Energy Reliability

