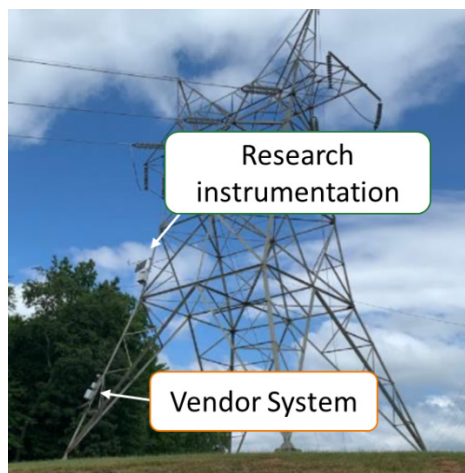


Guidance for Dynamic Line Rating (DLR) Equipment Specification and Assessment



Background, Objectives, and New Learnings

North American utilities are faced with pending regulations that would require adoption of dynamic line rating (DLR) technologies. Those technologies are intended to provide transmission ratings that accurately reflect real-time conditions in the field. In theory such ratings would allow the maximum amount of power transfer without exposing utilities to risks.

Utilities require information on how to define and confirm the accuracy levels of DLR systems to ensure they meet manufacturer specifications and utility needs. DLR systems can be costly to deploy and maintain; utilities also require ways to specify and validate the long-term performance of DLR systems in harsh environmental conditions and remote areas.

In some cases, a vendor may have many years of deployments with a technology and then releases an updated version of their hardware or software. Utilities are forced to decide between spending additional time and funds on repeating pilot studies or hoping that the new system has the same performance of past generations and has introduced no bugs.

The objective of this project is to develop a specification document for DLR technology. This will provide utilities with a list of metrics to request from technology providers and the technical basis to set go/no-go thresholds. A secondary objective is to identify standards or non-standard tests that can be applied to validate system performance before costly pilot studies or large-scale deployments are undertaken.

Project Highlights:

- Develops technical basis for selection of transmission line ratings equipment
- Demonstrates how to validate DLR performance with laboratory and field testing
- Understand how to select from technologies that use different methods and models
- Helps prepare for FERC AD22-5 requirements for DLR adoption
- Guides utilities to the most appropriate technologies to apply or implement in pilot projects

Benefits

This information would be the first of its kind available to the industry. Limited information has been developed in non-technical pilot projects and committees lacking comparative data. As a result, there is a lack of comprehensive specification practices available to utilities covering modern equipment. This project seeks to establish the performance criteria utilities can use to specify and select DLR technologies. The key research questions may include:

- What level of accuracy is needed from field measurements?
- What level of accuracy is needed with calculated ratings?
- Will a system be reliable over long term exposure to harsh weather?
- Will a system be reliable over long term exposure to weather and the electric and magnetic fields produced by lines?
- What tests can be performed to validate performance before multi-year pilot studies?

Deliverables

This project will produce a report summarizing the technical basis for selecting DLR equipment. The report will have a stand-alone section which could be used as a specification guide. Utilities will also engage with EPRI subject matter experts on a regular basis to facilitate knowledge transfer.

Price of Project

\$40k per utility with six members needed to achieve the full intended scope.

Project Schedule

The project is expected to last 18 months and begin in the first half of 2023.

Who Should Join?

- Utilities considering a pilot study or demonstration project with DLR technologies
- Utilities who wish to prepare for future regulations resulting from FERC AD22-5-000
- Utilities trying to determine which, if any, DLR technology will be a suitable fit for their line rating needs
- Utilities who have selected a DLR technology and wish to validate its performance and better project life cycle costs

Contact Information

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