



Project 13-3: Survey of Inspection & Maintenance and Thermal Imaging Practices

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Project Summary:

The inspection and maintenance (I&M) of distribution assets is still the first line of defense against equipment failure and poor reliability. Frequent inspection can identify problematic line components and add value to aging distribution systems by increasing asset utilization. The associated I&M expenditure, however, increases operating cost and directly impacts the operation and maintenance (O&M) budget. It is important to find a balance between the risk of equipment failure, customer outages, and the cost of inspection and maintenance. As every utility has its own standards and practices that dictate how often they perform inspection and maintenance activities, the purpose of this project is to identify best practices and share information on common I&M practices among DSTAR utilities.

For most utilities, inspection and maintenance include the following activities

- 1) Vegetation management
- 2) Overhead line structure inspection (e.g. pole, ground line, guy, switch gear, vault, etc.)
- 3) Underground line equipment inspection (e.g. pad mound transformer, switchgear and junction box)

For scheduled inspections, utilities rely on their I&M staff or service contractors to examine line components, estimate remaining life, and recommend replacement.



I&M activities are typically performed on a periodic basis. This time-based maintenance is simple and straightforward but may not adequately address changing conditions or target critical assets. Other strategies include condition-based maintenance (equipment is serviced only when it needs it) and reliability-centered maintenance (combination of equipment condition and importance). Regardless of the approach, the ultimate goal is to prevent equipment failures and customer interruptions.

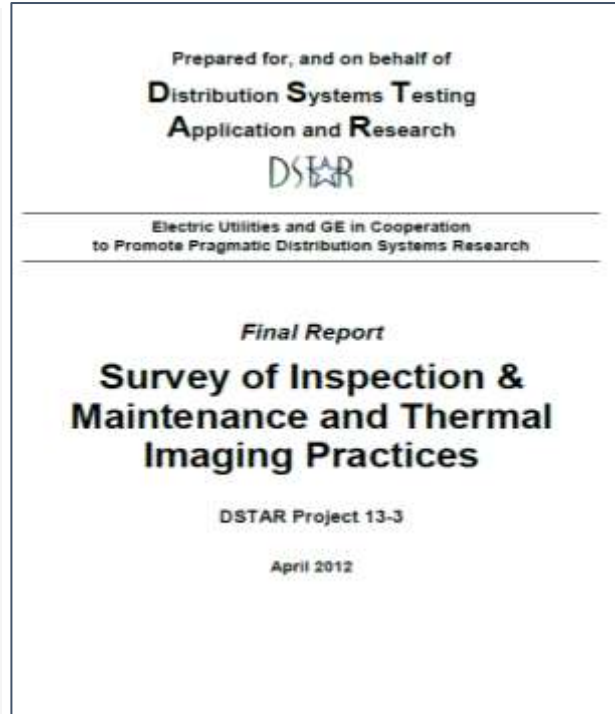
Many utilities have been using thermal imaging devices to detect incipient failures of equipment and connections. Since connectors are required by ANSI Standards to run cooler than the conductor they attach to, it is logical that any connector that runs hotter than the conductor is a likely candidate for failure. The key questions is when is that failure likely to occur, and what set of factors determine the maintenance action to be taken.



The goal of this project is to identify and compare the common I&M practices among DSTAR utilities through survey and follow-up interviews with DSTAR members, selected vendors and consultants. The focus is on overhead line structures, underground line equipment, and vegetation management, and the guidelines utilities follow, applicable standards, technology use and challenges.

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Who Should Use:

Distribution Operations, Inspection & Maintenance, Planning, Standards, Reliability Groups

For the complete report on Project 13-3: Survey of Inspection & Maintenance and Thermal Imaging Practices, visit www.dstar.org.



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