Georgia Tech NEETRAC
National Electric Energy Testing, Research and Applications Center

NEETRAC NEWS

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Be a Part of NEETRAC Research

Several NEETRAC projects require your input to maximize the project value to our Members. Please take a quick look at the following projects. Some request that you fill out a survey and some request that you contact the principal investigator. If you have already provided your input, we extend our thanks!

17-038: Battery Systems for Field T&D Equipment

https://www.surveymonkey.com/r/Batteries_for_Equipment

17-047: Design Elements for High Reliability Underground Distribution Systems

https://www.surveymonkey.com/r/NH8WGGY

17-132: Wood Pole Inspection Techniques - Phase II

To complete this project, we need information on wood pole inspection programs from Members. Contact wen.shu@neetrac.gatech.edu.

17-134: Understanding Online Condition Assessment of Overhead Transmission Connectors

We require experience of Resistance and IR tests so that we can progress with the analysis. Please contact Thomas Parker if you can assist: thomas.parker@neetrac.gatech.edu.

17-204: Online Condition Monitoring of Transmission Assets – Scoping Study

https://www.surveymonkey.com/r/7GLKN66

18-103: Endurance of Outdoor Insulation Multifactor Aging

https://www.surveymonkey.com/r/NEETRAC_BL18-103

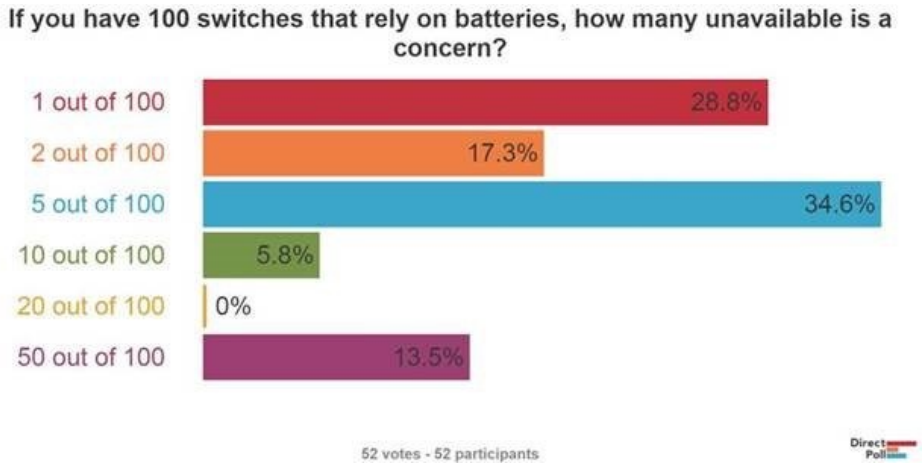
It is Not B50 but B5 Life that Counts!

Many NEETRAC projects develop estimates for the life of components used on utility systems. Recently, we developed estimates for:

- Wood poles
- Batteries used on distribution automation
- Transformer enclosures
- Switch controllers
- Overhead conductors

The critical failure rate for a given device is difficult to establish. We explored this issue a the September 2018 board meeting by asking Members about battery failure in distribution automation devices. We conducted a real time poll among the Members to see what they had to say about battery failure rates. We asked the question, “How many devices out of 100 have to become unavailable before a utility acts to correct the problem?”. The poll results showed that:

- The commonly referred average life (B50 life*) is not the failure rate that leads utilities to act when addressing battery life for field T&D applications.
- The tolerance of battery reliability in power industry suggests that we should focus on a B-life that is definitely lower than B50 life and more likely to be <= B5 life.
- The poll data indicates B4 life should be the battery reliability requirement.



* B life is the age at which a certain percentage of the units will experience their first failure. The percentage is defined by the number following the letter B. For example, a B50 life is the age at which 50% of the units will experience their first failure. A B5 life is the age at which 5% of the units will fail.

Welcome to LS Cable & System

NEETRAC welcomes LS Cable & System as our newest member! LS Cable & System designs, manufactures, and distributes an array of cable products for the rapidly growing energy sector, including low and medium voltage products that service the commercial, industrial, renewable energy, and utility markets.

Baseline Project Recently Completed

The following Baseline project closeout was presented at the May 2018 Management Board Meeting. The report will be finalized and distributed in the coming months.

Capacitor Bank Operating Issues - Present & Future

Baseline Project Number 15-125

With the advent of distributed resources and energy efficiency programs, capacitor banks are expected to increase in numbers and their switching schemes to change so they can compensate for variations in distribution voltage and VAR requirements. This project was conducted to help utilities and manufactures better understand (i) the characteristics of the current population of capacitor banks in North America (population size, age, switching technologies, control schemes), (ii) today's operating procedures and inspection / maintenance practices, and (iii) current issues with capacitor banks and future requirements and capabilities. This project was carried out considering the information provided by 30 electric utilities; the information was gathered using a combination of surveys, individual interviews, and group discussions.

The research results represent a combined population of over 50,000 capacitor bank units. The results of this project were disseminated in the form of a symposium: to date, the largest distribution focused capacitor bank industry symposium.

Baseline Projects Recently Launched

NEETRAC is launching the following Baseline project proposals presented during the May 2018 Management Board Meeting based on input from the Management Board.

Cable Drying Assessment and Decision Criteria

Baseline Project Number 18-102

Occasionally, cables (distribution and transmission) are found with water in the conductor. Since the presence of water can adversely impact cable performance, field drying is often performed. The common drying approaches, however, are variable and can be slow. However, there is no criteria for establishing when the cable is sufficiently dry and ready to energize. This project will identify practical methods that may be used in the field to estimate the rate of drying. It may also establish heuristics / algorithms to estimate when an adequate amount of drying has occurred.

Endurance of Outdoor Insulation Multifactor Aging

Baseline Project Number 18-103

Composite and polymer materials are increasingly used to make insulators, cutouts, arresters, etc. Although there have been many NEETRAC projects on composite insulations, they have not focused on the endurance / life at or near operating conditions. Nor have they focused on stressing the component for a fixed time with post-testing to determine their life under typical service conditions. Consequently, information on the endurance life of outdoor polymeric insulations is not known. This project will attempt to relate field aging to laboratory aging using tracking wheel aging and UV conditioning tests.

Technical Advisor Participation

Member employees have the opportunity to serve as Technical Advisors on NEETRAC collaborative (Baseline) projects. In this role, they provide guidance that maximizes the value of the project to their company and to the Membership as a whole.

Why should you serve as a Technical Advisor?

- You receive project results as soon as they become available
- You have first hand information on the details / development of the project
- You network with other Technical Advisors from NEETRAC utility and manufacturing Member companies through project conference calls
- You suggest ways the project addresses issues specific to your company
- You have direct access to analysis and interpretation of project data
- You have the opportunity to provide input on the project deliverable

What does NEETRAC expect of Member Technical Advisors?

- You represent the perspective of your company
- Along with your Management Board Representative, you solicit input from others in your company to help maximize the value of the project for all Members
- Together with your Management Board Representative, we would like you to disseminate the findings of the projects widely within your company
- You review project deliverables (presentations, software, and final report) to help assure that the project accomplishments are clear
- You raise any concerns (technical or commercial) during the course of the project

To become a Technical Advisor for the new projects summarized in this newsletter or any other NEETRAC Baseline project, please email Suzanne Schmidle at suzanne.schmidle@neetrac.gatech.edu with your contact information and the project for which you'd like to volunteer.

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Management Board Meetings

The next three Management Board meetings have been scheduled. Please plan to join us on the Georgia Tech campus on the following dates:

January 24 - 25, 2019
May 15 - 16, 2019
September 18 - 19, 2019

For details, please visit the Member Section of the NEETRAC website at www.neetrach.gatech.edu.

2018/2019 NEETRAC Member Management Board Representatives

1. 3M..... Mark Hoisington
2. ABB..... Gary Haynes
3. Alumaform..... Pete Landsgaard
4. Ameren..... Mark Nealon
5. American Electric Power..... John Tucker
6. BC Hydro.....Cosmo Picassi
7. Borealis Compounds, Inc.....Susan Song
8. Consolidated Edison..... Frank Doherty
9. Dominion Virginia Power..... John Bruce
10. Dow Chemical Company.....Brent Richardson
11. DTE Energy.....Najwa Abouhassan
12. Duke Energy.....Chris Fletcher
13. Eaton..... Alan Yerges
14. Exelon..... Lisa Perrone
15. FirstEnergy.....Randy Coleman
16. General Cable.....Bill Temple
17. Gresco Utility Supply.....Brad Schafer
18. Hubbell Power Systems.....Jerry Goolsby
19. LS Cable & System.....Tim West
20. MacLean Power.....Matt Gaertner
21. NRECA..... Reed Cooper
22. Pacific Gas & Electric..... Rudy Movafagh
23. PacifiCorp..... Douglas Marx
24. PPL Corporation.....Nicole Lacouve
25. Prolec GE..... Carlos Gaytan
26. Public Service Electric & Gas..... Ed Gray
27. S&C Electric..... Salvador Palafox
28. San Diego Gas & Electric..... Christian Henderson
29. Smart Wires..... Haroon Inam
30. South Carolina Electric & Gas..... Mike Cook
31. Southern California Edison..... Herbert Martinez
32. Southern Company..... Michael Pearman
33. Southern States, LLC..... Joe Rostron
34. Southwire Company..... Sherif Kamel
35. TVA..... David Smith
36. Viakable..... Raul Garcia
37. We Energies..... Michael Smalley