

# Aluminum Composite Conductor Tests for the 3M Company

## Task 1: Low Voltage- High Temperature Test Line



**John P. Stovall**  
**Oak Ridge National Laboratory**

ORNL Project Team  
D. Tom Rizy  
Roger A. Kisner  
John P. Stovall

Brendan J. Kirby  
Charles Bruce  
Lynn Degenhardt  
Randall Wetherington

# ORNL Project Summary

## Aluminum Composite Conductor Tests for the 3M Company



- New Project, start date March 25, 2002
- FY 2002 Budget – \$620,000
- Duration – 3 years
- Goal
  - To accelerate the commercial acceptance of the aluminum composite conductor
- Objective
  - To verify the aluminum composite conductor and accessory performance by providing performance data based upon field testing including through testing at rated conductor temperatures

# ORNL CRADA with 3M Company



- Project Plan (ORNL CRADA Tasks)
  - Task 1 – Thermal Cycling Conductor Tests
    - ORNL to build outdoor test facility, install conductor, test at high-current / low-voltage / rated conductor temperature of 210°C for approximately 500 thermal cycles
    - Facility name is “PCAT” - **Powerline Conductor Accelerated Test**
    - Will measure sag, tension, current and conductor temperature to quantify conductor performance
    - Will test 3 conductor sizes – 477, 795 and 1272 kcmil ACCR
  - Task 2 – Measurement and Analysis for Conductor Field Tests
    - 3M to select several utility field test sites and install conductor with host utilities
    - ORNL to provide monitoring hardware as necessary, collect and analyze field data