

U.S. Department of Energy, Office of Electricity
Transformer Resilience and Advanced Components Program Review
 August 13-14, 2019

Oak Ridge National Laboratory, Hardin Valley Campus
 2350 Cherahala Blvd, NTRC-3
 Knoxville, TN 37932

Day 1—Tuesday, August 13

TIME	AGENDA
7:30 – 8:00 am	Registration and Breakfast
8:00 – 8:10 am	Welcome and Introductions Rick Raines, Director, Electrical and Electronics Systems Research Division, Oak Ridge National Lab
8:10 – 8:20 am	Purpose, Agenda, Logistics Emmanuel Taylor, Energetics
8:20 – 8:50 am	Keynote Speaker Sanjay Bose, Senior Technical Advisor, U.S. Department of Energy
8:50 – 9:15 am	TRAC Program Overview Kerry Cheung, TRAC Program Manager, U.S. Department of Energy
9:15 – 9:30 am	BREAK
9:30 – 11:30 am	Group 1—Modeling and Analysis (30 min each) <ul style="list-style-type: none"> ➤ Suman Debnath, ORNL <i>Models, Methods, & Tools to Analyze High-Penetration of Power Electronics in Grids; HVdc Models and Methods – Extension</i> ➤ Bjorn Vaagensmith, INL <i>Evaluation of Grid Equipment Design Requirements for Improved Resilience</i> ➤ Zhi Li, ORNL <i>Continuously Variable Series Reactor (CVSR) for Distribution System Applications; Tapless Regulating Power Transformer (TAREX)</i> ➤ Paul Ohodnicki, NETL <i>Development of Automated Design and Optimization Tools for High Frequency Magnetic Components and Migration to Open Source and High-Performance Computing Environments</i>
11:30 am – 12:30 pm	LUNCH
12:30 – 2:30 pm	Group 2—Next-Gen Components 1 (30 min each) <ul style="list-style-type: none"> ➤ Parag Upadhyay, ABB <i>Novel Concept for Flexible and Resilient Large Power Transformers</i> ➤ Ibrahima Ndiaye, GE Global Research <i>Design, Deployment and Characterization of the World's First Flexible Large Power Transformer</i> ➤ Prasad Kandula, Georgia Tech Research Center <i>Demonstration of a 5 MVA Modular Controllable Transformer (MCT) for a Resilient and Controllable Grid</i> ➤ Alex Huang, UT Austin <i>Modular Hybrid Solid State Transformer for Next Generation Flexible and Adaptable Large Power Transformer</i>
2:30 – 2:45 pm	BREAK

2:45 – 4:45 pm	Group 3—Next-Gen Components 2 (30 min each) <ul style="list-style-type: none"> ➤ Madhu Chinthavali, ORNL <i>Solid State Power Substation (SSPS) Architecture Design</i> ➤ Subhashish Bhattacharya, North Carolina State University <i>Flexible Large Power Solid State Transformer</i> ➤ Sudip Mazumder, NextWatt <i>Next-generation modular flexible low-cost silicon carbide (SiC) based high-frequency-link transformer</i> ➤ Burak Ozpineci, ORNL <i>Environmentally Neutral Automated Building Electric Energy (ENABLE) Platform</i>
4:45 pm	Adjourn
6:00 pm	No Host Dinner: <i>Calhoun's Oak Ridge, 100 Melton Lake Peninsula, Oak Ridge, TN</i>

Day 2—Wednesday, August 14

TIME	AGENDA
7:30 – 8:00 am	Registration and Breakfast
8:00 – 8:15 am	Overview of the Day, Logistics
8:15 – 10:15 am	Group 4—Sensing and Characterization (30 min each) <ul style="list-style-type: none"> ➤ Sigifredo Gonzalez, SNL <i>Advanced Sensors Field Validation (MagSense)</i> ➤ Timothy McIntyre, ORNL <i>GMLC SAW Sensor Field Validation</i> ➤ Paul Ohodnicki, NETL <i>Optical Fiber Sensor Technology Development and Field Validation for Distribution Transformer and Other Grid Asset Health Monitoring</i> ➤ Paul Ohodnicki, NETL <i>Establishment of a Medium Voltage (MV) Core Loss Test System (CLTS) and Application Relevant Characterization of MV Dielectric and Insulation Materials</i>
10:15 – 10:30 am	BREAK
10:30 am – 12:30 pm	Group 5—Materials and Manufacturing <ul style="list-style-type: none"> ➤ Alexander Plotkowski, ORNL (30 min) <i>Microstructure Optimization of Electrical Steel Through Understanding Solidification Dynamics in Additive Manufacturing</i> ➤ Iver Anderson, Ames National Laboratory (30 min) <i>Al/Ca Composite Conductor Characterization</i> ➤ Jesse Reeves, INL (20 min) <i>Robust Insulation for Resilient Transformers and Power Electronics</i> ➤ Paul Ohodnicki, NETL (20 min) <i>Soft Magnetic Alloy Advanced Manufacturing Through In-Line RF Processing; Metal / Oxide Nanocomposite Materials for High Frequency and High-Power Magnetics</i> ➤ Jonathan Bock, SNL (20 min) <i>Class II High Temperature Ceramic Capacitor Development</i>
12:30 – 1:30 pm	LUNCH
1:30 – 3:00 pm	Portfolio Discussion and Feedback
3:00 – 3:15 pm	BREAK
3:15 pm	Facility Tours (MDF, PE Lab)
4:45 pm	Adjourn