

The electricity industry is undergoing fundamental change in moving from a regulated monopoly to a competitive industry. Low load growth, over-capacity, uncertainty and speculation about the future state of the industry are creating pressures on the availability of capital and the reduction of operating costs.

Now more than ever, there is a need to optimize the use of existing station plant assets and to develop new, lower cost, more efficient and reliable equipment applications. This new reality is complicated by the fact that a significant amount of station equipment in use today has already accumulated 30 or more years of service. Maintenance costs will rise as the inherent reliability of an aging plant starts an inevitable decline. At the same time, technological developments in information technology, automation and design improvements raise exciting possibilities and opportunities for a reconfigured electrical grid, enabling more effective monitoring and maintenance techniques. All of this is essential in ensuring the reliability of supply, sustainability of operations, and affordability of electric service for customers.

The objective of this Interest Group is to bring together interested parties to facilitate research that will optimize the life cycle management of station equipment and apparatus, reduce costs through collaboration of methods, practices and use of new technologies to help utilities plan future development of their stations.

Topics & Issues

1. Specifications & Testing
2. Condition Monitoring & Assessment
3. Maintenance Practices
4. Prediction of Remaining Life
5. Life Extension Strategies
6. Merging Old and New Technologies
7. Innovations and Developing Trends
8. Requirements for Future Development

Technical Advisor



Mr. Ken Kopechanski, P Eng, graduated from Queen's University and is a registered Professional Engineer in the Province of Ontario. He worked with Hydro One for over 35 years, with varied experience in the operation, maintenance, construction, commissioning and rehabilitation of generating, transmission and distribution facilities. As Stations Superintendent, he managed teams of supervisory, trades and technical staff in the execution of work programs and projects. As Manager, Metering & Technical Services, Ken managed a team of engineers, technologists, technical experts and support personnel to assist field staff and other business units in ongoing activities related to electrical power station equipment, protective relays, power billing meters, and related telecommunication and control equipment.

Selected Collaborative Projects

Procurement & Installation

- Guide for Tender Evaluation, Design Review and Factory Inspections & Acceptance Tests for Transformers, Circuit Breakers, and Switchgear
- Selection and Specification Guides for Major Station Equipment
- Circuit Breaker Reference Document
- In-Service Guides for Transformers and Other Major Types of Station Equipment

Maintenance Practices

- Use of Polymer Products in Stations
- Station Battery Systems
- RTV Coatings and Silicone Grease for Porcelain-Insulated Equipment
- Effective Monitoring Technology for Circuit Breakers
- Transformer Failure Modes with Interpretation Guides
- SF₆ Gas Handling and Control
- Benchmarking Utility Maintenance Practices for Station Equipment
- Criteria for Spare Equipment & Parts
- Best Practices for Accomplishing Regulatory Requirements

Condition Assessment

- State of the Art Review of On-Line Monitoring Equipment
- End-of-Life Decision on Circuit Breakers and Other Major Station Equipment
- Instrument Transformer Condition Assessment and Diagnostics
- Vibro-Acoustic Tap Changer Diagnostic Demonstration
- Health and Risk Index Tools for the Station and Station Equipment

Strategic Management

- Contracting Out: Types of Contract Work and Issues Encountered
- Development of Business Cases for Replacement of Substation Assets
- Safety in Substations
- Utility Asset Management Experiences and Best Practices
- Transmission Station and Transformers - Fire Protection, Prevention, and Restoration Considerations
- Oil Containment, Spill Prevention & Spill Management
- Creation of a Performance and Diagnostic Center
- Contingency Planning Criteria: Spare Equipment, Mobile Spares

Annual Activities

- 2 Face-to-Face Meetings
- Workshops/Conferences
- Technical Tours
- Conference Calls/Webinars
- Benchmarking Surveys
- On-Demand Information Exchange
- Collaborative Project Development

*Participation is open to Utilities and Independent Power Distributors.
For a complete project listing, please visit www.ceati.com/SEAM

