TECHNICAL ENGINEERING COURSES

Reliability of Distribution Systems

Introduction

Most of load interruptions are due to breakdowns in distribution systems. It is essential for a distribution company to have the proper means to systematically assess the level of network reliability and the frequency and duration of customer interruptions.

The end customers are greatly affected by the level of reliability in the distribution system. Most jurisdictions require reporting on the quality of service in terms of frequency and duration of sustained interruptions measured by standard reliability indices.

What you will learn

The Reliability Tutorial introduces reliability concepts aimed at improving awareness among distribution system planning and operation personnel in reliability issues and applications.

Audience

The tutorial has been developed for a wide range of practitioners from the power distribution industry and is particularly useful to:

- Distribution system planning and operation engineers.
- Distribution system economists and risk managers.
- Decision makers of system expansion, refurbishment and rehabilitation.

Date:
June 29, 2006

Course Language:
English

Fee:
US $ 650.
US $ 550. (Before May 31, 2006)

* A 10% discount applies to the second and subsequent registrations from the same company

Location:
Holiday Inn/Midtown
420, Sherbrooke St. West
Montreal, QC
Canada H3A 1B4

Registration to Course:
www.cyme.com (or fax attached form)

Hotel Reservations:

Holiday Inn—Montreal Midtown
Reservation Desk: 1-800-387-3042

Further Information:
info@cyme.com

The course fee includes tuition, refreshments and lunches.

Each participant will receive a set of course notes.

A number of rooms at a special rate is made available to the attendees, on a first-come, first-served basis. Call-in the Hotel Reservation Desk prior to May 26, 2006 for arrangements.

CYME Technical Engineering Courses
Program Director: ***Dr. Atef S. Morched***

Course Outline

- **Reliability and Security of Distribution Systems**
  - Security criteria
  - Operating strategies
  - Utility reliability practices
  - Definitions of factors affecting distribution reliability indices
  - Load distribution company
  - Customer performance indices
  - Outage strategy
  - Feeder and substation design
- **Overview of reliability methods**
  - Concepts of probability theory
  - Component reliability model selection
  - Frequency and duration, minimal cut set
  - State space diagram
  - The bathtub hazard function
  - Mean duration of states
  - Cumulative frequency
- **Reliability indices of distribution networks**
  - Reliability indices
  - Assessment of past performance
  - Sustained interruption indices
  - SAIFI, SAIDI, CAIDI
  - Sustained, momentary and multiple interruption indices
  - Load based indices
  - Review of Standard STD 1366 –2003
  - Performance based Rates-PBR
  - Application of indices
- **Reliability evaluation of distribution networks**
  - Ranking contingencies by their impact on the system
  - Radial systems with perfect/imperfect switching
  - Feeder model
  - Distribution protection and improvements
  - Reliability of distributed generation feeders
- **Identification of major events**
  - Major event classification
  - Station schemes
  - Failure effects and root cause analysis
  - Predicting reliability levels
- **Practical methods to improve performance**
  - Improved customer satisfaction
  - Feeder telemetry
  - Monitoring and control capability
  - Maintenance strategies
  - Benchmarking against industry practices
- **Conclusions**

Instructor

Puica Nitu (Senior Member, IEEE)

Received the M.S. degree from the Polytechnic University of Bucharest, Romania with major in Electrical Engineering. She currently holds the position of Senior Advisor in Energy Markets with Ontario Power Generation Inc.

Puica has an extensive experience in the utility industry, from power systems' applications and reliability to aspects of risk management and financial engineering. She co-authored one book on 'Power System Reliability' and published over 25 technical papers on the subject. She chairs the IEEE Task Force on 'Resources Adequacy of Power Systems'.

Puica was invited to develop and deliver seminars to IEEE – PMAPS (Probabilistic Methods Applied to Power Systems), electric power utilities and conferences in Portugal, Japan, Romania, South Africa as well as in the USA and Canada.

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Registration

Fill out and fax us the form below to sign up for the course.

A CYME representative will contact you to complete the registration process and provide you with the additional information you may need.

You can also sign up on-line on our web site: use the form at the bottom of the Technical Engineering Courses list.

REGISTRATION FORM

Methods of Reliability Applied to Distribution Systems

June 29, 2006

Montreal, Quebec, Canada

Name:	
Company:	
E-mail address (required):	
Street Address:	
City, State/Province:	
Zip/Postal Code, Country:	
Phone and extension:	
Fax:	
Name of Attendees:	

CYME Fax Numbers:

- **Canada and International: (450) 461-0966**
- **USA: (781) 229-2336**

CYME Registration and Cancellation Policy

Registration Information

Upon receiving your registration information, a CYME representative will contact you to complete the registration process. CYME will send you an e-mail acknowledging payment and status. For multiple-attendee registration on the same form, acknowledgement will be communicated to the person requesting the registration.

It is advisable to register at least one month prior to the start date of the course.

Registrations are transferable within your company at no additional cost.

The registration fee of the course, along with available discounts, appears on the course description page. Applicable taxes if any are not included in the fee. Travel and accommodation are at the expense of registrants. For your convenience, CYME will, in most cases, provide you with the name and phone number of a recommended hotel. When a special rate for hotel rooms is announced, attendees should note that this rate applies to a fixed number of rooms and that reservations should be made before the date specified on the CYME web page describing the course.

Cancellation Policy

Cancellation of registrations should be requested in writing, either by mail, e-mail, or fax. For a request received fifteen days or more prior to the course start date, CYME will refund the paid-up fees less US$ 50.00 administration fee per canceling attendee. For a request received after that date, the fee is non-refundable.

While CYME makes every effort to meet the published courses schedule, please note that CYME reserves the right to cancel or change the date or location of its courses. CYME's responsibility will not exceed the amount of the fee collected. CYME is not responsible for the purchase of non-refundable travel arrangements or accommodations or for the cancellation/change fees associated with canceling them.

Please contact CYME to confirm that the course will proceed as scheduled before confirming travel arrangements and accommodations.

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