



# IEEE Power System Relaying Committee Summary

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# Outline

- Basic information
- Committee overview, purpose, format
- Benefits of involvement: Why you should attend





# Overview

- IEEE has 37 Societies
- The Power and Energy Society (PES) has 24,000 members (third largest in the IEEE)
- The Power System Relay Committee (PSRC) is one of 14 Technical Committees in the PES
- The PSRC has one Advisory Committees and six subcommittees:
  - ◆ C System Protection
  - ◆ D Line protection
  - ◆ H Relaying Communications
  - ◆ I Relaying Practices
  - ◆ J Rotating Machinery Protection
  - ◆ K Substation Protection





- Treatment of all matters ...of relays and relaying systems employed in transmission, generation, distribution ... and their effect on system operation.
- Meets 3 times a year (September, May January)
- Typical attendance is 175 - 200
  - ◆ Utilities, Manufactures, Academia,
  - ◆ Consultants



# Protection Equipment





# Committee Meeting





# Overview Continued

- Each subcommittee has several working groups. For example, I am involved in D11, which is writing a report: “The Effect of Distribution Automation on Relaying”
- Each subcommittee works on different types of documents:
  - ◇ Standards—Documents that say “You must...”
  - ◇ Recommended Practices
  - ◇ Guides
  - ◇ Reports and Papers: For example, I1 is “Understanding Microprocessor-based Technology Applied to Relaying”
- Format is pretty laid-back—most documents take years to complete
- Six to ten working groups meet at the same time, so you can only be actively involved in a few groups



# Sample Agenda

	TUESDAY 9:30-10:45 AM
D4	Application of Overreaching Distance Relays
I1	Understanding Microprocessor-Based Technology Applied to Relaying
C14	Use of Synchrophasor Measurements in Protection Applications
K5	Application of Common Protective Functions in Multi-function Relays
C4	Global Industry Experience with System Integrity Protection Schemes
I3	Relay Functional Type Testing
J4*	AC Generator Protection Guide
I9-1*	Revise C37.105 Std. For Qualifying Class 1E Relays
H14	Telecommunication Terms Used by Protection Engineers



# Committee Evolution

- 1) Members suggest a working group
- 2) Advisory Committee determines the scope of the group, and announces it to the membership
- 3) Task force meets and decides whether to continue
- 4) A Chairperson and Vice-Chairperson are identified
- 5) Work begins; guests become members at the invitation of the Chair
- 6) Representatives share their experiences
- 7) An outline is developed, and writing assignments are made
- 8) Drafts are created
- 9) Final version goes to ballot, for Guides and Standards
- 10) Negative votes are resolved
- 11) Final product is issued





# C-System Protection Subcommittee

C4 Industry Experience with System Protection Integrity Schemes

C9 Guide for the Application of Protective Relays used for Abnormal Frequency **Load Shedding and Restoration**

C11 Guide for Protection System Testing

C12 Performance of Relaying During Stressed Conditions

C13 Undervoltage Load Shedding

C14 Use of **Time Synchronized Measurements** in Protective Relaying Application



# D-Line Protection Subcommittee

D1 **Cold Load Pick Up** Issues

D4 Application of Overreaching Distance Relays

**D5** Guide for Protective Relay Applications to Distribution Lines

D8 Justifying of Pilot Protection

D9 Transmission Line Protection

D11 Effects of **Distribution Automation** on Protection

D21 Investigate Supporting of IEC Standard for Distance Relay Characteristics

D22 Performance Testing of Transmission Line Relays for Frequency Response

D24 Transmission Line Applications of Directional Ground Overcurrent Relays



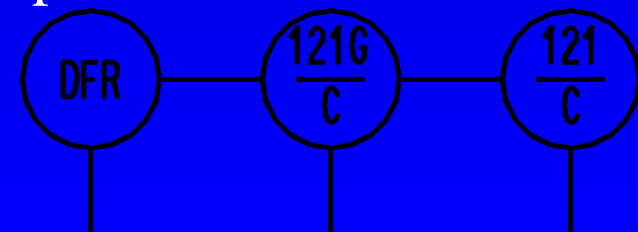
# H-Relay Communications Subcommittee

- H1 Guide for the application of digital teleprotection
- H2 Broadband Communications Over Power Line Carrier
- H3 **Time tagging** in Protection and Disturbance Recording  
IEDs
- H4 Revision of C37.111 Comtrade Standard
- H5 Common Format for IED**
- H6 Ethernet LAN in Substation Protection and Control
- H8 File Naming Convention
- H9 **Understanding Communication Technology** for  
Protection Systems
- H10 Naming Installed Intelligent Electronic Devices (IEDs)
- H11 C37.118 Syncrophasor Standard
- H12 Configuring Ethernet LAN Infrastructure
- H14 Telecommunications Terms Used by Protection Engineers



# I-Relaying Practices Subcommittee

- I01 Understanding **Microprocessor-Based Technology** Applied to Relaying
- I03 Relay Functional Type Testing
- I05 Schematic Representation of Power System Relaying
- I08 Guide for Application of Optical Sensor Systems
- I10 Revision of C37.98: Standard for Seismic Testing of Relays
- I14 Revision of C37.2-1996, **Device Function Numbers**
- I15 Revision of C37.110 - Guide for the Application of Current Transformers Used for Protective Relaying Purposes
- I17 Trends in Relay Performance
- I18 **Anomaly Checks on Relay Settings**
- I19 Protective Relaying and Redundancy
- I20 Revision of C37.90.1: Surge Withstand Capability Tests





# J-Rotating Machinery Subcommittee

J1 Revision of C37.106-1987 Guide for Abnormal Frequency Protection for Power Generating Plants

J3 Protection of Small Generators Connected to the Power System

J4 Revision of C37.102, **AC Generator Protection Guide**

J5 Setting of Generator Protection Relays

J6 Performance of Generator Protection During System Disturbances

J7 Revision of C37.101, Generator Ground Protection Guide

J9 Motor Bus Application and Issues Investigation

JTF1 VFD Protection Issues Related to Motors



# K-Substation Protection Subcommittee

K5 Application of Common Protective Functions in Multi-Function Relays

K6 Sudden Pressure Protection For Transformers

K7 Guide for the **Protection of Shunt Reactors**

K8 Guide For The Protection Of **Shunt Capacitor Banks**

K9 Protection Considerations to Mitigate Arc Flash Hazards

K10 SCC21 Distributed Resources Standard Coordination

K13 Guide for Protective Relay Application of Transmission Line Series Capacitor Banks

K14 Guide for Protective Relay Applications to Power System Buses



# Company Benefits of PSRC Attendance

- Help the industry
- Improves your Company's protection practices
- Improves your Company's networking
- Improved access to new ideas and emerging technologies, for example NERC and cyber-security



# Personal Benefits of PSRC Attendance

- Education
- Networking
- Meet the Movers and Shakers of the Industry
- Travel



# Action Items for You

- Visit the web site: [www.pes.psrc.org](http://www.pes.psrc.org)
- Find the committee that applies to you:
  - ◇ Substations Committee (includes SCADA)
  - ◇ Power System Communications Committee
  - ◇ Power System Analysis, Computing and Economics
  - ◇ Power System Operations Committee
- Attend a meeting,  
especially if it's in town

