

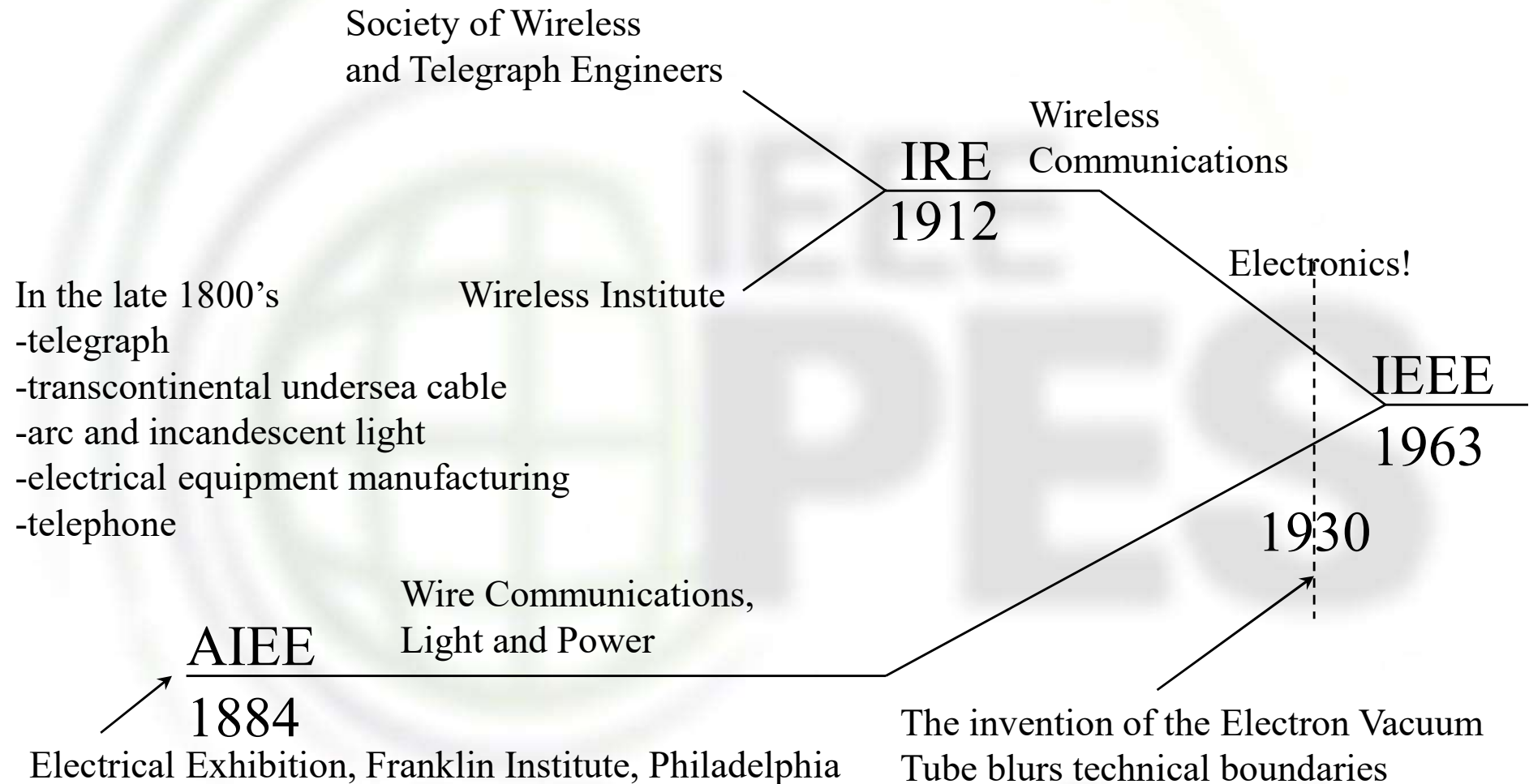
Power Systems Relaying & Control Committee

Gene Henneberg / PSRC Committee Vice-Chair

Mal Swanson / Cathy Dalton

PSRC Membership / PSRC Publicity

The IEEE Yesterday



Detailed history can be found at the following link:

<https://www.ieee-pes.org/images/files/pdf/PES-History-Presentation-RAD.pdf>

The IEEE Today

- > 450,000 Members > 190 countries > 64% outside the USA.
- > 145,000 Student members.
- World's largest technical & professional society.
- 1,400,000 subscribers to all IEEE publications.
- 534,000 attendees at > 2,000 conferences.
- >34,000 participants in Standards development.
- >2,100 Standards projects

IEEE Mission & Vision



Our Mission

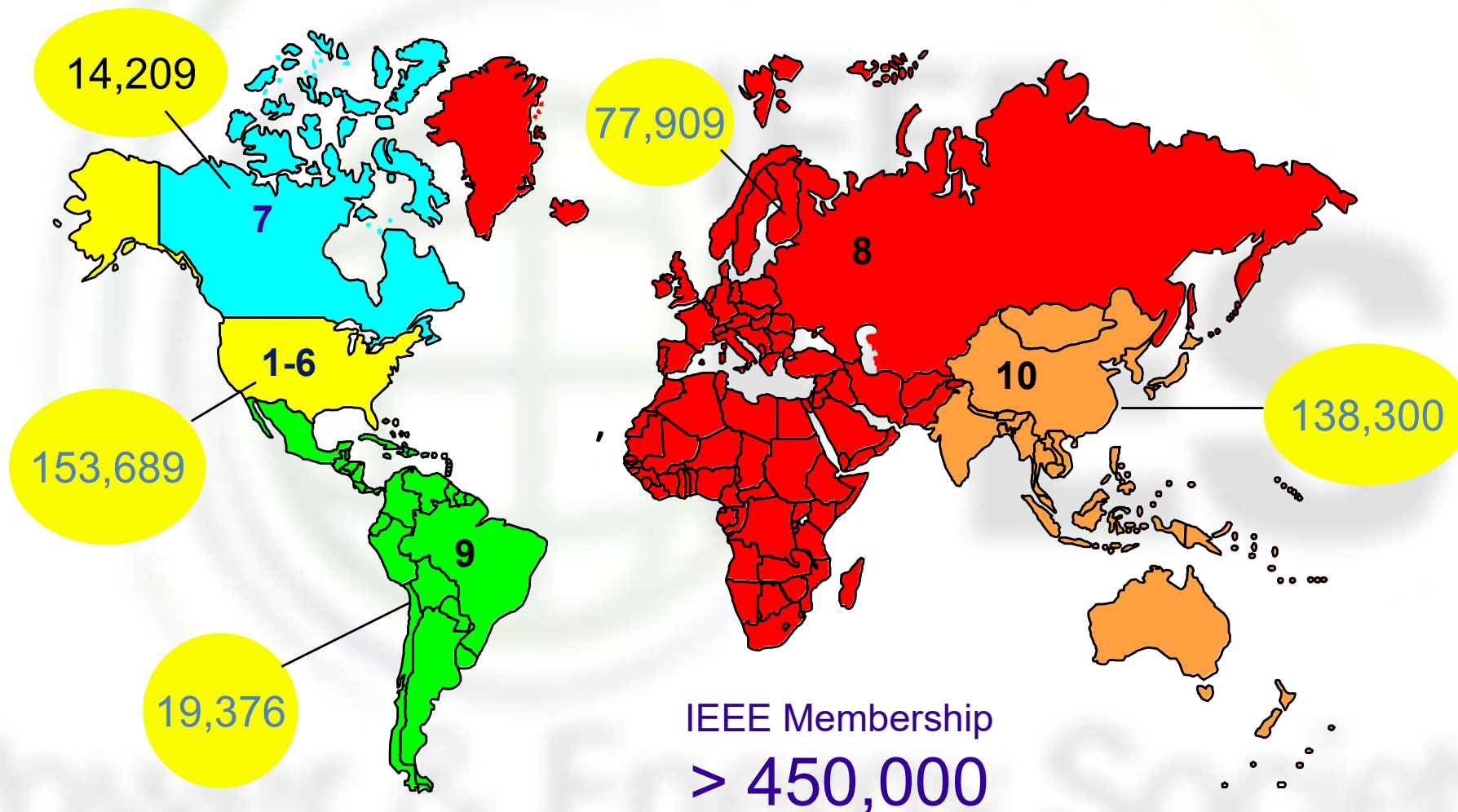
We foster technological innovation and excellence for the benefit of humanity.



Our Vision

We will be essential to the global technical community and to technical professionals everywhere, and be universally recognized for the contributions of technology and of technical professionals in improving global conditions.

IEEE Regions & Membership



IEEE Organization

The IEEE is made up of

- 39 Societies
- 7 Technical Councils
- Approximately 2,700 individual and joint Society Chapters and 344 Sections
- 3,700 Student Branches at colleges and universities in > 100 countries.

Power & Energy Society (PES)

- The Power System Relaying & Control Committee is a Technical Committee in the PES
- PES is the second largest IEEE Society with > 41,000 members
 - Computer Society > 53,000
 - Communications Society > 30,000

IEEE (39 Societies)



Power & Energy Society (PES)
(21 Committees)



Power System Relaying and Control
Committee

2023 PES Technical Council

COUNCIL OFFICERS

Hong Chen, *Chair*

Diane Watkins, *Vice Chair*

Jim McBride, *Secretary*

Vijay Vittal, *Past Chair*

2023 PES Technical Council

TECHNICAL COMMITTEES

Analytic Methods for Power Systems Committee – Stephen Miller, *Chair*

Electric Machinery Committee - Jim Lau, *Chair*

Energy Development and Power Generation Committee – Kai Strunz, *Chair*

Energy Storage and Stationary Battery Committee – Steve Vechy, *Chair*

Insulated Conductors Committee – Yingli Wen, *Chair*

Nuclear Power Engineering Committee – Mark Bowman, *Chair*

Power System Communications and Cybersecurity Committee – James Formea, *Chair*

Power System Dynamic Performance Committee – Bikash Pal, *Chair*

Power System Instrumentation and Measurements Committee – Jeff Britton, *Chair*

Power System Operations, Planning and Economics Committee – Jianhui Wang, *Chair*

Power System Relaying and Control Committee – Michael Thompson, *Chair*

Smart Buildings, Loads and Customer Systems – Johanna Mathiue, *Chair*

Substations Committee – Joe Warner, *Chair*

Surge Protective Devices Committee – Steven Hensley, *Chair*

Switchgear Committee – Doug Edwards, *Chair*

Transformers Committee – Ed teNyenhuis, *Chair*

Transmission and Distribution Committee – Eriks Surmanis, *Chair*

Power System Relaying & Control Committee (PSRC)

- Meets 3 times a year (January, May, and September)
- Consists of 6 technical Subcommittees
- Typical in person attendance 220-260
 - Utilities
 - Manufacturers
 - Universities
 - Consultants

PSRC Scope

Treatment of all matters in which the dominant factors are the principles, application, design, construction, testing, and operation of power system protection and control. Protection and control systems include one or more of the following functions:

- sensing
- data acquisition and processing
- fault detection
- manual or automatic control
- and auxiliary operation

PSRC Scope (Part 2)

Included are:

- The devices providing these functions such as protective relaying, regulating, monitoring, synchronism-check, synchronizing, and reclosing relays; transducers; and Intelligent Electronic Devices (IEDs).
- The functions employed in the generation, transmission, distribution, and utilization of electrical energy, and their effects on system operation.
- The environmental phenomena that can adversely affect them.

PSRC Scope (Part 3)

- The communication, cybersecurity, time synchronization, and related requirements necessary to support protection and control systems, such as the identification and declaration of object modeling, message sizes, latencies, and jitter for satisfying technical and business requirements.
- The scope includes liaison and cooperation with other technical committees, societies, groups and associations concerned with various aspects of items herein.

PSRC Officers - Main Committee

- Chair – Michael Thompson—SEL Engineering Services,
Represents PSRC on the Technical Council
 - Sponsor of Standards
- Vice Chair – Gene Henneberg—NV Energy
 - Technical Committee Paper Coordinator (GM, T&D Expo, Grid Edge)
 - Chooses new meeting venues (for May and September)
- Secretary – James Niemira — S & C Electric Company
 - Set meeting agenda
 - Records minutes
 - Runs physical meeting
- Standards Coordinator — Don Lukach—Ameren

PSRC Subcommittees

- Administrative (AdCom) – Michael Thompson
- System Protection – Michael Higginson
- Line Protection – Meyer Kao
- Relaying Communications and Control – Hugo Monterrubio
- Protection and Control Practices – Ritwik Chowdhury
- Rotating Machinery – Will English
- Substation Protection – Adi Mulawarman

C: System Protection Subcommittee

Michael Higginson

Scope: Evaluate protection system responses to abnormal power system states. Evaluate and report on special protection schemes, remedial actions schemes, monitoring and control systems and their performance during abnormal power system conditions.

Recommend corrective strategies and develop appropriate standards, guides, or special publications. Evaluate and report on new technologies which may have a bearing on protection system performance during abnormal power system conditions.

D: Line Protection Subcommittee

Meyer Kao

Scope: Investigate and report on the relaying techniques and systems used for **T&D line protection**. Develop statistics and recommend protection practices for improving line relaying performance. Develop and maintain standards for line protection.

H: Relaying Communications and Control Subcommittee

Hugo Monterrubio

Scope: Evaluate and report on the characteristics and performance of protective relaying communications and control systems. Recommend communication requirements, operating and test procedures which assure reliable performance of the overall protection and control system. Report on new relaying equipment designs tailored to specific communication requirements.

H: Relay Communications and Control SC (Page 2)

Included are matters necessary to the function of:

- such systems employed in the generation, transmission, distribution, and utilization of electrical energy, and their effects on system operation. Control systems include data acquisition and processing from devices such as transducers, Intelligent Electronic Devices (IEDs), and Human Machine Interfaces (HMI) including the low-level interfaces to these systems.
- Power System control issues associated with Power System Dynamics are excluded from this scope.

I: Protection and Control Practices Subcommittee

Ritwik Chowdhury

Scope: Evaluate and report on all matters related to protection and control practices for compatibility with the physical and electrical environment (including but not limited to equipment withstand capabilities to electromagnetic interference), characteristics and performance of instrument transformers and sensors, equipment and system testing procedures, protection and control performance criteria and applications, event/transient recording, and definitions of protection and control systems. Develop, recommend, establish, and maintain standards on protective relaying and control equipment and practices. Evaluate, report on, and develop standards on other pertinent aspects of protective relaying and control systems not addressed by other PSRC Subcommittees.

J: Rotating Machinery Subcommittee

Will English

Scope: Evaluate and report on protective relaying concepts and practices applicable to **generators, motors, synchronous condensers**, associated auxiliary systems, and performance of plant protective systems. Develop and maintain related relaying standards.

K: Substation Protection Subcommittee

Adi Mulawarman

Scope: Evaluate and report on methods used in protective relaying of substations and the consumer or independent power producer, associated equipment and performance of these protective systems. Develop and maintain relaying standards which relate to this equipment and the utility-consumer interface.

What does the PSRC Committee Do ?

- Responsible for 55+ IEEE Standards and Guides
 - Standards have 10-year life
 - The standard must be updated and balloted before the 10 years expire
 - Technical paper review
- Write reports / papers

Working Group Process

- Education
 - Speakers present topics pertinent to the standard
 - Working group members learn about topic
 - One reason to join working group
- Writing or rewriting
 - Members write various portions of the standard
 - Writing assignments are reviewed and revised
- Balloting
 - Ballot and resolve comments
 - 75% approval needed
 - Anyone can join balloting body
 - Must be an IEEE SA member to ballot

Working Group Process

- Forward to IEEE SA for final approval and publishing
- After Ballot is finished working group assignment is complete
- Working group may also develop and publish
 - Transaction paper
 - Conference paper
 - Tutorial

Types and Roles

- PSRC Committee Membership Type
 - Interested Individual
 - Active Participant
 - Main Committee Member
 - Honorary Committee Member
- Working Group and Subcommittee Roles
 - Guest
 - Non-Voting Member
 - Voting Member
 - Chair/Vice-Chair/Secretary

BENEFITS OF PSRC ATTENDANCE

IMPROVE PRACTICES:

- Learn about and influence standards that directly effect your designs.
- Gain advance knowledge on future guides and standards.
- Best practice sharing with other utilities, consultants and suppliers.
- Highlight your Company's expertise and best practices.

Benefits of PSRC Attendance

NETWORKING:

- With suppliers
- With consultants
- With other utilities

Meeting Organization

- Monday afternoon – a few working group meetings
- Monday evening reception
- Tuesday – all day working group meetings
- Wednesday morning – working group meetings
- Wednesday afternoon – Subcommittee mtgs
- Thursday morning - Main Committee meeting
- WG meetings intersperse with Power System Communications and Cybersecurity groups

QUESTIONS ?

<http://pes-psrc.org/>