

# Substations Committee

Chair's Report – John Randolph

May 21, 2012

# Welcome to Raleigh!

- Introductions
- Raleigh History of electricity
- Chair's Report ("state of the committee" address)

# Raleigh electricity today





# Raleigh electricity in the 1890s



# Raleigh's 1<sup>st</sup> Power Plant!





# 5 Subcommittees

(page 20 of program)

- C0 – Automation/SCADA Chair: Craig Preuss
  - D0 – Substation Design Chair: Rich Keil
  - E0 – Substation Operations Chair: Joe Gravelle
  - I0 – Power Electronics Chair: Chris Horwill
  - K0 – GIS Chair: Dave Solhtalab
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- 49 standards overall !
  - 10-year limit before withdrawal; reaffirmations not allowed
  - 5-year schedule typical to review/renew and ballot
  - Trying to match related standards with suffix numbering format (e.g., 1815 and 1815.1)
  - 150 active members (approx.)

# Recent Deliverables (page 1)

## C0 – Automation/SCADA Chair: Craig Preuss

- Condition Monitoring Round Table with CIGRE B3 (today at 3:15pm)
- 1613.1 new in 2012– Smart Grid environmental tests (1613-based) C2
- 1711 just published – Cryptographic protocol C6
- 1815 just published (T&D) – DNP 3.0 Testing Requirements C12
- 1815.1 new in 2011– Exchanging Information C14
- New Px in 2012 – 61850 Implementation C15
- Linking in with 1909.1 project for Smart Grid (Comm Society)

## D0 – Substation Design Chair: Rich Keil

- 998 re-balloted – Lightning Shielding D5

## E0 – Substation Operations Chair: Joe Gravelle

- 81 ballot just closed – Measuring earth resistivity E6
- 979 re-balloted– Fire protection E3
- 1246 rev in 2011– Temp grounds E4
- 1268 reaff in 2011 – Mobile installation E4

# Recent Deliverables (page 2)

## I0 – Power Electronics Chair: Chris Horwill

- VSC Tutorial and FACTS Panel Session at T&D Expo 2012--Orlando
- SVC Tutorial planned for PES General Meeting 2012 – San Diego
- 1031 rev in 2011 – SVC Spec I4-tf1
- 1240 reaffirmed in 2012 – HVDC Converter I0
- 1303 rev in 2011 – SVC Field Tests I4-tf2
- New Px -- Modern Protection System for SVC I9

## K0 – GIS Chair: Dave Solhtalab

- GIS Tutorial at T&D Expo 2012—Orlando
- C37.122.2 rev in 2011 – MV GIS Application K3
- C37.122.3 rev in 2011 – SF6 Handling Guide K4
- New Handbook underway K10 (Panel Session at PES General 2012)
- Users Group meeting in January (Anaheim) K2

9 technical papers presented at T&D Expo 2012



# Key Assignments

IEC:

SC17c Liaison Hermann Koch

SC17c Liaison (controls) Tim Tibbals

NESC Subcmte 3: Bruce Dietzman, Hanna Abdallah

CIGRE B3, US rep: John Randolph

Web master: Chuck Haahr

# Smart Grid standards (within SUBS!)

- 1) 80 rev underway – Grounding Design D7
- 2) 81 ballot just closed – Measuring earth resistivity E6
- 3) 1031 rev in 2011 – SVC Spec I4-tf1
- 4) 1127 rev underway -- Community E1
- 5) 1402 rev underway – Physical Security E7
- 6) 1613.1 new– Smart Grid environmental tests C2
- 7) 1615 new in 2007 – Network communications C8
- 8) 1646 needs work – Communication performance C9
- 9) 1686 new in 2007 – IED Cyber Security C1
- 10) 1711 just published – Cryptographic protocol C6
- 11) 1815 just published (T&D) – DNP 3.0 Testing Requirements C12
- 12) 1815.1 new in 2011– Exchanging Information C14
- 13) New P2030.4 in 2012 – 61850 Implementation C15
- 14) C37.1 revised in 2007 – SCADA systems C3
- 15) C37.2 revised in 2008 – Function numbers C5
- 16) C37.115 (2003) – Message Communications Test Methods C13
- 17) C37.238 -- 1588 IED protocols C7
- 18) C37.240 – joint work with PSRC on Cyber security C10

# SA Policy—Erin Spiewak



# Working Group Basics

- Follow the rules--P&P's (available on web site):
  - Must have at least a Chair and a Secretary
  - Voting must follow requirements outlined in P&P's, particularly for PAR's, and establishing a quorum from updated membership list
  - Meeting notes must be issued timely (within 30 days), include attendance and quorum status, be consistent, and posted to web site for easy access
  - Review Patent Slides
  - Protect copyrighted material
  - Members must attend regularly (or shift to Corresponding Member)
  - Use industry experts (may not be IEEE members)
  - Coordinate with other PES Committees, IEEE Societies, or other international technical organizations
- Roberts Rules of Order (parliamentary authority)
  - Handling Motions
  - Facilitating Discussions / Debate
  - Making Amendments
  - Proper Voting
  - Taking Minutes / Notes

# Program Info

- Overall SUBS Cmte organization (page 20)
- WG activities for this meeting (pages 21-23)
- Meeting Schedule for this week (pages 5-8)
- Technical Tours (page 14)
- Social Banquet – Raleigh Natural History Museum  
(Wed @ 5:30pm)
- Patent Slides (pages 24-26)

# Appendixes

- Roberts Rules of Order
- C0
- D0
- E0
- I0
- K0
- Balloting a Standard (2 sheets)
- Ballot Summary sample
- Tech Council summary



# Roberts Rules of Order (partial listing)

- Thoroughly discuss items before taking action!
- Silence means consent!

## Guidelines

- recognized by the Chair before speaking!
- Before the motion is stated by the Chair (the question) members may suggest modification of the motion; the mover can modify as he pleases, or even withdraw the motion without consent of the seconder; if mover modifies, the seconder can withdraw the second.
- Debate begins after the Chair has stated the motion or resolution
- No member can speak twice to the same issue until everyone else wishing to speak has spoken to it once!
- All remarks must be directed to the Chair. Remarks must be courteous in language and deportment - avoid all personalities, never allude to others by name or to motives!

## Rules

- Point of Privilege: Pertains to noise, personal comfort, etc. - may interrupt only if necessary!
- Parliamentary Inquiry: Inquire as to the correct motion - to accomplish a desired result, or raise a point of order
- Point of Information: Generally applies to information desired from the speaker: "I should like to ask the (speaker) a question."
- Orders of the Day (Agenda): A call to adhere to the agenda
- Point of Order: Infraction of the rules, or improper decorum in speaking; raised immediately after error's made
- Amend: Inserting or striking out words or paragraphs, or substituting whole paragraphs or resolutions
- Withdraw/Modify Motion: Applies only after question is stated; mover can accept an amendment without obtaining the floor
- Object to Consideration: Objection must be stated before discussion or another motion is stated

# C0 – Automation/SCADA (12 standards)

- C37.1 revised in 2007 – SCADA systems C3
- C37.2 revised in 2008 – Function numbers C5
- C37.115 (2003) – Message Communications Test Methods C13
- PC37.237 new -- SOE Time Stamping C4
- C37.238 -- 1588 IED protocols C7
- C37.240 – joint work with **PSRC** on Cyber security C10
- 1613 revised in 2009 – Environmental Testing C2 (Smart Grid effort)
- 1615 new in 2007 – Network communications C8
- 1646 needs work – Communication performance C9
- 1686 new in 2007 – IED Cyber Security C1
- 1711 just published – Cryptographic protocol C6
- 1815 just published (**T&D**) – DNP 3.0 Testing Requirements C12
- 1815.1 new in 2011– Exchanging Information C14
- New P2030.4 in 2012 – 61850 Implementation C15

# D0 – Substation Design (9 standards)

- 80 rev underway – Grounding Design D7
- 525 rev underway – Substation Cables D2
- 605 rev underway – Bus Design D3
- 693 rev underway – Seismic Requirements D4
- 998 re-balloting – Lightning Shielding D5
- 1267 rev underway – Turnkey Project Spec D8
- 1427 rev underway – Electrical Clearances D1
- 1527 rev underway – Flexible Connections D6
- P1818 new underway – AC/DC Systems D9



# E0 – Substation Operations (9 standards)

- 81 ballot just closed – Measuring earth resistivity E6
- 837 rev underway – Grounding connections E9
- 979 just balloted– Fire protection E3
- 980 rev underway – Oil containment E2
- 1127 rev underway -- Community E1
- 1246 rev in 2011– Temp grounds E4
- 1264 rev just starting– Animal deterrents E5
- 1268 reaff in ????? – Mobile installation E4
- 1402 rev underway – Physical Security E7

# I0 – Power Electronics (10 standards)

- 857 withdrawn – HVDC Thyristor valve tests
- 1031 rev in 2011 – SVC Spec I4-tf1
- 1240 reaff in 2012 – HVDC Converter I10
- 1303 rev in 2011 – SVC Field Tests I4-tf2
- 1378 reaff in 2008 – HVDC Commissioning I10
- 1534 rev in 2009 – Thyristor-Controlled Series Capacitor Spec (joint with T&D) I2
- 1585 reaff in 2007 – MV Series Devices I1
- 1623 rev in 2010 – MV Shunt Devices I1
- 1676 publ in 2010 – Control Architecture I8
- P1821 new underway - Usage of Design Tools I8
- **New P1032** -- Protection System for SVC I9

# K0 – GIS

## (9 standards plus Users Group)

- C37.017 rev in 2010 – HV GIS Bushings K7
- C37.122 rev in 2010 – HV GIS Standard K1
- C37.122.1 rev underway – GIS Users Guide K11
- C37.122.2 rev in 2011 – MV GIS Application K3
- C37.122.3 rev in 2011 – SF6 Handling Guide K4
- C37.122.4 rev underway – GIL Application Guide K5
- C37.122.5 rev underway – SF6 Moisture Meas. K8
- C37.122.6 rev underway – GIS Interfaces K9
- C37.123 rev underway – GIS Spec Guide K12
- New Handbook underway K10



# Balloting a standard (part 1)

- Requesting PAR (Project Authorization Request):
  - WG Chair sends official form request to IEEE Standards Association (SA)
  - SA processes it through IEEE's "Standards Board" for approval
- Draft development
  - Working group Chair schedules meetings and invites technical experts as required
  - Follow P&Ps, patent slides, copyright information, and Robert's Rules of Order
  - Typical assignments are parceled out by sections of the document, to one or more members
  - Secretary provides document template for member input
  - WG reviews sections, compiles final draft, and votes to send for balloting
- SA editorial review (typically 30 days)
  - WG chair coordinates with SA on mandatory edit, legal review, and any copyright information or permissions

# Balloting a standard (part 2)

- **Balloting invitation and creating the ballot pool**
  - At least 5 classifications of voters selected: User - Consumer, User-Industrial, User-Labor, User-Other, Academic, Regulatory Agency, General Interest, Producer, Consulting, etc.
  - No class can be more than 33% (provides balance)
  - Purposeful reach out to other PES Technical Cmte's and IEEE Societies
  - Members of SA can pre-select interest categories, for automatic invitation
- **Ballot voting**
  - 30-day time period for casting ballots—affirmative, negative, or abstain
  - Need at least 75% response rate of confirmed balloters
  - Technical or editorial comments
  - Recirculation of changes made per comments; and resolving negative ballots
- **Recirculating the Ballot**
  - Balloters can only add comments on changed parts; can change vote
- **Standards Board approval** Meet 4x per year; need draft in advance
- **Final Editing** SA makes final and very detailed edits, that are coordinated through the WG Chair
- **Publication**
  - SA provides final pdf copy and provides recognition to the WG Chair
  - SA publishes standard for sale after a few months

# WG Ballot summary (sample)

- Determining quorum
  - There were a total **xx** voting members on the WG roster circulated at this meeting (or at the time of teleconference or email communication).
  - There was a count of **yy** voting members in attendance (or via teleconference, or email responses).
  - Yes there's a quorum--**yy** is more than 50% of **xx**,
  - or No--**yy** is 50% or less than **xx**
- For majority votes (Adopt P&P's and forming sub-groups)
  - Given a quorum of voting members, summarize the votes cast:
  - Approve -- **A**
  - Do Not Approve -- **B**
  - Abstain -- **C**
  - Move Forward -- **A** is more than 50% of **A+B**
  - Do Not Move Forward -- **B** is 50% or more than **A+B**
- For super-majority votes (2/3 votes--Changing scope and moving draft standard to Sponsor ballot)
  - Same as majority vote, except "66.7%"



# Tech Council summary

- Scholarship Fund for college students
- TC Awards Chair for 2012 (only) is John Randolph, PG&E
- Adhoc groups on improving Paper Quality and Paper Review:
  - Improved schedules
  - Improved MIRA functionality
  - Transactions paper search
- P&P's must be approved by AudCom by end of 2012!
  - (template is Switchgear Cmte)
- Looking for WG input into key topics for Emerging Technology
- Template for planning General Meetings is going well
- Prodding for more Annual Reports (will provide template)
- Concern about IEEE article on “Geomagnetic Disturbances”
- Resource Center—provide more publishable material
- Increase nominations for Fellow, and for IEEE-level awards
- Web page—evolve to be mobile device-friendly (spacing)
- T&D “Lightning & Insulators” subcmte is splitting—Insulators going over to “Tower & Poles”, and renamed “Overhead”