

# IEEE IAS PSE PQ Sub Committee IAS I&CPS 2008 Conference

Monday, May 5, 2008  
14:30 – 16:00 – Conch 6<sup>th</sup> Floor

Sheraton Sand Key – Clearwater Beach, Florida

## 1.0 Call to Order

## 2.0 Introductions

### Attendance list :

PQ Subcommittee Chair: Chris Melhorn, EPRI, [cmelhorn@ieee.org](mailto:cmelhorn@ieee.org)

Acting Secretary: Mark Stephens, EPRI, [mstephens@epri.com](mailto:mstephens@epri.com)

Alex McEachern, Power Standards Lab, [alex@powerstandards.com](mailto:alex@powerstandards.com)

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David Fredericks, [dfedricks@chugassman.com](mailto:dfedricks@chugassman.com)

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Kenneth Smith, Mott MacDonald, [kenneth.smith@mottmac.com](mailto:kenneth.smith@mottmac.com)

Massimo Mitolo, [mitolo@ieee.org](mailto:mitolo@ieee.org)

Peter Sutherland, GE, [petersutherland@ieee.org](mailto:petersutherland@ieee.org)

Scott Anderson, SRP, [swanders@srp.net](mailto:swanders@srp.net)

Stephen Smith, Intel, [Stephen.j.smith@intel.com](mailto:Stephen.j.smith@intel.com)

### Attending via conference call:

John Mentzer, GM, [john.mentzer@gm.com](mailto:john.mentzer@gm.com)

Bill Brumsickle, Softswitching Technologies, [bbrumsickle@softswitch.com](mailto:bbrumsickle@softswitch.com)

## 3.0 Review meeting minutes

3.1 2007 IEEE IAS PSE PQ Sub Committee, September 24<sup>th</sup>, 2007. *The previous minutes were approved as written.*

## 4.0 Working Group Reports

4.1 IEEE Std. 1100 – Emerald Book Working Group. *Report from Doug Dorr. Emerald book working group is not officially in existence anymore. However, the members are now part of the grounding editorial working group. This is composed of the former members of the emerald and green books and additional members who have joined.*

4.2 Harmonics Working Group – The Harmonics WG. *No updates.*

4.3 IEEE Std. 1668 – Recommended Practice for Voltage Sag and Interruption Ride-through Testing for End-use Electrical Equipment Less than 1,000 Volts (See item 6.2 for full discussion)

## 5.0 Old Business

### 5.1 Papers for the 2008 IAS Annual Meeting.

Paper reviewers for the 2008 I&CPS Conference. The PQSC is sponsoring three papers. We need three reviewers for each paper:

- 5.1.1 Monitoring Classifier for Power Quality Discrimination Using Wavelet -Grey Relational Analysis
- 5.1.2 Investigation of Non-Linear Devices Modeled as a Harmonic Current Source – *Peter Southerland volunteered to review. Ken Smith volunteered.*
- 5.1.3 Harmonic Filter Design for Mixed Single-Phase Three-Phase Load. *Ken Smith volunteered.*

### 5.2 Papers for the 2009 I&CPS Conference

- 5.2.1 Chuck Thomas has written a paper to be reviewed on voltage sag test methodology.

### 5.3 Coordination – The PQSC request that the following WGs coordinate with the PQSC. The following are the liaisons for various WGs and Standards.

- 5.3.1 IEEE Std. 1100 – Doug Dorr liaison
- 5.3.2 P1346 – Don Koval liaison
- 5.3.3 P1531 – Application and design of harmonic filters – Don Ruthman liaison
- 5.3.4 Chapter 9 – Gold Book – Charles Heising liaison
- 5.3.5 IEEE Std. 519 and IEEE Std. 519.1 – Harmonics Yuri Kheronsky and Mark Halpin / Don Ruthman liaison
  - 5.3.5.1 We need to get an update on when the update will be released.
- 5.3.6 P1366 – Reliability
- 5.3.7 IEEE Std. 1159 – PQ Monitoring – Ambra Sannino liaison
- 5.3.8 Green Book – Lynn Saunders liaison
- 5.3.9 P1668 - Recommended Practice for Voltage Sag and Interruption Ride-through Testing for End-use Electrical Equipment Less than 1,000 Volts – Mark Stephens, Liaison to CIGRE/CIREN/UIE joint working group JWGC4-110 “Joint Working Group: Voltage Dip Immunity of Equipment Used in Installations”

## 6.0 New Business

### 6.1 Call for papers for I&CPS 2009

### 6.2 IEEE Std. 1668 – Recommended Practice for Voltage Sag and Interruption Ride-through Testing for End-use Electrical Equipment Less than 1,000 Volts

- 6.2.1 General Overview – Doug Dorr. *Doug opened with a general overview of the P1668 scope and section title overview*
- 6.2.2 Update on Section 5: Electrical Environment – Scott Anderson, SRP
  - 6.2.2.1 Scott Anderson gave an introduction to the reasons why we are writing this standard and why its important.
  - 6.2.2.2 Alex M. noted that he would like to see closer coordination with the IEC. He said he would supply the IEC standards for definitions to the group.
  - 6.2.2.3 Scott began with a review of section 5.2 and gave an overview.
  - 6.2.2.4 Section 5.3, faults and voltage sags was discussed next. This section will include addressing how faults impact clearing times.
  - 6.2.2.5 An idea was forwarded to include some real examples along with the modeled results. The group discussed putting this type of information in the appendices.
  - 6.2.2.6 Examples for transmission, distribution, and in plant system sags where discussed as presented in section 5 of the draft.
  - 6.2.2.7 Alex noted that we should define the differences between this working group and the CIGRE/CIRED/UIE jwgc4-110 working group.
  - 6.2.2.8 John Menzter noted that this document should allow for testing beyond just current standard limits so that equipment can be fully characterized. He stated test methods should be available to test to lower levels for characterization. The customer may decide to buy a product that will ride-through down to a lower level.
  - 6.2.2.9 Alex discussed the Samsung standard. 1 second or less at zero volts equipment should mark product and continue. After 1 second, the equipment should shut down.
  - 6.2.2.10 Alex noted that this group should have access to the CIGRE/CIRED/UIE working group material. Doug noted for Mark to send an e-mail to him so that he can make an official request through the appropriate IEEE channels.
  - 6.2.2.11 Mark noted that Math Bollen may be a good channel to distribute the working group information to the European Audience.
  - 6.2.2.12 Doug noted that we should clearly call out what the differences in this standard would be and other IEC standards similar to the discussion found in some of the C62 surge documents where certain waveshapes and certain measurement parameters are notably different between the docs

- 6.2.2.13 Scott Anderson picked back up with looking at the draft section 5. Scott noted 5.1,5.2, and 5.4 are up for review.
- 6.2.2.14 Mark noted we should change DUT to EUT in the definitions to keep in line with the IEC 61000-4-34 standard.
- 6.2.2.15 Alex noted that we should look at the definition of a voltage sag as related to duration as this is explicitly noted in IEC 61000-4-30. Bob noted that we should just expand the definition for three-phases including the durations of which the sags end on each phase. Scott noted that he would add words to address the duration of a voltage sag as the depth is clearly understood, but duration is defined in IEC 61000-4-30.
- 6.2.2.16 Doug noted that IEC 61000-4-30, Emerald Book, and 1159 should be reviewed for the best voltage sag definitions. We should reference other documents where dips are defined. Alex noted that the duration is not consistent between the documents.
- 6.2.2.17 John Menzter noted that we should concern ourselves of with the items that actually will effect the equipment. While we may be able to measure many things, it does not mean that we have to test for it and validate it. We should not be testing conditions that do not occur in the real world.
- 6.2.2.18 John noted that from a customer's perspective, the document will have much more value as a curve. GM has a lot of history of knowing where sags most frequently effect equipment.
- 6.2.2.19 John Mentzer noted that most utility PQ guys do not understand what is happening in the plant when the event occurs. Likewise, plant engineers he interfaces with do not understand why events occur and cannot be eliminated all together. This section should provide an education tool so that we can bridge the gap between utility and end users such as plant engineers.
- 6.2.2.20 There was a discussion about the need for mentioning how the current responds in a fault as well. This could be included in section 5.5 "voltage sags and current relationships". This should mentioned unbalance, inrush, over current, etc.
- 6.2.2.21 John Menzter noted that this document should be a tool that could be used to educate plant engineers and utility engineers.
- 6.2.2.22 John has reservations on going to deep into the current discussion in the document. Alex noted that we

should try to stay within the scope of the document and look at equipment.

6.2.2.23 John noted that real world and theoretical conditions will differ regarding voltage sag levels. If we try to deal with that concerning how we test, that we could defeat what we are trying to achieve (by being too complex). He would like to use theoretical pictures in document with real world pictures in the appendices that could be included to show why they differ.

6.2.2.24 Scott Anderson needs all comments back to him by June 1<sup>st</sup>.

6.2.2.25 The next meeting of P1668 will be on June 11 via web conference. The next face to face meeting will be in 2009 location as of yet to be determined. Doug will check to see if we can hold it at one of the PES sponsored meetings to get coordination with the pending P1346 revision. Details of the IEEE P1668 work including these meeting minutes will be posted at <http://grouper.ieee.org/groups/ias/1668/index.html>.

## **7.0 Next meeting of PQ Subcommittee**

**(CHRIS TO ADD THIS)**

## **8.0 Adjourn**