

IEEE Power Quality Subcommittee  
**Power Disturbance Analytics Working Group**

From: Wilsun Xu  
To: WG members  
Date: July 31, 2013  
Subject: Minutes of 2013GM Working Group Meeting in Vancouver

---

Time: 10:30AM–12:00PM  
Date: Tuesday, July 23, 2013  
Location: VCC West - West Meeting Room 113  
Attendees: Listed at the end of this minutes

**1. Short presentation on the drivers and motivations for this WG**

This is the inauguration meeting of the WG. Wilsun Xu, Chair of the WG, did a short presentation on the background and motivations to create this Working Group. The main points of his presentation are 1) waveform based (disturbance type) data will be made widely available to utility industry in the future similar to that of the PMU and AMI data, 2) PQ researchers and engineers are in the best position to lead the collection and use of waveform based data, 3) The objective of this working group is to develop guidelines, recommendations, use-cases for collecting and using waveform-based power disturbance data for purposes beyond traditional power quality applications. (Post meeting note: the presentation will be posted at the WG website so it will not be distributed with this minutes.)

**2. Discussions on the objectives and scopes of the WG**

The attendees discussed various aspects of the WG based on the presentation. Some of the main items discussed are:

- Should the WG focus on transmission, distribution, and/or both systems?
- Fidelity of data collection, data communication, hardware issues may need to be addressed by the WG;
- The data collectors may include IEDs, relays, smart meters etc. in addition to PQ monitors;
- The WG shall focus on developing data analytics without considering specific hardware and its accuracy;
- How to define disturbance data and waveform data for the purpose of this WG?
- There is a need to coordinate with other committees working on data issues;
- There may be some overlaps with other groups using waveform data;

After a long discussion, some general consensuses were arrived. It is agreed that the scope of this WG shall not be too broad. It will focus on the following items:

- The activity of this WG will cover both transmission and distribution systems with the distribution systems as the main focus at this stage;
- The issues of data collectors, fidelity of data, data communication will not be considered for now. The WG will focus on the data analytics assuming acceptable disturbance data is available. In the

long run, the work of this WG may have an impact on the direction of data collection and hardware development;

- The disturbance data or waveform data for the purpose of the WG is defined as the waveform data that deviates from normal steady-state sinusoidal waveforms, i.e. disturbance or change data. The data itself may not take the time-domain form. They may be used in the forms of harmonics or RMS values, but they are originated from the sampled time-domain waveform data;
- Wilsun will find, contact and coordinate with other groups working on the big data topics and waveform analytics; The overlap shall not be a limiting factor to the scope of this WG.

The attendees agree that the scopes of the WG are:

- 1) Promote and support disturbance analytics research and application activities,
- 2) Share data and experience on disturbance data analytics,
- 3) Develop guidelines/recommendations/best practices for disturbance analytics.

### **3. Finalize the name of the WG**

Several names have been proposed for the WG by the attendees. Examples are: waveform data analytics, current and voltage waveform analytics, power disturbance analytics, and power quality data analytics. It seems that the terms acceptable to most of the attendees are: 1) power disturbance analytics or 2) waveform data analytics. Most attendees prefer the 2<sup>nd</sup> title. Wilsun will report the options to the PQ subcommittee to final decision.

### **4. Discuss short term activities**

After discussions, the following short-term activities have been identified:

Panel Sessions: The following two panel sessions have been proposed for consideration:

- Panel session 1: Application of power disturbance analytics to fault anticipation (or incipient fault detection), which will be led by Prof. Don Russell of Texas A&M University. This session will be submitted to approval by the PQ subcommittee for presentation at the 2014 GM. Don will start to organize the session in parallel;
- Future panel sessions. One of the candidates suggest the topic of requirements and experiences on the hardware platforms for power disturbance analytics. This panel session and other possible activities will be discussed in the next WG meeting during the 2014 GM;

Survey paper: Professors Math Bollen, from Lulea University of Technology, and Surya Santoso, from University of Texas at Austin, will lead a survey paper on techniques and applications of power disturbance analytics. They will report progress during the next WG meeting;

Task forces: The WG may need to get some work done through Task Forces. This subject will be discussed during the next WG meeting.

### **5. Discuss long term goals**

The long term goal of the WG was discussed briefly. There is a general agreement that a (standard-like) document may need to be published. The document could be an application guide, such as “A guide on power disturbance analytics – techniques, platforms and applications”. Besides promoting and supporting disturbance analytics research and application activities, the document may contain information on how to collect data in order to drive the manufacturers to deliver equipment capable to support disturbance

analytics applications identified by the WG. For example, the WG may define characteristics such as quality, trigger, resolution, rate sample, fidelity, etc, needed to support each type of applications.

## **6. Elect vice-chair and secretary**

Based on voting results, Dr. Surya Santoso of Texas University at Austin was elected as the vice-chair. Dr. Walmir Freitas of University of Campinas was selected as the secretary.

## **7. Adjournment**

The meeting was adjourned at approximately 12:00PM.

## **Appendix: Meeting attendees:**

The following people have signed up as a member of the WG:

Georges Simard	Simard SG
Walimir Freitas	University of Campinas
José Carlos Vieira	University of São Paulo
Gary Chang	Natl. Chung Cheng Univ.
Math Bollen	Luleå University of Technology
Surya Santoso	The University of Texas at Austin
Francisc Zavoda	IREQ
Mario Tremblay	IREQ / Hydro-Québec
Mirrasoul Mousavi	ABB
Timothy D. Unruh	US Department of Energy
Allen Tredeau	Puget Sound Energy
Alexandre Nassif	ATCO Electric
Harish Sharma	EPRI
Walid Hibraim	University of Ontario Institute of Technology
Shun Tao	North China Electrical Power University
Yonghai Xu	North China Electrical Power University
Brian Wong	Pacific Gas & Energy Co.
Aurelio Medina	Universidad Michoacana
Ken Sedziol	Duke Energy
Theo Laughner	TVA
Julio Barros	University of Cantabria
Erik Weimer	Wilmount Engineering Products
Shane Long	Fortis Alberta
Don Russell	Texas A&M University
Bill Moncrief	Retired (EnerNex)
Satish Ranade	New Mexico State University
Richard Bingham	Dranetz
Bill Howe	EPRI

Dennis Hansen	PacifiCorp
Ryan Lian	Natl. Taiwan Univ. of Science & Technology
David Mueller	EnerNex
Paulo Ribeiro	Technical University of Eindhoven
Wilsun Xu	University of Alberta

The following people have signed up as a guest:

Yang Wang	University of Alberta
Renato M. Monaro	University of São Paulo
Jovica Milanović	University of Manchester
Hesam Yazdanpanahi	University of Alberta
Alex Wong	International Copper Association
Jan Meyer	TU Dresden
Roberto Langella	2nd University of Naples
Alfredo Testa	2nd University of Naples
Qun Qiu	AEP American Electric Power Co.