

IEEE PES Transmission and Distribution Committee
Integration of Renewable Energy into the Transmission and Distribution Grids
Subcommittee

Chairman: Ernst Camm

Vice Chairman: Travis Smith

Secretary: Chris Brooks

Subcommittee Website: <http://grouper.ieee.org/groups/td/renew>

Date: April 21, 2010

Location: IEEE T&D 2010 Meeting
New Orleans, LA, USA

Start Time: 3:00 PM

1. Welcome and Introductions

2. Camm reviewed the scope of subcommittee for benefit of the new attendees.
Focus – Identify areas of importance in renewables.
(attendee list to this meeting is at the end of these minutes)

3. Minutes of Orlando meeting were accepted.

4. Travis Smith is the new vice-chairman of this subcommittee.

5. WG reports

(a) Wind Plant Collector System Design WG – WG chair, Mitch Bradt, reporting.

Reported on the papers delivered in Calgary (5 papers)

Reported on papers just delivered yesterday (4 papers)

Mentioned that all nine papers will be assembled into a tutorial that will be given in July at the IEEE/PES General Meeting in Minneapolis, MN. It is currently scheduled for Sunday July 25, 2010. The presenters are basically planned to be the same individuals that gave the original papers. There are backup presenters assigned to each paper, in case the main person is unable to be there. Mitch reported that the presenters had waived their desire to receive the normal IEEE split remuneration for their participation and instead will donate it to a new IEEE educational fund. (Secretary's comment - Donating individuals and companies should receive a thank you from the fund manager.)

He also reported that at some future time after some additional future papers on WPP collector systems that it is planned that they will all be bound and offered as one document through the IEEE. One of the attendees offered that something similar had been done by another WG on their topic.

6. Camm introduced a special guest speaker, Charlton I. Clark, for a Review of DOE (US Dept of Energy) R&D Activities in renewable energy. Charlton presented several slides that discussed the mission of his group and several affiliated groups in the technical areas surrounding renewable energy. He pointed out that different US labs were working on many varied projects and topics. He mentioned that no particular lab at this time was dominating the funding, but that efforts were being made to utilize the diverse talent available among 10 different US national labs. In no particular order some topics included:

Wind Plant Performance Characterization

Energy Forecasting

Working with NOAA
Grid System Operations
Grid System Planning
Interconnect studies
Communication, Policy, Education and Outreach on renewables
For more details see his presentation at our subcommittee's website at:
<http://grouper.ieee.org/groups/td/renew>

7. A second presentation was given by Travis Smith that was from an action item from the previous subcommittee meeting, entitled, "Renewable Interconnection, Existing Rules, Standards, and Organizations". In his presentation he displayed slides that:

- Summarized the various organizations
- Summarized IEEE the committees and working groups
- Summarized standards involved.
- Summarized several power companies that involved
- Summarized state and local governments involved (sample set)
- FERC over 20 MW
- FERC under 20 MW
- FERC Renewable
- NERC – Renewable Interconnection
- Summarized how the group could interact with the current environment.

For more details see his presentation at our subcommittee's website at:
<http://grouper.ieee.org/groups/td/renew>

Group Comments

- ERCOT was not commented on.
- Should we be considering Canadian standards as well, possibly worldwide.
- Wind and solar effort are looking more similar.
- Travis presentation and material will be placed on the website and he and others will be adding more to it as the subcommittee's direction and efforts develop.

8. Ernst Camm led the group in proposing a set of Working Groups with potential papers. (The text in bold Helvetica is the content from his Power Point slides.)

8A - WORKING GROUP 1 - (proposed new)

Integration Requirements for All Renewable Technologies

- Cover requirements based on interconnection voltage (bulk transmission, transmission, distribution, utilization voltage)
- Must consider issues not covered in IEEE Std 1547
- Must include requirements related to system operation and reliability

WG would be responsible for looking at interconnection requirements and how they may vary by voltage, bulk transmission, transmission and distribution. All agreed that the IEEE Std 1547 group of standards and guides must be included. Camm stated that requirements related to system Operation and Reliability should also be included in this WG.

Group Comments

- An attendee pointed out that the term interconnection should be used, instead of integration. Camm agreed.

Because of possible interference with other IEEE groups some felt developing a position paper type of documents would be better than directing any effort toward a standard or something short of that.

It was suggested that the WG look at where 1547 may not be covering something and contribute new content.

There were many comments about current activities on and around 1547.

Action Item: Camm or an appointee will confer with the 1547 group or groups on their activities.

IEEE P2030 Draft Guide for Smart Grid Interoperability of Energy Technology and Information Technology Operation with the Electric Power System (EPS), and End-Use Applications and Loads is being developed.

There were concern expressed that the renewable agenda is occurring with a weak involvement from utilities. This group could help make up for that weakness.

This WG could also help sort out what simulation models to use, where to use them, and what they are to be used for. Suggestions included going to each software provider (PSS/E, PSLF, Powerfactory) for some of these details. Also -- provide insight on the proper use of load flow, short circuit, transient stability, EMTP, etc.

8B -WORKING GROUP 2 – (proposed new)

Bulk System Impacts of Distributed Renewables

- Cuts across Transmission and Distribution
- Includes impacts on system reliability
- Impacts wider than current IEEE Std 1547.7 (Draft Guide to Conducting Distribution Impact Studies for Distributed Resource Interconnection)
- Could include fault current contributions and references to PSRC publications

This WG would cut across T&D. It would include impacts on system reliability and impacts wider than current IEEE Std. 1547.7 (Dual guide to Conducting Distribution Impact Studies for Distribution Impact Studies for Distributed Resources Interconnection)

Group Comments

An attendee suggested being a compiler and disseminator of important information and build pieces were needed.

Action Item – invite Keith Harley to present on 1547 activities at the next meeting.

An attendee suggested looking into areas where some varying opinions exist either as standards or published works, such as: NEC-NESC and UL-ISO.

Action Item – Investigate what PSRC is doing in renewables.

There were comments that suggested the focus should be on the engineering issues.

New future trends – Entire communities that have renewable power integrated into arrangement that will create a near self-supporting situation.

8C -WORKING GROUP 3 - (existing)

Wind Plant Collector System Design

- Expand scope of current to include design for all renewables
- Substantial similarities between installations
- Current WG has momentum and recognition

Expand scope of current wind plant collector design WG to include design for all renewables

Group Comments

Group discusses whether to confine it to wind and solar or expand it to any “collector” of renewable energy. Flexibility in the future seem to be the group’s feeling on the name and mission change. The name change is on hold until Camm can check out the IEEE process and follow through on it.
Action Item – Execute IEEE process to change the name of the WG to include “solar”.

WG needs to cover both T&D.

Additional discussion occurred on the different aspects and content of 1547.

8D -WORKING GROUP 4 – (proposed new)

Design and Code Application for Renewable Power Plants

- Include NESC and NEC requirements
- UL listing of transformers and other equipment

Group Comments

There are issues in dealing with local jurisdiction, this should be recognized.

Other codes include NFPA and CSA (Canada).

Many locals inspectors simply want to just look at “it”, make sure it is UL, and that is good enough.

If not UL, then it still can “pass”, but lengthier processes are involved.

There are five labs that have “approval” labels, such as UL,

8E -PAPER

Renewable Energy Technologies

- List and describe characteristics of all current renewable technologies
 - Wind, Solar, Biomass, Small hydro, Other
- Characterize renewable plant design (traditional or collector type)
- Summarize impacts

This will be a subcommittee effort not a WG.

8F –OTHER TOPICS

Interconnection Technical Specifications and Requirements not specifically covered in IEEE Std 1547 or having conflicting requirements

8G -ENERGY STORAGE AND SMART GRID

Application of Energy Storage with Renewable Power Plants

- Align with NIST Framework and Roadmap for Smart Grid Interoperability Standards
- Align with current IEEE Std 1547 activities

9. Other items – none

10. Action items

New Action Items

Camm – Camm or an appointee will confer with the 1547 group on their activities.

Camm – invite Keith Harley to present 1547 at the next meeting.

Camm – Camm or an appointee will investigate what PSRC is doing in renewables.

Camm – Change the name of the Collector System Design WG to include “solar”.

Previous Action Items

Camm-Confirmed current associate editor position for the subcommittee.

Camm-Contact other subcommittee chairs to appoint a member to this group. Still open.

There are attachments – The attachments are referenced in the above text but are located at the subcommittee’s website. This will also be the template for the future at the subcommittee’s IEEE website at www.grouper.ieee.org/groups/td/renew.

11. Next meeting: Tentatively Monday July 26, 2010 3:00-5:00 pm at IEEE PES General Meeting in Minneapolis, MN

- a. About a two hour meeting
- b. Check final time and location at the conference.

Comment – Could the group meet earlier such as 8-10AM before other conference activities and meetings during future T&D meetings. The current times are interfering with other activities.

Adjourn Start Time: About 5:00 PM

Attachments

Attendee List (see below)

Attendees:

Last Name	First Name	Company	Email Address
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