

HVDC-HVDC-FACTS SUBCOMMITTEE MEETING

PES SUMMER POWER MEETING,

June 9, 2004, Denver, CO

Minutes

Chair: Dennis Woodford
Vice Chair/Secretary: Ben Mehraban

1. Minutes

It was moved by Bill Long and second by Wayne Litzenbrger to approve the minutes of the meeting held on Jan. 21, 2004. Minutes were approved. Motion carried.

2. Awards Recognition

Recognition was given to Dennis Woodford for the Uno Lamm High Voltage Direct Current Award.

3. Reports of T&D Working Groups

A) WG 15.05.02 Dynamic Performance and Modeling of HVDC Systems and Power Electronics for Transmission Systems, Chair: Ram Adapa

The working group met on Monday, June 7, 2004. There were 16 persons in attendance. The main items of business were:

1. Status of Position Papers—Four position papers are completed and/or or being prepared; EMTP-type Models for Conventional DC Systems, EMTP-type Models for FACTS (not including VSC-Voltage Sourced Converter based), EMTP-type Models for VSC based FACTS, and EMTP-type Models for VSC based DC Transmission. Also, new position paper on Models related to Inclusion of Wind Generation in Power Networks was discussed.
2. Benchmark Test Systems to validate HVDC and FACTS--The purpose of these test systems is to observe load flow control, transient stability, small signal stability, and voltage stability phenomena. The small test system and the medium test system (as originally planned) are combined and will be provided as one test system. It was proposed to work towards an IEEE special publication on all the test systems.
3. Investigate Common Information Model (CIM) applications to HVDC and FACTS models---Work in progress
4. Develop a fact sheet with some minimal information on existing FACTS installations around the world--Work in progress

B) WG 15.05.14 Education on HVDC/FACTS Education, Chair: Bill Long

The Working Group met with six persons in attendance. The following decisions were made:

1. The VAR Basics panel session will be reorganized and presented at the October 2005 T&D Conference. It will probably be retitled Dynamic VAR Basics or something similar to emphasize the power electronics. Papers will be needed around April 1, 2005. At the previous T&D Conference two 2-hour sessions were made available, we will request that amount of time again. We want to coordinate with Substations I-5 to be sure we are complementary with this session. Bill Long will take the lead in organizing this session.
2. A new panel session "Reactive Compensation for Wind Farms" will be offered at the June 2005 General Meeting in San Francisco. Brian Johnson will take the lead in organizing this session. We anticipate a deadline of December 15 for summary papers.
3. A new panel session "HVDC Fundamentals" was discussed, and will be considered for the 2006 General Meeting. The panel session "FACTS Fundamentals," which was first offered at the T&D Conference in Dallas, was again offered at this Denver meeting. The allotted time was reduced from the four hours in Dallas to three hours. Attendance reached a peak of 55 persons, and was at 30 when we adjourned. That is a very good response especially as there was a Blackout panel session for competition.

C) Uno Lamm HVDC Award Committee

The Uno Lamm Committee is pleased to announce that the 2004 Award was made to Dennis Woodford, Electranix Corporation, "For leadership in the development of computer software for the study of ac and dc systems and contributions to the dc community through technical papers and participation in technical committees." The award was presented at the PES 2004 Awards Luncheon. Dennis was nominated by David Fletcher of Teshmont Consultants. Nominations for the 2005 award are encouraged; they must be received by November 30, 2004.

A solicitation for nominations for the 2005 award will be out soon.

D) WORKING GROUP 15.05.15 – Use of Power Electronics in Major Grids for Generation Requirements, Chair: Geza Joos.

The Working Group met on Tuesday with thirteen persons in attendance. The WG report and outline responsibilities/assignments were reviewed and finalized. The first draft of section 5.2.2 HVDC Configurations was reviewed by Dennis Woodford and revisions were proposed. Next meeting was scheduled for 1:30pm-5:00pm, on the Tuesday of the next PES General Meeting, June, 2005 to be held in San Francisco.

E) HVDC & FACTS Bibliography, Chair Rajiv Varma

A great need for up-to-date bibliographic information was still continuously felt by the academic, research and engineering community in the HVDC and FACTS areas. In pursuance of this need, the IEEE Transmission and Distribution (T&D) Committee decided to constitute a new Working Group on HVDC and FACTS Bibliography in their Winter Meeting at San Diego in Jan 2004. This new Working Group will have the responsibility to prepare an annual Bibliography on HVDC and FACTS, effective 2004. The Working Group will also compile comprehensive Bibliographies, individually on

HVDC and FACTS, for the period 1998-2003 to encompass the period since publication of the last Annotated Bibliography. These Bibliographies, although un-annotated, will not be a simple listing of the papers but will classify them in several technical categories as was done in the "Annotated Bibliographies on HVDC and FACTS", that were published earlier. The Bibliographies will also provide a listing of major HVDC and FACTS Projects worldwide. The Bibliographies will be disseminated through IEEE PES channels and/or through the T&D Committee website.

4. Reports from Substations Subcommittee

HIGH VOLTAGE POWER ELECTRONICS STATIONS SUBCOMMITTEE (I0),
Chair: Hubert Bilodeau

The last subcommittee meeting took place at the Substation Committee meeting in New Orleans last April. Two presentations were given. One on the commissioning of the Statcom at Glenbrook, given by B. Gemmell of Areva, and the second presentation given by D. Nix on the HVDC project at Lamar, CO.

The IEEE Power Electronics Stations subcommittee has established a liaison with IEC SC 22F with a primary objective to harmonize the EIC and the IEEE standard 857 "IEEE Recommended Practice for Test Procedures for High-Voltage Direct-Current Thyristor Valves". SC I0 must now address the differences in the most recent revision of the EIC document before the next maintenance team of EIC is initiated. I0 has recommended for this task the creation of a task force under the leadership of Dr. G. Karady and WG I1 (Power Electronics).

George Karady will also chair the re-balloting process for reaffirming std 857. The first ballot resulted in 75% positive votes and recirculation was requested to address the negative votes. However since appropriate rebuttal was included only in the recirculation letter and had not been provided to the unresolved negative ballots on a comment-by-comment basis reaffirmation has been disapproved by Rev Comm. The next meeting will take place in Tampa in April 2005.

WG I1 Power Electronics Equipment--No meeting took place. Balloting for IEEE P1623/D5 "Guide for the Functional Specification of Medium Voltage Electronic Shunt Device for Dynamic Voltage Compensation" started on May 11th and will be closing on June 11th.

WG I1TF1 This WG is created to start the harmonization process with IEC (as reported in I0).

WG I4 Static Var Compensators The WG met on Wednesday morning. Three on-going activities were on the agenda.

- 1) Reliability Survey: The number of respondents to the survey is being increased and a new request will be sent.
- 2) SVC Refurbishment – A document on SVC refurbishment centered around the cases presented in the Panel Session in Toronto is under preparation. A (draft) of the document

was passed around for discussion. It is requested from all authors to complete sections of the document from all cases presented.

Tutorial

3) A tutorial on "Static Var Compensator" was given at the Substation Annual meeting in New Orleans. Thirteen participants attended the tutorial. An improved tutorial on SVC for a complete day session will be presented at the PES meeting in 2005. The WG proceeded with the preparation work for this tutorial during this session.

WG I5 Voltage Sourced Converter--Two meetings took place on Monday from 10-12 and 1-5 PM and on Tuesday morning from 8-12. Draft 1.4 of the document was submitted which includes the section on "Installation". Comments received in San Diego on the previous draft have been addressed during these 2-day meetings. In addition, section 8 on Installation was reviewed and comments are expected within 3 weeks. A final draft after major editing of the document will be available for comments before September.

The time and location for the next meeting remain to be decided.

WG I8 Power Electronics Building Block Concepts--There were 17 attendees including 11 members at the meeting on Tuesday afternoon.

TF1 report: The draft document on "Control Architecture" was reviewed and discussed. TF1 is now ready to request a PAR for a guide. At the next meeting TF1 will meet for a whole day for a line-by-line review of its draft guide.

TF2 Report: The document "Power Electronics Building Block Concepts" is ready for publication as a Special Report. The Substations Committee has approved the document. It will be for sale from IEEE Customer Service by the next meeting. This document "PEBB Concepts" will be publicized to other IEEE Societies involved in Power Electronics, such as IAS and PESC, through panel sessions. The TF2 also reviewed the first draft document on "Design Tools for PEBB-Based System written by Ani Gole. This document will be enhanced with contribution from various assignments and will be reviewed again at the next meeting.

Terry Ericson made a presentation on "Physics based Design- A new Methodology for the Development of Advanced Electronic Power Systems"

Dates of the next meeting of the WG and TFs are not determined. It is hoped we can piggyback on T&D Committee Winter meeting.

5. Liaison Reports

Peter Lips reported that the CIGRE Study Committee B4 meeting would be held in Paris in August 04. More information can be found on www.cigre.org

6. Presentations

a) Einar Laesen of GE gave a presentation on Variable Frequency Transformer (VFT) project.

b) Ernie Poggi gave a presentation on Lamar HVDC project.

These presentations were very informative and beneficial to the members.

7. Future PES Meetings

- a) 2004 General Meeting – San Francisco, CA, June 12-16, 2005
- b) T&D Conference and Exposition, New Orleans, October 9-14, 2005

Respectfully Submitted,

Ben Mehraban

HVDC and FACTS Subcommittee Secretary