

AGENDA

Wind and Solar Power Coordinating Committee Meeting

IEEE PES General Meeting 2014 -- Washington DC
 Thursday, July 31, 8:00 - 12:00 am, Chesapeake D
(Check final program to confirm meeting room location)

Part 1: WSPCC Administrative Items

1. Review minutes of previous meeting

Summary from notes by Bob Zavadil

2a. Wind and Solar Related Sessions at 2014 PES General Meeting

Day	Session Type	Title
Tuesday 8-12	Panel	Advanced Control of Wind and Solar Power Plants (EMC & EDPG)
Tuesday 8-10	Panel	Wind and Solar Plant System Impacts and Interconnection Requirements (T&D)
Tuesday 1-3	Panel	New Wind Turbine Concepts (EMC)
Tuesday 1-5	Panel	Strategies for Integrating Distributed Renewables with Grid Operation in the US Capital Region (Local Organizing Committee)
Tuesday 2-5	Transactions Paper	Electric Vehicles and Wind Power (PSPI)
Tuesday 2-5	Paper Forum	Impacts of Renewable Generation (Admin)
Tuesday 3-5	Panel	Case Studies of Experiences with Distributed Resource Interconnections on Distribution Systems (T&D)
Wednesday 8-12	Panel	Experience with the Use of Energy Storage in Renewable Power Plants (EMC & EDPG)
Wednesday 10-12	Panel	Design and implementation of ancillary service markets that enable a reliable and efficient power system with increasing penetrations of variable energy resources (PSO)
Wednesday 1-5	Panel	The market, the prices and the subsidies: the real cost of power (EDPG)
Wednesday 2-5	Panel	Value of Flexible Resources in the ISO/RTO Markets with the Penetration of Grid-Scale Intermittent Renewable Resources and Distributed Generations (PSPI)
Wednesday 2-5	Paper Forum	Distributed Energy Resources and Demand Response (Admin)
Thursday 8-12	Panel	Implications of Large-Scale Wind Energy on Power Systems and Supporting Measures for Better Integration (EDPG)
Thursday 8-10	Panel	Impacts of Distributed Energy Resources on Transmission and Distribution System Planning (EDPG)
Thursday 8-12	Transactions Paper	Wind power related operation topics (PSO)
Thursday 8-12	Panel	Planning for near-term flexibility challenges (PSPI)
Thursday 8-12	Panel	Adequacy of Power Systems with Renewable Energy Sources (PSACE)

17 Sessions Total

Sponsors: 3 by EMC, 5 by EDPG, 2 by T&D, 3 by PSPI, 2 by PSO, 1 by PSACE, 2 by Admin, and 1 by Local Org. Comm.

Time Slots: None Mon.PM; 2 Tue.AM; 3 Tue.PM, 2 Wed.AM, 3 Wed.PM, 5 Thu.AM.

2b. Wind and Solar Related Committee Meetings at 2014 PES General Meeting

Meeting Title	Primary Committee	Day	Start	End
EMC Renewable Energy Subcommittee	Electric Machinery	Monday	9:00 AM	12:00 PM
EDPGC Renewable Technologies Subcommittee	Energy Development and Power Generation	Monday	3:00 PM	4:00 PM
RTSC - Photovoltaics WG	Energy Development and Power Generation	Monday	4:00 PM	5:00 PM
EDPGC Distributed Generation and Energy Storage Subcommittee	Energy Development and Power Generation	Tuesday	5:00 PM	6:00 PM
IPSC Distributed Generation WG	Energy Development and Power Generation	Wednesday	12:00 PM	1:00 PM
CIGRE JWG C4/C6.35/CIRED Modelling and dynamic performance of inverter based generation in power system transmission and distribution studies	Power System Dynamic Performance	Sunday	12:00 PM	5:00 PM
PSDP Task Force on Contribution to Bulk System Control and Stability by Distributed Energy Resources connected at Distribution Networks	Power System Dynamic Performance	Tuesday	10:00 AM	12:00 PM
PSDP Working Group on Dynamic Performance of Wind Generation	Power System Dynamic Performance	Wednesday	8:00 AM	9:20 AM
Task Force Meeting on Bulk Power System Operations with Variable Generation	Power System Operations	Thursday	12:00 PM	1:00 PM
Conventional and Renewable Energy Supply Planning Working Group	Power System Planning and Implementation	Monday	2:00 PM	3:30 PM
Assessment of Power System Flexibility Working Group Combo	Power System Planning and Implementation	Thursday	8:00 AM	12:00 PM
Gen Sys - TF on Modeling and Analysis of Electronically Coupled Distributed Resources	Transmission and Distribution	Monday	3:00 PM	4:00 PM
Gen Sys - WG on Distributed Resources: Modeling and Analysis	Transmission and Distribution	Monday	4:00 PM	5:00 PM
C17 - Joint Working Group on Wind Plant Short-Circuit Contributions	Transmission and Distribution	Thursday	8:00 AM	10:00 AM

Integration of Renewable Energy Into the Transmission & Distribution Grids Subcommittee	Transmission and Distribution	Thursday	1:00 PM	2:00 PM
Distributed Resource Integration WG	Transmission and Distribution	Tuesday	8:00 AM	10:00 AM
Gen Sys - TF on EMT-type Modeling of Wind Turbine Generators and Parks	Transmission and Distribution	Tuesday	10:00 AM	11:00 AM
HVDC & FACTS- Use of Power Electronics in Major Grids for Wind Generation Projects (WG 15.05.15)	Transmission and Distribution	Tuesday	1:30 PM	4:30 PM
Wind and Solar Plant Collector Design Working Group	Transmission and Distribution	Wednesday	8:00 AM	10:00 AM
Wind Farm Collector System Grounding for Personal Safety Task Force	Transmission and Distribution	Wednesday	10:15 AM	12:00 PM
Wind and Solar Power Plants System Impacts and Interconnection Requirements Working Group	Transmission and Distribution	Wednesday	1:00 PM	3:00 PM
Wind and Solar Power Coordinating Committee	Wind Power Coordinating	Thursday	8:00 AM	12:00 PM

22 Meetings Total

Committee Sponsors: 1 by EMC, 4 by EDPG, 3 by PSDP, 1 by PSO, 2 by PSPI, 10 by T&D, 1 by WSPCC.

3. Technical Committee Program Chair Report (David Jacobson)

4. Status of WSPCC Web Page (Miaolei Shao)

- Periodically being updated to include new wind-related and solar-related groups within PES, with assistance from Durgesh Manjure. <http://ewh.ieee.org/cmte/wspcc/>

Part 2: SC, WG, TF and Liaison Reports – Broad Coordination Discussions

5. Reports for Existing Wind and Solar Related SCs, WGs, & TFs in PES

Leaders of each of the subcommittees, working groups and task forces listed in the following table are requested to give a brief oral report of ongoing and planned activities. A brief written report is also requested for the WSPCC secretary, Durgesh Manjure, to include with the WSPCC meeting minutes.

PES Committee	SC, WG or TF Name	SC, WG or TF Leader & Email
Electric Machinery	1) Renewable Energy Machines and Systems Subcommittee (EM)	Mohamed El-Sharkawi (elsharkawi@ee.washington.edu)
Energy Development & Power Generation - O. P. Malik (maliko@ieee.org)	1) Renewable Technologies Subcommittee (ED&PG)	Rama Ramakumar (rama.ramakumar@okstate.edu)
	2) Working Group on Photovoltaics (ED&PG)	Badrul Chowdhury (bchowdhu@uncc.edu)
Power System Analysis, Computing and Economics	1) Capacity Value of Wind Generators (PSACE and PSO)	Mark O'Malley (mark.omalley@ucd.ie), Michael Milligan (michael_milligan@nrel.gov)
Power System Relaying - Roger Hedding	1) Working Group on Fault Current Contribution from Wind Farms (PSRC C17)	Chair: Dean Miller (millerdh@comcast.net), Vice Chair: Gene Henneberg (Need Email)
	2) Working Group on Modifications to Fault Study Programs for Wind Turbine Generators (PSRC CTF24)	Chair: Sukumar Brahma (sbrahma@nmsu.edu), Vice-chair: George Bartok (georgeb@rlc-eng.com)
	3) Working Group on Guide for Protection of Wind Plants (PSRC CTF25)	Dean Miller (millerdh@comcast.net)
	4) Joint Working Group on Fault Current Contribution from Wind Farms (Sponsored by PSRC, T&D, EMC)	Dean Miller - PSRC (millerdh@comcast.net), Reigh Walling - T&D (rwalling@wesconsult.com), Ron Harley - EM (ronald.harley@ece.gatech.edu)
Surge Protective Devices - Ronald Hotchkiss (ronhotchkiss@msn.com)	1) Working Group on Wind Power Facilities Electrical Protection Guide (SPD)	Kenneth Brown (kbrown@leviton.com)
	2) Working Group on Photovoltaic Facilities Electrical Protection Guide WG (SPD)	Dr. A. J. (Tony) Surtees (surtees@ieee.org)
Transformers - Donald W. Platts (donplatts@ieee.org)	1) Working Group on Standard Requirements for Wind Turbine Generator Transformers (Transformers)	David Buckmaster (david.buckmaster@shawgrp.com)
Transmission & Distribution - W. A. Chisholm (W.A.Chisholm@ieee.org)	1) Integration of Renewable Energy into T&D Grids Subcommittee (T&D)	Ernst Camm (ecamm@sandc.com)
	1) Working Group on Wind and Solar Plant Collector System Design (T&D and EDPG)	Wayne Dilling (Wayne.Dilling@mortenson.com), Mitch Bradt (bradt@wisc.edu)
	3) Working Group on Wind and Solar Power Plant System Impacts and Interconnection Requirements (T&D)	Tom McDermott (tom@meltran.com)
	4) Task Force on EMT Modeling of Wind Turbine Generators and Parks (T&D, General Systems)	Juan Martinez-Velasco (martinez@ee.upc.edu)
	5) Task force on Wind and Solar Plant Grounding for Personal Safety (T&D)	Gopal Padmanabhan (gopal.padmanabhan@res-americas.com)
Power System Dynamic Performance - Thierry Van Cutsem (t.vancutsem@ulg.ac.be)	1) Working Group on Dynamic performance of Wind Power Generation (PSDP)	Pouyan Pourbiek (ppourbeik@epri.com)
Power System Operations	1) Task Force on Integration of Wind and Solar Generation into Power System Operations (PSO)	Jianhui Wang (jianhui.wang@anl.gov)
	2) Task Force on Bulk power System Operations with Variable Generation (PSO)	Aidan Tuohy (atuohy@epri.com)
Power System Planning and Implementation - M. L. Chan (manloongchan@gmail.com)	1) Conventional & Renewable Energy Supply Planning (PSP)	Joseph Yan (Joseph.Yan@sce.com)

6. NERC: Integrating Variable Generation Task Force and Essential Reliability Services Task Force – Status Update (John Moura, NERC, John.Moura@nerc.net)

7. 2015 “Transmission-Connected Wind and Solar Power” Issue of P&E Magazine; Status Update (Charlie Smith)

8. Status of Activities related to IEEE Standard 1547: Tom Basso (thomas.basso@nrel.gov)
Alternates are Abe Ellis, Reigh Walling, Tom McDermott

9. Reports from Liaison Representatives to Other Organizations

- a) UVIG: Charlie Smith
- b) AWEA: Michael Goggin or John Dunlop
- c) CIGRE Wind and Solar Activities: David Jacobsen
- d) CANWEA: Tom Levy
- e) IEA Wind Integration Activities: Michael Milligan or Mark O’Malley
- f) NREL: Michael Milligan
- g) International Wind Activities: Antje Orths
- h) Reports from others who may be attending this meeting

Part 3: New Business & Future Directions for WSPCC

10. Ideas for Wind and Solar Related Sessions at upcoming PES meetings

- PES GM in Denver, CO, July 26-30, 2015
 - o Tutorials?
 - o Panel sessions?

11. Ideas for New Working Groups / Projects / Activities within PES

- Where is the industry going? What are the gaps in what PES is doing in wind and solar? Some preliminary ideas are below
- Low SCR issues for regions with high penetration of wind/solar resources
 - o CIGRE is doing some work in this area; WG B4.62, Connection of Wind Farms to Weak AC Networks, Nahil Pahalawaththa chair, Sebastian Achilles secretary.
- Future market structures for high penetrations of renewable resources
 - o Some people who have been active in this area include Ben Hobbs (Johns Hopkins), Janus Bialek (Skoltech), Paul Sotkiewicz (PJM)
- Emerging control performance standards (eg., BAAL) and their impacts the amount of regulation and reserves required for wind and solar variability
- Evolving business models for developing, owning and operating wind and solar resources
 - o Charlie Smith has some thoughts to share on this topic
 - o “There’s growing interest in utility-owned inverters. Will it make power companies more receptive to PV and batteries?” – per recent GreenTech Media Article

12. Change Day and Time for next WSPCC Meeting ???

- Lots of conflicts in this time slot for past few meetings
- Move to Monday afternoon?