9th PV Performance Modeling and Monitoring Workshop

Date: December 5-7, 2017

Site: Harbin Institute of Technologogy, No.2, West Wenhua Road, High-tech District, Weihai, Shandong, 264209 China

Day 1		Tuesday, December 5, 2017			
8:00	0:30	Registration of participants			
8:30	0:05	Welcome & Introductions	Shitao Wang	Harbin Institute of Technology	China
8:35	0:05	Welcome & Introductions	Boris Farnung	Fraunhofer ISE	Germany
8:40	0:05	Workshop Overview	Joshua Stein	Sandia National Laboratories	USA
		Keynote Speeches	*Shitao Wang*	Harbin Institute of Technology	China
8:45	0:15	Welcome to Harbin Institute of Technology	Prof. Xiaofei Xu	President of Harbin University of Technology at Weihai	China
9:00	0:20	Current PV Status of China and Future Forecast	Sicheng Wang	Energy Research Institute National Development And Reform Commission	China
9:20	0:20	PV Energy Modeling: A 10-Year Retrospective	Ben Bourne	SunPower Corporation	USA
9:40	0:20	Simulating and Monitoring Energy Transition - Experiences from Germany	Harry Wirth	Fraunhofer ISE	Germany
10:00	**0:30**	**Networking Break**			
Session 1		**Solar Resource Data and Forecasting**	*Harry Wirth*	Fraunhofer ISE	Germany
10:30	0:20	Modeling Spectral Solar Irradiance for Solar Energy Applications	Manajit Sengupta	NREL	USA
10:50	0:20	Latest developments in solar irradiance measurement; improving measurement accuracy, improving data availability	Kees Van der Bos	Hukseflux	Netherlands
11:10	0:20	Status of development of Solargis weather database for China	Marcel Suri	Solargis	Slovakia
11:30	0:20	Local and Regional PV Power Forecasting - Combining on-site measurements, satellite data and weather predictions	Jefferson Bor	Fraunhofer ISE	Germany
11:50	0:20	Panel Discussion			
12:10	**1:10**	**Lunch break**			
Session 2		**Modeling Software Updates**	*Joshua Stein*	Sandia National Laboratories	USA
13:20	0:20	Precise Design and Modeling Technology Application of PV System	Zhang Xianli	Sungrow Power Supply Co., Ltd	China
13:40	0:20	Novelties and new features in PVsyst	Bruno Wittmer	PVsyst SA	Switzerland
14:00	0:20	PlantPredict: New Features to Improve Prediction Speed & Accuracy	Kendra Passow	First Solar	USA
14:20	0:20	Recent and Planned Improvements to the System Advisor Model (SAM)	Nicholas DiOrio	National Renewable Energy Laboratory	USA
14:40	0:20	Software Assisted Optimization of PV Module Concepts	Max Mittag	Fraunhofer ISE	Germany
15:00	0:20	Panel Discussion			
15:20	**0:20**	**Networking Break**			
Session 3		**Modeling Methods and Case Studies**	*Boris Farnung*	Fraunhofer ISE	Germany
15:40	0:20	Comparison of modeling methods and tools for bifacial PV performance	Joshua S Stein	Sandia National Laboratories	USA
16:00	0:20	Simulation of tracking PV installations with PVsyst	Bruno Wittmer	PVsyst SA	Switzerland

16:20	0:20	Modeling methods and tools for bifacial PV+tracker performance	Shitao Wang	Arctechsolar	China
16:40	0:20	Prediction of the solar spectrum for accurate prediction of energy yield of the highperformance PV system using multi-junction cells and solar-driven cars	Kenji Araki	Toyota Technology institute	Japan
17:00		**End of Day 1**			
17:00	**1:00**	**Break**			
18:00		**Evening event – Sponsored Dinner at Haiyue Jianguo Hotel, No.177 West Wenhua Road, Weihai, Shandong Province, China** **Evening event – Dinner at Haiyue Jianguo Hotel**	**New product announcement from sponsors**		
Day 2		**Wednesday December 6, 2017**			
8:00	0:30	Assemble			
Session 3		**Modeling Methods and Case Studies (continued)**	*Boris Farnung*	Fraunhofer ISE	Germany
8:30	0:20	Mathematic Models Used in Shading Distance Calculation between PV Arrays	Sicheng Wang	Energy Research Institute National Development And Reform Commission	China
8:50	0:20	Comparison of Uncertainties in Power Plant Modeling and real world data	Boris Farnung	Fraunhofer ISE	Germany
9:10	0:10	Panel Discussion			
Session 4		**PV Monitoring for Degradation**	*Amy Halloran*	Sandia National Laboratories	USA
9:20	0:20	Rate Of Change Determination Of Real-world Commercial PV Power Plants using Data-driven Modeling	Roger H. French	SDLE Research Center	USA
9:40	0:20	Comparison of different wafer based bifacial and monofacial module technologies at different sites	Andre Richter	Meyer Berger	Germany
10:00	0:20	Innovative Surveying Method and Monitoring Platform at Aerospec	Ma Xiaorui	Aerospec Technologies	USA
10:20	0:20	Hierarchical Context-Aware Anomaly Diagnosis in Large-Scale PV Systems Using SCADA Data	Dahai Kang	Concord New Energy Group Limited	China
10:40	0:15	Panel Discussion			
10:55	**0:30**	**Networking Break**			
Session 5		**New PV Technologies**	*Shitao Wang*	Harbin Institute of Technology	China
11:25	0:20	Bridging scientific research and industry: Research progress on industrial crystalline silicon solar cells at SJTU	Wenzhong Shen	Shanghai Jiao Tong University	China
11:45	0:20	CIGS module performance and modeling	Bruce King	Sandia National Laboratories	USA
12:05	0:20	Insights into PERC Cell and Module Lifetime Performance From Modeling I-V, Suns-Voc, and Advanced Characterization Data	Jennifer Braid	SDLE Research Center	USA
12:25	0:15	Panel Discussion			
12:40	**1:10**	**Lunch Break**			
Session 6		**Grid Integration of PV**	*Shitao Wang*	Harbin Institute of Technology	China
13:50	0:20	Grid Safety and Countermeasures in Large Scale Photovoltaic Power Plants	Junjun Zhang	China Electric Power Research Institute	China
14:10	0:20	Study on impact of distributed grid-connected PV system on distribution network	Da Li	CSG Energy Co	China
14:30	0:20	Research progress and key direction of key technologies of large scale photovoltaic DC grid connection	Yibo Wang	The Institute of Electrical Engineering (IEE) of Chinese Academy of Sciences (CAS)	China
14:50	0:20	"PV+Storage" Smart Grid design key requirement	Xiaoqing Dong	HeBei Engineering Design Co.Ltd	China

Time	Duration	Title	Speaker	Organization	Country
15:10	0:15	Panel Discussion			
15:25	**0:40**	**Networking Break**			
Session 7		**Soiling Studies**	*Bruce King*	Sandia National Laboratories	USA
16:05	0:20	Automatic Detection of Soiling Zones and Rates for Optimized PV Plant Cleaning	Zoe DeFreitas	Envision	USA
16:25	0:20	Measuring PV System Soiling Losses	Bill Stueve	Atonometrics	USA
16:45	0:20	Spatio-temporal Model of Backsheet Degradation and Soiling	Laura BruckMann	SDLE Research Center	USA
17:05	0:20	Study on the dust properties and application of self-cleaning materials in photovoltaic power plant operation and maintenance	Liu Wen Jia	Liontrunk	China
17:25	0:15	Panel Discussion			
17:40	**0:20**	**Workshop Summary**	**Joshua Stein, Boris Farnung, and Shitao Wang**		
18:00		**End of Workshop**			

Day 3		Thursday, December 7, 2017	
		Optional Technical Tours: Solar Research Institute of HIT Meeting point: Harbin Institute of Technology,Weihai main building	
9:00	1:30	Tour of Outdoor PV Test Field of Solar Research Institute of HIT	
10:30	1:30	Tour of Technical Laboratories of HIT	
12:00		**End of Technical Tours**	