

10th Solar & Storage Integration Workshop

International Workshop on Integration
of Solar Power and Storage into Power Systems

VIRTUAL
EVENT!

5 Nov 2020



PRELIMINARY PROGRAM AS OF 22 SEPTEMBER 2020

Important: This preliminary program is subject to changes. It is strongly recommended to check back regularly.

WORKSHOP AMBASSADORS



HOMER Energy
by UL



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Grid Initiative 



The Institution of
Engineering and Technology

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energynautics
solutions for sustainable development

SOLAR & STORAGE INTEGRATION WORKSHOP

THURSDAY, 5 NOVEMBER 2020	
Solar & Storage Integration Workshop	
08:00 – 09:00	
09:00 – 09:10	A + B OPENING: WELCOME AND INTRODUCTION
09:10 – 11:00	A + B SESSION 1: KEYNOTE SESSION
<i>BREAK (20 MIN)</i>	
11:20 – 13:15	A
	B
	SESSION 2A: INTERNATIONAL EXPERIENCE
	SESSION 2B: BATTERY ASPECTS
<i>BREAK (45 MIN)</i>	
14:00 – 15:50	A
	B
	SESSION 3A: HYBRID SYSTEMS
	SESSION 3B: POWER SYSTEM ASPECTS
<i>BREAK (20MIN)</i>	
16:10 – 17:40	A
	B
	SESSION 4A: DISTRIBUTION GRID ISSUES
	SESSION 4B: GRID FORMING ASPECTS
17:45-18:30	A + B SESSION 5 PODIUM DISCUSSION & CLOSURE
18:30	

THURSDAY, 5 NOVEMBER 2020

09:00 – 09:10 Welcome

09:10 – 11:00	SESSION 1 – KEYNOTE SESSION
> Session Chair	T. Ackermann (Energynautics, Germany)
09:10 – 10:40	Presentations (30min. each)
	<ul style="list-style-type: none">• TBA Autor (Company, country)• TBA Autor (Company, country)• Emergency Island Mode for Distribution Grids A. Falk, P. R. Stankat (SMA Solar Technology, Germany) (Submission-ID SIW20-101)
10:40 – 11:00	Discussions

11:00 – 11:20 BREAK

11:20 – 13:15	SESSION 2A: INTERNATIONAL EXPERIENCE
> Session Chair	TBA
11:20 – 12:40	Presentations (20 min. each)
	<ul style="list-style-type: none">• The Impact of Renewable Energy Expansion on Power Exchange Prices in Japan T. Wakeyama (Platform of Inter/Transdisciplinary Energy Research, Japan), K. Setoguchi (Graduate school of engineering, Japan), R. Zissler (Transdisciplinary Science and Engineering, Japan), K. Kimura (Renewable Energy Institute, Japan) (Submission-ID SIW20-61)• Integrating Small-Scale Embedded Generation into Municipalities in South Africa: Learnings from 3 Case Studies in Metropolitan Environments J. Wright, M. Rampokanyo, B. Molefyane (Council for Scientific and Industrial Research (CSIR), South Africa) (Submission-ID SIW20-5)• Investigation on Grid-Integration of Large-Scale Photovoltaic Energy in Senegal A. K. Usbeck (Hamburg University of Applied Science, Germany), L. Thiaw, M. Sarr, B. Niang, O. Bá (Ecole Supérieure Polytechnique Dakar, Senegal), M. Thiam (Ecole Polytechnique de Thiès, Senegal) (Submission-ID SIW20-37)• Australia: The Global Leader in per capita PV/Wind Deployment A. Blakers, M. Stocks, B. Lu, C. Cheng, D. Silalahi (Australian National University, Australia) (Submission-ID SIW20-50)
12:40– 13:15	Discussions

11:20 – 13:15	SESSION 2B: BATTERY ASPECTS
> Session Chair	TBA
11:20 – 12:50	Presentations (18 min. each)
•	Provision of Grid Services by PV Plants with Integrated Battery Energy Storage System V. Gevorgian, P. Koralewicz, S. Shah (NREL, United States), M. Morjaria (RE Plant Solutions / First Solar, United States) (Submission-ID SIW20-143)
•	An Economic Evaluation Tool for Solar Power Self-consumption System with Battery Energy Storage C.-T. Lee, T. Yoshihara, K. Tomiyasu, H. Harada, Y. Nagayama, T. Oya, T. Nakamura (Hitachi, Japan) (Submission-ID SIW20-6)
•	The Influence of Solar Energy and Battery Storage Costs on the European Energy System S. Kigle, A. Murmann, C. Pellingner, F. Böing (Forschungsstelle für Energiewirtschaft e. V. (FfE), Germany) (Submission-ID SIW20-63)
•	Use cases and Potential of Integrating Battery Energy Storage in Industrial Plants Z. Wu, T. Blank, P. Zwickel, D. Sauer, M. Weber (Karlsruhe Institute of Technology – KIT, Germany) (Submission-ID SIW20-53)
•	BESS Optimal Sizing Methodology – Degree of Impact of Several Influencing Factors B. Richard, X. Le Pivert, Y.-M. Bourien (CEA, France) (Submission-ID SIW20-26)
12:50– 13:15	Discussions

13:15 – 14:00 BREAK

14:00 – 15:50	SESSION 3A: HYBRID SYSTEMS
> Session Chair	TBA
14:00 – 15:30	Presentations (18 min. each)
•	Renewable & Storage Hybrids in Resource Adequacy E. Lannoye (EPRI Europe DAC, Ireland), A. Tuohy, E. Ela, J. Stekli, M. Pellow, D. Young (Electric Power Research Institute – EPRI, United States), K. Carden (Astrape Consulting, United States) (Submission-ID SIW20-120)
•	Off-grid and decentralized Hybrid Renewable Electricity Systems (OHRES) comprehensive techno-economic approach, including HOTEM modeling tool development. M. M. Elkadragy, M. Iqbal, M. Hiller, J. Knebel (Karlsruhe Institute of Technology – KIT, Germany), A. Opal, J. Nathwani (University of Waterloo, Canada) (Submission-ID SIW20-48)
•	The Role of Grid Codes in Isolated Power Systems P.-P. Schierhorn, N. Martensen (Energynautics GmbH, Germany) (Submission-ID SIW20-105)
•	Off-Grid and Dhybrid Renewable Electricity Systems Data Analysis Platform (OSDAP) – A Building Block of a Comprehensive Techno-Economic Approach for Off-Grid Hybrid Systems. M. M. Elkadragy, M. Alici, A. Alsersy (Karlsruhe Institute of Technology – KIT/BETEC, Germany), A. Opal, J. Nathwani (Waterloo Institute for Sustainable Energy (WISE), University of Waterloo, Canada), J. Knebel, M. Hiller (Karlsruhe Institute of Technology – KIT, Germany) (Submission-ID SIW20-99)
•	Techno-Economic Aspects of Grid Forming Inverters in Small Power Systems P.-P. Schierhorn, P. Gambín Belinchón (Energynautics, Germany), J. V. Guilmineau (KTH Royal Institute of Technology, Sweden) (Submission-ID SIW20-104)
•	Feasibility Study of a Hybrid PV/Electrolyzer/FC and PV/Reformer/FC Systems for Supplying Electricity to a Residential in Chlef M. Dekkiche (Université Hassiba Benboulli Chlef, Algeria) (Submission-ID SIW20-47)
•	Investigation of Optimal Design of Hybrid PV-Natural-Gas/Batteries Power System for a Village in Chlef, Algeria T. Tahri (Chlef University, Algeria) (Submission-ID SIW20-36)
15:30 – 15:50	Discussions

14:00 – 15:50	SESSION 3B: POWER SYSTEM ASPECTS
> Session Chair	TBA
14:00 – 15:30	Presentations (18 min. each)
•	Power Hardware-in-the-Loop Simulation on Fast Frequency Response by Energy Storage System Equipped with Advanced Frequency Detection Algorithm Y. Mitsugi, T. Terazono, H. Hashiguchi (Toshiba Mitsubishi-Electric Industrial Systems Corporation, Japan), J. Kato, K. Deguchi, Y. Ota, T. Nakajima (Tokyo City University, Japan) (Submission-ID SIW20-54)
•	Impact of PLL Parameter Settings on the Frequency Support of Direct Voltage Control A. PFENDLER, M. COUMONT, J. HANSON (TU DARMSTADT (E5), GERMANY) (SUBMISSION-ID SIW20-77)
•	Stronger Decentralization of the German Electricity-Heat-System D. Masendorf, E. Tröster (Energynautics GmbH, Germany) (Submission-ID SIW20-107)
•	ANN-based Photovoltaic Fault Detection Algorithm M. Hussain, M. Dhimish, N. Schofield, S. Titarenko (University of Huddersfield, United Kingdom) (Submission-ID SIW20-139)
•	Curtailment of Generation in PV Installations – Comparison of the Effectiveness of Various Solutions P. Kacejko, M. Wancerz (Lublin University of Technology, Poland) (Submission-ID SIW20-135)
•	Blockchain Technology as an Enabler for Decentralization in the Energy System M. Hinterstocker, P. Dossow, A. Djamali, S. Von Roon (FfE GmbH, Germany), A. Bogensperger, A. Zeiselmaier (FfE e.V., Germany) (Submission-ID SIW20-90)
15:30 – 15:50	Discussions

15:50 – 16:10 BREAK

16:10 – 17:40	SESSION 4A: DISTRIBUTION GRID ISSUES
> Session Chair	TBA
16:10 – 17:22	Presentations (18 min. each)
•	Improving, Modeling and Simulation of Droop Controller for Grid-forming Inverter in DigSILENT PowerFactory A. Salman, P. N. Pham (Fraunhofer Institute for Solar Energy Systems ISE, Germany) (Submission-ID SIW20-19)
•	Development of a Fitting for Simulation Parameters to Apply and Derive a Cluster Analysis Regarding Grid Bottlenecks T. Esterman, S. Köppl, N. Mader (FfE e.V., Germany) (Submission-ID SIW20-3)
•	How to Size and Place Community Storage Systems using Multi-Period Optimal Power Flow M. Boehringer, S. Choudhury, J. Hanson (TU Darmstadt, Germany), I. Jeromin (University of Applied Sciences Darmstadt, Germany) (Submission-ID SIW20-72)
•	Best-fit Machine Learning Classifier for Early-stage Photovoltaic Hot-Spots Detection M. Dhimish, N. Schofield (University of Huddersfield, United Kingdom) (Submission-ID SIW20-140)
17:22 – 17:40	Discussions

16:10 – 17:40 **SESSION 4AB: GRID FORMING ASPECTS**
> Session Chair TBA

- 16:10 – 17:40** **Presentations (18 min. each)**
- **UPS with Parallel Grid Forming Inverters**
S. Scheurich, A. Falk (SMA Solar Technology, Germany) ([Submission-ID SIW20-102](#))
 - **Voltage Imbalance Resilience and Mitigation Using Grid Forming Inverters in Low-Voltage Distribution Grids**
B. O. Winter, B. Engel (elenia Institute for High Voltage Technolgy and Power Systems, Germany) ([Submission-ID SIW20-106](#))
 - **OSMOSE WP3: Factory Acceptance Test of Ringolab Demonstrator Grid Forming Function**
C. Cardozo, G. Denis, T. Prevost (RTE R&D, France), M. Zubiaga, J. J. Valera (Ingeteam, Spain), Y. Vernay (RTE CNER, France) ([Submission-ID SIW20-34](#))
 - **A Robust Spatio-Temporal Approach for Multi-Site PV Forecasting**
R. Carrillo, M. Leblanc, B. Schubnel, P.-J. Alet (CSEM, Switzerland), C. Topfel (BKW AG, Switzerland) ([Submission-ID SIW20-82](#))
 - **Measured Impedance Characteristics of Solar Inverters up to 1MW**
S. Rogalla, S. Kaiser, B. Burger (Fraunhofer Institute for Solar Energy Systems ISE, Germany), B. Engel (TU Braunschweig, Germany) ([Submission-ID WIW20-110](#))
- 17:40 – 17:50** **Discussions**

17:45 – 18:30 **SESSION 5 – CLOSING SESSION**
> Session Chair TBA

17:50 – 18:25

Title TBA

Panelists:
- TBA

18:25– 18:30 **Closure**