

8th Solar Integration Workshop

International Workshop on Integration
of Solar Power into Power Systems

with Special Topic **STORAGE**

16 - 17 October 2018

Stockholm, Sweden



PRELIMINARY PROGRAM AS OF 1 AUGUST 2018

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

GIGA SPONSOR



SUPPORTED BY



MEDIA PARTNERS



ORGANIZER



CO-ORGANIZER



TIMETABLE 8th SOLAR INTEGRATION WORKSHOP

TUESDAY, 16 OCTOBER 2018				WEDNESDAY, 17 OCTOBER 2018			
Solar Workshop Day 1				Solar Workshop Day 2			
08:00 – 09:00	FOYER						
	REGISTRATION						
09:00 – 09:10	M1			08:30 – 10:15	M1	M2	M3
	OPENING: WELCOME AND INTRODUCTION				SESSION 5A: FREQUENCY CONTROL ASPECTS	SESSION 5B: HYBRID POWER SYSTEMS & STORAGE	SESSION 5C: FORECASTING II
09:10 – 10:50	M1			10:40 – 12:05	COFFEE BREAK (25 MIN)		
	SESSION 1: KEYNOTE SESSION				M1	M2	M3
	COFFEE BREAK (25 MIN)				SHORT BREAK		
11:15 – 13:00	M1	M2	M3	12:15 – 13:15	M1		
	SESSION 2A: POWER SYSTEM STUDIES I	SESSION 2B: ANCILLARY SERVICE ASPECTS	SESSION 2C: PROJECT EXPERIENCE		CLOSING SESSION – PANEL DISCUSSION: AUTOMATED GRID CONTROL		
	LUNCH (1H)				LUNCH		
14:00 – 15:45	M1	M2	M3	14:00	M1		
	SESSION 3A: POWER SYSTEM STUDIES II	SESSION 3B: INNOVATIVE SOLUTIONS	SESSION 3C: CESEPS		OPENING SESSION 17 TH WIND INTEGRATION WORKSHOP		
	COFFEE BREAK (20MIN)						
16:05 – 18:15	M1	M2	M3				
	SESSION 4A: DISTRIBUTION GRID ASPECTS	SESSION 4B: GRID CODE ASPECTS	SESSION 4C: FORECASTING I				
18:15	POSTER RECEPTION & NETWORKING						

TUESDAY, 16 OCTOBER 2018

08:00 – 09:00 Registration

09:00 – 09:10 Welcome

09:10 – 10:50	SESSION 1 – KEYNOTE SESSION
> Session Chair	T. Ackermann (Energynautics, Germany)
09:10 – 10:30	Presentations (20 min. each)
•	Presentation 1 Autor (Affiliation, Country)
•	Presentation 2 Autor (Affiliation, Country)
•	Presentation 3 Autor (Affiliation, Country)
•	Presentation 4 Autor (Affiliation, Country)
10:30 – 10:50	Discussions

10:50 – 11:15 COFFEE BREAK

11:15 – 13:00	SESSION 2A – POWER SYSTEM STUDIES I
> Session Chair	TBA
11:15 – 12:45	Presentations (18 min. each)
•	Addressing Grid Challenges of Solar Over-Generation M. Morjaria (First Solar, USA) (Submission-ID SIW-212)
•	RES Integration Study for the German state Hesse - Methodology and Results for the Low and Medium Voltage Level Scheidler, J. Ulfers, M. Braun (Fraunhofer IEE Kassel, Germany) (Submission-ID SIW-297)
•	The Impact of PV on The Ability of Storage to Provide Peaking Capacity P. Denholm, R. Margolis (NREL, USA) (Submission-ID SIW-45)
•	Renewables Integration Grid Study for the 2030 Japanese Power System R. Kuwahata, P. Merk (Elia Grid International, Germany), T. Wakeyama (Japan Renewable Energy Institute, Japan) (Submission-ID SIW-17)
•	Impacts of Distributed Solar Advanced Inverters on Transmission Voltage and Reactive Power B. Palmintier, I. Krad (NREL, USA) (Submission-ID SIW-227)
12:45 – 13:00	Discussions

11:15 – 13:00	SESSION 2B – ANCILLARY SERVICE ASPECTS
> Session Chair	TBA
11:15 – 12:45	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Reliability and Resilience: Risk-based Analysis Framework Including Wind and Solar Energy M. Milligan (Milligan Grid Solutions, USA) (Submission-ID SIW-261) • Accurate Method for Active Power Reserve Allocation by Utility-Scale PV Power Plants V. Gevorgian (NREL, USA) (Submission-ID SIW-31) • The Potential of Using Residential PV-Battery Systems as Primary Frequency Regulation Resource on a National Level R. Luthander, S. Forsberg (Uppsala University, Sweden) (Submission-ID SIW-110) • Power System planning with Battery Storage in large scale solar integration into Sri Lankan Grid U. N. Sanjaya, H. M. Wijekoon (Ceylon Electricity Board, Sri Lanka) (Submission-ID SIW-36) • Impact of Inverters with Virtual Synchronous Machine Control in Low Voltage Grids F. Rauscher, E. Rebak, B. Engel (TU Braunschweig - elenia, Germany) (Submission-ID SIW-277)
12:35 – 13:00	Discussions

11:15 – 13:00	SESSION 2C – PROJECT EXPERIENCE
> Session Chair	TBA
11:15 – 12:35	Presentations (20 min. each)
	<ul style="list-style-type: none"> • PV Integration with Flexible Generation and Consumption Units – Evaluation of a Quota-Based Grid Traffic Light Approach in a Field Test K. Geschermann, K. Volk, C. Lakenbrink, M. Konermann (Netze BW, Germany) (Submission-ID SIW-69) • Enhanced Feed-in Management in Low and Medium Voltage Distribution Grids for PV Integration and Ancillary Service Provision – Experience from a Field Test L. Rupp, K. Volk (Netze BW GmbH, Germany), J. Imfeld (Landis+Gyr AG, Switzerland), M. Konermann (Netze BW GmbH, Germany) (Submission-ID SIW-162) • Self-Consumption and Self-Sufficiency Level in an Energy Cell with a High Penetration of PV and a Hybrid Battery System L. Held (Karlsruhe Institute of Technology, Germany), M. Armbruster (Stadtwerke Bühl GmbH, Germany), M. Zimmerlin (Karlsruhe Institute of Technology, Germany) (Submission-ID SIW-171) • Increasing PV Hosting Capacity of the Distribution Grid with Battery Energy Storage A.Kitimbo (Vattenfall AB, Sweden), U. Morild (Vattenfall AB, Sweden) (Submission-ID SIW-94)
12:35 – 13:00	Discussions

13:00 – 14:00 LUNCH BREAK

14:00 – 15:45	SESSION 3A – POWER SYSTEM STUDIES II
> Session Chair	TBA
14:00 – 15:30	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Resource Adequacy at Continental Scale: Lessons from Probabilistic Assessments of Planning Reliability Under High-VG Scenarios for Large North American Power Systems G. Stephen (NREL, USA) (Submission-ID SIW-299) • High Penetration of Photovoltaic Energy and Supply-Demand Balance in the Western Japan Grid, with Utilizing Interzone Transmission and Demand Response A. Takehama, M. Utagawa (Ritsumeikan University, Japan) (Submission-ID SIW-274) • Interaction Analysis of Large-Scale PV Power Plants Considering the AC Network E. Prieto-Araujo, R. Ferrer-San-Jose, O. Gomis-Bellmunt (CITCEA-UPC, Spain) (Submission-ID SIW-55) • Japanese Power System Operation with Large Amounts of PV using Day-ahead and Intraday Unit Commitment Y. Udagawa, Y. Nishitsuji (The University of Tokyo, Japan KOZO KEIKAKU ENGINEERING, Japan), K. Ogimoto, J. Gari da Silva Fonseca Junior (The University of Tokyo, Japan), K. Ukegawa (KOZO KEIKAKU ENGINEERING Inc., Japan), S. Fukutome, (JP Business Service Corporation, Japan) (Submission-ID SIW-59) • Investigation of Balancing Power Demand in the Roll-out Scenario of Solar Energy in Senegal B. Koeppen, A. K. Usbeck (Hamburg University of Applied Sciences, Germany) (Submission-ID SIW-53)
15:30 – 15:45	Discussions

14:00 – 15:45	SESSION 3B – INNOVATIVE SOLUTIONS
> Session Chair	TBA
14:00 – 15:30	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Secure Energy Information Network in Germany - Demonstration of Solar-, Storage- and E-Mobility Applications G. Heilscher, S. Chen, H. Lorenz, F. Ebe, C. Kondziarka (Ulm University of Applied Sciences, Germany), T. Kaufmann, S. Hess (Zenner-Hessware, Germany), J. Wening (meteocontrol, Germany) (Submission-ID SIW-317) • An integrated Energy Management System for Improved Solar Integration and Storage in Cities U. Leopold, G. Arnould (Luxembourg Institute of Science and Technology, Luxembourg) (Submission-ID SIW-210) • Coordinated Power System Services from Distributed Batteries P. Nørgaard (DTU, Denmark) (Submission-ID SIW-268) • Evaluation of Datasets and Methods to Derive 3D Building Models and their Influence on PV Power Integration Studies D. Lingfors, J. Widén (Uppsala University, Sweden) (Submission-ID SIW-193) • Moving from Inertia Estimates to Measurements: Enabling the Further Uptake of Renewables C. Kimmett, C. Correia (Reactive Technologies, United Kingdom) (Submission-ID SIW-320)
15:30 – 15:45	Discussions

14:00 – 15:45	SESSION 3C – CESEPS SESSION
> Session Chair	TBA
14:00 – 15:28	Presentations (22 min. each)
<ul style="list-style-type: none"> • Capabilities of Strict Power Limits at Prosumer Households for Solving Network Load Issues at LV grids: An Austrian Case Study S. Uebermasser, D. Reihs, F. Lehfuss (AIT Austrian Institute of Technology, Austria) (Submission-ID SIW-313) • Evaluation of Smart Appliances for Balancing Grids in Combination with Solar Energy Production: A Dutch Case Study C. Gerçek, A. Reinders (University of Twente, Netherlands) (Submission-ID SIW-260) • Stability of Grid-Connected Photovoltaic Inverters During and After Low Voltage Ride Through Z. Zhang, R. Schürhuber, L. Fickert (Graz University of Technology, Austria), Y. Zhang (Shanghai DianJi University, China) (Submission-ID SIW-248) • Smart Energy Products as Drivers for Increasing Energy Efficiency and Renewable Integration in the Residential Sector A. Sierra, C. Gerçek, A. Reinders (University of Twente, Netherlands) (Submission-ID SIW-262) 	
15:28 – 15:45	Discussions

15:45 – 16:05 COFFEE BREAK

16:05 – 18:15	SESSION 4A – DISTRIBUTION GRID ASPECTS
> Session Chair	TBA
16:05 – 17:53	Presentations (18 min. each)
<ul style="list-style-type: none"> • Calculating the Hosting Capacity of Electrical Network with High Penetration of Solar PV N. Etherden (Vattenfall R&D, Sweden), D. Lingfors (Uppsala University, Sweden), K. Kvamme (Powel A/S, Norway) (Submission-ID SIW-234) • Integration of PV+Storage – Technical and Economic Evaluation at Distribution Grids P. Hou (Technical University of Denmark, Denmark), D. Sera, J. P. Rodrigues Martins (Aalborg University, Denmark) P. Douglass, S. Martens (Dansk Energi, Denmark), P. M. Johansen, R. Olsen (Integrate, Denmark), K. Moth (LeanEco, Denmark) (Submission-ID SIW-72) • Adaptive Control of Three-Phase Balancing PV Inverters to Reduce Network Loss and Voltage Imbalance in Medium Voltage Network T. Tsuji (Yokohama National University, Japan) (Submission-ID SIW-233) • Identification of a Dynamic Equivalent of an Active Distribution Network from Monte-Carlo Simulations G. Chaspierre (University of Liège, Belgium), G. Denis, P. Panciatici (R & D RTE, France), T. Van Cutsem (University of Liège, Belgium) (Submission-ID SIW-86) • Practical Implementation of the SNOOPI-Box for a Smart Voltage Control in the Distribution Grid S. Hempel, J.-D. Schmidt, E. Tröster (Energynautics, Germany), U. Ohl, M. Koch (EWR Netze, Germany) (Submission-ID SIW-325) • Evaluation of Power Flow Prognosis Methods for Congestion Management in Low Voltage Grids K. Volk, C. Lakenbrink, P. Schorpp (Netze BW, Germany), P. Stolle (Fichtner IT Consulting AG, Germany), F. Sivorotka (Seven2one Informationssysteme GmbH, Germany), K. Förderer (FZI Forschungszentrum Informatik, Germany) (Submission-ID SIW-85) 	
17:53 – 18:15	Discussions

16:05 – 18:05 **SESSION 4B – GRID CODE ASPECTS**
> Session Chair TBA

- 16:05 – 17:45** **Presentations (20 min. each)**
- **Solar inverter interactions with DC side – some regulatory challenges**
S. Hagaman, J. Crisp, H. Nguyen, T. George (DigSILENT Pacific Pty Ltd, Australia) (Submission-ID SIW-270)
 - **International Communications Standard for Meeting Smart Energy Grid Code Requirements: IEC 61850-7-420 for DER**
L. Guise (Schneider-Electric, France | IEC TC57 WG17, Switzerland), F. Cleveland (Xanthus Consulting, USA | IEC TC57 WG17, Switzerland) (Submission-ID SIW-254)
 - **Implementation of the European Network Code on Requirements for Generators on the European National Level - Trends and Challenges**
R. Bründlinger (AIT Austrian Institute of Technology, Austria), G. Arnold (Fraunhofer IEE, Kassel, Germany, Germany), G. Graditi (ENEA, Italy), N. Schäfer (Fraunhofer IEE, Kassel, Germany, Germany), T. Schaupp (KACO New Energy, Germany), G. Adinolfi (ENEA, Italy) (Submission-ID SIW-82)
 - **Generator Technical Performance Standards in the Australian National Electricity Market**
J. Eggleston (AEMC, Australia) (Submission-ID SIW-41)
 - **Pre-Certification of Grid Code Compliance for Solar Inverters with an Automated Controller-Hardware-in-the-Loop Test Environment**
R. Bruendlinger, J. Stöckl, Z. Miletic, R. Ablinger, F. Leimgruber (AIT Austrian Institute of Technology, Austria), J. Johnson (Sandia National Laboratories, USA), J. Shi (EPRI, USA) (Submission-ID SIW-169)
- 17:45 – 18:05** **Discussions**

16:05 – 18:15 **SESSION 4C: FORECASTING I**
> Session Chair TBA

- 16:05 – 17:57** **Presentations (16 min. each)**
- **Evaluation of Intra-Day Distributed PV Forecasts with Customized Metrics Based on Operational Grid Management Decision-making Scenarios**
J. Zack (UL AWS Truepower, USA) (Submission-ID SIW-165)
 - **System Imbalance from Solar Energy Trading**
T. Landelius, S. Andersson (Swedish Meteorological and Hydrological Institute (SMHI), Sweden), R. Abrahamsson (Tekniska Verken Linköping Nät AB, Sweden) (Submission-ID SIW-185)
 - **Combining Deep Learning and Analog Ensemble for Forecasting Day-ahead Solar Irradiance**
H. Verbois (National University of Singapore, Singapore | Solar Energy Research Institute of Singapore, Singapore), A. Thiery (National University of Singapore, Singapore) (Submission-ID SIW-276)
 - **A Hybrid Solar Radiation Forecasting Based on Data Mining Techniques and SVR**
R. Kumar, V. Vijay (Indian Institute of Technology, India) (Submission-ID SIW-115)
 - **Very Short-Term Solar Power Forecasting Using Ground-based Sky Images**
L.H.D. Dissawe Mudiyansele (University of Peradeniya, Sri Lanka), A. Agalgaonkar, D. Robinson, S. Perera, (University of Wollongong, Australia), R. Godaliyadda, P. Ekanayake (University of Peradeniya, Sri Lanka), J. Ekanayake (University of Wollongong, Australia | Cardiff University, United Kingdom) (Submission-ID SIW-271)
 - **On the Improvement of Day-ahead Forecasts of Solar Irradiance with Simple Ensembles and Training Data Selection in Japan: A Countrywide Assessment**
J. Gari da Silva Fonseca Junior (The University of Tokyo, Japan), F. Uno, T. Oozeki (National Institute of Advanced Industrial Science and Technology - AIST, Japan), K. Ogimoto (The University of Tokyo, Japan) (Submission-ID SIW-273)
 - **Development of Nowcasting Method of Irradiance Distribution based on Kriging and All-sky Image Information**
T. Kato, M. Imanaka, M. Kurimoto, S. Sugimoto (Nagoya University, Japan) (Submission-ID SIW-239)
- 17:57 – 18:15** **Discussions**

18:15 **POSTER RECEPTION & NETWORKING**

08:30 – 10:15	SESSION 5A – FREQUENCY CONTROL ASPECTS
> Session Chair	TBA
08:30 – 10:00	Presentations (18 min. each)
	<ul style="list-style-type: none"> • The Provision of Primary Frequency Control in the Australian National Electricity Market J. Eggleston, B. Hiron (Australian Energy Market Commission (AEMC), Australia) (Submission-ID SIW-42) • Low Inertia Grid Operation S. Hagaman, T. George (DigSILENT Pacific Pty Ltd, Australia) (Submission-ID SIW-57) • Contribution of Photovoltaic Power Systems to Frequency Control J. Seidel, B. Engel (TU Braunschweig - elenia, Germany) (Submission-ID SIW-38) • Assess and Mitigate the Impact of High PV Penetration on System Frequency Response in the three U.S. Interconnection Grids S. You (University of Tennessee, Knoxville, USA), A. Till (NREL, USA), Y. Liu (University of Tennessee, Knoxville, USA), Y. Liu (University of Tennessee, Knoxville, USA Oak Ridge National Laboratory, USA), J. Tan, Y. Zhang, (NREL, USA), M. Gong (GE Global Research, USA) (Submission-ID SIW-12) • Experiences with large Grid Forming Inverters on the Island St. Eustatius, Portability to Public Power Grids P.-R. Stankat, O. Schoemann, C. Hardt, A. Falk, T. Buelo (SMA Solar Technology AG, Germany) (Submission-ID SIW-252)
10:00 – 10:15	Discussions

08:30 – 10:15	SESSION 5B – HYBRID POWER SYSTEMS AND STORAGE SOLUTIONS
> Session Chair	TBA
08:30 – 10:00	Presentations (18 min. each)
	<ul style="list-style-type: none"> • Sensitivities in Hybrid Energy Systems M. A. Lagler, E. Schmutzner, R. Schürhuber (Graz University of Technology, Austria) (Submission-ID SIW-9) • Hybridization of Floating Solar PV with conventional Hydro Power: A cost effective energy storage solution V. Madhusudan (Energy and Energy Consultants, India) (Submission-ID SIW-18) • Design of a Hybrid-Power-System Dominated by Solar Power and Battery Storage Including Retro-Fitting Options Driven by Future Load Increase M. Kühnel, B. Hanke (DLR Institute of Networked Energy Systems, Germany), O. Weigel (GIZ, Germany), I. Stuermer (Lower Saxony Ministry for Environmental Affairs, Germany), A. McMaster (Department of Economic Development, Environmental Affairs and Tourism of Eastern Cape, South Africa), S. Maebe (GIZ, Germany), K. von Maydell, Karsten (DLR Institute of Networked Energy Systems, Germany) (Submission-ID SIW-89) • Design of a PV Secondary Frequency Control for a Small Island Hybrid System with an Optimized Capacity Expansion A. Turnell, P.-P. Schierhorn (Energy nautics, Germany) (Submission-ID SIW-326) • Allocation of Frequency Control Reserve with Micro Grids Participation for Power System Security N. Salim (Universiti Teknikal Malaysia Melaka (UTeM), Malaysia Yokohama National University, Japan) T. Tsuji (Yokohama National University, Japan) (Submission-ID SIW-8)
10:00 – 10:15	Discussions

08:30 – 10:15	SESSION 5C – FORECASTING II
> Session Chair	TBA
08:30 – 10:00	Presentations (15 min. each)
<ul style="list-style-type: none"> • Improvements for Online Feed-in Estimations Based on PV Power Output Measurements D. Lassahn, N. Riewald (meteocontrol GmbH, Germany) (Submission-ID SIW-2) • Towards Improved and More Scalable PV Power Forecasting: Insights from Solcast’s Application of Third-Generation Geostationary Satellites, PV Power Measurements and Low-Cost Sky Imagers J. Luffman, H. Jack, D. Reid (Solcast, Australia) (Submission-ID SIW-73) • Using Solar and Load Predictions in Battery Scheduling at the Residential Level R. Bean, Richard (Redback Technologies, Australia), H. Khan (Redback Technologies, Australia The University of Queensland, Australia) (Submission-ID SIW-137) • Optimized Post-Processing of a Regional Photovoltaic Power Forecast R. Fritz, A. Braun, G. Good, S. Vogt (Fraunhofer IEE, Germany) (Submission-ID SIW-226) • Integration of Short-term PV Forecasts in Control Strategies of PV-Diesel Systems: Simulation and Experimental Test X. Le Pivert (SteadySun, France), T.-p. Do, G. A. Koucoi, F. Bourry (National Institute of Solar Energy, France), P. Besson (SteadySun, France) (Submission-ID SIW-315) • Solar Ensemble Forecasting for Distribution Power System Volt and Var Control B. Uzunoglu (Uppsala University, Sweden), M. Blaschek, C. Kusmitsch (UBIMET, Austria), A. Terciyarli (ENDOKS, Turkey) (Submission-ID SIW-310) 	
10:00 – 10:15	Discussions

10:15 – 10:40 COFFEE BREAK

10:40 – 12:05	SESSION 6A -POWER QUALITAY ISSUES
> Session Chair	TBA
10:40 – 11:46	Presentations (22 min. each)
<ul style="list-style-type: none"> • Hosting Capacity of the Grid for Photovoltaic Installations – a Stochastic Planning Approach Applied to Single-Phase Connections M. Bollen, E. Mulenga, S. Rönnberg (Luleå University of Technology, Sweden) (Submission-ID SIW-46) • Should Waveform Distortion (Harmonics) be Considered when Connecting Large Amounts of Solar PV? S. Rönnberg, T. Busatto, M. Bollen (Luleå University of Technology, Sweden) (Submission-ID SIW-99) • Power Quality Measurement Campaign at a Jordan LV Grid and Determination of the Influence of a Large PV Plant D. Masendorf, E. Tröster (Energynautics, Germany), S. Jankovic (GOPA - International Energy Consultants, Germany) (Submission-ID SIW-250) 	
11:46 – 12:05	Discussions

10:40 – 12:05	SESSION 6B – MARKET AND REGULATORY ISSUES
> Session Chair	TBA
10:40 – 11:52	Presentations (18 min. each)
	<ul style="list-style-type: none"> • How to Create Value through Aggregation: A Business Model Review for Multiple Regulatory Environments in Europe S. De Clercq (3E, Belgium), D. Schwabeneder (TU Vienna, Austria), R. Baetens, A. Woyte (3E, Belgium) (Submission-ID SIW-44) • A comparative analysis of PV markets in Brazil and Sweden S. Silveira (KTH Royal Institute of Technology, Sweden), W. Uturbey, H. Batista da Silva, L. Marques Amoux (UFMG Federal University of Minas Gerais, Brazil) (Submission-ID SIW-294) • Transmission, Distribution and Markets: Coordination needs in the European Power System E. Lannoye, A. O'Connell (EPRI International, Ireland), J. Boemer (EPRI, USA), M. Doering (EcoFys, Germany) (Submission-ID SIW-170) • Comparative Assessment of the Small Scale Distributed Generation Policies in the EU and Latvia L. Zemite, L. Petricenko, A. S. Sauhats, G. Bockarjova (Riga Technical University, Latvia) (Submission-ID SIW-117)
11:52 – 12:05	Discussions

10:40 – 12:05	SESSION 6C – DECARBONIZATION OF ENERGY SECTOR
> Session Chair	TBA
10:40 – 11:55	Presentations (15 min. each)
	<ul style="list-style-type: none"> • The role of Climate Variability in the Roadmaps for Power Systems with High Renewable Penetration R. Figueiredo, P. Nunes, M. C. Brito (University of Lisbon, Portugal) (Submission-ID SIW-194) • Effects on Greenhouse Gas Emissions of Introducing Lithium-Ion Batteries for Stationary Power System Applications S. Davidsson (Chalmers University of Technology, Sweden) (Submission-ID SIW-283) • Demand Side Management and Energy Storage Options for Building's PV Integration. Z. Hoyos Cruz, P. Soares Moura (University of Coimbra, Portugal) (Submission-ID SIW-120) • Climate Change Mitigation Potentials of Vertical Building Integrated Photovoltaic T. Blanke (RWTH Aachen University, Germany) (Submission-ID SIW-77) • Optimal Dimensioning of Energy Storage Systems and Heating Devices increasing the Self-Consumption of Photovoltaic Energy M. Zimmerlin, L. Held, M. Fritz, T. Leibfried (KIT Karlsruhe Institute of Technology, Germany) (Submission-ID SIW-192)
11:55 – 12:05	Discussions

12:15 – 13:15	SESSION 7 – PANEL DISCUSSION: AUTOMATED GRID CONTROL
> Session Chair	Adrian Timbus (ABB, Switzerland)
11:15 – 11:45	
	<ul style="list-style-type: none"> • Panelists from DSOs and TSOs ENTSO-E - Laurent Schmitt Swissgrid – A. Timbus (ABB) more TBA
11:45 – 12:15	Discussions

13:15 – 14:00 LUNCH

POSTER PRESENTATIONS

- **Daily Global Solar Radiation Prediction Using Artificial Neural Networks: a New Approach**
Y. El Mghouchi (Moulay Ismail University Meknes, Morocco) (Submission-ID SIW-15)
- **Optimizing Energy Dispatching in Spatio-Temporal or Time Series Weather Forecasting Modelling, Through Artificial Neural Networks**
I. Smith (SM Solar, Trinidad and Tobago) (Submission-ID SIW-19)
- **Feasibility Study of Grid Connected of 20 MW PV Power Plant for a Village in Chlef Region, Algeria**
M. M. Dekkiche (Chlef University, Algeria) (Submission-ID SIW-29)
- **Modeling and Estimating Spatiotemporal Solar Energy and Electric Vehicle Charging Patterns on City Scale: Uppsala and Tromsø**
J. Munkhammar, M. Shepero (Uppsala University, Sweden), C. Good (UiT The Arctic University of Norway, Norway), D. Lingfors, J. Widén (Uppsala University, Sweden), T. Boström (UiT The Arctic University of Norway, Norway) (Submission-ID SIW-76)
- **Agent-Based Optimization of Retail Electricity Rates for PV Integration**
M. Hinterstocker, S. von Roon (FfE GmbH, Germany) (Submission-ID SIW-91)
- **Towards Dual Photovoltaic and Thermal Self Consumption**
A. Naamane (Aix-Marseille University, University of Toulon, France) (Submission-ID SIW-98)
- **Balancing Power Capacity Analysis for Primary/Secondary/Tertiary Controls Based on AGC30 Model with PV Penetration**
B. Jie, T. Tsuji (Yokohama National University, Japan), K. Uchida (Waseda University, Japan) (Submission-ID SIW-111)
- **Solar and Wind Energy Combination**
B. Belarhzal (Uppsala University, Sweden) (Submission-ID SIW-114)
- **Improving Demand Response Techniques for Migration to a Smart Micro-Grid**
N. Isaac (Nithin Isaac, South Africa) (Submission-ID SIW-130)
- **Verification of Difference in Voltage Ride Through Assist Performance of Voltage Management Equipment between Serial and Parallel Type by Experiment**
A. Moriwaki, S. Uemura (Central Research Institute of Electric Power Industry, Japan) (Submission-ID SIW-139)
- **Virtual Synchronous Generator Control and Grid Voltage Control by Reactive Power Coordinated for PV Plant Inverter**
M. Tsuyuki, Y. Ota, T. Nakajima (Tokyo City University, Japan) (Submission-ID SIW-141)
- **Approach to Determine the Effect of Local Flexibility Options within the Framework of a Smart Market Platform**
T. Estermann, M. Müller, S. Köppl, (Forschungsstelle für Energiewirtschaft e.V., Germany) (Submission-ID SIW-159)
- **Electricity Distribution; Literature Review and Trends**
P. Johansson (IMIT - Institute for Management of Innovation and Technology, Sweden), M. Vendel, C. Nuur (KTH - Royal Institute of Technology, Sweden) (Submission-ID SIW-173)
- **Performance Simulation of Integrated Solar Combined Cycle Power Plant which Used Direct Steam Generator Method**
M. Salamah (Ministry of Electricity, Iraq) (Submission-ID SIW-203)
- **Solar Energy for Residential Electric Vehicle Charging in Northern Norway – a Feasibility Study**
C. Good, T. Boström (UiT The Arctic University of Norway, Norway) (Submission-ID SIW-214)
- **Design and Implementation of IoT based Embedded System for Smart Grid : Functionalities and applications**
A. Kelati (KTH Royal Institute of Technology, Sweden) (Submission-ID SIW-272)
- **Exploring Indian Solar Photovoltaic Technological Innovation System**
A. A. Singh (Jawaharlal Nehru University (JNU) New Delhi, India) (Submission-ID SIW-281)
- **Optimal Power Flow Based Distributed Controller Employing Ensemble Based States**
B. Uzunoglu (Uppsala University, Sweden) (Submission-ID SIW-312)