

# PROCEEDINGS

## 7<sup>th</sup> Solar Integration Workshop

International Workshop on Integration  
of Solar Power into Power Systems

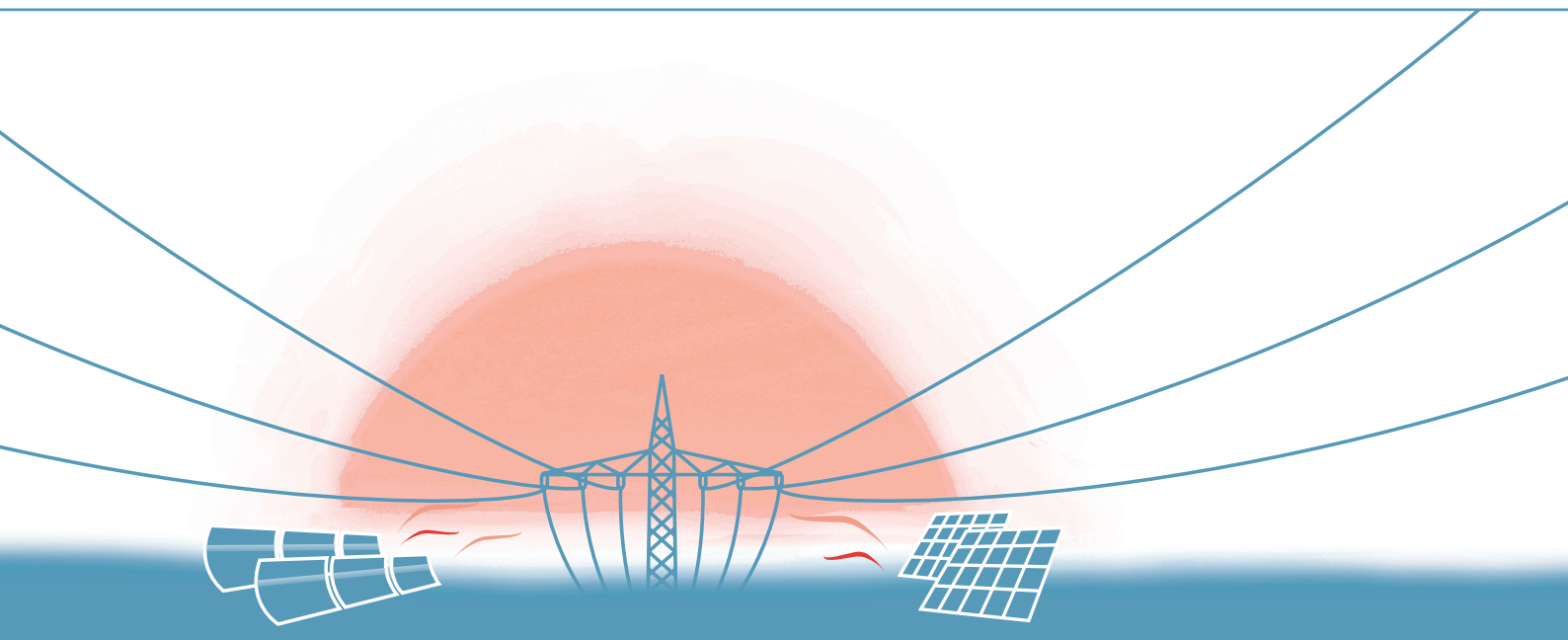


24 - 25 October 2017 | Berlin, Germany

Giga Sponsors:



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Edited by Uta Betancourt / Thomas Ackermann

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# Welcome...

## to the 7th International Workshop on Integration of Solar Power into Power Systems

It is a great pleasure for us to welcome you to the 7<sup>th</sup> International Workshop on Integration of Solar Power into Power Systems in Berlin, Germany. Looking back on the past years, I am happy to say: it has been a great experience!

We managed to establish the Solar Integration Workshop as one of the premier conferences in its field and to continuously improve the workshop experience for our participants. Let me seize this opportunity to announce that next year's Solar Integration Workshop will take place at the location of our very first Wind Integration Workshop in 2000: **Mark your calendars and save the date for the 8th Solar Integration Workshop in Stockholm, Sweden from 15 – 19 October 2018!**

I would like to thank you all for making this workshop to what it has become over the years: a great communion of like-minded PV/CSP/storage system developers and project developers, power systems operators and other professionals. Exchanging knowledge and discussing experience in matters relating to the integration of solar energy into the power systems: that's what we do at the workshop. I would also like to welcome all our new participants and tell you: you have come to the right place to immerge yourselves in the area of solar power integration. Brace yourselves for an exciting mix of both theoretical discussion and practical applications!

The share of solar power in power systems is increasing at a remarkable speed in many countries worldwide. This results in the increasing need to discuss the technical and economic issues of the integration of solar power into power systems. It took some years and lots of effort before the rising interest in the topic finally led to the realization of the first Solar Integration Workshop in Aarhus, Denmark five years ago.

While bringing people together has always been the workshop's purpose, it is our guests' participation, their papers and their presentations that fill the frame we set with life. Their enthusiasm combined with our determination brought the first workshop edition into being in 2011. With close to 100 submitted abstracts in 2011 the feedback was much better than we anticipated, which allowed us to compile a remarkable program. This year we have yet again received many outstanding abstracts that will provide stimulating presentations and thought-provoking impulses. We strive to reflect the shifting focuses in the area of solar integration and come up with new ideas to improve your workshop experience. This year we take the next step towards a comprehensive yet diverse RE conference experience and commemorate the first edition of the E-Mobility Power System Integration Symposium as we feel it necessary to discuss the impact of a larger share of EVs in transportation on the grid.

I am sure it is one of our shared goals to contribute with our work to assisting the goals outlined in the Paris Agreement. Yet, several studies show that with the current commitments, the probability of keeping the increase in global average temperature below 2°C is only 5%. We need to do even more to increase that probability and to give our planet a fair chance!

One goal that many countries have committed to apart from integrating a larger share of renewable energies is to also decrease Greenhouse emissions in the transport sector substantially by increasing the share of electric mobility. Yet, E-Mobility can only be considered a sustainable climate protection measure if vehicles are charged with power from renewable energies. Otherwise, emissions are only shifted to the location of the generation plants. New questions and challenges arise regarding the grid integration of a larger share of fluctuating power supply from renewable energies. Energynautics reflects this correlation with its new Workshop Setup and offers three conferences in one week that go hand in hand. The newly established Berlin Workshop Week offers many combination opportunities for its participants to account for the inherent synergies of the conference topics.

The programs of the Wind and Solar Workshops for example are especially designed to include sessions that are suitable for both interest groups on the shared Wednesday, like the IEA session "Recommended Practices for Wind / PV Integration" (IEA Tasks 14 and 25) or the ENTSO-E session "System Challenges & Solutions to Move Towards 100% RES Penetration". Make sure to check out the conference programs for those presentations that are most interesting to you and your line of work.

We work hard at these Workshops, but it is very important to me personally to give our participants the time to mingle and network in a more casual setting as well. On Tuesday, the spotlight will be on our poster presenters. Researchers and practitioners present their projects in poster sessions during the Workshop and at the especially dedicated Poster Reception on 24 October 2017. This Networking Event is a platform for poster presenters to showcase their findings and discuss them with workshop participants in a casual get-together. This year for the first time, we offer a combined Solar and Wind Dinner (25 October 2017) that will take place at the Wasserwerk, a former water works facility. It is the perfect opportunity to mingle with both solar and wind experts. I encourage you to make good use of these unique educational and networking opportunities!

The most interesting papers from the Solar and Wind Workshops will again be published in a Special Edition of the *IET Renewable Power Generation (due late 2018)*<sup>1</sup>. Because of the high interest in the workshop proceedings, we will again submit this year's proceedings to international libraries and organizations who operate citation index systems such as the (i) FIZ – Fach Informations Zentrum Karlsruhe, (ii) Elsevier, (iii) ETDE, (iv) Reuters, (v) Compendex, (vi) Thomson Citation Index so that the proceedings are more easily available for academia and industry worldwide.

This workshop would not be possible without the support of our Giga Sponsors **TenneT** (Germany) and **DigSILENT**. In addition, the workshop is supported by the IET Digital Library (United Kingdom), Renewables Grid Initiative (Germany), HTW – Hochschule für Technik und Wirtschaft Berlin (Germany), ENTSO-E (Belgium), UVIG – Utility Variable Generation Integration Group (USA) and the European Energy Students Network (EESN) as well as the media partners SmartGridSpain (Spain), et - Energiewirtschaftliche Tagesfragen (Germany), Sun & Wind Energy (Germany) and the LinkedIn Group “Energy Storage Demand Response and Grid Technologies”.

I would also like to thank all those who supported the organizers of this workshop: all the members of the International Advisory Committee as well as Uta Betancourt, Ines Drewianka, Elke Müller, Anke Ost and Elvan Varvoda (all Energynautics, Germany).

Enjoy some inspiring days in Berlin and seize the numerous networking opportunities!

*Thomas Ackermann*

*Energynautics*

PS: Comments are always welcome, feel free to contact me at: [t.ackermann@energynautics.com](mailto:t.ackermann@energynautics.com)

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<sup>1</sup> The first special edition based on the 2013 Workshop was published in January 2015 (Volume 9, Issue 1), the special edition from the 2014 Berlin Workshop was published in January 2016 (Volume 10, Issue 1), and the special edition from the 2015 Brussels Workshop was published in February 2017 (Volume 11, Issue 3), see <http://digital-library.theiet.org/content/journals/iet-rpg>

# Table of Contents

## Session 1 – Keynote Session:

1

09:00 – 10:50 / 24 October 2017 / Room Alexander 2 / Session chair: T. Ackermann  
(Energynautics, Germany)

### **A General Overview on the Challenges of Integrating Renewables**

H. Berndt (Tennet, Germany)

### **Essential Reliability Services from Utility-Scale PV Power Plants**

M. Morjaria, V. Chadliev (First Solar, USA), V. Gevorgian (NREL, USA), C. Loutan (CAISO, USA)

### **Inspiring the Science Community to Develop Solutions for the Operational Challenges of the Future Initiated by Solar**

M. Abbenhuis (Tennet, Netherlands)

### **Greening the Grid: Pathways to Integrate 160 Gigawatts of Wind and Solar Energy into India's Electric Grid**

D. Palchak, J. Cochran, A. Ehlen, B. McBennett (NREL, USA), R. Deshmukh, N. Abhyankar (Lawrence Berkeley National Laboratory, USA)

## Session 2A: Forecasting I

17

11:15 – 13:00 / 24 October 2017 / Room Alexander 1 / Session chair: TBA

### **Forecasting PV/CPV at National Level – Portugal Experience**

J. Esteves, R. Pastor, N. Pinho da Silva, R. Pestana (REN, Portugal), Z. Chen (China Electric Power Research Institute – CEPRI)

### **Impact of Photovoltaic Yield Forecasting on Future Power System Operations in Japan**

Y. Udagawa, K. Ogimoto, J. Gari da Silva Fonseca (University of Tokyo, Japan), H. Ohtake (National Institute of Advanced Industrial Science and Technology, Japan), S. Fukutome (JP Business Service Corporation, Japan)

### **Nowcasting of PV Power Feed-in with High Availability and under Consideration of Self-consumption**

H. Misfeld, J. Kühnert, J. Rosenkranz, U. Focken, M. Lange (energy & meteo systems, Germany)

### **Investigating the Effect of Aggregation on Prediction Intervals in Case of Solar Power, Electricity Consumption and Net Demand Forecasting**

D. van der Meer, J. Widén, J. Munkhammar (Uppsala University, Sweden)

## Session 2B: Power Systems Aspects

43

11:15 – 13:00 / 24 October 2017 / Room Alexander 2 / Session chair: N. Miller (GE Power, USA)

### **Derivation of a Q(U)-control Tolerance Band for Inverters in Order to Meet Voltage Quality Criteria**

M. Schoeneberger, S. Patzack, H. Vennegeerts (Forschungsgemeinschaft für elektrische Anlagen und Stromwirtschaft – FGH, Germany), M. Lindner, R. Witzmann (Technical University of Munich – TUM, Germany)

### **Low Voltage Ride Through with High Current Injection**

A. Falk, C. Puritscher (SMA Solar Technology, Germany)

### **Investigation of Impacts of Solar PV on Transmission System Voltage Stability Considering Load Characteristics and Protection**

B. Alghamdi (King Abdulaziz University, Saudi Arabia), M. Alamri (Saudi Aramco, Saudi Arabia), L. A. Tuan (Chalmers University of Technology, Sweden)

### **RES Integration Study and Secured System Operation Under High PV Penetration in Japan**

K. Ogimoto (University of Tokyo, Japan), K. Ohbayashi, K. Asano (New Energy and Industrial Technology Department Organization – NEDO, Japan)

---

11:15 – 13:00 / 24 October 2017 / Room Alexander 3 / Session chair: J. Matevosyan (ERCOT, USA)
**The Global Electricity Network – Feasibility study**

J. Yu (SGCC, China), G. Sanchis (RTE, France), N. Chamollet (EDF, France), A. Iliceto (TERNA, Italy), K. Bakic (ELES, Slovenia)

**e-Highway2050 project: Tomorrow's Grid for Low-Carbon Energy in Europe**

G. Sanchis (RTE, France), N. Grisey (RTE, France), T. Anderski (Amprion, Germany), R. Pestana (REN, Portugal), E. Peirano (Technofi, France)

**Digital Transformation Towards Improvements on RES integration**

L.-M. Faiella (Tennet, Germany)

**Smart Renewable Hubs: Solar Hybridisation to Facilitate Renewable Energy Integration**

J. M. Estebarez, R. Duran, A. R. Rocha (COBRA, Spain), J. Servet, E. Cerrajero, D. Lopez (IDIE, Spain), E. Stavropoulou, M. Kourasi, P. Markopoulos (HEDNO, Greece), E. Sanchez, J. M. Oyarzabal (TECNALIA, Spain), A. Vaiani, M. Ledda, A. Ardito, C. Puglisi, S. Mandelli, A. Venturini (CESI, Italy), A. Dimeas, R. Gogou (NTUA, Greece)

**BIOSTIRLING-4SKA: A Cost Effective and Efficient Approach for a New Generation of Solar Dish-Stirling Plants Based on Storage and Hybridization**

D. Barbosa, P. André, T. Paixão (University of Aveiro, Portugal), A. van Ardenne, D. Kant (ASTRON, Netherlands), L. Saturnino Gonzalez, D. Rubio (GONVARRI STEEL SERVICES, Spain), L. Verdes-Montenegro, E. Garcia (Institute of Astrophysics of Andalusia – IAA, Spain), I. Calama, F. Caballero (ALENER, Spain), P. Eskilson, L. Gustavsson, C. Anderson, J. Lindh (Cleanergy, Sweden), R. Keller (Max Planck Institute for Radioastronomy – MPIfR, Germany), M. Silva Perez, G. Lobo, V. Ruiz (CTAER, Spain), J. Pino, L. Valverde (University of Sevilla, Spain), C. Holze, D. Isaza, R. Misseeuw (ToughTrough – TT, Germany), N. Pfanner, A. Schies (Fraunhofer ISE, Germany), J. T. Kontinen (Tampere University of Technology, Finland), The Biostirling Consortium – Zabala Innovation Consulting, Spain)

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14:00 – 15:45 / 24 October 2017 / Room Alexander 1 / Session chair: TBA
**Understanding Spatio-Temporal Solar Forecasting**

R. Amaro e Silva, M. C. Brito (University of Lisbon, Portugal)

**Utility Scale Solar Short Term Generation Forecasting for Improved Dispatch and System Security**

J. Dyson, H. Mackenzie (Dispatch Solutions, Australia), N. Engerer, J. Luffman (Solcast, Australia)

**Country Scale Solar Irradiance Forecasting for PV Power Trading**

S. Cros, E. Buessler, F. Le Guillou, M. Turpin (Reuniwatt, France)

**Experiences with State Forecasting of Smart Distribution Grids using Solar Generation Forecast**

F. Paulat, K. Korotkiewicz, M. Ludwig, M. Zdrallek (University of Wuppertal, Germany), X. Le Pivert (Steadysun, France)

**Short-Term Solar Forecasting Performance of Popular Machine Learning Algorithms**

A. Dobbs, T. Elgindy, B.-M. Hodge, A. Florita (National Renewable Energy Laboratory – NREL, USA)

---

14:00 – 15:45 / 24 October 2017 / Room Alexander 2 / Session chair: E. Tröster (Energynautics, Germany)

**U-Control – Recommendations for Distributed and Automated Voltage Control in Current and Future Distribution Grids**

O. Marggraf, S. Laudahn, B. Engel (TU Braunschweig, Germany), M. Schoeneberger, S. Patzack, H. Vennegeerts (FGH, Germany), T. Bülo (SMA Solar Technology, Germany), F. Wirtz, J. Brantl (Bayernwerk, Germany), M. Cremer, M. Meyer, A. Schnettler (RWTH Aachen, Germany), M. Lindner, C. Aigner, R. Witzmann (Technical University of Munich – TUM, Germany), F. Pizzutto (Maschinenfabrik Reinhausen, Germany), I. Ghourabi, A. Großhans (Netze BW, Germany), R. Frings (Infrawest, Germany)

**Coordinating LVRT, AID and Area EPS Reclosing Mechanisms**

S. Laudahn, F. Rauscher, B. Engel (TU Braunschweig, Germany), T. Bülo (SMA Solar Technology, Germany), J. Bömer (EPRI, USA)

**Smart Network Control with Coordinated PV Infeed**

S. Hempel, J. D. Schmidt, E. Tröster, T. Ackermann (Energynautics, Germany)

**Consideration of Different Features of Photovoltaic Power Plants for an Efficient Integration in a Smart Distribution Grid**

M. Modemann, P. Steinbusch, R. Uhlig, M. Zdrallek (University of Wuppertal, Germany), W. Friedrich, U. Schlüter (Phoenix Contact Energy Automation, Germany), S. Blararu (SPIE SAG, Germany)

---

14:00 – 15:45 / 24 October 2017 / Room Alexander 3 / Session chair: TBA

**Guidelines for the Design of Residential and Community Level Storage Systems Combined with Photovoltaics (PV)**

S. Afxentis, M. Florides C. Anastassiou, V. Efthymiou, G. E. Georghiou (University of Cyprus – UCY, Cyprus), P. Norgaard, H. Bindner (DTU, Denmark), J. Kathan, H. Brunner, C. Mayr (Austrian Institute of Technology – AIT, Austria)

**Development of a Grid-Friendly Active Power Control of PV-Batteries using Rolling Forecasts**

C. Schweinsberg, J.-D. Schmidt, E. Tröster (Energynautics, Germany), D. Maihöfner, J. Hanson (TU Darmstadt, Germany)

**PV Integration and Storage Optimization for a Solar Farm on a Mall Rooftop in Reunion Island**

N. Sébastien, E. Buessler, E. Chaintreau, S. Cros (Reuniwatt, France)

**The Potential for Energy Storage to Serve as Pollution Control Technology under the Clean Air Act**

K. E. Wadsack, T. Acker (Northern Arizona University, USA)

**Optimal Planning and Operation of Hybrid Energy System Supplemented by Storage Devices**

M. S. Javadi (Islamic Azad University, Iran), A. Anvari-Moghaddam, J. M. Guerrero (Aalborg University, Denmark)



16:00 – 18:15 / 24 October 2017 / Room Alexander 1 / Session chair: T. Ackermann (Energynautics, Germany)

**Connection of Large-Scale Solar Farms to Weak Networks**

B. Badrzadeh (Australian Energy Market Operator, Australia)

**Short-term Off-river Pumped Hydro Energy Storage to Support 100% Renewable Electricity in Australia's Energy Markets**

B. Lu, A. Blakers, M. Stocks, K. Anderson (Australian National University, Australia)

**Supporting Hydro Generation with PV in Costa Rica – Benefits of higher PV shares in a primarily hydro-based system**

P.-P. Schierhorn, T. Ackermann (Energynautics, Germany), F. Fernandez (DIGSILENT, Germany), C. Echevarría Barbero, J. R. Paredes, C. Tagwerker (Inter-American Development Bank – IDB, USA / Costa Rica)

**Renewable Energies Integration into the Namibian Transmission Network**

M. Manchen, E. Krige (NamPower, Namibia)

**Impact of Waterworks Pumps Demand Response to Increase Maximum Photovoltaic Integration Capacity**

M. Imanaka, Y. Uchiyama, T. Saito, J. Baba, N. Fujii (University of Tokyo, Japan), N. Higa (Smaeco, Japan)

**Challenges of Power System Planning in the Integration of Solar Power in Hambantota and other Areas of Sri Lanka**

U.N. Sanjaya, G.B. Alahendra, P.A.G.S. Abeynayake, H.M.W. Banda (Ceylon Electricity Board, Sri Lanka)

16:00 – 18:15 / 24 October 2017 / Room Alexander 2 / Session chair: M. Morjaria (First Solar, USA)

**Voltage Sensitivity-based Reactive Power Control Strategy for Managing High Shares of PV Systems in LV Distribution Grids**

F. de Nigris (ABB, Switzerland | Eindhoven University of Technology – TU/e, Netherlands), A. Oudalov, A. Timbus (ABB, Switzerland), J. G. Slootweg, N. Blaauwbroek (Eindhoven University of Technology – TU/e, Netherlands)

**Predicting Hosting Capacity of Photovoltaic Power Production in Low-voltage Grids Using Regressive Techniques**

D. van der Meer, J. Andersson, V. Bernström, J. Törnqvist, J. Widén (Uppsala University, Sweden)

**Rooftop PV in Indian Electricity Distribution Networks**

T. Ackermann, E. Tröster, P.-P. Schierhorn, J.-D. Schmidt, B. Narasimhan (Energynautics, Germany), J. Gaebler, H. Bhatnagar, S. Goel, F. Huebner (Deutsche Gesellschaft für Internationale Zusammenarbeit – GIZ, India)

**Overcoming Grid Connection Limitations of PV Plants in Distribution Networks with Battery Storage Systems**

P. Chodura, M. van Melzen, K. Broess, M. Verburg (DNV GL, Netherlands), U. Albarosa (3G ERES, Jordan)

**Automated Quantification of PV Hosting Capacity in Distribution Networks under User-defined Control and Optimisation Procedures**

W. Martin, Y. Stauffer, C. Ballif, A. Hutter, P.-J. Alet (CSEM PV-center, Switzerland)

**Photovoltaics and Opportunistic Electric Vehicle Charging in a Swedish Distribution Grid**

R. Luthander, M. Shepero, J. Munkhammar, J. Widén (Uppsala University, Sweden)

## Session 4C: Regulatory and Market Aspects

273

16:00 – 18:05 / 24 October 2017 / Room Alexander 3 / Session chair: TBA

### **EMPOWER – A Network Market Approach for Local Energy Trade and Renewable Electricity System Integration**

B. A. Bremdal, J. Rajasekharan, C. W. Kunze (Smart Innovation Norway, Norway), P. Olivella Rosell (Polytechnical University of Catalonia – UPC, Spain)

### **Time and Locational Value of PV on Distribution Feeders in Spain**

A. O'Connell, B. Rogers, J. Roark, J. Smith (Electric Power Research Institute, Ireland/USA), R. Martinez, E. Meroño, J. C. Rucian, A. Reig, J. Cabetas (Iberdrola, Spain)

### **Comparison of Different Photovoltaic Models in a Capacity Credit Evaluation**

P. Tapetado, J. Usaola (University Carlos III Madrid, Spain)

### **Technology Trends, Regulation and the Impact on the Market for Residential PV systems – Techno-Economic Implications of Regulation on Storage and Smart Meters**

K. Burges, M. Döring (Ecofys Germany, Germany), F. Lobas-Funck, C. Reinhold (Technical University Braunschweig, Germany)

### **Remuneration of Controllable Reactive Power Inside so far Free of Charge Ranges: Cost-Benefit Analysis**

E. Kämpf, M. Braun, H. Wang (University of Kassel | Fraunhofer IWES, Germany), B. Ernst (Fraunhofer IWES, Germany)

## Session 5A: Frequency Issues

309

09:00 – 10:50 / 25 October 2017 / Room Alexander 1 / Session chair: TBA

### **An Experimental Study on P-f and Q-V Droop Control of Photovoltaic Power Generation Contributing to Grid Frequency Operation**

Y. Kimpara, M. Kurimoto, Y. Manabe, T. Funabashi, T. Kato (Nagoya University, Japan)

### **Mitigating Frequency Fluctuations in Power Grids with High Photovoltaic Penetration: AGC 30 Model Case Study**

A. A. Dawuda, T. Oyama, T. Tsuji (Yokohama National University, Japan)

### **Distributed Grid-forming Inverters in Power Grids**

P. Unruh, T. Gühna (Fraunhofer IWES, Germany)

### **On Frequency Stability in the Future Renewable Nordic Power System with Gas Sector Integration**

J. Ikäheimo, J. Kiviluoma (VTT, Finland)

## Session 5B: North American Experience

335

09:00 – 10:50 / 25 October 2017 / Room Alexander 2 / Session chair: J. C. Smith (UVIG, USA)

### **Pre-event Estimation, Real-time Forecasting and Post-event Analysis of the Impact of the Aug 21, 2017 Solar Eclipse on Renewable Generation in California**

J. Zack (AWS Truepower, USA)

### **Large-Scale Stability Modelling of Solar PV with Consideration of FRT Vulnerability**

N. Miller, D. Lew (GE Power, USA)

### **Renewable Energy Futures in the East**

J. Novacheck, G. Brinkman (NREL, United States)

### **Anonymous Solar Forecasting Trial Outcomes – Lessons Learned and Trial Recommendations**

E. Lannoye (EPRI International, Ireland), A. Tuohy (EPRI, USA), W. Hobbs (Southern Company Services, USA), J. Sharp (Sharply Focused, USA)

### **Using Probabilistic Renewable Forecasts to Determine Reserve Requirements**

E. Ela, A. Tuohy, R. Enriken (EPRI, USA), E. Lannoye (EPRI International, Ireland), R. Philbrick (Polaris Systems Optimization, USA)

## Session 5C: Voltage Issues

379

---

09:00 – 10:50 / 25 October 2017 / Room Alexander 3 / Session chair: B. Badrzadeh (AEMO, Australia)

### **Mitigation of Voltage Rise Caused by Intensive PV Development in LV Grid**

P. Kacejko, P. Pijarski (Lublin University of Technology, Poland)

### **Optimal Voltage Control in Distribution Systems with Photovoltaic and Electric Vehicles for Cooperation with Transmission System**

T. Tsuji, H. Nishigami, H. X. Nguyen, T. Takano (Yokohama National University, Japan)

### **Maintaining Grid Voltage from Spot Renewable Generation**

F. Cornelius, J. Tepper (ABB, Germany), J. Maret (Romande Energie, Switzerland), J. Kern (ABB, USA)

### **Assessment of Active Power Curtailment Methods With Regard to the German Regulatory Context**

F. Meier (Fraunhofer IWES | University of Kassel, Germany), J. Kupka (University of Kassel, Germany), C. Töbermann (Fraunhofer IWES, Germany), M. Braun (Fraunhofer IWES | University of Kassel, Germany)

## Session 6: Closing Session – Panel Discussions

403

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11:15 – 12:15 / 25 October 2017 / Room Alexander 2 / Session chair: TBA

### **Podium discussions**

**The contributions and discussions of this session are not part of the proceedings.**

## Poster Presentation Papers

405

## Workshop Participants

473