2nd E-Mobility Power System Integration Symposium

preceding the 8th Solar & 17th Wind Integration Workshops

15 October 2018
Stockholm, Sweden

FINAL PROGRAM AS OF 15 OCTOBER 2018

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TIMETABLE 2nd E-MOBILITY INTEGRATION SYMPOSIUM

MONDAY, 15 OCTOBER 2018			
E-Mobility Symposium			
08:00 – 09:00	FOYER M1 – M3		
	REGISTRATION		
09:00 – 09:10	ROOM M1		
	OPENING: WELCOME AND INTRODUCTION		
09:10 – 11:00	ROOM M1		
	SESSION 1: KEYNOTE SESSION		
	COFFEE BREAK (20 MIN)		
11:20 – 13:00	ROOM M1	ROOM M2	ROOM M3
	SESSION 2A: PROJECT EXPERIENCE	**SESSION 2B: CHARGING INFRASTRUCTURE**	**SESSION 2C: MARKET ISSUES**
	13:00 – 13:15 GROUP PHOTO		
	LUNCH 13:15 – 14:00 (45 MIN)		
14:00 – 15:40	ROOM M1	ROOM M2	ROOM M3
	SESSION 3A: STORAGE ASPECTS	**SESSION 3B: POWER SYSTEM ASPECTS**	**SESSION 3C: MODELLING ASPECTS**
	COFFEE BREAK (20 MIN)		
16:00 – 17:40	ROOM M1	ROOM M2	ROOM M3
	SESSION 4A: GRID INTEGRATION ASPECTS	**SESSION 4B: DISTRIBUTION GRID ISSUES**	**SESSION 4C: OVERALL ENERGY SYSTEM AND BEHAVIORAL ASPECTS**
17:45 – 18:30	ROOM M1		
	SESSION 5 – PODIUM DISCUSSION & CLOSURE		
18:30	**POSTER RECEPTION & NETWORKING**		

MONDAY, 15 OCTOBER 2018

08:00 – 09:00 Registration
09:00 – 09:10 Welcome

09:10 – 11:00	SESSION 1 – KEYNOTE SESSION
> Session Chair	T. Ackermann (Energynautics, Germany)
09:10 – 10:30	Presentations (20 min each)

- **Powering Limitless Driving**
  Tomas Björnsson (Vattenfall, Sweden)
- **Solar Mobility – Choosing Solar for the Driver's Seat**
  Naomi Chevillard (SolarPowerEurope, Belgium)
- **Batteries Enabling High Penetration of E-Mobility, Consequences for the Power System**
  Bo Normark (InnoEnergy Scandinavia, Sweden)
- **The Swedish Electromobility Centre - A Catalyst in Research Towards Electrified Transport**
  Oskar Wallmark (KTH – Royal Institute of Technology, Sweden)

10:30 – 11:00 Discussions

11:00 – 11:20 COFFEE BREAK

11:20 – 13:00	SESSION 2A – PROJECT EXPERIENCE
> Session Chair	J. Charles Smith (ESIG, USA)
11:20 – 12:40	Presentations (20 min. each)

- **CleanMobilEnergy – A Smart Energy Management System Integrating Renewable Energy and Electric Vehicles**
  P. Swart (City of Arnhem, Netherlands), H. Niesing (Resourcefully, Netherlands) (Submission-ID Emob-28)
- **Evaluation of Modular Infrastructure Concepts for Large-Scaled Electric Bus Depots**
  L. Haffner, M. Schumann, D. Schulz (Helmut Schmidt University, Germany), M. Dietmannsberger (Hamburger Hochbahn, Germany) (Submission-ID Emob-174)
- **Optimal E-Mobility Integration in Hotels**
  J. von Appen, J. Ringelstein, C. Nölle, S. Misara (Fraunhofer IEE, Germany) (Submission-ID Emob-289)
- **Research Campus Mobility2Grid: From Lab to Reality**
  K. Karohs, D. Göhlich, E. Lauth (TU Berlin, Germany, Germany) (Submission-ID Emob-51)

12:40– 13:00 Discussions

11:20 – 13:00	SESSION 2B – CHARGING INFRASTRUCTURE
> Session Chair	Eckehard Tröster (Energynautics, Germany)
11:20 – 12:20	Presentations (20 min. each)

- **Required Technologies for Grid Integration of Charging Infrastructure**
  J. Selle (ENERCON, Germany), J. Brombach (Innovation for ENERCON, Germany) (Submission-ID Emob-30)
- **Automatically Charged Vehicles in the Prosumer's Ecosystem**
  R. Eriksson (Volvo Car Group, Sweden), S. Pettersson, U. Kristiansson (RISE Viktoria, Sweden) (Submission-ID Emob-200)
- **Methods for Efficient Charging Infrastructure Placement**
  K. Goldammer, O. Arnhold, N. Pieniak, K. Hübner, J. Hartmann (Reiner Lemoine Institut, Germany) (Submission-ID Emob-161)

12:20 – 13:00	Discussions

11:20 – 13:00	SESSION 2C – MARKET ISSUES
> Session Chair	Peter-Philip Schierhorn (Energynautics, Germany)
11:20 – 12:45	Presentations (17 min. each)

- **E-MMM – A Market Maturity Model for Electric Mobility Grid Integration**
  S. Klingert (University of Mannheim, Germany), M. Perez-Ortega (GFI, Belgium) (Submission-ID Emob-208)
- **Assessment of a New Flexibility Instrument for Electric Vehicles to Increase Network Utilisation**
  M. Doering, C. Nabe, (Ecofys, Germany), M. Herrmann, K.-H. Schmid (E.ON Essen and Regensburg, Germany) (Submission-ID Emob-235)
- **Optimized Charging of Electrical Vehicles Based on the Day-Ahead Auction and Continuous Intraday Market**
  J. Meese, E. Schnittmann, R. Schmidt, M. Zdrallek (University of Wuppertal, Germany), T. Armoneit (Stadtwerke Iserlohn, Germany) (Submission-ID Emob-47)
- **Future System Services Provided from Electric Vehicles**
  P. Herbert (Vattenfall R&D, Sweden) (Submission-ID Emob-100)
- **Exploring the Business Case of a Risk-Averse Electric Vehicle Aggregator in the Nordic Market**
  J. Dalton, L. Herre, L. Söder (KTH Royal Institute of Technology, Sweden) (Submission-ID Emob-158)

12:45 – 13:00	Discussions

13:00 – 13:15 GROUP PHOTO

13:15 – 14:00 LUNCH BREAK

14:00 – 15:40 SESSION 3A – STORAGE ASPECTS
> Session Chair Lars Nordström (KTH – Royal Institute of Technology, Sweden)

14:00 – 15:20 Presentations (20 min. each)

- **Solar Powered EV Smart Charging Station**
  N. Francis (DNV GL, Netherlands) (Submission-ID Emob-3)
- **Hot-spot Scenarios of Electrical-Vehicles on the Low Voltage Grid Including Statistics and Effect of Decentralized Battery Storage**
  J. Wenske, P. Himpel, B. Matthiß, J. Binder (Center for Solar Energy and Hydrogen Research Baden-Württemberg – ZSW, Germany), T. Speidel (ads-tec, Germany), V. Klausser, M. Klesse (Stadtwerke Nürtingen, Germany) (Submission-ID Emob-182)
- **Increased Utilization of Residential PV-Storage Systems through Locally Charged Battery Electric Vehicles**
  D. Huschenhoefer, J. Mieser, J. Binder (Center for Solar Energy and Hydrogen Research Baden-Württemberg – ZSW, Germany), T. Speidel (ads-tec GmbH, Germany) (Submission-ID Emob-222)
- **Smart Integration of Photovoltaics, Vehicle Charging, and Battery Storage in a Household**
  C. Sundström (Linköping University, Sweden), M. Kronawitter L. Viernstein (Technical University of Munich – TUM, Germany) (Submission-ID Emob-205)

15:20 – 15:40 Discussions

14:00 – 15:40 SESSION 3B – POWER SYSTEM ASPECTS
> Session Chair Jonas Persson (Vattenfall, Sweden)

14:00 – 15:20 Presentations (20 min. each)

- **The Power Grid is the Backbone for E-Mobility**
  S. Gonzalez Vazquez, F. Regnery (Network Technology/Network Operation Forum – VDE |FNN, Germany) (Submission-ID Emob-314)
- **Charging of Electric Vehicles and its Influence on the Local Voltage Quality**
  J. Wetterström (Vattenfall, Sweden) (Submission-ID Emob-79)
- **Impact of Increasing Electric Mobility on a Distribution Grid at the Medium Voltage Level**
  J. Vopava, T. Kienberger (Montanuniversität Leoben, Austria) (Submission-ID Emob-23)
- **Scenario-driven Analysis of Intelligent Charging Strategies Caused by the Market Ramp-Up of Electric Vehicles**
  D. Bracht, T. Montag (P3 group, Germany), M. Kurth (RWTH Aachen, Germany), T. Schürer (Main-Donau Netzgesellschaft – MDN, Germany) (Submission-ID Emob-267)

15:20 – 15:40 Discussions

14:00 – 15:40 SESSION 3C – MODELLING ASPECTS
> Session Chair Robert Schuerhuber (TU Graz, Austria)

14:00 – 15:20 Presentations (20 min. each)

- **Probabilistic Modelling of Charging Profiles in Low Voltage Networks**
  T. Schlößer, E. Tröster, L. Hülsmann (Energynautics, Germany) (Submission-ID Emob-324)
- **Grid Integration Studies for eMobility Scenarios with Comparison of Probabilistic Charging Models to Simultaneity Factors**
  J. Ulffers, A. Scheidler, J.-C. Töbermann (Fraunhofer IEE, Germany), M. Braun (Fraunhofer IEE, Germany | University of Kassel, Germany) (Submission-ID Emob-293)
- **Electric Vehicle Destination Charging Demand Characterizations at Popular Amenities**
  J. Dixon, I. Elders, K. Bell (University of Strathclyde, United Kingdom) (Submission-ID Emob-25)
- **Optimal De-Centralized Smart Home-Charging: Potential Study**
  M. Shepero, R. Fachrizal, J. Munkhammar (Uppsala University, Sweden) (Submission-ID Emob-113)

15:20 – 15:40 Discussions

15:40 – 16:00 COFFEE BREAK

16:00– 17:40	SESSION 4A – GRID INTEGRATION ASPECTS
> Session Chair	Jan Ringelstein (Fraunhofer IEE, Germany)

16:00 – 17:20 Presentations (20 min. each)

- **Analysis and Evaluation of Power Quality Aspects in a Low-Voltage Network with Regard to a High Penetration of Decentralized Generation and Charging Infrastructure**
  J. Zumpe (Fichtner, Germany), J. Eppler (University of Applied Sciences Karlsruhe, Germany) (Submission-ID Emob-147)
- **Impact of Implementation of Electric Road Systems on the German and Swedish Electricity System**
  M. von Bonin, B. Ernst, N. Gerhard (Fraunhofer IEE, Germany), M. Taljegard, F. Johnsson (Chalmers University of Technology, Sweden) (Submission-ID Emob-242)
- **Electric Vehicle CPMS and Secondary Substation Management**
  F. Campos, L. Marques, K. Kotsalos (Efacec, Portugal) (Submission-ID Emob-24)
- **Modelling and Simulation of a Public Transport System with Battery Trolleybuses for an Efficient E-mobility Integration**
  M. Salih, D. Baumeister, M. Wazifehdust, P. Steinbusch, M. Zdrallek (University of Wuppertal, Germany), S. Mour, P. Deskovic, T. Küll (SWS Netze Solingen, Germany), C. Troullier (Stadtwerke Solingen, Germany) (Submission-ID Emob-95)

17:20 – 17:40 Discussions

16:00– 17:40	SESSION 4B – DISTRIBUTION GRID ISSUES
> Session Chair	Birgit Koeppen (Hamburg University of Applied Sciences, Germany)

16:00 – 17:20 Presentations (20 min. each)

- **Optimal Control in a Smart Grid Aggregator: Connecting PV, EV, Energy Storage, and Heating Systems to Solve the Power Problem**
  J. Ridenour (Ngenic, Sweden), J. Lindborg (Sustainable Innovation, Sweden) (Submission-ID Emob-305)
- **Comparison of Electromobility-Impacts on the Low-Voltage Level in Different Grid Regions**
  B. Thormann, T. Kienberger (University of Leoben, Austria) (Submission-ID Emob-84)
- **Grid Load Relief by Smart Charging of Electric Vehicles**
  T. Schlößer, E. Tröster, L. Hülsmann (Energynautics, Germany) (Submission-ID Emob323)
- **Opportunities of the New Energy Vehicles Fueling Station (NEFUSTA) Project**
  F. Verhaak, N. Francis (DNV GL, Netherlands) (Submission-ID Emob-337)

17:20 – 17:40 Discussions

16:00 – 17:40	SESSION 4C – OVERALL ENERGY SYSTEM AND BEHAVIORAL ASPECTS
> Session Chair	Michael Doering (Ecofys, Germany)

16:00 – 17:20 Presentations (20 min. each)

- **The Mobile Transition – it is More then eMobility**
  D. Lautensack (ABB Automation Products GmbH, Germany) (Submission-ID Emob-14)
- **Smart Charging – A Strategy for Charging EVs in Big Cities with Load Shifting and Control**
  J. Persson, J. Tollin, C. Gruffman, Y. He (Vattenfall R&D, Sweden) (Submission-ID Emob- 49)
- **A Behavioral Perspective on Smarter EV Use**
  C. Kacperski, F. Kutzner (University of Mannheim, Germany), J. Wautelet (GFI, Belgium) (Submission-ID Emob-224)
- **Analysis of Different Sector Coupling Paths for CO_2 Mitigation in the German Energy System under Consideration of Energy Supply Infrastructures**
  F. Kattelmann, M. Blesl (University of Stuttgart, Germany) (Submission-ID Emob-66)

17:20 – 17:40 Discussions

17:45 – 18:30	SESSION 5 – CLOSING SESSION
> Session Chair	Jonas Persson (Vattenfall, Sweden)

17:45 – 18:25

Development of Charging Infrastructure and Impact on Power System

Panelists:

- Filip Johnsson (Chalmers University of Technology, Sweden)
- Daniel Lautensack (ABB, Germany)
- Juliane Selle (ENERCON, Germany)
- Peter Swart (City of Arnhem, Netherlands)

18:25– 18:30 Closure

18:30 – 20:30 Poster Reception & Networking

POSTER PRESENTATIONS

- **Mitigation of the Impacts of EV Inclusion into Electricity Markets through Demand Aggregators**
  D. Toquica, P. De Oliviera (University of Los Andes, Colombia) (Submission-ID Emob-7)
- **Aggregated Approach to Use the Flexibility of PEVs for Grid Support in local Energy Communities**
  E. Schnittmann, J. Meese, R. Schmidt, S. Azad, M. Zdrallek (University of Wuppertal, Germany), T. Armoneit (Stadtwerke Iserlohn, Germany) (Submission-ID Emob-33)
- **Urban Network Infrastructure: Sharing of Charging Current and Utilization Potential**
  K. Rambow-Hoeschele (Robert Bosch GmbH, Germany| Glasgow Caledonian University, United Kingdom | Aalen University, Germany), A. Nagl, (Aalen University, Germany), D. K. Harrison, B. M. Wood (Glasgow Caledonian University, United Kingdom), K. Bozem (bozem | consulting associates, Germany), K. Braun, P. Hoch (Research Associates of Aalen University, Germany) (Submission-ID Emob-127)
- **Pathways to Electromobility: Upgraded Charging Infrastructure Through Renewable Energies**

K. Rambow-Hoeschele (Robert Bosch GmbH, Germany | Glasgow Caledonian University, United Kingdom | Aalen University, Germany), A. Nagl, (Aalen University, Germany), D. K. Harrison, B. M. Wood (Glasgow Caledonian University, United Kingdom), K. Bozem (bozem | consulting associates, Germany), K. Braun, P. Hoch (Research Associates of Aalen University, Germany) (Submission-ID Emob-131)

- **Charging Profile „HomeZone“: Customer Retention Measures and Charging Infrastructure Optimization**
  K. Rambow-Hoeschele (Robert Bosch GmbH, Germany | Glasgow Caledonian University, United Kingdom | Aalen University, Germany), A. Nagl, (Aalen University, Germany), D. K. Harrison, B. M. Wood (Glasgow Caledonian University, United Kingdom), K. Bozem (bozem | consulting associates, Germany), K. Braun, P. Hoch (Research Associates of Aalen University, Germany) (Submission-ID Emob-132)
- **Technical and Economic Considerations on Autonomous, Connected, Electric, and Shared Vehicles**
  N. G. Rambow (Robert Bosch GmbH, Germany | ESB Business School, Germany), K. Rambow-Hoeschele, (Robert Bosch GmbH, Germany | Glasgow Caledonian University, United Kingdom) (Submission-ID Emob-152)
- **The Connected Vehicle and Its Impact on the Development of Electromobility**
  N. G. Rambow (Robert Bosch GmbH, Germany | ESB Business School, Germany), K. Rambow-Hoeschele, (Robert Bosch GmbH, Germany | Glasgow Caledonian University, United Kingdom) (Submission-ID Emob-154)
- **Ethical Considerations on Future Vehicle Design**
  N. G. Rambow (Robert Bosch GmbH, Germany | ESB Business School, Germany), K. Rambow-Hoeschele, (Robert Bosch GmbH, Germany | Glasgow Caledonian University, United Kingdom) (Submission-ID Emob-157)
- **Autonomous Voltage and Frequency Control by Smart Inverters of Photovoltaic Generation and Electric Vehicle**
  S. Kamo, Y. Ota, T. Nakajima, (Tokyo City University, Japan), K. Kawabe (Tokyo Institute of Technology, Japan), A. Yokoyama (The University of Tokyo, Japan) (Submission-ID Emob-236)
- **Implementation and Verification of V2G Control Schemes on Multiple Electric Vehicles**
  H. Toda, Y. Ota, T. Nakajima (Tokyo City University, Japan), K.-i. Kawabe (Tokyo Institute of Technology, Japan), A. Yokoyama (The University of Tokyo, Japan) (Submission-ID Emob-288)