



DIGITAL PROCEEDINGS – TABLE OF CONTENTS

09:10 – 11:00 SESSION 1 – KEYNOTE SESSION

> Session Chair T. Ackermann (Energynautics, Germany)

- **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)

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

11:20 – 13:00 SESSION 2A – PROJECT EXPERIENCE

> Session Chair J. Charles Smith (ESIG, USA)

- **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](#))

11:20 – 13:00 SESSION 2B – CHARGING INFRASTRUCTURE

> Session Chair Eckehard Tröster (Energynautics, Germany)

- **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](#))
- **Optimized Charging Infrastructure and Power System Operation & Planning**
B. Ernst (Fraunhofer IEE, Germany) ([Submission-ID Emob-243](#))
- **Methods for Efficient Charging Infrastructure Placement**
K. Goldammer, O. Arnold, N. Pieniak, K. Hübner, J. Hartmann (Reiner Lemoine Institut, Germany) ([Submission-ID Emob-161](#))

11:20 – 13:00 **SESSION 2C – MARKET ISSUES**
 > Session Chair TBA

- **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. Arnoneit (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](#))

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

- **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. MatthiÛ, 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. Huschenhofer, 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](#))

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

- **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](#))

14:00 – 15:40 SESSION 3C – MODELLING ASPECTS

> Session Chair TBA

- **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. Ulfers, 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](#))

16:00– 17:40 SESSION 4A – GRID INTEGRATION ASPECTS

> Session Chair Jan Ringelstein (Fraunhofer IEE, Germany)

- **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](#))

16:00– 17:40 SESSION 4B – DISTRIBUTION GRID ISSUES

> Session Chair Birgit Koeppen (Hamburg University of Applied Sciences, Germany)

- **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 Emob-323](#))
- **Opportunities of the New Energy Vehicles Fueling Station (NEFUSTA) Project**
F. Verhaak, N. Francis (DNV GL, Netherlands) ([Submission-ID Emob-337](#))

16:00 – 17:40 SESSION 4C – OVERALL ENERGY SYSTEM AND BEHAVIORAL ASPECTS

> Session Chair Michael Doering (Ecofys, Germany)

- **The Mobile Transition – it is More than 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 CO₂ Mitigation in the German Energy System under Consideration of Energy Supply Infrastructures**
F. Kattelmann, M. Blesl (University of Stuttgart, Germany) ([Submission-ID Emob-66](#))

17:45 – 18:30 SESSION 5 – CLOSING SESSION

> Session Chair Jonas Persson (Vattenfall, Sweden)

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

POSTER PRESENTATION PAPERS

- **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. Arnoneit (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 | 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](#))