



SmartGrids and E-Mobility

**Wednesday, October 20th, 2010
Thursday, October 21st, 2010
Bedford Hotel & Congress Centre,
Brussels, Belgium**



Location



Brussels: The bilingual Capital of Belgium and administrative centre of the European Union is characterized by its cosmopolitan flavour and a vibrant atmosphere enhanced by its medieval history which is still present in lively squares, beautiful boulevards, impressive monuments and its active cultural life.

Bedford Hotel & Congress Centre
135 - 137 Rue du Midi
1000 Brussels, Belgium

Access

Located in the historic centre of Brussels

- 30 minutes driving from Brussels National Airport
- 20 minutes by train from National airport to "Gare Centrale" station
The airport train station is located below the terminal (basement level-1).
Up to 4 trains an hour connect the airport to Brussels Central.
- 800m from "Gare Centrale" station
- 900m from Gare du Midi station (terminal THALYS/EUROSTAR)
- Direct underground (tram) connection, station: Anneessens



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Conference Chairwoman



Dr.-Ing. Aleksandra Saša Bukvić-Schäfer

Institute for Solar Energy Technology ISET/
Fraunhofer Institute for Wind Energy and
Energy System Technology IWES, Kassel,
Germany

Ms. Bukvić-Schäfer studied electrical Engineering at the University of Sarajevo and the University of Kassel, from the latter of which she received her PhD degree. In 2000 she started her scientific career at the Department of Efficient Energy Conversion before joining the Institute for Solar Energy Technology (ISET e.V.) in 2007 as Head of the Energy Storage Technology Group.

Co-Chairman

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NTB Technoservice, Pyrbaum,
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Federal Ministry of Economics
and Labour, Vienna, Austria

Dr. Christof Wittwer
Fraunhofer ISE, Freiburg,
Germany

Dr. Eduardo Zabala
Tecnalia, Derio, Spain

Chairwoman's Message

The first Conference on Smart Grids and Mobility was a great success and affirmed the scientific committee in their decision to continue this event on an annual basis. During the last conference it became evident that the necessary emission reductions and the achievement of European targets as far as the contribution of renewables in the energy supply is concerned, both influence many sectors forcing a change towards smart solutions such as smart grids and smart mobility. The conversion of existing traditional structures towards smart concepts yearns for an interdisciplinary and international approach. This is mirrored by the selection of conference topics covering both non-technical and technical issues as considering the progress from the component level to system integration technologies. The first conference not only demonstrated that there is still room for new visions and ideas but also that standardization is becoming more and more important.

Spurred on by the lasting impression of the previous conference, the organisation of the 2nd Conference in Brussels has begun. The choice of the conference site emphasizes the need for solutions not only at regional or national levels but also at an international level.

We have the pleasure of inviting you to actively participate in this European Conference and would encourage the submission of papers which contribute to broaden and share knowledge on Smart Grids and Mobility.

We look forward to the opportunity of discussing with you all the exciting ongoing progress and to meeting you at the Conference.

Dr.-Ing. Aleksandra Saša Bukvić-Schäfer

Institute for Solar Energy Technology ISET/Fraunhofer Institute for Wind Energy and Energy System Technology IWES, Kassel, Germany

Focus of the Conference

- Development of Technologies
- Know-how Transfer
- Identification of R&D Needs
- Exchange of Results and Ideas
- Presentation of Field Experience

Your Advantage

- You gain comprehensive information about the **state of technology** as well as latest **results from research and development**.
- The scope of the conference is intended to encourage a hearty **open discussion of problems and future strategies to spread Smart Grids**.
- The speakers are leading scientific and business experts.
- The programme structure and the conference venue best ensure **intensive experience-sharing** between participants and presenters.
- The detailed **proceedings book** with all talks and poster contributions will be handed over at the start of the conference and will serve you well as reference works.

You will meet

- Regulators
- car developers
- car manufacturers
- utilities
- automotive industries
- grid operators
- engineers and scientists active in the field of renewable energies and storage technologies
- electricity power grids
- policymakers
- consultants
- other attendees

Supporting Organisations



Climate Alliance



EPoSS
European Technology Platform
on Smart Systems Integration



Wednesday, October 20th, 2010

Registration and Check-in starts at 9:00

Welcome Coffee

- 10.00 Opening Address
Eckardt Günther, OTTI, Regensburg, Germany
- Aim of the Conference
Dr. Aleksandra Saša Bukvić-Schäfer, Institute for Solar Energy Technology ISET/ Fraunhofer IWES, Kassel, Germany
- SmartGrids and E-Mobility in Future Energy Systems
Prof. Dr.-Ing. Jürgen Schmid, Institute of Solar Energy Technology ISET, University of Kassel, Germany

SMART GRIDS INITIATIVES IN EUROPE

Chair: Dr. Aleksandra Saša Bukvić-Schäfer, Institute for Solar Energy Technology ISET / Fraunhofer IWES, Kassel, Germany

- 10.40 Mobile Energy Resources in Grids of Electricity - the EU-MERGE Project
Prof. Nikos Hatzigiorgiou, NTUA National Technical University of Athens, Greece
- 11.00 Experiences of the German Technology Programs - E-Energy and ICT for E-Mobility
Dr. Andreas Goerdeler, German Federal Ministry of Economics and Technology, Berlin, Germany
- 11.20 Business models and technical challenges for coupling massive amounts of electric vehicles
Ronnie Belmans, ESAT/ELECTA, Heverlee, Belgium
- 11.40 E-Mobility for industry purposes
Prof. Dr. Gernot Spiegelberg, Siemens AG, München, Germany
- 12.00 Discussion
- 12.25 Lunch Break and Visit to the Trade und Poster Exhibition

BUSINESS MODELS FOR SMART MOBILITY

Chair: Dr. Britta Buchholz, MWV Energie AG, Mannheim, Germany

- 13.45 Business Models for Electric Vehicles
Malte Bolczek, Institute of Power Systems and Power Economics, Technische Universität Dortmund, Dortmund, Germany
- 14.00 Classification of Business Models in the E-Mobility Domain
Dr. Anke Weidlich, SAP Research, CEC Karlsruhe, Karlsruhe, Germany

- 14.15 The Added Economic and Environmental Value of Plug-in Electric Vehicles Connected to Commercial Building Microgrids
Dr. Michael Stadler, Ernest Orlando Lawrence Berkeley National Laboratory (Berkeley Lab.), Berkeley, USA
- 14.30 Business Approach to Electric Vehicles Fast Charging Stations
Prof. Christos Ioakimidis, IST-MIT Portugal, Lisbon, Portugal
- 14.45 Discussion

15.05 Poster Presentation

- A1 Smart Architecture for Solar Mobility - Solar Car Parks Fulfil Architectonical Functions and Generate Power for E-mobiles at Same Time
Willi Ernst, CentroSolar Group AG, Paderborn, Germany
- A2 Smart Vision of the Croatian Distribution System
Tomislav Capuder, Faculty of Electrical Engineering and Computing, Zagreb, Croatia
- A3 Evaluation of Absorption Capacity of Distribution Grids for Electric Vehicle Integration in Rural Areas
Lan Liu, Institute of Electrical Power Systems, Darmstadt University of Technology, Darmstadt, Germany
- B1 Economic and Environmental Analysis for Grid-connected Hybrid Photovoltaic-wind Power System in the Arid Region
Saheb-Koussa Djohra, Centre de Développement des Energies Renouvelable (C.D.E.R.), Algiers, Algeria
- 15.20 Coffee Break and Visit to the Poster Exhibition

SMART INTEGRATION TECHNOLOGIES AND COMPONENTS

Chair: José Corera, Iberdrola, Spain

- 15.45 Platform for the Development of V2G Algorithms for participating in the Electricity Market
Dr. Eduardo Zabala, Tecnalia, Derio, Spain
- 16.00 Infrastructure. Comparison of a Stationary and Mobile Metering Concept for Electric Vehicles
Jochen Link, Fraunhofer ISE, Freiburg, Germany
- 16.15 E-Mobility Charging Infrastructure and its Integration into Energy Management Systems
Thorsten Temme, Phoenix Contact GmbH & Co. KG, Blomberg, Germany

- 16.30 Simulation Study of a “Smart Grid” Approach: V2G, Variable Tariffs, Reactive Power Control
Bernhard Wille-Hausmann, Fraunhofer ISE, Freiburg, Germany
- 16.45 Impact Assessment of Communications on the Hierarchical Frequency Control of Smart Distribution Grids with Electric Vehicles under Emergency Operation
David Emanuel da Silva Rua, INESC-Porto, Porto, Portugal
- 17.00 Variable Tariffs for Demand Response with Grid-connected Electric Vehicles and their Contribution to Integrate Intermittent Renewable Generation
David Dallinger, Fraunhofer ISI, Karlsruhe, Germany
- 17.15 Discussion
- 17.45 **Poster Presentation**
- C1 Development and Assessment of Synthetic Load Profiles for Low Voltage Grids
Marc Eisenreich, Institute of Electrical Energy Systems, Darmstadt University of Technology, Darmstadt, Germany
- C2 Single Integrated Solution Device for the Smartgrid
Aitor Arzuaga, ZIV, Zamudio, Spain
- C3 A Modular Monitoring and Control System for Renewable Power Generation
Dr. Alexander Hakenjos, EneerY GbR, Kandern, Germany
- C4 V2G and Consumer Behavior: Impact of Smart Meter Diffusion on EV Storage
Martin Rixen, WHU – Otto Beisheim School of Management, Vallendar, Germany
- C5 The Energy Box – a Model for Optimizing the Electricity Management Decisions
Luis José Oliveira, Departamento de Engenharia Mecânica, Instituto Superior Técnico, Lisboa, Portugal
- C6 Smart Electric Mobility - Storage of Electric Car Batteries for Mobility Use and Grid Stability
Christoph Leitinger, TU Wien, Vienna, Austria
- C7 Analysis and Comparison of Common Device Profiles for Intelligent In-house Energy Management
Gregor Rohbogner, Fraunhofer ISE, Freiburg, Germany
- 18.10 End of the first Conference Day
Visit to the Trade and Poster Exhibition
- 19.30 Dinner
Bedford Hotel & Congress Centre, Brussels

Thursday, October 21st, 2010

ELECTRIC VEHICLES AND STORAGE

Chair: Dr. Petter Stoa, SINTEF Energy Research, Trondheim, Norway

- 9.00 Identifying the Potential of Electric Vehicles in a Large Scale Car Sharing Scheme
Tobias Denys, VITO, Mol, Belgium
- 9.15 What is a Right-Sized PHEV? Considering Users’ Driving Profiles
Fabian Kley, Fraunhofer ISI, Karlsruhe, Germany
- 9.30 Battery Charging and Discharging System in Automotive Applications
Henri Makkonen, Lappeenranta University of Technology, Lappeenranta, Finland
- 9.45 Approaches of Li-Ion Battery Performance and Lifetime Models – Tailor-made Simulation Solutions for R & D of Storage Systems for Vehicle and Grid Applications
Jochen Bernhard Gerschler, Institute for Power Electronics and Electrical Drives (ISEA), RWTH Aachen University, Aachen, Germany
- 10.00 Discussion
- 10.20 **Poster Presentation**
- D1 Generation of Stochastic Load Profiles for Mobile Energy Storages
Markus Litzlbauer, Vienna University of Technology, Vienna, Austria
- D2 Modeling of Electric Vehicles (EVs) for EV Integration Study
Dr. Qiuwei Wu, Technical University of Denmark, Kgs. Lyngby, Denmark
- D3 Comparison of Energy Management Systems for Electric Vehicle Charging and Discharging
Johannes Prior, Fraunhofer IWES, Department Systems Engineering and Grid Integration, Kassel, Germany
- D4 Optimization Concepts for the Integration of Electric Vehicles in Renewable Energy Grids
Prof. Dr. Klaus Brinkmann, Umwelt-Campus Birkenfeld, University of Applied Sciences Trier, Trier, Germany
- D5 The Impact of the Electric Vehicle on the Smart Distribution Grid
Mikel Zamalloa, uSysCom ZIV, Zamudio, Spain

- D6 A Technical Management and Market Operation Framework for Electric Vehicles Integration into Electric Power Systems
Prof. João Abel Peças Lopes, INESC Porto, Porto, Portugal
- D7 How »Green« is Railway Transportation?
Stefan Fassbinder, Beratung elektrotechnische Anwendungen Deutsches Kupferinstitut Berufsverband, Düsseldorf, Germany
- E1 E-island: Expandable Internet Sustained Load and Demand Side Management for the Integration into Virtual Power Plants
Hans Schaefers, SUMBi Ingenieure, Hamburg, Germany
- E2 MetaPV: Creating the First PV Smart Grid in the Real World
Dr. Thong Vu Van, 3E, Brussels, Belgium
- E3 Conversion of a Conventional Vehicle to a Battery Electric Vehicle in the Framework of an Educational Project
Brecht van Hooreweder, Department of Mechanical Engineering, Afdeling PMA, Heverlee, Belgium
- E4 Balancing of Local Energy Supply and Demand Fluctuations by Means of Controllable Cogeneration and Battery Storage Devices
Dr. Thilo Bocklisch, TU Chemnitz, Chemnitz, Germany
- 11.00 **Coffee Break and Visit to the Trade and Poster Exhibition**

INTEGRATION OF PLUG-IN-VEHICLES

Chair: Dr. Christof Wittwer, Fraunhofer ISE, Freiburg, Germany

- 11.30 Effects of E-cars on Electrical Power Infrastructure Requirements
Dr. Matthias Hable, Siemens AG, Erlangen, Germany
- 11.45 Virtual Power Plants with Electric Vehicles
Inaki Grau, Cardiff University, Cardiff, UK
- 12.00 Smart Integration of Electric Vehicles into European Power Grids
Michael Metz, Fraunhofer Institute UMSICHT, Oberhausen, Germany
- 12.15 Uniform Identification Scheme for Roaming in E-mobility Charging Infrastructure
Jonas Fluhr, Research Institute for Operations Management (FIR), RWTH Aachen University, Aachen, Germany
- 12.30 Photovoltaics and Wind in Virtual Power Plants: Site-specific Forecasting Techniques
Dr. Achim Woyte, 3E, Brussels, Belgium
- 12.45 Discussion
- 13.10 **Lunch Break and Visit to the Poster Exhibition**

PILOT- AND DEMONSTRATION PROJECTS

Chair: Dr. Eduardo Zabala, Tecnalia, Derio, Spain

- 14.30 Pilot- and Demonstration Projects
Peter van den Bossche, Citelec, Brussels, Belgium (tbc.)
- 14.45 State of the Art Analysis on the Introduction of Electric Vehicles: First Results from the Belgian Trans2House Project
Grietus Mulder, Flemish Institute for Technological VITO, Mol, Belgium
- 15.00 Scientific Accompanying Research of the Electric Mobility Model Region Vlotte in Austria
Andreas Schuster, Vienna University of Technology, Vienna, Austria
- 15.15 First Experiences of the Bidirectional Integration of VW's plug-in Hybrids to Set Up the E.ON/VW Fleet Test
Dr. Robert Kohrs, Fraunhofer ISE, Freiburg, Germany
- 15.30 What are the Drivers for a Successful Diffusion of Electric Mobility Technologies? - A Structural Equation Modelling Approach
Richard Colmorn, Jacobs University Bremen, Bremen, Germany
- 15.45 Smartgrid Challenges and Requirements. Real Experiences in a Mediterranean Spanish Urban Area
Aitor Arzuaga, ZIV, Zamudio, Spain
- 16.00 Discussion
- 16.30 **Closing Remarks**
Perspective and participants feedbacks
Prof. Dr. Didier Mayer, MINES ParisTech, Sophia Antipolis, France
- 16.45 **End of Conference**
Farewell Coffee



INFORMATION ABOUT OTTI

Ostbayerisches Technologie-Transfer-Institut e.V.

- We are a non profit organisation founded in 1977.
- Our aim is the stimulation of the industrial economy and the support of the co-operation between science and industry.
- We are one of the leading European conference organisers of seminars and conferences in the field of renewable energy. Furthermore, we offer courses in the fields of building, construction and the efficient use of energy. Our conferences with the accompanying specialist exhibition in Kloster Banz belong to the definitive meetings of the solar energy sector in the German-speaking area.
- In 2009, we have organized over 210 seminars, specialist forums and conferences. About 6.200 specialists and managerial personnel from industry, research institutes, engineering and planning offices took part.

For further information, please visit our website www.otti.de

Participants' Testimonials :

"I do not want to miss the opportunity to once again kindly thank you for this very successful event. There were lots of very interesting presentations, everything was optimally organized and we made many good and new contacts. For this reason I am pleased to support this Conference in the future."

Eberhard Petri, ECPE European Center for Power Electronics e.V.,
Nürnberg, Germany

Organisation Committee

Eckardt Günther, Britta Haseneder

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Accommodation

Please book your accommodation yourself as soon as possible:

www.hrs.de

An additional room contingent is set aside for you under www.resotel.be/otti

Conference Venue

Bedford Hotel & Congress Centre
135 - 137 Rue du Midi
1000 Brussels, Belgium

Phone +32 2 507 00 10
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info@hotelbedford.be

Conference Fee

If registered until August 20th, 2010

Per Person: € 600,00
Member of OTTI: € 530,00

after April August 20th, 2010

Per Person: € 700,00
Member of OTTI: € 630,00

Reduced fee for presenters: € 310,00

From the third participant on, every other participant of your company profits from our **15% discount** on the conference fee.

Fees cover the admission to all sessions, invitation to all coffee breaks, conference lunch, the dinner and the conference proceedings.

The Conference Language is English.

Photo Creditis

Page 2:

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2nd European Conference SmartGrids and E-Mobility

October 20th – 21st, 2010 (SGM 3515)

OTTI e.V.

Headword: SmartGrids and E-Mobility

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Registration Conditions

You will receive the relevant papers and confirmation as soon as we have your registration. The fees are exempt from value-added tax (VAT) and are payable in full upon receipt of the invoice. **Payment must be received no later than 14 days before the conference begins (it has to be settled in EURO). All bank charges have to be covered by the transmitter!** OTTI reserves the right to refuse admission if the amount has not arrived, unless said amount is paid by cheque on the day. In case transferring occurs later than 14 days before the conference, please keep a copy of the transfer order ready and show it in the organisation office at the conference. OTTI reserves the right to change the programme at short notice for urgent reasons. There is no charge for cancellations made at least 35 days before the event starts. If the booking is cancelled 34 days before the start of the conference a service charge of € 120,- will be made. It is possible to rebook once without extra charge. All cancellations must be in writing. It is possible to send a substitute delegate at any time without additional cost, but we need a written message about the change before the conference starts. Legal domicile and place of fulfilment is Regensburg.

- I will participate (SGM 3515).
- We are interested in sponsorship. Please send us information and the registration form.
- I cannot participate but wish to order the conference proceedings at the price of € 120,00 (incl. VAT) plus postage and packing – delivery after the conference.
- We would like to present our products in the exhibition. Please send us information and the registration form.

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2nd European Conference Smart Grids and E-Mobility

