



WCRE

World Council for Renewable Energy

International
Renewable
Energy
Storage
Conference

IRES



EUROSOLAR and the World Council for Renewable Energy (WCRE)
invite you to attend the

7th International Renewable Energy Storage Conference and Exhibition (IRES 2012)

November 12 – 14, 2012

bcc Berliner Congress Center, Berlin / Germany



Organizers: EUROSOLAR, World Council for Renewable Energy (WCRE)

In cooperation with:



Bureau de coordination énergies renouvelables
Koordinierungsstelle Erneuerbare Energien



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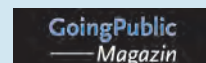


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7th International Renewable Energy Storage Conference and Exhibition (IRES 2012)

Rising shares of renewable energy in our energy system require a complementary mix of intermittent and dynamic sources of renewable energy, power grids and grid management tailored to the needs of renewable energy generation, and of course the storage of heat and electricity for different timescales, performance levels and applications. Interaction between the electricity, heat and mobility sector will increase in a significant way.

Ground breaking opportunities and perspectives will thereby emerge for numerous technological innovations and the involved industries and businesses. Energy storage for electricity, heat and mobility will enable a dynamic exploitation of renewable energy in manifold forms: for enterprises, in residential and commercial construction, residential developments, cities, regions and countries.

In 2006 EUROSOLAR and the World Council for Renewable Energy (WCRC) started the IRES

conference series, intended to contribute to the developments in energy storage and to popularize the resulting applications and solutions.

The view in the professional energy storage world is that IRES has developed into the central platform for sharing knowledge and exchanging ideas on one of the key issues of future energy supply.

The event is an international gathering of all relevant stakeholders: From the energy storage business, both the renewable and conventional energy business, grid operators and utilities, players from the hybrid and electric vehicle sector, the building industry, finance, R&D and politics.

The IRES series has so far attracted more than 2,500 participants and will now take place in its seventh consecutive year, November 12 – 14, 2012.

We would be delighted to welcome you at IRES 2012 in Berlin!

Scientific Steering Committee:

- Prof. Peter Droege, President EUROSOLAR, Vaduz, Liechtenstein
- Dr. Bernhard Riegel, EUROBAT, Brilon, Germany
- Prof. Dr. Dirk Uwe Sauer, RWTH Aachen University, Germany (Scientific Conference Chair)
- Dr. Peter Schossig, Fraunhofer ISE, Freiburg, Germany
- Prof. Dr. Ingo Stadler, Cologne University of Applied Sciences, Germany
- Prof. Dr. Michael Sterner, Regensburg University of Applied Sciences, Germany
- Dr. Wim van Helden, Renewable Heat, Schagen, The Netherlands



Prof. Peter Droege



Dr. Bernhard Riegel



Prof. Dr. Dirk Uwe Sauer



Dr. Peter Schossig



Prof. Dr. Ingo Stadler



Prof. Dr. Michael Sterner



Dr. Wim van Helden

Conference language: English

Organizers: EUROSOLAR, World Council for Renewable Energy (WCRC)

Conference managers: Irm Scheer-Pontenagel (Managing Director EUROSOLAR), Roland Keiffer (Project Manager IRES 2012)

Day one Monday, November 12, 2012

08:00 **Registration**

09:30 **Opening and welcome**

- Peter Droege, President EUROSOLAR, Vaduz, Liechtenstein
- Peter Altmaier, Federal Minister for the Environment, Nature Conservation and Nuclear Safety, Berlin, Germany
- Johannes Remmel, Minister for Climate Protection, Environment, Agriculture, Nature Conservation and Consumer Protection of the State of North Rhine-Westphalia, Düsseldorf, Germany
- Lothar Schneider, Managing Director EnergyAgency.NRW, Wuppertal, Germany

Plenary session

10:30 **Introductory lectures**

- **The role of energy storage in an energy system based on 100 % renewable energy**
Jochen Flasbarth, President German Federal Environment Agency, Dessau, Germany
- **100 % Renewables for electricity and heat – a holistic model for a future German energy system**
Hans-Martin Henning, Deputy Director Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany
- **Incentives, regulatory framework and business cases for batteries in Germany**
Tobias Rothacher, Germany Trade and Invest GTAI, Berlin, Germany
- **A market introduction programme for decentralized energy storage systems: current state and perspectives**
Jörg Mayer, Managing Director German Solar Industry Association (BSW-Solar), Berlin, Germany
- **Combined heat and power – the natural partner of renewable energies**
Berthold Müller-Urlaub, President German National CHP Association B.KWK, Berlin, Germany

13:00 – 14:30 **Lunch break / Poster exhibition / Exhibition**

Parallel session B 1

14:30 **Thermal storage A**

- **Numerical model for simulation of encapsulated latent heat thermal energy storage**
Fabian Rösler, Bayreuth University, Germany
- **Replacing thermal mass with low temperature heating and cooling panels in retrofitted buildings**
Mitja Kosir, University of Ljubljana, Slovenia

Parallel session B 2

14:30 **Off-grid & Mini-grid applications**

- **Energy storage systems for renewable island systems – an enormous global market potential**
Philipp Blechinger, Reiner Lemoine Institut gGmbH, Berlin, Germany
- **The simulation based dimensioning and cost-benefit analysis in island grids**
Burkhard Dittmann, Woodward Power Solutions GmbH, Kempen, Germany

Parallel session B 3

14:30 **Storage demand**

- **Assessing environmental impacts of storage technologies and competing options for balancing demand and supply in 2050**
Bert Droste-Franke, Europäische Akademie Bad Neuenahr-Ahrweiler GmbH, Germany
- **Sustainable use of excess wind power shares – a multi criteria analysis of different grid- and storage options**
Christine Krüger, Wuppertal Institute for Climate, Environment and Energy, Wuppertal, Germany

Parallel session B 1 (continued)

- **Free convection heat transfer of phase change slurries**
Tobias Kappels, Fraunhofer UMSICHT, Oberhausen, Germany
- **Comparative analysis of domestic thermal energy storage concepts using phase change materials**
Thomas Nuytten, Vito – Flemish Institute For Technological Research NV, Boeretang, Belgium

Parallel session B 2 (continued)

- **Optimization of an off-grid hybrid PV-wind-diesel-battery system**
Ghada Merei, ISEA RWTH Aachen University, Germany
- **Demonstration of an off-grid sustainable power station**
Jos van der Burgt, DNV KEMA Energy & Sustainability, Arnhem, The Netherlands

Parallel session B 3 (continued)

- **Energy system modelling – a comprehensive approach to analyse scenarios of a future european electricity supply system**
Stefan Weitemeyer, NEXT ENERGY, Oldenburg, Germany
- **Stability of the future power grid – an analysis of energy storage systems for power quality and energy management application**
Timothy Patey, ABB Switzerland Ltd, Corporate Research, Baden-Dättwil, Switzerland

16:00 – 16:30 **Coffee break****Parallel session C 1**16:30 **Thermal Storage B**

- **Conception of a heat storage system for household applications**
Thomas Schmid, Leuphana University, Lüneburg, Germany
- **Aqueous sodium hydroxide seasonal thermal energy storage**
Paul Gantenbein, University of Applied Sciences Rapperswil, Switzerland
- **Thermochemical energy storage for process waste heat: simulation and model validation**
Margarethe Molenda, German Aerospace Center – DLR e.V., Stuttgart, Germany
- **Steelmaking slag, a valuable material for high temperature thermal energy storage**
Guilhem Dejean, Laboratory PROMES CNRS, Perpignan, France
- **High temperature thermochemical heat storage: experimental results of a pilot reactor based on CaO/Ca(OH)₂**
Matthias Schmidt, German Aerospace Center – DLR e.V., Cologne, Germany

Parallel session C 216:30 **Large scale storage – CAES & Pumped hydro and further technologies**

- **Stensea – the feasibility of an underwater pumped hydro system**
Andreas Garg, HOCHTIEF Solutions AG, Frankfurt, Germany
- **ISOTHERMAL CAES: site-anywhere compressed air energy storage**
Richard Brody, SustainX Inc., Seabrook, USA
- **AGNES: utility scale peak power using Under Water Compressed Air Energy Storage (UW-CAES)**
Alain Delsupexhe and Frederic Guyard, AGNES, Paris, France
- **Pumped hydro storage in federal waterways – an evaluation of potentials for Germany**
Peter Stenzel, IEK-STE, Forschungszentrum Jülich GmbH, Germany
- **A mature product: LAES (Liquid Air Energy Storage)**
Gareth Brett, Highview Power Storage, London, United Kingdom
- **Commercial concepts for adiabatic compressed air energy storage**
Sebastian Freund, GE Global Research, Munich, Germany

Parallel session C 316:30 **Storage demand**

- **100 % RE in Denmark – a cross-sectoral approach**
Brian Vad Mathiesen, Aalborg University, Denmark
- **The dependence of storage demand on generation park, grid expansion and storage systems**
Matthias Popp, Engineering Consultant, Wunsiedel, Germany
- **The need for storage and grid extension in an european electricity supply system with a high penetration of renewable energies**
Tjark Thien, ISEA, RWTH Aachen University, Germany
- **Large-scale storage technologies in the context of future german transmission grid congestions**
David Echternacht, IAEW, RWTH Aachen University, Germany
- **Analysis of the local energy balancing demand in Germany**
Patrick Wrobel, Fraunhofer UMSICHT, Oberhausen, Germany
- **Reducing renewable energy output variability with energy storage systems**
Jarl Pedersen, Xtreme Power, Austin, USA

18:45 **End of day one**

Day two Tuesday, November 13, 2012

Parallel session D 1

09:00 **Economics**

- **Economic impact of investment costs and performances ageing on the competitiveness of energy storage systems**
Benjamin Guinot, Atomic and Alternative Energies Commission, Centre de Grenoble, France
- **Analysis of the market conditions for storage in the German electricity market**
Thiemo Pesch, IEK-STE, Forschungszentrum Jülich GmbH, Germany
- **The dispatch of energy storage on deregulated electricity markets**
David Connolly, Aalborg University, Denmark
- **Overview of regulatory evolution for electricity storage and focus on the ancillary services business case: a compared Europe/US analysis**
Michael Salomon, Clean Horizon, Paris, France

Parallel session D 2

09:00 **Flexibility options / Power & Heat A**

- **Flexible biogas production: biological possibilities and economic considerations**
Marcus Trommler, Deutsches Biomasseforschungszentrum, Leipzig, Germany
- **Beyond cogeneration – „300“-power plants – the perfect addition to the renewable generation park**
Arnold Tolle, Dr. Tolle Energie & Umwelt Consulting, Hamburg, Germany
- **Improving energy security and reducing greenhouse gas emissions using wind-electricity and storage heaters**
Larry Hughes, Dalhousie University, Halifax, Canada
- **Optimizing the storage contribution to an economically “guaranteed” electricity supply from wind energy**
Sophie Avril, CEA-DEN, Gif-sur-Yvette, France

Parallel session D 3

09:00 **Country scenarios**

- **Integration of renewable electricity in India: potential, progress and task ahead**
Pranay Kumar, Ministry of Power, Government of India, New Delhi, India
- **Balanced wind energy versus conventional power on the example of Estonia**
Peep Siitam, Tallinn University of Technology, Tallinn, Estonia
- **Construction of an integrated renewable energy hybrid system for the substitution of fossil fuels in the MENA region**
Max Voß, RWE AG, Essen, Germany
- **Managing photovoltaic power generation with energy storage systems: application to the French regulation**
Elisabeth Lemaire, CEA – INES RDI, Le Bourget du Lac, France

10:30 – 11:00 **Coffee break**

Parallel session E 1

11:00 **Innovative products & Platforms**

- **Reduced grid capacity impact by self consumption of photovoltaic energy**
Marijn Jongerden, Nedap Energy Systems, Groenlo, The Netherlands
- **Intelligent PV**
Gunnar Hoffmann, RWE AG, Essen, Germany
- **Influence of PV storage system installation on the low voltage grid**
Armin Schmiegel, voltwerk electronics GmbH, Hamburg, Germany

Parallel session E 2

11:00 **Flexibility options / Power & Heat B**

- **Hybrid urban energy storage – a way to integrate renewable energies**
Christian Dötsch, Fraunhofer UMSICHT, Oberhausen, Germany
- **Grid integration of electric vehicles and effects on the energy supply**
Jochen Linßen, IEK-STE, Forschungszentrum Jülich GmbH, Germany
- **Flexibility assessment of concepts for energy technologies combined with energy storage on distribution grid level**
Daan Six, VITO – Flemish Institute for Technological Research NV, Boeretang, Belgium

Parallel session E 3

11:00 **Round table: incentive mechanisms for decentralized electricity storage**

Parallel session E 1 (continued)

- **Yet another solar storage project? – going beyond just storing photovoltaic energy**
Wolfgang Deis, Evonik Industries AG, Marl, Germany
- **Implementing large scale Li-ion energy storage systems: different operation models for renewables integration in theory and practice**
Michael Lippert, Saft Energy Storage Systems, Bagnolet, France
- **Innovative PEM electrolyser for decentralized storage of renewable energy**
Uwe Küter, h-tec Wasserstoff-Energie-Systeme GmbH, Lübeck, Germany

Parallel session E 2 (continued)

- **Electricity to be stored in a high-temperature-thermal-energy-storage-system (HTTESS) and be added to the combustion air of a conventional power plant**
Philipp Schicktanz, enolcon gmbh, Bietigheim-Bissingen, Germany
- **Sensible thermal energy storages in district heating networks for the balancing of fluctuations from intermittent renewable energies**
Hans Christian Gils, German Aerospace Center – DLR e.V., Stuttgart, Germany

13:00 – 14:30 **Lunch break / Poster exhibition / Exhibition****Parallel session F 1**14:30 **Application of storage systems**

- **Advanced PV self-consumption optimization with battery, hydrogen and heat storage path**
Thilo Bocklisch, Technical University Chemnitz, Germany
- **Integrating end-user and grid focussed batteries and longterm Power-to-Gas storage for reaching a 100 % renewable energy supply**
Markus Hlusiak, Reiner Lemoine Institut gGmbH, Berlin, Germany
- **Reduction of storage demand through an increased flexibility of generation and demand – results from the research project “Renewable Model Region Harz”**
Peter Ritter, CUBE Engineering GmbH, Kassel, Germany
- **Comparison of field results between a flow-battery supported 340 kW PV array and an equivalent unsupported PV array**
Chris Winter, RedFlow Limited, Brisbane, Australia
- **Deploying the future: lessons from three megawatt-scale Energy Storage Projects**
Matthew Harper, Prudent Energy Corporation, Washington, DC, USA

Parallel session F 214:30 **Power & Heat**

- **The contribution of heat storage facilities to the integration of renewable energy**
Ingo Weidlich, AGFW e. V., Frankfurt, Germany
- **The building as system level for management and storage – electricity and heat storage in apartment and office buildings**
Ruggero Schleicher-Tappeser, sustainable strategies, Berlin, Germany
- **Improvement of the legal framework for the supply of balancing power from CHP units with heat usage**
Thorsten Gottwald, LUTHER NIERER, Berlin, Germany
- **Predicted charging and discharging effectiveness of a latent heat energy storage system linked to an air source heat pump**
Philip Eames, Loughborough University, United Kingdom
- **Lab test results of an active controlled heat pump with thermal energy storage for optimal integration of renewable energy**
Dirk Vanhoudt, VITO, Boeretang, Belgium

Parallel session F 314:30 **Power to Gas A**

- **Green fuels from surplus renewable electricity – German potentials in the year 2030**
Jan Hentschel, Volkswagen AG, Wolfsburg, Germany
- **High temperature electrolysis (SOEC) for the production of renewable fuels**
Björn Erik Mai, sunfire GmbH, Dresden, Germany
- **Advances in hydrogen water electrolysis for renewable energy storage application**
Filip Smeets, Hydrogenics Europe n.v., Oevel, Belgium
- **The energy change requires underground storage: project long term storage for renewable energies IVG Etzel – demonstration unit wind hydrogen**
Manfred Wohlers, IVG Caverns GmbH, Friedeburg, Germany
- **A possible relief for the grid extension in Germany through the use of gas grids and storage for the integration of electricity from renewable energies via Power-to-Gas/-to-Power**
Frank Merten, Wuppertal Institute for Climate, Environment and Energy, Wuppertal, Germany

16:30 – 17:00 **Coffee break**

17:00 **Poster awards** afterwards: **Panel discussion:**
Transforming our energy system: which steps are next, how much and what kind of storage do we need?

Introductory lecture by Dieter Attig, Energieagentur Lippe GmbH, Oerlinghausen, Germany:

Combined heat and power: a transition path towards large scale storage for renewable energies

More information about the panelists is available on www.energy-storage-conference.org

19:00 **End of day two**

Day three Wednesday, November 14, 2012

Parallel session G 1

09:00 **Application of storage systems**

- **ENERGYPLUS – Concept with a future**
Christina Stähr, Technical University Braunschweig, Germany
- **Sol-ion PV storage system: Field trial results and implications on battery lifetime expectancy**
Jann Binder, ZSW Baden-Württemberg, Stuttgart, Germany
- **Storage as a smart home component in the low voltage grid**
Aleksandra-Sasa Bukvic Schäfer, SMA Solar Technology AG, Niestetal, Germany
- **Smart region Pellworm – Development and demonstration of a hybrid storage system for the market oriented integration of renewable energies**
Bartholomäus Wasowicz, E.ON New Build & Technology GmbH, Gelsenkirchen, Germany
- **Energy storage system for supplying the application center H2Herten with renewable electricity and hydrogen**
Erdem Simsek, Evonik Industries AG, Marl, Germany

Parallel session G 2

09:00 **Batteries / Testing / Certification**

- **Practical experiences with testing electrical performances of Lithium EV battery packs**
Per Nørgaard, DTU Electrical Engineering, Technical University of Denmark, Risø, Denmark
- **Latest situations of NAS battery energy storage systems after 3.11 earthquake disaster in Japan, 2011**
Kenji Tanaka, NGK Insulators, Ltd., Nagoya, Japan
- **Sodium Nickel batteries applications**
Mario Vona, FIAMM Sonick SA, Stabio Switzerland
- **Lithium ion technology for stationary storage “Made in Germany”**
Ulrich Ehmes, Leclanché SA, Yverdon-les-Bains, Switzerland
- **CE-Conformity of stationary electrical energy storage systems**
Werner Varro, TÜV SÜD Product Service GmbH, Munich, Germany

Parallel session G 3

09:00 **Power to Gas B**

- **Power-to-Gas: Legal framework**
Thorsten Gottwald, LUTHER NIERER, Berlin, Germany
- **Rapid response electrolysis and its role in energy storage**
Simon Bourne, ITM Power, Sheffield, United Kingdom
- **Experiences and results gained from a 60 Bar alkaline, high-pressure electrolysis**
Daniel Tannert, BTU Cottbus, Germany
- **Development of a solar driven tube receiver to superheat steam for the high temperature electrolysis**
Stefan Breuer, German Aerospace Center – DLR e.V, Cologne, Germany
- **“Power-to-Gas” – Construction and start-up of a 250 kWel research plant**
Ulrich Zuberbühler, ZSW-BW, Stuttgart, Germany

11:00 – 11:30 **Coffee break**

11:30 **Final Plenary Session H**

- **Synopsis of the conference for electricity storage and thermal storage**
Dirk Uwe Sauer, Scientific Conference Chair, RWTH Aachen University, Germany
Peter Schossig, Member of the IRES steering committee, Fraunhofer ISE, Freiburg, Germany
- **Future outlook on renewable energy in conjunction with energy storage technology**
Christine Lins, Executive Secretary REN 21, Paris, France
- **Closing words**
Peter Droege, President EUROSOLAR, Vaduz, Liechtenstein

13:00 **Lunch / End of conference**

Conference and Exhibition Registration

I hereby submit my binding registration for the
7th International Renewable Energy Storage Conference and Exhibition (IRES 2012)

Registration fee November 12 – 14, 2012
if registering **before October 1, 2012**

_____ 850 €uro
 EUROSOLAR/WCRE members 625 €uro
(Membership number _____)

Registration fee November 12 – 14, 2012
if registering **after October 1, 2012**

_____ 950 €uro
 EUROSOLAR/WCRE members 725 €uro
(Membership number _____)

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www.eurosolar.org



Venue:

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Alexanderstr. 11
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Online registration and further information: www.energy-storage-conference.org

Registration terms and conditions: The registration fee includes conference materials, lunch and beverage breaks. Once we have received your registration you will be sent a confirmation. If you need to cancel after registering (only accepted in written form) we charge a handling fee amounting to 50 % of the registration fee. No-shows or registrants who cancel on the day of the conference will be charged for the full registration fee. You may transfer the registration to a substitute attendee without additional cost. The organizers reserve the right to change the programme should circumstances so require.