




First International Conference on the

Integration of Renewable Energy Sources and Distributed Energy Resources

**1st - 3rd December 2004
Marriott Hotel Brussels**

Organised by OTTI 

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Dr. Roberto Vigotti, ENEL, Italy
Jonas Wolff, Merinova, Finland
Dr. Eduardo Zabala, Labein, Spain
Bernie Ziemianek (tbc), EPRI, US California

Welcome by the Conference Chairmen

The fast growth of decentralized generation, liberalized markets, the use of modern power electronics and the introduction of advanced IC-technologies will lead to a dramatic change in the management and operation of the electricity grids worldwide. Stochastic energy sources like wind may decrease the grids stability or may improve it, depending on the quality of forecast and on interconnection rules. As a further element, the ability of loads to react on current production and demand conditions may offer a big potential for grid stabilization and even be able to prevent blackouts in future, provided that they are appropriately located and equipped with means of communication and proper management equipments. Primary and secondary control and power quality improvement might be offered as a service by individual and decentralized producers as long as they are equipped with information transfer interfaces, which may be available for small scale cogeneration plants such as micro-turbines or fuel-cells in future. Finally, much depends on the regulatory framework, which can make or break the viability of decentralized generation ventures.

It is the aim of this conference to establish a dialogue between professionals in the utility sector, in science, industry and in the sector of policy makers.

Based on the initiative of the European Commission, DG-Research and thanks to the active support by the US Department of Energy, the Canadian CANMET Energy Technology Centre - Ottawa and the Japanese Ministry of Economy, Trade and Industry (METI), this conference will become the first of its kind in which the aspects mentioned above can be discussed on a global scale. Most emphasis will be laid on the presentation of results which may help others to perform the transition. They may lead to new concepts and to the preparation of new standards.

We hope that this conference will become very productive in the sense of new results, but also in the sense that the global network of actors in the field may be further expanded and that this event may be followed by a series of future conferences around the globe.

We would like to invite you therefore to participate in this fascinating and challenging subject and we would be glad to welcome you in December in Brussels.

Jürgen Schmid
Conference Chairman

Etienne Gehain
Conference Co-Chairman

Scope

The conference aims at sharing knowledge among strategic EC projects, as well as with national programmes in European countries, the US, Japan and other OECD countries active in the field of Renewable Energy Sources (RES) and Distributed Energy Resources (DER).

Topics of the Conference

- Visions from Different Players
- Learning from National Programmes and Policies
- Stimulating International, National and Regional Programme Co-ordination
- Status and Results of Research Projects
- Main Issues, RTD Priorities and Potential Solutions

Objectives

- Review of the results of past and current research – on a national and international basis – and identification of the best practices, success stories and accumulated know-how for the integration of RES and DER
- Compare and assess the most relevant issues and features – technical and non-technical – for RES and DER technologies in order to evaluate their potential scope for application in the medium to long-term
- Identify research priorities and potential actions contributing to the European Research Area and related EU policies, such as co-ordination activities, an approach to infrastructures, the international dimension and the scope for RDT co-operation, needs for a system of scientific multi-technical reference, potential for joint large-scale projects etc.

Wednesday, 1st December 2004

- 09.00 **Welcome and Introduction**
Jürgen Schmid, ISET, Germany
Etienne Gehain, Gaz de France, France
- 09.10 **Opening Speech**
N.N., European Commissioner of Research
- 09.30 **Opening Speech**
Philippe Busquin (tbc), Member of the European Parliament
- 09.50 **Opening Speech**
L.J. Brinkhorst, Dutch Minister of Economic Affairs (EU Presidency) (tbc)
- 10.10 **Opening Speech**
Spencer Abraham, U.S. Secretary of Energy, DOE (tbc)
- 10.30 **Coffee Break/“Get Together”**

Visions from Different Players

Chair: Pablo Fernández Ruiz, EC DG-RT, Director

- 11.30 **Vision of the Industry on RES and DER**

Moderation: Christian Rehtanz, ABB Power Systems, Switzerland

Bernd Michael Buchholz, Siemens PTD, Germany
Christian Sasse, AREVA T&D, UK
Nicholas Miller, GE Energy, USA
- 12.00 **Panel Utilities**

Moderation: Marc Florette, Vice President R&D, Gaz de France, France (tbc)

N.N., Gaz de France, France
Jacqueline Stubbe, Eurelectric, Belgium
Dan Rastler, EPRI, USA
- 12.30 **Lunch**

Learning from National Programmes and Policies

Chair: Marianne Haug, IEA, France

- 14.20 **The European Research Actions for the Integration of Renewable Energy Sources and Distributed Energy Resources**
Angel Pérez Sáinz, EC DG-RTD, Belgium
- 14.40 **The US Programme on Distributed Energy Resources**
William P. Parks, DOE, USA
Patricia Hofmann, DOE, USA
- 15.00 **Japanese Activities on the Integration of Renewable Energy Sources and Distributed Energy Resources**
Yoshiro Owadano, AIST, Japan
- 15.20 **The Canadian Programme on Distributed Energy Resources**
Lisa Dignard-Bailey, Natural Resources Canada, Canada
- 16.00 **Coffee Break**

Round Table

Moderation: Roberto Vigotti, ENEL, Italy

- 16:30 **Stimulating International, National and Regional Programme Co-ordination**

Angel Pérez Sáinz (EC DG-RTD), William Parks (DOE), Mark Rowson (CEC), Yoshiro Owadano (AIST, tbc), Dan Rastler (EPRI), Raul Reyer (CIDAE), David Irving (DTI, tbc), Martti Korkiakoski (Tekes), Lisa Dignard-Bailey (NRC), Rainer Hinrichs-Rahlwes (BMU)
- 18.30 **Cocktail Reception**

Thursday, 2nd December 2004

Status and Results of Research Projects

Large R&D Approaches

Chair: Tim Meyer, ISE, Germany and Angel Pérez Sáinz, EC DG-RTD, Belgium (tbc)

- 09.00 **DG-NET – European Network for the Integration of Renewable Energy Sources and Distributed Generation**
Pedro Martinez-Cid, IBERDROLA, Spain
- 09.20 **DISPOWER – Distributed Generation with High Penetration of Renewable Energy Sources**
Philipp Strauß, ISET, Germany
- 09.40 **EU-DEEP – The birth of a European Distributed Energy Partnership that will help the large-scale Implementation of Distributed Energy Resources in Europe**
Etienne Gehain, Gaz de France, France
- 10.00 **Integration of Renewables**
Stanley Bull, NREL, USA
- 10.30 **Coffee Break**

Grid System Management

Chair: Thomas S. Key, EPRI, USA and Karl Kellner, EC-DG-TREN, Belgium (tbc)

- 11.00 **GridWise – New Technology for Improving Power Grid Reliability**
Eric Lightner, DOE, USA
Rob Pratt, Battelle, USA
- 11.20 **Grid and Market Integration**
Jacques Deuse, TRACTEBEL, Belgium
- 11.40 **DG-FACTS - Improvement of the Quality of Supply in Distributed Generation Networks through the Integrated Application of Power Electronic Techniques**
Eduardo Zabala, LABEIN, Spain

12.00 **Integration of Distributed Generation in the Nordic Grid – Opportunities and Barriers identified in a joint Nordic Study**
Sauli Jäntti, Merinova, Finland

12.20 **The Challenge of Large Scale Wind Power Integration into Grid Operation**
Eckhard Grebe, RWE, Germany
Yvonne Sassnick, Vattenfall Europe Transmission, Germany
Wilhelm Winter, E.ON, Germany

12.45 **Lunch**

Micro-grids Islanding and Information Technology

Chair: Masayuki Kamimoto, AIST, Japan and John Chadjivassiliadis, Greece

14.15 **MICROGRIDS – Large Scale Integration of Micro-Generation to Low Voltage Grids**
Nikos Hatzigiorgianni, NTUA, Greece

14.25 **Integration of Distributed Generation and Storage into the Distributed Utility of the Future**
Joseph Iannucci, DUA, USA
Jonathan Lynch, NP, USA (tbc)

14.45 **Planned Islanding**
Richard Fulton, BC Hydro, USA (tbc)

15.05 **CRISP – Distributed Intelligence in Critical Infrastructures for Sustainable Power**
Gerrit-Jan Schaeffer, ECN, The Netherlands

15.30 **Coffee Break**

Market Integration

Chair: Nick Jenkins, UMIST, UK and Joseph Iannucci, DUA, USA

16.00 **Transitions in Electricity Supply Systems – Challenges for Policy and Regulation**
Martin Scheepers, ECN, The Netherlands

16.20 **Demand Description and Modelling**
Vicente Porcar, IBERDROLA, Spain

16.40 **Local Trading Strategies**
Seppo Kärkkäinen, VTT, Finland

17.00 **Aggregation of Distributed Energy Resources**
Ross Malme, IEA, France

17.20 **Meeting the Needs of our Digital Future: Communications Protocol for DR Integration in the Future**
Marek Samotyj, EPRI, USA

17.40 **End of Lectures**

20.00 **Gala Dinner**

Friday, 3rd December 2004

Main Issues, RTD Priorities and Potential Solutions

08.30 **Outline**
Manuel Sánchez-Jiménez, EC DG Research, Belgium
Jürgen Schmid, ISET, Germany
Etienne Gehain, Gaz de France, France

ELEKTRA – Play the DER Electronic Market Power Game

Chair: Hans Akkermans, EnerSearch, Sweden and Paul Boonekamp, APX Amsterdam, The Netherlands (tbc)

08.40 **An Interactive Experience with advanced Information and Communication Technologies (ICT) for DER Management**
Hans Akkermans et.al., EnerSearch, Sweden

Reliability of Supply and Quality of Service

Chair: Nikos Hatziargyriou, NTUA, Greece and Stefano Puppini, EC DG-RTD (tbc)

The constant increase of electric power demand, together with the international shift towards competitive electricity markets and the difficulties in building new transmission and central generation facilities due to environmental constraints force modern power systems to operate closer to their stability limits. At the same time, pressing needs for higher security, reliability and power quality impose demanding requirements for power system planning, operation and control. The objective of this panel is to investigate the role of Renewable and Distributed Energy Resources can play in increasing the Reliability of Supply and Power Quality. In particular, the following topics will be debated and, if possible quantified:

- Can DER provide security of supply?
- Can DER displace conventional generation?
Is it possible to rely on Renewable Energy Sources, e.g. wind?
- Can DER contribute to network security?
(Blackouts occur due to faults on the Transmission System)
- Can DER provide system support (ancillary services)?
Can they provide support in frequency, flow and voltage control?
- Are DER reliable?
- How do DER affect power quality?
Can they improve it?

09.45 **Causes of the 2003 Major Grid Blackouts in North America and Europe and Lessons Learnt**
Pouyan Pourbeik, IEEE, ABB, USA

10.00 **Can DER Provide Network Security?**
Goran Strbac, UMIST, UK

10.15 **Reliability and Quality of Small High Speed Gas Turbine and Generator Distributed Power Sources**
Murray Davis, DTE, USA

10.30 **Power Quality: Interactions between DER, the Grid and other Customers**
Math Bollen, STRI, Sweden

10.45 **Coffee Break**

Laboratory and Standardisation Activities

Chair: Philipp Strauß, ISET, Germany and Angelo Invernizzi, CESI, Italy (tbc)

The session will give an overview on the most important testing laboratories for equipment and systems in the field of distributed power generation. International standards are under preparation for distributed generators in order to harmonise testing procedures and safety issues as well as communication and power interfaces. Besides presentations about laboratories and standardisation an analysis of power electronic interfaces and a review about relevant grid codes will be given.

11.30 **Standardisation on DER**
Richard De Blasio, NREL, USA

11.45 **US Laboratory Activities**
Thomas S. Key, EPRI-PEAC, USA

12.00 **European Laboratories**
Thomas Degner, ISET, Germany

12.15 **Power Electronics Interfaces for DER**
Konrad Mauch, Canada

12.30 **Review of Grid Codes**
Geza Joos, IGEE, Canada

12.45 **Lunch**

Energy Markets and the Policy and Regulatory Framework

Chair: Frits van Oostvoorn, ECN, The Netherlands and Petra Schweizer-Ries, University of Magdeburg, Germany

Energy markets of today are becoming more competitive and will create market opportunities for RES and DER technologies. On the other hand, the profitability of RES and DER still relies on support from policy instruments and the effective integration of RES and DER into the electricity networks dependants on network regulation. The market structure and the policy and regulatory framework are crucial factors for developing electricity supply systems that fulfil the long-term policy objectives (sustainable, reliable, economic efficient). This session will discuss the role and influence that energy and competition policy and regulation have on the utility business in relation to the integration of RES and DER in future electricity markets.

- 14.15 **World Energy Investments Outlook 2004: Focus of Renewable Energies and Distributed Generation**
Fatih Birol, IEA, France
- 14.30 **Electric Utility Model Rates and Tariffs Affecting DER**
N.N., USA
- 14.45 **A Socio-economic Analysis of Technical Options and Solutions for the Integration of Distributed Generation into the Electricity Supply Systems**
Michael ten Donkelaar, ECN, The Netherlands
- 15.00 **Energy Services: Win-win Projects as a Solid Basis for Further Distributed Generation**
Michael Lowak, MVV Energie, Germany

Practical Experiences with the Integration of Renewables

Chair: Britta Buchholz, MVV Energie, Germany and Karen R. Forsten, EPRI, USA

After having discussed diverse aspects of DER, this session will focus on real experiences with distributed generation and renewable energies into the grids. Different stakeholders will present the following aspects of their concrete experiences:

- Power Quality
- Technical Grid Integration, ICT
- Socio-economic Issues: Provided Energy and Power, Political Environment, Contracts
- Perspectives

- 15.15 **Integration Case Studies in the US**
Patricia Hoffman, DOE, USA,
- 15.30 **Application of Wind with Hydro Resources in the NW USA**
Elliot Mainzer, BPA, USA
Larry Felton, Okanogan PUD, USA
- 15.45 **Energy Park KonWert: Energy Management of a Decentralised Supply System. Concept and First Results**
Jörg Scholtes, KonWert, Germany
Christine Schwaegerl, Siemens AG, Germany
- 16.00 **New Concepts for High Penetration of Solar PV in the Electrical System. The Experience of Navarra**
Miguel Arrarás, EHN/Aesol Navarra, Spain
- 16.15 **Conference Summary and Closing**
Etienne Gehain Gaz de France, France,
Jürgen Schmid, ISET, Germany,
Manuel Sánchez-Jiménez, EC DG Research, Belgium
- 16.45 **End of Conference**



Organisation

Conference Organiser

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For most recent update please see:

www.conference-on-integration.com

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Information about OTTI

OTTI KOLLEG has a 20-person strong team who proffer seminars, specialist forums and conferences. About 5000 specialists and managerial personnel from business, administration and science take part every year.

The OTTI Kolleg is one of the leading conference organisers in the field of regenerative energy. With us you not only update your knowledge, but also feel good. Lectures on the latest themes provide optimal information and that with shared meals, evening events where you can make worthwhile contacts with other participants and lecturers. Our conferences in the convent at Banz belong to the definitive meetings of the solar energy sector in Germany.



Language

The Conference Language is English.



Conference Venue

Marriott Hotel Brussels

Rue A. Orts 3-7

B-1000 Brussels, Belgium

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(Conference location)

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when booked until 29th September 04

€ 189,- single/€ 214,- double room
when booked until 11th October 04

€ 199,- single/€ 224,- double room
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B-1000 Bruxelles

Phone: ++32 2 205 16 00

Fax: ++32 2 203 29 44

E-Mail: reservation@hotel-des-colonies.com

www.users.skynet.be/hotel-colonies

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€ 98,- single /€ 115,- double room

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Hotel Arlequin

Rue de la Fourche, 17 - 19

B-1000 Bruxelles

Phone: ++32 2 514 16 15

Fax: ++32 2 514 22 01

E-Mail: reservation@arlequin.be

www.arlequin.be

Metro Station: Gare Centrale

Password "Conference on Integration"

Option until 1st October 2004

€ 97,- single room

breakfast inclusive

Hotel la Madeleine

Rue de la Montagne, 22

B-1000 Bruxelles

Phone: ++32 2 513 29 73

Fax: ++32 2 502 13 50

E-Mail: hotel-la-madeleine@hotel-la-madeleine.be

www.hotel-la-madeleine.be

Metro Station: Gare Centrale

Password: "Conference on Integration"

Option until 1st October 2004

€ 85,- single room

breakfast inclusive

Additional information:

www.brusselsinternational.be



Prices and Services

If registered until

October 1st 2004/after October 1st 2004

Per Person: € 690,-/€ 790,-

Fees cover the admission to all sessions, invitation to all coffee breaks, three lunches, the gala dinner and the conference proceedings with CD-ROM.

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 (V.A.T.) 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 17 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 € 280,- will be made. It is possible to rebook once without extra charge. No refunds will be made on cancellations after 28th October 2004. All cancellations must be made in writing. Legal domicile and place of fulfilment is Regensburg. It is possible to send a substitute delegate at any time without additional cost.

**First International Conference on the
Integration of Renewable Energy Sources
and Distributed Energy Resources**

1st - 3rd December 2004 (COI-2087)

OTTI KOLLEG

Headword: 1st International Conference on Integration

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