

## Final Program (as performed)

International Energy Systems in Transition  
- Perspectives from Science and Industry -

The 15th IERE General Meeting & German Forum



Brandenburg Gate, Berlin, Germany

10 – 13 November 2015  
Berlin, Germany

Organized by  
**IERE, RWE AG and acatech**

Supported by



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## International Energy Systems in Transition - Perspectives from Science and Industry -

### ***About the theme***

The 15th IERE General Meeting and German Forum in Berlin will address the technical and strategic challenges arising from the changes in the existing ways of how we convert, transmit and use energy. Although driven by different requirements many countries worldwide are facing an urgent need to adapt their energy systems. Obviously, such massive changes call for more active energy R&D and innovative solutions. Science and industry - each in their individual roles – have to co-operate to develop efficient pathways to an economically viable, sustainable energy supply. A lot of challenges and solutions are not limited to specific regions but affect us globally, thus an international approach is most promising.

Berlin in particular might be a perfect spot for this conference as Germany has taken a leading role on the path from a fossil and nuclear based system to an energy supply based mainly on renewables. Taking into account the impact on business now it's not about copying this model, but finding out what to be learned from all parts of the world, what to be done locally and how to work together in R&D to make successful steps forward.

### **For more Information**

Please visit *The Official Website for the 15th General Meeting and German Forum*  
<http://iere-forum-berlin.com/>

## Schedule and Venue

### **Tuesday, 10 November 2015**

19:00 – 21:00 Welcome Reception

### **Wednesday, 11 November 2015**

10:00 – 18:30 The 15th IERE General Meeting & German Forum (Day1)

19:00 – 21:45 Conference Dinner at a traditional German restaurant

### **Thursday, 12 November 2015**

08:30 – 17:00 The 15th IERE General Meeting & German Forum (Day2)

17:30 – 21:45 Optional Social Event:

Guided tour to historical  
Berlin and Dinner at  
“Sony Center”



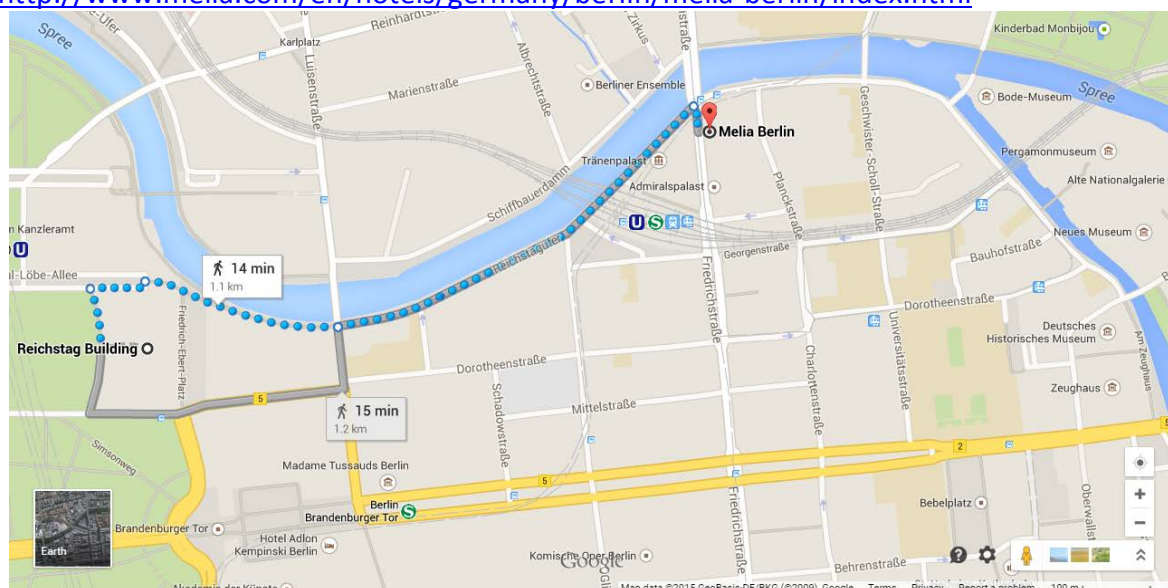
### **Friday, 13 November 2015**

09:00 – 13:00 Optional Technical Tour: Guided tour to RWE’s wood fired CHP plant in Berlin

## Conference Venue:

**Melia Berlin**, Friedrichstraße 103, 10117 Berlin, Germany

<http://www.melia.com/en/hotels/germany/berlin/melia-berlin/index.html>



Map URL: <https://goo.gl/maps/1UCqg>

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## Organizers

### **IERE:**

IERE Central Office  
2-11-1 Iwado Kita, Komae-shi, Tokyo 201-8511, Japan  
<https://www.iere.jp>

### **RWE AG:**

Corporate Research & Development  
Opernplatz 1, 45128 Essen, Germany  
<http://www.rwe.com>

### **acatech:**

Koordinierungsstelle Energiesysteme der Zukunft  
Markgrafenstraße 22, 10117 Berlin, Germany  
<http://www.acatech.de>

## Supporter

### **VDI Wissensforum GmbH: (MOU Partner of IERE)**

VDI-Platz 1, 40468 Düsseldorf, Germany  
<https://www.vdi-wissensforum.de>

## Programme (Outline)

International Energy Systems in Transition  
- Perspectives from science and industry -  
Day 1: Wednesday, 11 November 2015

10:00	<p>Opening by IERE, RWE and acatech</p> <p>Key note</p> <p>A view on the energy transition from different countries each presented by a short kick-off talk.</p> <p>Moderated panel discussion on the various transition paths</p> <p>(room Barcelona II)</p>	
12:40	<p>Lunch Break (foyer of room Barcelona II)</p>	
13:40	<p>Parallel Session Ia: Next Generation Renewables</p> <p>(room Barcelona II)</p>	<p>Parallel Session Ib: Energy Solutions for Active Customers</p> <p>(room Sevilla)</p>
15:10	<p>Coffee Break (foyer of room Barcelona II)</p>	
15:40	<p>Parallel Session IIa: Future Requirements for Thermal Plants</p> <p>(room Barcelona II)</p>	<p>Parallel Session IIb: Future Role of Grids and Storage</p> <p>(room Sevilla)</p>
17:30 18:30	<p>Moderated Concluding Session</p> <p>(room Barcelona II)</p>	
19:00 21:45	<p>Conference Dinner</p> <p>(Restaurant "Lemke")</p>	

Plenum	Session a	Session b
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# International Energy Systems in Transition

## - Perspectives from science and industry -

Day 2: Thursday, 12 November 2015

<b>08:30</b>	IERE Business Session (room Barcelona II)
<b>09:00</b>	Session III: Examples of Successful Joint Science-Industry Co-operation (room Barcelona II)
<b>10:25</b>	Coffee Break (foyer of room Barcelona II)
<b>10:55</b>	Session IV: Strategies to deal with framework set by policy and society (room Barcelona II)
<b>12:30</b>	Lunch Break (foyer of room Barcelona II)
<b>13:30</b>	Session V: Convergence of Electricity, Gas, Heat and Mobility Systems (room Barcelona II)
<b>15:20</b>	Coffee Break (foyer of room Barcelona II)
<b>15:50</b>	Moderated Panel Discussion with e.g. session chairs on the various approaches as shown in the sessions.
<b>17:00</b>	Closing Remarks (room Barcelona II)
<b>17:30</b>	Social event: Guided tour to historical Berlin and dinner at a historical site in Berlin <b>[optional]</b>
<b>21:45</b>	

## Schedule

### IERE Welcome Reception

*Tuesday, 10 November 2015*

**Melia Berlin**, Friedrichstraße 103, 10117 Berlin, Germany

19:00 – 21:00

Registration and  
IERE Welcome Reception  
foyer of room Barcelona II, **Melia Berlin**

### The 15th IERE General Meeting and German Forum – Day 1

*Wednesday, 11 November 2015*

**Melia Berlin**, Friedrichstraße 103, 10117 Berlin, Germany  
(Room Barcelona II, Room Sevilla)

9:00 –

Registration

### Opening Session

10:00 – 10:10

O-1 Opening Address  
*Dr. Gaétan Lantagne (Treasure of IERE, Canada)*

10:10 – 10:20

O-2 Welcome Address  
*Dr. Rolf- Martin Schmitz (COO, RWE AG, Germany)*

10:20 – 10:40

O-3 Introduction to the German Energiewende  
*Prof. Dr. Reinhard Hüttel (President of acatech, Germany)*

### Keynote Address

10:40 – 11:10

K-1 The pace of the energy transition – a view from industry and science  
*Prof. Dr. Gert Jan Kramer (University of Leiden / Shell Projects & Technology, The Netherlands)*

### “A View on the Energy Transition from Different Countries”

Kick-off-statements as entry to panel discussion:

*Moderator: Prof. Dr. Alexander Bradshaw (Max Planck Institute for Plasma Physics and  
Fritz Haber Institute of the Max Planck Society, Germany)*



11:10 – 11:20	P-1	Middle East & Turkey: The view from Middle East and North Africa <i>Mr. Paul van Son (RWE Country Chairman MENA &amp; Turkey, UAE)</i>
11:20 – 11:30	P-2	North America: Energy Systems in Transition – View from North America <i>Mr. Mark McGranaghan (Vice President, Power Delivery &amp; Utilization, EPRI, USA)</i>
11:30 – 11:40	<del>P-3</del>	<del>Mexico &amp; South America: The view from Mexico and South America <i>Mr. Fernando Kohrs Aldape (Director of Planning, Strategy Management and Marketing, IIE, Mexico)</i></del>
11:40 – 11:50	P-4	China: Impacts of Large-scale Renewable Integration on Power Grid and Energy Transition <i>Dr. Yao Liangzhong (CEPRI, People's Republic of China)</i>
11:50 – 12:00	P-5	Japan: Energy Transition: The View from Japan <i>Dr. Koji Nagano (Deputy Associate Vice President, Director, Socio-economic Research Center, CRIEPI, Japan)</i>

### Moderated panel discussion on the various transition paths:

*Moderator: Prof. Dr. Alexander Bradshaw (Max Planck Institute for Plasma Physics and Fritz Haber Institute of the Max Planck Society, Germany)*

12:00 – 12:40 Discussion

#### Panelist:

*Prof. Dr. Reinhard Hüttel (President of acatech, Germany)*

*Mr. Paul van Son (RWE Country Chairman MENA & Turkey, UAE)*

*Mr. Mark McGranaghan (Vice President, Power Delivery & Utilization, EPRI, USA)*

~~*Mr. Fernando Kohrs Aldape (Director of Planning, Strategy Management and Marketing, IIE, Mexico)*~~

*Dr. Yao Liangzhong (CEPRI, People's Republic of China)*

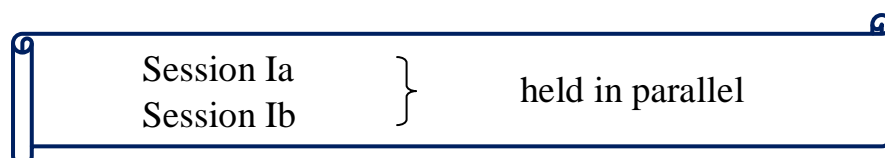
*Dr. Koji Nagano (Deputy Associate Vice President, Director, Socio-economic Research Center, CRIEPI, Japan)*

12:40 – 13:40

Lunch Break

*foyer of room Barcelona II*

--- Open poster presentation ---



### Parallel Session Ia: Next Generation Renewables.....@room Barcelona II

*Chair person: Dr. Chi Yongning (CEPRI, People's Republic of China)*

13:40 – 14:05	SIa-1	HQ perspectives regarding the renewable/storage market <i>Dr. Gaétan Lantagne (Hydro-Québec Research Institute, Canada)</i>
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14:05 – 14:30	SIa-2	Technical practices and the international standardization activities of RE grid integration <i>Dr. Chi Yongning (CEPRI, People's Republic of China)</i>
14:30 – 14:55	SIa-3	Sustainable Energy Supply for EL-Gouna Touristic City in Egypt <i>Mr. Peter Shawky, Mr. Mohamed Abdalla Sabry(Poster) (El-Gouna Campus of TU Berlin, Egypt)</i>

## Parallel Session Ib: Energy Solutions for Active Customers... @room Sevilla

*Chair person: Dr. Lioudmila Simon (RWE East, Czech Republic)*

13:40 – 14:05	SIb-1	Potentials of Industrial Demand Side Management <i>Ms. Victoria Orioli (Siemens, Germany)</i>
14:05 – 14:30	SIb-2	IPv6 based Communication and Information Infrastructure for Energy Internet <i>Dr. Luan Wenpeng (CEPRI, People's Republic of China)</i>
14:30 – 14:55	SIb-3	Innovative heat pump boiler fitting in the disrupted energy eco-system <i>Mr. George Husni (boostHEAT, France)</i>

## Poster invitation

14:55 – 15:00	SIb-4	Commercial conversion of an unused potential - waste heat and steam - into electrical energy <i>Mr. Pieter Veltman, Mr. Ewald Schönhals (ENVA Energy, Germany)</i>
15:10 – 15:40		Coffee Break <i>foyer of room Barcelona II</i> --- 10 - 15 minutes Poster presentations for all posters ---

Session IIa Session IIb	} held in parallel
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## Parallel Session IIa: Future Requirements for Thermal Plants

..... @room Barcelona II

*Chair person: Prof. Dr. Emmanouil Kakaras (Mitsubishi Hitachi Power Systems, Germany)*

15:40 – 16:05	IIa-1	Future Requirements for Thermal Power Plants <i>Mr. Jörg Blaurock (ALSTOM Boiler, Germany)</i>
16:05 – 16:30	IIa-2	Electricity Transition in India & its Impact on Thermal Power <i>Dr. Jacob Verghese (STEAG Energy Services India, India)</i>
16:30 – 16:55	IIa-3	Conventional Power Plants in an Electricity Market with a large Share of Renewables <i>Dr. Dietmar Keller (RWE Generation SE, Germany)</i>

- 16:55 – 17:20    SIIa-4    Integrating compressed air energy storage into a combined cycle gas turbine plant  
*Mr. Nick Lawrence (Isentropic Ltd., United Kingdom)*

#### Poster invitation

- 17:20 – 17:25    SIIa-5    Improving the Flexibility of Thermal Power Plants Using Dynamic Simulation - Potential and Practical Examples  
*Ms. Julia Hentschel (Institute for Energy Systems - TU Munich, Germany)*
- 17:25 – 17:30    SIIa-6    Energy storage combined with flexible power plants - Power to Fuel, LAES, Batteries  
*Prof. Dr. Emmanouil Kakaras, Ms. Efthymia-Ioanna Koytsoumpa (Mitsubishi Hitachi Power Systems, Germany)*

#### Parallel Session IIb: Future Role of Grids and Storage ..... @room Sevilla

*Chair person: Prof. Dr. Eberhard Umbach (Executive Board Representative of acatech, Germany)*

- 15:40 – 16:05    SIIb-1    Adverse effects on the power system stability due to inverter power sources increasingly connected to the power system  
*Mr. Masamoto Tatematsu (JEPIC, Japan)*
- 16:05 – 16:30    SIIb-2    Reliable, Economical and Eco-friendly Energy Transition Solutions Based on Hybrid Dynamic Simulation  
*Mr. Feng Xue (NARI Group Corporation, People's Republic of China)*
- 16:30 – 16:55    SIIb-3    Development and interpretation of the Merit order of Energy Storage  
*Mr. Christoph Pellingner (FfE, Germany)*
- 16:55 – 17:20    SIIb-4    The Implementation of IEC 61850 Smart Substation in Taiwan  
*Mr. Che-I Lin (Taiwan Power Company, Taiwan)*

#### Poster invitation

- 17:20 – 17:25    SIIb-5    Research and discussion on electric vehicles charging cable testing methods in different standard systems  
*Mr. Xin Li (NARI Group Corporation, People's Republic of China)*

#### Concluding Session: Summary of 1<sup>st</sup> day and bridge to 2<sup>nd</sup> day

..... @room Barcelona II

*Moderator: Dr. Kathrin Goldammer (acatech, Germany)*

- 17:30 – 17:35    C-1    *Dr. Kathrin Goldammer (acatech, Germany)*
- 17:35 – 17:40    C-2    *Dr. Chi Yongning (CEPRI, People's Republic of China)*
- 17:40 – 17:45    C-3    *Dr. Lioudmila Simon (RWE East, Czech Republic)*
- 17:45 – 17:50    C-4    *Prof. Dr. Emmanouil Kakaras (Mitsubishi Hitachi Power Systems, Germany)*
- 17:50 – 17:55    C-5    *Prof. Dr. Eberhard Umbach (Executive Board Representative of acatech, Germany)*
- 17:55 – 18:30       Panel Discussion

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## Conference Dinner

19:00	Bus depart from Melia hotel to restaurant
19:30	Dinner at Restaurant “Brauhaus Lemke” Dircksenstrasse 143 10178 Berlin
21:30	Bus depart from restaurant to Melia hotel
21:45	Arrival at Melia hotel

## The 15th IERE General Meeting and German Forum – Day 2

*Thursday, 12 November 2015*

**Melia Berlin**, Friedrichstraße 103, 10117 Berlin, Germany

### IERE Business Session.....@room Barcelona II

*Chair person: Mr. Tetsuo Matsumura (Secretary General, IERE Central Office)*

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|-------------|------|---|
| 8:30 – 8:45 | BS-1 | Chair's Report 2014-2015<br><i>Mr. Gregory Tosen (IERE Board Member, Eskom, South Africa)</i>       |
| 8:45 – 9:00 | BS-2 | Report from the Secretariat<br><i>Mr. Tetsuo Matsumura (Secretary General, IERE Central Office)</i> |

### Session III: Examples of Successful joint Science-Industry Co-operation.....@room Barcelona II

*Chair person: Prof. Dr. Silke Köhler (Beuth Hochschule für Technik Berlin –University of Applied Science, Germany)*

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|---------------|--------|---|
| 9:00 – 9:25   | SIII-1 | Heterogeneous Catalysis: An example of joint science-industry partnerships in energy transformation<br><i>Prof. Dr. Robert Schlögl (Fritz Haber Institute of the Max Planck Society and Max Planck Institute for Chemical Energy Conversion, Germany)</i> |
| 9:25 – 9:50   | SIII-2 | Integrating Smart Inverters<br><i>Mr. Marc McGranaghan (EPRI, USA)</i>  |
| 9:50 – 10:15  | SIII-3 | Transformer Insulating Paper Diagnosis: for a Worldwide Application of Methanol as an Innovative Marker<br><i>Dr. Mariela Rodriguez (Hydro-Québec Research Institute, Canada)</i>   |
| 10:25 – 10:55 |        | Coffee Break<br><i>foyer of Room Barcelona II</i><br>--- 10 - 15 minutes Poster presentations for all posters ---   |

## Session IV: Strategies to Deal with Framework Set by Policy and Society ..... @room Barcelona II

*Chair person: Dr. Koji Nagano (CRIEPI, Japan)*

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|---------------|-------|---|
| 10:55 – 11:10 | SIV-1 | Introduction: Issues and Challenges on the Long-term Energy Supply and Demand Outlook of Japan<br><i>Dr. Koji Nagano (CRIEPI, Japan)</i>  |
| 11:10 – 11:35 | SIV-2 | Framework for Energy Sustainability<br><i>Mr. Alf Henryk Wulf (ALSTOM, Germany)</i>   |
| 11:35 – 12:00 | SIV-3 | Analysis of possible and cost-effective trajectories for Europe to achieve its medium and long-term climate objectives<br><i>Dr. Pierre Dechamps (European Commission, Belgium)</i> |
| 12:00 – 12:25 | SIV-4 | Quality standards for policy advice based on energy scenarios<br><i>Prof. Dr. Felix Höffler (Institute of Energy Economics - University of Cologne, Germany)</i>                    |
| 12:30 – 13:30 |       | Lunch Break<br><i>foyer of room Barcelona II</i><br>--- Open poster presentation ---  |

## Session V: Convergence of Electricity, Gas, Heat and Mobility Systems ..... @room Barcelona II

*Chair person: Dr. Frank-Detlef Drake (RWE AG, Germany)*

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|---------------|------|--|
| 13:30 – 13:55 | SV-1 | System foresight at RWE: A multi-scale, sector-integrated approach<br><i>Dr. Richard Kiefer (RWE Group Business Services GmbH, Germany)</i>  |
| 13:55 – 14:20 | SV-2 | Linking the German heat and power systems: The potential of power to heat in a future energy system dominated by renewables<br><i>Prof. Dr. Silke Köhler (Beuth Hochschule für Technik Berlin –University of Applied Science, Germany)</i> |
| 14:20 – 14:45 | SV-3 | Short and Medium Term Potential of Power-to-X-Options in Germany<br><i>Mr. Michael Haendel (Fraunhofer ISI, Germany)</i>   |
| 14:45 – 15:10 | SV-4 | Green hydrogen: the missing link between the power, gas and mobility systems<br><i>Mr. Denis Thomas (Hydrogenics, Belgium)</i>   |

### Poster invitation

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|---------------|------|--|
| 15:10 – 15:15 | SV-5 | “Transition towards an All Electric System” – A Merit Order of Electrification<br><i>Dr. Serafin von Roon (FfE, Germany)</i> |
| 15:20 – 15:50 |      | Coffee Break<br><i>foyer of room Barcelona II</i><br>--- 10 - 15 minutes Poster presentations for all posters ---            |

## Moderated panel discussion on the various approaches as shown in the sessions

*Moderator: Dr. Kathrin Goldammer (acatech, Germany)*

15:50 – 16:50

Discussion

Panelist:

~~*Dr. Chi Yongning (CEPRI, People's Republic of China)*~~

*Prof. Dr. Emmanouil Kakaras (Mitsubishi Hitachi Power Systems, Germany)*

*Prof. Dr. Eberhard Umbach (Executive Board Representative of acatech, Germany)*

*Prof. Dr. Silke Köhler (Beuth Hochschule für Technik Berlin –University of Applied Science, Germany)*

*Dr. Koji Nagano (CRIEPI, Japan)*

*Dr. Frank-Detlef Drake (RWE AG, Germany)*

## Closing Remarks

16:50 – 17:00

*Mr. Tetsuo Matsumura (Secretary General, IERE Central Office)*

## Social Tour and Dinner

(For participants who have booked the optional Social tour and Dinner)

17:30 Bus depart from Melia hotel to one hour of sightseeing and to the restaurant

18:30 Arrival at restaurant “Josty”

Bellevuestrasse 1 (Sony Center)

10785 Berlin

21:30 Bus depart from restaurant to Melia hotel

21:45 Arrival at Melia hotel

## Day 3                      Technical Tour (Optional)

*Friday, 13 November 2015*

RWE's biomass fired CHP plant, Berlin-Neukölln, Germany

(For participants who have booked the optional Technical Tour:

09:00	Bus depart from Melia hotel to RWES' biomass fired CHP
10:00	Start of Tour at <b>RWE Infocenter Berlin</b> RWE Energiedienstleistungen GmbH Köpenickerstr. 32
12:30	Bus depart from RWE Infocenter Berlin
13:00	Arrival at Melia hotel

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