



3rd Annual Conference on

GRID-SCALE ENERGY STORAGE

Experience So Far and the Way Ahead

July 1-2, 2013, Steigenberger Grandhotel, Brussels, Belgium

Hosted by:

Global **Transmission** Report

Information and analysis on the global electricity transmission industry

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MISSION

Over the last two years, the grid-scale energy storage industry has witnessed several promising developments, establishing its role as a key enabler in the move towards a low-carbon world. Regulators have begun to mandate storage in utility planning to ensure more flexibility and efficient balancing in the grid. Governments are more willing to offer financial and policy support for deployment of storage. Investors have taken a keen interest in the emerging opportunities in the energy storage space. Technology firms have been able to make considerable improvements in their offers and, as a result, storage projects have begun to transition from the demonstration phase to the commercial stage.

In response to these developments, **Global Transmission Research** will host its third annual conference on **Grid-Scale Energy Storage** on **July 1-2, 2013** at **Steigenberger Grandhotel (previously known as Conrad Hotel), Brussels, Belgium**. The objective of the conference is to learn from the experience so far and to examine the way ahead for energy storage.

The one-and-a-half-day conference will have focused sessions and discussions featuring speakers representing a wide spectrum of experience, expertise and perspectives. The first day will be dedicated to analysing and understanding the developments that have taken place on the regulatory, market, financial and technology fronts. The second day will feature new technologies and project case studies to learn from the experience of solution providers and project developers.

The conference will provide an opportunity to interact with regulators, TSOs, technology providers and project developers, and learn about the future prospects of grid-scale energy storage.

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Our last conference:

Global Transmission organised its first conference on “**Grid-scale Energy Storage**” on **June 21-22, 2011** at **Hotel Metropole, Brussels** and the second conference on **July 3, 2012** at **Conrad Hotel, Brussels, Belgium**. These conferences were attended by senior-level executives from leading organisations from over 15 countries across the world.

The organisations that have participated in the last two conferences include: **ABB, AICIA, Alliander, Alstom Grid, Ansaldo, Aster Capital Finance, Balfour Beatty, BAE Batterien, Beacon Power, Brattle Group, Bundesnetzagentur (BNetzA), Clean Horizon Consulting, CSIRO, DNV KEMA, EDF, EFACEC, EirGrid, Elia, Electrovaya, Emerald Technology Ventures, Emrol, ENDESA, Enel Trade Spa, Energa-Operator SA, Enrichment Technology Company, ENTSO-E, Eos Energy Storage, E.ON Gas Storage GmbH, EURELECTRIC, European Commission, European Association for Storage of Energy (EASE), Evonik Degussa GmbH, FIAMM SPA, First Solar, Fefer Petersen & Cie, Fluxys SA, Frontier Economics, Gaelectric Energy Storage, GDF SUEZ, Gravity Power, GreenPower, Hungarian Energy Office, Hydrogenics Europe, IBGE (Brussels Regio for Environment and Energy), Internationale Freileitungsmontage AS, Isentropic, JRC Institute for Energy, JSC "INTER RAO UES", Kintech Synergy, Lahmeyer International GmbH, Macquarie Capital, Maschinenfabrik Reinhausen, MAVIR ZRt., Moody's, Mott MacDonald, NamPower, National Grid UK, Optimal Power Solutions, OmniCompete, Parker Hannifin Europe, Publik Services Regulatory Commission, REC Systems Germany GmbH, Red Electrica De Espana, Robert Bosch GmbH, RTE of France, RWE Effizienz GmbH, Siemens, Statkraft, Statnett, Storengy, Technical University of Denmark, TECNALIA, Terna, Toshiba Corporation, Tractebel Engineering, Trina Solar, Terna SpA, University of Louvain, VERBUND, VITO, VTT Energy, White & Case, World Bank, ZBB Energy, etc.**

AGENDA (Tentative)

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Day 1: July 1, 2013

| Session | Time | Topics |
|---|-------------|---|
| | 8:30-9:00 | Tea/Coffee |
| Introduction | 9:00-9:05 | Introduction to the conference |
| Regulatory and Policy Developments | 9:05-10:30 | <ul style="list-style-type: none"> ❖ Update on developments so far in the European Commission's strategy on energy storage in meeting European energy objectives ❖ Review of new regulations to support energy storage in Europe (case studies) ❖ Innovative regulatory frameworks to aid funding and deployment of storage ❖ Learnings from regulatory "mistakes" |
| | 10:30-10:45 | Q&A and discussion with the panel |
| Break | 10:45-11:00 | Tea/Coffee break |
| | 11:00-12:15 | <ul style="list-style-type: none"> ❖ Storage as a transmission asset – resolving ownership and tariff issues for developing energy storage projects ❖ Revisiting the debate on/or defending energy storage versus more transmission lines ❖ Cost-benefit trade-offs of storage for maintaining grid efficiency, reliability, and security of supply - the three main business objectives of TSOs ❖ Exploiting storage's multiple applications and value streams to enhance the viability of, and attract funding for, energy storage projects |
| TSO Perspectives | | |
| | 12:15-12:30 | Q&A and discussion with the panel |
| Break | 12:30-13:30 | Lunch |
| Impact on Network Requirements | 13:30-14:15 | <ul style="list-style-type: none"> ❖ Impact of energy storage on transmission planning and future grid operations ❖ Optimal network designs for energy storage facilities |
| | 14:15-14:30 | Q&A and discussion with the panel |
| Renewable Energy Developer Perspectives | 14:30-15:30 | <ul style="list-style-type: none"> ❖ Developments in energy storage solutions for grids with high penetration of renewable energy ❖ Technical and cost benefits of integrated renewable energy generation and energy storage projects ❖ Experience of European TSOs in building storage systems for renewable energy |
| | 15:30-15:45 | Q&A and discussion with the panel |
| Break | 15:45-16:00 | Tea/Coffee break |
| Financing Energy Storage | 16:0-17:00 | <ul style="list-style-type: none"> ❖ Impact of new energy market structures and frameworks on funding energy storage ❖ Emerging sources of financing energy storage and lenders' perspectives ❖ Experience so far in funding energy storage projects |
| | 17:00-17:15 | Open floor and wrap-up |
| | 17:15 | Close of Day 1 |

Day 2: July 2, 2013

| Session | Time | Topics |
|--|-------------|--|
| | 08:30-9:00 | Tea/Coffee |
| Recap of Day 1 | 9:00-9:10 | Recap of Day 1 and Introduction to Day 2 |
| Technology Developments | 9:10-11:00 | <ul style="list-style-type: none"> ❖ Case studies of new technologies ❖ What's out and what's in ❖ Technologies ready for commercial applications ❖ Innovative solutions to make renewable energy and storage effective and viable ❖ Next generation of energy storage technologies under development |
| | 11:00-11:15 | Q&A and discussion with the panel |
| Break | 11:15-11:30 | Tea/Coffee break |
| Experiences and Learnings (Project Showcase) | 11:30-12:45 | <ul style="list-style-type: none"> ❖ Viability of storage – analysing expected returns on investment from an energy storage project ❖ Opportunities and possibilities of partnerships between vendors and developers to build storage projects ❖ Experience so far in the US, Europe and elsewhere ❖ Case studies of projects that are making progress ❖ Challenges and learnings for European TSOs |
| | 12:45-13:00 | Open floor and wrap-up |
| | 13:00-14:00 | Lunch |
| | 14:00 | Close of Conference |

WHO SHOULD ATTEND?

The conference is targeted at:

- ❖ Transmission system operators and utilities
- ❖ Regulators and policymakers
- ❖ Renewable energy developers
- ❖ Equipment manufacturers and technology providers
- ❖ Research and development organisations and individuals
- ❖ Technical institutes
- ❖ Industry consultants and solutions providers
- ❖ Investment bankers, private equity investors, bankers, venture capitalists and other financiers

KEY BENEFITS TO PARTICIPANTS

The conference will have focused sessions to:

- ❖ Provide an update on the European Commission's strategy to support the implementation of energy storage
- ❖ Review innovative regulatory frameworks to aid funding and deployment of storage
- ❖ Understand the cost-benefit trade-offs of storage for maintaining grid efficiency, reliability, and security of supply – the three main business objectives of TSOs
- ❖ Examine storage's multiple applications and value streams to improve the viability of, and attract funding for, energy storage projects
- ❖ Assess the impact of energy storage on system requirements and evaluate the work done so far to optimise network designs
- ❖ Learn from the experience of utilities in building storage systems for renewable energy in the US, Europe and elsewhere
- ❖ Understand the relevance of storage for grid integration of renewable energy
- ❖ Evaluate technical and cost benefits of integrated renewable energy generation and energy storage projects
- ❖ Learn about the emerging sources of financing energy storage and hear lenders' viewpoints
- ❖ Analyse the expected returns on investments from an energy storage project
- ❖ Review what's out and what's in
- ❖ Explore the solutions ready for commercial applications and the next generation of energy storage technologies under development
- ❖ Discuss the challenges and best practices for TSOs

ABOUT THE ORGANISERS

www.globaltransmission.info

Global Transmission Research is a leading provider of information and analysis on the global electricity transmission industry. We publish newsletters and reports. We also organise conferences on crucial issues and topical themes relevant to the transmission industry. We publish the **Global Transmission Report** (a monthly newsletter) and **Global Transmission Weekly** (a weekly update). We also operate the website www.globaltransmission.info. These products and services provide information on all the key developments, trends and issues in the sector.

We have also published two industry-focused research studies - **Global Electricity Transmission Report** and **Global High Voltage Transmission Projects Report**. The first report describes the existing state of, and the expected growth in, the electricity industries in 101 countries in terms of generation and transmission capacity. The second report features detailed profiles of key high voltage transmission projects either under construction or planned to be built by 2020 in over 90 countries across the globe.

So far, we have organised two conferences on "**Grid-Scale Energy Storage**" in Brussels, Belgium, and two on "**Transmission Finance**" in London, UK. These conferences received a strong response from speakers and delegates alike.

Our clients include leading organisations across the world such as 3M, ABB, ABEINSA, Alberta Electric System Operator, Alstom, AltaLink, AMEC, Atkins Global, Balfour Beatty, Barclays Capital, Bechtel, BHP Billiton, BKW FMB Energie AG, Boston Consulting Group, Brookfield Renewable Power, Cardiff University, CFE Comision Federal Electricidad, CH2M HILL, Cooper Power Systems, CTEEP, EDF, EFACEC, EirGrid, El Sewedy Cables, Elecnor, Elia, Enel Trade Spa, Energinet.dk, ESB International, Eskom, EU GIG OÜ, European Commission, European Investment Bank, G&W Electric, GDF SUEZ, GE Energy, Hatch, HELLENIC CABLES, Hubbell Power Systems, Hydrogenics, Hyosung, Hythro Power, ILJIN Electric, International Energy Agency, Israel Electric, Kalpataru Power Transmission, KEC International, KEMA, Koncar, MAVIR, Maxwell Technologies, MidAmerican Energy Holdings Company, Mott MacDonald, MWB Shanghai, National Contracting Company, Nexans, Nexant, OTN Systems NV, Parker Hannifin, Pfisterer International, PJM Interconnection, Power Grid Corporation of India Limited, Pöyry, PPC Insulators, Preformed Line Products, Red Eléctrica de España, Reliance Energy, RTE, SAE towers, SaskPower, SCLE SFE, Siemens, Skadden, Arps, Slate, Meagher & Flom LLP, SNC-Lavalin, Southwire, State Grid International Development, Statnett, Swissgrid, TE Connectivity, Terna, Tesmec S.p.A., The World Bank, Thomas & Betts, Toshiba, Tractebel Engineering, TradeWind Energy, Vattenfall, Volta River Authority, Xcel Energy, etc.

SPONSORSHIP (Limited to four organisations)*

This conference will provide an excellent opportunity for organisations to showcase their products and services. The deliverables include:

- Two delegate registrations (full conference)
- Table space at the conference
- Distribution of sponsor promotional material to each delegate
- Logo presence at the conference
- Acknowledgement on conference website
- A hyperlink to the organisation's website
- Speaker slot (If relevant, subject to approval of organisers)

** Available on a first-come, first-served basis.*

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DELEGATE FEES

The delegate fee is EUR1,500 for one participant; EUR2,700 for two; EUR3,900 for three; and EUR5,100 for four participants.

There is a 30 per cent "early bird" discount for those registering before May 10, 2013 and 15 per cent for those registering before June 7, 2013. The delegate fee is inclusive of VAT.

HOTEL INFORMATION

Steigenberger Grandhotel
(previously known as Conrad Hotel)

71, Avenue Louise/Louizalaan 71
1050 Brussels, Belgium

Tel: +32 2 5424242, Fax: +32 2 5424200

Email: brussels@steigenberger.com

DELEGATE FEES

| Delegates | Price before May 10, 2013 <i>(inclusive of VAT)</i> | Price before June 7, 2013 <i>(inclusive of VAT)</i> | Price after June 7, 2013 <i>(inclusive of VAT)</i> |
|-----------------|--|--|---|
| One delegate | €1,050 | €1,275 | €1,500 |
| Two delegates | €1,890 | €2,295 | €2,700 |
| Three delegates | €2,730 | €3,315 | €3,900 |
| Four delegates | €3,570 | €4,335 | €5,100 |

(Conference fee includes tea/coffee and lunch for both days of the conference.)

* VAT - The VAT rate in Belgium is 21 per cent and is applicable to all registration fees.

REGISTRATION FORM

I would like to register for the conference

Please send me more information

NAME/DESIGNATION _____ COMPANY _____

MAILING ADDRESS _____

PHONE _____ MOBILE _____

FAX _____ EMAIL _____

PAYMENT OPTIONS

1. Credit Card: To make payments by credit card, please visit http://www.globaltransmission.info/shopping_cart.php

All credit card payments will be subject to standard credit card charges

2. Wire Transfer:

Beneficiary: India Infrastructure Publishing Private Limited
Bank Name: The Royal Bank of Scotland N.V.
Bank Address: M-6 Hauz Khas, New Delhi - 110016, India
Bank Account No: 1050338
Swift Code: ABNAINBBDEL

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CONTACT US

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To register, email us to: registration@globaltransmission.info or visit us at www.globaltransmission.info

TERMS AND CONDITIONS

Payment Policy

Full payment must be received prior to the conference. VAT (21%) is included in the conference fees. VAT may be reclaimed by the delegates from the tax authorities after the event.

Cancellations

- Cancellations received in writing 30 days (May 30) before the date of the conference will receive a full refund, minus a service charge/administration fee of €150 or \$210. **We regret that no refunds will be made for any cancellations received less than 30 days prior to the conference.**
- Substitutions/name changes are welcome at no extra charge. Please send these in writing at least two days prior to the conference.
- **Disclaimer:** Global Transmission shall assume no liability whatsoever in case the event is postponed or cancelled due to a fortuitous event or unforeseen occurrence that renders the performance of this conference impracticable, illegal or impossible. For purpose of this clause, a fortuitous event shall include, but not be limited to: war, fire, labour strike, extreme weather or other emergency. Global Transmission's responsibility is limited to return of the registration fee only and is not liable for any cost in relation to travel and accommodation.
- Please note that it may become necessary for reasons beyond the control of the organisers to make alterations to the content and timing of the programme or speakers.