

Messe News

Energy

October 2011

NEW TECHNOLOGY FIRST
23 – 27 April 2012 · Hannover · Germany

Energy

HANNOVER
MESSE

Focus on smart grids

ABB's Professor Jochen Kreusel explains the future significance of intelligent, information-based electricity networks

Pages 2 and 3

Cluster of Energy halls

Overview of the Energy themes on the open air site and in halls 11, 12, 13, 25 and 27

Pages 4 and 5

Just a few mouse-clicks away: your Energy 2012 showcase

Your ticket to success at the Energy fair is only a few mouse-clicks away. Planning your Energy showcase using the new Online Business Service (OBS) is easy and transparent. OBS is an obligation-free service where you can research the fair and, in a matter of minutes, plan, compare, cost and order display space and display stand systems as well as a range of services.

If you have any questions about the OBS system or your access data, feel free to contact the OBS team on +49-511/89-37000 or via email at obs@messe.de.

Further information: obs.messe.de



Intelligent networks for Europe

Tomorrow's smart grids will provide an exact match between electric generation and consumption



Nighttime Europe – a photo taken by NASA astronaut Douglas Wheelock from the ISS in November 2010. The photo clearly shows the Paris and London metropolitan areas as well as the northern lights (top left). In the future, smart grids will optimize the supply of energy to major population centers.

Ensuring a secure, efficient, sustainable and economic energy supply is one of the biggest challenges of our time. The exhibitors at the Energy fair at HANNOVER MESSE 2012 (23 – 27 April) will be showcasing all the latest products and solutions designed to meet this challenge.

Smart technologies in the spotlight

Intelligent electricity networks, or smart grids, will be at the center of the Energy showcase. The 850 square meter (9,150 sq. ft) "Smart Grids – E-Energy" display area in Hall 13 will feature smart grid innovations from around the globe. Confirmed exhibitors include companies like Landis + Gyr, Alcatel-Lucent and Swiss company ABB [see interview with Prof. Jochen Kreusel on pages 2 + 3]. "We are very pleased with the high number of firm bookings we have received at this early stage, especially for display space in halls 11 to 13, which will be home to exhibits of transmission and distribution technology," explained Hubertus von Monschaw, Deutsche Messe's Energy Project Director. "The companies value the unique opportunity the Energy fair offers them to help

shape the debate on the future of the energy system. They also don't want to miss out on the myriad opportunities they will get to present their solutions to a vast audience and close major deals."

High-caliber themed display with full range of services

The "Smart Grids – E-Energy" display area comprises a themed exhibiton zone, a forum, an exhibits marketplace and a themed group pavilion complete with full-service packages for companies interested in reducing their tradeshow management overhead. It is the perfect platform for demonstrating hardware and software solutions for smart metering systems, smart grids and smart buildings to an international trade audience.

Further information and registration forms:

hannovermesse.de/en/energy

“Smart grids are the key to to



Professor Jochen Kreusel, head of the ABB Group's Smart Grids program

With worldwide energy demand continuing to rise, a complete re-vamp of our energy supply infrastructure is inevitable. It will require innovative technologies designed to optimize all parts of the energy system. The “Smart Grids – E-Energy” themed display at the Energy fair will showcase all the latest hard- and software solutions in this area. Professor Jochen Kreusel, head of the ABB Group's Smart Grids program, explains the significance of smart grids and the technologies that make them possible.

Professor Kreusel, what are smart grids?

Smart grids are electric energy supply systems that use sensors and actuators as well as information and communication technology to enable and optimize the integration of energy supply, comprising all types of generation plants, with energy demand. They ensure that electric generation precisely matches consumption at all times. Today, this role is performed almost exclusively by large, central power stations, which are ramped up or down as demand rises or falls. However, in the future, the task of aligning supply and demand will have to be shared between all the market participants, including the many decentralized generation plants and, where feasible, electricity consumers.

ABB's Professor Jochen Kreusel explains the significance of intelligent, information-based electricity networks

What is the future relevance of smart grids?

If the EU's energy policy is successfully implemented, renewables will be our most important source of electric energy from 2020 on. Most of our electric generation will be decentralized and characterized by strong fluctuations. Smart grids are the only way of managing and coping with this volatility efficiently and economically.

“Decentralized generation has created demand for new solutions.”

What is the current state of development of this technology?

Smart grids will not appear overnight, but will develop gradually as part of the ongoing re-vamp and modernization of our existing supply infrastructure. We have already seen a number of innovations in recent years, such as products that allow residential consumers to visualize the information generated by electronic power meters and even use it to manage their demand. On the supply side, we've seen new grid control systems that support energy companies' load management. At this year's HANNOVER MESSE, there was a large number of exhibits of fully automated solutions for the secondary distribution system. In the past, this part of our grids – the link from substation to house – has not even been remotely monitored, let alone remote-controlled. However, the recent strong increase in decentralized generation has created demand for such solutions. To sum it up, many constituent parts of smart grids have already been developed in response to the changing market environment; the transformation of our energy system is an ongoing process.

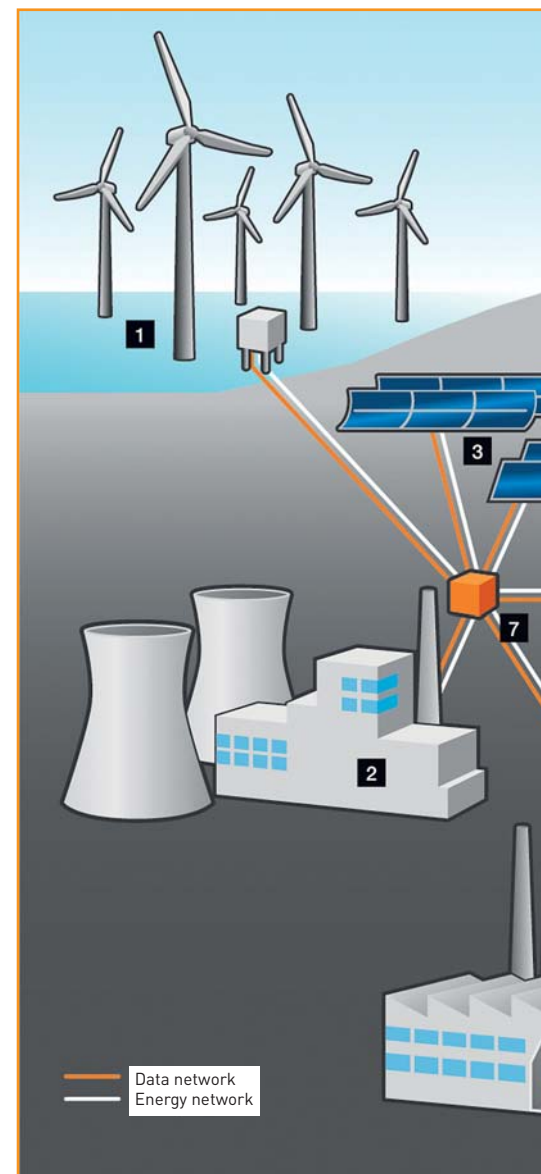
What role will smart grids play in the future?

Smart grids will be the decisive link between all forms of generation and electricity consumers. It is only through them that we will be able to use renewable energy on the scale that we envisage for Europe.

“Energy's broad coverage makes it the ideal platform.”

What has your company done in this area?

ABB, unlike most other companies in the industry, covers the full spectrum – from electric generation through to end-user applications in both the industrial and residential segments. We therefore have a very broad overview of the needs of different users and the available technical options for meeting these needs. This allowed us to align the building automation technologies developed by our Busch-Jaeger subsidiary with our grid management solutions at an early stage, to name one example. A key part of our innovation strategy is pilot projects, which we run in partnership with our customers in many countries and which yield new product ideas. Examples include the MEREGIO E-Energy project on distribution network au-



morrow's energy system"

tomation and a recently completed project that we conducted jointly with RWE, Dortmund University and Consentec. This particular project, which was co-funded by the German Federal Ministry of Economics, involved the development and field testing of a new voltage management system for distribution networks that receive a high proportion of decentralized feed-ins.

What is the significance of the Energy show in this context?

The transformation of the electric energy system that we have been discussing is not confined to individual areas of technology or application, but spans the entire energy supply and consumption system. The Energy show's full coverage of energy-sector themes within the even wider context of HANNOVER MESSE makes it the ideal platform for presentations relating to the transformation of our energy system.

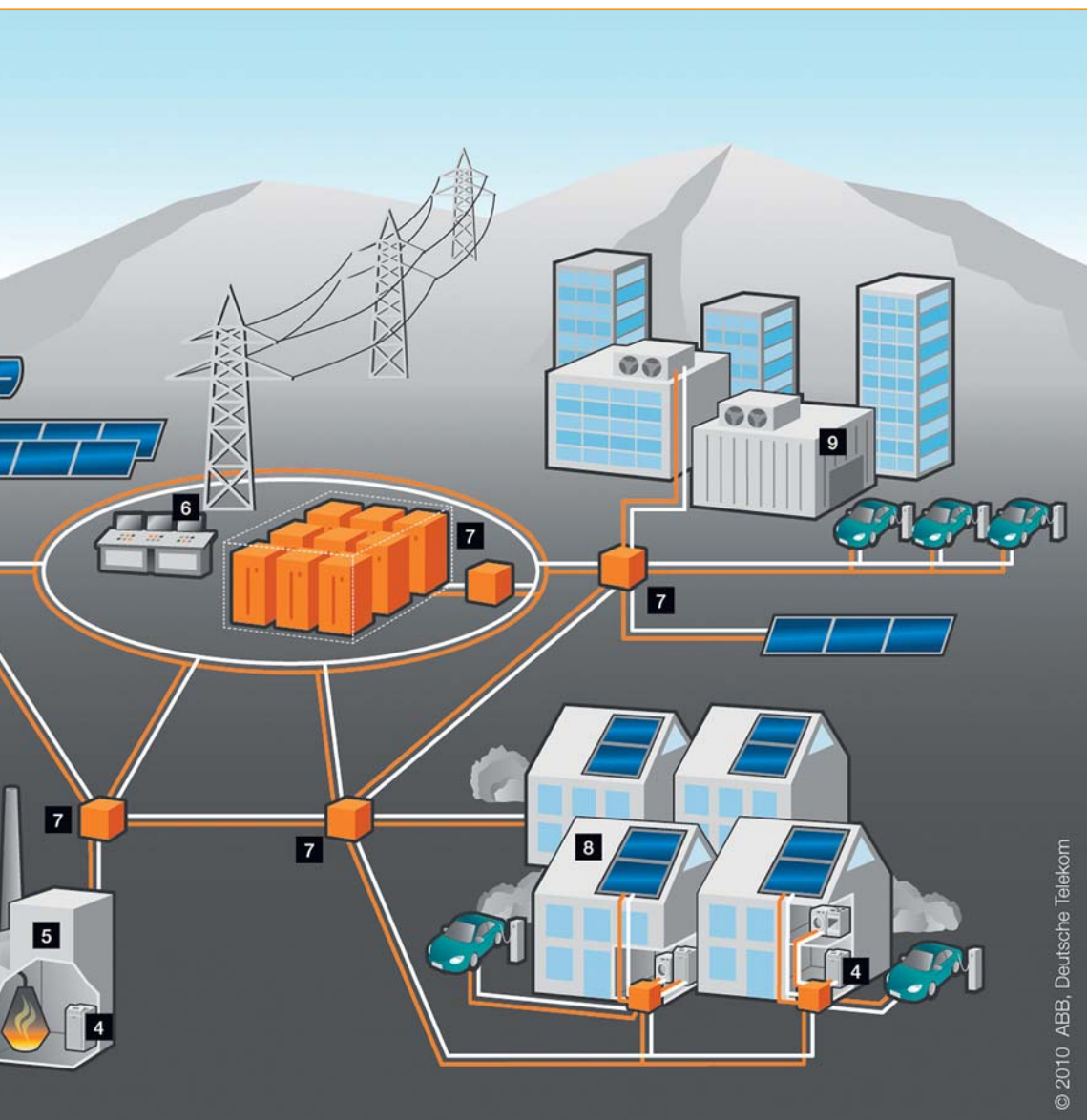
"Energy is a major catalyst for new developments."

Why is the Energy show so important?

Over the last decade, the Energy fair has become the premier venue for our industry – a place where changes to our electric supply infrastructure are debated, and where all the latest technological developments can be seen live in action. The organizer has achieved this by swiftly integrating new themes, such as renewables and eMobility, as they arise and by creating and promoting key discussion and presentation forums, such as Life Needs Power. Thanks to these developments, Energy is now a major catalyst for new energy system developments.

How would you describe ABB's Energy showcase?

HANNOVER MESSE has traditionally been one of only a few trade fairs worldwide where we present our entire portfolio. Next year, we will again use the opportunity it presents to display, and, of course, demonstrate, our full range of solutions for modernizing the energy system. Particular emphasis will be placed on the integration and interplay of our various technologies, because it is from our understanding of integrated solutions and our ability to deliver them that our customers stand to benefit the most.



Smart grids – an overview

- 1 Efficient DC transmission based on HVDC Light technology makes energy production in large offshore wind farms feasible.
- 2 Fossil fuel power stations have higher outputs and lower emissions thanks to increased efficiency and are required only during off-peak periods.
- 3 In high-sunshine regions, a lot of energy is generated using solar power plants.
- 4 Decentralized cogeneration plants efficiently provide energy to industrial facilities, residential and commercial buildings. Surplus energy is fed into the public grid.
- 5 Factories are highly efficient and productive thanks to industrial and process automation. Energy management and smart networked devices transform factories into smart production plants.
- 6 Efficient transmission and distribution networks transport energy with minimal losses, even over very long distances.
- 7 Computer systems process data from electronic smart meters and control generation assets and connected loads. Smart control systems enable most of the balancing between energy in-feeds and extractions to be performed close to production/consumption – at street, local network, or distribution network level.
- 8 Smart homes are efficient and intelligent. Smart meters and comprehensive building control systems enable consumers to participate actively in the energy market. Electric cars double as electricity storage units. If a decentralized generation asset produces more energy than required locally, the surplus is fed into the public grid and generates income for the asset owner.
- 9 Building automation technology also makes commercial buildings efficient. Smart meters and building control systems based on KNX technology transform them into intelligent buildings.

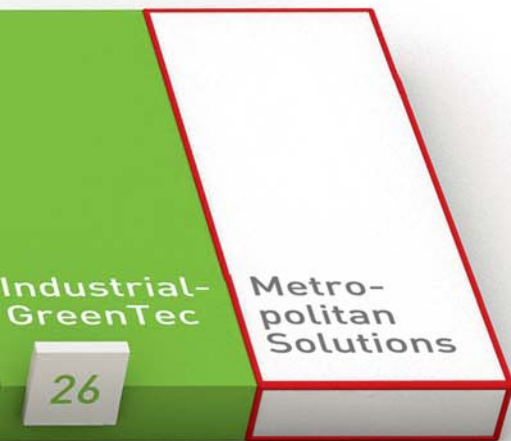
A winning format

Exhibitors with full order books and delighted visitors – the thematic structure of this year’s Energy show met with unanimous approval in the energy sector and allied industries. 2012 will see a repeat of the winning concept plus some key enhancements.

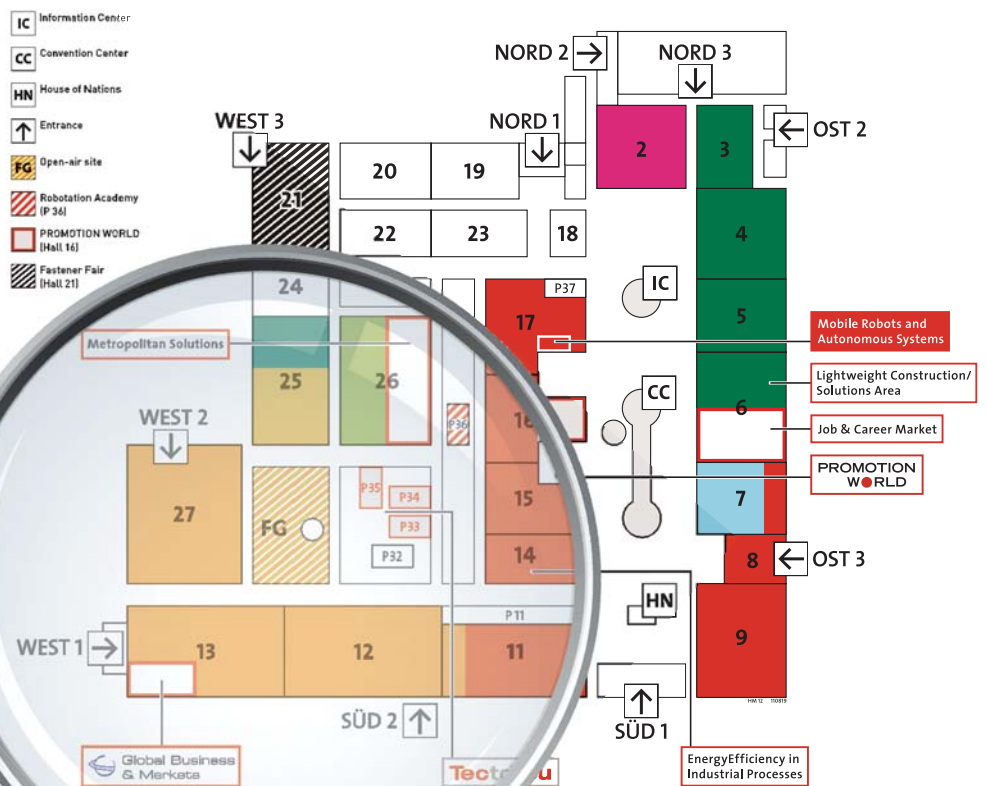
- The halls are clustered to reflect the thematic mix of Energy 2012. The physical arrangement of theme areas generates maximum synergy potential for exhibitors.
- Halls 11, 12 and 13 offer suppliers of electric energy technology the perfect setting for presenting their latest innovations.
- The highly topical smart grids display area in Hall 13 is the central hub that links hardware and software suppliers as well as service providers in the energy industry.
- Quick and easy to find: Energy sector service providers are located in their usual spot right next to the West 1 entrance in Hall 13.



- Conventional and renewable generation solutions are showcased together in Hall 27 to enable quick and convenient comparisons of the different technologies.
- For the first time, the CoilTechnica show features right alongside the eMobility exhibits in Hall 25. Co-locating the two allied sectors will yield even greater synergy potential.
- In 2012, the open-air site provides the perfect thematic link between the MobiliTec show in Hall 25 and mobile fuel cell applications in Hall 27.



- Industrial Automation
Halls 7-9, 11, 14-17
- MobiliTec
Hall 25, FG
- Industrial Supply
Halls 3-6
- IndustrialGreenTec
Hall 26
- Energy
Halls 11-13, 27, FG
- Digital Factory
Hall 7
- CoilTechnica
Hall 25
- Research & Technology
Hall 2



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11

Renewable energy sources have virtually unlimited potential in human society

BEE CEO Björn Klusmann is certain that the future continues to hold major promise for the renewables sector

Tomorrow's energy mix will comprise wind-, bio- and solar energy as well as hydro- and geothermal power. In 2012, Energy will once again provide visitors with a window on our future energy supply by featuring the full spectrum of all the latest renewables technologies. In the following interview, Björn Klusmann, CEO of the German Renewable Energy Federation (BEE), comments on the Energy show and explains why a renewables-based energy supply need not raise concerns about reliability or electricity shortages.

What is the current state of the renewables sector?

Over the last decade, renewables have surged ahead. They have evolved from niche technologies into mainstream technologies that now meet around 20 percent of Germany's electricity demand. The main driving force behind this success story is Germany's Renewable Energy Law (EEG), which has provided a stable and favorable investment climate. Today, more and more market players – from SMEs, large corporations and municipalities through to entire states – are discovering the significance and benefits of renewable energy and are investing accordingly.

What will be the role of renewables in the future?

Germany's renewed commitment to its nuclear exit strategy will ensure further growth in the country's renewables sector. Electric generation from renewables will expand rapidly and meet around 50 percent of Germany's electricity demand by the start of the coming decade. In the heating sector, the key challenges will be to boost efficiency and speed up the transition from conventional to renewable forms of generation. It is

only by doing this that we will be able to achieve our climate protection goals and a noticeable reduction in our dependency on increasingly expensive fossil fuels. However, to make this happen, the heating sector will need new policy instruments that are as effective as the EEG has been in the electricity sector. In the transport sector, sustainably produced biofuels will continue to play an important role. At the same time, the share of renewables-based eMobility will slowly increase. The trend towards renewables is also taking place in more and more countries around the world, which is good news for German exporters of renewables technologies.

"Climate friendly and sustainable, thanks to minimal emissions."

What advantages do renewable energy sources offer over fossil fuels?

As their name suggests, renewable energy sources are inexhaustible by any human measure. The same cannot be said of fossil fuels. And unlike fossil fuels, the use of renewables is not at the expense of future generations, which is a key idea behind that concept of sustainability. Renewables are far more climate-friendly than fossil fuels because they produce only minimal CO₂ emissions. Their sheer diversity, many areas of application and the opportunity they give us to decentralize our energy supply are also major advantages.

What are the specific characteristics of the five main forms of renewable energy?

Each technology has its own specific characteristics and advantages, which makes them all very

complementary. Wind and solar power are effective, but weather/daylight-dependent. Geothermal energy, hydropower and bioenergy, on the other hand, are easy to regulate and can, to a limited extent, be stored, which means they can be used to cover any power shortages, for instance, during unfavorable weather spells. In all cases there is still a lot of optimization potential. Solar power, for instance, will become increasingly attractive in more and more locations as costs continue to fall. And contrary to frequent claims, there are still large tracts of land available for



Björn Klusmann,
CEO of the German
Renewable Energy
Federation (BEE)

biofuel cultivation – land that would not otherwise be used for food production. Deep geothermal technology is very much in its infancy, and there is still scope to boost the efficiency of shallow geothermal systems. Hydropower, too, still offers considerable potential in terms of new site developments and the modernization of existing plants.

The challenge of Germany's Energy Sector Transformation

Renewable Energy Forum: captivating presentations and lively panel discussions

The success of Germany's energy sector transformation rides on the ability of the country's federal government to implement the measures of its 2011 Energy Package. To do this, it will need the help of all stakeholders in the transformation process, including the energy industry, science and research, local authorities in each state and, not least, the German public.

Lectures and panel discussions on each day of the fair

On each of the five days of the fair, the Renewable Energy Forum will feature lectures by energy-sector experts. It will also host panel discussions between representatives from industry, research and government.

The lectures at HANNOVER MESSE 2012 will examine the risks and challenges associated with the fast-changing energy market. They will outline possible solutions and highlight the first examples of successfully implemented projects. The main focus of next year's Forum will be on renewable electricity and heat production.

Specific topics include the expansion of on- and offshore wind generation, the challenges faced by the German photovoltaics market, and energy storage solutions. Forum participants will be looking for answers to fundamental questions, such as "How much grid expansion will be necessary?" and "What are the most promising innovations?"

What has been the experience of renewables companies?

The ongoing high public approval of renewable energy has been an important factor for companies in this sector. It is also what's driving demand for this type of energy in both the residential and commercial sectors. Experience has also shown that initial local resistance to new plants can usually be overcome if the local residents are involved in the projects from the planning stage and allowed to share in their success.

“We will initiate dialogue with government and business decision makers.”

Tell us about the BEE showcase at HANNOVER MESSE 2012

The BEE will have its own stand in Hannover, which we will use to initiate dialogue with government and business decision makers on further expansion of the renewables sector. We will also be partnering with the German Renewable Energies Agency to run an information stand for visitors and the media in the Renewables display area. In addition, we will be holding press conferences and running guided tours for journalists.

What else are you planning?

As Germany's umbrella organization for the renewables sector, we will be running a series of technical lectures and panel discussions on Germany's energy sector transformation. Here, experts will debate technical issues alongside political and societal ones. As in previous years, we will also devote a significant amount of time to presenting and discussing the latest investment figures from the renewables sector. This data forms a great basis for projections of the future development of this fascinating industry.

“Energy is the definitive trade fair for future-defining energy technologies.”

What makes the Energy fair so important?

The Energy show at HANNOVER MESSE is the definitive trade fair for innovative and future-defining energy technologies and thus features a big presence by companies and industry associations from the renewables sector. Energy is not only a great opportunity for visitors to get a first-hand look at the technologies of the future, it is also the premier meeting place for high-caliber experts from companies, research institutes and industry associations. It is Energy's unique ability to facilitate interdisciplinary knowledge-sharing that makes the fair so valuable to many exhibitors.



Driving the future of mobility: Claudia Fried, Press Spokesperson, Clean Energy Partnership (CEP), Tobias Renz, Tobias Renz FAIR, and Tilman Wilhelm, Director Communications, NOW GmbH (National Organisation for Hydrogen and Fuel Cell Technology).

Hydrogen and fuel cells: A technology with a bright future.

The market is growing fast, and hydrogen and fuel cell technology now represent a reliable energy supply alternative. This growth is reflected in the large increase in exhibitor numbers expected at the Hydrogen + Fuel Cells group exhibit at HANNOVER MESSE 2012. In all, there will be around 150 exhibitors from 25 nations – further testimony to the exhibit's status as Europe's biggest hydrogen and fuel cell showcase. The exhibitors will be presenting new ideas and developments and the latest products and solutions. The keynote themes include hydrogen production, fuel

cell components, stationary, portable and mobile fuel cells, fuel cell applications and test systems, fuel reformers and hydrogen transport and storage technology and infrastructure. Visitors to the exhibit will also be able to take fuel cell-powered vehicles for a test-drive on the Ride & Drive open-air site located to the east of Hall 27. Hall 27 will also feature DIY heat and power. A group of leading energy companies and manufacturers of fuel cell-powered heaters will be showing visitors how they can generate their own heat and power at home.

Geothermal energy – a vast long-term energy source

The world still has vast untapped and virtually inexhaustible geothermal energy resources that can be used for the sustainable production of electricity and heat. And with today's technology, we can access this environmentally and climate friendly energy source almost everywhere. The Geothermal Competence Center at HANNOVER MESSE 2012 is where industry associations, companies and experts will be presenting innovative ideas and the latest technological solutions for entire geothermal systems. “We decided to return to HANNOVER MESSE in 2012 because the show is the ideal platform for putting our innovations and applications in front of a large, international audience,” said Professor Rolf Bracke, Chairman of Wirtschaftsvereinigung Geothermie, an association of German geothermal technology companies.

Geothermal energy is all around us. Every day, our planet radiates four times as much energy into space as its human inhabitants use. 30

percent of the constant energy stream rising to the Earth's surface comes from the Earth's molten core. The other 70 percent are produced by the ongoing decay of naturally occurring radioactive elements in the Earth's mantle and crust.

In September this year, the German Geothermal Association (GtV-Bundesverband Geothermie), GeoEnergy Celle – an association comprising 25 private companies and the municipality of Celle – and the Wirtschaftsvereinigung Geothermie entered into a strategic partnership in order to better share their resources in the pursuit of common interests. “Expanding the use of this innovative and visionary form of energy generation requires a collective effort from all market players. Joining forces enables our three associations to create synergies that will be of major benefit to the entire industry,” explained Professor Horst Rüter, Vice President of the German Geothermal Association.

INVESTMENT LOUNGE – central hub for financing and develop- ment assistance

The INVESTMENT LOUNGE is HANNOVER MESSE's central hub for information and networking on international trade financing and development assistance. It premiered successfully in 2011, attracting more than 2,000 registered participants, and will be back again in 2012. The Lounge is a forum where exhibitors and visitors from all of HANNOVER MESSE's tradeshows can discuss concrete projects with international investment and sales financing experts and organizations. It is also a platform where industrial firms can give presentations to potential venture and investment capital providers. Staged in the heart of the Global Business & Markets exhibition in Hall 13, the INVESTMENT LOUNGE is the gateway to rapid growth and successful internationalization for SMEs.

RENEX ECO: Turkey's leading renewables tradeshow

As Turkey's energy consumption continues to rise apace, the country is urgently seeking new energy sources. This situation has opened a window of opportunity for companies interested in positioning their innovations and solutions in the Turkish market. And RENEX ECO in Istanbul, the only international trade fair in Turkey that covers the entire renewables spectrum, is the perfect platform for doing just that. Turkey certainly has plenty to offer: a favorable investment climate; a strategic location; no shortage of sunshine, wind and land; and economic growth that is above average by western standards. In addition, investors benefit from a 10-year purchase guarantee for electricity from renewable sources. In 2010, RENEX ECO attracted more than 15,000 industry professionals. Keynote themes at this year's show include wind energy, solar power systems, geothermal energy, recycling and environmental technologies, solar water heating systems and bioenergy. RENEX ECO is held at the CNR Expo Center, just across from Istanbul International Airport.

For further information and to register your admission ticket, visit www.renex-expo.com.

20 – 23 October 2011 at the Istanbul Expo Center/CNR EXPO, Istanbul, Turkey
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MobiliTec – solutions for efficient energy storage

eMobility is an emerging market with massive potential. Climate-friendly vehicles that offer all the creature comforts of conventional automobiles promise major environmental benefits. Exhibitors will be showcasing the latest developments and solutions in this area at MobiliTec, the leading trade fair for hybrid and electric powertrain technologies, mobile energy storage and alternative fuels and mobility systems.

Energy Storage Center of Expertise premieres at MobiliTec 2012

Next year's MobiliTec show will host the premiere of the Energy Storage Center of Expertise, a 800 square meter (8,600 sq. ft.) showcase of the state of the art in energy storage solutions. Plus, at the MobiliTec User Forum, exhibitors, industry experts and trade visitors will engage in intensive dialogue on topical eMobility issues. Energy storage technologies will play a pivotal role in the establishment of hybrid and electric mobility solutions in the coming years. They will also be critical to ensuring a reliable energy supply that meets rising energy demand. The two focus themes in this area are battery and energy storage solutions. Visitors to the new Energy Storage Center of Expertise at MobiliTec 2012

can learn about the latest generation of lithium-ion batteries and the state-of-the-art manufacturing processes used to make them. Individual displays will focus on the production of battery components, cells and modules as well as on module assembly and the integration of the finished product into vehicles. The new presentation further enhances MobiliTec's comprehensive coverage of all key e-mobility issues and yields additional cross-over synergies with related energy themes at HANNOVER MESSE.



China as Partner Country 2012

Next year, the People's Republic of China will star as Partner Country at HANNOVER MESSE, the world's biggest industrial technology trade fair. The partnership was formalized by the signing of the official Partner Country agreement between the China Council for the Promotion of International Trade (CCPIT) and Deutsche Messe on 14 July 2011. All Partner Country activities at next year's fair will also receive the full support of the two countries' governments. In keeping with the lead theme for HANNOVER MESSE 2012, "greentelligence," China's Partner Country showcase will run under the motto "Green + Intelligence." Chinese companies and research institutions exhibiting at the fair will profile innovative projects in a wide range of areas.

Dr. Wolfram von Fritsch, Chairman of the Managing Board of Deutsche Messe AG: "We are delighted to have China at our side as Partner Country at HANNOVER MESSE 2012. We are confident that this partnership will be a boon to Sino-German trade relations and will be a major drawcard for exhibitors and trade visitors from around the globe. The partnership gives both exhibitors and visitors a unique opportunity to build their import and export business and to strengthen their commercial and R&D ties with China."

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Imprint

Published by Deutsche Messe
Messegelände, 30521 Hannover, Germany
Hubertus von Monschaw (responsible)
Content & design:
media consulting hannover GmbH & Co. KG
Translation: Down Under Translation, New Zealand
Photos: Deutsche Messe
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