



World Future Energy Summit Bulletin

A Daily Report of the World Future Energy Summit (WFES) 2011

Published by the International Institute for Sustainable Development (IISD) in collaboration with Masdar

IISD Reporting Services

ONLINE AT [HTTP://WWW.IISD.CA/YIMB/ENERGY/WFES/WFES2011/](http://www.iisd.ca/yimb/energy/wfes/wfes2011/)
ISSUE #2, VOLUME 187, NUMBER 2, WEDNESDAY, 19 JANUARY 2011



WFES HIGHLIGHTS:

TUESDAY, 18 JANUARY 2011

On Tuesday, World Future Energy Summit (WFES) 2011 was organized around the theme of “Business Forum.” Participants heard a keynote address and panel discussion on renewable energy, featuring high-level executives, followed by parallel sessions on green cities, global energy policy and carbon capture and storage (CCS). In the afternoon, participants attended parallel sessions on wind power, business opportunities, green buildings, electric vehicles and energy efficiency. During an evening reception, the 2011 Zayed Future Energy Prize was awarded to Vestas.



L-R: Amory Lovins, Chairman, Rocky Mountain Institute; Ditlev Engel, Global CEO, Vestas; His Highness General Sheikh Mohamed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi; Christine Eibs Singer, CEO, E+Co; and Sultan Ahmed Al Jaber, Director General, Zayed Future Energy Prize

PLENARY SESSION: BUSINESS LEADERS IN RENEWABLE ENERGY

Business Leader’s Keynote Address: Truman Semans, Principal, GreenOrder, US, and former Executive Committee Member, US Climate Action Partnership (USCAP), said we are entering an age of “radical transparency,” characterized by: private regulation, in which supply chains must reveal information regarding production practices; increasing transparency of government actions; and software breakthroughs that can improve decision making processes. He contrasted the traditional model of interaction among business, government and civil society, typified by defensive actions and silo mentality, with examples of innovative engagement from USCAP, Brazil’s National Alcohol Programme (Pró-Álcool) and Masdar.



Truman Semans, Principal, GreenOrder, US; Former Executive Committee Member, US Climate Action Partnership, US

Business Leaders in Renewable Energy – Insights from the Executive Suite: Errol Barnett, CNN International, US, chaired two dialogues on this topic.

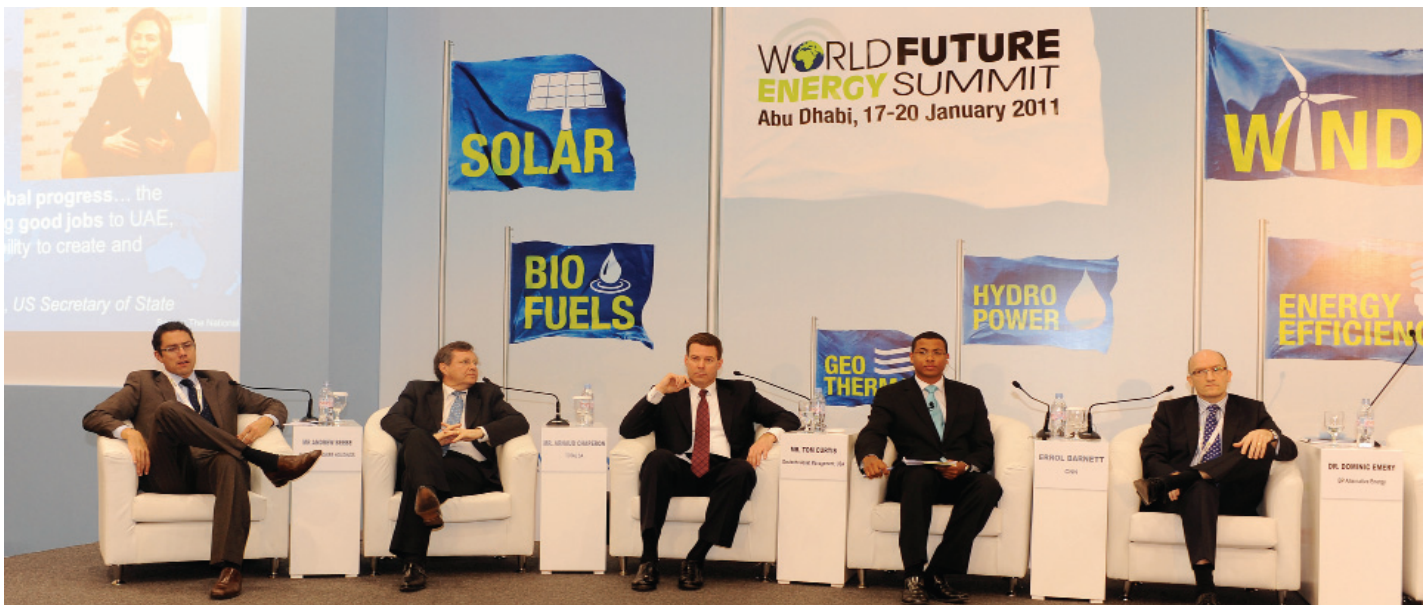
Part One: Tilman Krauch, President Construction Chemicals, BASF SE, Germany, noted that 40% of energy use is related to buildings and more than 50% of the global population lives in cities. He underscored the importance of addressing energy efficiency in buildings, suggesting that chemical companies like BASF can contribute by innovations in the production of materials such as cement to reduce emissions.

Dominic Emery, BP Alternative Energy, said BP invests in solar, CCS and biofuels, particularly Brazilian ethanol. He said BP is heartened by recent price reductions for solar products, making them more competitive. In response to Barnett’s inquiry as to whether the 2010 oil spill had increased BP’s interest in renewables, Emery replied that BP has invested about \$500 million per year in renewables over the last five years, and expects to increase this in 2011.

Tom Curtis, Managing Director, Deutsche Asset Management, US, said trillions of dollars of private capital need to be invested in clean energy in coming decades. He suggested that governments can make a difference by putting in place policies to mitigate risks and give guarantees, highlighting success in Germany and China with feed-in tariffs.

Questioned why an oil-producing country or company should be concerned with renewable energy, Arnauld Chaperon, Total, France, said Total wants to transition from an oil and gas company to an energy company, which means increasing its emphasis on renewables over the next 2-3 decades. He said Total focuses on solar energy and biofuels, which rapid

The *World Future Energy Summit Bulletin* is a publication of the International Institute for Sustainable Development (IISD) <info@iisd.ca>, publishers of the *Earth Negotiations Bulletin* © <enb@iisd.org>. This issue was written and edited by Asheline Appleton, Kate Neville, Miquel Muñoz, Ph.D., Keith Ripley, Lynn Wagner, Ph.D., Liz Willetts, and Simon Wolf. The Photographer is Leila Mead. The Digital Editor is Diego Noguera. The Editor is Leonie Gordon <leonie@iisd.org>. The Director of IISD Reporting Services is Langston James “Kimo” Goree V1 <kimo@iisd.org>. Funding for coverage of this meeting has been provided by Masdar. IISD can be contacted at 161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba R3B 0Y4, Canada; tel: +1-204-958-7700; fax: +1-204-958-7710. The opinions expressed in the *Bulletin* are those of the authors and do not necessarily reflect the views of IISD. Excerpts from the *Bulletin* may be used in other publications with appropriate academic citation. Electronic versions of the *Bulletin* are sent to e-mail distribution lists (in HTML and PDF format) and can be found on the Linkages WWW-server at <http://www.iisd.ca/>. For information on the *Bulletin*, including requests to provide reporting services, contact the Director of IISD Reporting Services at <kimo@iisd.org>, +1-646-536-7556 or 300 East 56th St., 11D, New York, New York 10022, United States of America. The IISD team at WFES 2011 can be contacted by e-mail at <miquel@iisd.org>.



L-R: Andrew Beebe, Suntech Power, US; Arnaud Chaperon, VP Electricity and Renewable Energies, Total, France; Tom Curtis, Deutsche Asset Management, US; Errol Barnett, CNN International; and Dominic Emery, BP Alternative Energy, UK

technological progress, especially in life and material sciences, is making more price-competitive with non-subsidized fossil fuels.

Andrew Beebe, Chief Commercial Officer, Suntech Power, US, said solar companies have created a large market and proven that they are ready for large-scale investments. He projected that 50% of energy production could come from solar power by the end of the 21st century.

Part Two: Jean-Pascal Tricoire, President and CEO, Schneider Electric, France, lamented the lack of educational programs to train students on new energy technologies. He said digital energy management is particularly important for reducing energy peaks, and added that this relies on improved measurement, automation of services and connection to smart grids.

On conservation and demand management, René Umlauf, CEO Renewable Energy, Siemens, Germany, said transmission lines and types of energy storage are important for increasing the market share of renewables. He added that hydropower and hydrogen offer potential conservation opportunities for the future, and that geothermal energy can also be a competitive future industry.

Artem Volynets, EN+ Group, Russian Federation, said China's energy demand could be met through non-coal sources if a proper transmission grid is created across eastern Siberia. On carbon neutrality, Philippe Joubert, Executive VP, Alstom, France, described their investment in wind, solar and hydropower and emphasized the need to invest in CCS and energy efficiency.

Frank Wouters, Director, Masdar Power, UAE, said the Masdar Institute will focus on educating a next generation of energy decision-makers and described Masdar's global efforts to support growth in the renewable energy industry. Responding to a question on scale, Wouters said developing countries are a great place to start new energy initiatives even if they do not have existing energy infrastructure because they can "leap frog" the delays incurred in reforming older systems.

Ditlev Engel, Global CEO, Vestas, Denmark, said the financial crisis forces short-term policies on long-term issues. Emphasizing the role of the consumer, he described the launch of a new collaboration with WWF and others to produce "WindMade," a consumer label that allows consumers to independently reduce their carbon use by choosing products produced with wind power.



L-R: Artem Volynets, Siemens, Germany; Errol Barnett, CNN International; René Umlauf, Siemens, Germany; Frank Wouters, Director, Masdar Power, UAE; Ditlev Engel, Global CEO, Vestas, Denmark; and Philippe Joubert, Alstom, France

PARALLEL SESSIONS

Participants in the “Business Forum” attended parallel sessions on green cities, global energy policy, CCS, wind power, business opportunities, green buildings, electric vehicles and energy efficiency.

GREEN CITIES: PLANNING AND INFRASTRUCTURE FOR SUSTAINABLE COMMUNITIES:

Moderator Daniel Vermeer, Duke University, asked what lessons about sustainable urban design are emerging and how broadly they apply. Susan Roaf, Heriot Watt University, UK, outlined the many challenges facing cities, cautioning that producing “green” buildings is not enough to produce sustainable cities. She stressed that the building choices made now will profoundly influence cities’ futures.

Nick Pennell, Booz & Company, explained that the “Reinventing the City” study found that success relies on the prerequisites of aggressive goals and best practice planning, innovative financing and use of the latest technologies, and on three implementing factors: a focus on livability; the relevance to local conditions; and a long-term perspective. Clay Nesler, Johnson Controls, Inc., described the effort to retrofit New York’s Empire State Building with a model that he said can be replicated elsewhere. He explained that the project resulted in a 38% energy reduction and an investment payback in 3.1 years.

Thomas Braig, Bayer Material Science, described the EcoCommercial Building Initiative, a network of companies trying to achieve zero-emission buildings through an integrated approach involving choices in design, materials, building technology and use of renewable energy. Alan Frost, Director, Masdar City, reported on challenges in building Masdar City, including how difficulties in system integration and implementation have forced design changes.

GLOBAL ENERGY POLICY – HOW POLICY IS BEING IMPLEMENTED IN DEVELOPED AND DEVELOPING NATIONS:

Rakesh Radhakrishnan, Navigant, US, chaired this session. Mohammed Al Ta’ani, Jordan Renewable Energy Society, emphasized the importance of incentivizing behavioral changes at the individual and organizational levels through awareness raising and technology transfer in Arabic countries. He called on countries to increase research on their individual future energy needs and how these can be met by renewable energies, and to develop human capital and practical solutions by strengthening universities and research institutes.

Ibrahim Oweiss, Georgetown University, Qatar, said while nuclear power remains an option and some countries have done a good job in handling both waste and proliferation, the most important future challenge is to harness the energy potential of the sun, suggesting that strong technology is already there but saying that it remains crucial to invest in further research.

Paul van Son, CEO, Desertec Industrial Initiative, said countries must develop instruments to implement energy visions and policies, and suggested that a lot of experience exists throughout countries on measures to incentivize



Paul van Son, CEO, Desertec Industrial Initiative

renewable energies. He also emphasized that subsidies for fossil fuels and nuclear power remain in many countries, and that some of these are hidden, resulting in the need for higher incentives for renewable energies, and ultimately threatening the overall objective of lowering the cost of renewable energy



Virginia Sonntag-O'Brien, Executive Secretary, REN21

production.

Virginia Sonntag-O'Brien, Executive Secretary, REN21, highlighted the strong link between incentive policies and the development of renewable energies, suggesting that investment and regulation reinforce each other in a feedback loop. She emphasized that energy policies must provide long-term stability and implementability, and must be embedded in the entire energy-planning context. She

also urged for renewable energies to play an important role in providing energy access to the poor, to avoid lock-in of high emission paths once their wealth increases.

CCS: FROM PILOT TO IMPLEMENTATION – SHARING THE KNOWLEDGE:

Jeff Chapman, CEO, Carbon Capture and Storage Association, UK, chaired the session. Sherri Stuewer, ExxonMobil, US, provided an overview of three models for CCS: enhanced oil recovery (EOR); natural gas production; and CCS in the electricity sector. Bob Pegler, Global CCS Institute, France, presented on the current status of CCS deployment and highlighted his institution’s role as a knowledge broker.

Peter Brooks, Executive Director, Worley Parsons, Australia, discussed challenges involved in developing a successful business case for CCS. He highlighted understanding the goal of CCS, political leadership, development and implementation of national CCS strategies and underwriting of critical infrastructure as key elements for enhancing the deployment of CCS. Walid Fayad, Booz & Company, Middle East, presented the business case for CCS in the Gulf Cooperation Council (GCC), observing that enhanced oil recovery has the potential to significantly offset CCS costs.

Ghaniya Bin-Dhaer Al-Yafei, ADCO, UAE, discussed her country’s experiences with the CCS project implementation process. John Barry, Shell International Upstream, UAE, highlighted key lessons for CCS deployment, emphasizing the need for urgency, funding, knowledge sharing, public acceptance and partnerships between government, industry and academia. Bernd Holling, Linde Group, Germany discussed his company’s role in developing technologies for post-combustion capture of CO₂ from fossil-fuel power plants.

WHAT’S NEXT FOR THE WIND INDUSTRY?: Chair Steve Sawyer, Secretary General, Global Wind Energy Council, challenged panelists to identify strategies to move wind from the current 2% of global electricity supply to 20% or more. Alfonso Faubel, Alstom Wind, Spain, identified operating flexibility and integration of wind energy into the grid as two major industry challenges. Peter Jørgensen, Energinet.DK, Denmark, suggested large transmission grids could balance energy sources to compensate for fluctuating energy sources, noting this would require international coordination.

Ashok D’sa, Suzlon Energy, India, highlighted the need for industry and governments to work in concert to “unlock” markets for wind, and emphasized “bottom-up” change.



L-R: Alfonso Faubel, Alstom Wind, Spain; Peter Jørgensen, Energinet.DK, Denmark; Steve Sawyer, Secretary General, Global Wind Energy Council; Ashok D'sa, Suzlon Energy, India; and Morten Albæk, Vestas, Denmark

Morten Albæk, Vestas, Denmark, advised creating alliances with consumers to increase access to wind energy. He stressed the need to consider the social costs of energy.

Panelists discussed, *inter alia*: energy predictability and price; innovation and competition as drivers of cost reductions; feed-in tariffs and green certificates; and the potential impact of climate change on wind power generation.

TRANSFORMING INTERNATIONAL POLICY AND STRATEGY INTO REAL BUSINESS OPPORTUNITIES:

Tom Curtis, Deutsche Asset Management, chaired the session. Observing that the growth of renewable energies is always linked to policies, but that countries use different measures, Neil Auerbach, Hudson Clean Energy Partners, recommended analyzing domestic resources and potentials as a starting point for designing policies, suggesting there is no scarcity in capital or technology provision.

Peter Sharratt, WSP Group, UK, said the main challenge is to de-risk top-down policies as many developments depend on a single subsidy, highlighting the political and legal framework that underlies the Kyoto Protocol targets in the EU. He called for policies to kick-start a transformative change of markets and overcome “subsidy policy farming.” Siobhan Smyth, HSBC, UK, compared renewable energy policies from an investor’s perspective, and suggested that affordability of these

policies for developing countries depends on how appropriate the technology is for the respective market. She recommended increased collective action among developing countries.

Noting that the optimal timing of a technology investment depends on how quickly its costs decline, Jürgen Weiss, The Brattle Group, US, recommended that policy makers consider subsidies for research and development as an alternative to subsidizing deployment of technologies with sharp declining costs. He also suggested considering how much support for deployment is needed to start a learning process that will drive down costs.

CASE STUDIES – GREEN BUILDINGS SHAPING OUR PHYSICAL ENVIRONMENT:

Afshin Afshari, Masdar City, UAE, discussed the challenges to applying the zero-energy building concept in hot, humid climates. He particularly noted the challenge of how best to regulate “plug and process” loads, which most countries have not yet addressed. Kentaro Kawaguchi, Mitsubishi Heavy Industries, Japan, described the Eco Sky House project of “smart community housing” developed in Japan and outlined how it might be applied to the Middle East.

Mili Majumdar, The Energy Resources Institute (TERI), India, discussed the challenges for sustainable architecture in India, and the policy and programme responses taken, with an emphasis on the building rating system developed by TERI and



L-R: Siobhan Smyth, HSBC, UK; Tom Curtis, Deutsche Asset Management, US



Side events were held during the day



L-R: Henrik Fisker, CEO, Fisker Automotive, US; Herbert Kohler, Daimler, Germany; Chair Pierre Loing, Nissan International, Japan; Paul Mulvaney, ESB eCars, Ireland; Robin Voogd, LeasePlan Emirates, UAE; and Hiroshi Osawa, Mitsubishi Heavy Industries, Japan

now adopted by the Indian Government. Susan Roaf, Heriot Watt University, described the evolution and achievements of the Solar Cities movement, which she said has, among other things, led to the solar ordinance in Spain and mandatory solar water heating in China.

Matthew Plumbridge, Department of Municipal Affairs, Abu Dhabi, explained how his department is attempting to promote sustainable building through the adoption of a series of building codes, leading to an integrated green construction code including energy conservation, building and plumbing.

Session Chair Husam Al Waer, University of Dundee, emphasized that producing green buildings is not enough to produce sustainable cities. He said a focus on creating green infrastructure and sustainable communities is necessary.

e-MOBILITY – ON THE CUSP OF DEPLOYMENT:

Pierre Loing, Nissan International, opened the session. Shunichi Miyana, Mitsubishi Heavy Industries, stressed the need for advanced energy management systems, and said information and communication technologies (ICT) will play a big role in optimization of demand-side management. He stressed we are at the starting point of the e-mobility age.

Christine Van't Hull, City of Amsterdam, outlined Amsterdam's strategy on e-mobility. She explained Amsterdam's goal to achieve 10,000 electric cars by 2015. She underscored the need for cooperation with car manufacturers and other cities. Henrik Fisker, CEO, Fisker Automotive, US, conveyed the importance of maintaining the "fun" of driving in electric vehicles. He noted environmental concern, energy security, government support and technology advancements as drivers for consumer adoption.

Herbert Kohler, Daimler, Germany, predicted a dramatic increase in the output of electric vehicles in the coming years. He stressed that electric vehicles are based on two technologies: batteries and fuel cells. Paul Mulvaney, ESB eCars, Ireland, underscored the potential of smart electric cars for smart grids, highlighting possibilities for grid stabilization, peak reduction and reusing batteries for grid storage.

Robin Voogd, LeasePlan Emirates, UAE, noted the roles of the market, technology, government and driver's interest in realizing e-mobility plans. He said leasing companies like his represent a channel from manufacturers to large markets. Hiroshi Osawa, Mitsubishi Heavy Industries, explained Mitsubishi's vision for a low-carbon society with carbon-free energy, innovative transport systems and high-efficiency power generation. He stressed the need to shift to highly integrated energy systems.

MASTER CLASS – THE ECONOMICS OF GREEN BUILDINGS: CALCULATING THE COST AND THE VALUE:

Mili Majumdar, TERI, introduced the session, explaining the aim of providing tools to demonstrate that green buildings "make economic sense." She identified barriers to

green buildings, such as the perception of high incremental costs, lack of knowledge to carry out life cycle cost-benefit analyses and the absence of integrated design approaches.

Priyanka Kochhar, TERI, presented the results of a study comparing conventional and green-rated buildings in India, based on life cycle analysis. She outlined the study methodology, noting its consideration of discount rates, inflation and escalation costs. Presenting detailed spreadsheet calculations, she noted the model could be adapted to conduct similar assessments of buildings in other regions, and stressed that the findings reveal that green buildings have lower life cycle costs than conventional buildings.

Participants watched a video on India's green building certification system, "Green Rating for Integrated Habitat Assessment" (GRIHA), and Majumdar described a case study of a green building, highlighting energy efficiency improvements through passive design. In discussions, participants asked for, among other things: further details on the specifics of the case study buildings; clarification of study methodology and model parameters; and the distinctions between GRIHA and other green building certification systems.

ENERGY EFFICIENCY – CARBON REDUCTION: UNLOCKING THE ENERGY EFFICIENCY

POTENTIAL: Mohsen Khalil, Global Head, Climate Business Group, IFC, chaired this session. Hervé Touati, E.ON, Germany, said the question is why energy efficiency measures are not adopted. He highlighted three obstacles to adoption of energy efficiency technologies: imperfect information; upfront capital investments; and lack of stimulus. He said solutions include: raising consumer awareness; providing adapted financial tools; and providing government support for communications, targets and other actions.

Oliver Behrend, E.ON – Masdar Integrated Carbon, UAE, said barriers to energy efficiency adoption exist at the industry/project and government/policy levels. He said the price of energy is too low and the carbon market is not working. He highlighted that options such as education,



Young participants at the Summit



Stands around the venue

energy service companies, technology providers and funding exist, but stated that they are fragmented and that the lack of an integrated approach is itself a barrier.

Clemens Wolters, Deutsche Babcock Middle East, UAE, presented a case study on potential efficiency measures for a German power plant, and concluded that: industry investments are driven by return on investment (ROI); feasibility assumptions with a ROI of eight or more years are not attractive to industry; and a realistic ROI below five years could lead to industry investments.

In the discussion, Touati emphasized the need for clear national policy, integrative thinking and a change in mindset, starting at the top. Behrend said energy subsidies create the wrong incentives and that adding energy efficiency subsidies would create complications. A participant asked whether a global financial mechanism like the Clean Development Mechanism would be a good idea, and whether it should be implemented on a regional basis.

SIDE EVENTS

ROUNDTABLE DISCUSSIONS: Thirteen roundtables discussed specific energy issues throughout the day. Mustafa Hatipoğlu, UN Industrial Development Organization, convened a roundtable on hydrogen technology projects. Participants considered the status of hydrogen technology, storage, how to achieve industry breakthroughs, and hydrogen's relationship with the two degree Celsius global warming target.

Kamiel Gabriel, University of Ontario Institute of Technology, Canada, led a discussion on the hydrogen economy. Participants discussed: government and industry interest in, and plans for, hydrogen vehicle fleets; the challenges of hydrogen storage and transportation; and clean hydrogen.

Gustav R. Grob, Energy Institute, London, UK, hosted a roundtable on low carbon energy systems evolution where participants discussed aspects of the geothermal industry. Participants emphasized that renewable energy calls upon different government ministries than fossil fuels, such as environmental ministries, and this presents additional policy challenges.

Scott McGuigan and Jay Witherspoon, CH2M Hill, UAE, convened a discussion on sustainable change and innovation. Participants discussed the challenges of the water-energy nexus and water scarcity, and focused on the economic drivers for sustainable and renewable energy projects, particularly shifting subsidies to incentives.

EU-GCC CLEAN ENERGY NETWORK: The first plenary meeting of the "EU-GCC Clean Energy Network" convened as a full-day side event. In opening statements, Sam Nader, Director,

Masdar Carbon, UAE, called for policies to de-carbonize energy sources, and Eva Tvarozkova, European External Action Service, recalled past cooperation between the EU and the GCC, particularly on energy. John Psarras, National Technical University of Athens, described the network's activities. Panel discussions then considered: energy efficiency and demand side management; synergies for renewables and other clean energy technologies; financing clean energy projects; and clean energy-related education.

US PAVILION: Frank Calzonetti, University of Toledo, US, presented on his university's Wright Center for Photovoltaics Innovation and Commercialization (PVIC). He explained that the Center conducts industry-directed research to advance the commercialization of renewable technology, particularly thin film voltaics and offshore wind deployment.

YFEL: In a meeting with young future energy leaders (YFEL), Susan Hockfield, President, Massachusetts Institute of Technology, advised energy students to pursue a broad education that includes the politics and economics of energy. She said the fossil fuel industry is one of the strongest partners in renewable energy development as companies increasingly see opportunities for integrating conventional energies with renewables.

ZAYED FUTURE ENERGY PRIZE

The third annual Zayed Future Energy Prize award ceremony was held at the Emirates Palace Hotel in Abu Dhabi. The Prize celebrates achievements that reflect innovation, long-term vision and leadership in the fields of renewable energy and sustainability.

Sultan Ahmed Al Jaber, Director General, Zayed Future Energy Prize, explained that the Prize represents the legacy of the late founding father of the UAE, Sheikh Zayed Bin Sultan Al Nahyan, who championed environmental stewardship.

Underscoring the need for innovation, Rajendra Pachauri, Chairman of the Jury for the Zayed Future Energy Prize and of the Intergovernmental Panel on Climate Change, described the award recipients as "torch bearers for change." His Highness General Sheikh Mohamed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi, then presented runner-up awards of US\$ 350,000 to E+Co, US, accepted by Christine Eibs Singer, CEO, and Amory Lovins, Chairman, Rocky Mountain Institute, US, respectively. The Zayed Future Energy Prize of US\$ 1.5 million was awarded to Vestas, Denmark, and accepted by Ditlev Engel, Global CEO. Engel announced that half of Vestas' award would be donated to the other three finalists, Barefoot College, India, First Solar, US, and Terry Tamminen, CEO and founder of 7th Generation Advisers, US.



L-R: Ditlev Engel, Global CEO, Vestas, and His Highness General Sheikh Mohamed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi