

IEEE GreenCom'11 Highlights Latest Energy-Efficient Communications & Green Technologies

NEW YORK, NY (November 3, 2011) – The IEEE Communications Society (ComSoc) recently held its first fully-virtual, online event with professionals worldwide participating in 12 separate sessions dedicated to the latest advances in energy-efficient communications and green technologies. Webcast internationally to attendees and then published at IEEE Xplore, the first annual IEEE Online Conference on Green Communications (GreenCom'11) was specifically designed to address global warming developments, while promoting an ecological conferencing model that provides time-flexible participation in a powerful, virtual forum where “energy efficiency is discussed energy-efficiently.”

Other distinct benefits included the ability of speakers representing leading institutions such as Ericsson, Samsung, INRIA, IMEDA Networks, Create-Net, Telecom ParisTech, Royal Institute of Technology, Dresden University of Technology, Tohoku University, Politecnico di Italy and the Beijing University of Posts and Telecommunications to offer presentations live to a truly global audience and then answer participant questions in real-time with the aid of moderators. This included detailed discussions of wide reaching global warming issues ranging from energy-efficient fixed line and wireless communications to smart grid architecture modeling and dynamic pricing and response scheduling to energy-efficient solutions for vehicles and the home.

Consisting of a broad spectrum of keynotes and tutorials, IEEE GreenCom'11 commenced on Monday, September 26 with the keynote of Wael Diab, Senior Technical Director, Office of the CTO at

Broadcom Corporation. During his presentation on “The Value of the True Green Data Center,” Wael highlighted “multiple power savings strategies for data centers” that included the consolidation of separate networks and 1Gb links as well as the implementation of energy-efficient ethernets. According to Wael, these improvements are essential for expanding global network performances and features in a cost- and energy-completive framework given that the use of IT equipment alone creates almost 100 million tons of CO2 a year.

Immediately following this address, communications experts from Canada, New Zealand and China combined online to explore the newest advances in home energy management, plug-in electric vehicles refueled by smart microgrids and energy-efficient wireless sensor networks in the next selected topic presentation. For instance, representatives from Beijing outlined their latest research for reducing daily electricity expenditures by 22.2 percent through smart meter monitoring and two-way communications in addition to better utilizing natural resources like wind, power and solar for powering the transport industry, which represents about 24 percent of global greenhouse gas emissions.

On the following day, the online conference renewed with the keynote of Dan Kilper of Bell Labs, Alcatel Lucent and the Chair of the Technical Committee of the Green Touch Consortium, who spoke on "Communication Networks & Sustainability." Kilper's address was dedicated to "better monitoring and controlling energy use across society," especially in wireless business environments that are expected to increase by 30 percent annually, while equipment efficiencies only grow by 10 to 20 percent a year."

Throughout Tuesday, IEEE GreenCom'11 also offered a collection of sessions and tutorials exploring topics like "Toward Energy Efficient Mobile Communications," "Green Wireless Communications" and "Smart Grid Communications." During these sessions, leading industry professionals from Spain, Germany, the United Kingdom, Finland, Canada, the United States, Japan and Sweden offered their expertise and latest research on specific areas that included "The Minimization of Power Consumption in Base Stations," "Architecture Model Choices for Smart Grid Home Networks," "Impact Efficient Power Amplifiers in Wireless Access," and "Built-in Renewable Energy Modules; Design, Implementation and Evaluation."

On the conference's third day, Wednesday, September 28, IEEE GreenCom'11 again provided its global audience with virtual access to five more live sessions including the keynotes of Raffaele Bolla, Associate Professor, Department of Communications, Computer and Systems Science (DIST), University of Genoa, Italy and Rodney Tucker, Laureate Professor, Centre for Energy-Efficient Telecommunications, Department of Electrical and Electronic Engineering, University of Melbourne, Australia. With his address titled "Enabling Fixed Network Energy Efficiency Optimization Through Dynamic Adaptation - Research Challenges and European Project Efforts," Bolla highlighted the challenges of designing network architectures that achieve high levels of energy efficiency through the integration of enhanced stand-by capabilities within control frameworks.

As an expert on broadband access technologies and energy-efficient telecommunications, Tucker continued the discussion later in the day with his presentation on "Green Communications and Cloud Computing." According to him, the reduction of loss efficiencies and improvement of energy overheads is imperative in a world where the Internet, data centers and cloud computing infrastructures have already combined to consume three percent of the world's electricity. As a result, there is a necessity for closing the gap between the theoretical lower bounds of energy switching and its actual energy consumption via the use, promotion and implementation of more efficient applications such as global cloud data storage and retrieval services.

Other conference highpoints included the presentation of three more sessions exploring green fixed line and wireless communications topics like "Energy-aware Load Balancing for Parallel Packet Processing Engines," "Energy-Efficient Non-cooperative Resource Allocation in Multi-Cell OFDMA Systems," "Information and Communication Technologies for Power Grid Management" and "Mode Division Multiplexing for Power Dissipation in High Spectral Energy System." GreenCom'11 then concluded IEEE ComSoc's first-ever, fully virtual event with a final session on

“Balancing Peer and Server Energy Consumption in Large Peer-to-Peer File Distribution Systems” on Friday, September 30.

For more information on GreenCom'11 please visit <http://www.ieee-greencom.org>
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