

SusTech 2014

Papers and Posters Program by Session

Time	Hood / Helens	Morrison	Ross Island	Sellwood
Thursday, July 24				
02:30 PM		AE I: <i>Alternate Energy Invited Speakers Session 1</i>	SE I: <i>Sustainable Electronics Invited Speakers Session 1</i>	TE I: <i>Transportation Electrification Invited Speakers Session 1</i>
04:30 PM		SG I: <i>Smart Grid Invited Speakers Session 1</i>	SI I: <i>Societal Implications / Quality of Life Invited Speakers Session 1</i>	EE I: <i>Energy Efficiency Invited Speakers Session 1</i>
Friday, July 25				
08:30 AM		AE C-1: <i>Alternate Energy Contributed Papers Session 1</i>	SI C-1: <i>Societal Implications / Quality of Life Contributed Papers Session 1</i>	SG C-1: <i>Smart Grid Contributed Papers Session 1</i>
10:40 AM		AE C-2: <i>Alternate Energy Contributed Papers Session 2</i>	SI C-2: <i>Societal Implications / Quality of Life Contributed Papers Session 2</i>	SG C-2: <i>Smart Grid Contributed Papers Session 2</i>
02:00 PM		AE C-3: <i>Alternate Energy Contributed Papers Session 3</i>	SI-EE C-1: <i>Societal Implications / Energy Efficiency Contributed Papers Session 1</i>	SG C-3: <i>Smart Grid Contributed Papers Session 3</i>
04:10 PM		AE C-4: <i>Alternate Energy Contributed Papers Session 4</i>	EE C-2: <i>Energy Efficiency Contributed Papers Session 2</i>	SE-TE C-1: <i>Sustainable Electronics/Transportation Electrification Contributed Papers Session</i>
06:00 PM	Posters			
Saturday, July 26				
08:30 AM		AE II: <i>Alternate Energy Invited Speakers Session 2</i>	EE II: <i>Energy Efficiency Invited Speakers Session 2</i>	TE II: <i>Transportation Electrification Invited Speakers Session 2</i>
10:30 AM		SG II: <i>Smart Grid Invited Speakers Session 2</i>	SI II: <i>Societal Implications / Quality of Life Invited Speakers Session 2</i>	SE II: <i>Sustainable Electronics Invited Speakers Session 2</i>

AE C-1: Alternate Energy Contributed Papers Session 1

Grid Emulator for Compliance Testing of Wave Energy Converters

Kaushal Biligiri (Oregon State University, USA); Scott Harpool (Oregon State University, USA); Annette von Jouanne (Oregon State University & School of EECS, USA); Ean Amon (Oregon State University & Northwest National Marine Renewable Energy Center, USA); Ted Brekken (OSU, USA)

Electrochemical Antifouling Technology for Replacement of Heavy Metal and Organic Biocides in Marine Hydrokinetic Energy Generation

Malachi Bunn (Oregon State University, USA); Annette von Jouanne (Oregon State University & School of EECS, USA); Alex Yokochi (Oregon State University, USA)

Wave Energy Power Transmission Lines: Electric and Magnetic Field Propagation

Jordan Pommerenck (Oregon State University, USA); Justin Pommerenck (Oregon State University, USA); Annette von Jouanne (Oregon State University & School of EECS, USA); Alex Yokochi (Oregon State University, USA)

SG C-1: Smart Grid Contributed Papers Session 1

Optimally Designed Retail Rates to Incentivize Demand Response

Ahlmahz Negash (University of Washington, USA); Daniel Kirschen (University of Washington, USA)

Smart Grid Dispatch Optimization Control Techniques for Transactive Energy Systems

Shawn A Chandler (Portland State University, USA); John Rinaldi (Portland State University, USA); Larry Beckett (Predictive Learning Utility Systems, USA); Bob Bass (Portland State University, USA)

Self-Organising Algorithms for Residential Demand Response

Adam Taylor (Trinity College Dublin, Ireland); Ivana Dusparic (Trinity College Dublin, Ireland); Colin Harris (Trinity College Dublin, Ireland); Andrei Marinescu (Trinity College Dublin, Ireland); Edgar Galvan-Lopez (Trinity College Dublin & Distributed Systems Group, Ireland); Fatemeh Golpayegani (Trinity College Dublin, Ireland); Siobhan Clarke (Trinity College Dublin, Ireland); Vinny Cahill (Trinity College Dublin, Ireland)

A Bottom-up Approach to Sustained Curtailment and Comfort for Controlled Demand Response

Marc E. Frincu (University of Southern California & West University of Timisoara, USA); Zachary Gima (University of Southern California, USA)

SI C-1: Societal Implications / Quality of Life Contributed Papers Session 1

Environmental Requirements and the CE Mark New Areas for a Harmonized Approach to Compliance

Debbie Horn (IBM, USA); Pam Lembke (IBM, USA)

Importance of Global Harmonization in Product Environmental Regulations and Standards

Pam Lembke (IBM, USA); Debbie Horn (IBM, USA)

Social Acceptance: Threats to Effective Smart Grid Deployment and Power Systems Resilience

Chinweike Eseonu (Oregon State University, USA); Eduardo Cotilla-Sanchez (Oregon State University, USA)

Canary in a Coal Mine: Issues in Efficient Cooling of Data Centers

Daniel N Donahoe, PE (1000 Kilometers & IEEE-USA, USA)

AE C-2: Alternate Energy Contributed Papers Session 2

A Methodology to Analyze the Impact of 30-Minute Wind Scheduling on Load-Following Requirements

Ruisheng Diao (Pacific Northwest National Laboratory, USA); Ben Kujala (Northwest Power and Conservation Council, USA); Yuri Makarov (PNNL, USA); Nader Samaan (Pacific Northwest National Laboratory, USA)

Stochastic Day-ahead Optimal Scheduling of Active Distribution Networks with Dispersed Energy Storage and Renewable Resources

Mostafa Nick (École Polytechnique Federale de Lausanne (EPFL) & Distributed Electrical Systems Laboratory (DESL), Switzerland); Mario Paolone (Swiss Federal Institute of Technology of Lausanne (EPFL), Switzerland); Rachid Cherkaoui (EPFL, Switzerland)

An Advanced Study of Wind Power Variability on the Federal Columbia River Power System

Kelcey Lajoie (Oregon State University, USA); Ted Brekken (OSU, USA); Janhavi Kulkarni (Oregon State University, USA)

Generation Capability Curves for Wind Farms

Eduardo H. Enrique (Stantec Consulting Ltd., Canada)

SG C-2: Smart Grid Contributed Papers Session 2

Enhancing Test Power Systems for Dynamic Cascading Outage Simulations

Pierre Henneaux (Université Libre de Bruxelles, Belgium); Jiajia Song (Oregon State University, USA); Eduardo Cotilla-Sanchez (Oregon State University, USA)

Relay Protection Condition Assessment Based on Variable Weight Fuzzy Synthetic Evaluation

Zhao Dongmei (North China Electric Power University, P.R. China); Weichen Liang (North China Electric Power University, P.R. China); Xu Zhang (North China Electric Power University, P.R. China)

A Technique for Detecting Wide-Area Single-Line-To-Ground Faults

Xiaodong Liang (Washington State University Vancouver, USA); Scott Wallace (Washington State University Vancouver, USA); Xinghui Zhao (Washington State University, USA)

Integrating Synchrophasor Technology with the Oregon State University Campus Smart Grid Project

Chen Huo (Oregon State University, USA); Jiajia Song (Oregon State University, USA); Kyle Wagner (Oregon State University, USA); Gregory Harold (Oregon State University, USA); Eduardo Cotilla-Sanchez (Oregon State University, USA)

SI C-2: Societal Implications / Quality of Life Contributed Papers Session 2

Low-Cost Non-Intrusive Residential Energy Monitoring System

Akshaya Ravishankar (Sri Venkateswara College of Engineering, India); Anand Vignesh Venkataraman (Sri Venkateswara College of Engineering, India); Vikram vel Senthilvel (Shree Motilal Kanhaiyalal fomra Institute of Iechnology, India); Dhiwaakar Purusothaman Soundiah Regunathan Rajasekaran (Solarillion Foundation, India); Vineeth Vijayaraghavan (Solarillion Foundation, India)

VEGILAB and Aquaponics Indoor Growing System

Megumi Leatherbury (Weber State University, USA)

Water, Energy and Food Security: Integrated Technology Solutions for Sustainability

Philip Hall (The University of Western Australia, USA); Nick Harris (University of Southampton, United Kingdom); Lawrence Ang (Energy Development Corporation, Philippines)

AE C-3: Alternate Energy Contributed Papers Session 3

Optimal Aerodynamic Energy Capture Strategies for Hydrostatic Transmission Wind Turbine

Danop Rajabhandharaks (San Jose State University, USA); Ping Hsu (San Jose State University, USA)

Development of Analytical and Computational Models for Predicting the Performance of A-PEGASUS Airborne Electric Generator

Alexander Anderson (Odin Energy Works LLC, USA)

Thermal Capacity of Collector System Feeders in Wind Farms

Eduardo H. Enrique (Stantec Consulting Ltd., Canada); Peter N Haub (Stantec Consulting Ltd., USA); Tom Wier (Stantec Consulting Ltd., USA)

Mitigation of Intermittency Effects of Photovoltaic Penetration Onto the Grid

Brian Lima, Lima (California Smart Grid Center & California State University, Sacramento, USA); Kasey Nunes (California Smart Grid Center, USA); Anna Cloninger (California Smart Grid Center, USA)

SG C-3: Smart Grid Contributed Papers Session 3

Supercapacitor Performance Characterization for Renewables Applications

Scott Harpool (Oregon State University, USA); Annette von Jouanne (Oregon State University & School of EECS, USA); Alex Yokochi (Oregon State University, USA)

Short-term Load Forecasting Algorithm and Optimization in Smart Grid Operations and Planning

Siriya Skolthanasat (National Electronics and Computer Technology Center, Thailand); Kanokvate Tungpimolrut (National Electronics and Computer Technology Center, Thailand); Udom Lewlompaisarl (NECTEC, Thailand)

Analysis of Dynamic Retail Electricity Rates and Domestic Demand Response Programs

Taylor VanderKley (University of Washington, USA); Ahlmahz Negash (University of Washington, USA); Daniel Kirschen (University of Washington, USA)

Dispatchable Loads for Grid Health: Water Preheaters as Energy Storage

Robert Wortman, III (CSU Sacramento & California Smart Grid Center, USA)

SI-EE C-1: Societal Implications/Energy Efficiency Contributed Papers Session 1

The Scalability of the Building Retrofit Market: A Review Study

Mat Krieske, Krieske (Portland State University, USA); Huafen Hu (Portland State University, USA); Terry Egnor (Energy Resource Management & Energy Resource Management, USA)

Co-Simulation of Detailed Whole Building with the Power System to Study Smart Grid Applications

Atefe Makhmalbaf (Pacific Northwest National Laboratory & Georgia Institute of Technology, USA); Jason Fuller (Pacific Northwest National Laboratory, USA); Selim Ciraci (PNNL, USA); Viraj Srivastava (Carnegie Mellon University, USA); Jeff Daily (Pacific Northwest National Laboratory & Washington State University, USA)

Simulating Human Occupancy in an Experimental Laboratory Settings

Joseph Petersen (Washington State University, USA)

AE C-4: Alternate Energy Contributed Papers Session 4

Solving Economics, Energy, Carbon and Climate in a Single Project

Keith Henson (L5 Society, USA)

Accelerated Aging Methods for Evaluating Carbon Electrode Materials

Alexander Bistrika (Oregon State University & NRGindependence, USA); Pavel Mardilovich (Oregon State University & NRGindependence, USA); Alex Yokochi (Oregon State University, USA)

Electrification Through Renewable Energy Kiosks with Hybrid Generation in Rural Indian Setting: Solutions for an Energy Crisis in Developing Nations

Anand B (Trentz Interactive, India); Antony Venus A (IEEE, India); Arun Noel Victor (Trentz Interactive Service Pvt Ltd, India); Mukundhan Srinivasan (Indian Institute of Science, India); Freddy Simon Paul Antony (Wichita State University, USA)

EE C-2: Energy Efficiency Contributed Papers Session 2

Managing PMU Data Sets with Bitmap Indexes

Ben McCamish (Washington State University, USA); David Chiu (Washington State University, USA); Eduardo Cotilla-Sanchez (Oregon State University, USA); Bob Bass (Portland State University, USA); Miles Histan (Portland State University, USA); Rich Meier (Oregon State University, USA); Jordan Landford (Portland State University, USA)

Power System Data Management and Analysis Using Synchrophasor Data

Rich Meier (Oregon State University, USA); Eduardo Cotilla-Sanchez (Oregon State University, USA); Bob Bass (Portland State University, USA); Miles Histan (Portland State University, USA); David Chiu (Washington State University, USA); Ben McCamish (Washington State University, USA); Jordan Landford (Portland State University, USA)

Extracting Discriminative Features for Event-based Electricity Disaggregation

Om P Patri (University of Southern California, USA); Anand Panangadan (University of Southern California, USA); Charalampos Chelms (University of Southern California, USA); Viktor K. Prasanna (University of Southern California, USA)

SE-TE C-1: Sustainable Electronics/Transportation Electrification Contributed Papers Session

Understanding the Ageing Process, Recovering Phase and Fault Diagnosis of Electrochemical Double Layer Capacitors

Dimitri Torregrossa (Swiss Federal Institute of Technology at Lausanne & DESL, Switzerland); Kathryn E. Toghil (EPFL LEPA, Switzerland); Hubert Girault (EPFL LEPA, Switzerland); Mario Paolone (Swiss Federal Institute of Technology of Lausanne (EPFL), Switzerland)

Time-Varying Modeling of Electric Vehicle Chargers

Bob Bass (Portland State University, USA); Mike Donnelly (Mentor Graphics, USA); Nicole Zimmerman (Portland State University, USA)

Forecasting Demand of Public Electric Vehicle Charging Infrastructure

Justine Sears (Vermont Energy Investment Corporation, USA); David Roberts (Vermont Energy Investment Corporation, USA); Karen Glitman (Vermont Energy Investment Corporation, USA)

A Comparison of Electric Vehicle Level 1 and Level 2 Charging Efficiency

Justine Sears (Vermont Energy Investment Corporation, USA); Karen Glitman (Vermont Energy Investment Corporation, USA); David Roberts (Vermont Energy Investment Corporation, USA)

Posters: Poster Session

1. **Building Ventilation System as a Low-Pass Filter for Intermittent Photovoltaic Electricity Generation**

Yasser Yasaei (Center for Emerging Energy Technologies, University of New Mexico, USA); Rush Robinett (Michigan Tech University, USA); Andrea Mammoli (University of New Mexico, USA)

2. **Flexible Solar Simulator for Renewable Energy Instruction Laboratory**

Tracy Roberts (Washington State University Tri-Cities, USA); Gabriel Mosbrucker (Engineer, USA); Joseph Petersen (Washington State University, USA); Mohamed Osman (Washington State University-Tri-Cities, USA)

3. **Hot Water Occupancy Sensor**

Irene Wong (Washington State University -Tri Cities, USA)

4. **Let's Make Integrated Circuits "Green"**

Archibald Doty, Jr (Retired, USA); Jesse Inkpen (Engineer, USA)

5. **Pervasive RF Energy Harvesting System (GSM 900 and GSM 1800)**

Lim Teck Beng (Nanyang Polytechnic, Singapore); Lee Ngai Meng (Nanyang Polytechnic, Singapore); Poh Boon Kiat (Nanyang Polytechnic, Singapore); Thiha Kyaw (Nanyang Polytechnic, Singapore)