

SusTech2014

Conference Program by Session

Time	Thursday, July 24		
08:00 AM - Noon	WORKSHOP: Unintended Consequences of Renewable Energy Alaska Room	WORKSHOP: Repairing The World (IEEE 1874) Idaho Room	
01:30 – 2:20 PM	Opening Keynote Morrison / Ross Island / Sellwood		
	Morrison	Ross Island	Sellwood
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> Gold Patron Presentation
06:00 – 07:30 PM	Opening Networking Reception Oregon		
	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>
12:30 – 2:00 PM	Lunch and Keynote Sisters/Bachelor 2 nd floor		
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 Reception (hosted by UL) Hood/Helens 2 nd Floor		
07:00 –	Conference Dinner and Speaker		

08:30 PM	Sisters/Bachelor 2 nd Floor		
Saturday, July 26			
08:30 AM	AE II: <i>Alternate Energy Invited Speakers Session 2</i>	<open>	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>
Noon – 1:30 PM	Lunch and Keynote Sisters/Bachelor 2 nd floor		
1:40 PM	Panel Discussion Hood/Helens 2 nd Level		
2:40 PM	Closing Keynote Hood/Helens 2 nd Level		

Keynotes

Thursday Opening Keynote

Nuclear Options for Our Energy Future

Prof. Digby D. Macdonald, University of California at Berkeley

Friday Lunch Keynote

Sustainability Writ Large - A Perspective on Sustainability, Its Impact and Implications

Joe Fjelstad, Verdant Electronics

Friday Dinner Keynote

Ethic Responsibility

Gerald Engel, University of Connecticut

Saturday Lunch Keynote

Sustainability Policy in the U.S. : Creating and Preserving a Future for Our Next Generation

Tom Tierney, IEEE-USA VP Government Relations

Saturday Closing Keynote

Reinventing Fire: Bold Business Solutions for the New Energy Era

Eric Wanless, Rocky Mountain Institute

Panel: “*Whither Sustainability?*”

Moderator: Dan Donahoe

Panelists:

- Eduardo Cotilla-Sanchez
- Roger Hadgraft
- Rhonda Walton

AE I: Alternate Energy Invited Speakers Session 1

Evaluation of Production Cost Savings From Consolidation of Balancing Authorities in the U.S. Western Interconnection Under High Wind and Solar Penetration

Tony Nguyen (Pacific Northwest National Laboratory, USA); **Nader Samaan** (Pacific Northwest National Laboratory, USA); **Chunlian Jin** (ERCOT, USA)

Grid Integration Costs of Fluctuating Renewable Energy Sources

Jonas Mueller (ETH Zürich, Germany); **Marcus Hildmann** (ETH Zurich, Switzerland); **Andreas Ulbig** (ETH Zürich, Germany); **Göran Andersson** (ETH Zürich, Switzerland)

Modular and Dispatchable Battery Energy storage System Field Demonstration and Use cases

John Steigers (Energy Northwest, USA)

AE II: Alternate Energy Invited Speakers Session 2

The Mechanism of Stress Corrosion Cracking in Sensitized Austenitic Stainless Steels in Nuclear Power Reactor Heat Transport Circuits

Digby Macdonald (University of California at Berkeley, USA); **Jiangbo Shi** (Tianjin University, USA)

RFID Energy Harvesting: Extending Battery Life From Eighteen Hours to Thirty Days

Will Lumpkins (O & S Services, USA)

Marine Tidal Energy: a Case Study in Legislative Challenges and Environmental Impacts

Sarah Marten (Macquarie University, Australia); **Philip Hall** (The University of Western Australia, USA)

EE I: Energy Efficiency Invited Speakers Session 1

Energy Efficiency Projects - A Case Study at Weber State University

Fred Chiou (Weber State University, USA)

Institutional Transformation for Energy Conservation/Sustainability

Jerry McNeish (Sandia National Labs, USA)

Gold Patron Presentation

Sustainability Certification

Mark Rossolo (UL Environment)

SE I: Sustainable Electronics Invited Speakers Session 1

Valuing Natural Capital: How to Enhance Business Value in the Technology Sector

Annabelle Bennett (Trucost PLC, USA)

Life Cycle Assessment of Electronics

Otto Andersen (Vestlandsforskning, Norway)

Environmental Markets Enhance Business Value

Wayne Rifer (Green Electronics Council)

SE II: Sustainable Electronics Invited Speakers Session 2

Safe Advanced Mobile Power Initiative

Thomas Coughlin (Coughlin Associates, USA)

Research to Innovation for Sustainable Electronics

Douglas A. Keszler (Center Director, Executive Council, Distinguished Professor,
Department of Chemistry, Oregon State University)

SG I: Smart Grid Invited Speakers Session 1

Charging Into a Greener Future with Smart Grid

Rhonda Walton (Evo2Go, USA)

Demonstration of Energy Storage Applications at the Salem Smart Power Center

Kevin Whitener (Portland General Electric, USA)

Edison was Right! By the Numbers, DC Microgrids for Sustainable Buildings Sooner

Guy AlLee (EMerge Alliance, USA)

SG II: Smart Grid Invited Speakers Session 2

The Role of Flexible Load in Achieving Sustainability

Conrad Eustis (Portland General Electric, USA)

Advances in Power Grid Research in the Pacific Northwest

Emilie Hogan (Pacific Northwest National Laboratory, USA)

SI I: Societal Implications /Quality of Life Invited Speakers Session 1

DIY Repair: How a Global Movement of Tinkerers, Hackers, and Self-Taught Engineers is Building a Repairable Electronics Industry

Kyle Wiens (IFIXIT.COM, USA)

Will New York City Ever Be Safe From Future Flooding?

Malcolm Bowman (Stony Brook University, USA)

Educating Sustainability Engineers - Redesigning Curricula

Roger Hadgraft (CQ University, Australia)

SI II: Societal Implication /Quality of Life Invited Speakers Session 2

Residential Energy Independence: Moving Beyond Net-zero

Karen Faerber-Hall (Project One Earth, Inc, USA); Philip Hall (The University of Western Australia, USA)

Renewable Energy for International Development

Slobodan Petrovic (Oregon Institute of Technology, USA); John Grieser (Elemental Energy, USA); Hope Corsair (Oregon Institute of Technology, USA)

Recent Advancements and Opportunities in Humanitarian Technologies

T.L.Prasanna Venkatesan (Expert in Humanitarian Technologies, USA)

TE I: Transportation Electrification Invited Speakers Session 1

Last Mile Asset Monitoring

Zdenek Zumr (Portland State University, USA)

B-Line, Sustainable Urban Delivery

Franklin Jones (Owner/CEO B-Line, USA)

HEV/BEV Noise, Vibration, Harshness Issues Caused by Electric Machine Drive Components and Mitigation Using Advanced Electric Machine Design and Motor Control Algorithms

Julia Zhang (Oregon State University, USA)

TE II: Transportation Electrification Invited Speakers Session 2

Electric Vehicles as Grid Resources in ISO-NE and Vermont

Stephanie Morse (Vermont Energy Investment Corporation, USA); Karen Glitman (Vermont Energy Investment Corporation, USA)

Applications and Advanced Controls for Heavy Duty Hybrids

Jennifer Vining (Daimler, USA)

IEEE Transportation Electrification Initiative

Lee Stogner (Chair, IEEE Transportation Electrification Initiative; Vincula Group, USA)

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)

Integrated Technology Solutions for Agricultural Irrigation (invited)

Dan Berne (Next Chapter Marketing, USA)

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); Huaifen 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 Hirstand (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 Chelmiss (University of Southern California, USA); Viktor K. Prasanna (University of Southern California, USA)

Smart Grid in the Northwest (invited)

Bryce Yonker (Smart Grid Oregon, 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)