



Home	Technical Program	Author Center	Meeting Information	Help	Login
------	-------------------	---------------	---------------------	------	-------

Submit Final Paper **Technical Program Overview**

[Conference Schedule](#) | [Program Search](#)

Technical Program

Special Events

Technical Tracks

Publication Schedule

Registration

**Visas/
Invitation Letters**

Hotel/Venue

Organizers

**Have questions?
Contact us.**

Acceptance Notification,
Technical Content, etc.
[Volunteer Organizers](#)

Copyright Forms
copyright@asme.org

Web Tool Support
toolboxhelp@asme.org

Note: Program is subject to change.

[Expand All](#)

Track 1 Policy, Education, and Legal Aspects of Energy [Collapse All Sessions In Track](#)

Track Chair: Carey King, University of Texas at Austin

Track Co-Chair: K. Max Zhang, Cornell University

1-1 U.S. Renewable Policy Analysis (Technical)

Session Description:

This session will explore various the economic and environmental impacts of U.S. renewable energy policies and expansion of renewable energy in the U.S.

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Carey King, University of Texas at Austin

ES2010-90029	Water Impacts of the American Clean Energy and Security Act on Texas	Technical Publication
ES2010-90365	Integrative Analysis of Non-Renewable and Renewable Energy Sources for Electricity Generation in U.S: Demand and Supply Factors, Environmental Risks and Policy Evaluation	Technical Publication
ES2010-90434	Policy Solutions for Increasing Economic Impacts of Wind Development in Arizona	Technical Publication
ES2010-90515	State of the States 2010	Technical Presentation Only
ES2010-90185	Evaluating the Cost of Food in a Carbon Constrained Economy	Technical Publication

1-2 Foreign Perspectives of Energy and Policy (Technical)

Session Description:

This session explores policies, renewable energy usage, and issues in countries outside of the U.S.

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: K. Max Zhang, Cornell University

ES2010-90071	Learnable Lessons on Sustainability from the Provision of Electricity in South Africa	Technical Publication
ES2010-90349	Research on Assessment Method of Green Buildings in China	Technical Publication
ES2010-90410	Energy Efficiency In Industrial Operations: An Evaluation Of Benefits And Costs Of The Most Effective Interventions Within The Italian Industrial Sector	Technical Publication
ES2010-90508	Energy Conservation Building Code in India: Status, Issues and Opportunities	Technical Publication

1-3 Consumer Feedback and Energy Demand; University Educational Programs (Technical)

Session Description:

This session explores the impact of policies and consumer demand on energy consumption, as well as university level education programs.

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Joyce McLaren, National Renewable Energy Laboratory

ES2010-90130	Evaluation of H.R. 2454's Potential Impacts on Texas's Electricity Profile Using the Rosenfeld Effect as a Basis for Evaluation	Technical Publication
ES2010-90179	An Updated Estimate for Energy Use In U.S. Food Production and Policy Implications	Technical Publication
ES2010-90348	Development of Work Force for Wind Energy	Technical Publication
ES2010-90430	Development of Alternative Energy Laboratories in Support of a New Green Concentration in Mechanical Engineering	Technical Publication

Track 2 Climate Control and the Environment [Expand All Sessions In Track](#)

Track Chair: Michael Webber, The University of Texas at Austin

Track Co-Chair: Mohamed Nabil Sabry, Mansoura University

2-1 Climate Control and the Environment 1 (Technical)

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Michael Webber, The University of Texas at Austin

ES2010-90037	Combustion Emissions Modeling and Testing of Conventional Diesel Fuel	Technical Publication
ES2010-90038	Combustion Emissions Modeling and Testing of Neat Biodiesel Fuels	Technical Publication
ES2010-90084	Performance Evaluation of Porous Media Incorporated Kerosene Pressure Stoves	Technical Publication

[ES2010-90315](#) The Environmental and Economic Impact of IGCC in China, With Comparison to Alternative Options Technical Publication

☐ **2-2 Climate Control and the Environment 2** (Technical)

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Michael Webber, *The University of Texas at Austin*

[ES2010-90346](#) The Feasibility Study of Household Units PV Cells for Carbon Emission Reduction in Developing Countries: A Case Study of North Cyprus Technical Publication

[ES2010-90358](#) Assessment Indexes and Systems of Environmental Quality of Green Buildings in China Technical Publication

[ES2010-90376](#) DEPLOYMENT PROSPECTS FOR PROPOSED SUSTAINABLE ENERGY ALTERNATIVES IN 2020 Technical Publication

☐ **Track 3 Fuel Cells and Hydrogen Energy Technologies** [Expand All Sessions In Track](#)

Track Chair: Nesrin Ozalp, *Texas A&M University at Qatar*

Track Co-Chair: Ali Jalalzadeh-Azar, *National Renewable Energy Laboratory*

☐ **3-1 Fuel Cell Systems Modeling, Design, and Optimization 1** (Technical)

Session Description:

This session covers optimization of power losses, system performance and manufacturing cost using various techniques in design, fabrication and mathematical modeling of fuel cells. It also includes various applications and modeling of fuel cells in hydrogen production, hydrogen storage and electricity generation via different combined technologies including solar energy, wind energy.

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Ali Jalalzadeh-Azar, *National Renewable Energy Laboratory*

[ES2010-90252](#) Exergetic Analysis of a Solar-heated Fuel Cell System Fed By Methanol Technical Publication

[ES2010-90149](#) Performance of Biogas Fueled Hybrid Solid Oxide Fuel Cell (SOFC) and Gas Turbine Cycle Technical Publication

[ES2010-90215](#) Optimal design of a biogas fuelled MCFC system integrated with an anaerobic digester Technical Publication

[ES2010-90140](#) Fabrication/Characterization of Micro PEM Fuel Cells using Pyrolysis Technical Publication

[ES2010-90139](#) Analysis of Polymer Electrolyte Fuel Cell Cold-Start Technical Publication

☐ **3-2 Hydrogen Production and Hydrogen Systems Analysis** (Technical)

Session Description:

This session focuses on the solar thermochemical hydrogen production techniques using fossil fuels and water as feedstock. The session covers design characteristics and simulations of hydrogen producing solar reactors. It also includes the analysis of various hydrogen producing systems and focuses on several technologies on the hydrogen storage.

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Ali Jalalzadeh-Azar, *National Renewable Energy Laboratory*

[ES2010-90125](#) NUMERICAL OPTIMIZATION OF A VOLUMETRIC SOLAR RECEIVER-REACTOR FOR THERMOCHEMICAL HYDROGEN GENERATION VIA DECOMPOSITION OF SULFUR TRIOXIDE Technical Publication

[ES2010-90323](#) Material and Energy Process-step Models of Solar Hydrogen Production Techniques Technical Publication

[ES2010-90324](#) MODELING OF VORTEX-FLOW SOLAR REACTOR VIA IDEAL REACTORS IN SERIES APPROACH Technical Publication

[ES2010-90341](#) Alternatives to Electricity for Transmission and Annual-scale Firming Storage for Diverse Renewable Energy Resources: Hydrogen and Ammonia Fuels Technical Publication

[ES2010-90138](#) 3D Modeling of Polymer Electrolyte Fuel Cell and Hydrogen Storage Tank Technical Publication

☐ **Track 4 Energy Systems: Design, Integration, Implementation** [Expand All Sessions In Track](#)

Track Chair: Alexander Zhivov, *US Army Engineer Research and Development Center*

Track Co-Chair: Laura A. Schaefer

Track Co-Chair: Nesrin Ozalp, *Texas A&M University at Qatar*

Papers Not Assigned To A Session

[ES2010-90023](#) Civilization Without Oil Technical Presentation Only

[ES2010-90134](#) Real-Time Modeling of Heating Systems For Model-Based Advanced Controller Design Technical Publication

[ES2010-90142](#) Heat and Mass Transfer in Porous Media with Evaporating Effect in the Condenser of AMTEC Technical Publication

ES2010-90182	Design options for high efficiency air conditioning of old industrial buildings restored for University	Technical Publication
ES2010-90210	Waste Heat Utilization Technology in the Oil and Gas Industry: Review and Application to an LNG Plant	Technical Publication
ES2010-90233	Design and Simulation of Ammonia Water Generator Absorber Heat eXchange (GAX) Vapour Absorption Refrigeration System with Plate Heat eXchanger	Technical Publication
ES2010-90312	Design and Experimental investigation of a Small scale organic Rankine for waste heat recovery	Technical Publication
ES2010-90506	Designing A Safe Power Plant With SIL	Technical Publication

4-1 Heat Pump, Absorption, and Cooling Systems (Technical)

Session Description:

This session covers experimental assessment and thermodynamic analysis of heat pumps

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: John Bryant, Texas A&M University at Qatar

ES2010-90486	Experimental Assessment and Thermal Performance of an Ammonia-Water Absorption Heat Pump	Technical Publication
ES2010-90490	Performance of Add-On, Heat Pump Water Heater (HPWH) Systems and Their Impacts on Electric Utility Loads	Technical Publication
ES2010-90391	The thermodynamic analysis and experimental investigation on trans-critical carbon dioxide heat pump system	Technical Publication
ES2010-90330	Regeneration Strategies of Air-purification TSA Process for Cryogenic Air Distillation Plant	Technical Publication

4-2 Energy efficiency and management in buildings (Technical)

Session Description:

This session covers energy efficiency and management of buildings via simulation and testing.

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: John Bryant, Texas A&M University at Qatar

ES2010-90480	A Practical Integration Approach and Whole Building Energy Simulation of Three Energy Efficient Building Technologies	Technical Publication
ES2010-90389	Development and Testing of an Automated Building Commissioning Analysis Tool (ABCAT)	Technical Publication
ES2010-90361	Simulation of Indoor Air Flow Fields in Buildings with Large Interior Space with Stratified Air Conditioning and Perforated Side Wall Diffusers	Technical Publication
ES2010-90135	TOOL FOR SMALL OFFICE BUILDINGS ENERGY CONSUMPTION ESTIMATION	Technical Publication

4-3 Economic, Environmental and Efficiency Evaluations of Systems (Technical)

Session Description:

This session covers economic, environmental and efficiency aspects of energy systems

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Laura A. Schaefer

ES2010-90360	Economic optimization of Shell and tube Heat exchanger based on constructal theory	Technical Publication
ES2010-90213	Revamping, energy efficiency and exergy analysis of an existing upstream gas treatment facility	Technical Publication
ES2010-90094	Evaluation of Environmental Loads for the Synthesis of a Trigeneration System	Technical Publication
ES2010-90347	Economic Evaluation of Residential Central Air Conditioning Systems	Technical Publication
ES2010-90116	Design for Sustainable Data Center Energy Use and Eco-Footprint	Technical Publication

4-4 Energy Storage and Thermal Insulation (Technical)

Session Description:

This session covers issues related to energy storage and thermal insulation of system components.

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Joerg Petrasch, University of Florida

ES2010-90472	Minimizing on-peak and off-peak demands for a thermal storage system – Forecast model analysis to predict next day daily average load and model application	Technical Publication
ES2010-90221	THERMAL STORAGE SYSTEMS FOR DISTRICT HEATING NETWORKS	Technical Publication
ES2010-90012	Green Energy Storage for Better Efficiency	Technical Publication
ES2010-90159	A New Approach to Determine Optimum Insulation Thickness for all Buildings in Turkey based on Heating Loads and Heat Gains	Technical Publication

4-5 Detailed Component Evaluation (Technical)

Session Description:

This session covers a detailed energy analysis of system components.

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Joerg Petrasch, University of Florida

ES2010-90123	CFD Simulation of the Supersonic Steam Ejector	Technical Publication
ES2010-90018	Numerical simulation on the heat source surface of spray combustion for the fuel of Li/SF6	Technical Publication
ES2010-90369	Heat Balancing Characteristics Of A Domestic Pressure Cooker	Technical Publication
ES2010-90127	The Structure Design and Numerical Simulation of Dual-Fuel Gas Turbine nozzle	Technical Publication
ES2010-90041	Flare Gas Utilization at Combined Oil-Gas Well Sites	Technical Publication

Track 5 Renewable and Alternative Energy Technologies Expand All Sessions In Track

Track Co-Chair: J.Rhett Mayor, Georgia Institute of Technology

Track Co-Chair: James Menart, Wright State University

Papers Not Assigned To A Session

ES2010-90456	Economics of Using the Producer Gas from Biomass in Co-Firing Mode in a CCHP Unit to Meet the Building Load of a Commercial Building	Technical Publication
--------------	--	-----------------------

5-1 Energy from Waste Products (Technical)

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Byard D. Wood, Utah State University

Session Co-Chair: Makame Mbarawa, Tshwane University of Technology

ES2010-90219	Design of Farm Waste-driven Supply Side Infrastructure for Data Centers	Technical Publication
ES2010-90479	Colorado Community Benefits from Installing Waste Heat Recovery System	Technical Publication
ES2010-90397	Economics of Wastewater Treatment Codigestion	Technical Publication
ES2010-90510	Experimental Studies on a DI Diesel Engine Using Tyre Pyrolysis Oil Diethyl Ether Blends	Technical Publication

5-2 Alternative Electric Power Technologies I (Technical)

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Co-Chair: Jacek Kalina, Silesian University of Technology

ES2010-90089	Converting low-grate heat into power using a supercritical Rankine cycle with zeotropic mixture working fluid	Technical Publication
ES2010-90231	Designing, Integrating, and Implementing a Microgrid	Technical Presentation Only
ES2010-90195	Human Power Generation in Fitness Facilities	Technical Publication
ES2010-90303	A Roadmap for Rural electrification in Developing Countries using MiViPPs (Micro utility virtual power plants).	Technical Publication
ES2010-90396	SOLUTE ION COULOMB FORCE MONOPOLE MOTOR AND SOLUTE ION LINEAR ALIGNMENT PROPULSION	Technical Publication

5-3 Energy Storage (Technical)

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Rathinam Selvam, University of Arkansas

Session Co-Chair: Debjyoti Banerjee, Texas A&M University

ES2010-90067	Leveling Intermittent Renewable Energy Production Through Biomass Gasification-Based Hybrid Systems	Technical Publication
ES2010-90227	Electric Utility Operational Cost and Emissions Management with Grid-scale Energy Storage	Technical Publication
ES2010-90377	PROJECTIONS OF LEVELIZED COST BENEFIT OF GRID-SCALE ENERGY STORAGE OPTIONS	Technical Publication

5-5 Renewable Energy Studies (Technical)

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Mohammad O. Hamdan, United Arab Emirates University

ES2010-90006	Reflections on the Motive Power of Fire II	Technical Publication
ES2010-90129	Low Capital Cost Renewable Energy Conversion with Liquid Piston Stirling Engines	Technical Publication

- [ES2010-90488](#) Lessons Learned from 30 Years of Experience with Renewable Energy Technologies at Fort Huachuca, Arizona Technical Publication
- [ES2010-90374](#) Western Wind and Solar Integration Study Hydropower Analysis: Benefits of Hydropower from Large-Scale Integration of Renewables in the Western United States Technical Publication

▣ **5-6 Turbines and Engines** (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Brent Bartlett, Turbo Solutions Engineering LLC

- [ES2010-90218](#) Assessment of a Syngas-Diesel Dual Fuelled Compression Ignition Engine Technical Publication
- [ES2010-90350](#) Performance and testing of a unique low speed water turbine. Technical Publication
- [ES2010-90351](#) Paper Title:The design of a low speed water turbine. Technical Publication

▣ **5-9 Alternative Electric Power Technologies II** (Technical)

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Daniel Zimmerle, Colorado State University

- [ES2010-90382](#) Dynamic Simulation of an Integrated Solar Power Plant Technical Publication
- [ES2010-90193](#) A Scalable, Economical, Uninterrupted Solar Thermal Power System Technical Publication
- [ES2010-90015](#) Analytical Thermal Analysis of Solar Chimney Power Plant Technical Publication
- [ES2010-90211](#) Integrated Biomass Gasification Small-Scale Combined Cycle Distributed Generation Plant with Microturbine and ORC Technical Publication

▣ **Track 6 Low/Zero Emission Power Plants & Carbon Sequestration** Expand All Sessions In Track

Track Chair: Marco Gazzino, ENEL

Track Co-Chair: Flavio Franco, Independent

▣ **6-1 Low/Zero Emission Power Plants & Carbon Sequestration 1** (Technical)

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Flavio Franco, Independent

- [ES2010-90146](#) TECHNICAL AND ECONOMIC ANALYSIS OF A WASTE-TO-ENERGY PLANT FOR AUSTIN, TEXAS UNDER A RANGE OF GREENHOUSE GAS EMISSIONS PRICES Technical Publication
- [ES2010-90147](#) Using Solar Thermal Energy for Solvent Regeneration in Post-Combustion CO2 Capture Technical Publication
- [ES2010-90148](#) Opportunities for CO2 capture and storage in Iranian electricity generation Technical Publication
- [ES2010-90156](#) Analysis of Flexible CO2 Capture over an Investment Life Using a Dynamic Electric Grid Model Technical Publication

▣ **6-2 Low/Zero Emission Power Plants & Carbon Sequestration 2** (Technical)

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Flavio Franco, Independent

- [ES2010-90186](#) Thermo-economic analysis of microalgae co-firing process for fossil fuel-fired power plants Technical Publication
- [ES2010-90199](#) An Advanced Power-Generation System with CO2 Recovery Integrating Dimethyl Ether (DME) Fueled Chemical-Looping Combustion Technical Publication
- [ES2010-90237](#) Practical Considerations for Low Emission Thermal Power Plants Technical Publication

▣ **Track 7 Transportation Energy Systems** Expand All Sessions In Track

Track Chair: Patrick Phelan, Arizona State University

Track Co-Chair: Trevor Demayo, Chevron Energy Technology Co

▣ **7-1 Sustainable Transportation Energy I** (Technical)

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Trevor Demayo, Chevron Energy Technology Co

Session Co-Chair: Todd Otanicar, Loyola Marymount University

- [ES2010-90027](#) Centralized Transportation Fuel Planning: Leveraging Californian Refineries as Transportation Utilities Technical Publication
- [ES2010-90294](#) Integrating Renewable Energy Technologies to Reduce Large Ship Fuel Consumption Technical Publication
- [ES2010-90362](#) Toward Efficient Reduction of CO2 to CO for Renewable Fuels Technical Publication
- [ES2010-90366](#) Sustainable Transportation Fuels from Off-peak Wind Energy, CO2, and Water Technical Publication

7-2 Sustainable Transportation Energy II (Technical)

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Todd Otanicar, Loyola Marymount University

Session Co-Chair: Patrick Phelan, Arizona State University

- ES2010-90058 A Compact External Combustion Engine With High Part-Load Efficiency Technical Publication
- ES2010-90291 Simulation by means Computational Fluids Dynamics of the Mixing Process Air-Natural Gas in a Turbocharger Diesel Engine. Technical Publication

7-3 Sustainable Transportation Energy III (Technical)

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Patrick Phelan, Arizona State University

Session Co-Chair: Trevor Demayo, Chevron Energy Technology Co

- ES2010-90492 IMPACT OF DIFFERENT CHARGING STRATEGIES OF ELECTRIC VEHICLES ON THE GERMAN GRID Technical Publication
- ES2010-90363 Reducing Energy Consumption of Ground Vehicles by Active Flow Control Technical Publication
- ES2010-90411 Design and Assembly of an Extended Range Electric Vehicle as a University Capstone Project Technical Publication

Track 8 Micro and Nano Technologies in Energy Systems Expand All Sessions In Track

Track Chair: Antonio Bula, Universidad del Norte

Track Co-Chair: Anjaneyulu Krothapalli, Florida State University

Track Co-Chair: Feng-Yuan Zhang, University of Delaware

8-1 Nanotechnology Applications I (Technical)

Session Description:

Nanotechnology applications for energy conversion, thermal storage and heat transfer.

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Antonio Bula, Universidad del Norte

- ES2010-90022 Tuning the extinction coefficient for direct absorption solar thermal collector optimization Technical Publication
- ES2010-90197 Waste Heat Use through Microfabrication and Micro System Development Technical Publication
- ES2010-90055 Applicability of Nanofluids in Concentrated Solar Energy Harvesting Technical Publication
- ES2010-90293 Enhanced Thermal Properties of PCM Based Nanofluid For Solar Thermal Energy Storage Technical Publication

Track 9 Exergy applications: Sustainability, Renewable Energy Expand All Sessions In Track

Track Chair: Susan Stewart, Penn State

Track Co-Chair: W. John Dartnall, University of Technology, Sydney

Papers Not Assigned To A Session

- ES2010-90343 A comparative study on exergy analysis of a cogeneration system under design and different operational conditions Technical Publication
- ES2010-90115 A High-Efficiency Solar Hybrid Thermal Power System Integrating Middle-temperature Solar Heat and Ethanol Steam Reforming Technical Publication
- ES2010-90061 A RESTRICTED, EXERGY-BASED SUSTAINABILITY CRITERION Technical Publication
- ES2010-90230 Design, Simulation and Thermodynamic Analysis of an Industrial Active Solar Water Heating System for Three Temperature Levels Technical Publication
- ES2010-90099 Investigating Boiler Performance: An Exergetic Evaluation of Three Commonly Applied Strategies Technical Publication

9-1 Sustainability Metrics (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

- ES2010-90082 Extending Lifecycle Exergy Analysis Beyond Resource Consumption Technical Publication
- ES2010-90395 Resource Accounting and Waste Impact: Limitations of Exergy as a Sustainability Tool Technical Publication
- ES2010-90144 Second-law Analysis in a Steam Power Plant for Minimization of Avoidable Exergy Destruction Technical Publication

9-3 Exergy Analysis for System Improvement and Device Optimization (Technical)

Track 10 Geothermal Energy, Ocean Energy & Other Emerging Technologies Expand All Sessions In Track

Track Chair: Ali Jalalzadeh-Azar, National Renewable Energy Laboratory

Track Co-Chair: Nesrin Ozalp, Texas A&M University at Qatar

10-1 Advances in Geothermal and Ocean Energy Technologies (Technical)

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Mansour Zenouzi, *Wentworth Institute of Technology*

- ES2010-90048 A NEW OSCILLATING-FOIL POWER GENERATORFOR SAILINGSHIP-BASED RENEWABLE ENERGY GENERATION Technical Publication
- ES2010-90069 Towards a Definition and Metric for the Survivability of Ocean Wave Energy Converters Technical Publication
- ES2010-90394 Modeling of Ocean Thermal Energy Conversion Plant in Reunion Island Technical Publication

Track 11 Thermoeconomic Analysis Expand All Sessions In TrackTrack Chair: Erol Ulucakli, *Lafayette College***11-1 Thermoeconomic Analysis (Technical)****Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM**

Session Sponsors:

Session Chair: Erol Ulucakli, *Lafayette College*

- ES2010-90143 Analysis of Carbon Dioxide Emission Reductions from Energy Efficiency Upgrades in Consideration of Climate Change and Renewable Energy Policy Initiatives Using eQUEST Technical Publication
- ES2010-90145 Exergy Analysis of an Integrated Gas Turbine Thermoacoustic Engine Technical Publication
- ES2010-90246 Exergoeconomic Analysis of Control Strategies for a microturbine Technical Publication
- ES2010-90408 Probabilistic Energy ROI Models: Carbon, Energy, and Dollars Technical Publication
- ES2010-90414 DEFINING A STANDARD MEASURE FOR WHOLE SYSTEM EROI COMBINING ECONOMIC "TOP-DOWN" AND LCA "BOTTOM-UP" ACCOUNTING Technical Publication
- ES2010-90279 THERMOECONOMIC STUDY OF A SMALL INTEGRATED PARABOLIC Technical Publication

Track 12 Combined Energy Cycles, CHP and CCHP Expand All Sessions In TrackTrack Chair: Vittorio Verda, *Politecnico di Torino - DENER*Track Co-Chair: Alexandre K. da Silva, *The University of Texas at Austin*

Track Co-Chair: Lianne Lami

12-1 Hybrid plants and combined cycles (Technical)**Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM**

Session Sponsors:

Session Chair: Alexandre K. da Silva, *The University of Texas at Austin*Session Co-Chair: Vittorio Verda, *Politecnico di Torino - DENER*

- ES2010-90128 Solid Oxide Fuel Cell – Gas Turbine Hybrid Power Plants for Cost Effective Power Generation in the Caribbean Technical Publication
- ES2010-90220 Validation of a Simulation Model for a Combined Otto and Stirling Cycle Power Plant Technical Publication
- ES2010-90184 Cogeneration System Modeling Based On Empirical Results Technical Publication

12-2 CHP and CCHP systems (Technical)**Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM**

Session Sponsors:

Session Chair: Lianne Lami

Session Co-Chair: Vittorio Verda, *Politecnico di Torino - DENER*

- ES2010-90120 A System-Level Simulation Model of Poly-generation Plant Based on Gasification Technology with Methanol and Power Generation Technical Publication
- ES2010-90198 Performance-Cost Analysis of Solar Combined Heat and Power Systems Technical Publication
- ES2010-90250 Radial Inflow Turbine Assessment for Small-Scale Concentrated Solar Rankine Thermal Combined Heat and Power Technology Technical Publication
- ES2010-90251 Strategies for Performance Enhancement of Tesla Turbines for Combined Heat and Power Applications Technical Publication
- ES2010-90316 Heat Recovery from a Microturbine System Technical Publication

Track 13 Solar Thermochemistry Expand All Sessions In TrackTrack Chair: Peter Loutzenhiser, *ETH Zurich***13-1 Solar Thermochemical Cycles (Technical)****Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM**

Session Sponsors:

Session Chair: Peter Loutzenhiser, *ETH Zurich*

- ES2010-90091 Cerium Oxide Materials for the Solar Thermochemical Decomposition of Carbon Dioxide Technical Publication
- ES2010-90093 Testing of a CR5 Solar Thermochemical Heat Engine Prototype Technical Publication

- ES2010-90460 O2-releasing reactivity of ceria-based reactive ceramics on irradiation of concentrated solar beam for solar hydrogen production Technical Publication
- ES2010-90436 Modeling Solar Thermochemical Splitting of CO₂ Using Metal Oxide and a CR5 Technical Publication

☐ **13-2 Solar Thermochemical Processes** (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Ken S Chen, Sandia National Laboratories

- ES2010-90014 Splitting Water and Carbon Dioxide via the Heterogeneous Oxidation of Zinc Vapor: Thermodynamic Considerations Technical Publication
- ES2010-90114 Molten-Salt Tubular Absorber/Reformer (MOSTAR) Project: Reforming Performance of Reactor Tubes During Intermittent heating Technical Publication
- ES2010-90009 Solar Syngas Production from H₂O and CO₂ via Two Step Thermochemical Cycles Based on FeO/ Fe₃O₄ Redox Reactions: Kinetic Analysis Technical Publication
- ES2010-90453 Effect of abrupt increase in temperature on electric properties of Ce_{2-x}Zr_xO₂ reactive ceramics for two-step water splitting reaction Technical Publication

☐ **13-3 Evaluation and Modeling of Solar Thermochemical Cycles and Processes** (Technical)

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Nathan Siegel, Sandia

- ES2010-90196 Renewable Hydrogen from the Zn/ZnO Solar Thermochemical Cycle: A Cost and Policy Analysis Technical Publication
- ES2010-90206 A Free and Open Source Monte Carlo Ray-Tracing Program for Concentrating Solar Energy Research Technical Publication
- ES2010-90325 Numerical Study on the Thermal Interaction of Gas-particle Transport for a Vortex Flow Solar Reactor Technical Publication
- ES2010-90326 A CFD Study on the Effect of Carbon Particle Seeding for the Improvement of Solar Reactor Performance Technical Publication

☐ **Track 14 Solar Heating and Cooling** [Expand All Sessions In Track](#)

Track Chair: Eduardo Rincón, ENGINEERING FACULTY, UNIVERSIDAD AUTÓNOMA DEL EDO. DE MEX.

☐ **14-1 Solar Cooling and Combined Systems** (Technical)

Session Description:

This session describes advances in Solar Cooling and Combined Systems

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Ming Qu, Purdue University

Session Co-Chair: Nelson Fumo, Mississippi State University

- ES2010-90136 SOLAR THERMAL DRIVEN COOLING SYSTEM FOR A DATA CENTER IN ALBUQUERQUE NEW MEXICO Technical Publication
- ES2010-90192 Radiative cooling in northern Europe using a roof window Technical Publication
- ES2010-90268 Design and Analysis of an Integrated Solar Absorption Cooling and Heating System at Purdue University Technical Publication
- ES2010-90057 Simulation Study for an Absorption Solar Cooling System Operated in Taiwan Technical Publication
- ES2010-90403 Implementation of Solar Thermal Driven Absorption Cooling in the Southeast Technical Publication

☐ **14-2 Advances in Low Temperature Solar Heating Applications.** (Technical)

Session Description:

This session includes papers on advances in Solar Heating Applications: space heating & industrial process heating.

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: James Hammonds, Howard University

Session Co-Chair: Luis H. Alva-Solari, Solarsa

- ES2010-90474 Performance Modeling Of An Air-Based Photovoltaic/Thermal (PV/T) Collector Technical Publication
- ES2010-90180 Heat Pipe Augmented Solar Heating System Technical Publication
- ES2010-90189 Heat flow control and energy recovery using CO₂ in double glass arrangements Technical Publication
- ES2010-90307 Designing of solar water bath heater for gas pressure reducing station in of 150,000 Nm³/h Capacity in Assaluyeh region in south Iran Technical Publication
- ES2010-90514 Prediction of Degradation of Polyolefins used in Solar Domestic Hot Water Components Technical Publication

☐ **14-3 Solar Heating Applications** (Technical)

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Jorge E. Gonzalez, Grove School of Engineering, The City College of New York

Session Co-Chair: David Archer, Carnegie Mellon University

ES2010-90384 Conceptual and Basic Design of a Stirling Engine Prototype for Electrical Power Generation by Solar Means Technical Publication

ES2010-90409 Performance Analysis and Parametric Optimization of a Class Solar-driven Heat Engines Technical Publication

ES2010-90444 Solar Furnace Heliostat Closed-Loop Alignment Control System Technical Publication

ES2010-90489 Exposure of Polymeric Glazing Materials on NREL's Ultra-Accelerated Weathering System Technical Publication

☐ **14-4 Analyses of Solar Cooling Technologies** (Technical)

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Jane H. Davidson, University of Minnesota - Twin Cities

Session Co-Chair: Ma. Dolores Duran

ES2010-90122 Solar chiller absorption Optimization by using genetic algorithms Technical Publication

ES2010-90248 Cost and Performance Analysis of a Solar Thermal Cooling Project Technical Publication

ES2010-90155 An Improved Methodology for Reporting Solar Radiation Data Technical Presentation Only

ES2010-90455 Cumulative Frequency Distributions For Hourly Clearness Indices Through Generalized Parameters Technical Publication

☐ **Track 15 Advances in Solar Buildings and Conservation Expand All Sessions In Track**

Track Chair: Gregor P. Henze, University of Colorado

☐ **15-1 Energy Efficiency: Methods and Verification** (Technical)

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Hongxi Yin, Purdue University

ES2010-90354 EVALUATION OF MEASUREMENT AND VERIFICATION PROCEDURES FOR RETROFIT SAVINGS USING CALIBRATED ENERGY BUILDING MODELS Technical Publication

ES2010-90431 Identifying Inefficient Single-Family Homes with Utility Bill Analysis Technical Publication

ES2010-90152 A Method to Estimate Real-Time Energy Performance and Carbon Offsets in Residential Buildings Technical Publication

ES2010-90272 A TRNSYS SIMULATION AND EXPERIMENTAL COMPARISON OF THE THERMAL BEHAVIOR OF A BUILDING LOCATED IN DESERT CLIMATE Technical Publication

☐ **15-3 Solar Energy and Buildings** (Technical)

Session Schedule: Friday, May 21, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Jorge E. Gonzalez, Grove School of Engineering, The City College of New York

Session Co-Chair: Ali Ebraheem Hajjah

ES2010-90271 A Simulation of the Thermal Performance of a Small Solar Chimney Already Installed in a Building Technical Publication

ES2010-90353 A Simplified Method to Estimate Energy Savings Associated With Structural Insulated Panels Applied to Single Family Homes Technical Publication

ES2010-90484 ECOLOGICAL SUSTAINABILITY OF FIBER-OPTICS SOLAR ENERGY IN THE STATE OF QATAR Technical Publication

ES2010-90095 Solar Assisted Household Clothes Dryer Technical Publication

☐ **15-2 Sustainability Case Studies** (Technical)

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: T. Agami Reddy, Arizona State University

Session Co-Chair: Adnan AL Anzi, Kuwait University

ES2010-90264 Thermal Performance of a Natural Ventilation System Technical Publication

ES2010-90478 Energy Saving Opportunities Using Building Energy Simulation for a typical Mosque in Kuwait Technical Publication

ES2010-90482 THERMAL ANALYSIS OF A BUILDING'S ROOF WITH CONE FRUSTUM HOLES CONTAINING PCM Technical Publication

ES2010-90077 Using Core Sunlighting to Improve Illumination Quality and Increase Energy Efficiency of Commercial Buildings Technical Publication

☐ **Track 16 Low/Zero Energy Buildings Expand All Sessions In Track**

Track Chair: John Zhai, University of Colorado at Boulder

Papers Not Assigned To A Session

- ES2010-90097 Role of Smart Windows, Efficient Lighting and Evaporative Cooling in Technical Publication
Sustainable Building Design
- ES2010-90301 Evaluation of Night Ventilation Strategies for a University Building Technical Publication
- ES2010-90462 CFD-Based Calculation and Optimization Method for Capacity Factor Technical Publication
of Building Integrated Wind Turbines
- ES2010-90458 Economic Comparison of Applications of Near-Zero Energy Technical Publication
Components for a Commercial and Residential Buildings

 **16-1 Low/Zero Energy Buildings (1)** (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Lin Duanmu, Dalian University of Technology

- ES2010-90036 Passive House Design Guidelines for Residential Buildings in El Salvador Technical Publication
- ES2010-90141 Towards Optimizing Building Energy Use to Reduce Electric System Carbon Emissions Technical Publication
- ES2010-90266 Characterizing the Response of Commercial and Industrial Facilities to Dynamic Pricing Signals from the Utility Technical Publication
- ES2010-90075 Achieving Climate-Positive, Energy-Positive Homes: 60 years of Northeast Climate Housing Technical Publication
- ES2010-90501 Study on Heat Performance of PCM Heat Storage Device in the Solar Water Heating System Technical Publication

 **16-2 Low/Zero Energy Buildings (2)** (Technical)

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Xiang Liu, Nexant Inc.

- ES2010-90035 Experimental Evaluation of a Bio-based Phase Change Material to Improve Building Energy Performance Technical Publication
- ES2010-90355 Evaluation of Ground Source Heat Pump Energy, Demand, and Greenhouse Gas Emissions Reduction Potential in Colorado Residential Buildings Technical Publication
- ES2010-90370 Reducing Energy Demand in Commercial Buildings: Balancing Convection and Radiant Cooling Technical Publication
- ES2010-90225 Main Street Zero Energy Buildings – the Zero Energy Method in Concept and Practice Technical Publication

 **16-3 Low/Zero Energy Buildings (3)** (Technical)

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Ali Ebraheem Hajiah

- ES2010-90504 EXPERIMENTAL STUDY FOR THE ENERGY EFFICIENCY OF HOT-WALL KANG Technical Publication
- ES2010-90335 Systems Integration for Cost Effective Carbon Neutral Buildings: A Masdar Headquarters Case Study Technical Publication
- ES2010-90387 Construction and Implementation of the Off-Grid Zero Emissions Building Technical Publication

 **Track 17 Photovoltaics** [Expand All Sessions In Track](#)

Track Chair: Alfonso Ortega, Villanova University

Track Co-Chair: Ziqi Liang, National Renewable Energy Laboratory

 **17-1 Advances in Photovoltaics 1** (Technical)

Session Schedule: Friday, May 21, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Alfonso Ortega, Villanova University

- ES2010-90039 Photovoltaic Module Assembly as Appropriate Technology in Pakistan Technical Publication
- ES2010-90269 CONFIGURATION OPTIMIZATION OF A PHOTOVOLTAIC POWER PLANT IN RELATION TO COST AND PERFORMANCE Technical Publication
- ES2010-90074 Distributed Industrial Scale Hybrid Solar Concentrator Photovoltaics and Thermal Energy Technical Publication

 **17-2 Advances in Photovoltaics 2** (Technical)

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Ziqi Liang, National Renewable Energy Laboratory

- ES2010-90187 Numerical Modeling of Turbulent Natural Convection in A Concentrating Photovoltaic System Technical Publication

- ES2010-90261 Analysis of the Potential for Mitigation of Building-Integrated PV Arrays Shading Losses Through Use of Distributed Power Converters Technical Publication
- ES2010-90386 Exergy Analysis of PV-Water Cooling System and PV-SAHP System Technical Publication
- ES2010-90016 Thermal Computational Model To Analysis Pv Modules – Preliminary Results Technical Publication

17-3 Advances in Photovoltaics 3 (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Alfonso Ortega, Villanova University

- ES2010-90443 Seed-induced Crystallization of Amorphous Silicon for the Formation of Large-grain Poly-crystalline Silicon Technical Publication
- ES2010-90445 Silicon and Germanium Nanocrystal Inks for Low-cost Solar Cells Technical Publication
- ES2010-90060 Organic solar cell with carbon nanotubes anode Technical Publication
- ES2010-90239 ELECTRODEPOSITION AND CHARACTERIZATION OF VERY THIN FILM II-VI COMPOUNDS FOR NOVEL SUPERLATTICE SOLAR CELLS Technical Publication

Track 18 Concentrating Solar Power Expand All Sessions In Track

Track Chair: Charles Andraka, Sandia National Laboratories

Track Co-Chair: Allison Gray, NREL

18-1 CSP Optical Analysis (Technical)

Session Description:

This session considers various analytical tools and methods brought to bear in the analysis, design, and implementation of Concentrating Solar Power systems

Session Schedule: Wednesday, May 19, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Allison Gray, NREL

Session Co-Chair: Bradley R. Stone, Stirling Energy Systems

Session Co-Chair: Ihtesham Chowdhury, Arizona State University

- ES2010-90050 Finite Element Modeling of Concentrating Solar Collectors for Evaluation of Gravity Loads, Bending, and Optical Characterization Technical Publication
- ES2010-90052 Development of a "Solar Patch" Calculator to Evaluate Heliostat-Field Irradiance as a Boundary Condition in CFD Models Technical Publication
- ES2010-90054 Analytical Methods to Evaluate Flux Distributions from Point-Focus Collectors for Solar Furnace and Dish Engine Applications Technical Publication
- ES2010-90242 A Parametric Study of the Impact of Various Error Contributions on the Flux Distribution of a Solar Dish Concentrator Technical Publication

18-2 CSP Optical Tools (Technical)

Session Description:

Field Measurement of optical systems and effects are important to the understanding, improvement, and cost reduction of CSP systems. The session focuses on optical field measurements and tools, including alignment, resource measurement, and effects.

Session Schedule: Wednesday, May 19, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Edgar Teufel, German Aerospace Center

Session Co-Chair: Michael Wagner, National Renewable Energy Lab

- ES2010-90053 Methodology to Assess Potential Glare Hazards from Concentrating Solar Power Plants: Analytical Models and Experimental Validation Technical Publication
- ES2010-90092 Test Results and Status of the TOP Alignment System for Parabolic Trough Solar Collectors Technical Publication
- ES2010-90356 Heliostat Alignment Methods: An Overview and Comparison Technical Publication
- ES2010-90418 On the Development of a Low Cost Pyrheliometer Technical Publication

18-3 CSP Components (Technical)

Session Description:

This session includes design, analysis, and testing of components for CSP systems.

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Nathan Siegel, Sandia

- ES2010-90110 An Air-Based Cavity-Receiver for Solar Trough Concentrators Technical Publication
- ES2010-90229 Thermodynamic Cycles for a Small Particle Heat Exchange Receiver used in Concentrating Solar Power Plants Technical Publication
- ES2010-90402 Thermal Modelling and Simulation of Parabolic Trough Absorber Tubes Technical Publication
- ES2010-90327 Effect of Camera-like Aperture in Quest for Maintaining Quasi-Constant Radiation Inside a Solar Reactor Technical Publication

[ES2010-90194](#) Preliminary Analysis Of A 100 kWth Mini-Tower Solar Field With An Integrated Optical Waveguide Receiver For Solar Chemistry Technical Publication

☐ **18-4 CSP System Studies** (Technical)

Session Description:

This session includes papers on system level studies for large power generating trough systems as well as cross-cutting utility-scale systems studies.

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Diego A. Arias, Abengoa Solar Inc.

Session Co-Chair: Markus Eck, German Aerospace Center

[ES2010-90339](#) LIFE CYCLE ASSESSMENT OF A MODEL PARABOLIC TROUGH CONCENTRATING SOLAR POWER PLANT WITH THERMAL ENERGY STORAGE Technical Publication

[ES2010-90383](#) A Numerical Model for Off-Design Performance Calculation of Parabolic Trough Based Solar Power Plants Technical Publication

[ES2010-90401](#) Modelling, Simulation and Assessment of Solar Thermal Power Plants – A First Step Towards Definition of Best Practice Approaches Technical Publication

[ES2010-90442](#) The Impact of Hybrid Wet/Dry Cooling on Concentrating Solar Power Plant Performance Technical Publication

[ES2010-90468](#) Correlations Between Geographically Dispersed Concentrating Solar Power and Demand in the United States Technical Publication

☐ **18-5 Novel CSP Systems** (Technical)

Session Description:

This session has papers on novel CSP systems and combinations of CSP and traditional generating plants.

Session Schedule: Friday, May 21, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Clifford Ho, Sandia National Laboratories

Session Co-Chair: David Sánchez, University of Sevilla

[ES2010-90137](#) Enhanced Efficiency in a Coupled Photovoltaic/Thermal Concentrating Solar Collector Technical Publication

[ES2010-90153](#) Installation and Operation of Southern Nevada Water Authority's Amonix High Concentration Multi-Junction System Technical Publication

[ES2010-90263](#) Implementation of an Integrated Solar Combined Cycle on an Existing Coal Fired Power Plant Technical Publication

[ES2010-90388](#) Solar Thermal Closed-Helium Brayton Cycle with High Temperature Phase-change Thermal Storage Technical Publication

[ES2010-90399](#) Modeling On/Off-Design Performance of Solar Tower Plants Technical Publication

☐ **Track 19 Advances in Solar Thermal Storage** [Expand All Sessions In Track](#)

Track Chair: Rainer Tamme, DLR - German Aerospace Center

Track Co-Chair: Charles Andraka, Sandia National Laboratories

☐ **19-1 Solar Thermal Storage 1** (Technical)

Session Schedule: Thursday, May 20, 2010 10:30 AM-12:00 PM

Session Sponsors:

Session Chair: Doerte Laing, German Aerospace Center (DLR)

Session Co-Chair: Russel Muren, Abengoa Solar Inc.

[ES2010-90078](#) 3D FEM Model to Improve the Heat Transfer in Concrete for Thermal Energy Storage in Solar Power Generation Technical Publication

[ES2010-90096](#) EFFECT OF HIGH TEMPERATURES AND HEATING RATES ON HIGH STRENGTH CONCRETE FOR USE AS THERMAL ENERGY STORAGE Technical Publication

[ES2010-90331](#) Research development and application of solar thermal storage with phase change materials Technical Publication

[ES2010-90181](#) LIQUID CALCIUM CHLORIDE SOLAR STORAGE: CONCEPT AND ANALYSIS Technical Publication

☐ **19-2 Solar Thermal Storage 2** (Technical)

Session Schedule: Thursday, May 20, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Brian Luptowski, Abengoa Solar Inc.

Session Co-Chair: Ihtesham H. Chowdhury

[ES2010-90040](#) Freeze-Thaw Tests of Trough Receivers Employing a Molten Salt Working Fluid Technical Publication

[ES2010-90209](#) Heat Transfer in Thermocline Storage System with Filler Materials: Analytical Model Technical Publication

[ES2010-90295](#) Enhanced Sensible Heat Capacity of Molten Salt Based Nanofluid For Solar Thermal Energy Storage Application Technical Publication

[ES2010-90299](#) Study of High Temperature Nanofluids using Carbon Nanotubes (CNT) for Solar Thermal Storage Applications Technical Publication

☐ **Track 20 Wind Energy Systems and Technologies** [Expand All Sessions In Track](#)

Track Chair: Daniel Laird

Track Co-Chair: Andy Walker, *NREL*

Track Co-Chair: Robi Robichaud, *NREL*

☐ **20-1 Wind Resource Assessment and Forecasting** *(Technical)*

Session Description:

This session addresses issues related to measuring, characterizing, and forecasting the wind energy resource.

Session Schedule: **Thursday, May 20, 2010 04:00 PM-05:30 PM**

Session Sponsors: Solar Energy Division

Session Chair: Robi Robichaud, *NREL*

[ES2010-90044](#) DESIGN OF AN EXTRA-TALL WIND RESOURCE ASSESSMENT FOR THE COMPLEX TERRAIN OF THE WESTERN APPALACHIAN OHIO FOOTHILLS Technical Publication

[ES2010-90270](#) COMPARISON OF DIFFERENT TIME SERIES METHODS FOR SHORT-TERM FORECASTING OF WIND ENERGY PRODUCTION Technical Publication

[ES2010-90381](#) A Methodology for Comprehensive Characterization of Errors in Wind Power Forecasting Technical Publication

[ES2010-90441](#) Modeling of Wind Power Production Forecast Errors for Wind Integration Studies Technical Publication

[ES2010-90183](#) Simulating the Dynamic and Steady-State Response of a Rotor Resistive Controlled 1.5 MW Variable Speed Wind Turbine Technical Publication

☐ **20-2 Wind Turbine Design and Simulation** *(Technical)*

Session Description:

This session addresses topics related to numerical analysis of wind turbines and wind energy integrated into utility systems.

Session Schedule: **Friday, May 21, 2010 10:30 AM-12:00 PM**

Session Sponsors: Solar Energy Division

Session Chair: Robi Robichaud, *NREL*

[ES2010-90378](#) A Comparative Wind Investigation Using Mesoscale Numerical Predictions and Experimental Data at Aubrey Cliffs, Arizona Technical Publication

[ES2010-90483](#) NUMERICAL INVESTIGATION OF SEPARATION CONTROL FOR WIND TURBINE AIRFOIL Technical Publication

[ES2010-90216](#) PRELIMINARY RESULTS OF A MEASUREMENT STATION TO CHARACTERIZE THE WIND ENERGY POTENTIAL AT THE EASTERN OF MEXICO Technical Publication

[ES2010-90158](#) Feasibility of Wind Power for Brackish Groundwater Desalination: A Case Study of the Energy-Water Nexus in Texas Technical Publication

☐ **20-3 Wind Turbine Geometry and Materials** *(Technical)*

Session Description:

This session addresses topics related to the geometry of wind turbine blades and powertrains as well as materials issues.

Session Schedule: **Friday, May 21, 2010 02:00 PM-03:30 PM**

Session Sponsors: Solar Energy Division

Session Chair: Robi Robichaud, *NREL*

[ES2010-90062](#) Concepts Developed for a Multi-phased, Vertical Axis Wind Turbine (MVAWT) System with an Adjustable Inlet Air Scoop and Exit Drag Curtain Technical Publication

[ES2010-90113](#) An Investigation of an Eppler 423 Style Wind Turbine Blade Technical Publication

[ES2010-90236](#) Adaptive Geometry Wind Turbine Blades for Increasing Performance Technical Publication

[ES2010-90373](#) Optimization of Flatback Airfoils for Wind Turbine Blades Technical Publication

[ES2010-90422](#) Multi-axial fatigue life assessment of wind turbine structural components Technical Publication

☐ **Track 21 Water Desalination & Distillation Systems**

Track Chair: Ralf Olwig

Track Co-Chair: Christian Sattler, *Deutsches Zentrum für luft- und Raumfahrt e.V.*

☐ **Track 22 Sustainable Cities and Communities** [Expand All Sessions In Track](#)

Track Chair: Hongxi Yin, *Purdue University*

Track Co-Chair: K. Max Zhang, *Cornell University*

Track Co-Chair: Ming Qu, *Purdue University*

☐ **22-1 Green Energy Infrastructure Case Study** *(Technical)*

Session Schedule: **Wednesday, May 19, 2010 02:00 PM-03:30 PM**

Session Sponsors:

Session Chair: Hongxi Yin, *Purdue University*

Session Co-Chair: K. Max Zhang, *Cornell University*

- ES2010-90083 IT-Enabled Resource Management Technical Publication
- ES2010-90161 Greening Tenant/Landlord Processes: Demonstrating Transformation In the Industry Technical Publication
- ES2010-90190 The Co-Design of Water and Energy Efficient Sustainable Housing with the Pinoleville Pomo Nation Technical Publication
- ES2010-90333 On the environmental sustainability of solar technologies in a coastal city Technical Publication
- ES2010-90471 Application and Development of Renewable Energy: A Case Study of Solar Energy Utilization in Baoding, China Technical Publication

📅 **22-3 Innovative Simulation and Analysis Method** (Technical)

Session Schedule: Wednesday, May 19, 2010 04:00 PM-05:30 PM

Session Sponsors:

Session Chair: Ming Qu, *Purdue University*

Session Co-Chair: K. Max Zhang, *Cornell University*

- ES2010-90338 The Analysis and Application of Energy-internet in the Low-carbon Community Technical Publication
- ES2010-90357 Development of An Hourly Optimization Tool for Renewable Energy Systems Technical Publication
- ES2010-90487 Towards a Net Zero Building Cluster Energy Systems Analysis for a Brigade Combat Team Complex Technical Publication
- ES2010-90499 Instrumentation And Simulation Of The Hygro-thermal Conditions Of A Green Building : A Study Of The Impact Post-occupancy Usages On Thermal Comfort Technical Publication
- ES2010-90509 Energyplus Simulation Speedup Using Data Parallelization Concept Technical Publication

📅 **22-4 Renewable Energy and Energy Policy in Urban Infrastructure** (Technical)

Session Schedule: Friday, May 21, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Hongxi Yin, *Purdue University*

Session Co-Chair: Ming Qu, *Purdue University*

- ES2010-90224 Renewable Powered Desalination In Coastal Mekong Delta Technical Publication
- ES2010-90265 Energizing Sustainable Communities Technical Publication
- ES2010-90298 Design and Analysis of a Continuous Operating Solar Absorption Cooling System Technical Publication
- ES2010-90415 Application of Regional Bio-Refining to Increase the Sustainability and Energy Self-Sufficiency of Rural and Agricultural Communities Technical Publication

📅 **Track 23 Biofuels** [Expand All Sessions In Track](#)

Track Chair: Marco Sanjuan, *Universidad del Norte*

Track Co-Chair: Chao Tan, *University of Calgary*

📅 **23-1 Biofuels Production** (Technical)

Session Schedule: Thursday, May 20, 2010 04:00 PM-05:30 PM

Session Sponsors: Advanced Energy Systems Division, DTC and Energy Management Technical Committee

Session Chair: Marco Sanjuan, *Universidad del Norte*

- ES2010-90191 Design and Performance of a Photobioreactor Utilizing Spatial Light Dilution Technical Publication
- ES2010-90235 Effect of Solids Removal from Dairy Manure Feedstock on Biogas Production in Anaerobic Digesters Technical Publication
- ES2010-90310 Production Of Biofuels Using Micro-Algae Aquaculture Technical Publication
- ES2010-90433 Catalytic hydrothermal conversion of glucose to light petroleum alkanes Technical Publication

📅 **23-2 Biofuels Analysis** (Technical)

Session Schedule: Friday, May 21, 2010 10:30 AM-12:00 PM

Session Sponsors: Advanced Energy Systems Division, DTC and Energy Management Technical Committee

Session Chair: Chao Tan, *University of Calgary*

- ES2010-90154 A Resource-limited Approach To Estimating Algal Biomass Production With Geographical Fidelity Technical Publication
- ES2010-90226 Experimentally Derived Arrhenius Coefficients for Fast Pyrolysis of Biomass Technical Publication
- ES2010-90166 Effect of multiple injection strategy on atomization and emission reduction characteristics in a diesel-ethanol fueled engine Technical Publication

📅 **23-3 Biodiesel** (Technical)

Session Schedule: Friday, May 21, 2010 02:00 PM-03:30 PM

Session Sponsors:

Session Chair: Chao Tan, *University of Calgary*

- [ES2010-90503](#) OPTIMIZED PREPARATION OF MORINGA OLEIFERA METHYL ESTERS USING SULFATED TIN OXIDE AS HETEROGENOUS CATALYST Technical Publication
- [ES2010-90505](#) Experimental investigation on Variation of FFA in Used Cooking Oil and optimization of conversion to Biodiesel Technical Publication
- [ES2010-90202](#) Laser-Induced Incandescence and Smoke Point Measurements to Characterize the Sooting Propensity of Biodiesel Diffusion Flame Technical Publication
- [ES2010-90277](#) Analytical Tools for Evaluating Algal Biodiesel Production Technical Presentation Only

Track 24 Student Session

Track Chair: Jorge E. Gonzalez, *Grove School of Engineering, The City College of New York*

Note: Program is subject to change.

Sponsored By

Media Sponsor



Minimum Site Requirements: [IE 5.0+](#) • [NS 7.0+](#) • [Acrobat Reader 4.0+](#)

Copyright © 1996-2010 ASME. All Rights Reserved. [Terms of Use](#) | [Privacy Statement](#)
 Powered by Conference Toolbox™ version 4.0. For more information, [contact us](#).