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WELCOME

We would like to welcome you to the first international conference on engineering for the bioenergy industry. This conference is unique in that it was organized by engineers for engineers that participate in all aspects of bioenergy from feedstock production through facility design and operations. Over the past decade, tremendous advances in fundamental and applied science enable the design of more efficient processes for production of thermal, biological, and extractive bioenergy sources.

Our keynote speaker, panelists, and presenters represent the entire spectrum of engineers in academia, government labs, professional service firms, supply industries, and bioenergy producers. The forums of this conference are organized for exchange of ideas and knowledge among participants. A set of institute tracks provide coherent pathways for those with specific interests.

We would like to express our appreciation to our sponsoring organizations, the American Society of Agricultural and Biological Engineers (ASABE), 25x25, the American Society of Civil Engineers, BBI International, and the U.S. Department of Energy. Their support has been vital to the conference.

The program was organized by more than forty enthusiastic volunteers, led by Shahab Sokhansanj and Erin Wilkerson. The volunteer effort began in April 2008 and continued for fifteen months, culminating in this landmark event. We cannot thank them enough for their time and dedication.

The venue in Bellevue, WA was chosen as an international travel hub located in the Pacific Northwest hotbed of innovation in bioenergy spanning both sides of the boarder of the United States and Canada. Mobile workshop tours provide an introduction to some of the bioenergy activities of the region. High level of participation from the University of British Columbia, University of Washington, and Washington State University feature leading edge research at regional institutions.

We also wish to welcome those attending the International Standards Institute TC238 Solid Biofuels Standards workshops and plenary sessions that immediately follow the Bioenergy Engineering 2009 conference. We look forward to the discussions as we work toward uniform standards for international trade in wood pellets, biomass feedstocks, and other solid biofuels.

Please enjoy your week in the Seattle area.

Don Erbach and Jim Dooley
Conference Co-Chairs

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GENERAL INFORMATION

KEYNOTE SPEAKER

Henry Petroski
Aleksandar S. Vesic Professor of Civil Engineering
Professor of History
Duke University

HENRY PETROSKI is the Aleksandar S. Vesic Professor of Civil Engineering and a professor of history at Duke University. He has written broadly on the topics of design, success and failure, and the history of engineering and technology. His dozen or so books on these subjects include To Engineer Is Human, Design Paradigms, and Engineers of Dreams, which deal principally with large structures like bridges. He has also written about small, common things in his books The Pencil, The Toothpick, The Evolution of Useful Things, The Book on the Bookshelf, and Small Things Considered. A memoir about delivering newspapers in the 1950s and about what predisposed him to become an engineer is entitled Paperboy. His next book, titled The Essential Engineer, is about how science and engineering approach global problems. It is scheduled for publication in February 2010.

In addition to his books, which have been translated into more than a dozen languages, Petroski has written many general-interest articles and essays for magazines and newspapers, including the New York Times, Washington Post, Los Angeles Times, and Wall Street Journal, and he writes regular columns for both American Scientist and ASEE Prism. In addition, he lectures frequently to audiences in the U.S. and abroad, and has been interviewed often on radio and television. He has been profiled in the New York Times, Smithsonian, U.S. News and World Report, and many other newspapers and magazines.

Before moving to Duke in 1980, Henry Petroski was on the faculty of the University of Texas at Austin and on the staff of Argonne National Laboratory. He is a registered professional engineer in Texas and also a chartered engineer in Ireland.

Petroski has held fellowships from the Guggenheim Foundation, the National Endowment for the Humanities, and the National Humanities Center. Among his other honors are the Ralph Coats Roe Medal from the American Society of Mechanical Engineers; the Washington Award from the Western Society of Engineers; and the Civil Engineering History and Heritage Award from the American Society of Civil Engineers, whose history and heritage committee he now chairs. He has received four honorary degrees and is the recipient of distinguished engineering alumnus awards from Manhattan College and the University of Illinois at Urbana-Champaign. Henry Petroski is a Distinguished Member of the American Society of Civil Engineers and is a Fellow of the American Society of Mechanical Engineers and the Institution of Engineers of Ireland. He is also an honorary member of the Moles and an elected member of the American Academy of Arts and Sciences, the American Philosophical Society, and the U.S. National Academy of Engineering.

GENERAL INFORMATION

REGISTRATION
Our registration desk is happy to answer any questions you may have during the conference. Registration desk hours are:

Sunday, October 11	10:00AM-6:00PM
Monday, October 12	7:30AM-5:00PM
Tuesday, October 13	7:00AM-5:00PM
Wednesday, October 14	7:30AM-5:00PM

LOCATION
All conference events are scheduled at the Hyatt Regency Bellevue in Bellevue, Washington.

HYATT REGENCY BELLEVUE
900 Bellevue Way Northeast
Bellevue, Washington, 98804-4272
Telephone: 425-462-1234
Fax: 425-646-7567
www.bellevue.hyatt.com

If you are staying at the Hyatt Regency Bellevue, please note that check-in is at 3:00PM and check-out is at 11:00AM. In addition, early departure fees will be applicable if you check out before your reserved check-out date uless you notify the hotel before or during check-in.

NAME BADGES
Please wear your name badge at all times. This is how we know you are conference attendee and it will allow you access into meetings, the exhibit hall and meal functions.

ELECTRONIC DEVICES
As a courtesy to your colleagues, please turn off or silence all electronic devices during sessions, workshops and plenary addresses.

QUESTIONS
Please visit the registration desk with any questions or comments. We will be happy to assist you.

MEDICAL EMERGENCIES
In the event of a life threatening medical emergency please call 911 from any pay phone or pick up a house phone and they will dial it for you. If you need assistance with non-life threatening medical emergencies, please visit the registration desk. We will be able to provide you with information to the nearest hospital or urgent care center.

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SUNDAY, OCTOBER 11
1:00PM-5:00PM

MOBILE WORKSHOP

Seattle Area Bioenergy Process and Industrial Applications

Location: Tour departs from in front of the hotel

12:00PM **Depart from the Hyatt Bellevue**

12:45PM **Converting Landfill Gases to Power**
Cedar Hills Landfill Maple Valley - Bio Energy Washington

1:45PM **Converting Urban Waste to Energy and Secondary Products**
Rainier Wood Recyclers, Covington

2:30PM **Converting Woody Biomass to Rectangular Bales for Easy Haul**
View Forest Concepts Biomass Baler in Operation

4:00PM **Seattle Steam**

5:00PM **Return to Hyatt Bellevue**

WORKSHOP A

Preprocessing and Conversion Technologies for Thermochemical Conversion of Biomass

Location: Grand I

This workshop will include presentations to introduce engineers to preprocessing and conversion technologies for Thermochemical conversion of biomass. Presentations will include topics that will provide the fundamentals for (a) Preprocessing Principles and Requirements for Thermochemical Conversion; (b) Torrefaction process principles and technological overview; (c)Integration of pretreatment methods for thermo-chemical processing.

WORKSHOP B

Design for Cellulosic Materials Processing & Handling

Location: Grand J

This workshop will focus on the interrelationships between four “unit” operations: harvest, in-field hauling, satellite storage, and highway hauling.

WORKSHOP C

Bioenergy Engineering Extension and Workforce Development

Moderators: Dr. Kaushlendra Singh, Post Doctoral Research Associate, University of Georgia, GA
Dr. Litha Sivanandan, Research and Development Food Technologist, Oceana Foods, MI

Location: Grand K

This workshop will sensitize the faculty involved in extension and educational program development to enable them to identify the needs and opportunities in the area of bioenergy workforce development

1:00PM **Ice Breaker and Workshop Overview**
Dr. Litha Sivanandan, Oceana Foods

1:20PM **Designing a Successful Training Program**
Dr. Kaushlendra Singh, University of Georgia

2:30PM **Biobased Products and Bioenergy Multi-University Graduate Program**
Dr. Ronald L. Elliott, Oklahoma State University

3:00PM **Break**

3:15PM **Bioenergy Education/Extension Programs in University of Wisconsin**
Dr. Richard J. Straub, University of Wisconsin

3:45PM **Networking Education, Extension, and Industries for Bioenergy Workforce Development**
Dr. E. Dale Threadgill, Univerity of Georgia

4:15PM **UFL/IFAS Bioenergy Extension Projects**
Dr. Dorota Z. Haman, University of Florida

4:45PM **Questions, Comments, Wrap-Up**

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WEDNESDAY, OCTOBER 14
10:30AM-3:30PM

WORKSHOP D

Optimal Drying for DDG and Other Solid Wastes
Moderator: Kurt Rosentrater
Location: Grand I
This workshop will 1) review theoretical aspects of drying processes and kinetics; 2) discuss current drying practices for distillers dried grains with solubles (DDGS); 3) examine the impacts that drying conditions have on the resulting physical and nutritional properties of DDGS; and 4) discuss drying practices for other solid wastes. Through multiple speakers who are experts in their field, attendees will gain an in depth knowledge regarding current practices and new technologies relevant to the biofuels industry. Box lunch will be provided.
Session Introduction – Kurt Rosentrater

Theoretical Aspects of Drying Biological Products
Digvir Jayas, University of Manitoba
Rotary drying of DDGS
Jeff Noland
Ring drying of DDGS
Adrian Dee, GEA Group
Effects of Drying Conditions on DDGS Properties
Brian Wrenn, National Corn to Ethanol Research Center
Cyclonic Drying of Agricultural and Biological Products
Loran Baltzanz, LRB Corporation
Solid Biomass Boilers Using Wood Chips
Lawrence Klope

WORKSHOP E

Feedstock Supply Logistics
10:30AM-12:30PM
Moderator: Dr. Shahab Sokhansanj and Dr. Regimio Berutto
Location: Grand J
The objective of this 2 hour workshop is to introduce the participants to the Integrated Biomass Supply & Logistics. Examples of the model will be disributed to participants. The Integrated Biomass Supply & Logistics (IBSAL) model is a dynamic (time dependent) model of operations that involve collection, harvest, storage, preprocessing, and transportation of feedstock for use in a biorefinery. The model uses mathematical equations to represent individual unit operations. These unit operations can be assembled by the user to represent the working rate of equipment and queues to represent storage at facilities. The model calculates itemized costs, energy input, and carbo emissions. It estimates resource requirements and operational characteristics of the entire supply infrastructure. Weather plays an important role in biomass management and thus in IBSAL, dictating the moisture content of biomass and whether or not it can be harvested on a given day. The model calculates net biomass yield based on a soil conservation allowance (for crop residue) ad dry matter losses during harvest and storage.

WORKSHOP F:

Solid Fuels Standards
Moderator: Scott Cedarquist, ASABE
Location: Grand K
Join in hearing an overview of currently available standards, the current status as well as future plans for international standards, and provide a venue for discussing where standards could be developed that are needed and would benefit the industry. An open forum will be provided at the conclusion of the workshop to encourage discussion of the additional standards that need to be in place industry wide. Box lunch will be provided.

ASABE Role in Solid Biofuels Standards
Klein Ikeleji, Purdue University & Scott Cedarquist, ASABE
Pellet Fuel Institute (PFI) Standards Overview
Chris Wiberg, Twin Ports Testing
The EU Perspective
Birgit Bodlund, Vottenfall AB Generation & ISO/TC238 Internatonal Chair)
International Compilation of Solid Biofuel References
Eija Alakangas, VTT, Technical Research Centre of Finland
North American Industry Perspectives
Kyle Gibeault, Biomass Thermal Energy Council, Staffan Melin, Wood Pellet Associaton of Canada & Tom Stroud, Pellet Fuel Institute)
ISO/TC238 Next Steps
Birgit Bodlund, Vattenfall AB Generation & ISO/TC238 International Chair
Panel Discussion: What is needed by industry?

WORKSHOP H

Engineering a New Bioenergy Industry
Moderator: Dr. Brian He, University of Idaho
Location: Grand B
This workshop will discuss the advantages, limitations, challenges and opportunities of existing technologies to produce first and second generation bio-fuels, bio-diesel, bio-ethanol and green gasoline). The participants will learn about the status of existing technologies, current research projects and the challenges to deploy these systems under current conditions. Box lunch will be provided.

10:30AM **Workshop overview**
Dr. Brian He, University of Idaho)
10:40AM **Challenges and opportunities for the production and use of Bio-ethanol**
Dr. Renata Bura, University of Washington
11:30AM **Challenges and opportunities for the production and uses of Bio-diesel**
Dr. Jon Van Gerpen, University of Idaho)
12:20PM **Challenges and opportunities for the production and uses of Green Gasoline and Green Diesel from lignocellulosic materials**
Dr. Manuel Garcia-Perez, Washington State University
1:10PM **Panel Discussions witj Workshop Speakers**
Dr.Brian He, University of Idaho

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SUNDAY, OCTOBER 11

10:00AM-6:00PM **REGISTRATION**
Location: Grand Foyer

9:00PM-5:00PM **EXHIBIT HALL SETUP**

12:00PM-5:00PM **MOBILE WORKSHOP: Seattle Area Bioenergy Process & Industrial Applications**
Location: Mobile Workshop will depart.from front of Hotel

1:00PM-5:00PM **WORKSHOP A: Preprocessing and Conversion Technologies for Thermochemical Conversion of Biomass**
Location: Grand I

1:00PM-5:00PM **WORKSHOP B: Design for Cellulosic Materials Processing & Handling**
Location: Grand J

1:00PM-5:00PM. **WORKSHOP C: Bioenergy Engineering Extension and Workforce Development**
Moderators: Dr. Kaushlendra Singh, Post Doctoral Research Associate, University of Georgia, GA
Dr. Litha Sivanandan, Research and Development Food Technologist, Oceana Foods, MI
Location: Grand K

6:00PM-8:00PM **OPENING RECEPTION: Networking event in the exhibit hall open to all participants**
Location: Grand ABCD

MONDAY, OCTOBER 12

7:30AM-5:00PM **REGISTRATION & HOSPITALITY DESK**
Location: Grand Foyer

7:30AM-9:30AM **CONTINENTAL BREAKFAST**
Location: Grand ABCD

8:30AM-10:15AM **WELCOME** – Ron Yoder, ASABE President
Location: Grand EFGH

OPENING REMARKS – Jim Dooley & Don Erbach, Conference Co-Chairs

KEYNOTE SPEAKER
"Inventors, Engineers, Scientists: Are They Interchangeable?"
Henry Petroski, Professor, Duke University

10:00AM-5:00PM **EXHIBIT HALL OPEN** – Continental breakfast and all breaks will be hosted in the exhibit hall
Location: Grand ABCD

10:30AM-12:00PM **FACILITATED PANEL DISCUSSION - State of the Union, How the New Administration and Political Influences Effect the Future of Bioenergy**
Moderator: Don Erbach
Location: Grand EFGH
Panelists Include: John Ferrell, Office of Biomass, Department of Energy
Jonathan Rhone, Nexterra Systems Corp
Mike Rushton, Lignol Innovations
Mark Stumborg, Agriculture and Agri-Food Canada

12:00PM-1:00PM **NETWORKING LUNCHEON**
Location: Grand EFGH

1:30PM-2:45PM **TECHNICAL SESSION SERIES 1**

Conference attendees will have the opportunity to join any of the technical sessions that interest them. Each session will have an invited speaker for 30 minutes followed by 3 additional presenters.

TECHNOLOGIES FOR HARVEST, COLLECTION, AND STORAGE OF AGRICULTURAL BIOMASS

Moderator: Mark Stumborg, Agriculture and Agri-Food Canada
Location: Grand I

1:30PM-2:00PM **Single Pass Harvest System**
Stuart Birrell, Iowa State

2:00PM-2:15PM **Harvest Systems Activities for Improving Crop Residue Biomass**
Mark Stumborg, Agriculture and Agri-Food Canada

2:15PM-2:30PM **Characterization of Biomass Properties for Optimizing Feedstock Handling Operations**
Peter Pryfogle, Idaho National Lab

2:30PM-2:45PM **Storage of Lignocellulosic Biomass**
Alison Ray, Idaho National Lab

BIOCHEMICAL CONVERSION OF BIOMASS TO ENERGY

Moderator: Dr. Remigio Berruto, DEIAFA-University of Turin
Location: Grand J

1:30PM-2:00PM Rick Gustafson, University of Washington

2:00PM-2:15PM **Xylanase and Cellulase Production from Solid Waste Fermentation of Acidothermus Cellulolyticus on Switchgrass**
Farzaneh Rezaei, University of California, Davis

2:15PM-2:30PM **Investigation and modeling natural biodegradation system in soil; application for designing an efficient biological pretreatment technology for biofuel production**
Mythreyi Chandoor, Washington State University

2:30PM-2:45PM **Extrusion Pretreatment and Enzymatic Hydrolysis of Soybean Hulls**
Veeramani Karuppuchamy, South Dakota State University

TECHNOLOGIES FOR HARVEST AND COLLECTION OF WOODY BIOMASS

Moderator: Bryce Stokes, Navarro Research & Engineering Inc.
Location: Grand K

1:30PM-2:00PM **Machine System for Harvesting Small Diameter Woody Biomass and Reducing Hazardous Fuels: A development Report**
Dr. Joseph P. Roise, Department of Forestry and Environmental Resources at NC State University

2:00PM-2:15PM **Woody Biomass Feedstock Materials 101**
James Dooley, Forest Concepts

2:15PM-2:30PM **Characterization of Wood Chips in the Northwestern United States**
Dave Lanning, Forest Concepts

2:30PM-2:45PM **Innovations in Harvesting and Transportation of Woody Biomass for Energy Production**
Han Sup Han, Humboldt State University

ANAEROBIC DIGESTION

Moderator: Shulin Chen, Washington State University
Location: Spruce

1:30PM-2:00PM **Demonstration Digester for American Crystal Sugar Company**
Pratap Pullammanappallil, University of Florida

2:00PM-2:15PM **Michigan State University Anaerobic Digeston Research and Education Center**
Dana Kirk, Michigan State University

2:15PM-2:30PM **Improved Monitoring of Livestock Anaerobic Digesters Leads to Carbon Market Revenue Optimization**
Patrick Wood, AgRefresh

2:30PM-2:45PM **Options for Post Digestion Management of Effluent and Solids**
Bernard Sheff, Sheff and Sons Engineering

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ADVANCES IN ENERGY PRODUCTION FROM ALGAE 1

Moderator: David Brune, Clemson University
Location: Auditorium

1:30PM-2:00PM **Techno-Economic Assessment of Microalgae Production Systems: Current Status and Future Oppoprtunities**
Sudhagar Mani, University of Georgia

2:00PM-2:15PM **Large-Scale Microalgae Cultivation for the Production of Biofuels and other Valuable Byproducts**
Greg Schwartz, Kent Bioenergy

2:15PM-2:30PM **Growth Analysis of Microalgae in Photobioreactors**
Wenqiao Yuan, Kansas State University

2:30PM-2:45PM **Metabolic Engineering of Oil-Producing Cyanobacteria**
Margaret McCormick, Ph.D., Bio-Based Materials of Targeted Growth

3:00PM-4:15PM TECHNICAL SESSION SERIES 2

Conference attendees will have the opportunity to join any of the technical sessions that interest them. Each session will have an invited speaker for 30 minutes followed by 3 additional presenters.

MODELING APPROACHES FOR EVALUATING BIOENERGY SUPPLY CHAINS

Moderator: David Lanning, Forest Concepts
Location:Grand I

3:00PM-3:30PM **Bio-oil as a Carrier for Bioenergy**
Amit Kumar, University of Alberta

3:30PM-3:45PM **Engineering Solutions for Biomass Feedstock Production: Agent Based Modeling Simulationg**
Ming-Che Hu, University of Illinois

3:45PM-4:00PM **Assessing Energy Pathways for Forestry Residue Utilization**
Peter Dempster, University of California-Davis

4:00PM-4:15PM **Development of Integrated Water and Energy Requirement Factors for Bioenergy Pathways**
Amit Kumar, University of Alberta

DEVELOPMENT OF FEEDSTOCK PREPROCESSING AND DENSIFICATION TECHNOLOGIES

Moderator: Shahb Sokhansanj, Oak Ridge National Lab
Location: Grand J

3:00PM-3:30PM **Integrated Pretreatment and Pelletization of Biomass**
Muthukumarappan Kasiviswanathan, South Dakota State University

3:30PM-3:45PM **Determination of Densified Biomass properties Using 3D Laser Scanning and Image Analysis**
Jeremiah Davis, Mississippi State University

3:45PM-4:00PM **Development of a High-Rate Mobile Pelletizing System for Grass Fuel Pellets - A student Driven Project**
Robert Rynk, SUNY Cobleskill

4:00PM-4:15PM **Preprocessing Herbaceous Feedstocks for Bioenergy Production**
Chris Wright, Idaho National Lab

THERMOCHEMICAL CONVERSION OF BIOMASS TO ENERGY

Moderator: Rick Gustafson, University of Washington
Location: Grand K

3:00PM-3:30PM **Gasification and Gas Cleaning Research at UBC**
John Grace, University of British Columbia

3:30PM-3:45PM **Hydrocarbons from Pine Wood via Fast Pyrolysis and Hydrodeoxgenation**
Fei Yu, Mississippi State University

3:45PM-4:00PM **Effect of the Reducing Agent (Dithiothereitol) on Ethanol and Acetic Acid Production by Clostridium Strain P11 Using Biomass-Based Syngas**
Balaji Kubandra Babu, Oklahoma State University

4:00PM-4:15PM **Preliminary Parameters to Produce Liquid Hydrocarbons from Synthesis Gas**
Jason Street, Mississippi State University

ENERGY FROM MUNICIPAL AND FOOD WASTES

Moderator: David Sjoding, Washington State University
Location: Spruce

3:00PM-3:30PM **Anaerobic Digestion of Food Processing Residuals for Biogas Energy Production**
Ruihong Zhang, University of California, Davis

3:30PM-3:45PM **Eco-Friendly Treatment of Municipal Solid Wastes into Organic Fertilizer**
Faizal Wan Ishak, University of Malaysia of Pahang

3:45PM-4:00PM **Alternative Energy Derived from Agricultural and Cafeteria Wastes Using a Rotary Kiln Gasifier**
Paul Amodeo, SUNY Cobleskill

4:00PM-4:15PM **Critical Moisture Content for Microbial Growth in Dried Food Processing Residues**
Farzaneh Rezaei, University of California, Davis

ADVANCES IN ENERGY PRODUCTION FROM ALGAE 2

Moderator: Sudhagar Mani, University of Georgia
Location: Auditorium

3:00PM-3:30PM **Microalgae Biomass Production for Food, Feeds, and Biofuels**
David Brune, Clemson University

3:30PM-3:45PM **Bio-Crude Oil Production from Microalgae through Hydrothermal Process**
Guo Yu, University of Illinois

3:45PM-4:00PM **Production of Biocrude Oil from Microalgae Via Thermochemical Liquefaction Process**
Umakanta Jena, University of Georgia

4:00PM-4:15PM **Biogas Production from Algae Biomass Harvested at Wastewater Treatment Ponds**
Michael Salerno, CDM

3:00 p.m.-4:15 p.m. POSTER PRESENTATIONS

Location: Grand ABCD

Poster # Presentation

1 **Balancing Fine-Crushing Energy and Saccharification Yield for Wood-Cellulosic Material**
Koichi Shoji, Kobe University

2 **Biodiesel Fuel Quality of Canola Feedstock Grown on Saline Land**
Mark Stumborg, Agriculture and Agri-Food Canada

3 **Biogas Purification of Chemical Absorption**
Quanbao Zhao, Washington State University

4 **Boreal Field Bioenergy Production**
Jukka Ahokas, University of Helsinki

5 **Degredation of the Lignocellulosic Biomass by Using a Symbiotic Bacterium in the Termite Gut**
Chu-Yang Chou, National Taiwan University

6 **Devolatilization of Pine Wood Under Nitrogen and Air Atmospheres**
Oladiran Fasina, Auburn University

7 **Effect of Different Levels of Water Deficit on Yield Parameters of Rapseed Crop**
Carolina Bilibio, University of Kassel

8 **Effects of Pelleting on the Logistics and Economics of Distillers Grains Shipping**
Kurt Rosentrater, USDA-ARS

9 **Effects of steam and air flowrates on pilot-scale fluidized-bed gasification of switchgrass**
Ajay Kumar, Oklahoma State University

10 **Embeded System Drying Process Control for Longan Fruit using Sorption Isotherm**
Varith Jatuphong, Maejo University

11 **Entrapment immobilization of enzymes to improve monosaccharides production from rice straw**
Ken Lin Chang, Academia Sinica

12 **Hydrolysis of Sago (meroxylon sagu Rottb.) Pith Enzymatically and Fermentation of Hydrolizate to Ethonal by Saccharomyces Cervissae DI/P3GI**
Ratu Safitri, Padjajaran University

13 **Hydrolyzing and Fermentation Condition for the Production of Ethanol from Sago Starch using Saccharomyces cerevisiae FNCC 3012 and Cassava Tapai-isolated Bacteria**
Asri Wulandari, Padjajaran University

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14 **Improvement of fermentation of dried distillers' grains and solubles (DDGS) hydrolysates to acetone butanol and ethanol (ABE) with hydrolysate-adapted Clostridium beijerinckii BA 101**
Yi Wang, University of Illinois

15 **Integrated thermo-biochemical refinery process for transformation of paper mill sludge into fuels and chemicals**
Umakanta Jena, University of Georgia

16 **Investigation of Wheat Straw after Biological Pretreatment**
Deepak Singh, Washington State University

17 **Microorganisms for First and Second Generation Ethanol Production From Sweet Sorghum**
Prima Fe Franco, Mariano Marcos State University

18 **Optimizing Water Use in Irrigated Rapeseed Areas in Brazil**
Carolina Bilibio, University of Kassel

19 **Performance of a Nitrifying Microbial Fuel Cell using Carbon Nanostructure Electrode**
Manzo Uchigasaki, Nihon University

20 **Pilot Scale Processing for Fractionization of Distillers Dried Grains with Solubles (DDGS) Using Sieving and Air Classification**
Radhakrichnan Srinivasan, Mississippi State University

21 **Plant Microbial Fuel Cells Generating Electricity from Rhizospheric Microbial Community of Tomato and Rice Plants in Hydroponics System**
Manzo Uchigasaki, Nihon University

22 **Potential of Near Infrared Spectroscopy to Predict Miscanthus Moisture Content**
Colette Fagan, University College Dublin

26 **Shortcomings in Bioenergy Analyzes**
Hannu Mikkola, University of Helinski

23 **Steam Pyrolysis and Catalytic Steam Reforming of Biomass for Hydrogen and Biochar Production**
Singh Kaushlendra, University of Georgia

24 **Step Change Variation of Temperature in a Batch Reactor for Acid Hydrolysis of Oil Palm Empty Fruit Bunch**
Shanti Faridah Salleh, Univeristy Putra Malaysia

25 **Sweet Sorghum as a Bioenergy Resource**
Samuel Franco, Mariano Marcos State University

26 **Technology Models for Efficient and Sustainable Bioenergy Utilization for Agricultural Processing Activities in Nigeria**
Abdullahi Muhammed El-Okene, Ahmadu Bello University

27 **The Effect of Moisture Content on In-field Cubing Quality**
Jeremiah Davis, Mississippi State University

28 **Two-Stage Acid-Alkaline Hydrothermal Pretreatment of Miscanthus for Fermentable Sugars Production**
Bin Guo, University of Illinois

29 **Feedstock data research needs and production**
David King

30 **Development of biofuel distillation unit with a reflux column for domestic and laboratory applications**
Joshua Olaoye

31 **Enhancing the bio-oil characteristics via pyrolysis of torriefied biomass**
Samy Sadaka

32 **Marketing Bio-Refinery Products**
Atul Deshmane, Whole Energy Fuels Corp

33 **Life Cycle Analysis of Fischer-Tropsch Diesel Production Form A Theoretical Willow Farm**
Sameer Matta, University of Florida

34 **Biomass delivery forms and transportation management systems**
Zewei Miao, University of Illinois

35 **Feasibility of incorporating cotton seed extract as a fermentation media component during Clostridium strain P11 synthesis gas fermentation**
Dimple Kundiyana, Oklahoma State University

36 **Methods for Bulk Storage and Transport of Cellulosic Biomass**
Stephen Searcy, Texas A&M University

37 **Effect of Yeast Inoculation Factors on Sweet Sorghum Juice Fermentation**
Danielle Bellmer, Oklahoma State University

38 **Analytical Comparison of Sustainable Design of Green Energy System from Hydrogen and Natural Gas of Bio-Mass - a life cycle assessment based approach**
Zulfiqar Ali-qureshi, University of Windsor

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39 **Niger Delta Region of Nigeria: Climate change and the way forward**
Akindele Alonge, University of Uyo

40 **Torque and power performance under constant speed test with Palm Oil biodiesel and its blends with diesel**
Etim Ituen, University of Uyo

41 **The Prospect of Bioethanol Production thru Simultaneously Fermentation and Saccarification of Bagasse using White Rot Fungi Pretreatment at Indonesia**
Farizal, University of Indonesia

42 **Production of xylitol by Kluyveromyces marxianus IMB strains at microaerophilic conditions (Mark Wilkins, Oklahoma State University)**

43 **Finding highly stable cellulases for bioethanol production: evaluation of synergistic effect of pH and temperature**
Cristiane Farinas, Embrapa

44 **Investigation into the feasibility of reclaimed and secondary wastewater as alternative feedstock's for the growth of green algae for the production of biofuels**
Joel Cuello, University of Arizona

45 **Integrated process of municipal waste and wastewater treatment for biodiesel feedstock production**
Zhanyou Chi, Washington State University

46 **The effect of light quality on hydrogen production by green algae, Chlamydomonas reinhardtii**
Takanori Hoshini, University of Arizona

47 **Enzymatic Solubilization of Spent Sugarbeet Pulp**
Abhay Koppa, University of Florida

48 **Engineering approaches to the improvement of Jatropha curcas**
Kofi Kyei, Jatropha Africa Ltd

49 **The effect of moisture and stage of maturity on physical properties of switchgrass**
Bhavna Sharma, Oklahoma State Univeristy

50 **Characteristics and compositional variation in round and square swichgrass bales under different storage conditions**
Amit Khanchi, Oklahoma State University

51 **Torrefaction reaction kinetics of southern pine wood**
Sudhagar Mani, University of Georgia

52 **Thin Layer Drying Kinetics of Mixed Algae Species from Open Raceway Pond**
Sudhagar Mani, University of Georgia

53 **Biofuels for the Bay:Cellulosic Double Crops in the Chesapeake Watershed**
Tom Richard, Penn State University

54 **Food, Feed, and Fuel: Integrating Energy Double Crops in Conventional Farming Systems**
Tom Richard, Penn State University

4:30PM-5:30PM **RESEARCH CENTERS ADDRESSING REGIONAL CHALLENGES IN BUILDING A BIOENERGY INDUSTRY**
Location: Grand EFGH
An overview from three research centers each with a new perspective on the challenges faced in building a bioenergy industry.

UIUC Energy Biosciences Institute
Dr. Luis Rodriguez

Sustainable Energy Research Center at Mississippi State University
Bill Batchelor, Mississippi State University

DEIAFA - University of Turin, Italy
Dr. Remigio Berruto

6:00PM-8:00PM **VIP RECEPTION - by invitation only**
Location: Grand Cedar Ballroom

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TUESDAY, OCTOBER 13

7:00AM-6:00PM **REGISTRATION & HOSPITALITY DESK**
Location: Grand Foyer

7:30AM-9:30AM. **CONTINENTAL BREAKFAST**
Location: Grand ABCD

7:30AM-5:00PM. **EXHIBIT HALL OPEN** - Continental breakfast and all breaks will be hosted in the exhibit hall
Location: Grand ABCD

8:30AM-11:30AM **FACILITATED PANEL DISCUSSION - Emerging Technologies; The Future of Biofuel Production**
Moderator: Jim Dooley, Forest Concepts
Location: Grand EFGH
Panelists include: Dale Threadgill, University of Georgia
Kevin Kephart, South Dakota State University
Ralph Cavalieri, Washington State University
Ajit Srivastava, Michigan State University

10:15AM-5:30PM **INSTITUTE TRACK - Engineering for Biorefinery Design, Construction, and Operation**
Location: Grand EFGH
Hear from invited speakers that provide insight and perspective on design, construction and operation for biorefinery engineering.
Tom Richard, Penn State - Barriers Facing Development of a Commercial Feedstock Supply Infrastructure
Read Smith, 25x25 - Barriers Facing the Bioenergy Industry

12:00PM-1:15PM **AWARDS LUNCHEON**
Location: EFGH

1:30PM-3:00PM **TECHNICAL SESSION SERIES 3**
Conference attendees will have the opportunity to join any of the technical sessions that interest them. Each session will have three 30 minute presentations relevant to each topic.

ASSEMBLING SUSTAINABLE FEEDSTOCK SUPPLY SYSTEMS 1 - FEEDSTOCK PRODUCTION AND DELIVERY
Moderator: Mark Stumborg, Agriculure and Agri-Food Canada
Location: Grand I

1:30PM-2:00PM **Uniform-Format Feedstock Supply System**
Richard Hess, INL

2:00PM-2:30PM **Baling Woody Biomass for Transportation to Bioenergy and Biorefinery Facilities**
Dave Lanning, Forest Concepts

2:30PM-3:00PM **Productivity and Cost of Producing Forest-Origin Feedstocks for Biofuels**
Ken Day, Director of the UBC Alex Fraser Research Forest

BIOCONVERSION PROCESS ENGINEERING
Moderator: Dr. Lestander
Location: Grand J

1:30PM-2:00PM Dr. Renata Bura, University of Washington
2:00PM-2:30PM Dr. Sylvia Larson
2:30PM-3:00PM Mike Rushton, Lignol

LIFE-CYCLE ANALYSIS FOR BIOENERGY PRODUCTION
Moderator: Joyce Cooper, University of Washington
Location: Grand K

1:30PM-2:00PM **LCA for Wood Pellets from Production to Final Customer**
Tony Bi, UBC Chemical Engineering

2:00PM-2:30PM **Forest Biomass Supply Chain Management**
Taraneh Sowlati, University of British Columbia

2:30PM-3:00PM **Feedstock Supply Network Analysis**
Jake Jacobson, Idaho National Lab

3:15PM-4:45PM

TECHNICAL SESSION SERIES 4

Conference attendees will have the opportunity to join any of the technical sessions that interest them. Each session will have three 30 minute presentations relevant to each topic.

CHALLENGES IN COMMERCIALIZATION OF BIOENERGY FACILITIES

Moderator: John Cundiff, Virginia Tech
Location: Grand J

3:15PM-3:45PM **Road Map to the Commercialization of Next Generation Biofuels**
Mark Warner, Harris Group

3:45PM-4:15PM **Challenges of Commercialization of a Bioenergy Facility**
Kris Plamann, Baisch Engineering

4:15PM-4:45PM **Algae Photobioreactor Hydrodynamics as Basis for Scale-Up**
Joel Cuello, University of Arizona

SUSTAINABLE FEEDSTOCK SUPPLY SYSTEMS 2 - FEEDSTOCK QUALITY AND CHARACTERISTICS

Moderator: Sudgar Mani, University of Georgia
Location: Grand I

3:15PM-3:45PM **Biomass Fuel Properties that Impact Combustion System Performance**
Larry Klope, Messersmith Engineering

3:45PM-4:15PM **SBIR Activities with DOE Biomass Program**
Sam Tagore, DOE

4:15PM-4:45PM **Modeling Sustainability in IBSAL**
Shahab Sokhansanj, Oak Ridge National Lab

THERMOCHEMICAL PROCESS ENGINEERING

Moderator: Ajit Srivastava, Michigan State University
Location: Grand K

3:15PM-3:45PM **Challenges and Opportunities of Biomass Pyrolysis. Potential of Pretreatment Technologies to Improve the Quality of Bio-oils**
Manuel Garcia-Perez, Washington State University

3:45PM-4:15PM **New Strategies to Enhance the Production of Anhydro-Sugars via Fast Pyrolysis and the Conversion of these Sugars into Ethanol**
Manuel Garcia-Perez, Washington State University

4:15PM-4:45PM **Meeting Tighter Air Quality Limits for Commercial and Light Industrial Biomass Combustion Systems**
Lawrence Klope

BIOMASS PELLETIZATION AND BRIQUETTING

Moderator: Shahab Sokhansanj, Oak Ridge National Lab
Location: Auditorium

3:15PM-3:45PM **Small Scale Mobile Pelletization and Power Production**
Jamie Stephan, UBC Mobile

3:45PM-4:15PM **Biomass Briquetting**
Wayne Winkler, Briquetting Systems

4:15PM-4:45PM **Solid Biofuel Standards - An International Perspective**
Steffan Milan

5:00PM-6:30PM **CLOSING RECEPTION** - final networking reception open to all attendees
Location: Grand ABCD

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WEDNESDAY, OCTOBER 14

7:30AM-5:00PM **REGISTRATION & HOSPITALITY DESK**
Location: Grand Foyer

7:30AM-8:30AM **CONTINENTAL BREAKFAST**
Location: Buffet in Grand Foyer, Seating in Grand EFGH

8:30AM-10:00AM **CLOSING PANEL WRAP-UP**
Location: Grand EFGH
A panel of the conference co-chairs will wrap-up the conference with an open discussion on the opportunities for engineering at a research, workforce development and operational level.
Jim Dooley, Forest Concepts
Shahab Sokhansanj, University of British Columbia Distinguished R&D Staff, Oak Ridge National Laboratory
Don Erbach, USDA, retired
Erin Wilkerson, Oak Ridge National Laboratory

FINAL REMARKS
Joel Cuello, University of Arizona

10:00AM-1:00PM **CAREER FAIR/EMPLOYER EXPO & BOX LUNCH**
Location: Grand A
Job postings will be listed in the exhibit hall beginning on Sunday.

10:30AM-3:30PM **WORKSHOP D: Optimal Drying for DDG and Other Solid Wastes**
Moderator: Kurt Rosentrater
Location: Grand I

10:30AM-12:30PM **WORKSHOP E: Feedstock Supply Logistics**
Moderator: Dr. Shahab Sokhansanj, Dr. Reminio Berruto
Location: Grand J

10:30AM-3:30 p.m. **WORKSHOP F: Solid Fuels Standards**
Moderator: Scott Cedarquist, ASABE
Location: Grand K

10:30AM-3:30PM **WORKSHOP H: Engineering a New Bioenergy Industry**
Moderator: Dr. Brian He, University of Idaho
Location: Grand B

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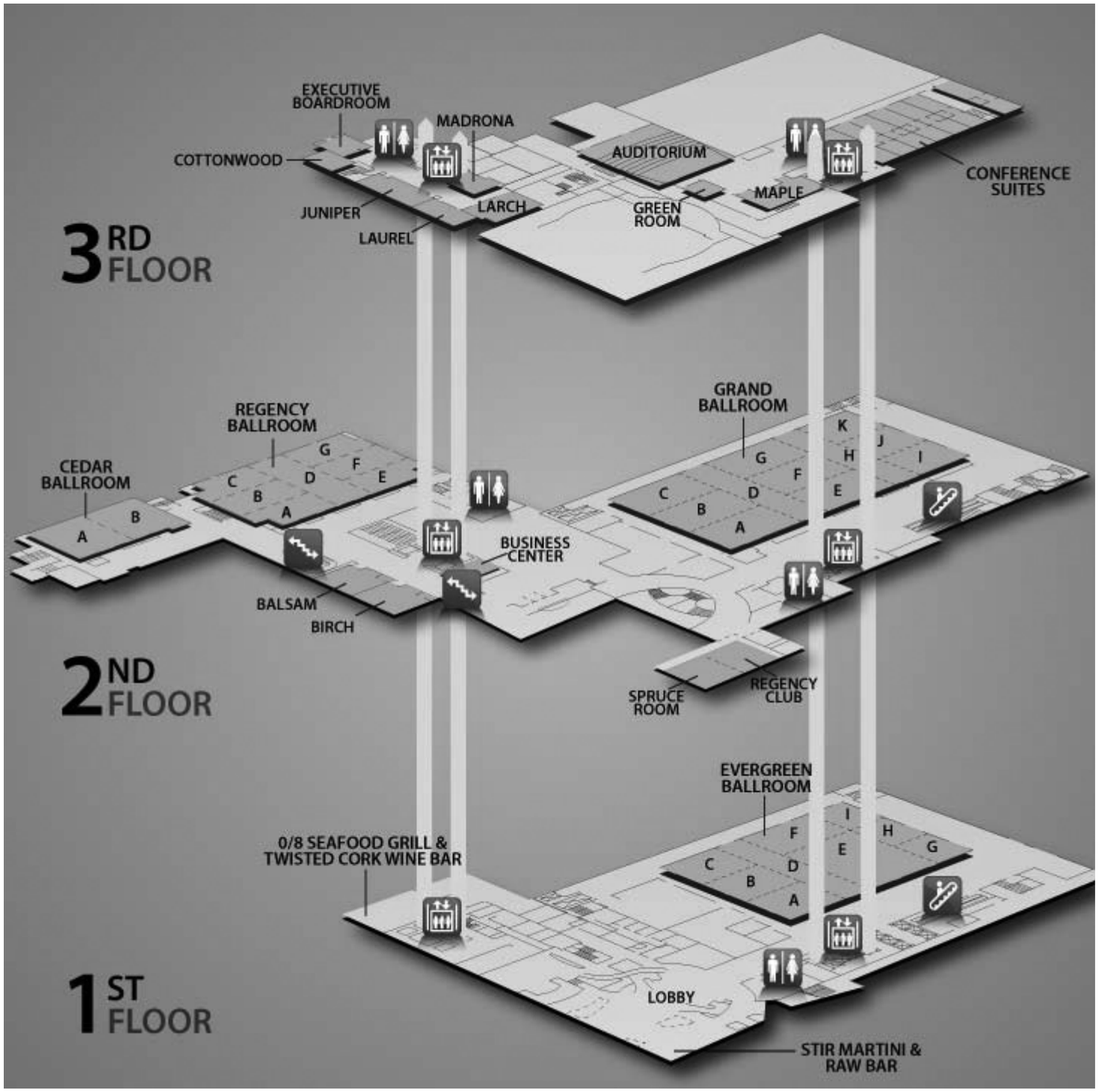
HYATT REGENCY BELLEVUE



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NOTES

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ASABE - Booth 3

The American Society of Agricultural and Biological Engineers is an educational and scientific organization dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. Founded in 1907 and headquartered in St Joseph, Michigan, ASABE comprises 9,000 members in more than 100 countries.

Agricultural, Food and Biological Engineers develop efficient and environmentally sensitive methods of producing food, fiber, timber, and renewable energy sources for an ever-increasing world population. ASABE membership is open to all (engineers as well as non-engineers) who are interested in the knowledge and application of engineering in agricultural, food, and biological systems. Contact ASABE for further information about the Society, its activities, and membership.
www.asabe.org
269-429-0300

Bio Energy Solutions - Booth 7

Bio Energy Solutions, LLC provides sustainable, carbon-neutral solutions for energy and heat production. Our knowhow and technology can reduce the operational costs of current facilities and help decrease reliance on fossil fuels.

Bio Energy Solutions environmental consulting professionals carefully incorporate a clients detailed project objectives in our complimentary assessment of their needs as well as their access to biomass or other green energy sources. We assess their energy costs and formulate a plan that informs them of all the possibilities. We are then able to provide them the correct equipment they may need as well as an implementation plan and follow up service for their project.

Davenport Dryer - Booth 11

Davenport Dryer is the premier designer of custom steam tube dryers rotary dryers and coolers for the efficient, economical processing of biomass co-products.
www.davenportdryer.com
605-254-2050

DRM Diversified - Booth 23

The Centri™ Air Precleaner powered by engine air, centrifugally removes air born debris including organic dust , increases engine air filter life and improves engine efficiency. The Centri™ products are manufactured by DRM Diversafab which is an ISO 9001 Registered company in the United States. For 26 years Centri™ products have reliably and dependably delivered cleaner air in adverse operating environments such as Forestry, Agriculture, Construction and Mining. Please visit booth 23 and website www.centriprecleaner.com.
www.drmdiversafab.com
608-356-4882

Department of Energy - Booth 50

The Office of Energy Efficiency and Renewable Energy's Biomass Program works with industry, academia, and our national laboratory partners on a balanced portfolio of research in biomass feedstocks and conversion technologies. Through research, development, and demonstration efforts geared toward the development of integrated biorefineries, the Biomass Program is helping transform the nation's renewable and abundant biomass resources into cost competitive, high performance biofuels, bioproducts, and biopower.

Forest Concepts - Booth 6

Forest Concepts is a forest products and woody biomass feedstocks company with a new way of thinking about the industry and markets for wood-based materials. Products and technologies we created during the past ten years enable renewal of forest communities through value-added utilization of small diameter materials and other woody biomass. The Company is a nationally recognized leader in the commercialization of new uses for smallwood and biomass that is available from urban sources and as a co-product of forest management and wildfire protection in natural areas.
www.forestconcepts.com
254-333-9663

GreCon - Booth 16

GreCon Spark Detection and Extinguishing Systems, as a preventative measure, can reduce your risk of fires and dust explosions in production equipment, dust collectors and pneumatic conveying systems by extinguishing sparks and embers before they reach the dust collection filters, silos, or bins!

GreCon Moisture Analyzer precisely measures moisture content and requires low maintenance and less calibration.
www.grecon-us.com
503-641-7731

Industrial Accessories Company – Booth 20

IAC provides equipment and services to the power & incineration, ethanol, chemical, food, and agricultural feed industries. Bioenergy expertise includes biomass storage, handling, drying and densification; combustion, gasification and co-firing of biomass; ash and co-products handling; air emission control; and design/build services.
Contact us at 800.334.7431 or email us at sales@iac-intl.com
www.iac-intl.com
913-384-5511

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Morbark & Papé Machinery - Booth 4

Morbark, Inc., based in Winn, Michigan has been innovating and manufacturing durable, high performance equipment for the forestry, recycling, tree care, and sawmill markets for over 50 years. Morbark equipment helps customers harvest, process, and convert wood and other organic materials into valuable, useful and profitable products. The company produces a full line of whole tree and waste wood chippers, flails, brush chippers, horizontal and tub grinders, sawmill equipment, material handling systems and more. Visit www.morbark.com
989-866-2381

Ronning Engineering - Booth 9

For over 45 years, Ronning Engineering has provided practical and innovative biomass processing and dehydration solutions, feasibility studies, mechanical and process engineering services to customers. We build turnkey solutions around our industry-leading three-stage dryer drum, double-vortex burner, and counter-flow cooling drum.
www.ronningengineering.com
913-239-8118

Scott Equipment Company

Scott Equipment Company has been providing processing solutions for companies around the world since 1966. As a custom equipment manufacturer & engineering consultant, Scott Equipment is able to provide customers with system optimization recommendations, as well as fabricating the quality equipment our customers have come to expect. Whether there is a need for mixing & blending equipment, drying & cooling equipment, size reduction or modular storage bins, don't settle for anything but the best. Put your trust in the experts at Scott Equipment ~ let our experience work for you.
www.scottequipment.com
952-758-0440

25x25 - Booth 2

"25x'25" is a rallying cry for renewable energy and a goal for America – to get 25 percent of our energy from renewable resources like wind, solar, and biofuels by the year 2025.

Increasing America's renewable energy use will:
• Bring new technologies to market and save consumers money.
• Reduce our dependence on oil from the Middle East.
• Create good new jobs in rural America.
• Clean up the air and help reduce urban smog and greenhouse gas emissions
www..25x25.org
410-252-7079

USDA-CREES

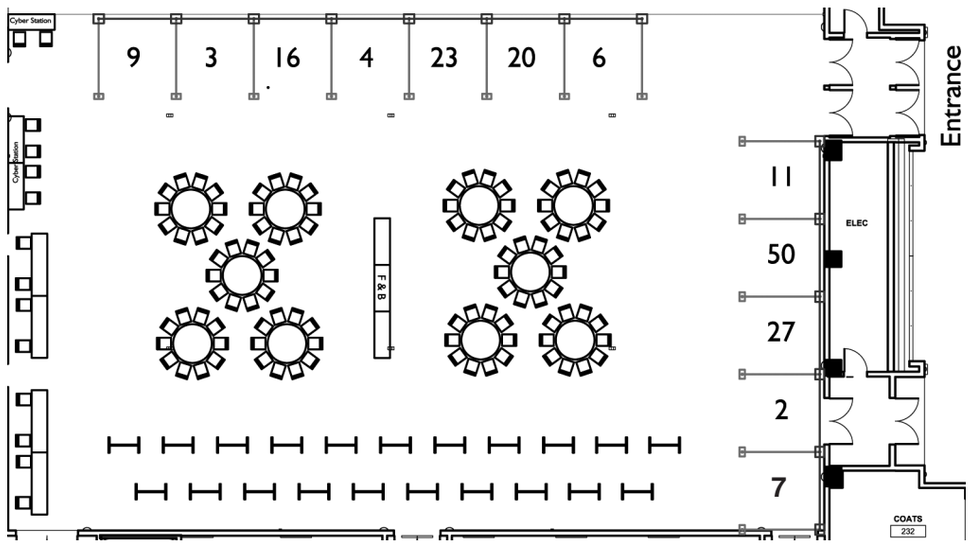
www.csrees.usda.gov

Western Ag - Booth 27

Specializing in covering biomass for use in the bio-fuels industries. For additional product information see our web site, www.westernag.com.
208-908-8548

BIOENERGY ENGINEERING
2009

EXHIBIT HALL



Booth 2 – 25x25
Booth 3 – ASABE
Booth 4 – Morbark, Papé Machinery
Booth 6 – Forest Concepts
Booth 7 – Bio-Energy Solutions, LLC
Booth 9 – Ronning Engineering
Booth 11 – Davenport Dryer
Booth 16 – GreCon, Inc.
Booth 20 – Industrial Accessories
Booth 23 – DRM Diversified
Booth 27 – Western Ag
Booth 50 – Department of Energy

Tabletops –
- Bioenergy International
- BBI
- Scott Equipment
- USDA

ASABE

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GreCon

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