

RCN Conference on Pan American Biofuels & Bioenergy Sustainability

Golden Tulip Recife Palace,
Recife, Brazil July 22-25, 2014



**PAN-AMERICAN
BIOFUELS &
BIOENERGY
SUSTAINABILITY**
AN NSF RESEARCH COORDINATION NETWORK

Conference Program Overview

Tuesday July 22			
Evening Welcome Event		5:30 pm – 7:30 pm (Panoramic Room)	
Conference Registration		2:00 pm – 5:00 pm	
Introductory Presentations and Keynote		5:30 pm – 6:30 pm	
Welcome Reception (Drinks and Appetizers)		6:30 pm – 7:30 pm	
Wednesday July 23 Day 1			
Morning theme sessions:		8:30 am – 11:30 am	
Conference Registration		7:30 am - 8:30 am	
<u>Socioeconomic Issues</u> (Boa Viagem Room)	<u>Water-Energy Nexus</u> (Candeias Room)	<u>Biodiversity</u> (Piedade Room)	<u>Energy Policy</u> (Imperial Room)
Lunch, at Hotel		11:30 am – 1:00 pm	
Afternoon cross-disciplinary sessions		1:00 pm – 4:00 pm	
<u>Biogeochemical Cycles</u> (Boa Viagem Room)	<u>Life Cycle Assessment</u> (Candeias Room)	<u>Biomass Supply Chain</u> (Piedade Room)	
Poster Session: Technical Presentations		4:30 pm – 6:30 pm (Meeting Foyer)	
Thursday July 24 Day 2			
Morning cross-disciplinary sessions:		8:30 am – 11:30 am	
<u>Technological Innovation</u> (Boa Viagem Room)	<u>Ecosystem Impacts: Using Science and Indigenous Knowledge</u> (Candeias Room)	<u>Bioenergy and Social Justice</u> (Piedade Room)	<u>Sustainability Issues in Biofuel and Bioenergy Industries</u> (Imperial Room)
Lunch, at Hotel		11:30 am – 1:00 pm	
Afternoon cross-sector sessions		1:00 pm – 4:00 pm	
<u>NGO-Government Perspectives</u> (Boa Viagem Room)	<u>Brazilian Biofuel Sustainability Issues</u> (Candeias Room)	<u>Industry-Government Perspectives</u> (Piedade Room)	<u>Industry-Academic Perspectives</u> (Imperial Room)
Friday July 25 Day 3			
Morning session:		8:30 am – 11:30 am (Panoramic Room)	
<u>Synthesis presentations and discussion:</u> RCN Conference attendees will all be involved in discussions about lessons learned, and next steps in studying biofuels and bioenergy development			
Lunch, at Hotel		11:30 am – 1:00 pm	
Afternoon RCN Steering Committee session:		1:00 pm – 4:00 pm	

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Conference Program

NOTE: Presentation Abstracts available on RCN Conference Website:

www.panamrcn.org → PanAM RCN Conference Program link

Day 1

Wednesday, July 23, 2014: Policies for the Sustainable Development of Biofuels in Pan America

08:30 AM - 11:30 AM (Imperial Room)

Chairs: Barry Solomon, Michigan Technological University, Michigan, USA
Alberto Acevedo, National Agricultural Technology Institute (INTA), Buenos Aires
Argentina

8:30 AM [Policies for the Sustainable Development of Biofuels in Pan America: A Review and Synthesis of Five Countries](#) . **B. Solomon**, A. Banerjee, A. Acevedo, K. Halvorsen, and A. Eastmond

8:50 AM [Climate Change, Decarbonisation, and Bioenergy Production: Integrating Policy Science into a Broader Context](#) . **K. E. Halvorsen**

9:10 AM [A Blueprint for Sustainability Certification Implementation in the U.S. and Brazil](#) . **J. Endres** and **R. Aguiar**

9:30 AM [Indirect Effects of Bioenergy: International Standards and Science](#) . **M. Davis**, K. Kline, F. Ghatala, and D. Goldin

9:50 AM [Biofuel Sustainability in Latin America and the Caribbean: A Review of Recent Experiences and Future Prospects](#) . **R. Bailis**, **B. Solomon**, C. Moser, and T. Hildebrandt

10:10 AM [Trajectory of Wood Energy Policies in the United States: Sustainability and Governance in Global Markets](#) . **D. Becker**

10:30 AM Roundtable Discussion of Key Research Issues and Challenges

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Wednesday, July 23, 2014: Socioeconomic Sustainability Dimensions of Biofuels in the Americas 08:30 AM - 11:30 AM (Boa Viagem Room)

Chair: Sam Sweitz, Michigan Technological University, Michigan, USA

8:30 AM [Interrogating Social Sustainability in the Biofuels Sector in Latin America: Global Standards and Local Experiences in Mexico, Brazil and Colombia](#) . **T. Selfa**, C. Bain, R. Moreno, A. Eastmond, S. Sweitz, C. Bailey, T. Martins, G. S. Pereira, and R. Medeiros

8:50 AM [Global and Local Perspectives on the Jatropha Plantations for Biodiesel in Sucopo, Yucatan, Mexico](#) . **A. Eastmond** and S. Sweitz

9:10 AM [Agro-Fuels and Income of Rural Households in Yucatan, Mexico](#) . **J. Becerril**, A. Eastmond, and S. Sweitz

9:30 AM [Bioenergy, Land Use Change and Ecosystem Services in Tabasco, Mexico](#) . **C. J. Vazquez-Navarrete**

9:50 AM [Effects of Use of Biofuels for Increasing Production and Productivity in Rural Communities in Northeast Brazil](#) . **J. Ferreira Irmao** and J. Ribemboim

10:10 AM [Energy Crops, Food Security, and Rural Development: The Role of Oilseed Production Around Brazil](#) . **R. Bailis**

10:30 AM Roundtable Discussion of Key Research Issues and Challenges

Wednesday, July 23, 2014: Bioenergy and Biodiversity: Key Lessons and Research Priorities 08:30 AM - 11:30 AM (Piedade Room)

Chair: Audrey Mayer, Michigan Technological University

8:30 AM [Bioenergy and Biodiversity: Key Lessons from the Pan American Region](#) . **K. Kline**, F. Martinelli, A. L. Mayer, R. Medeiros, C. O. F. D. Oliveira, G. Sparovek, A. Walter, and L. Venier

8:55 AM [Land Sparing Versus Land Sharing: How Might Biodiversity and Bioenergy Coexist?](#) . **A. L. Mayer**

9:20 AM [Integrating Biodiversity Metrics in Life-Cycle Analysis of Intensive Biomass Production in North American Forests: Challenges and Considerations](#) . **J. Verschuyt**, T. B. Wigley, C. Gaudreault, M. Margni, D. Miller, S. Riffell, B. Titus, and K. Vice

9:45 AM [The Sustainability of Forest Residue for Bioenergy in Canada: What Can Biodiversity Tell Us?](#) . **L. Venier**, I. Aubin, K. Webster, R. Fleming, P. Hazlett, B. Titus, and H. Chen

10:10 AM [Assessing the Impacts of Pan American Bioenergy Development on Birds and Insect Pollinators](#) . **J. Knowlton**

10:35 AM Roundtable Discussion of Key Research Issues and Challenges

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Wednesday, July 23, 2014: Bioenergy Development and Integrated Water Resources Management
08:30 AM - 11:30 AM (Candeias Room)

Chairs:	David Watkins, Michigan Technological University, Michigan, USA Márcia M.G.A. Moraes, UFPE – Pernambuco, Brazil
8:30 AM	Bioenergy Development and Integrated Water-Energy Management in Pan America . D. Watkins , M. M. G. A. Moraes, H. Asbjornsen, A. Mayer, J. Licata, J. Gutierrez Lopez, T. Pypker, V. Gamez Molina, G. F. Marques, A. C. G. Carneiro, H. M. Nuñez, H. Önal, and B. D. N. Germano
8:50 AM	Implications of Woody Bioenergy Feedstock Production for Water Supply and Hydrologic Regulation Services . J. Gutierrez-Lopez , J. Licata, T. Pypker, and H. Asbjornsen
9:10 AM	Impacts of Sugarcane Expansion on Water Resources in Areas of São Paulo State . M. M. Guarengi and A. Walter
9:30 AM	Energy-Water Nexus: An Input-Output Dynamical MODEL . G. A. D. Oliveira and F. M. C. D. Souza
9:50 AM	Hydro Economic Modeling and Water Scarcity Cost in a Watershed with Irrigated Bio Fuel Crops Production . G. Fernandes Marques
10:10 AM	An Economic Analysis of Land Use Changes and Sugarcane Production in Brazil: The Role of Irrigation Water . A. C. G. Carneiro , H. M. Nuñez, H. Önal , and M. M. G. A. Moraes
10:30 AM	Roundtable Discussion of Key Research Issues and Challenges

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Wednesday, July 23, 2014: Biogeochemical Research Priorities for Sustainable Biofuels and Bioenergy Feedstock Development in the Pan America Region

01:00 PM - 04:00 PM (Boa Viagem Room)

- Chairs: Brian Titus, Pacific Forestry Centre, Natural Resources Canada, Victoria, BC, Canada
Hero Gollany, US Dept of Agriculture, Oregon, USA
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- 1:00 PM [Biogeochemical Research Priorities for Sustainable Biofuel and Bioenergy Feedstock Production in Pan-America](#) . **H. Gollany, B. Titus**, A. Scott, H. Asbjornsen, S. Resh, R. Chimner, D. Kaczmarek, L. Leite, A. Ferreira, K. Rod, J. Hilbert, M. V. Galdos, and M. Cisz
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- 1:25 PM [Soil Organic Carbon Measurement Protocols: A USA and Brazilian Comparison and Recommendation](#) . **M. Davis**, D. Abulebdeh, B. J. R. Alves, M. V. Galdos, D. L. Karlen, and K. Kline
-
- 1:50 PM [Advances in the Knowledge on the Impacts of Waste Management Forest Harvesting on Soil Quality of the NE in Argentina](#) . **A. M. Lupi**, R. Fernández, R. Martiarena, N. Pahr, A. Von Wallis, M. D. L. A. Garcia, and J. Aparicio
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- 2:15 PM [Lipid Accumulation and Nitrogen Removal for *Chlorella vulgaris* and *Scenedesmus Obliquus* Using Wastewater](#) . **A. Ruiz Marin Sr.** and Y. Canedo Lopez.
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- 2:40 PM [Forest Biomass Harvesting and Site Productivity: Is Policy Ahead of Biogeochemical Science?](#) . **E. D. Vance**, W. M. Aust, B. D. Strahm, R. E. Froese, R. B. Harrison, and L. A. Morris
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- 3:05 PM Roundtable Discussion of Key Research Issues and Challenges
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Wednesday, July 23, 2014: Opportunities and Challenges for Biomass Supply Chains

01:00 PM - 04:00 PM (Piedade Room)

- Chairs: J. Richard Hess, Idaho National Laboratory, , Idaho Falls, ID, USA
Pasi Lautala, Michigan Technological University, MI USA
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- 1:00 PM [Opportunities and Challenges in the Design and Analysis of Biomass Supply Chains](#) . **P. Lautala**, T. Laitinen, R. Bittencourt, A. M. Valente, M. R. Hilliard, E. Webb, I. Busch, R. Handler, J. R. Hess, M. Roni, and J. A. Hilbert Sr.
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- 1:25 PM [Biomass Transportation Systems in Brazil: The Cases of the Ethanol Industry and the Constrains for Exporting Pellets](#) . **A. Walter**
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- 1:50 PM [Tropical Maize and Lipid Cane As Sustainable New Bioenergy Crops](#) . **V. Singh**
-
- 2:15 PM [Lignocellulosic Biomass Residues Identification and Selection in Five Countries of Latin America, As a Feedstock for Second Generation Ethanol Production](#) . **E. Ruz**
-
- 2:40 PM [Uncovering System Behaviors in Biofuels Supply Chain Network Using an Agent-Based Simulation Approach](#) . **D. B. Agusdinata**
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- 3:05 PM Roundtable Discussion of Key Research Issues and Challenges
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Wednesday, July 23, 2014: Standardization of Environmental Life Cycle Assessments of Biofuels

01:00 PM - 04:00 PM (Candeias Room)

Chairs: David R. Shonnard, Michigan Technological University, Houghton, MI USA
Julio Sacramento, Univ Autônoma de Yucatan, Merida Mexico

- 1:00 PM [Standardization of Environmental Life Cycle Assessments of Biofuels in the Pan America Region](#) . **D. R. Shonnard**, J. A. Hilbert Sr., B. Klemetsrud, J. Sacramento, F. Navarro, R. Handler, N. Suppen, and R. Donovan
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- 1:20 PM [Biofuel Life-Cycle Analysis: Possible for Standardization?](#) . M. Q. Wang, J. B. Dunn, and **H. Cai**
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- 1:40 PM [Nest Experience in Life Cycle Assessment \(LCA\) Research and Development Projects Related with Biofuels and Residues Energy Conversion](#) . **M. H. Rocha**, E. E. Silva Lora, and M. M. Vicente Leme
-
- 2:00 PM [Environmental Implications of Jatropha Biofuel from a Silvi-Pastoral Production System in Central-West Brazil](#) . **R. Bailis** and G. Kavlak
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- 2:20 PM [Life Cycle Assessment Study on a Soybean Complex Transformation Chain over Three Years of Production of Biodiesel As a Coproduct](#) . **J. A. Hilbert Sr.** and S. Galbusera
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- 2:40 PM [Incorporating Bioenergy into Sustainable Landscape Designs](#) . **V. H. Dale**, K. Kline, J. K. Costanza, C. T. Smith, I. Stupak, A. Walter, and C. O. F. D. Oliveira
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- 3:05 PM Roundtable Discussion of Key Research Issues and Challenges
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Wednesday, July 23, 2014: Poster Session: Pan American Biofuel and Bioenergy Sustainability

04:30 PM - 06:30 PM (Meeting Foyer)

- 1 [Effects of Maize Weevil Infestation on Corn and Utilization of Infested Corn for Ethanol Production](#) . **G. A. Corrêa**

 - 2 [Assessment of an Power Generation Industrial Unit from Vinasse Treatment in Uasb Reactor](#) . **A. F. D. M. S. Santos**, M. A. D. M. Sobrinho, and A. C. V. Handel

 - 3 [Energy-Water Nexus: An Optimal Control Model](#) . **G. A. D. Oliveira** and **F. M. C. D. Souza**

 - 4 [Comparison of Anaerobic Reactors for Electricity Production in PILOT Scale from Vinasse](#) . **A. F. D. M. S. Santos**, **M. A. D. Motta Sobrinho Sr.**, and A. C. van Handel

 - 5 [Switchgrass Genotype Study As a Bioenergy Crop in Kansas, USA](#) . **D. Min** and V. Prasad
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(Continued on next page)

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Recife, Brazil July 22-25, 2014



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Wednesday, July 23, 2014: Poster Session: Pan American Biofuel and Bioenergy Sustainability
04:30 PM - 06:30 PM (Meeting Foyer) (continued)

- 6 [Utilization of Crab Shells As Heterogeneous Catalyst in the Synthesis of Methyl and Ethyl Biodiesel](#) . **G. Reis**, F. D. S. Medeiros, J. B. S. Costa, A. S. Moura, R. Oliveira DA Silva, V. M.D. Pasa, and C. C. C. Bejan

- 7 [Poverty in the Pirapama Basin: The Role of Management of Hydrological Resources](#) . **J. H. N. Viana** and M. M. G. A. Moraes

- 8 [Maximizing Ethanol Production from Genetically Modified Cyanobacteria Grown Autotrophically](#) . C. Delpino, V. Estrada, and **M. S. Diaz**

- 9 [Water Allocation and Resources Management Using a Hydro-Economic Optimization Model: The Case Study of the Sub-Middle São Francisco Watershed](#) . **G. Souza da Silva** and M. M. G. A. Moraes

- 10 [Considering Water Quality and Energy Efficiency to Define Optimum Operation of Integrated Systems of Water Supply and Value of Use of Water Quality](#) . **L. Rodella**, C. A. G. de Amorim Filho, and M. M. G. A. Moraes

- 11 [Enhanced Pyrolysis Oil Properties through Pretreatment of Aspen with Controlled Torrefaction](#) . **B. Klemetsrud**, J. Klinger, D. R. Shonnard, and E. Bar Ziv

- 12 [Sorghum As an Advanced Biofuel: Price Effect on Wheat, Corn and Soybean Markets](#) . **K. Pokharel**, R. P. Wibowo, and F. Nti

- 13 [A Prototype Methodology for Incorporating Sustainability Indicators in Biorefinery Process Design](#) . **J. C. Sacramento Rivero** and L. E. Vilchiz Bravo

- 14 [Optimal Control Strategies for Different Stabilization Pond Systems](#) . **M. P. Ochoa**, V. Estrada, and P. M. Hoch

- 15 [Analysis of the Solid Waste Management of the Sugarcane Industry in Pernambuco](#) . M. G. Souza Melo, **M. D. C. M. Sobral**, and A. L. N. Ferreira

- 16 [Polymeric Membranes and Gas Separation: Homogenous Blends of Matrimid®5218 and P84](#) . **J. Carson**

- 17 [Incorporation of Sweet Sorghum Juice into Current Dry-Grind Ethanol Process](#) . **K. Saul**

- 18 [Biogas in the Brewery: An Exploration of Practice and Sustainability](#) . **J. Jurado**

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Day 2

Thursday, July 24, 2014: Technological Innovation in Biofuel and Bioenergy Sustainability

08:30 AM - 11:30 AM (Boa Viagem Room)

Chairs:	Mark Mba Wright, Iowa State University, Ames, IA, USA Michael T. Timko, Worcester Polytechnic Institute, Worcester, MA, USA
8:30 AM	Small Is Better: Fostering Growth in the Biofuels Industry with Energy Manufacturing . M. Mba Wright , R. C. Brown, and P. Compton
8:50 AM	Small-Scale Biorefineries: Towards the Biofuel and Bioenergy Sustainability at Local Basis . R. Souza Aguiar, P. H. Sousa Baudel, R. A. Jose, C. A. M. de Abreu, and H. M. Baudel
9:10 AM	Alcoholic Fermentation Using Immobilized Cells in Calcium Alginate . J. C. Duarte, J. R. Nunhez , J. A. R. Rodrigues, P. J. S. Moran, and G. P. Valença
9:30 AM	Incorporation of Sweet Sorghum Juice into Current Dry-Grind Ethanol Process for Improved Ethanol Yields, Energy Saving, and Water Efficiency . N. B. Appiah-Nkansah , K. Saul, W. Rooney, and D. Wang
9:50 AM	The Continuous-Flow Solid Acid Catalyst Hydrothermal Biorefinery . M. T. Timko and G. Tompsett
10:10 AM	Biodiesel Production from Used Cooking Oil Using Calcined Sodium Silicate Catalyst . M. O. Daramola, D. Nkazi , and K. Mtshali
10:30 AM	Roundtable Discussion of Key Research Issues and Challenges

Thursday, July 24, 2014: Bioenergy and Social Justice

08:30 AM - 11:30 AM (Piedade Room)

Chair:	Theresa Selfa, SUNY – ESF, Syracuse, NY, USA
8:30 AM	Food Security and Biofuels: Can Policy Flexibility Reduce Food Price Crises for the Poor? Part One: Global Markets and Brazil Sugar Cane Production Case . M. R. L. V. Leal and K. Kline
8:55 AM	Food Security and Biofuels: Can Policy Flexibility Reduce Food Price Crises for the Poor? Part Two: US Maize Production System Case . K. Kline and M. R. L. V. Leal
9:20 AM	Questioning the Social Dimensions of Sustainability: The Biofuel Industry and the Weakening of Traditional Communities in Brazil . A. L. de Campos Paula and V. Zuchetto
9:45 AM	The Sugarcane Industry and the Global Economic Crisis . M. L. Mendonça
10:10 AM	Roundtable Discussion of Key Research Issues and Challenges

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Thursday, July 24, 2014: Sustainability Issues in Biofuel and Bioenergy Industries

08:30 AM - 11:30 AM (Imperial Room)

Chair: Marcelo Cunha, State University of Campinas

8:30 AM [Looking for Sustainability in Biofuel and Bioenergy Industries: Some Challenges and Opportunities](#) . **M. Cunha, State University of Campinas**

8:48 am [Achieving Sustainable Biodiesel Production in Brazil: Challenges and Opportunities](#) . **J. Minelli**

9:06 AM [Green House Gas Savings Produced By Argentine Biodiesel Use](#) . **J. A. Hilbert Sr.** and S. Galbusera

9:24 AM [Bioethanol Dehydration Assessment with Environmental Issues](#) . **M. Colombo**, F. D. Mele, M. R. Hernández, M. Kahwaji Janho, and J. E. Gatica

9:42 AM [Opportunities and Challenges Considering the Socioeconomic Dimension for Brazilian Ethanol Industries in the Recent Past](#) . **A. Marques**

10:00 AM [Diesel Displacement in the Sugarcane Ethanol Life-Cycle: A Comparative Analysis of Different Integrated Systems](#) . **S. P. Souza** and J. E. A. Seabra

10:18 AM [Direct and Indirect Impacts of Agricultural Land-Use Due to Increased Production of Grain-Based Ethanol in Kansas, USA: A County-Level Analysis](#) . **J. Bergtold** and B. Lauer

10:36 AM Roundtable Discussion of Key Research Issues and Challenges

Thursday, July 24, 2014: NGO-Government Perspectives on Biofuel and Bioenergy Sustainability

01:00 PM - 04:00 PM (Boa Viagem Room)

Chair: André Guimarães, Conservation International, Americas
Dulce Benke, Conservation International, Brazil

1:00 PM [Activists Follow As Markets and States Transnationalize Northeast Brazilian Sugarcane, 1954-1989](#) . **R. Pinto**

1:25 PM [Assessing the Sustainability of Ethanol Production in Mexico from Three Crops](#) . **C. García**

1:50 PM [Sustentability: socioeconomic and environmental considerations](#) . **R. Frazao**

2:15 PM [Market mechanisms for sustainable production](#) . **G. Nardelli**

2:40 PM [Future scenarios for the expansion of bioenergy and its potential impacts](#) . **M. Moreira**

3:05 PM Roundtable Discussion of Key Research Issues and Challenges

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Thursday, July 24, 2014: Brazilian Biofuel and Bioenergy Sustainability Issues and Case Studies

01:00 PM - 04:00 PM (Candeias Room)

Chair: Arnaldo Walter, University of Campinas-Unicamp, Campinas, SP, Brazil

1:00 PM [Biofuel in Brazil: Soybean and Palm Oil Impacts on Socioecological Systems](#) . F. Martinelli, T. Martins, and R. Medeiros

1:20 PM [Process Integration Case Study for the Second Generation Ethanol Production](#) . S. Rouzinou, P. Brito, and V. Pylkkanen

1:40 PM [Bioenergy Production through Microalgae in Brazil: An Activity Joint with Ethanol Plants of the Country](#) . L. R. Holanda and F. S. Ramos

2:00 PM [Socioeconomic Aspects of Sugarcane Producing Municipalities in Brazil](#) . P. Gerber Machado Sr.

2:20 PM [Analysis of the Viability of Ethanol Production in Brazil: Economical, Social & Environmental Implications](#) . I. Alvarez Murillo

2:40 PM [Socioenvironmental Aspects of the Palm Oil for Biodiesel Production in the Center of Endemism Belém - Brazil](#) . G. S. Pereira, R. Medeiros, B. H. Coutinho, and T. Martins

3:00 PM Roundtable Discussion of Key Research Issues and Challenges

Thursday, July 24, 2014: Industry-Government Perspectives on Biofuel and Bioenergy Sustainability

01:00 PM - 04:00 PM (Piedade Room)

Chair: Abraham Sicsu, General Office of Science and Technology, Recife Brazil

1:00 PM [Bioenergy and Biofuels: Presentation](#) . A. Sicsú

1:20 PM [Commercial Experience of Rapid Thermal Processing \(RTP\) of Sustainable Biofuels](#) . M. J. Cleveland and D. Szeziel

1:40 PM [The Sustainability of Biofuels in Brazil](#) . S. T. Coelho and J. Goldemberg

2:00 PM [Bioethanol Industry Perspectives in Brazil](#) . J. G. Eugenio de França

2:20 PM [Bioenergy in Northeastern Brazil: Opportunities and Challenges](#) . R. S. Cezar Menezes and C. de Lima Júnior

2:40 PM [Forest Biomass Harvesting and Site Productivity: Is Policy Ahead of Science?](#) . E. D. Vance, W. M. Aust, B. D. Strahm, R. E. Froese, R. B. Harrison, and L. A. Morris

3:00 PM Roundtable Discussion of Key Research Issues and Challenges

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Thursday, July 24, 2014: Industry-Academic Perspectives on Biofuel and Bioenergy Sustainability 01:00 PM - 04:00 PM (Imperial Room)

Chairs:	M. Regis L.V. Leal, Brazil Bioethanol Science and Technology Lab, Campinas, Brazil Hayri Önal, University of Illinois, Urbana-Champaign, IL, USA
1:00 PM	Sustainability in Biofuel and Bioenergy Sectors: The Role of Public Policy . H. Önal
1:18 PM	Biofuels and Bioenergy Sustainability Assessment Methods . D. Schuster and L. Alexander
1:36 PM	Biogas Generation from Sanitary Landfill Leachate . V. Mello, V. Lima, S. Holanda, J. Ferreira, J. F. Jucá, and M. Motta Sobrinho Sr.
1:54 PM	The Potential Use of Waste Stabilization Ponds for Biofuel Production By the Microalgae Biomass . M. Paiva
2:12 PM	The Sustainability of Brazilian Sugarcane Ethanol: The Contribution of the Brazilian Bioethanol Science and Technology Laboratory (CTBE) . M. R. L. V. Leal
2:30 PM	Comparison of Acid and Enzymatic Hydrolysis of Jerusalem Artichoke Tubers for Fermentative Butanol Production . T. Sarchami
2:48 PM	Understanding Concentration and Pressure Changes during Ultrasonication-Enhanced Blending of Petrol-Ethanol Blended Fuel . D. Nkazi, M. O. Daramola, and S. E. Iyuke
3:06 PM	Roundtable Discussion of Key Research Issues and Challenges

Day 3

Friday, July 25, 2014: Synthesis Presentations and Discussion 08:30 AM – 11:30 AM (Panoramic Room)

8:30 AM	Summary and Reflections on RCN Conference
8:45 AM	Reporting of Session Chairs on Key Discussion Points Raised during Day 1, Day 2 sessions
10:00 AM	Small Group Discussions and Reflections
10:30 AM	Reporting to Large Group
11:00 AM	Assessment

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DE PESQUISA E PÓS-GRADUAÇÃO

UFPE PROPESQ Program



FACEPE
Fundação de Amparo à
Ciência e Tecnologia do
Estado de Pernambuco

FACEPE



JB Distillery

APROBIO
Associação dos Produtores de Biodiesel do Brasil

APROBIO

Supporting Organizations

AIChE

American Institute of
Chemical Engineers

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for **sustainability**
An AIChE Technological Community

AIChE IFS



AIChE SBE