



September 21-23, 2008
Raleigh Convention Center
Raleigh, NC

Charting a Course for Biofuels, Biopower, and Bioproducts

Speaker Biographies

Richard F. Abrams

Richard F. Abrams is **Vice President – Renewable Energy at Babcock Power (BPI)** in Worcester, Mass. In this role, he is responsible for BPI's renewables products including the biomass boilers, emissions control systems, and solar boilers. Mr. Abrams has been involved in the design, development, and business development for environmental systems throughout his career. These systems have been used for air pollution control, hazardous waste destruction, and radioactive waste management. He has a BS in Chemical Engineering from Worcester Polytechnic Institute, holds seven patents and is the inventor on the RSCR system patent. Title-description: Emissions Controls for Biomass Boilers: In this presentation, I will cover the emissions from biomass boilers, discuss control technologies used and their efficiencies, compare these emissions with coal fired boilers, and discuss the impact of co-firing biomass in coal fired boilers on the air pollution control systems in the plant.

Janaki R.R. Alavapati

Janaki Alavapati is a **Professor of Forest Resource Economics and Policy and Head of the Department of Forestry at Virginia Tech**. As a Jefferson Science Fellow 2007-2008, he served as a Senior Advisor for International Energy Affairs at the U.S. Department of State, Washington, DC. Dr. Alavapati serves as a member of the editorial board of Forest Policy and Economics journal, Deputy Coordinator, Social and Economic Aspects of Forestry Unit, International Union of Forest Research Organizations (IUFRO), and the chair of Economics, Policy, and Law Working Group of the Society of American Foresters (SAF). His research focuses on exploring market solutions for natural resources, energy, and environmental problems/issues at local, regional, and international level. He is a lead investigator on four bioenergy projects funded by the DOE/USDA, National Council for Science and the Environment, the Southern Growth Policies Board, and EPA.

Phil Badger

Phillip Badger is the **Bioenergy Technical Director for the Southern States Energy Board**, an interstate compact headquartered in Norcross, Georgia. He is also President of General Bioenergy, Inc., a consulting firm located in Florence, Alabama, specializing in general consulting for the bioenergy industry. He was previously employed by the Tennessee Valley Authority, where he managed a regional DOE program for 15 years. Prior to that, Mr. Badger managed fuel alcohol research programs for DOE and TVA, and had research and extension responsibilities at Ohio State University in the fields of renewable energy and controlled environment agriculture. Mr. Badger has a B.S. and M.S. in Agricultural Engineering from Ohio State University, an MBA from Vanderbilt University, and is a registered professional engineer. He is listed in several Who's Who for his work related to bioenergy, including Who's Who in America, Who's Who in the World, and International Leaders of Achievement.

Tom Ballard

Tom Ballard serves as the **Director of the Partnerships Directorate for UT-Battelle, the managing contractor for Oak Ridge National Laboratory**. The Partnerships Directorate oversees ORNL's efforts in technology transfer, economic development, and industrial and educational partnerships. Ballard joined UT-Battelle in July 2004 after serving The University of Tennessee for 35 years, most recently as Vice President for Public and Governmental Relations. During his tenure at UT, he led the Institute for Public Service, which for years has been recognized as one of the nation's premier programs focused on helping local governments and manufacturers. Ballard serves on the board of directors of a large number of regional organizations and is a member of the Southern Technology Council. He is a graduate of UT with a bachelor's degree in communications and was the 2001 recipient of the College's Hileman Outstanding Alumni Award. He also received the prestigious Tennessee Valley Corridor Champion award in 2005.

Ron Barmore

Ron Barmore is the **Director of Project Development for Range Fuels, Inc.** In this role he leads the company's efforts in the siting, development and permitting of new projects and the sourcing of feedstock materials. Mr. Barmore is a member of the Council of Sustainable Biomass Production, serves on the executive committee of the Pine 2 Energy Coalition and is a frequent speaker at Bio-Energy conferences on issues that are critical to the development of the advanced Biofuels industry. Mr. Barmore has spent the majority of his career developing projects in the alternative energy field, primarily in the waste-to-energy industry (municipal solid waste to power). Most recently he spent six years as the senior executive in charge of business development efforts for Barlow Projects, Inc. His career also includes five years with ABB Resource Recovery Systems as a Regional Manager of Business Development and a number of years as an independent consultant. He began his career with one of the leaders in the waste to energy industry, Wheelabrator Technologies, Inc., a pioneer in the alternative energy field.

Dr. Harbans Bhardwaj

Dr. Harbans Bhardwaj is **Professor of Agronomy at Virginia State University's Agricultural Research Station**. He received his Ph. D. from University of Georgia, in Agronomy - Plant Breeding. Has been previously employed at University of Georgia, University of Tennessee, Fort Valley State University. Dr. Bhardwaj is involved in development of new food, feed, and industrial use crops. He has fifteen years of research experience with canola production and breeding. Recently, he initiated a canola-biodiesel research and extension project at Virginia State University.



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Leonard S. Bull

Professor and Associate Director of Animal & Poultry Waste Management Center, North Carolina State University College of Agriculture and Life Sciences. Dr. Leonard Bull holds BS and MS degrees in Animal Science from Oklahoma State University and a PhD in Animal Nutrition from Cornell University, with a minor in Veterinary Physiology and Biochemistry. He has served on Animal Science faculties of University of Maryland, University of Kentucky, University of Maine, as Department Chair at University of Vermont. Dr. Bull is Professor of Animal Science and Associate Director, Animal and Poultry Waste Management Center, NC State University. At NC State he has been: Head of Animal Science from 1989-96, Assistant Dean for Agricultural Research and International Programs, 1996-7; Associate Vice Chancellor for International Programs, 1996-2000. He is: Co-Chair of SAFER; Executive Director, NC State Animal Response Team; Director, NC Green Power Commission; Chairman, National Institute for Animal Agriculture; supporting member of 25x'25 and member, Carbon Reduction Committee; Vice President, World Association for Animal Production. He is a Fellow of the American Society of Animal Science and the American Association for the Advancement of Science.

Steven Burke

Mr. Burke serves as **Chairman of the Biofuels Center of North Carolina**, served as its founding President in 2007, and currently serves as Acting President. He is a board member of the Institute of Forest Biotechnology, a private non-profit corporation addressing the scientific, industry, and societal issues of forest biotechnology worldwide; he served from 2001-2004 as its founding Chair. He also serves as Vice Chair of the Board of Directors of the Biotechnology Institute, a non-profit corporation working for strengthened biotechnology education nationwide. He served two terms – in 1995-96 and 1997-98 – as chair of the 100+ member Council of Biotechnology Centers of BIO, the Biotechnology Industry Organization, and served on the Council's Board from 1993-2000. The Council is an international grouping of bioscience centers, agencies, and initiatives. He served from 1994 until June of 1999 on the Emerging Companies Section Governing Board of BIO. Prior to joining the newly established North Carolina Biotechnology Center in 1985, Mr. Burke taught Instructional Design at North Carolina State University in Raleigh, North Carolina. He has an undergraduate degree in Religion and Literature from Duke University, and a Master of Education in Instructional Design from the University of North Carolina at Chapel Hill.

Bill Burkman

Bill Burkman has been the **Forest Inventory and Analysis (FIA) Program Manager for the US Forest Service, Southern Research Station (SRS) FIA Unit** in Knoxville, TN since November 2004. Since the 1930's, the National FIA Program has been conducting inventories on US forests tracking forest extent, inventory volumes, health, vitality and contributions to the national and global timber supply. Mr. Burkman received his BS in Forest Management from the University of Wisconsin at Stevens Point and his MS in Forestry from Southern Illinois University in Carbondale. He has been a member of the Society of American Foresters since 1976. Mr. Burkman has previously held positions as Research Technician with University of Georgia's Savannah River Ecology Laboratory and as a Quality Assurance Specialist with the National Acidic Precipitation Assessment Program – Forest Response Program in the 1980s. With the US Forest Service, he has worked as a forester in the Northeastern Area State and Private Forestry Forest Health Protection unit in PA; as the program manager for the SRS's Forest Health Monitoring Program in Asheville, NC; and the group lead for data collection at the former North Central Research Station FIA unit in St. Paul, MN.

Cory Christensen, Ph.D.

Cory Christensen has been a **product manager at Ceres, Inc.** since 2007. Based in Thousand Oaks, California, he oversees the seed company's pipeline of high-yielding switchgrass cultivars, from early development to commercialization, as well as external partnerships and trials. He previously led Ceres' trait development efforts in drought and cold stress as well as enhanced biomass production. Prior to joining Ceres, he managed gene-trait discovery work at Paradigm Genetics, focusing on drought stress and herbicides. Dr. Christensen holds a Ph.D. in biology from the University of Utah, where he studied plant reproductive development.

Dana Christensen, Ph.D.

Dana Christensen is the **Associate Laboratory Director of the Energy & Engineering Sciences Directorate of the Oak Ridge National Laboratory (ORNL)**. The Directorate is the U.S. Department of Energy's (DOE) largest energy research and technology organization, annually executing over \$350M of programs for a variety of government and industrial sponsors in all aspects of energy science and technology. Dr. Christensen came to ORNL from the University of California where he was the principal Associate Laboratory Director of Threat Reduction at the Los Alamos National Laboratory. Prior to this he was the Deputy Associate at the Laboratory for Energy and Environment at the Lawrence Livermore National Laboratory, also operated by the University of California. He has twenty nine years of management experience in material science, nuclear energy, fossil and renewable energy, nuclear materials management and scientific research in support of DOE and other Government agencies and industries.



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John F. Clark, Ph.D.

John F. Clark is **Director of the South Carolina Energy Office**. He has worked in energy and other public policy activities for over thirty years, including service as advisor to two South Carolina governors, staff for the U.S. House of Representatives and the South Carolina General Assembly, and Executive Director of Public Affairs for Santee Cooper, South Carolina's major public power utility. He currently serves on the Board of Directors of the National Association of State Energy Officials. Among his achievements are the planning and writing of several pieces of state legislation, including the South Carolina Energy Conservation and Efficiency Act, the Atlantic Radioactive Waste Compact Implementation Act, and the South Carolina Energy Freedom Act. A graduate of Davidson College, Clark holds a Ph.D. from Syracuse University. He is also co-author of two guidebooks pertaining to the Palmetto State, *Hiking South Carolina* and *Scenic Driving South Carolina*.

Gerald Cottrell

Gerald Cottrell is the **CEO of Enerphase Industrial Solutions, Inc.**, the parent company of Bio-Gen Energy Solutions, which is headquartered in Greensboro, North Carolina. Enerphase is a diversified industrial equipment company, comprised of three divisions, with operations throughout the southeast. Enerphase provides compression, combustion, automation and industrial engineering services for 2,400 industrial companies. Bio-Gen Energy provides value added engineering and procurement services for biomass steam systems. With a target market of industrial steam users, Bio-Gen has identified a growing market which allows the firm to fully leverage its 50 years of providing value added industrial services. Mr. Cottrell has a Bachelor of Science in Mechanical Engineering and a Masters of Business Administration from Wake Forest University. Under Mr. Cottrell's leadership, Enerphase has recently been recognized for the second straight year as a member of the Inc. 5000, as one of the fastest growing, privately held companies in the US.

Kurt Creamer

Kurt Creamer, P.E., is **Connectivity and Grant Manager, Novozymes North America**. Kurt started his career at Battelle Memorial Institute as a Research Engineer, leading both product and process development tasks in the Fuels and Combustion Department. On the process development side, Kurt led tasks in gasification and combustion of biomass, municipal solid waste, and other fuels. Prior to joining Novozymes, Kurt held several positions with NC State University (NCSU), beginning with Assistant Director of the Office of Technology Transfer, where he was responsible for managing university intellectual property and commercializing university inventions. He later joined the North Carolina Solar Center at NCSU, managing projects in the areas of biomass energy and the production of biofuels. On behalf of the NC State Energy Office, Kurt organized the North Carolina Biomass Council to promote economic development, a reduction in greenhouse gas and other emissions, and

energy security through the utilization of biomass (including biofuels, bioproducts and biopower), in the State of North Carolina. In this role, Kurt produced and co-authored *The North Carolina Biomass Roadmap: Recommendations for Fossil Fuel Displacement through Biomass Utilization*. Also at NCSU, Kurt managed the "Energy Crops for North Carolina Program" funded by the Golden LEAF Foundation to evaluate energy crops for North Carolina.

John S. Cundiff, Ph.D.

John S. Cundiff is **Professor of Biological Systems Engineering at the College of Agriculture and Life Sciences and College of Engineering at Virginia Tech**. Dr. Cundiff's research interests are in alternate crops for fuel and chemicals, fluid power systems and controls for mobile applications, and peanut quality improvement.

Brian Davison, Ph.D.

Brian Davison is the **Chief Scientist for Systems Biology and Biotechnology at Oak Ridge National Laboratory**. He is also a deputy in the recently awarded DOE Bioenergy Science Center (www.bioenergycenter.org). He recently served two years as the Director of Life Sciences Division. He was previously a Distinguished Researcher & BioChemical Engineering Research Group leader. In his twenty-one years at ORNL he has performed biotechnology research in variety of areas including bioconversion of renewable resources (ethanol, organic acids, solvents), non-aqueous biocatalysis, systems analysis of microbes (cultivation and proteomics), biofiltration of VOCs, mixed cultures, immobilization of microbes and enzymes, metal biosorption, and extractive fermentations. If there is a theme connecting his work, it is at the interface of solid, liquid, and gas phases between biocatalysts and their environments. This has resulted in over 90 publications and six patents. He led a multilab team which received an R&D100 Award for "Production of Chemicals from Biologically Derived Succinic Acid," in 1997. He received his Ph.D. in Chemical Engineering from the California Institute of Technology, and his B.S.E. in Chemical Engineering, from the University of Rochester. He co-chaired the 15th to 26th Symposia on Biotechnology for Fuels and Chemicals and served as editor of *Proceedings in Appl. Biochem. Biotechnol.*, (1994 – 2005). He was given the 2006 C.D. Scott award by the Society of Industrial Microbiology at the Symposium on Biotechnology for Fuels and Chemicals. He is also an Adjunct Professor of Chemical Engineering, at the University of Tennessee-Knoxville.



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Jeff Deyette

As the **Energy Analyst for the Union of Concerned Scientists' Clean Energy program**—where he has been since 1999—Jeff conducts analysis on the economic and environmental costs and benefits of renewable energy and energy efficiency policies. Jeff has co-authored numerous reports for UCS which use economic models to examine the consumer, employment, and environmental benefits of increasing our use of renewable energy. Jeff has also written several articles for various renewable energy industry publications. Jeff has a Masters Degree from Boston University in Energy Resource and Environmental Management & International Relations, and a Bachelors Degree from St. Lawrence University in Environmental Science and Government.

Kevin Edgar, Ph.D.

Kevin Edgar is a **Professor of Biomaterials and Bioprocessing at Virginia Tech**. His interests are in the synthesis of novel polysaccharide derivatives, unraveling their structure property relationships, and taking advantage of their useful properties, especially in the creation of effective drug delivery systems to meet critical patient needs. He also has interest in the fast developing field of conversion of biomass to valuable biomaterials, and to biofuels. Edgar spent 27 years at Eastman Chemical Company, where he was a Technology Fellow specializing in the chemistry of cellulose derivatives and in novel drug delivery systems. Edgar received a BS in Chemistry from Bucknell University, and a Ph.D. in Organic Chemistry from Duke University. Edgar is a member of AAPS and AAAS, and is active in governance of the American Chemical Society (ACS).

Sandra Eksioglu, Ph.D.

Dr. Sandra D. Eksioglu is an **Assistant Professor in the Department of Industrial and Systems Engineering, Mississippi State University**. Her research is focused on the areas of supply chain optimization, supply chain and logistics management, and operations research. She is the education coordinator of the National Center for Intermodal Transportation housed by the Department of Industrial and Systems Engineering, and the chair of the Transportation Working Group sponsored by the Bagley College of Engineering. Dr. Eksioglu's current research is concentrated on designing and managing the chain to supply biomass to biorefineries.

Lyle Estill

Lyle Estill is **Co-Founder of Piedmont Biofuels in Pittsboro, NC**. Lyle has been involved in all aspects of biodiesel production and market development since 2002. He has also been active in the business community for the past twenty years. As an entrepreneur he has founded a variety of companies and has been involved in a wide range of startup ventures. Estill immigrated to the United States in 1990 and founded EMJ America in Cary, North Carolina which has operations in his native Canada, the United States, Brazil, and Hungary, where Estill brushed with globalization and the international economy. Since then his vision of enterprise has become increasingly local, as he has been on a continual journey toward ever increasing sustainability. He is an accomplished author of several books, namely, "Biodiesel Power: the People, the Passion, and the Politics of the Next Renewable Fuel" and "Small is Possible: life in a local economy".

Bob Etheridge, U. S. House of Representatives

Bob Etheridge is the **Congressman for the 2nd District of North Carolina in the U. S. House of Representatives**. He currently serves on the House Agriculture, Budget and Homeland Security committees. He is the Chairman of the Subcommittee on General Farm Commodities and Risk Management of the House Agriculture Committee. As a part-time farmer, Bob Etheridge plays a unique role in protecting and promoting North Carolina's agricultural interests.

Todd French, Ph.D.

Dr. French is an **Assistant Professor in the Dave C. Swalm School of Chemical Engineering at Mississippi State University**. He received a B.S. in microbiology from Northeast Louisiana University and a M.S. and Ph.D. in microbiology from Mississippi State University. Dr. French has over 15 years experience in the area of Bioprocessing. He worked for three years at the Waterways Experiment Station in Vicksburg, MS developing novel bioremediation processes. In 1997, French left Waterways to begin work on his Ph.D. After completion of his doctoral work he accepted a post-doctoral position in Dr. Lew Brown's laboratory where he began working on renewable fuels in collaboration with the School of Chemical Engineering at MSU. In 2002, Dr. French went to work in the School of Chemical Engineering at Mississippi State University co-developing novel technologies for the production of biofuels and bioproducts.



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Alex O. Hobbs, Ph.D.

Dr. Alex Hobbs, P.E., is currently the **Associate Director for Renewable Technologies at the Solar Center**, an outreach component of NC State University's College of Engineering. He has more than 35 years of engineering experience in the areas of electric power generation and delivery, water and wastewater treatment, as well as production agriculture and food processing. He has worked as a design/startup engineer and as project manager on internal combustion turbine generator, coal and oil fired boiler, and light water nuclear plant projects. As an in-house technology consultant and researcher for a major southeastern utility, Dr. Hobbs led applied research and development programs to evaluate advanced power production techniques, development and combustion of biomass based renewable fuel resources, new environmental assessment and remediation technologies and innovative load management equipment and strategies.

Alan W. Hodges, Ph.D.

Alan Hodges is an **Associate Extension Scientist in Food & Resource Economics at the University of Florida, Institute of Food & Agricultural Sciences**, and he also holds an affiliate appointment in the UF-School of Forest Resources and Conservation. He received M.S. and Ph.D. degrees in Agricultural and Biological Engineering from the University of Florida, and a B.A. from the University of Chicago. His areas of research include economic impact analysis, market survey research, agribusiness management, environmental economics, and biomass energy resource development. He co-directs the UF program in Economic Impact Analysis, and he is currently chairman of the Green Industry Research Consortium. He has participated in projects with total funding support in excess of \$5 million, and has extensive international development work experience in Latin America.

Suzanne Hunt

Suzanne Hunt is currently a **Washington DC-based independent consultant on energy, climate/environment, food/agricultural, and international development, policy and investment**. Current and past clients include the U.S. Department of Energy, the Sustainable Energy and Climate Change Initiative of the Inter-American Development Bank (IDB), the Natural Resources Defense Council, Wolfensohn & Co., the Global Bioenergy Partnership, and the UN Food and Agriculture Organization. Ms. Hunt has extensive environmental research, policy, education and planning experience. She directed the Worldwatch Institute's bioenergy program for two years where she coordinated the landmark study, "Biofuels for Transportation: Global Potential and Implications for Energy and Agriculture." Under her leadership, a team of international experts in the field of bioenergy assessed the opportunities and risks of large-scale international development of biofuels. Before Worldwatch, she worked at Environmental Defense on social and environmental safeguard policy reform at the International Finance Institutions.

Tom Johnson

Tom Johnson has over 30 years experience in **Southern Company's Research and Environmental Affairs Department**. During his career he has been Project Manager on several alternative fuel development efforts. He has directed projects on direct coal liquefaction, coal gasification, and advanced coal cleaning. Most recently, he has been responsible for managing Southern Company's Renewable Energy Technology Program, including evaluation of the use of biomass for power generation in existing and future plants. Mr. Johnson holds a Bachelor of Chemical Engineering degree from Auburn University and is a member of the American Institute of Chemical Engineers.

Liam Leightley, Ph.D.

Dr. Liam Leightley is **Interim Associate Director of the Forest and Wildlife Research Center at Mississippi State University**. Dr. Leightley has also held positions of Professor and Head of the Department of Forest Products at Mississippi State University College of Forest Resources, and Chair of the Southern Alliance for the Utilization of Biomass Resources. Dr. Leightley has served as the Chair of the North Mississippi Forest Products cluster, which together with the Mississippi Development Authority has a goal of enabling economic development opportunities. Prior to joining Mississippi State University, he held global management positions for Rohm & Haas, a major manufacturer of specialty chemicals. He also held positions as Visiting Professor at the USDA Forest Products Laboratory in Madison, Wisconsin and as Research Manager at the Queensland Department of Forestry in Australia.

Will McDow

Will McDow is **Southern Forests Projects Manager with the Center for Conservation Incentives with the Environmental Defense Fund** in North Carolina. Will focuses on improving management of the Southeast's privately owned forestlands through conservation incentive programs and market mechanisms, with an emphasis on Farm Bill Programs, property tax, carbon markets, and biomass utilization. He engages with local landowners in targeted landscapes with special emphasis on longleaf pine and bottomland hardwood systems. Will serves on the North Carolina Forestry Technical Advisory Committee which is responsible for developing best management practices to protect water quality and the North Carolina Forestry Council to advise the State Forester in the direction and activities of the NC Division of Forest Resources.



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Ken Nemeth

Ken Nemeth has served as the **Southern States Energy Board's Secretary and Executive Director** since February 1975. He is responsible for the direction, formulation, development, demonstration, and implementation of all Board programs. This includes the Southeast Regional Carbon Sequestration Partnership, the largest of seven regional initiatives funded by the U.S. Department of Energy with over 100 members. During Mr. Nemeth's tenure, the Board has undertaken initiatives in a wide range of energy and environmental policy and technology areas. These include the creation of international partnerships and coalitions for clean energy, environmental protection, and economic development. His diplomatic and political skills have facilitated joint partnerships throughout the world. In the 1970's, he was responsible for developing a partnership with the state of Nuevo Leon, Mexico, to examine the potential for importing natural gas. During the 90's his leadership enabled the southern region to develop successful collaborative initiatives with the Republic of Uzbekistan, the Federative Republic of Brazil, the Industrial Estates Authority of Thailand, and the Republic of Viet Nam. Mr. Nemeth currently serves as a member of the National Coal Council and numerous boards, organizations, task forces, and partnerships representing energy and environmental strategies and technologies. His service to the region is acclaimed with honors and awards throughout the country. Mr. Nemeth is a graduate of the Florida State University in Tallahassee, Florida.

Bob Niekum

Bob Niekum is **Director of Renewable and Wholesale Power for Progress Energy**. In this position, Mr. Niekum is responsible for all long term purchases and sales of wholesale power for Progress Energy Florida. The company's wholesale business serves municipal utilities, cooperatives and investor owned utilities. Purchases are also made from these utilities as well as from cogeneration facilities and renewable energy projects. He has been with Progress Energy for 26 years and has worked in Transmission Planning, has been the manager of Generation Planning and Director of Fuels Procurement. He has a Bachelor's Degree and a Master's Degree in Power System Planning from the University of Florida. He is a registered Professional Engineer in the state of Florida.

Steven W. Peretti, Ph.D.

Steve Peretti is **Associate Professor of Chemistry at North Carolina State University**. His research is in the areas of metabolic characterization, population dynamics, bioremediation, chiral biosynthesis, and bioreactor design.

Charlie Pringle

Charlie Pringle is the **Business Development Leader, Eastern Forest Resources, for Rayonier**. Charlie Pringle leads the business growth efforts for Rayonier's timber business in Georgia and Florida. Prior to joining Rayonier in 2006, Charlie worked as an Associate Economist for RTI International's Environmental and Natural Resource Economics group. He also worked to develop small businesses for Asociación ANAI, a Costa Rican non-profit that focuses on economic development and forest conservation. Charlie earned his BS at the University of the South, where he was a double major in Natural Resources and Economics. He has an MBA from the Tuck School of Business at Dartmouth.

Steven Rhines, J.D.

Steven Rhines serves as **Vice President, General Counsel and Director of Public Affairs for The Samuel Roberts Noble Foundation** in Ardmore, Oklahoma. Prior to his current position, Rhines was a patent attorney with Sidley Austin, LLP in Dallas. Rhines received his undergraduate degree in mechanical engineering at the University of Oklahoma and a juris doctorate from Southern Methodist University. The Noble Foundation is a nonprofit institution conducting agriculture consultation and educational programs as well as agricultural and plant science research to enhance agriculture regionally, nationally and worldwide.

Timothy G. Rials, Ph.D.

Timothy G. Rials is **Professor and Director, Forest Products Center and Southeastern Sun Grant Center**. Tim Rials received his undergraduate degree in Forest Management Science from Mississippi State University in 1980. He earned both Masters (1983) and Ph.D. (1986) degrees from Virginia Tech's Department of Wood Science and Technology. Tim then joined the faculty at the University of California-Berkeley as assistant professor, conducting research on renewable materials. In 1988, he moved to Louisiana accepting a research scientist position with the USDA-Forest Service, Southern Research Station in Pineville. After 8 years of experimentation around wood-polymer interfacial properties and adhesion, Tim became Project Leader of the wood utilization research unit. Five years later, Tim moved to The University of Tennessee, accepting the position of Professor in the Department of Forestry, Wildlife, and Fisheries, and Director of the Forest Products Center. At UT, Tim researched vibrational spectroscopy of wood and related materials while working to coordinate the Forest Products Center's overall program and vision. In 2005, he assumed the role of director for the Southeast Sun Grant Center, effectively broadening the research effort to consider bioenergy and bio-based products. A fellow in the International Academy of Wood Science and member of the American Chemical Society, Tim continues working today to advance the efficient use of wood and biomass to strengthen the bioeconomy in Tennessee and the Southeast.



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Al Sample, Ph.D.

Al has served as **President of the Pinchot Institute for Conservation** in Washington, DC since 1995. He is a Fellow of the Society of American Foresters, and a Research Affiliate on the faculty at the Yale School of Forestry and Environmental Studies. His research interests are in organizational systems for advancing sustainable forest management, including policy frameworks, market-based systems, and evolving models for forest management planning and decision making. Sample earned his doctorate in resource policy and economics from Yale University (1989). He holds an MBA and a Master of Forestry from Yale, and a Bachelor of Science in forest resource management from the University of Montana. His professional experience spans public, private, and non-profit organizations, including the U.S. Forest Service, Champion International, The Wilderness Society, and the Prince of Thurn und Taxis in Bavaria, Germany. He specialized in resource economics and national forest policy as a Senior Fellow at the Conservation Foundation in Washington, DC, and later as Vice President for Research at the American Forestry Association. He has published widely in journals of resource policy, economics, law and organizational management. Sample has served on numerous national task forces and commissions, including the President's Commission on Environmental Quality task force on biodiversity on private lands, and the National Commission on Science for Sustainable Forestry.

Glenn Sappie

Glenn is an economist for the **North Carolina Department of Environment and Natural Resources, Division of Air Quality with the Rule Development Branch**. Since 1995, he prepared economic impact analysis of proposed air quality regulations. He was appointed to a federal advisory committee to evaluate impacts from regulation of industrial combustion sources. Glenn received a Masters degree in Agricultural Management and Resource Development from University of Florida. As research faculty at NCSU, he evaluated pesticide use related to Boll Weevil eradication and the economic results of promising agricultural technologies as a Research Associate with the North Carolina Agricultural Research Service. Before moving into air quality, Glenn developed economic assessments of best management practices with the Division of Soil and Water Conservation, Watershed Protection Planning Section.

Ernie Shea

Dr. Ernie Shea is **Project Coordinator for 25x'25**, a diverse alliance of agricultural, forestry, environmental, conservation and other organizations and businesses that are working collaboratively to advance the goal of securing 25 percent of the nation's energy needs from renewable sources by the year 2025. 25x'25 is led by a national steering committee composed of volunteer leaders. The 25x'25 goal has been endorsed by nearly 700 partners, 29 Governors, 15 state legislatures and the U.S. Congress through HR6 which was signed into law by President Bush on December 19, 2007.

Larry Shirley

Larry Shirley serves as the **Director of the State Energy Office in the NC Department of Administration**. In this capacity, he manages the energy efficiency, energy emergency, alternative fuels and renewable energy programs for the State of North Carolina. The State Energy Office funds and oversees more than 50 projects serving the industrial, commercial, local and state government, transportation, and residential sectors. In response to the state's budget crisis, the State Energy Office began a comprehensive initiative to reduce energy use in state facilities and public universities in 2002, entitled the Utility Savings Initiative for State Facilities. Energy Savings attributable to this program exceeded \$122 million in 2007, the year that the State Energy Office was awarded the Regional Innovation Award by the Council of State Governments. Previously, Mr. Shirley served for 13 years as the Executive Director of the NC Solar Center at NC State University, as the Assistant Director of the Mary Reynolds Babcock Foundation in Winston-Salem, as the director and founder of the Nonprofit Energy Management Program for the Advanced Energy Corporation, and as the Director of Field Operations for the Center for Renewable Resources in Washington, DC. Mr. Shirley is a graduate of the University of North Carolina at Chapel Hill.

Phil Steele, Ph.D.

Dr. Philip Steele has been a **Professor in the Department of Forest Products, College of Forest Resources, Mississippi State University (MSU)** for 20 years with both research and teaching duties. Dr. Steele is the Thrust Leader of the MSU Sustainable Energy Research Center Bio-Oil Research Group and manager of the Bio-Oil Laboratory at MSU. The MSU Bio-Oil Research Group is comprised of 10 on-campus faculty in the Departments of Agricultural and Biological Engineering, Chemistry, Chemical Engineering, Forest Products, Mechanical Engineering, and the Institute for Clean Energy who are developing technology for the production of fuels from bio-oils made from various types of wood and agricultural feed stocks. Dr. Steele has won several research awards including the College of Forest Resources Outstanding Research Award and awards for exceptional research papers from both the Hardwood Research Council and the Forest Products Society. He has published widely and is the author or co-author of over 100 research papers.



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Anne Tazewell

Anne Tazewell is the **Transportation Program Manager for the NC Solar Center at NC State University**. With state and federal funding, Anne helps coordinate efforts to increase the use of advanced transportation technologies and alternative fuels, such as biofuels, through outreach to fleet managers, elected officials and other decision makers. She is also the Policy Chair of Triangle Clean Cities - a coalition of public and private partners sponsored by the U.S. Department of Energy that is dedicated to expanding the use of alternative fuels. In this capacity Anne serves as a technical resource for policy makers in North Carolina providing analysis of policy options and activities. In 2006, Anne launched a three-year \$2 million Clean Fuel Advanced Technology (CFAT) project that features education and outreach, recognition for exemplary activities and funding for transportation related emission reduction projects in 24 NC counties that do not meet national air quality standards. Over \$1.3 has been awarded for a wide array of projects including NC's first biodiesel blending at NC fuel terminal, E85 and B99 refueling infrastructure.

Ivan Urlaub

Ivan Urlaub brings ten years of state, national and international experience in the energy and water fields to his work as **Executive Director of the NC Sustainable Energy Association**. Relevant aspects of Ivan's technical and management experience include economic analysis; utility design and debt restructuring; legislative and regulatory analysis; electricity, petroleum, renewable energy, energy efficiency, water and environmental regulation and compliance; institutional development; strategic planning; drafting laws and rules; voluntary national biomass program design; emergency response; global climate change; and market development. Ivan currently serves on the North Carolina Legislative Commission on Global Climate Change. Ivan holds a B.A. in Political Science and Environmental Studies from The George Washington University in Washington, D.C., and a Master of Environmental Management and Master of Public Policy from Duke University, where he focused on Energy, Economic Globalization, and Global Environmental Change sciences.

Rich Vetter, Ph.D.

Dr. Vetter is the **President of Agri-BioSystems, Inc.** and is a consultant in agricultural wastes technologies specializing in anaerobic digestion and biogas utilization, processing, and value-added products. He has more than 30 years experience, both domestically and internationally, in animal physiology research. He spent 16 years as a Professor of Animal Science at Iowa State University and 18 years as the Director of Research and Development at A.O. Smith Harvstore. He has also worked in research, design, development, and evaluation of anaerobic digester systems for more than 30 years. Rich has over 300 publications in the areas of animal physiology and anaerobic digestion systems.

Jetta Wong

Jetta Wong joined **Environmental & Energy Studies Institute (EESI)** in July 2005 and is the **Senior Policy Associate** working with EESI's Sustainable Biomass and Energy program. Her responsibilities include overseeing the production of BCO: Bioenergy, Climate Protection, Oil Reduction; monitoring the reauthorization of the Farm Bill and implementation of its existing energy provisions; primary EESI researcher on a three-organization project studying effective marketing incentives for biopower, biofuels and biobased products; and monitoring and advocacy related to the Renewable Fuels Standard and other bioenergy policies enacted in the last few energy bills. Jetta presents at conferences, organizes Congressional briefings, facilitates "Dear Colleague" letters, and responds to requests from numerous Congressional offices, policy groups and other stakeholders. She is the designated biomass expert for RenewableEnergyAccess.com. Jetta has recently testified for Congress on 'Biofuel Impacts on Food Supplies' and The Implementation of the Renewable Fuel Standard.'

Kelly Zering, Ph.D.

Dr. Kelly Zering is **Associate Professor and Extension Specialist in the Department of Agricultural and Resource Economics at North Carolina State University**. He received his Ph.D. (1984) in agricultural economics from the University of California, Davis. He received his Bachelor's and Master's degrees in Agricultural Economics from the University of Manitoba in Winnipeg, Canada. Since 2006, his work has increasingly focused on the economics of biomass and energy. He serves on the NC State University Energy Council, the Research Triangle Energy Consortium, and the Steering Committee for the Southeastern Agriculture and Forestry Energy Resources alliance. His current research interests include integrating energy production, environmental enhancement, and waste utilization into economic models of agriculture.