These are exciting times for clean energy in North Carolina!

It has been a great honor to lead the North Carolina Solar Center since 2005, and I feel that the work has never been more rewarding. As our state grows its clean energy leadership role in the Southeast and the nation, the Center continues to play a critical part in the process. Our mission is summarized as “Advancing Clean Energy for a Sustainable Economy,” and the roles we play to meet that goal are diverse, crossing many technologies and many disciplines.

The last year has, in many ways, been the most demanding year we have faced in our history, with dramatic cuts in state support leading to significant changes in the way the Center is organized and operated. At the same time, the federal support related to the American Recovery and Reinvestment Act of 2009 (ARRA) has also wound down. I am proud of the Center’s accomplishments and our staff as we have worked through this resource challenge. We have done our best to use this opportunity to “sharpen our sticks” and ensure that our limited resources are used in the best way to meet the mission. We have restructured programs, diversified revenues and generally become more creative and focused in how we work. As a result, we have established an even stronger foundation from which the Center will work and grow.

As you read through this Annual Report for the Center, I hope that the scope and complexity of our work is impressed upon you. When we started in December 1987 (or even when the NCSU Solar House was first built in 1981), our work was largely education, research, and demonstration. While those roles are still important parts of our work, many of the technologies we work to support are better understood today and are more accepted by consumers. But as solar, biomass, energy efficiency, and other clean energy technologies achieve greater market penetration, the barriers faced have expanded to include public policy, workforce development, and finance.

With a small staff of around thirty people, we work in all of these areas, but we cannot do it alone. We work closely with partners like the North Carolina Sustainable Energy Association, state agencies like the N.C. Department of Commerce, and university partners across N.C. State and the greater UNC System. We also depend on you—the people and businesses we serve—to help us meet the challenges we all face. We need you to inform us on the barriers that you face and to help us to achieve the resources we need to overcome them.

What I have seen in my tenure as Executive Director is that we still have much to do, but we are winning the day in bringing a clean energy future to North Carolina and the nation. By working together, we will continue to advance clean energy for a sustainable economy. Know that the North Carolina Solar Center is ready to serve.

Exciting times indeed…

Stephen S. Kalland, Executive Director
OUR MISSION

The North Carolina Solar Center, at N.C. State University, advances a sustainable energy economy by educating, demonstrating, and providing support for clean energy technologies, practices, and policies.


Number of counties served: 45
Technical assistance requests served: 180+
Economic development requests served: 150+ Companies
Training classes/workshops provided: 53
Number of people trained: 270+
Education & outreach events attended: 100+
Presentations/webinars given: 80+
Policy requests served: 2000+

PROGRAM AREAS

Renewable Energy
Clean Power & Energy Efficiency
Clean Transportation
Economic Development
Workforce Development
Energy Policy
Education & Outreach
Services
The diversity of the Center’s 2011-2012 programs and services can be attributed to a strong mixture of funding sources, of which the most notable are the revenues from the American Reinvestment and Recovery Act (ARRA). In all, ARRA funds constituted about 30% of all Contracts and Grant funding. While funding from State Appropriation and Receipts dropped from $851,801 in 2011 to $298,103 in 2012, a strong growth in Fee-Based Client Services and ARRA projects helped maintain the needed services this fiscal year.

In the closing of FY 2012, two major financial challenges lay ahead. First, State Appropriations and Receipts for the Center in 2012 totaled less than 35% of the 2011 levels and are not expected to improve significantly in the near future. Second, all ARRA revenues and grants concluded at the end of the fiscal year. Though many programs were able to secure additional multi-year grants to replace ARRA funding, opportunities on the federal level have decreased notably.

The N.C. Solar Center is meeting these challenges by increasing service offerings, which have increased the share of Fee-Based Client Services as part of the operating budget from less than 5% in 2011 to over 10% in 2012. Another revenue stream that can help the Center address future funding challenges is through Gifts and Sponsorships, which currently makes up less than 1% of the total operating budget.

Ultimately, finding dependable and sustainable revenue streams to replace what is sure to be a continued deficiency of state and federal funding will be a major challenge going forward. As a result, a diverse funding stream is imperative to maintain the quality and diversity of the Center’s programs.
The N.C. Solar Center offers an array of technical assistance and service options for those trying to identify energy efficiency and renewable energy investment opportunities in their community. Our staff works with a wide variety of partners to coordinate support to citizens, businesses, and government agencies, including:

- making energy improvements to existing facilities
- designing “greener” facilities and fleets
- testing an array of solar technologies
- analyzing financial models
- training a cleantech workforce
- providing policy services

Whether an organization is interested in improving energy efficiency in buildings or utilizing renewable energy technologies like solar, wind, or bioenergy, the N.C. Solar Center can help. Services include:

**N.C. SOLAR CENTER FEE-BASED CLIENT SERVICES**

**Financial Modeling & Analysis**
- Model review & recommendations
- Dashboard/visualization tool
- Project evaluations/feasibility students

**Technical Services**
- Product demonstration & testing
- Renewable energy site assessments
- Rural or agricultural renewable energy site assessments (USDA)
- Project evaluation/feasibility studies
- Combined Heat & Power (CHP) site qualification & feasibility analysis
- Wind resource studies
- Clean transportation fleet assessments
- RFP & proposal development

**Policy**
- (Solar) regulatory tracking
- (Renewable energy) legislative tracking
- Incentives search tool
- Customized incentive data—XML feed
- RSS feed

**Workforce Development/Training**
- Certificate in Renewable Energy Management
- Renewable Energy Diploma Series
- Customized training
- Eco Driving workshop
- Training facility/mobile unit rental
Renewable Energy Program

Mission
The Renewable Energy program advances renewable energy in North Carolina and beyond by providing information and support to energy users, energy providers, and other energy stakeholders. Working with businesses, individuals, non-profits, and government, the Renewable Energy Technical team provides education, site assessments, product testing, codes and standards support, and other services related to solar photovoltaics (PV), solar thermal, small wind, utility scale wind, and biomass. These efforts lead to a more energy-secure and sustainable economy.

Solar Technologies

Top Accomplishments
Expansion of Solar Testing Capabilities to Include High Temperature Solar Thermal
The Center’s testing lab developed a new performance testing system capable of collector temperatures of up to 400 degrees Fahrenheit with very accurate measurement of flow rate, fluid temperature, and incident solar radiation. The system was tested and validated in June 2012, and completed testing of a concentrating collector in August 2012. Additionally, we are preparing to apply for accreditation to test to SRCC Standard 100, which covers quality and performance testing of solar hot water collectors.

Solar ABCs Steering Committee
The Center is an active member of the Solar America Board for Codes and Standards (Solar ABCs) Steering Committee. Solar ABCs is a collaborative effort among experts to prioritize input from policy makers, manufacturers, installers, and consumers in order to make coordinated recommendations to codes and standards makers for existing and new solar technologies. The Center has worked with Powermark Corp. on the System Energy Rating task to provide recommendations to increase the availability of detailed standardized PV module performance rating data (IEC 61853-1 standard).

Solar Electric Research and Testing
Our staff conducted two studies related to solar energy and performance in the local climate:

- A comparison of ground measurements of direct normal irradiance (DNI), or beam radiation. Several companies now offer estimations of a given location’s solar energy by analyzing complex satellite images, which can be used to predict and analyze a solar system’s performance.
- A year-long performance study of two side-by-side PV systems of different PV cell technologies manufactured by the same company.

The results allow for better predictability regarding how solar systems perform in the North Carolina and Southeastern climates.

Wind Technologies

Top Accomplishments
Southeastern Coastal Wind Conference 2012
As part of the efforts to educate stakeholders and raise the profile of North Carolina, the Center played a large role in planning, organizing, and implementing all aspects of the Southeastern Coastal Wind Conference held in Charlotte. This conference was a collaborative effort with over 50 organizing partners from Virginia, North Carolina, South Carolina, and Georgia. Approximately 300 stakeholders attended the conference, which focused on the supply chain as well as onshore and offshore wind opportunities in the Southeast.

The Center is an active member of the Bureau of Ocean Energy Management’s North Carolina Offshore Renewable Energy Task Force. The task force consists of state, federal, local, and tribal government representatives coordinating efforts to facilitate commercial leasing for renewable energy on the Outer Continental Shelf offshore from North Carolina. We have participated in several meetings between the N.C. Department of Commerce and federal agencies relating to offshore wind site identification in the state.

Our unique solar technology required an upgrade to the existing measurement standards, and the N.C. Solar Center test lab staff went out of their way to make sure that we had the most accurate testing possible. “The N.C. Solar Center was the perfect place to test our system.”

-Michael Armani, CloudSolar Inc.
Offshore Wind Feasibility Study
The Center participated in an offshore wind feasibility study managed by the N.C. Department of Commerce and the State Energy Office. Our involvement focused on offshore wind outreach, as well as efforts to raise our state's profile in the American and European wind energy industry. We delivered numerous presentations to educate N.C. stakeholders on offshore wind's potential and benefits. Our state's vast offshore resource potential and suitability for wind manufacturing were highlighted for the broader wind industry at conferences and meetings outside of the state.

Biomass

Top Accomplishments
Biodiesel Pilot Plant and Biofuel Research and Implementation Club (BRIC)
The Center staff worked with BRIC, a student club devoted to increasing use of biofuels on campus as a sustainability solution, to secure grant funding to pay for the biodiesel pilot plant project. BRIC's work contributes to campus sustainability, gathering waste fryer oil from University cafeterias as feedstock to produce as much as 200 gallons per week of biodiesel that is used on NC State's Research Farms. The project partners include the Department of Chemical & Biomolecular Engineering and the N.C. Biofuels Center.

Policy Assistance to Renewable Biomass Project Developers
A growing innovation in the state is the application of biomass combined heat and power at industrial sites that commit to renewable energy use. We provided policy assistance to third-party project developers who executed nearly 1 megawatt of biomass electricity projects last year using private capital investment. As a result, the industrial hosts can procure needed process energy from renewable sources at competitive cost.

Assisting N.C. Stakeholders on Agricultural Biomass Energy Options
The Center’s biomass team delivered a number of seminars and workshops last year, geared to help rural agricultural producers learn how to invest in renewable energy production for enhanced environmental performance. N.C.’s Renewable Energy Portfolio Standard (REPs) includes a provision for renewable energy from swine and poultry waste, and the Center has worked with several projects on successful implementation. We are also working on a study to identify barriers and solutions to achieving more of these projects for release in early 2013.

“While Wellons Energy has more than 40 years of experience in the design and installation of biomass CHP systems, our work in North Carolina would have been impossible without the help and assistance of the professionals at the N.C. Solar Center. Additionally our ability to close and execute on capital projects with a combined value in excess of $30,000,000 would have been exceptionally difficult without them.”
- Garald Cottrell, Wellons Energy Solutions

“The N.C. Solar Center played an enormously helpful role in the planning, organization, and website management of the first-ever Southeastern Coastal Wind Conference. The success of that conference has helped to catalyze regional efforts for wind energy in the Southeast where the Solar Center continues to be a valuable partner.”
- Brian O’Hara, President of Southeastern Coastal Wind Coalition
CLEAN POWER AND INDUSTRIAL EFFICIENCY PROGRAM

Mission:
The Clean Power & Industrial Efficiency (CPIE) program works to increase the use of combined heat and power (CHP), and to reduce energy intensity in industry. To accelerate adoption of these energy and cost saving strategies, the CPIE team provides technical assistance and policy information to industrial, commercial, and institutional energy users. These efforts strengthen business and industry in the state, improve environmental quality and energy security, and create new skilled jobs.

Top Accomplishments

North Carolina Combined Heat and Power Initiative (NC-CHPI)
The Center’s CPIE team played a key role in organizing the NC-CHPI, which formally launched in June 2012 with a meeting of 40 CHP industry supporters. The NC-CHPI is a network of industry, utility, government, and energy professionals working to create a favorable business environment for CHP in North Carolina. CHP, which generates power and thermal energy at twice the efficiency of the grid, is under-utilized, with nearly 6,500 megawatts of technical potential in the state for clean energy investment.

Utility CHP Energy Efficiency Incentive Program Support
With support from the U.S. Department of Energy’s Southeast Clean Energy Application Center (SE-CEAC) housed at the Center, a major N.C. investor-owned utility is considering an investment in CHP generation and a Utility CHP Incentive Program for private projects. Partnership between industry and utilities is important in advancing investment in CHP to upgrade the state’s utility generating capacity. A successful outcome will mean clean and cost effective energy in NC with benefits for both the utility and partnering energy users.

North Carolina State University’s 11-Megawatt CHP Plant
Over the past four years, the Center’s CPIE team has provided technical assistance to NC State Facilities Operations on an 11-megawatt CHP project. The Cates Utility CHP Plant opened in late 2012 and provides nearly 50% of the North Campus’ electricity and supplies steam heat through the campus’ district energy loop. With an average efficiency of 75%, the CHP plant reduces the University’s overall GHG emissions by 8% and will save $103 million dollars over the 20-year duration of the performance contract.

“The Clean Power & Industrial Efficiency team of the N.C. Solar Center has a unique and invaluable understanding of how to promote energy efficiency and facilitate economic growth…. Most significantly, they bring together key stakeholders, encourage the sharing of best practices, and communicate solutions. Working with them is a public/private partnership in its best, more productive form.”

– Larry Ostema, Lime Energy Asset Development
Mission:

The Clean Transportation program increases the use of alternative fuels, advanced transportation technologies, and policies. Working with government, non-profits and businesses, the Clean Transportation team is helping to diversify fuel supplies and to support cleaner, more vibrant local and state economies. The end result: cleaner air and greater energy security.

Top Accomplishments

Clean Transportation Education Project (CTEP):

The CTEP project was a 2-year initiative funded by the U.S. Department of Energy to provide 38 alternative fuel and advanced transportation technology workshops across the country. The Center partnered with Wake Technical Community College, Clean Cities Coalitions, and industry partners to conduct workshops in four subject areas: Biodiesel, Ethanol, Compressed Natural Gas / Propane, and Fuel Economy / Idle Reduction. Overall, 1,490 people attended these workshops in 24 states. CTEP was a successful collaboration of six regional Clean Cities project coordinators and 29 Clean Cities coordinators.

Alternative Fuel / Advanced Vehicle Technology Project (AFT/AV):

The AFT/AV Project was a $500,000 project funded by the State Energy Office to reduce transportation-related emissions in North Carolina. The Center administered the project and worked with seven partners who all together: converted 35 gasoline vehicles to propane, installed idle reduction equipment on 14 vehicles, purchased seven hybrid electric vehicles, and purchased and installed equipment for two E85 dispensers and two B20 dispensers. The AFT/AV project reduced 3.78 tons of criteria air pollutants, 326,995 kg of greenhouse gases (CO2), and 60,921 gallons of petroleum.

State Petroleum Displacement Plan Reporting:

The Center’s clean transportation staff analyzed vehicle and fuel use data of 37 state fleets in a comprehensive report to the legislature on behalf of the State Energy Office in compliance with S.L. 2009-451. The report highlights year-to-year changes, a baseline comparison of vehicles and petroleum use for each fleet, a more detailed analysis of changes in the top 10 largest fleets, and recommendations on how the fleets can improve petroleum displacement in future reporting periods.

“Hill Oil would like to thank the Clean Transportation team at the N.C. Solar Center for their efforts toward the success of our project, Sparky’s Marketplace. Without their expertise in procuring our grant through the N.C. Department of Commerce State Energy Office, the Alternative Fuels portion of our contract would not have been possible. We were able to install both E85 and biodiesel (B20) fueling systems, and also flex fuel blending dispensers with the grant.”

- T. Mayne Hill, President Hill Oil Company
Mission
The Economic Development program, in partnership with the N.C. Department of Commerce and other economic development agencies, assists companies in expanding, relocating, or launching a new venture. The team also works actively with existing in-state firms to break down barriers for clean energy businesses related to workforce, permitting, financing, and policy.

Top Accomplishments
One-to-One Assistance
From June 30, 2011 through July 1, 2012, the Center’s Economic Development staff provided one-to-one assistance to over 150 businesses. Assistance ranged from making introductions within the industry to providing full financial and technical evaluations for a potential renewable energy project.

Economic Development Partnerships
The Center’s staff worked with 20 different economic developers across North Carolina to provide assistance in recruitment, relocation, and expansion projects. In addition, program staff launched an economic modeling service for renewable energy developers. This customizable service creates powerful presentation tools for businesses that are looking to effectively convey project feasibility to clients and investors. In collaboration with partners, the Center led efforts to successfully recruit Ming Yang Wind Power to North Carolina. Ming Yang located their North American R&D Headquarters on Centennial Campus in Raleigh in March of 2012.

Events and Presentations
The Center’s Economic Development staff attended or hosted 55 industry events, focusing on providing technical information for companies looking to relocate or grow in North Carolina. Staff organized presentations on third party electricity sales for a Legislative Study Committee at the N.C. General Assembly.

“The N.C. Solar Center has proven to be an invaluable resource for our company. We have worked with them on several of our projects and always find them to be responsive, professional and pro-active.”

- Kenny Habul, CEO, SunEnergy1

“As President of a renewable energy start-up, our leadership team has relied heavily on the training, technical, and policy expertise of the N.C. Solar Center. Our partnership with them is invaluable to the current and future operational success of our company.”

- Charles C. Williams, President and Managing Director, Vector Energy, LLC
WORKFORCE DEVELOPMENT PROGRAM

Mission:
The Workforce Development program strives to provide comprehensive, high-quality classroom and hands-on learning in technology, policy, and business topics to grow a sustainable and robust renewable energy and energy efficiency industry in North Carolina and beyond.

Top Accomplishments
IREC ISPQ Accredited Training Program Provider
The Interstate Renewable Energy Council's (IREC) Institute of Sustainable Power Quality (ISPQ) accredits renewable energy programs in the United States. The Center received our state's only IREC ISPQ accreditation as a Training Program provider, the highest international accreditation standard for renewable energy training programs, following an intensive 18-month assessment of its curriculum and lab equipment. This accreditation speaks to the high level of expertise and quality of the Center's training programs and its leadership in renewable energy training.

Partnership with Workforce Development Boards
The Workforce Development program has cultivated a long-term training relationship with the Northeastern Workforce Development Board (NEWB). The Center staff developed and delivered entry-level PV workshops for the NEWB in Edenton, N.C. The success of the workshops led to NEWB contracting with the Center to continue to offer this course, as well as advanced PV and small wind courses. The relationship forged between N.C. workforce boards and the Center ensures the cultivation of a skilled renewable energy workforce in our state.

Certificate in Renewable Energy Management
The Workforce Development staff designed and delivered a one-of-a-kind Certificate in Renewable Energy Management (CREM) course. This course addressed an ever-growing need for individuals to be knowledgeable in solar project development and management. The goal of the CREM program is to provide a foundation of how existing renewable energy technologies work, as well as policies and financial options. Participants receive North American Board of Certified Energy Practitioners (NABCEP) Technical Sales education credits for the NABCEP PV Technical Sales Certification Exam. The inaugural course offering took place from March – May 2012.

“I would recommend the diploma series to anyone serious about entering into the business of renewable energy. Very informative.”

- Daniel Parsons, Vice President, Lowire Technologies
ENERGY POLICY PROGRAM

Mission:
The Energy Policy Program conducts research and analysis to provide a better understanding of how markets for renewables and energy efficiency are best supported through public policy. The program team uses these insights to provide technical assistance to policy makers at all levels as they develop and implement energy policy.

Top Accomplishments

Database of State Incentives for Renewables and Efficiency (DSIRE)
The DSIRE project entered its 17th year during 2012. DSIRE continues to be the primary resource for energy efficiency and renewable energy policy and incentive information, with over 175,000 unique web users per month from across the country and over 2,000 direct information and policy assists over the course of the year. DSIRE is funded by the U.S. Department of Energy through the National Renewable Energy Laboratory, and is accessible online at www.dsireusa.org

Third-Party Electricity Sales
As part of a presentation to the N.C. General Assembly’s Third Party Electricity Sales Study Committee, the DSIRE staff provided information about the 3rd-party renewable energy financing model that has gained significant traction across the country. While the committee chose not to make any formal recommendations for North Carolina’s legislative short session this year, our contribution advanced the conversation and provided objective information essential to the state’s policy making process.

Published report “The Cost of Value: PV and Property Tax Policy”
Senior policy analysts Justin Barnes, Amy Heinemann, and Brian Lips co-authored the report “The Cost of Value: PV and Property Tax Policy,” published by the American Solar Energy Society in May 2012. Property taxes can have a significant impact on the return of investment of solar projects, and this paper is the first of its kind to survey property tax treatment in the top and emerging solar markets. This work is part of the SunShot Solar Outreach Partnership, funded by the U.S. Department of Energy’s

“DSIRE’s value to the solar industry—and to the general public—cannot be overstated. It is our go-to source for the most current state and local incentives and policies that are expanding the U.S. market. We recommend the site regularly to industry experts, policymakers, consumers, and the press. It’s easy to use, it’s reliable, and it’s packed with relevant, current information.”

-- Rhone Resch, President & CEO, Solar Energy Industries Association, Washington, D.C.
Mission
The Education and Outreach program supports implementation of Science, Technology, Engineering, and Mathematics (STEM) Education. Through various outreach events and tours of the NCSU Solar House, our staff works to educate businesses, policymakers, students and citizens of North Carolina about clean energy technologies.

Top Accomplishments
The NCSU Solar House
The NCSU Solar House serves as a resource for industry professionals, citizens, and students by demonstrating renewable energy possibilities, clean transportation technologies, and energy efficient design principles. The NCSU Solar House is the Center’s major public outreach initiative for STEM education. Over 250,000 people have visited the Solar House in the last two decades.

Over the last year, the NCSU Solar House provided tours and information to over 2,000 visitors, including over 60 scheduled tour groups. Visitors included senior citizens, pre-school students, high school environmental science classes, educators, college students, energy-focused summer camps, and others interested in learning about solar and other renewable technologies. Tours of the NCSU Solar House expose visitors to a wide range of renewable energy topics including active and passive solar technologies and design, wind power, geothermal heating and air conditioning, energy efficiency and insulation. Additionally, the NCSU Solar House provides a valuable resource for homeowners interested in installing solar-related technologies in their homes.

The Future of the NCSU Solar House
Looking ahead, our staff has determined that the best solution for keeping the NCSU Solar House beneficial to stakeholders is to transform it to an energy discovery/education center for K-16 age groups. A detailed proposal has been outlined, and staff is currently pursuing funding opportunities to bring the transformation to fruition.
As we move into our 25th anniversary year in 2013, the Center will continue to grow in exciting ways. As clean energy technologies and energy efficiency continue fast growth in North Carolina, we will be ready to:

- Support existing firms and new entrants through providing policy information, technical assistance and market analysis.
- Lay groundwork for utility-scale wind energy projects at the coast.
- Continue efforts on electric vehicle and alternative fuels infrastructure deployment.
- Launch our new solar testing laboratory, and be ready to provide product testing for manufacturers seeking equipment certification or validation.
- Partner with regional economic development partnerships across the state in clean energy initiatives, like the Triangle’s Cleantech Cluster program, with focuses on smart grid, electric vehicles, water management, and renewable energy.
- Continue providing award-winning training services to contractors, developers, workforce boards, solar businesses and the military.

In fact, the Center’s involvement with a growing array of clean energy technologies has us evaluating a possible name change by year’s end. Stay tuned to hear more on that front…

In an effort to receive broader input on our programs and activities, the Center is instituting several new advisory boards—one for industry input and one for academic collaboration. The Academic Advisory Board (AAB) will be a forum for university faculty interested in sustainable energy to help guide the Center to be the best possible partner for research collaboration and student opportunity. The Industry Advisory Board (IAB) will provide a forum for companies to help us understand how to manage our programs to best serve our industry. The IAB will also serve as a platform for the Center to better understand the industry’s supply chain needs so we can target industry recruitment activities and expand our state’s clean energy technology cluster. All of this new input will help the Center to develop new initiatives and even to shed old ones when they are no longer needed.

I want to take this opportunity to thank our partners, advocates, student interns, staff, volunteers, and clients who energetically assist us in our important goal to advance clean energy for a sustainable economy. We look forward to working with all of you in the coming year.

Stephen S. Kalland, Executive Director
Friends of the N.C. Solar Center

Achieving a sustainable future requires securing the work done by the Center. The Friends of the N.C. Solar Center is a campaign to support its mission of advancing clean energy for a sustainable energy economy.

Individuals, private firms, and non-profit organizations are invited to support the Center (through the N.C. State Engineering Foundation) and its initiatives. All donations are tax-deductible. Thank you for your support!

Donate online:

http://www.engr.ncsu.edu/foundation/ (Select “Solar Center”)

Questions?

Contact Shannon Helm at shannon_helm@ncsu.edu or 919-515-0353.

The N.C. Solar Center Advisory Council

The Advisory Council advises the Center on fulfilling its mission. Members of the Advisory Council are selected by invitation only, and will have the opportunity to advise the strategic direction and programmatic focus of the Center. The Council is an active board that coordinates private sector involvement in economic development and technology endeavors that tell the clean energy story for this booming sector of North Carolina’s and the nation’s economy.