

● JANUARY 2016

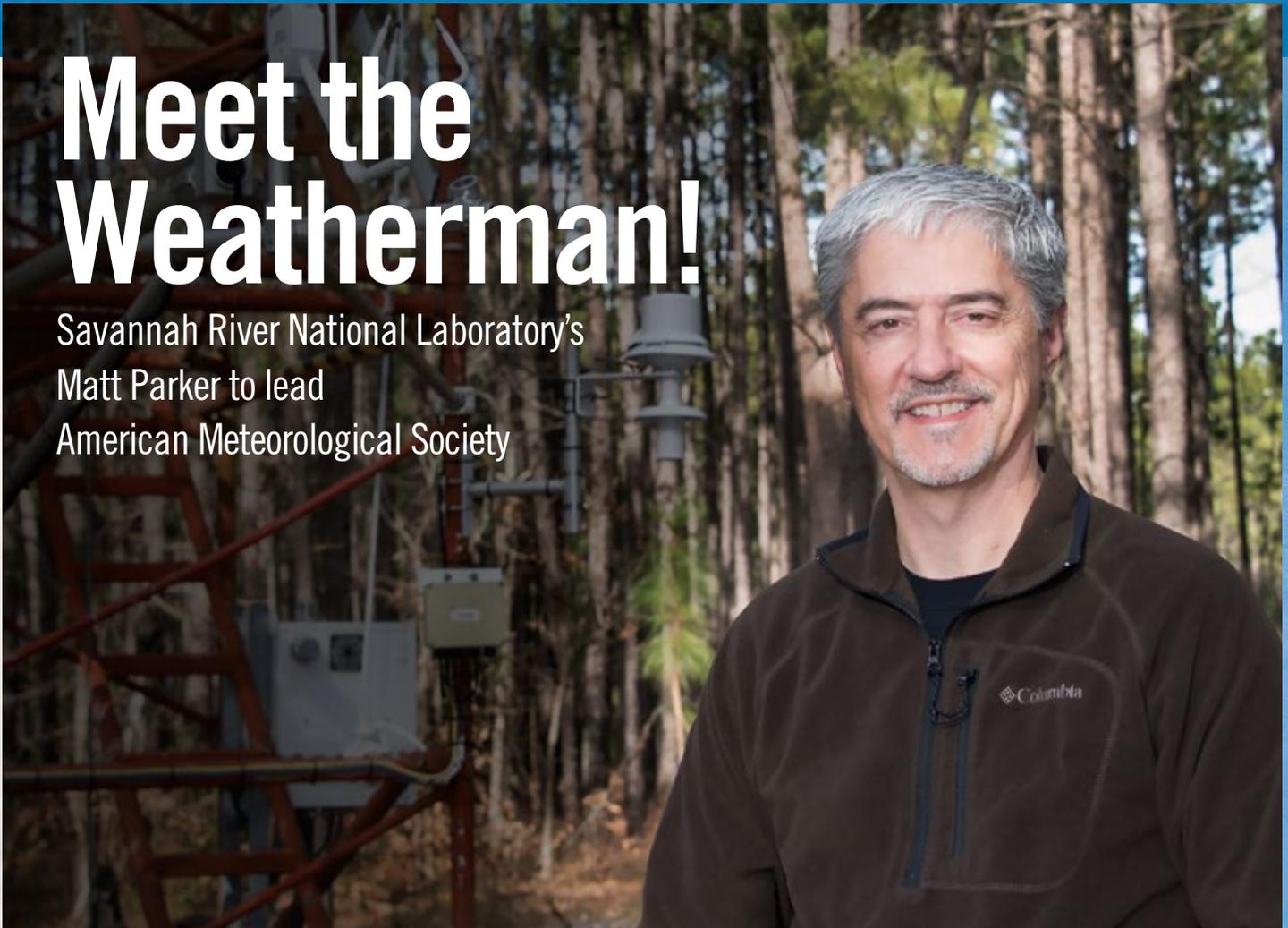
SAVANNAH RIVER NUCLEAR SOLUTIONS



SRNS Today

Meet the Weatherman!

Savannah River National Laboratory's
Matt Parker to lead
American Meteorological Society



Also this month

Technology Villages donation • Grid modernization partnership • Future City competition





Carol Johnson
SRNS President and CEO

Welcome

to the January 2016 edition of

SRNS Today



Video: SRNL

To see an overview of the Savannah River National Laboratory, please [click here](#) or visit www.savannahriver.nuclearsolutions.com/annual/SRNL_Overview.mp4

Today is the tomorrow you thought about yesterday. And today, a bright tomorrow starts here.

Savannah River Nuclear Solutions and Savannah River National Laboratory take the future seriously, not only for our company and the lab, but also for our region, our state and our nation. Our innovations and vision are sought after by a rapidly-growing array of partners, industry, government agencies and academia. This month's edition of SRNS Today is filled with stories about our partnerships and employees who are working on tomorrow, today.

Savannah River National Laboratory and Clemson University are working as part of the Department of Energy's new Grid Modernization Initiative, a project aimed at modernizing and protecting the nation's electric grid. SRNL is included in three projects selected for over \$7.0 million in funding (pending Congressional appropriations) over several years to address critical grid-related needs. These projects will have a direct impact on the safety, security and productivity of our nation, and SRNL is proud to be one of the leaders in these innovative projects.

An old saying goes, "Everybody talks about the weather, but nobody does anything about it." However, accurate forecasts and assessing the effects of a changing climate are of rapidly-growing interest from industry and governments. I'm very proud that Matt Parker, a Certified Consulting Meteorologist at SRNL, has been selected as the 2016 President-elect of the American Meteorological Society. With his in-depth expertise in meteorological measurements and instrumentation, Matt will lead this prestigious organization in their studies to better understand weather, water and climate. Congratulations to Matt on this accomplishment.

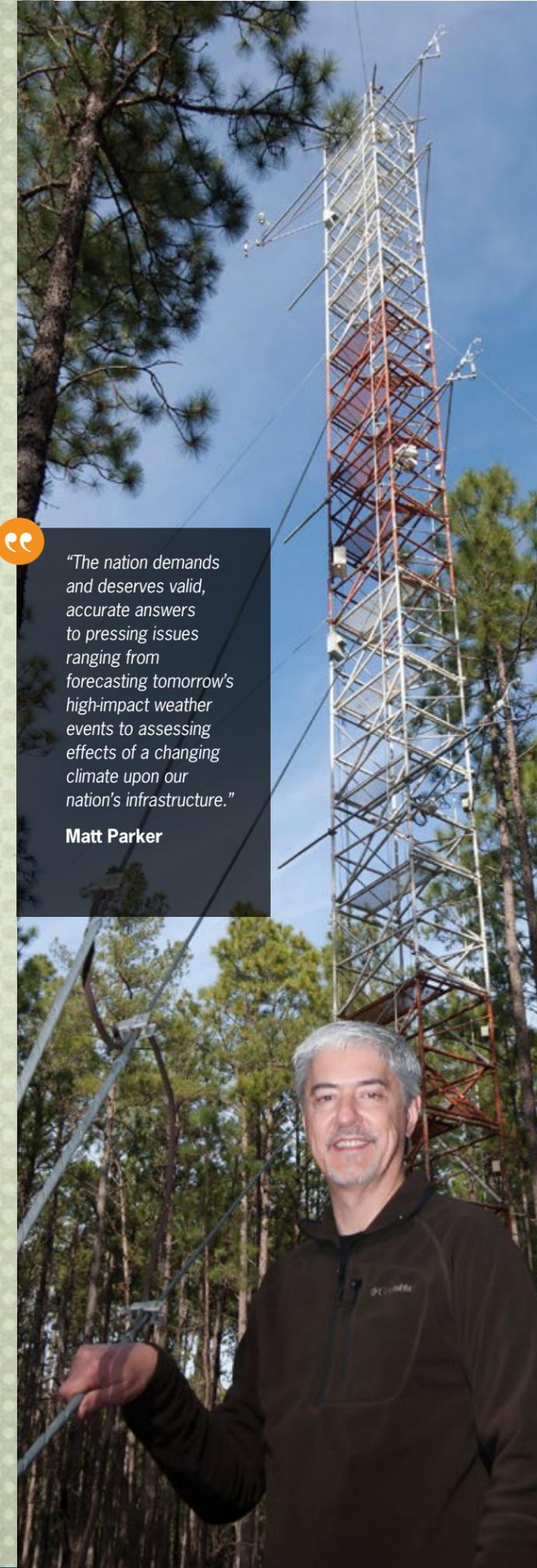
In this edition, you'll also see stories on our donations to help establish "technology villages" in our area, middle school students who are envisioning the cities of the future, and an SRNL employee who will serve on the board of the S.C. Biomass Council. It's the future. It's coming tomorrow. And we're ready for it today.

I hope you enjoy this edition of "SRNS Today." As always, thank you for your interest in Savannah River Nuclear Solutions.

Carol

Savannah River Nuclear Solutions, LLC, is a Fluor-led company whose members are Fluor Federal Services, Newport News Nuclear and Honeywell. Since August 2008, SRNS has been the management and operating contractor for the Savannah River Site, a Department of Energy-owned site near Aiken, South Carolina, including the Savannah River National Laboratory. The SRNS corporate and community offices are located in the renovated 1912 "Old Post Office" building in Aiken, S.C. The primary initiatives of SRNS are national security, clean energy and environmental stewardship. SRNS Today is published monthly by SRNS Corporate Communications to inform our stakeholders of the company's operational and community-related activities. If you have questions or comments, please contact us at 803.952.9584 or visit our website.

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"The nation demands and deserves valid, accurate answers to pressing issues ranging from forecasting tomorrow's high-impact weather events to assessing effects of a changing climate upon our nation's infrastructure."

Matt Parker

Meet the Weatherman

SRNL's Matt Parker to lead the American Meteorological Society

A meteorologist at SRNL has been elected 2016 President-Elect of the American Meteorological Society (AMS). Matthew J. Parker will take leadership of the organization in 2017. Parker is a Certified Consulting Meteorologist at SRNL, specializing in meteorological measurements and instrumentation.

Parker is the first AMS President affiliated with DOE. "Weather and climate information have been used effectively by the traditional energy industries for decades. Today, there is increasing need for improved wind and solar forecasts to support the burgeoning renewable energy sector. DOE has a huge role to play, and it is fitting that this is reflected within the leadership of the AMS," Parker said.

As president, he will represent the Society's 13,000 members, and will lead the AMS Council, the Society's governing body. "The AMS covers an incredible breadth of activities in what we call the weather, water and climate enterprise," said Parker. "The nation demands and deserves valid, accurate answers to pressing issues ranging from forecasting tomorrow's high-impact weather events to assessing effects of a changing climate upon our nation's infrastructure."

Extreme weather can be crippling to our nation's economy, but accurate forecasts communicated effectively to the emergency management community, businesses and the general public can be invaluable for cost-avoidance. "Furthermore, our nation must continue to develop a national infrastructure that is resilient to the climate of the future. The demand for such information to make these critical long-term decisions is extremely high right now," he added.

Parker will use the leadership position to enhance partnerships with other countries to share measurement and forecast model data. He also plans to provide outreach to industry, academia and the public during his tenure.

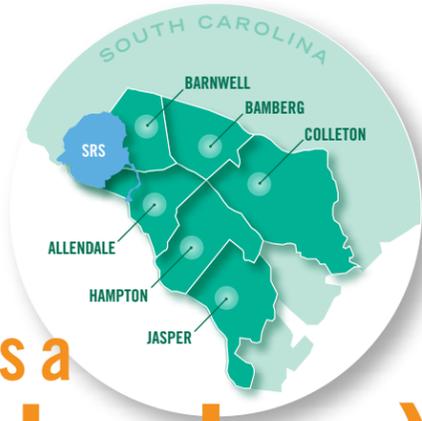
A graduate of North Carolina State University, Parker has been a meteorologist with SRNL's Atmospheric Technologies Group (ATG) since 1989. ATG specializes in weather forecasting, meteorological measurements, atmospheric modeling of airborne contaminants and emergency response support for an extensive set of government and industry clients.

Founded in 1919, AMS is the nation's premier scientific and professional organization promoting and disseminating information about the atmospheric, oceanic and hydrologic sciences. The membership includes scientists, researchers, educators, broadcast meteorologists, students and other professionals in the fields of weather, water and climate.



It takes a (technology) village

SRNS provides \$50,000 to grow entrepreneurial businesses in six 'challenged' S.C. counties



Assisted by U.S. Congressman Joe Wilson (right), SRNS President and CEO Carol Johnson presents a \$50,000 check to Buddy Phillips, Chairman, Southern Carolina Alliance.

SRNS has donated \$50,000 to the Southern Carolina Alliance (SCA) in support of a new, innovative program known as "Technology Villages" to attract and grow small, entrepreneurial businesses in a six-county region near SRS.

The counties include Allendale, Bamberg, Barnwell, Colleton, Jasper and Hampton.

"The potential economic gain for the residents of our region will be greatly enhanced once the Technology Village concept is fully implemented," said Danny Black, SCA President and CEO. SCA is the organization managing economic development within this six-county area. "This is why the generous financial contribution made by SRNS is so important and highly appreciated. They understand the long-term impact this program could have on those in need and want to make this vision a reality."

The original Technology Village concept, created in 2012 at Clemson University, assists community leaders in the development, training and operation of storefront



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Danny Black



businesses in small and moderate-sized communities across South Carolina by providing intellectual property, technology evaluation, product development services, seed financing, business mentorship, corporate relationships and recruiting expertise. SCA has submitted an application to bring the program to the six-county area.

"Our primary objective at the end of the three-year award period is to have created a sustainable structure that generates innovation-based entrepreneurship that leads to economic uplift in these economically challenged counties," said Carol Johnson, SRNS President and CEO.

The Clemson Technology Village program has experienced a high degree of success, supporting the development of 32 companies. The new Technology Villages would mirror in concept the successful Villages already in place in Bluffton, Hartsville, Conway and Rock Hill.

"We need to encourage potential startup companies within our region to consider choosing the Technology Villages and have the ability to train our workforce to meet the needs of these new businesses," said Black. "Our desire is to enable these technology-based ventures to grow and flourish, so that in time, they will leave the Technology Villages and open their fully independent businesses in nearby communities, continuing to grow in size and number."



The team from Paul Knox Middle School, North Augusta, S.C., (left) will travel to the Future City National Finals in Washington, D.C., Feb. 12-17. Hilton Head Christian Academy (right) took second place in the competition.



North Augusta students take top honors in annual Future City competition

Hundreds of middle school students from across South Carolina and the greater Aiken-Augusta area have been striving to build an award-winning, table top model that best represents the most practical and innovative city of the future. Each team had the opportunity to convince a panel of judges that their project merited a first place prize during the recent Regional Future City® competition, managed by SRNS and held at USC Aiken (USCA).

This year's first-place winning team from Paul Knox Middle School, North Augusta, S.C., will travel to the Future City National Finals in Washington, D.C., Feb. 12-17. In addition, the top prize is \$7,500 for the school's science, technology, engineering and math (STEM) program, plus a trip to U.S. Space Camp in Huntsville, Ala. Hilton Head Christian Academy took second place in the competition, while the team from North Augusta Middle School came in third.

The student teams, along with an educator and volunteer mentor, research and design a solution to a city-wide challenge that changes each year. This year's challenge was — "Waste Not, Want Not" — that encouraged students to design waste management systems for residential use and small businesses by looking at issues such as collection, separation, processing, recycling, health and safety, energy efficiency, environmental impact and cost.

"Students learn how today's engineers and city planners deal with citywide sustainability issues like solid waste management," said Future City Regional Coordinator and SRNS employee Kim Mitchell. "They research cutting edge technologies and develop an imaginative and plausible solution that can exist for generations."

SRNS Education Outreach personnel have been managing the local Future City Regional competition for 13 years, in partnership with the Ruth Patrick Science Education Center on the USCA campus. "Our partnership with USCA has been highly productive," said Mitchell. "We can't thank them enough for the major contributions they make to this important program year after year."



"This isn't a weekend project. The learning curve is significant, involving months of planning and hard work."

Kim Mitchell



Since returning to school earlier this fall, 36 student teams have been hard at work on their Future City projects. They joined more than 40,000 middle school students from 1,350 schools in 37 regions around the country, all of whom are engaged in similar regional competitions.

"This isn't a weekend project. The learning curve is significant, involving months of planning and hard work," said Mitchell. "The creativity and ingenuity found within each project is impressive. Each team should be proud of their city."

Future City has received national attention and acclaim for encouraging middle schoolers nationwide to develop their interest in a STEM-based education. STEM stands for science, technology, engineering and math. The annual challenge is one of the nation's leading engineering education programs and among the most popular.

For more information on the competition, visit www.futurecity.org.

The U.S. Department of Energy Savannah River Operations Office provides a variety of science and literacy outreach programs at SRS by funding and coordinating the efforts of several organizations. The primary goal of these outreach programs is to enhance interest in science, mathematics, engineering and technology and to support improvements in education in the Central Savannah River Area by using the unique resources available at the Site.

an electric partnership

SRNL, Clemson receive funding for projects aimed at modernizing the nation's electrical grid

SRNL and Clemson University are working to modernize and protect the nation's electrical grid. SRNL is included in three projects selected for over \$7 million in funding over several years to address critical grid-related needs pending Congressional appropriations. The projects are part of DOE's new Grid Modernization Initiative. This strategic plan partners DOE with leading experts and resources to collaborate on modernizing the nation's grid.

In working toward modernization, SRNL and Clemson University will develop and evaluate transformer load control strategies. This research will test transformers in the multi-mega scale at the Duke Energy eGRID Laboratory in North Charleston, S.C. The project also includes partners such as the Pacific Northwest National Laboratory, Oak Ridge National Laboratory (ORNL), Duke Energy, SCE&G, Santee Cooper and the Department of Defense.

"We at Clemson are very excited to work with our partners at SRNL on these projects targeted at making the electric grid more efficient and resilient," said Dr. Nick Rigas, Executive Director of the Clemson University Restoration Institute. "Our partnership with SRNL over the past six years brought together complementary expertise and knowledge. Together, not only did we build the Duke Energy eGRID and the wind turbine testing facilities at the SCE&G Energy Innovation Center, we now develop solutions and new technologies to modernize the electric grid and educate the workforce of the future."

"This public-private partnership merges tremendous expertise and capabilities, and puts South Carolina at the forefront of DOE's Grid Modernization efforts," said Bond Calloway, SRNL Associate Laboratory Director for Clean Energy. "This funding

“We at Clemson are very excited to work with our partners at SRNL on these projects targeted at making the electric grid more efficient and resilient.”

Dr. Nick Rigas

will further build on established working relationships to bring the best minds together.”

Another key award will establish a partnership in the Southeast to address regional emerging grid modernization challenges. SRNL is bringing together groups of stakeholders including ORNL, Southern Company, the Tennessee Valley Authority, the University of Tennessee and the Center for Advanced Power Engineering Research, which is a consortium of utilities, industries and universities led by Duke Energy including South Carolina Electric and Gas, Santee Cooper, Clemson University, North Carolina State University and UNC-Charlotte. This project will help recover grid function faster during natural disasters such as hurricanes and tornadoes.

The third project is the creation of the Grid Modernization Laboratory Consortium Testing Network. This network will serve as a national lab-based resource for standards testing and validation of grid devices and systems.

Photo: Duke Energy 230KV High Voltage Substation (Courtesy of Duke Energy)

SRNL, universities to establish external review committee for Lab

SRNL has joined with Clemson University and the University of South Carolina in a new partnership that focuses on technical collaboration and scientific review. SRNL and the two universities have established an External Review Committee (ERC) for the national lab. This committee, headed by Clemson University, will provide a comprehensive peer review program to ensure that the highest scientific standards are met.

The ERC is tasked with providing guidance and feedback on all things technical, including the health of core competencies, state of technical facilities, and opportunities to advance new capabilities through university/laboratory partnerships. These reviews will provide important feedback to help guide future SRNL investments and will provide the greater depth of understanding needed to forge new collaborations.

"As a land-grant university, Clemson is working toward a lot of the same goals as the Savannah River National Laboratory — to make South Carolina and our nation stronger, and to protect the environment for future generations," said Clemson University President James P. Clements.

"This agreement will further build the relationship between Clemson University and SRNL, opening a new channel for scientific exchange and collaboration," said SRNS Executive Vice President and SRNL Director Dr. Terry Michalske. "Peer review is the backbone of technical excellence. This new institutional partnership will help integrate and elevate the scientific and engineering resources in South Carolina."

SRNS is establishing the ERC with financial contributions from its parent companies of Fluor, Huntington-Ingalls and Honeywell. "SRNS is pleased that Clemson University, one of the nation's premier science and technology institutions, has agreed to manage this important function needed to ensure both excellence and success for SRNL," said Bruce Stanski, President, Fluor Government Group.

The National Academy of Science has concluded that external peer reviews are robust means for evaluating research programs because they provide objective assessment of relevance, quality and merit. As SRNL moves forward with its recently announced Advanced Manufacturing Collaborative, this partnership with universities is vital to the highest quality of research for South Carolina and the nation.



Present for the signing were (from left) Fluor Government Group President Bruce Stanski; SRNL Deputy Director Sharon Marra; Clemson President Dr. James Clements; Clemson Provost Dr. Bob Jones; and SRNS Executive Vice President and SRNL Director Dr. Terry Michalske. (Photo courtesy Craig Mahaffey, Clemson University)

● Dr. Elise Fox elected to S.C. Biomass Council Board

SRNL Principal Engineer Dr. Elise Fox has been elected to the Board of Directors of the South Carolina Biomass Council (SCBC). Fox will serve as vice-chair during 2016 and then as chair in 2017. Through her role at SRNL, she is considered a trusted leader and an expert in renewable energy research and development.

The SCBC was chartered by the South Carolina Energy Office to increase biomass products and energy production in South Carolina. The objective of the SCBC is to develop long-term strategies to make biomass a feasible utility scale alternative.



Dr. Elise Fox

"The Savannah River National Laboratory's participation on the SCBC is an important stepping stone to help solidify SRNL as the expert in the Southeast for energy and power production initiatives," Fox said. "The SCBC also serves as a platform to highlight and grow SRNL biomass research programs."

Biomass is a renewable energy source created from plant material and animal waste. The main source of biomass for energy purposes is paper mill residue and lumber scrap. Sources for biomass fuel include corn grain and ethanol. SRS is home to the largest federal biomass facility in the nation and is frequently used as an example for utility-scale production potential.

"SRNL and SRS serve as a key bridge between the power production sector, biomass growers, and the academic community," said Fox.

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