Annual Report

2015

Producing America's Energy and Power



SOUTHERN STATES ENERGY BOARD

Transcending Boundaries

Through innovations in energy and environmental policies, programs, and technologies, the **Southern States Energy Board** enhances economic development and the quality of life in the South.





www.sseb.org

CONTENTS

Message From The Chairman **4**
SSEB Board Members **6**
Executive Committee 6
Members 6
SSEB Associate Members **8**
Programs **9**
Southeast Regional Carbon Sequestration Partnership 10
Offshore Storage Resource Assessments 12
Southeast Regional Carbon Sequestration Technology Training Program 14
Central Appalachian Basin Unconventional (Coal/Organic Shale) Reservoir—Small-Scale Co_2 Injection Test 15
Committee On Clean Coal Energy Policies And Technologies 16
Transuranic Waste Transportation 18
Foreign Research Reactor Spent Nuclear Fuel Shipments 19
Southern Emergency Response Council 20
Radioactive Materials Transportation 21
Energy And Environment Legislative Priorities And Analysis 22
Partnerships **23**
Educating Stakeholders **26**
Sources Of Support **27**
SSEB In Pictures **28**

SSEB Staff

Kenneth J. Nemeth
Secretary & Executive Director
nemeth@sseb.org

Kathryn A. Baskin
Deputy Director
baskin@sseb.org

Patricia A. Berry
Geologist
berry@sseb.org

Heather M. Breeden
Legislative and Regulatory Counsel
breeden@sseb.org

Joan T. Brown
Senior Accounting Specialist
brown@sseb.org

Turney Foshee
Design and Communications Specialist
foshee@sseb.org

Gary P. Garrett
Senior Technical Analyst
garrett@sseb.org

Kimberly Sams Gray
Managing Director
gray@sseb.org

Leigh T. Parson
Grants and Accounting Specialist
parson@sseb.org

Kathy A. Sammons
Director, Business Operations
sammons@sseb.org

Rebecca R. Stavely
Staff Assistant
stavely@sseb.org

Michelle D. Thornton
Event Planner
thornton@sseb.org

Christoper U. Wells
Assistant Director, Nuclear Programs
wells@sseb.org

Adjunct Staff

Gerald R. Hill, Ph.D.
Senior Technical Advisor
hill@sseb.org

Mark A. Shilling
Special Counsel
mark.shilling@govt-affairs.com

Jeremy L. Susac
Special Counsel
jeremy.susac@lennar.com

MESSAGE FROM THE CHAIRMAN

As we examine the expansion and economic development within our Southern States Energy Board (SSEB) member states and territories, it is evident that industrialization, urbanization, and increased energy consumption have underpinned large-scale growth. This surge has fueled a $5 trillion economy that now consumes more than 45 percent of all energy generated in the United States.

Huge economic success has been achieved in the South over the years. This expansive growth is due to a diversity of industrialized products and services coupled with a varied energy resource mix that emphasizes the utilization of indigenous, domestic fuels and materials, which, for that reason, are less expensive to produce. Southern States Energy Board members have spent decades building this infrastructure while serving as the energy producing region of the United States. The importance of SSEB states to the nation's energy supply cannot be understated.

This year's annual meeting theme is *Producing America's Energy and Power*. Three of the top five coal, oil, and natural gas producing states are in the South. The southern states produce 66 percent of the nation's natural gas supply and four southern states (Texas, Louisiana, Alabama, and Oklahoma) produce more than 50 percent of U.S. domestic crude oil. West Virginia, Kentucky, and Texas rank among the top six coal producing states and collectively generate 25 percent of the nationwide coal supply, more coal than the rest of the top ten combined, with the exception of Wyoming's Powder River Basin (Wyoming produces 40 percent of the nation's coal supply). Alabama and West Virginia rank two and four respectively in the United States as net exporters to our electric grid. Texas, Louisiana, and West Virginia rank in the top six of energy producing states in the United States. Of the top ten states producing renewable fuels, six of them are in the SSEB region (Alabama, Georgia, Florida, Texas, North Carolina, and Louisiana). Texas, Oklahoma, and West Virginia have almost 16 gigawatts of wind power, representing the first, sixth, and 22nd most wind capacity in the nation. Approximately 50 percent of the biomass used to generate electricity in the U.S. is grown in the South.



Thirteen SSEB member states are host to 26 nuclear plants with 45 reactors, producing 44 percent of the nation's nuclear generated electricity. Four new Westinghouse AP1000 nuclear units are under construction in Georgia and South Carolina, and the Tennessee Valley Authority is completing a long-delayed second unit at Watts Bar. At the same time this energy infrastructure is expanding, our SSEB member states have made great progress in environmental quality improvements. Efforts to continuously improve efficiencies are underway through significant investment in combined heat and power activities, along with state building codes that promote the efficient use of energy in state-owned buildings, businesses, and homes. West Virginia received an award for the 'Most Improved State' in energy efficiency from the American Council for Energy Efficient Economy in 2013, with Mississippi receiving this award in 2014. Maryland has passed

some of the most stringent building efficiency codes in the nation within the past two years. A significant bio-economy also is being promoted through industry, supporting research and development of clean energy technologies, and state governments are adopting 'lead by example' policies.

At the same time, challenges are arising to the quality of life in the South through new rules and regulations that are being promulgated by the U.S. Environmental Protection Agency (EPA). These new policies will affect the regulation of waters of the U.S., mercury and air toxics, ozone, and "Clean Power," among others. On June 29th, the U.S. Supreme Court ruled that the EPA did not properly consider the costs of its mercury and air toxics rule and according to the majority ruling, "EPA strayed well beyond the bounds of reasonable interpretation in concluding that cost is not a factor to the appropriateness of regulating power plants." The rule was remanded to the Court of Appeals for the District of Columbia. With very short compliance deadlines, utilities were forced to upgrade technologies immediately or shut down their plants. Even though the rule was remanded, extensive costs were incurred because a federal agency erroneously demanded it. In the future, federal agencies would be well advised to consider the costs of compliance before rules are issued.

EPA's new Clean Power Plan rules will jeopardize power supplies and spike power costs across the nation while shutting down scores of available, secure, reliable, and affordable coal plants. The new rules exceed the legal authority granted to EPA under the Clean Air Act and will fundamentally restructure the functions of the United States electric grid while affecting energy reliability and raising costs. The nation's international competitiveness will be affected by driving manufacturing concerns and investment to other countries instead of creating jobs at home.

Certainly, we are all advocates for a clean environment, and our southern region has led the nation in the fight for clean air and water over decades. What is not being achieved is the nexus between economic development and environmental protection. Having the funds to do so directly relates to the protection of the environment. Why is it that our most exemplary communities do not seem to have pollution problems? It is only through growth and economic development that we can achieve the means to raise the environmental quality of life for all.

New technologies and innovation can eliminate many of our environmental concerns. In Morgantown, West Virginia, the U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) is meeting the challenges of the future by developing, evaluating, and testing new applications for carbon management. The SSEB is working with NETL, through SECARB, our Southeast Regional Carbon Sequestration Partnership, which has accelerated the environmental monitoring of carbon dioxide (CO_2) storage in geologic formations toward wide-scale commercialization. SECARB recently completed its CO_2 injection operations in Cranfield, Mississippi, and achieved unprecedented monitoring of more than five million metric tons of stored CO_2. In addition, SECARB is well-known as the first partnership to integrate carbon capture, pipeline transport, injection, and storage of CO_2 at a coal-fired power plant, Plant Barry, near Mobile, Alabama.

It has been my pleasure to serve as Chairman and to work with our board members and staff throughout this very successful year. Please read more about the board's accomplishments in this 2015 Annual Report.



Earl Ray Tomblin
Governor of West Virginia
Chairman

SSEB BOARD MEMBERS

EXECUTIVE COMMITTEE



Governor
Earl Ray Tomblin
West Virginia
Chairman



Representative
Rocky Adkins
Kentucky
Vice-Chairman



Representative
Weldon Watson
Oklahoma
Treasurer



Governor
Robert Bentley
Alabama
Immediate Past Chairman



Governor
Phil Bryant
Mississippi
Member



Senator
Robert Adley
Louisiana
Member



Representative
Myra Crownover
Texas
Member



Senator
Mark Norris
Tennessee
Member



Honorable
Jim Powell
Federal Representative*



Representative
William E. Sandifer
South Carolina
Chair, SLC Energy & Environment Committee*



Mr. Kenneth J. Nemeth
SSEB
Secretary & SSEB Executive Director*

MEMBERS

Alabama
Governor Robert Bentley
Senator Jimmy W. Holley
Senator Cam Ward, Senate Alternate
Representative Randy Davis
Representative Howard Sanderford, House Alternate
Representative Micky Hammon, Governor's Alternate

Arkansas
Governor Asa Hutchinson
Senator Eddie Joe Williams
Senator Bobby J. Pierce, Senate Alternate
Representative Ken Henderson
Representative Sue Scott, House Alternate
Mr. Ted Thomas, Governor's Alternate
Ms. Tori Gordon, Governor's Alternate

Florida
Governor Rick Scott
Senator Anitere Flores
Representative Jose Felix Diaz

Georgia
Governor Nathan Deal
Senator Ross Tolleson
Senator Jeff Mullis, Senate Alternate
Representative Lynn Smith
Representative Chuck Martin, House Alternate
Ms. Mary Walker, Governor's Alternate

Kentucky
Governor Steve Beshear
Senator Brandon Smith
Senator Jared Carpenter, Senate Alternate
Representative Rocky Adkins
Representative Jim Gooch, Jr., House Alternate
Secretary Leonard K. Peters, Governor's Alternate

Louisiana
Governor Bobby Jindal
Senator Robert Adley
Senator Gerald Long, Senate Alternate
Representative Joe Harrison
Representative Raymond E. Garofalo, Jr., House Alternate
Commissioner Scott Angelle, Governor's Alternate

Maryland
Governor Larry Hogan
Senator Thomas M. Middleton
Delegate Dereck E. Davis
Delegate Sally Y. Jameson, House Alternate

Mississippi
Governor Phil Bryant
Senator Terry C. Burton
Senator Sean Tindell, Senate Alternate
Representative Gary Staples
Representative Angela Cockerham, House Alternate

Missouri
Governor Jay Nixon
Senator Mike Kehoe
Representative Rocky Miller
Representative Tim Remole, House Alternate
Mr. Jeff Harris, Governor's Alternate

North Carolina
Governor Pat McCrory
Senator Robert Rucho
Senator E.S. Newton, Senate Alternate
Representative Mike Hager
Secretary Donald van der Vaart, Governor's Alternate

Oklahoma
Governor Mary Fallin
Senator Bryce Marlatt
Senator A.J. Griffin, Senate Alternate
Representative Weldon Watson
Representative Josh Cockroft, House Alternate
Secretary Michael Teague, Governor's Alternate

Puerto Rico
Governor Alejandro García Padilla
Senator Ramón Luis Nieves
Representative César Hernández Alfonzo
Mr. José Maeso, Governor's Alternate

South Carolina
Governor Nikki Haley
Senator Lawrence Grooms
Senator Thomas C. Alexander, Senate Alternate
Representative William E. Sandifer

Tennessee
Governor Bill Haslam
Senator Mark Norris
Representative John Ragan
Representative Curry Todd, House Alternate
Mr. Robert Martineau, Governor's Alternate

Texas
Governor Greg Abbott
Representative Myra Crownover
Ms. Christi Craddick, Governor's Alternate

U.S. Virgin Islands
Governor Kenneth E. Mapp

Virginia
Governor Terry McAuliffe
Senator John C. Watkins
Senator John S. Edwards, Senate Alternate
Senator Frank W. Wagner, Senate Alternate
Delegate Will Morefield
Delegate Charles D. Poindexter, House Alternate
Delegate Israel D. O'Quinn, House Alternate
Mr. Hayes Framme, Governor's Alternate

West Virginia
Governor Earl Ray Tomblin
Senate President William Cole
Delegate John B. McCuskey
Delegate L.K. Ireland, House Alternate
Mr. John F. Herholdt, Governor's Alternate

**Ex-Officio, Non-Voting Members*
Roster of SSEB Board Members is current as of September 15, 2015.

In Memoriam: Representative Harry Geisinger
SSEB Board Member 2004–2015







SSEB ASSOCIATE MEMBERS

2014–2015 OFFICERS



Chairman
Mr. Mike McGarey
Nuclear Energy Institute



Vice Chairman
Mr. Rudy Underwood
American Chemistry Council



2nd Vice Chairman
Mr. William M. Droze
Troutman Sanders, LLC



Immediate Past Chairman
Mr. Randy Eminger
American Coalition for Clean Coal Electricity

SSEB's associate members program is composed of industry partners who provide an annual contribution to the board. Membership includes organizations from the non-governmental sector, corporations, trade associations, and public advocacy groups. The associate members program provides an opportunity for public officials and industry representatives to exchange ideas, define objectives, and advance energy and environmental planning to improve and enhance the quality of life in the South.

- Alpha Natural Resources
- Ameren Missouri
- America's Natural Gas Alliance
- American Chemistry Council
- American Coalition for Clean Coal Electricity
- American Electric Power
- American Fuel & Petrochemical Manufacturers
- American Gas Association
- Arch Coal, Inc.
- Charah, Inc.
- Chevron Corporation
- Clean Line Energy Partners, LLC
- Coal Utilization Research Council
- Coalition for Fair Energy Codes
- Dominion
- Duke Energy
- Edison Electric Institute
- Exxon Mobil Corporation
- INTUS, Inc.
- Koch Companies Public Sector, LLC
- National Coal Council
- National Mining Association
- National Rural Electric Cooperative Association
- NorthStar Utilities
- Nuclear Energy Institute
- Peabody Energy
- Phillips 66
- SCANA Corporation
- Shell Oil Company
- South Carolina Public Service Authority/Santee Cooper
- Southern Company
- TECO Services, Inc.
- Tennessee Valley Authority
- Troutman Sanders, LLP
- Virginia Center for Coal & Energy Research
- Virginia Coal and Energy Alliance
- West Virginia University Research Corporation

PROGRAMS

The Southern States Energy Board operates and oversees a wide variety of energy and environmental programs.

A range of program topics from water management, carbon dioxide capture and storage, emergency response, and energy infrastructure to nuclear waste transportation, legislative and regulatory action, and energy reliability and security all fall under the purview of SSEB. The following section details our activities, research, and leadership in these areas.

SOUTHEAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP

The Southeast Regional Carbon Sequestration Partnership is a program underway at the Southern States Energy Board to balance the environmental effects of existing and prospective fossil fuel-powered, electric-generating facilities. SECARB is one of seven Regional Carbon Sequestration Partnerships (RCSPs) nationwide funded by the U.S. Department of Energy's National Energy Technology Laboratory and cost-sharing partners. The primary goal of the SECARB Partnership is to promote development of a framework and infrastructure necessary for the validation and deployment of carbon dioxide capture and storage (CCS) technologies.

Key to the success of any CCS project is an operator's ability to predict and monitor the flow of CO_2 molecules injected into the subsurface and to communicate this information to stakeholders and regulators. The SECARB Early Test began in 2009 at Denbury Onshore, LLC's active CO_2-enhanced oil recovery operation in the Cranfield oilfield near Natchez, Mississippi. The SECARB team has successfully field-tested a variety of CO_2 monitoring, verification, and accounting (MVA) technologies to determine their commercial viability and robustness. The SECARB MVA program at Cranfield concluded in January 2015, and the cumulative total stored CO_2 mass monitored at Cranfield is 5,371,643 metric tons. The three research wells were safely plugged and abandoned in accordance with the Mississippi Oil and Gas Board rules in April 2015. Denbury's commercial operations will continue.

SECARB
Southeast Regional Carbon Sequestration Partnership

This project was the first of the RCSPs to begin CO_2 injection and the first to achieve the goal of monitoring a one million metric ton injection. Data collected at Cranfield is utilized by the SECARB team and researchers worldwide to further refine reservoir models for similar geologic settings. In 2010, the international Carbon Sequestration Leadership Forum (CSLF) recognized the Early Test project at Cranfield for its outstanding accomplishments in advancing CCS MVA technologies.

Knowledge gained from the Early Test is being applied at the Anthropogenic Test site in Alabama, where CO_2 injection began in August 2012. The project represents the largest U.S. demonstration project to date integrating CO_2 capture, transportation, and geologic storage utilizing anthropogenic (man-made) CO_2 from a coal-fired power plant. Under separate funding, the CO_2 is captured at Alabama Power Company's James M. Barry Electric Generating Plant located in Bucks, Alabama. The CO_2 is transported 12 miles by pipeline and permanently stored within a deep

saline formation at the Citronelle oilfield operated by Denbury. CO_2 injection ended in September 2014; more than 114,000 metric tons of CO_2 was injected and stored at the site. The SECARB partners are applying proven and experimental MVA technologies to monitor CO_2 movement in the subsurface during the current post-injection phase. In November 2013, the CSFL recognized the Anthropogenic Test project at Citronelle for its outstanding accomplishments in advancing CCS technologies.

Through a "Knowledge Sharing" activity established in 2011, the SECARB partners are facilitating interaction among scientists, researchers, and industry during which lessons learned from CCS projects around the globe are shared to further advance the technologies. Several SECARB partners and SSEB staff are serving as members of the U.S. Technical Advisory Group, approved by the American National Standards Institute, to mirror the International Organization for Standardization (ISO) Technical Committee 265 effort for the development of guidance and standards for carbon capture, transportation, and geological storage. Participation in this endeavor will ensure that the ISO process is both technically sound and the U.S. consensus position is represented.



Scientists from the Industrial Technology Research Institute (Taiwan) visit the CO_2 capture facility, August 2014.

SECARB continues to characterize the region's onshore and offshore geologic storage options, monitor federal and state regulatory and legislative activities, and support education and outreach efforts related to the program. Please visit the SECARB website at www.secarbon.org for the current status of all projects and related activities, upcoming meetings and workshops, social media subscriptions, and more.

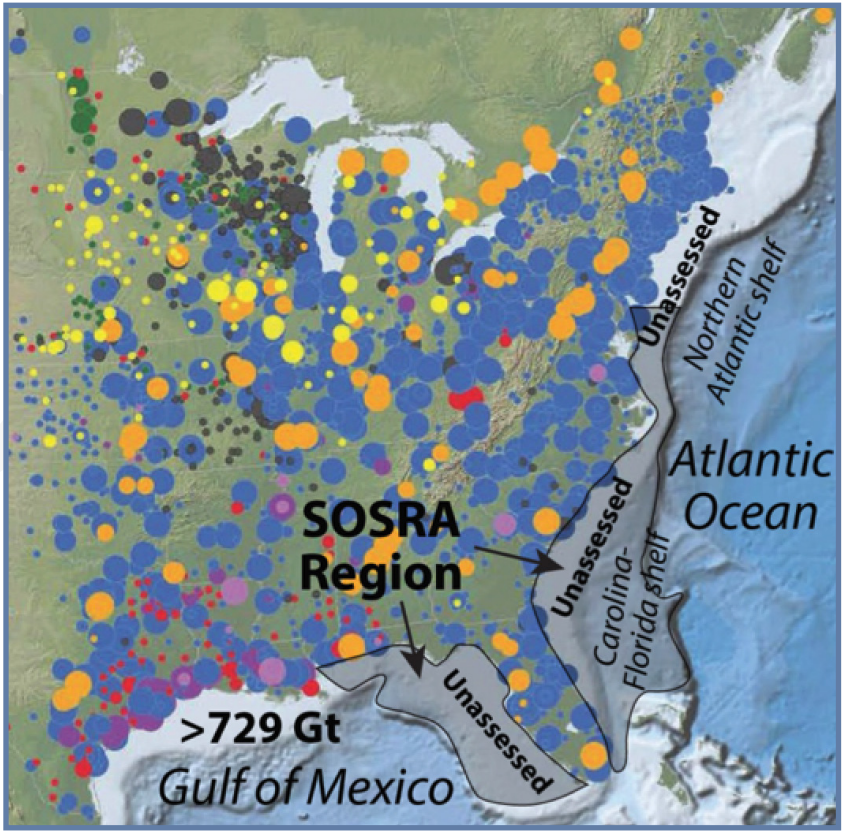
OFFSHORE STORAGE RESOURCE ASSESSMENTS

The Southern States Energy Board is leading a coalition of southern universities and technical experts to assess prospective geologic storage resources for carbon dioxide beneath the state and federal waters of three planning areas:

- the Mid-Atlantic
- the South Atlantic
- the eastern Gulf of Mexico

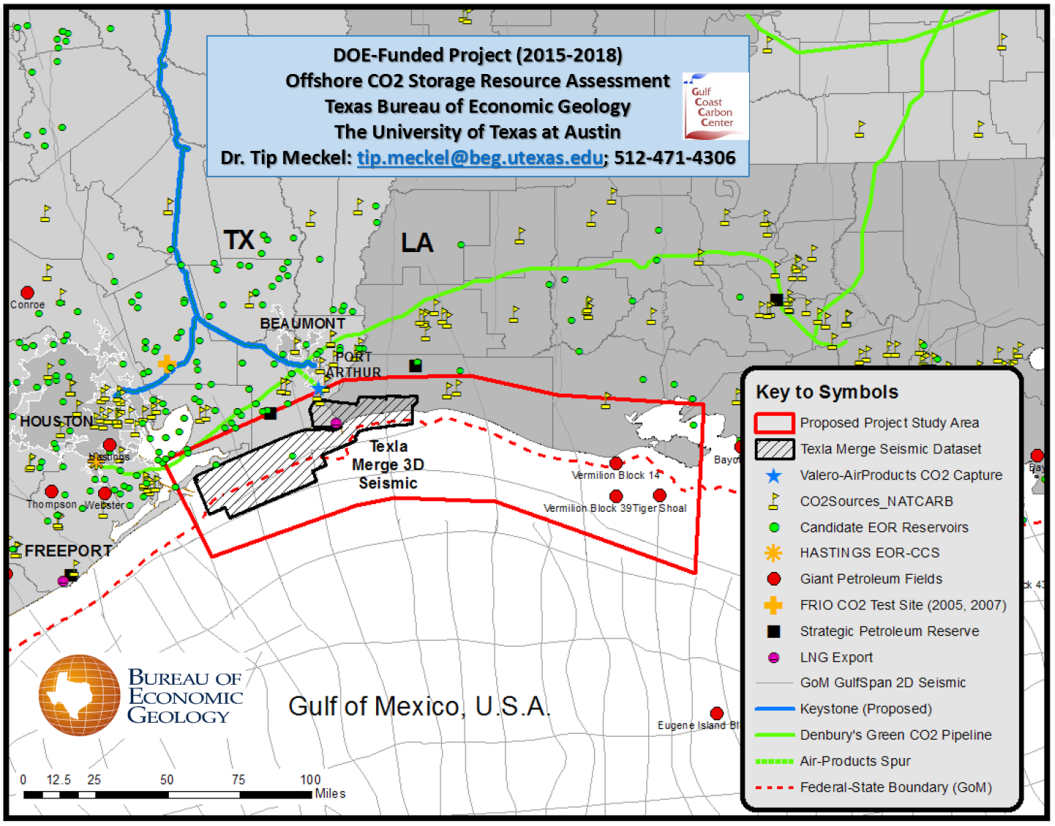
The goal of the Southeast Offshore Storage Resource Assessment (SOSRA) project is to develop a high-level approximation of the amount of CO_2 that might be stored utilizing key geologic and environmental factors that influence the storage potential. The research includes significant advances in knowledge and technology that will facilitate assessment and quantification of offshore CO_2 storage resources in the SOSRA region and provide a pathway toward commercialization. The SOSRA project will be underway for three years, beginning on October 1, 2015.

SSEB serves as the overall lead for the project. Project partners include the Virginia Polytechnic Institute and University's Virginia Center for Coal and Energy Research, the University of South Carolina, and Oklahoma State University for local management of the three planning areas. The Virginia Department of Mines, Minerals, and Energy, South Carolina Geological Survey, Geological Survey of Alabama, Advanced Resources International, Inc., and Gerald R Hill, PHD, Inc. also will provide technical expertise to the project.



Regional map of the SOSRA study area, which covers a large part of the continental shelf of the southeastern U.S. and has yet to be assessed for CO_2 storage potential.

The University of Texas at Austin is leading a complementary project funded under the same DOE program entitled the Offshore CO_2 Storage Resource Assessment of the Northern Gulf of Mexico (Texas–Louisiana). The University of Texas at Austin, in partnership with Southern States Energy Board, will study the inner continental shelf portions of the Texas and Louisiana Gulf of Mexico coastal areas in order to assess the CO_2 storage capacity of depleted oil and natural gas reservoirs. This work also will assess the ability of regional saline geological formations to safely and permanently store nationally-significant amounts of CO_2. The results of this work will improve the current understanding of CO_2 storage potential for a large area of the Gulf of Mexico adjacent to significant industrial emissions sources. SSEB will provide regional education and outreach support for the project.



The Offshore CO_2 Storage Resource Assessment of the Northern Gulf of Mexico Project will determine the CO_2 storage potential of geologic formations off the coasts of Texas and Louisiana.

SOUTHEAST REGIONAL CARBON SEQUESTRATION TECHNOLOGY TRAINING PROGRAM

Carbon capture, utilization, and storage (CCUS) technologies have tremendous potential for reducing carbon dioxide emissions and mitigating global climate change. These technologies encourage economic growth and have manageable influence on energy use. Deploying these technologies on a commercial scale will require expanding the workforce, including geologists, engineers, scientists, and technicians, trained in CCUS specialties.

In 2009, the U.S. Department of Energy's National Energy Technology Laboratory selected seven projects to help develop regional sequestration technology training centers in the United States. The Southeast Regional CO_2 Sequestration Technology Training Program (SECARB-Ed) was managed and administered by the Southern States Energy Board from November 16, 2009, to November 15, 2012. During this performance period, the efforts of SECARB-Ed and partners resulted in a total of 1,951 professional development hours awarded to 1,131 participants.

In a second initiative, SSEB proposed continuing its in-house elements of the SECARB-Ed program

> **"Deploying [CCUS] technologies on a commercial scale will require expanding the workforce, including geologists, engineers, scientists, and technicians, trained in CCS specialties."**

SECARB-ED
Southeast Regional Carbon Sequestration Technology Training Program

under a grant from the DOE's Office of Clean Coal and Carbon Management. This year's highlights include collaboration between EnTech Strategies, SECARB-Ed, Southern Company, and the CCUS Research Coordination Network to support the Research Experience in Carbon Sequestration (RECS) 2015 in Birmingham, Alabama, on June 7-16. RECS is the premier CCUS education and training experience in the United States. The intensive 10-day program combines classroom instruction with group exercises, site visits, and field activities and covers the science, technology, policy, and business topics associated with CCUS deployment.

SSEB's SECARB-Ed staff participated in outreach and through web presence in support of the Virginia Coal and Energy Alliance's Coal to Electricity project for teachers in Wise, Virginia, on July 19-25, 2015. This program augments and supports fourth through sixth grade educators with earth science standards of learning relating to non-renewable resources.

CENTRAL APPALACHIAN BASIN UNCONVENTIONAL (COAL/ORGANIC SHALE) RESERVOIR—SMALL-SCALE CO_2 INJECTION TEST

In recent years a major focus of the Southern States Energy Board and the Virginia Center for Coal and Energy Research (VCCER) at Virginia Tech has been carbon management. Currently, with the support of SSEB, the VCCER is in phase 2 of the project, Central Appalachian Basin Unconventional (Coal/Organic Shale) Reservoir Small-Scale CO_2 Injection Test, an almost $15 million partnership with the National Energy Technology Laboratory of the U.S. Department of Energy to perform a test, injecting 20,000 tons of CO_2 in unconventional geologic reservoirs at two field sites. A 510-ton injection has been successfully completed in a horizontal organic shale well in Morgan County, Tennessee. Of a planned 20,000 tons, 2,500 tons of CO_2 have been injected into three vertical coalbed methane wells in Buchanan County, Virginia.

This project will reduce uncertainties associated with long-term CO_2 storage options in unconventional reservoirs. To accomplish this goal, the project team is designing and implementing geologic characterization studies and CO_2 injection and monitoring activities to test unconventional storage formations in central Appalachia. The project team is tracking the migration of CO_2 throughout the injection and post-injection phases. One aspect of this project is enhanced gas recovery, potentially resulting in significantly increased revenue and value of reserves to offset the additional costs of carbon storage, which will be advantageous to the energy consumer as well as to the energy industry. It is anticipated that this project will conclude with monitoring and analysis during phase 3 and end in September 2016.

SSEB supports the field demonstration by providing project management and outreach and education expertise. SSEB ensures that the results and data gathered as part of this research effort and pilot study are disseminated in a timely fashion. The information is distributed through the Southeast Regional Carbon Sequestration Partnership and the Regional Carbon Sequestration Partnerships. Then the data is integrated into the National Carbon Sequestration Database and Geographic Information System (NATCARB) and the Fifth Edition of the DOE Carbon Sequestration Atlas of the United States and Canada.



Perfluorocarbon tracers are injected with the CO_2 stream as part of the monitoring, verification, and accounting program at the site in Morgan County, Tennessee.

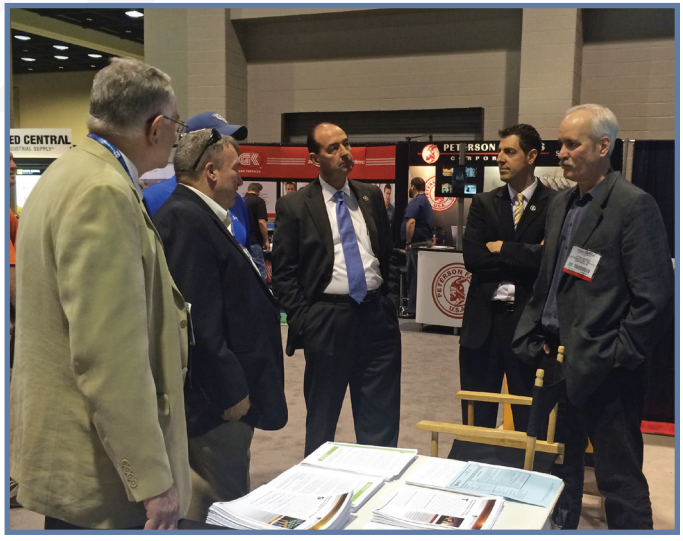
COMMITTEE ON CLEAN COAL ENERGY POLICIES AND TECHNOLOGIES

Composed of industries, academia, and business executives, the Southern States Energy Board's Committee on Clean Coal Energy Policies and Technologies advances opportunities for applied research and development, investment, international cooperation, and technology design for coal in the southern region. During its tenure, the committee has been responsible for coupling the development of clean coal technologies with potential domestic and international economic development opportunities. The program also affords partners the opportunity to leverage U.S. resources to influence international occasions for the deployment of those coal-based technologies that mitigate greenhouse gases and provide carbon storage solutions to reduce the effects of carbon dioxide emissions worldwide.

SSEB maintains a productive partnership for examining issues related to coal and carbon management with the U.S. Department of Energy's Office of Clean Coal and Carbon Management. International efforts, such as participation in the 23 nation Carbon Sequestration Leadership Forum, are coordinated with the Cleaner Fossil Fuel Systems Committee of the World Energy Council and the United States Energy Association.

Recently, the committee has been focusing on those issues related to carbon management and coal use in the South, especially legislation currently being considered at federal and state levels. The committee met on May 19-20, 2015, in Kingsport, Tennessee. On May 20th, during the concluding portion of the meeting, the committee held a roundtable discussion.

Outcomes of the roundtable discussion included stated intentions by several SSEB legislative members to bring resolutions before the board at its Annual Meeting in late September 2015. Additionally, committee members provided assurances that the key issues and priorities highlighted during the discussion would be brought forth during meetings with governors' offices, legislative leadership, state regulators, and other related national and regional organizations.



Kentucky House Majority Leader and SSEB Vice-Chairman Rocky Adkins, Mr. Joe Giove, and Dr. Pete Rozelle of the DOE discuss clean coal technologies at the Coal Prep Show in Lexington, Kentucky.

Key issues under consideration and discussion during this year include:

- Funding for DOE's Office of Fossil Energy and the National Energy Technology Laboratory
- Ensuring the ability of utilities to obtain financing for coal electric generating units
- The need for an "all of the above" policy parity
- Addressing regulatory framework gaps
- Promoting STEM and advanced technical education
- Finding commercially beneficial uses for CO_2
- Advancing international collaborations
- Monetary and regulatory incentives for carbon capture and storage and enhanced oil recovery
- DOE/EPA cooperation to develop a comprehensive list of acceptable clean coal technologies
- Prioritizing grid reliability in the South
- Reasonable timelines for regulatory compliance under new EPA regulations
- Recognizing state primacy on power plant emission standards

The committee issued strong support for Governor Tomblin's November 24, 2014, letter to EPA Administrator McCarthy regarding greenhouse gas guidelines for new and existing fossil fueled power plants. In addition, SSEB Vice-Chairman, Rep. Rocky Adkins of Kentucky, announced he intended to send a letter to the President of the United States regarding the proposed ozone standard.



Senator Eddie Joe Williams of Arkansas addresses the members of the SSEB Committee on Clean Coal Energy Policies and Technologies during its meeting in May 2015.

TRANSURANIC WASTE TRANSPORTATION

The Southern States Energy Board's Transuranic Waste Transportation (TRU) Working Group remains diligent in its effort to ensure clean up of U.S. Department of Energy sites in the region. This group of radiological health professionals and emergency response personnel are key components in maintaining a system for the removal of Cold War era bomb making containments. Because of the accidents that resulted in a fire and radiation release, no TRU shipments have been sent to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico, since the beginning of 2014. Instead, the department has placed its focus on recovery efforts to ensure characterization is conducted in a proper manner, identifying and isolating the waste in question, and improving the filtration system so the site can reopen.

In preparation for the resumption of the WIPP campaign, SSEB's TRU corridor states have taken this opportunity to test their training capabilities in the event of a transportation accident involving TRU waste. WIPPTREX exercises, which allow states to simulate an accident involving a TRU shipment and test the preparedness of their responders, have become a practical method among SSEB's TRU corridor states to maintain preparedness for the WIPP program. The state of Louisiana conducted a WIPPTREX in Ruston, Louisiana, on October 9, 2014, and the state of Georgia performed a series of exercises on September 9-11, 2015, to test a multitude of emergency response personnel. SSEB continues to work on behalf of the states by acting as the negotiating agent with the Carlsbad Field Office to secure funding to support this endeavor in excess of $1 million.

> **"This group of radiological health professionals and emergency response personnel are key components in maintaining a system for the removal of Cold War era bomb making containments."**



Emergency response personnel representing the state of Georgia and Carroll County host a planning meeting in Carrollton, Georgia, to discuss training needs and the exercise scenario for a September 2015 WIPPTREX.

FOREIGN RESEARCH REACTOR SPENT NUCLEAR FUEL SHIPMENTS

For more than two decades, the Southern States Energy Board has been working with the U.S. Department of Energy to implement a non-proliferation mission by coordinating the planning efforts associated with the return of shipments of used nuclear fuel from foreign countries. The history of this policy originates with the "Atoms for Peace" program that was a U.S. policy from the 1940s meant to encourage foreign countries to use nuclear technology for research and medical purposes as opposed to military applications. The present version of the program is under the authority of the National Nuclear Security Administration and is known as the Global Threat Reduction Initiative (GTRI). A major priority of GTRI is reducing and protecting vulnerable nuclear and radiological material located at civilian sites worldwide. SSEB's contribution to this objective is through the use of its radioactive materials committee members who lend their expertise to aid in the development of a safe, efficient, and effective transportation campaign. Upon designation into the program, fuel will be destined for either the Savannah River Site (SRS) or the Idaho National Laboratory depending on its composition.

> **"A major priority of GTRI is reducing and protecting vulnerable nuclear and radiological material located at civilian sites worldwide."**



NAC International's Legal Weight Truck cask, which will be used in support of the Canadian shipments, on display at a road show in Rock Hill, South Carolina.

In the summer of 2015, the GTRI initiated a campaign to return highly enriched uranium from the Chalk River facility in Canada to the Savannah River Site. This campaign will traverse many SSEB member states en route to SRS. In preparation for the shipments, SSEB assisted the state of North Carolina with developing an emergency response program to acquire the resources necessary to support the campaign.

SOUTHERN EMERGENCY RESPONSE COUNCIL

The Southern Emergency Response Council (SERC) is a committee responsible for the administration of a mutual aid agreement formalized by 14 southern governors in 1972 to offer state-to-state assistance in the case of a radiological incident involving a nuclear power plant. The SERC signatory states include Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia.

The actual document that identifies how the procedures would be conducted in the event of such an emergency is the Southern Mutual Radiation Assistance Plan (SMRAP). Created as a blueprint for coordinating radiological emergency assistance capabilities among participating states in the southern region, SERC representatives review, revise, and administer SMRAP on an annual basis to reflect changes in state emergency response capabilities and equipment. This document outlines the mutual aid agreement, the implementation process, emergency response contacts, and available state resources. As a part of the scope of this endeavor, the Southern States Energy Board acts as regional coordinator to simulate the activation of the SMRAP during state nuclear power plant exercises. In May of 2015, SERC member states participated in a RadResponder Virtual Tabletop and a Data Management Drill to learn how to use the features of RadResponder, an emergency response software program, during an incident involving radioactive material and also to disseminate information for the same purpose.

A SERC meeting is held once per year in conjunction with the Organization of Agreement States meeting. This gathering allows members the opportunity to discuss matters related to SMRAP. The group met recently on August 24, 2015, in Boston, Massachusetts, to ratify the current edition of SMRAP.

“As a part of the scope of this endeavor, SSEB acts as regional coordinator to simulate the activation of the SMRAP during state nuclear power plant exercises.”



Attendees of the Radiation Working Group tour the Plant Vogtle FLEX facility in Waynesboro, Georgia, which houses emergency equipment needed to respond to an extreme external event.

RADIOACTIVE MATERIALS TRANSPORTATION

The Southern States Energy Board remains committed to assisting the U.S. Department of Energy to develop a program to address the nation's concerns regarding used nuclear fuel and high-level radioactive waste. The board's Radioactive Materials Transportation Committee, which is composed of gubernatorially appointed professionals (radiological health officials, field specialists, state emergency response planners, and law enforcement), work in collaboration with DOE's Nuclear Fuels Storage Transportation (NFST) and Planning Project to create policy and procedures for the continuity of this program.

In February of 2015, SSEB and a group of DOE and tribal staff conducted a site visit to the recently decommissioned Crystal River Nuclear Plant in Crystal River, Florida. The trip's purpose was gathering information regarding plans for the interim storage of used nuclear fuel at the site and also examining infrastructure and operations as they relate to the eventual safe and efficient transport of these materials to an official DOE repository.

If shipments are to occur from sites such as Crystal River in the near future, the states along the transportation route must be adequately prepared to respond to a potential accident. The committee continues its efforts in this area by participating in the NFST sponsored Section 180(c) Exercise. During this exercise the volunteer states of North Carolina and Texas developed mock application grants for planning, training, and other emergency response assets required to support a national campaign. The board also continues to monitor ongoing private sector ventures initiated to address used fuel management. The Waste Control Specialist facility in Andrews, Texas, has made known its intention to submit a license application to the U.S. Nuclear Regulatory Commission (NRC) for the construction of an interim storage facility. Likewise, SSEB's associate member, Holtec, has a venture in place to use their technology, HI-STORM UMAX, to host a facility in New Mexico. The NRC-certified technology design would store steel and concrete multi-purpose canisters underground.



Members of the Crystal River Site Visit Team view an area designated for barge shipments of reactor components.

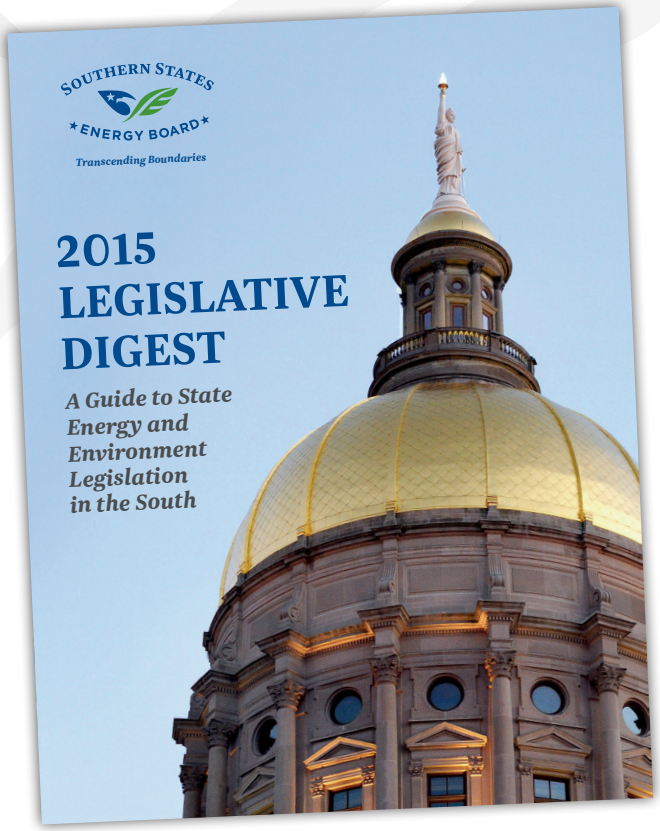
ENERGY AND ENVIRONMENT LEGISLATIVE PRIORITIES AND ANALYSIS

The Southern States Energy Board's Legislative Digest serves as a compendium of energy and environmental legislation passed by the board's 18 member states and territories. For more than four decades, SSEB has published the annual digest as a reference tool and guide for state legislators and their personnel. The digest thoroughly examines and tracks legislative trends by state.

During the 2015 legislative sessions, the southern states passed more than 580 energy and environmental bills. As technology advances, SSEB member states continue to address issues surrounding energy development and distribution. Within the digest, there are many bills relating to pipelines, generation, infrastructure development, transmission, and siting concerns as well as the evolving markets pursuant to alternative energy development. Our member states continue to help lead the way to American energy independence with their abundant, diverse resources coupled with legislative and regulatory actions that foster economic growth.

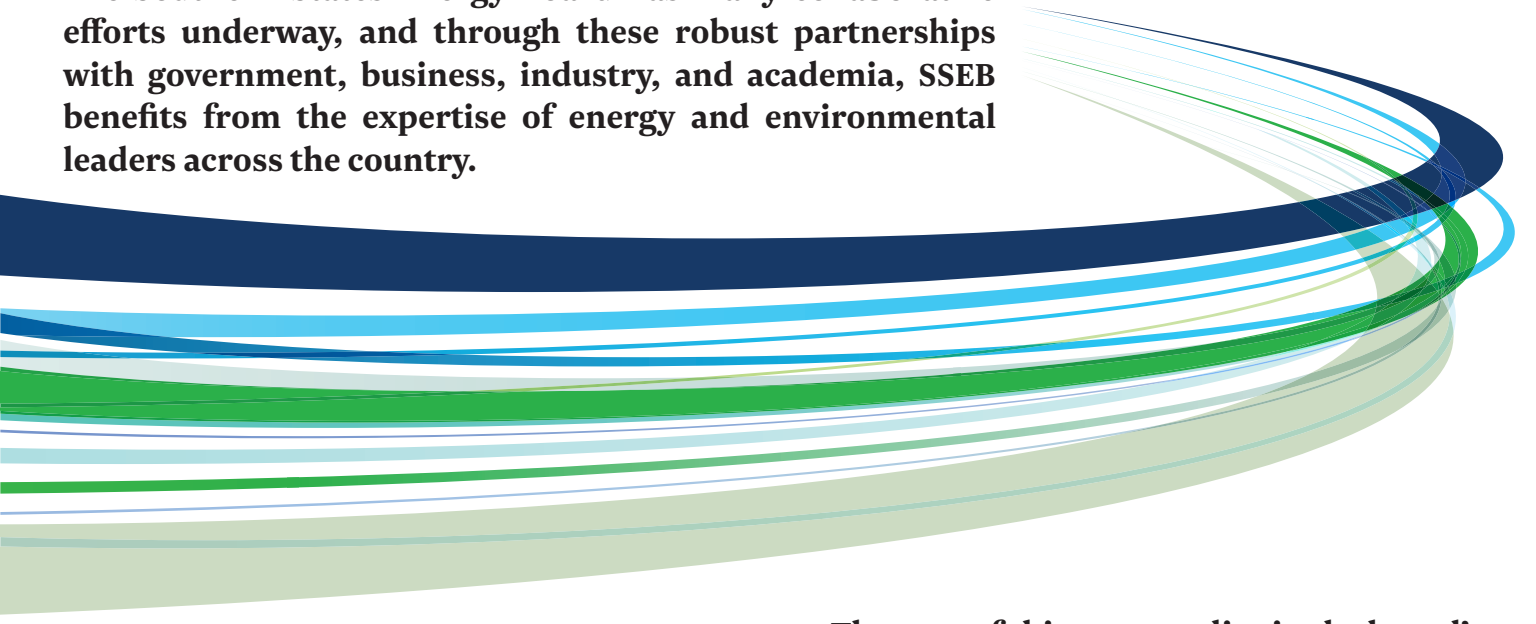
As the South experiences tremendous growth, SSEB member states continue to monitor water resource management and conservation. During the 2015 sessions, 10 SSEB member states enacted statutes and resolutions related to proposed changes under the Clean Air Act. Finally, SSEB member states addressed important economic development goals and quality of life issues through legislation related to the following:

- Stormwater management
- Brownfield remediation
- Controlling invasive species
- Solid waste management



PARTNERSHIPS

The Southern States Energy Board has many collaborative efforts underway, and through these robust partnerships with government, business, industry, and academia, SSEB benefits from the expertise of energy and environmental leaders across the country.



The core of this strategy lies in the board's associate members who represent the region's and nation's leading energy providers, resource companies, educational institutions, and technology developers.

PARTNERSHIPS

The Southern States Energy Board has many collaborative efforts underway and through these robust partnerships with government, business, industry, and academia, SSEB benefits from the expertise of energy and environmental leaders in the country.

The core of this strategy pivots on the board's associate members who represent the region's and nation's energy providers, resource companies, educational institutions, and technology developers. The SSEB associate members program was founded in 1984 by Governor John Y. Brown of Kentucky when he was the organization's chairman.

The associate members act in an advisory capacity to the board. With increasing interest from the region's prominent energy industries and organizations, SSEB gains a broad depth of knowledge and diverse perspectives on the impact of energy and environmental policies on the region's economy.

Through another collaborative effort with the U.S. Department of Energy's Office of Fossil Energy and the U.S. Energy Association, the board became a founding stakeholder in the Carbon Sequestration Leadership Forum in 2003. The policy and technical forums of CSLF further international cooperation and understanding of carbon dioxide capture, utilization, and storage; legal and regulatory issues; intellectual property; and many related matters. The CSLF recognized SSEB's two SECARB Partnership projects as international programs of excellence.



Dr. Julio Friedmann, Principal Deputy Assistant Secretary for Fossil Energy at the U.S. Department of Energy, addresses the board during the 54th Annual Meeting.

SSEB also works closely with the Government of Canada, which has a Consular presence in the state of Georgia and promotes business development, investment, tourism, culture, and information exchange between Canada and the states of Alabama, Georgia, Mississippi, North Carolina, South Carolina, and Tennessee. The board's partnership with the Consulate General of Canada in Atlanta has resulted in economic, educational, and scientific opportunities for our member states.



Canadian government and industry officials met with Governor Nathan Deal and other SSEB members at the Georgia State Capitol in March 2015.

On a national level, SSEB is an affiliate member of the National Association of State Energy Officials. In this relationship, SSEB works closely with state energy office directors in the southern region on a wide array of programs, ranging from energy efficiency, weatherization, and energy security and infrastructure.

To foster regional cooperation and collaboration, the board continues a strong working relationship with other regional organizations such as the Southern Governors' Association, the Southern Legislative Conference of the Council of State Governments, the Virginia Coal and Energy Alliance, and the Southeast Energy Efficiency Alliance. SSEB strives to foster ongoing relationships with other regional and state organizations with similar goals.

These are only a few examples of the collaborative relationships SSEB experiences through its diverse partnerships. Building partnerships is an essential goal of the board in order to leverage opportunities and expand its expertise to assist its member states. These collaborations allow SSEB to focus its program and financial commitments to the benefit of the entire southern region.

EDUCATING STAKEHOLDERS

Southern States Energy Board prioritizes outreach and education through a variety of keynote presentations, panel discussions, conferences and workshops, exhibits, and myriad activities meant to engage public officials and others. SSEB strives to enhance and improve understanding and awareness of domestic energy development, energy and environmental policies, and clean energy technologies and their importance in the region. Examples of significant engagements from the past year include:

- Virginia Coal and Energy Alliance—Future of Clean Coal Technologies | Keynote Presentation
- Power Experts Conference | Keynote Presentation
- Global CCS Institute Americas and CCS/CO_2-EOR Carbon Management Forums | Speaker, Session Moderator, and Participant
- State Energy Offices | Briefing on SSEB Programs and Activities
- SECARB 10th Annual Stakeholder Briefing and Knowledge Sharing Series with U.S. and Canadian Government Officials | Host
- Eastern Interconnection States Planning Council (EISPC) | Presentation on Value of Electricity Supply Diversity
- SSEB Associate Members Meetings | Host
- SSEB Annual Energy Briefing to Southern Legislators | Host
- National Nuclear Materials Transportation Stakeholder Forum and Radioactive Materials Transportation Committee Meetings | Host



- International Organization for Standardization (ISO) Technical Committee 265 for CO_2 Capture, Transport and Geological Storage | SSEB Staff Participation on U.S. Technical Advisory Committee
- Committee on Clean Coal Energy Policies and Technologies Meeting | Host
- Research Experience in Carbon Sequestration (RECS) Program | Co-sponsor and CCS Field Site Host
- Canadian Delegation Visit to the Georgia State Legislature | Coordinator and Facilitator
- Southeast Energy Efficiency Alliance | Participant in Meetings and Discussions Regarding Energy Efficiency Opportunities in the SSEB Region
- EPA's Clean Power Plan | Participation in State-led Meetings and Discussions

SOURCES OF SUPPORT

The Southern States Energy Board's primary source of funding is its annual appropriations from the 18 member states and territories. Each member's share is computed by a formula written into the original compact. This formula is composed of an equal share, per capita income, and population. The board has not requested an increase in annual appropriations since 1987. The compact authorizes the board to accept funds from any state, federal agency, interstate agency, institution, person, firm, or corporation provided those funds are used for the board's purposes and functions. This year, additional support was received for research projects from grants and cooperative agreements.

Additionally, SSEB continues to lead an associate members program composed of industry partners who provide an annual contribution to the board. Membership includes organizations from the non-governmental sector, corporations, trade associations, and public advocacy groups. The associate members program provides an opportunity for public officials and industry representatives to exchange ideas, define objectives, and advance energy and environmental planning to improve and enhance the South's economic and environmental well-being.

In addition, the SSEB carbon management program's industry associates and partners provide monetary sponsorships to complement the Southeast Regional Carbon Sequestration Partnership program and its activities. SSEB also receives corporate sponsorships, registration fees, and in-kind contributions to support the expenses associated with the SSEB annual meeting.

STATE APPROPRIATIONS

ALABAMA **$32,572**	**MARYLAND** **$37,192**	**SOUTH CAROLINA** **$31,372**
ARKANSAS **$31,027**	**MISSISSIPPI** **$29,077**	**TENNESSEE** **$34,267**
FLORIDA **$47,212**	**MISSOURI** **$36,247**	**TEXAS** **$55,402**
GEORGIA **$35,782**	**NORTH CAROLINA** **$37,042**	**U.S. VIRGIN ISLANDS** **$25,297**
KENTUCKY **$32,197**	**OKLAHOMA** **$32,512**	**VIRGINIA** **$38,362**
LOUISIANA **$33,817**	**PUERTO RICO** **$25,597**	**WEST VIRGINIA** **$28,732**

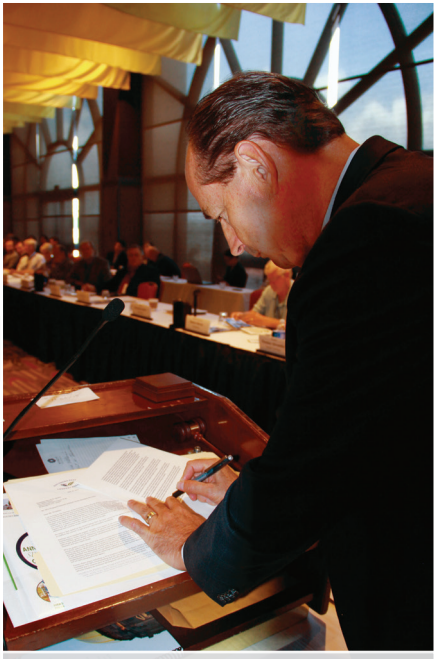
SSEB IN PICTURES



Rep. César Hernández Alfonzo, Speaker Jaime R. Perelló Borrás, Honorable Jim Powell, Mr. José Maeso, and Ken Nemeth at the 54th Annual Meeting.



Delegate Sally Jameson of Maryland delivers introductory remarks at the 2015 Legislative Briefing.



Kentucky House Majority Leader and SSEB Vice-Chairman Rocky Adkins signs a letter to President Obama at SSEB's 2015 Briefing to Southern Legislators.



Senator Thomas Alexander and Rep. Bill Sandifer of South Carolina participate in the 2015 Legislative Briefing.



Gov. Robert Bentley of Alabama congratulates Gov. Earl Ray Tomblin of West Virginia on his election as SSEB Chairman at the 54th Annual Meeting in Mobile, Alabama.



Canadian delegation hosted by Governor Nathan Deal and SSEB legislators from Georgia at the state capitol.



Louisiana Senators Gerald Long and Robert Adley at SSEB's 54th Annual Meeting.

SSEB IN PICTURES



Rep. Randy Davis of Alabama, SSEB's Heather Breeden, Rep. Bill Sandifer of South Carolina, Sen. Cam Ward of Alabama, and Anne Roberts of SLC tour the Vogtle Electric Generating Plant located near Waynesboro, Georgia.



Tennessee Senator Mark Norris addresses participants at the 54th Annual Meeting.



Senator Bob Rucho, Rep. Mike Hager, and Senator Buck Newton representing North Carolina at the 54th Annual Meeting.



Oklahoma Rep. Weldon Watson addresses the board business session at SSEB's 54th annual meeting.



Senator Eddie Joe Williams of Arkansas discusses pending legislation at the 2015 Legislative Briefing.



Dr. Len Peters and Sen. Brandon Smith of Kentucky examine the *2014 Regional Energy Profiles* produced by the SSEB.



Rep. Jim Gooch, Jr. of Kentucky addresses the members of the Committee on Clean Coal Energy Policies and Technologies at the 2015 meeting.



SSEB Director Ken Nemeth watches as former SSEB employee Sally Bemis reads a card celebrating her retirement from the board in 2015.

NOTES

NOTES

Alabama
Arkansas
Florida
Georgia
Kentucky
Louisiana
Maryland
Mississippi
Missouri
North Carolina
Oklahoma
Puerto Rico
South Carolina
Tennessee
Texas
U.S. Virgin Islands
Virginia
West Virginia

6325 Amherst Court
Peachtree Corners, GA 30092
Ph: 770.242.7712
Fax: 770.242.9956

www.sseb.org