

SOUTHERN STATES

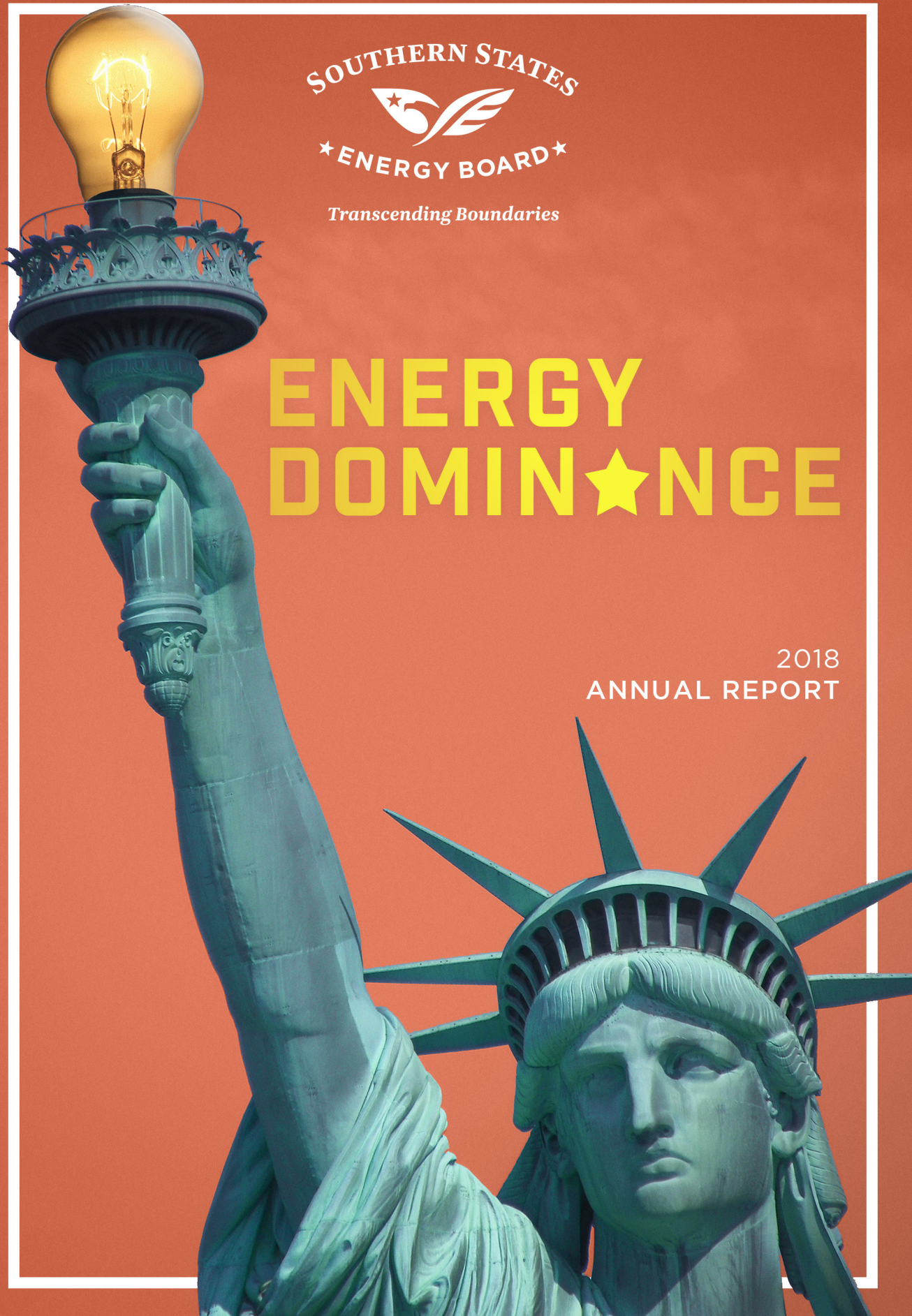


★ ENERGY BOARD ★

Transcending Boundaries

ENERGY DOMIN★NCE

2018
ANNUAL REPORT



MISSION STATEMENT

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.



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Chairman's Message

Governor Phil Bryant

When I first served as Chairman of the Southern States Energy Board back in 2012-2013, our region was experiencing unprecedented growth in the energy sector of our economy. Shale plays across the country were expanding in accordance with hydraulic fracturing and horizontal drilling, creating a huge market for natural gas. New technology designs for solar panels dramatically cut the cost of solar energy to the point where all utilities were contemplating how and where to use this renewable energy resource. Small, modular nuclear reactors were being considered as a potential resource for rural settings. The market for distributed energy generation and battery technologies was beginning to tempt utilities in need of peaking power supplies.

Our theme in 2013 for the Southern States Energy Board's 53rd Annual Meeting was "Energy Revolution in the South." How right were we in our prediction of unprecedented growth for the energy sector? I have been known to express my belief that "energy is the lifeblood of this nation and the soul of our economic development." I believe that statement is as true today as when I first said it. Our economy now is resilient and sustainable because we have been wise in the use of our energy resources and our overabundance is being shared with friends and allies across the globe. Further, we have a President who believes in energy security and diversity, which presents many options for us as we plan our energy strategy for the future. Just in the past five years, we have come from an "energy revolution" to our theme for 2018, "ENERGY DOMINANCE."

What does it mean to be a dominant player on the world's energy stage? As we all know, those who have the energy resources will shape the destiny of nation states that need it. I cannot understate the necessity for energy security and cybersecurity throughout our states and territories. The computer age has brought with it many key and creative advances, none more important than the need to protect our cyberspace from terroristic threats and economic disruptions. Cyber advantage now is not the captive technology of a few wealthy hegemonic countries, but rather a worldwide phenomenon whose master is the intellectual capital to plot computer-based warfare. This requires our interstate electric energy grid system of growing megalopoli to ever increase its sophistication to remain comfortably ahead of those who would seek to devastate and destroy our way of life.

Over the past decade, we have faced environmental challenges from other directions. During 2017, hurricanes Harvey, Irma, Maria, and Nathan devastated and decimated parts of our Southern region. Most affected by these ravaging storms was Puerto Rico, which was blasted by hurricane Maria just six days before our 2017 Annual Meeting. As our Chairman, Governor Asa Hutchinson of Arkansas spoke for all of us when he authored a Board resolution to provide assistance from the Board to Governor Rosselló and our member jurisdiction, Puerto Rico. That assistance now has taken the form of developing a long-term energy strategy and regulatory reform for an Island still reeling from a complete energy resource outage last September and some homes yet without electricity. A Blue Ribbon Task Force, led by SSEB and

knowledgeable stakeholders from Puerto Rico, is exploring options for energy policies, regulatory regimes, financial and economic measures, insurance, and utility privatization.

When hurricane Harvey made land near Houston, Texas, on August 17, 2017, flooding and destruction overwhelmed the city and demolished homes and businesses with losses estimated in billions of dollars. As far away as Nashville, Tennessee, customers were paying higher prices for gasoline because the hurricane's effects were regional and affected many more states than Texas. Year after year, when hurricanes impact our Gulf and Atlantic states, somehow needed emergency fuels have not been where they need to be. The problem is that receiving an emergency motor fuel waiver from the U.S. Environmental Protection Agency is a complicated effort, requiring the affected state to call for an EPA issued waiver, which is then granted by the EPA Administrator following consultation with the Secretary of the U.S. Department of Energy. This process can be lengthy, resulting in a waiver being issued either during or after a storm and too late for emergency motor fuels to be deployed.

To assist in a solution to this problem, which can affect a number of states during each natural disaster, I have asked our SSEB staff to work with states, the American Petroleum Institute, and EPA on the designation of a Regional Emergency Motor Fuel Waiver. Upon approval by agreement with member states, EPA and DOE, the Southern States Energy Board will serve as an early warning system, contacting governors or their designees when a regional waiver is necessary and applying for the waiver with EPA on behalf of our member states. In these natural disaster conditions, we need to have fuel available early for evacuees, then first responders, and finally for those who are returning to their homes after a disaster. This problem occurs whenever there is a major regional weather event and we must come to agreement on a pragmatic, regional solution.

Earlier, I alluded to the many changes taking place across the spectrum of energy resources. Please obtain a copy of the Southern States Energy Board's "Regional Energy Profiles" document to see the dramatic transformations affecting our regional energy resource mix and how the electric utility industry is changing and

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Energy is the
lifeblood of
this nation
and the
soul of our
economic
development.

*Gov. Phil Bryant
Chairman*



adapting across our states and territories. Natural gas and renewable energy are dominating new electric capacity additions. The market penetration of distributed energy resources continues to increase. The age of hybrid and electric vehicles is upon us. And electric generation is evolving toward more diverse, decentralized networks. Our future energy grid will evolve into a communications-enabled, self healing network where digitally enabled utilities and shared service organizations provide fully automated services.

In 2003, the Southern States Energy Board formed and became the manager of the Southeast Regional Carbon Sequestration Partnership (SECARB), through a collaboration with the U.S. Department of Energy. We became the first region to inject, monitor, and permanently store over a million tons of carbon dioxide (CO₂). In a short time, the Partnership injected over 11 million tons in Cranfield, Mississippi, and obtained tremendous amounts of data to inform future CO₂ capture and storage modeling and simulation efforts at other sites. At Cranfield, new and novel monitoring techniques were deployed and field-tested to determine their accuracy, robustness, and effectiveness. Results from this project have provided valuable input for CCS projects deployed throughout the globe.

When our Partnership built a 25 megawatt carbon capture demonstration facility at Plant Barry in Bucks, Alabama, our partners built a dedicated pipeline to Citronelle, where the CO₂ was injected and monitored by the SECARB team. In 2018, SSEB and its partners demonstrated to the state regulatory authority the containment of the CO₂ within the targeted geologic formation and nonendangerment to underground sources of drinking water. Our SECARB Partnership further has been honored. NRG Energy from Houston, Texas, built a 240 megawatt scale up of our carbon capture demonstration facility, sending CO₂ by pipeline over 81 miles to their West Ranch Field. Until CO₂ was utilized, the 60 million barrel field was pumping 300 barrels per day. Today, over 5,000 barrels of oil per day is extracted from the field. This is a great example of the value of the Regional Carbon Sequestration Partnerships creating jobs and providing large-scale injection with industry collaboration! Building public/private enterprises through the Regional Carbon Sequestration Partnerships has proven essential to industry cooperation and the development of jobs and new technologies in the South.

This has been an exciting and fast-paced, outstanding year for Southern States Energy Board projects. During my chairmanship, the Board has funded over 31 colleges and universities in the region and our budget of current projects exceeds \$394 million, a record amount of funding that SSEB returns to its member states. I am honored to place this record of excellence before the members of the Southern States Energy Board. Thank you for placing your trust in me by electing me twice to serve as your Chairman.

A large, stylized handwritten signature in black ink, reading "Phil Bryant". The signature is fluid and cursive, with a large initial "P" and a long, sweeping underline.

Phil Bryant

Governor of Mississippi

Chairman 2012-2013; 2017-2018



SPECIAL FOCUS



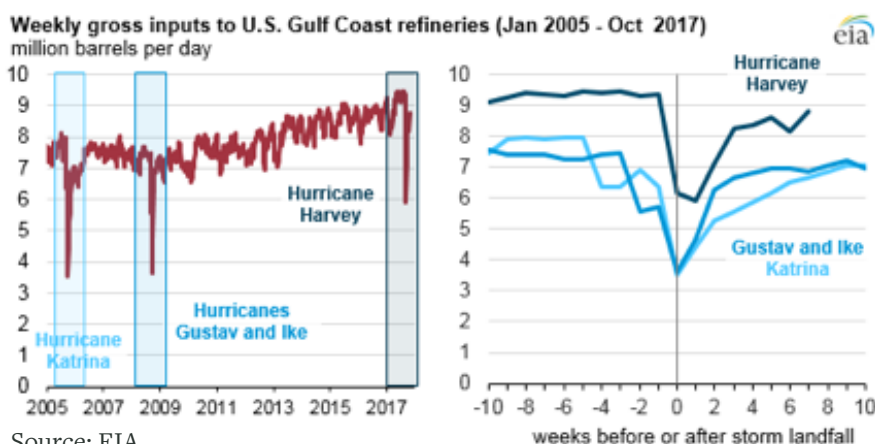
Regional Emergency

Motor Fuel Waivers

During 2017, hurricanes Harvey, Irma, and Maria proved to be major disasters for SSEB Gulf Coast states and the territories of Puerto Rico and the U.S. Virgin Islands. The SSEB Associate Members meeting in September 2017 included a discussion of the impact of recent hurricanes on the motor fuel supply. An Associate Member asked oil company participants to consider reviewing the processes that occur in a disaster scenario in order to better facilitate the supply of motor fuel to consumers, including a review of the process by which EPA and the states obtain emergency motor fuel specification waivers.

When supplies are disrupted or when there is an unusual spike in demand, states work with the petroleum industry to request waivers of certain motor fuel specifications for the purpose of enabling a quicker re-supply of the affected area. The two most common specifications waived are the Reid Vapor Pressure (RVP) and biofuel blending requirements (ethanol) for gasoline. These waivers can be state, federal, or both. State requirements vary. A regional waiver for relaxation of RVP and elimination of ethanol blending allows refiners to produce additional fuel more quickly and enables the existing distribution infrastructure to deliver the needed supplies in less time than would be required without the waivers.

Currently, each individual state must make a request to the EPA to specifically request that RVP requirements are lessened and ethanol blending requirements be suspended. The need for waivers is usually communicated to the state regulators by the petroleum industry – either individual motor fuel suppliers or a trade association such as the American Petroleum Institute. Complicating the emergency fuel waiver picture is the conversion from summer specifications to winter specifications, which occurs on September 15. Unfortunately, the peak of hurricane season also occurs on September 15. Hurricanes making landfall before the transition date are what makes the RVP waiver necessary.



Second Governors Energy Caucus

September 25, 2017

Governor Asa Hutchinson of Arkansas hosted the Second Governors Energy Caucus on September 25, 2017, during the Board's 57th Annual Meeting in Charleston, South Carolina. Governors Phil Bryant of Mississippi, Matt Bevin of Kentucky, and Henry McMaster of South Carolina participated in the event and shared their perspectives on a wide spectrum of energy and environmental topics.

Governor Hutchinson, 2015-2017 SSEB Chairman, formed the Governors Energy Caucus on February 24, 2017, to provide a forum for governors of American states and territories to:

- Confront, address and deliberate on energy issues;
- Share information between and among states and territories;
- Request appearance before this body by any person, including members of Congress, the Administration or the public-at-large, who can further the knowledge and interests of this body;
- Meet as necessary with the U.S. Secretary of Energy to discuss the impact of the Administration's energy policies and the role of the states;
- Appear before Congressional committees, federal forums, or industry meetings regarding the interests of the Caucus; and
- Hold an initial meeting to address Caucus leadership and agenda.

The Third Governors Energy Caucus will convene during our 58th Annual Meeting in September 2018.



Annual Energy Briefing to Southern Legislative Leaders

July 20, 2018

State legislators face challenging and complex decisions that demand thoughtful and innovative policy-making when representing their constituents. The Southern States Energy Board's Annual Energy Briefing to Southern Legislative Leaders is a dynamic forum for addressing many issues related to energy and environmental legislation, federal, and state policies, administrative and regulatory initiatives, and the implications for economic development. SSEB hosted the 2018 briefing in St. Louis, Missouri, on July 20, 2018.

To begin the meeting, Missouri's Senate President Pro Tem, the Honorable Ron Richard, welcomed participants to the Show-Me-State. Honorable Eddie Joe Williams, SSEB's Federal Representative, shared his experiences in recent months to support SSEB's new project to strategize an electric energy policy and regulatory framework in Puerto Rico. SSEB's Secretary and Executive Director, Ken Nemeth, presented data from the 4th edition of Southern States Regional Energy Profiles (July 2018), a report prepared cooperatively with Kentucky's Energy Office within the Energy and Environment Cabinet and the U.S. Department of Energy's Office of Fossil Energy.

Notable legislative trends were highlighted in subjects impacting the Southeast in light of the hurricanes and significant flooding of 2017, support for the Appalachian Storage Hub, protection of critical infrastructure, and reorganization of government agencies and commissions. A panel and roundtable discussion on 2018 legislative action in the states followed with West Virginia Senator Dave Syppolt, Missouri Representative Rocky Miller, and Mr. Rick Eastman of Ameren Missouri sharing with participants significant legislation passed in their respective states.

Members also received outstanding presentations on the subjects of new and emerging end use technologies for natural gas and the energy trends and demands of the future. Members also discussed the 2018 policy resolutions schedule and process and received a preview of the SSEB's 58th Annual Meeting by Honorable Terry Burton, Mississippi Senate President Pro Tempore.





Strategizing an Electric Policy and Regulatory Framework in Puerto Rico

Providing Support in Maria's Aftermath

In September 2017, Puerto Rico was devastated by Hurricane Maria with impacts that will last for years to come. During the Southern States Energy Board (SSEB) 57th Annual Meeting in Charleston, South Carolina, Governor Asa Hutchinson introduced resolution number 13.2017 entitled, "Providing Support to Southern States Energy Board Member Jurisdictions in the Aftermath of Hurricane Disasters." SSEB members, including southern governors, legislators, and other state officials, unanimously passed the resolution on September 26, 2017.

The resolution calls for SSEB to offer support to the Governors of Puerto Rico and the U. S. Virgin Islands and the utilities to restore and rebuild their critical electric energy infrastructure and coordinate cooperative assistance with its Associate Members, the nation's energy sector, and the federal government to provide necessary technical support and resources. The resolution provides a framework for SSEB to coordinate the technical capabilities of the Board, Associate Members, and others to assist with the ongoing energy crisis in Puerto Rico and the U.S. Virgin Islands.

In April 2018, the U.S. Department of Energy selected SSEB to lead a project in concert with the Government of Puerto Rico entitled "Strategizing an Electric Policy and Regulatory Framework in Puerto Rico." The project focuses on developing well-informed, unbiased, and innovative

PROJECT GOALS

- I. Work with the Governor and Legislature of Puerto Rico to establish a reliable, affordable, and sustainable electric energy grid system for the Commonwealth.
- II. Develop a policy and legal framework to provide a regulatory regime for a potential privatization of Puerto Rico's electric energy grid system.



regulatory framework models for the Puerto Rican government. To achieve the goals, SSEB is building a stakeholder participation network across multiple sectors, creating potential legislative options for the electric energy grid system, defining the long-term goals and objectives of policies and a regulatory framework, and reviewing risks associated with privatization of PREPA. SSEB recently established a Blue Ribbon Task Force with appointees from a diverse group of organizations to assist in this effort.

In the wake of a catastrophic hurricane season, the strength and perseverance of the Puerto Rican people has consistently presented itself. SSEB is proud to offer its expertise in supporting Puerto Rico's effort to rebuild an electric grid and generation that is more resilient and maintains affordability for both the citizens and industry. To learn more about the current status of the project, visit sseb.org/strategizing-pr.

The Southeast Regional Carbon Sequestration Partnership (SECARB) is a public/private partnership underway at the Southern States Energy Board to ensure the availability of large volumes of carbon dioxide for various industrial purposes including injection into both oil and gas reservoirs for enhanced recovery of products and saline formations for storage. 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 CO₂ 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 CO₂-enhanced oil recovery operation in the Cranfield oilfield near Natchez, Mississippi. The SECARB team has successfully field-tested a variety of CO₂ 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 CO₂ 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 continue.

SECARB was the first of the regional carbon sequestration partnerships to begin CO₂ injection and the first to achieve the goal of monitoring a one million metric ton injection. SECARB was the first partnership to store CO₂ under a power plant in Escataupa, Mississippi. 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 efforts in advancing CCS MVA technologies.

Knowledge gained from the Early Test was applied at the Anthropogenic Test site in Alabama, where CO₂ injection began in August 2012. Under separate funding, the CO₂ was captured at Alabama Power Company's James M. Barry Electric Generating Plant located in Bucks, Alabama. The CO₂ was transported 12 miles by pipeline and permanently stored within a deep saline formation at the Citronelle oilfield operated by Denbury. CO₂ injection ended in September 2014; more than 114,000 metric tons of CO₂ was injected and stored at the site. The SECARB partners applied proven and experimental MVA technologies to monitor CO₂ movement in the subsurface during the post-injection phase. The wells were plugged and abandoned in August 2018.

Previous research and technology development conducted under the SECARB Partnership led to the successful commercialization scale up at NRG's Petra Nova plant near Houston, Texas. Today, Petra Nova is the world's largest post combustion carbon capture facility attached to an existing coal-fired power plant. Regarding SSEB's role in the project, NRG Vice President David Greeson responded that "we couldn't have

done this without the SECARB demonstration that convinced our investors of the viability of the technology."

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.



Plant Barry CO₂ Capture Facility



Petra Nova CO₂ Capture Facility

Southeast Offshore Storage Resource Assessment

SOSRA

The Southern States Energy Board (SSEB) is leading a coalition of southern universities and technical experts to assess prospective geologic storage resources for carbon dioxide (CO₂) in 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 CO₂ that might be stored utilizing key geologic and environmental factors which influence the storage potential.



The research includes significant advances in knowledge and technology that facilitate assessment and quantification of offshore CO₂ storage resources in the SOSRA region and provide a pathway toward commercialization.

The project is funded by DOE's National Energy Technology Laboratory, and SSEB serves as the overall lead for the project. To perform the work, SSEB has partnered with 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. 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 provide technical expertise to the project.

During Phase I the team determined that the data quality and coverage within the study areas were adequate to facilitate a detailed assessment of offshore geology and quantification of CO₂ storage potential. Phase I of the project was completed in 2017 with a recommendation from the team to move into Phase II. Data collection and assessment is underway. The no cost extension was granted in May 2018 as the additional time proves necessary to produce accurate storage resource volume projections. The project concludes in September 2019.

Establishing an Early CO₂ Storage Complex

Project ECO₂S

The Southern States Energy Board (SSEB) is a leading coalition of universities and technical experts to establish a 438 million metric tons of capacity CO₂ Storage Complex adjacent to the Kemper County energy facility.



Project ECO₂S is pursuing key advances in CO₂ storage knowledge and technology, including optimizing CO₂ storage efficiency, modeling the fate of injected CO₂, and establishing residual CO₂ saturations. In addition, Project ECO₂S is involving “real-life” experiences, issues, and challenges of scaling-up from its regional, pre-feasibility assessment of CO₂ storage to establishing a site-specific, CO₂ storage complex, including capturing the “lessons learned” in making this transition.

Project ECO₂S is funded by the U.S. DOE NETL and headed by SSEB. Mississippi Power Company is serving as the site host as well as the primary cost share partner and the source of the CO₂. The project includes technical and field implementation support from Advanced Resources International and will obtain analytical support from two national laboratories (Los Alamos and Lawrence Berkeley), a host of universities (Auburn University, Mississippi State University, Oklahoma State University, Virginia Polytechnic Institute and State University, University of Alabama at Birmingham, and University of Wyoming) and other key participants, including Battelle Memorial Institute and the Geological Survey of Alabama.

Three regionally extensive porous and permeable saline formations with thick confining systems have been identified at the Storage Complex that provide attractive settings for injection and storage of CO₂. The Complex will have the capacity to receive 3 million metric tons per year of CO₂, and potentially three times as much as determined by pre-feasibility models, for a period of at least 30 years.

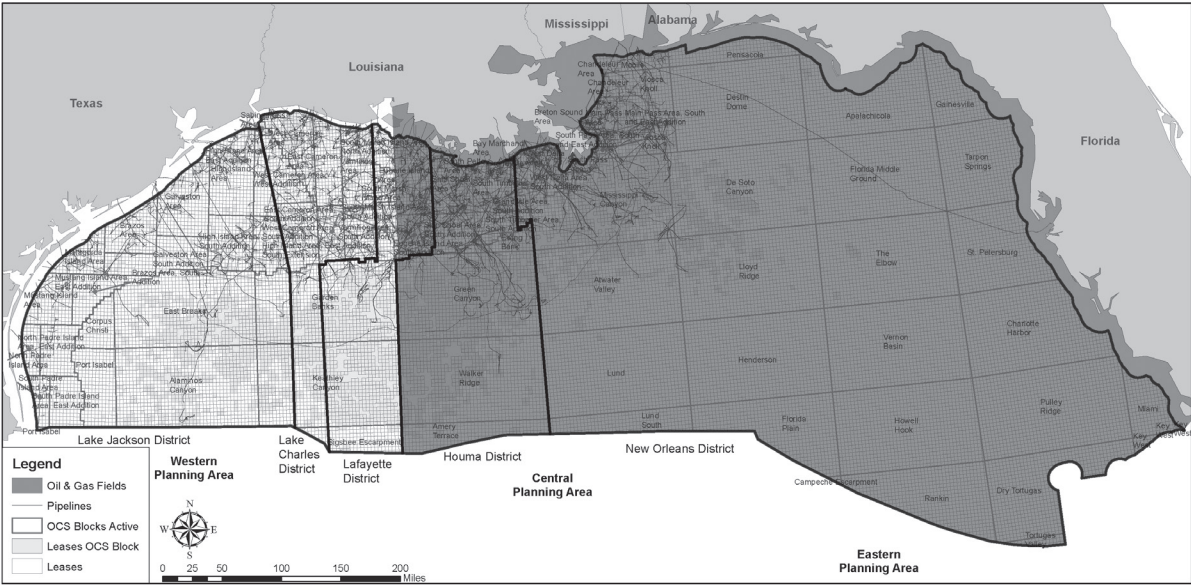
Southeast Regional Carbon Storage Partnership

Offshore Gulf of Mexico

Energy production from enhanced oil recovery will continue in the foreseeable future. An environmentally sustainable approach will be required to ensure the availability of the additional large volumes of CO₂ that need to be injected into both oil and gas reservoirs and saline formations to ensure energy security. Therefore, a carbon management approach capable of lowering industrial emissions in a manner that is both economical and publicly acceptable in the long-term is desirable. Associated carbon storage at commercial scale as part of EOR operation or in a saline reservoir shows promise to help meet these goals.

There is a need to facilitate offshore geologic storage of CO₂ in the Gulf of Mexico (GOM) by creating government-industry partnership(s) that are focused on assembling the knowledge base required for secure, long-term, large-scale CO₂ storage, with or without enhanced hydrocarbon recovery. The primary goal of the project is to expand membership of the Southern States Energy Board's (SSEB) existing Gulf of Mexico government-industry partnership to focus on assembling the knowledge base required for secure, long-term, large-scale carbon dioxide (CO₂) subsea storage, with or without enhanced hydrocarbon recovery.

SSEB is leading the partnership of universities and technical experts. The following organizations will contribute to the project, Advanced Resources International, Battelle Memorial Institute, Hill Inc, Geologic Survey of Alabama, Louisiana State University, Oklahoma State University, University of South Carolina, Virginia Polytechnic Institute and State University, The Energy Institute of Alabama, Interstate Oil and Gas Compact Commission, and Mississippi Energy Institute, and SAS.



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Clean Coal Energy Policies and Technologies

Committee

The Southern States Energy Board's Committee on Clean Coal Energy Policies and Technologies has been an active part of the Board's public/private partnership network since 1984 and continued to pursue the issues facing coal use and the coal industry in 2018. In partnership with the Virginia Coal and Energy Alliance, the two organizations held their 39th Joint Annual Meeting in Kingsport, Tennessee, on May 21-22. SSEB's Federal Representative, Eddie Joe Williams, welcomed the group and urged the Administration and Congress to act decisively to develop "A New Vision for Coal" that includes a commitment to examine innovative and efficient technologies that keep coal in our base load energy mix across America.

Congressmen Phil Roe of Tennessee and Morgan Griffith of Virginia keynoted the meeting and pledged their support for research and development funding that will enable coal to compete with other fuels in the market. Assistant Secretary of Fossil Energy Steve Winberg and David Zatezalo, Assistant Secretary of Labor, added their expertise to discussions of the energy sector and the need for a balanced generation portfolio to support a reliable electric grid. The combination of environmental regulations, low cost shale gas, renewable portfolio standards, and federal and state renewable subsidies have combined to displace an aging fossil and nuclear fleet that has powered America for decades. Federal policies and incentives are needed to address the technical, regulatory and financial barriers to new technology deployment.

A highlight of the meeting was the Committee's discussion of the need for transparency in electricity markets. SSEB provided an overview of the importance of transparency to ensure rational function for electricity markets. Recent case studies were highlighted documenting how some resources impart energy resilience to the grid while others convey a resilience penalty. SSEB's presentation emphasized the importance of coal to the stability of the grid during the "bomb cyclone" of January 2018.

During a roundtable of Committee priorities for coal, members determined that a focus of Board resolutions during the Annual Meeting should be on Electric Grid Resilience, Coal Combustion Residuals, Support for Innovative and Transformational Technologies, Transparency in Energy Markets, and the elimination of Section 111 (b) of the Clean Air Act. Coal Committee members remain active during the year in support of policies and practices that further research and development and methodologies to enhance the use of coal.



Transuranic Waste Transportation

Working Group

The safe transport of Cold War era contaminants remains the primary focus of SSEB's Transuranic Waste Transportation (TRU) Working Group. For nearly 30 years, this group of radiological health professionals and emergency response personnel have worked with DOE's Carlsbad Field Office to develop policies and procedures towards the disposition of transuranic waste from the Oak Ridge National Laboratory and the Savannah River Site to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, New Mexico. The Board has aided in this endeavor by working with the WIPP corridor states to develop work plans and budgets for specific emergency response programs to support the national campaign and respond to any potential incident involving a shipment. Over the past decade, SSEB has negotiated on behalf of the states to acquire annual funding in excess of \$1 million dollars for training, equipment, emergency response preparedness activities, public outreach programs, shipment tracking, and other resources necessary to maintain the mission of the WIPP project.

Earlier this year, the state of Mississippi held a Waste Isolation Pilot Plant Exercise or WIPPTREX in Pearl, Mississippi. The WIPPTREX allowed first responders in the state along the I-20 corridor to validate their knowledge and skills for remediating an accident involving a TRU Waste shipment. The three-day event scenario included the WIPP transport being involved in an accident with a passenger vehicle and a cargo van carrying an unapproved radiological source. Over the duration of the exercise, several emergency responders, including a volunteer fire department, were allowed to demonstrate their proficiency with the principles of the WIPP emergency response training. In addition to the primary WIPPTREX, a Commercial Vehicle Safety Alliance (CVSA) Level VI inspector dry run was held the day



prior for officers of the Mississippi Department of Public Safety and Department of Transportation. The CVSA Level VI is a rigorous inspection standard designed for the safeguard of shipments transporting specific radioactive materials.

Lastly, with the assistance of Mississippi Governor and SSEB Chairman Phil Bryant the Board was successful in the process of formalizing a Memorandum of Agreement with DOE regarding the Southern States Energy Board's Transportation Planning Guide for the U.S. Department of Energy's Shipment of Transuranic Waste. The Planning Guide contains the principles the DOE Carlsbad Field Office and SSEB region have agreed upon for conducting WIPP shipments.

Southern Emergency Response Council

(SERC)

The Southern Emergency Response Council 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 outlines how the protocols would be implemented in the case 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. Since the beginning of the year, several states have incorporated SSEB into their Federal Emergency Management Agency evaluated drills and have made contact to request personnel, equipment, vehicles, and subject matter expertise from their border states.

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 13, 2018, in Montgomery, Alabama, to ratify the current edition of SMRAP.



Radioactive Materials Transportation

Committee

As of July 2018, SSEB completed the sixth year of a cooperative agreement with the Department of Energy's Office of Integrated Waste Management (IWM) to assist with the development of a strategy to safely transport and dispose of the country's commercial inventory of used nuclear fuel and high-level radioactive waste. Through its Radioactive Materials Transportation Committee, the Board collaborates with DOE to address policy issues, shipment planning and preparedness, and communications protocols. The Committee of gubernatorially appointed professionals, representing various disciplines, meets biannually to develop regional directives and receive program updates from IWM and other federal agencies associated with the national program.

In March of 2018, SSEB staff attended the Nuclear Waste Technical Review Board's Spring Meeting in Washington, D.C. The meeting provided an international perspective as several experts representing foreign countries discussed matters associated with the monitoring and retrievability of emplaced high-level radioactive waste and spent nuclear fuel. The following month, SSEB staff was accompanied by a Radioactive Materials Transportation Committee representative from Tennessee to participate in Isotopes Crossroads: Memphis. The activity was a no-fault discussion based Radiological Transportation Security Table Top Exercise. The event promoted information sharing, joint situational awareness, team building, and problem resolution in a crisis response incident involving radiological materials in commercial transit. The scenario required key interaction and communication between personnel from multiple levels of government responding to a security incident involving radiological materials in transit. Because the exercise was based in Memphis and applied specific attributes (routes, transportation companies, and response procedures), it provided a unique opportunity to examine how existing training, equipment, and resources were used in the emergency response.



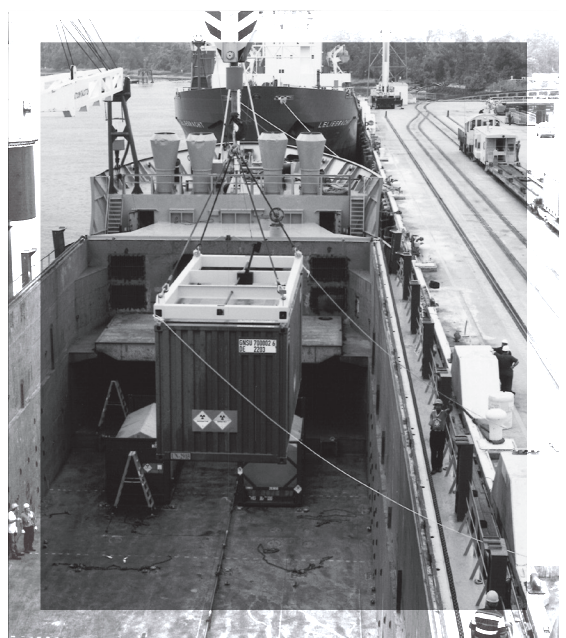
Foreign Research Reactor Spent Nuclear Fuel

Transportation Working Group

The Southern States Energy Board and the National Nuclear Security Administration (NNSA) continue to maintain their efforts to promote the nation's non-proliferation policy. In conjunction with the Office of Material Management and Minimization (M3), SSEB has assisted in the domestic planning logistics associated with the removal and/or disposal of United States-origin, highly-enriched uranium (HEU) and low-enriched uranium from foreign countries. The history of this program spans from the early 1990's when the Department of Energy enlisted the efforts of the Board for an urgent relief shipment of these materials entering the United States via a military port in North Carolina en route to the Savannah River Site (SRS). SSEB responded by creating an ad hoc committee (Foreign Research Reactor Spent Nuclear Fuel Transportation Working Group) composed of professionals representing various disciplines to oversee the coordination, transportation and emergency response planning efforts associated with the return of these materials. As the program evolved, the Naval Support Activity Charleston would be designated as the east coast port of entry thus linking SSEB's involvement until the conclusion of the shipping campaign.

The Working Group hosts a conference call for the planning of each shipment destined for SRS. To date 67 shipments, the majority (55) of which have entered the United States via the southern region (Naval Support Activity Charleston),

have been completed from 33 countries. In addition, 10 cross-county shipments have been conducted to move fuel from Charleston to the Idaho National Laboratory (INL). Meanwhile, the U.S. Nuclear Materials Removal Program involving the repatriation of HEU from the Chalk River facility in Ontario has continued to progress without incident. These shipments consisting of fuel assemblies from the National Research Experimental Reactor and liquid target residue material began in 2015 and are scheduled for completion in 2020. The majority of M3's domestic movements traverse many southern corridor states en route to their eventual disposition at SRS or INL. Therefore, SSEB will continue working with the department and its member states along the shipping routes to ensure these campaigns are carried out in a safe and efficient manner.



Energy and Environment Legislative Digest

Published September 1, 2018

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. During the 2018 legislative sessions, our members passed more than 250 energy and environmental bills.

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.

This year, Kentucky and West Virginia both approved resolutions urging federal policymakers to support identified legislation and other bills, resolutions, or policies advancing the development of an Appalachian Storage Hub. Southern States Energy Board passed a resolution at last year's annual meeting calling for prioritizing construction of the Appalachian Storage Hub.

Louisiana passed a law amending the definition of "critical infrastructure" to include oil and gas facilities. The measure criminalizes damage to a

critical infrastructure and provides for penalties. This bill is similar to other critical infrastructure protection laws being passed around the country, including in Iowa, Idaho, and Oklahoma.

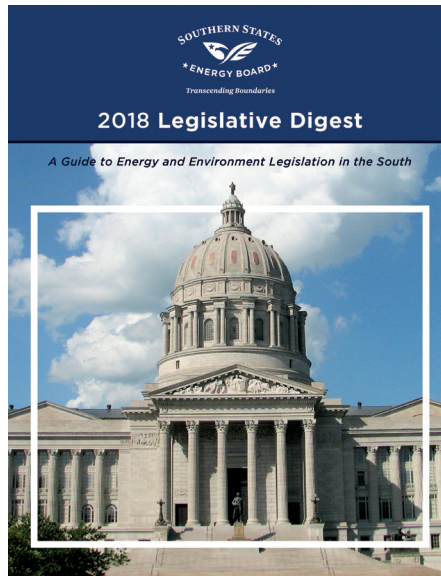
As we have seen in recent years, oil and natural gas infrastructure and development bills are popular within our member states. West Virginia, for example, provided an exception to waste and

trespass for certain oil and natural gas use and development to encourage the efficient economic development of oil and natural gas resources.

The Puerto Rico legislature passed an historic bill that creates the "Puerto Rico Electric System Transformation Act." The bill declares that any partnership agreement

or sale agreement will be subject to the energy public policy and regulatory framework. For these purposes, a working group will be created, which will be responsible for preparing and recommending for the corresponding approvals the energy public policy and regulatory framework.

Download a digital copy of the complete digest by visiting our website at www.sseb.org/reference.



A graphic featuring a white rectangular area with a thick orange border. At the top center of the border is a logo consisting of a stylized green leaf and a blue star. In the center of the white area, the word **PARTNERSHIPS** is written in bold, black, sans-serif capital letters.

Our Partners

Ongoing Collaborative Efforts

The Southern States Energy Board has many collaborative efforts underway and through these robust partnerships with government, business, industry, and academia, SSEB states and territories benefit 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 1981 by Kentucky Governor John Y. Brown during his chairmanship. 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 and regulations on the region's economy.

SSEB participates on the U.S. Technical Advisory Group of the International Organization for Standardization (ISO) Technical Committee 265 for the development of guidance and standards for carbon capture, transportation, and geological storage. Knowledge gained from SSEB's carbon management programs is being transferred through the ISO process to ensure that standards are both technically sound and that the South's position is represented. SSEB also is a founding member of the Global CCS Institute, an international organization focused on accelerating the deployment of CCS as an imperative technology.

Through a 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 has recognized SSEB's two SECARB Partnership projects as international programs of excellence.

SSEB also works closely with the Government of Canada. This consular presence promotes business development, investment, tourism, culture, and information exchange between Canada and SSEB states and territories. The Board's partnership with Consuls General offices throughout the South has resulted in economic, educational, and scientific opportunities for our member states.

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 Eastern Interconnection States Planning Council, the Southern Legislative Conference of the Council of State Governments, the Southeastern Association of Regulatory Utility Commissioners, the Virginia Coal and Energy Alliance, the Carbon Utilization Research Council, and the Southeast Energy Efficiency Alliance. SSEB strives to foster ongoing relationships with other regional and state organizations with similar goals.

SSEB's Radioactive Materials Transportation Committees have worked in conjunction with their counterpart committees of the other "state and tribal regional groups" including the Council of State Governments (Northeastern and Midwestern Offices), Western Interstate Energy Board, National Conference of State Legislatures, and Western Governors' Association. This collaboration has resulted in the development of national policy and initiatives between the states, tribes, and Department of Energy for consultation and cooperation regarding issues associated with the safe transport of radioactive materials.

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

Meetings and More

Southern States Energy Board prioritizes outreach and education through a variety of venues including keynote presentations, panel discussions, conferences and workshops, exhibits, and myriad activities meant to engage public officials and other stakeholders. 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:

- EBI Energy and Environmental Summit, States Adapting to Changes in the Energy Game Board | Presenter
- West Virginia Manufacturing Association, Building Energy Infrastructure in the Southern States | Presenter
- Puerto Rico Chamber of Commerce Annual Meeting, Strategizing an Electric Energy Policy and Regulatory Framework in Puerto Rico | Presenter
- CO₂ Carbon Management Workshop, SSEB Perspectives on Carbon Management Policies, Regulatory Issues and Projects | Presenter
- Southeast Environmental Conference, Electricity Issues in the South | Presenter
- American Coal Ash Association, The Future of Electricity: An Overview | Presenter
- Energy Institute of Alabama Energy Day, Future of Energy Industry in the South | Co-sponsor and Moderator
- SSEB Associate Member Meetings | Host
- SSEB Annual Energy Briefing to Southern Legislators | Host and Presenter
- State Energy Offices | Briefing on SSEB Programs and Activities
- SECARB 13th Annual Stakeholder Briefing and Knowledge Sharing Series | Host
- National Nuclear Materials Transportation Stakeholder Forum and Radioactive Materials Transportation Committee Meetings | Host
- Virginia Coal and Energy Alliance, SSEB, and Virginia Center for Coal and Energy Research's 39th Annual Conference and Expo, "The New Vision for Coal" | Co-sponsor and Presenter
- SSEB Committee on Clean Coal Energy Policies and Technologies Meeting | Host
- American Petroleum Institute's Southern Region Meeting, Regional Motor Fuel Waivers Discussion | Presenter
- Research Experience in Carbon Sequestration (RECS) Program | Co-sponsor and CCS Field Site Host
- Government Consulates (Germany, Canada, Britain) | Participant
- National Governors Association, NARUC, Southface, NASEO, Southeastern Association of Regulatory Utility Commissioners, Industrial CCS, State Regional Energy Profiles, Clean Energy Vehicles, Southface Energy Institute, IEEE-PES | Participant

Sources of Support

FY 2017-2018

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 Board's CCS projects and activities. SSEB also receives corporate sponsorships, registration fees, and in-kind contributions to support the expenses associated with the SSEB annual meeting and other events.

State Appropriations

<u>Alabama</u>	\$32,572	<u>North Carolina</u>	\$37,042
<u>Arkansas</u>	\$31,027	<u>Oklahoma</u>	\$32,512
<u>Florida</u>	\$47,212	<u>Puerto Rico</u>	\$25,597
<u>Georgia</u>	\$35,782	<u>South Carolina</u>	\$31,372
<u>Kentucky</u>	\$32,197	<u>Tennessee</u>	\$34,267
<u>Louisiana</u>	\$33,817	<u>Texas</u>	\$55,402
<u>Maryland</u>	\$37,192	<u>U.S. Virgin Islands</u>	\$25,297
<u>Mississippi</u>	\$29,077	<u>Virginia</u>	\$38,362
<u>Missouri</u>	\$36,247	<u>West Virginia</u>	\$28,732

Membership

2017-2018

Executive Committee



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Governor of Mississippi



Chair-Elect

The Honorable Matt Bevin
Governor of Kentucky



Vice Chair

Rep. Randy Davis
Alabama



Treasurer

Rep. Weldon Watson
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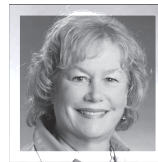
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Mapp Governor of U.S.
Virgin Islands



Member

Rep. William Sandifer
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American Electric Power	American Forest & Paper Association	National Coal Council	South Carolina Public Service Authority/ Santee Cooper
American Fuel & Petrochemical Manufacturers	Cooperative Energy	National Mining Association	Southern Company
American Gas Association	Dominion Energy	National Rural Electric Cooperative Association	Tennessee Valley Authority
American Petroleum Institute	Duke Energy	Nuclear Energy Institute	Troutman Sanders, LLP
BP	Edison Electric Institute	NuScale Power, LLC	Virginia Center for Coal & Energy Research
Carbon Utilization Research Council	Energy Policy Network	PACE	Virginia Coal and Energy Alliance
Charah, Inc.	Exxon Mobil Corporation	Peabody	West Virginia University
	INTUS, Inc.	Phillips 66	
	JET, Inc.		

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Notes

Notes



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